



ABB i-bus® KNX Smart Home and Intelligent Building Control Product Range Overview 2014/2015

Power and productivity
for a better world™



ABB i-bus® KNX Smart Home and Intelligent Building Control Product Range Overview 2014

[ABB i-bus® KNX](#)

A

[Selection Tables](#)

B

MDRC = Modular DIN-rail Component, SM = Surface Mounting, FM = Flush Mounting,
LF = Light Fitting, *PG = Price Group, **MW = Module Width 18 mm, HVAC = Heating/Ventilation/Air-Conditioning

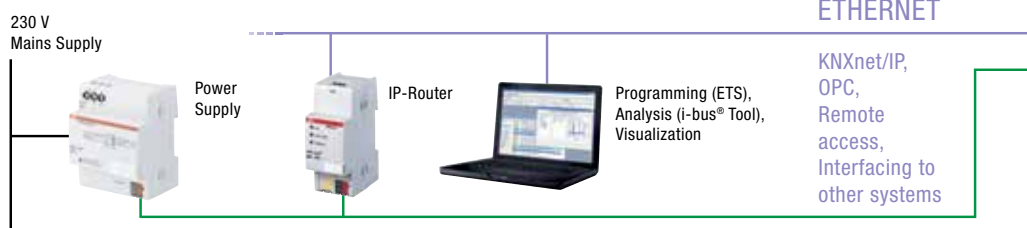
ABB i-bus® KNX

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ABB i-bus® KNX-Overview

A



Measure energy consumption



- Energy Meter with Meter Interface Module
- Energy Module

Switch energy with and without current detection



- Switch Actuator

Switch energy with energy measurement



- Energy Actuator

Switch, dim and control light



- Universal Dim Actuator
- Switch/Dim Actuator 1-10 V
- Light Controller

Digital lighting control by the use of DALI



- DALI Gateway
- DALI Light Controller
- DALI Gateway with Emergency Lighting Control

Drive control of rolling shutters, blinds and ventilation flaps with and without automatic travelling time detection



- Blind/Roller Shutter Actuator
- SMI Blind-/Roller Shutter Actuator

Heating/cooling by the control of valves



- Electronic Switch Actuator
- Valve Drive Actuator
- Electromotor Valve Drive

Ventilation/climatization



- Blower/Fan Coil Actuator
- Fan Coil Actuator and Controller

Actuator functions



Room Controller with functional modules

KNX-Main Line/TP

Line 1 2 3 4 ... 13 14 15

Power Supply



Line Coupler

- 64 devices/line
- 15 lines/area with superordinated main line
- max. 15 areas with superordinated area line

- Binary Input



Detect and evaluate switching commands

- Analogue Input



Capture, evaluate and monitor physical values

- Weather Station and Weather Sensor



Evaluate and monitor meteorological data (wind, temperature, rain, etc.)



Display operating conditions and control functions

- Presence Detector
- Movement Sensor
- Light Sensor



Lighting Control

Detect presence and movement

Measure brightness level

- Logic Module
- Application Unit Logic
- Application Unit Time
- Time Switch



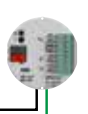
Perform logical operations and trigger timer-controlled functions

- Room Thermostat
- Air Quality Sensor



Capture, evaluate, monitor and control room conditions, temperature, air quality, etc.

- Security Terminal
- Security Module
- KNX Security Panel
- Fault Monitoring Unit
- Monitoring Unit
- Data Logging Unit



Security System

Monitor operating conditions, signal technical faults, recognize hazards and trigger alarms

Room Master devices with different combinations of inputs and outputs and internal logical interconnection



Solutions for rooms with sensor and actuator functions

Sensor functions

ABB i-bus® KNX Power Supplies

A
1



SV/S 30.160.1.1

Power Supply, 160 mA, MDRC

NEW

KNX power supplies generate and monitor the KNX system voltage (SELV). The bus line is decoupled from the power supply by an integrated choke.

The voltage output is short-circuit and overload protected.

The two-color LED indicates device output status. With two-coloured status indicator and wide range input from 85...265 V AC, 50/60 Hz.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	SV/S 30.160.1.1	2CDG110144R0011		1	0.30



SV/S 30.320.1.1

Power Supply, 320 mA, MDRC

NEW

KNX power supplies generate and monitor the KNX system voltage (SELV). The bus line is decoupled from the power supply by an integrated choke.

The voltage output is short-circuit and overload protected.

The two-color LED indicates device output status.

With two-coloured status indicator and wide range input from 85...265 V AC, 50/60 Hz.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	SV/S 30.320.1.1	2CDG110166R0011		1	0.30



SV/S 30.640.3.1

Power Supply, 640 mA, MDRC

NEW

KNX power supplies generate and monitor the KNX system voltage (SELV). The bus line is decoupled from the power supply by an integrated choke.

The voltage output is short-circuit and overload protected.

The two-color LED indicates device output status.

Device type SV/S 30.640.3.1 has an additional 30 V DC short-circuit and overload protected voltage output that can be used to power an additional bus line (in combination with a separate choke).

With two-coloured status indicator and wide range input from 85...265 V AC, 50/60 Hz.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	SV/S 30.640.3.1	2CDG110167R0011		1	0.30

ABB i-bus® KNX Power Supplies



SV/S 30.320.2.1

Power Supply with diagnostics, 320 mA, MDRC

NEW

Compact Power Supply with integrated choke. Quick diagnostics by LED display and ETS communication objects. Analysis of the operating state and the bus line possible by means of ABB i-bus tool.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	SV/S 30.320.2.1	2CDG110145R0011		1	0.26



SV/S 30.640.5.1

Power Supply with diagnostics, 640 mA, MDRC

NEW

Compact Power Supply with integrated choke. Quick diagnostics by LED display and ETS communication objects. Analysis of the operating state and the bus line possible by means of ABB i-bus tool. Additional voltage output to supply an additional line in conjunction with an additional choke.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	SV/S 30.640.5.1	2CDG110146R0011		1	0.26



SU/S 30.640.1

Uninterruptible Power Supply, 640 mA, MDRC

Power supply with integrated choke for supplying a bus line from an uninterrupted supply. Quick diagnostics via LED display for operational readiness, fault and battery level as well as a floating contact for a fault signal indication. The accumulator module or up to 2 rechargeable batteries can be charged in normal operation by the voltage supply. The bus voltage is provided by the batteries in the event of a mains failure.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	8	SU/S 30.640.1	GHQ6310049R0111		1	0.55



AM/S 12.1

Battery Module, 12 V DC, MDRC

With lead-gel battery for use in uninterruptible power supply SU/S 30.640.1 and for maintaining the bus voltage during a mains failure for 10 minutes (at full load). Connection is made via 4-core standard cable.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	8	AM/S 12.1	GHQ6310062R0111		1	0.81

ABB i-bus® KNX Power Supplies

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1



KS/K 4.1



KS/K 2.1

Cable Sets

For connection of sealed lead gel batteries SAK7, SAK12 and SAK17 to the uninterruptible KNX power supply SU/S 30.640.1 or the uninterruptible power supply NTU/S 12.2000.1. If only one battery is connected, the basic cable set KS/K 4.1 with integrated temperature sensor is to be used. In case two batteries are connected in parallel, the basic cable set KS/K 4.1 is to be used for the first battery and the extension cable set KS/K 2.1 is to be used for the second battery. It is not permitted to connect more than two batteries in parallel.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Basic	–	KS/K 4.1	GHQ6301910R0001		1	0.18
Extension	–	KS/K 2.1	GHQ6301910R0011		1	0.12



SAK17, SAK12, SAK7

Sealed Lead Acid Batteries, 12 V DC

For maintaining the bus voltage during a mains failure. For connection to the uninterruptible power supply SU/S 30.640.1 or the uninterruptible power supply NTU/S 12.2000.1. A maximum of two batteries of the same type can be connected in parallel. For connection, the cable sets KS/K 4.1 and KS/K 2.1 are to be used.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
7.2 Ah	–	SAK7	GHV9240001V0011		1	2.98
12 Ah	–	SAK12	GHV9240001V0012		1	4.66
18 Ah	–	SAK17	GHV9240001V0013		1	7.15



DR/S 4.1

Choke, MDRC

The device can be used together with the SV/S 30.640.5 to supply a second line. Integrated reset button for resetting the bus devices. Connection via connection terminals.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	DR/S 4.1	2CDG110029R0011		1	0.16



NTI/Z 28.30.1

Commissioning Power Supply, 28 V DC, 30 mA

For temporary power supply of KNX devices during commissioning. The Euroconnector and plug-in terminal provide faster connection and supply of devices with manual operation (e.g. FCA/S).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	NTI/Z 28.30.1	2CDG110096R0011		1	0.14

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NT/S 12.1600

Power Supply Units, MDRC

The supply units that can be used universally as the auxiliary power supply in KNX installations or other SELV applications. The devices supply a regulated output voltage of 12 V DC or 24 V DC with a maximum output current of 1.6 A or 0.8 A. The units are protected against overload, the output being able to sustain a continuous short circuit. LED indication of the status of the supply and output voltage.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
12 V DC, 1.6 A	4	NT/S 12.1600	GHQ6050056R0002		1	0.26
24 V DC, 0.8 A	4	NT/S 24.800	GHQ6050057R0002		1	0.26



NTU/S 12.2000.1

Uninterruptible Power Supply, 640 mA, MDRC

Power supply with integrated choke for supplying a bus line from an uninterrupted supply. Quick diagnostics via LED display for operational readiness, fault and battery level as well as a floating contact for a fault signal indication. The accumulator module or up to 2 rechargeable batteries can be charged in normal operation by the voltage supply. The bus voltage is provided by the batteries in the event of a mains failure.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
12 V DC, 2 A	8	NTU/S 12.2000.1	2CDG110070R0011		1	0.43

ABB i-bus® KNX

System Components and Interfaces

A
2



LK/S 4.2

Line Coupler, MDRC

The line coupler is used in larger installations to connect KNX lines or areas. The lines or areas are galvanically isolated from one another. Telegrams can be filtered to simultaneously reduce the telegram traffic between lines or areas. With ETS 4 (V4.1.2 and higher) the complete group address range of the main groups 0...31 can be filtered. Within a line, the LK/S 4.2 can also be used as a line amplifier (repeater).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	LK/S 4.2	2CDG110171R0011		1	0.1



IPR/S 2.1

IP Router, MDRC

The IP Router is the interface between the KNX installations and the IP networks. It can be used as a quick line or area coupler or utilise the local network (LAN) for quick exchange of telegrams between the lines/areas. With ETS 3.0, KNX devices can be programmed via LAN. The device uses the KNXnet/IP protocol of the KNX Association (Routing and Tunnelling). The IP address can be fixed or received from a DHCP server.

The device requires a 10 to 30 V DC power supply.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	IPR/S 2.1	2CDG110061R0011		1	0.11



IPS/S 2.1

IP Interface, MDRC

Interface between the KNX installations and IP networks for programming KNX devices in conjunction with ETS 3.0 or for transferring telegrams to/from the LAN (e.g. for visualisation). The device uses the EIBnet/IP protocol of the KNX Association (Tunnelling). The IP address can be fixed or received from a DHCP server.

The device requires a 10 to 30 V DC power supply.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	IPS/S 2.1	2CDG110098R0011		1	0.11



ISM/S 5.1

IP Switch, Master, MDRC

IP Switch Master for MDRC installation. For networking of up to 5 end devices. Can be extended to 10 end devices by side connection of the IP Switch Slave (ISS/S). One of the ports is a Gigabit Ethernet enabled and can serve as an uplink port.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	6	ISM/S 5.1	2CDG120034R0011		1	0.35

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System Components and Interfaces



ISS/S 5.1

IP Switch, Slave, MDRC

IP Switch Slave for MDRC installation. For networking of up to 5 end devices.

Can be side connected to the IP Switch Master (ISM/S), accordingly can be extended to 10 end devices. The slave is only functional together with the master.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	6	ISS/S 5.1	2CDG120035R0011		1	0.23



8186/03-500

Patch Panel PoE 3gang, MDRC

For the setup of small and medium-sized network installations. For the power supply of up to 3 terminal devices such as IP telephone or IP webcams direct via the network cable. For all PoE applications of class 0 to 3, such as IP telephone, IP cameras, WLAN access points or PoE switches. External power supply via 8186/04 necessary.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	8186/03-500	8100-0-0344		1	



8186/04-500

Power supply PoE 48 V, DRA

For the setup of small and medium-sized network installations. For the power supply of patch panel PoE 3gang 8186/03. Nominal voltage: 100 – 240 V.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	8186/04-500	8100-0-0346		1	



IPM/S 1.1

IP Patch Module, MDRC

The IP Patch Module consists of an RJ-45 module and a mounting adapter for rail mounting.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	1	IPM/S 1.1	2CDG120036R0011		1	0.1

ABB i-bus® KNX

System Components and Interfaces

A
2



USB/S 1.1

USB Interface, MDRC

For connection of a PC via the USB port for programming and diagnostics from ETS3. Display of connection and data transfer via LED.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	USB/S 1.1	2CDG110008R0011		1	0.12



LL/S 1.1

Optical Fibre Interface, MDRC

The device is used to couple two sections of an bus line using an optical fibre link. Ideal for bridging longer distances or to avoid having to implement lightning and overvoltage protection when laying cables between buildings. Two devices are needed to complete a transmission link.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	LL/S 1.1	GHQ6050053R0001		1	0.28



EG/A 32.2.1

KNX/EnOcean Gateway, SM

NEW

To connect and integrate EnOcean devices into KNX networks with bidirectional data exchange. The KNX/EnOcean Gateway sends its data within the 868.3 MHz frequency band which is only approved for EnOcean in the European Union incl. Switzerland, Turkey & Norway. Please ensure that the product is suitable for application in the intended country of final installation and use before purchase. Dimensions: (L x W x H) 100 x 70 x 28.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	EG/A 32.2.1	2CDG120047R0011		1	0.1



6770-500

KNX TP/Rf WaveLine Gateway, SM

Media converter with internal antenna for conversion of KNX RF WaveLine radio signals to KNX twisted pair networks with 24 channels. For the evaluation and transfer of up to 24 channels each with 4 sub-channels as transmitter or receiver. Simple operation due to “programming button” and display on the device. Is surface-mounted. The KNX/WaveLine Gateway is powered via KNX and does not require an additional power supply.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6770-500	6770-0-0002		1	

WaveLINE components are available in chapter WaveLINE wireless control.

ABB i-bus® KNX

Connection and Wiring



DSM/S 1.1

Diagnosis and Protection Module, MDRC

Enables quick diagnosis of the bus state and indicates telegram traffic via an LED. A bus fault is indicated by contacts. The DSM also suppresses transient overvoltages and interference voltage spikes on the bus and thus protects the connected devices.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	DSM/S 1.1	2CDG110060R0011		1	0.11



VB/K ...

Wiring Jumpers

For the interconnection of devices with a bus connection terminal. The vertical and horizontal versions are matched to typical wiring applications.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
horizontal, 100 mm	2	VB/K 100.1	GHQ6301908R0003		10	0.05
horizontal, 200 mm	4	VB/K 200.1	GHQ6301908R0001		10	0.06
vertical, 270 mm	–	VB/K 270.1	GHQ6301908R0002		10	0.09
vertical, 360 mm	–	VB/K 360.1	GHQ6301908R0004		10	0.12



PS 1/4/6-KNX



PS-END 1-S

Busbars

For interconnection of the phase supply to multiple input terminals on devices such as SD/S, SA/S, 6197, They reduce the wiring effort and ensure safe interconnection. The PS 1/4/6 is prefabricated and can be used immediately. The PS 1/60/6 is cut to the desired length and sealed with end caps.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1 phase, 4 contacts	–	PS 1/4/6-KNX	2CDG924003R0011		10	0.012
1 phase, 60 contacts	–	PS 1/60/6-KNX	2CDG924004R0011		1	0.11
End cap	–	PS-END 1-S	2CDL000001R0001		25	0.001



US/E 1

Connection Terminals

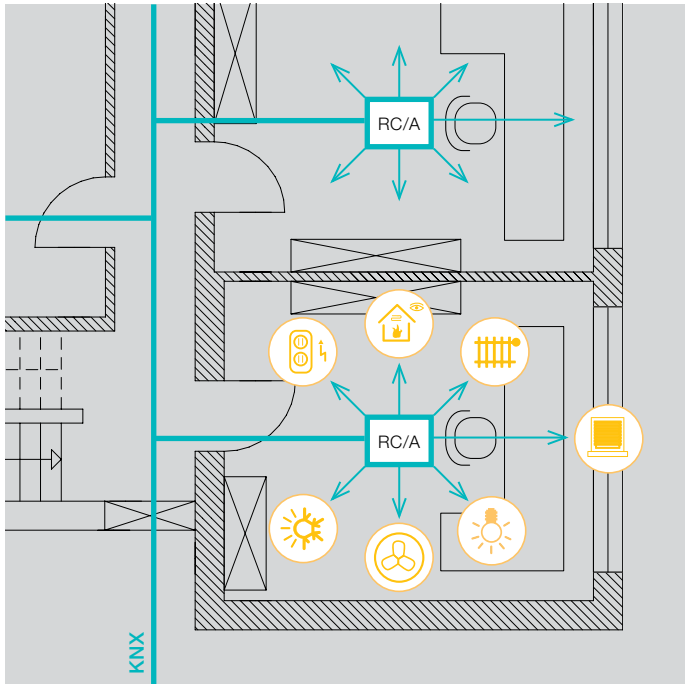
For connecting bus devices as well as for looping through or branching the bus cable. Available in black/red for use as bus connecting terminal, in blue as bus connecting terminal with surge protector and in white/yellow for use as a connecting terminal.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
black/red	–	BUSKLEMME	GHQ6301901R0001		50	0.1
white/yellow	–	KLEMME	GHQ6301902R0001		50	0.1
with surge protector	–	US/E 1	GHQ6310009R0001		1	0.02

ABB i-bus® KNX

Room Automation – Easy Planning through Flexibility

A
4



The fundamental principle: One device per room

A single Room Controller controls all the room functions. This “one device per room” principle economically and flexibly provides KNX functionality: With 4 or 8 modules, which are simply inserted into the basis device, all loads in this room (lights, blinds, heating, etc.) can be controlled.

Economic security from the outset

The installation concept of the Room Controller, particularly the simple plug-in module concept, provides security and reliability.

– When planning the infrastructure of a building:

It can be undertaken without exact knowledge of the subsequent user demands.

– During commissioning:

When user demands have been determined, they are implemented by simple insertion of modules.

– In operation in a building:

Modifications to the room utilisation are easy to implement. The changes to the cable routing are limited to the room concerned.

Improved fire protection included

The significant reduction in the wiring also considerably reduces the fire load and thus improves safety for persons and assets.

Save on energy and not on comfort

Each room is used differently. The different module assignments of the Room Controller can be configured accordingly. Just three examples of special building functions that can be implemented with the device.

In the lighting sector

Constant lighting control is not the only conceivable solution. A high level of comfort can be assured by the control of different light scenes.

Blinds and roller shutters

Not only do they provide pleasant shading, they also assist in responsible use of energy. Intelligent facade controls move the blinds to suit the position of the sun.

Heating/Ventilation/Air conditioning

The control of electrothermal valves on radiators is no problem for the “electronic switch actuator” module of the Room Controller. The ventilation can also be integrated into this automatic control.



ABB i-bus® KNX Room Automation

Overview of switching performance

	SA/M 2.6.1	SA/M 2.16.1	SD/M 2.6.2	LR/M 1.6.2	UD/M 1.300.1	ES/M 2.230.1	ES/M 2.24.1
Outputs							
Load circuits	2 relay outputs	2 relay outputs, floating	2 relay outputs	1 relay output	Semiconductor output, dimmed via phase interval or phase control	2 semiconductor outputs for resistive loads, inrush current: max. 1 A, continuous current: max. 700 mA	
U _n rated voltage	250/440 V AC	250/440 V AC	250/440 V AC	250/440 V AC			
I _n rated current	6 AX	16 A	6 AX	6 AX			
Control outputs			2 x 1...10 V DC (passive)	1 x 1...10 V DC (passive)			
Max. control current			30 mA	30 mA	Max. output power 300 VA at 230 V AC 150 VA at 127 V AC Min. output power: 2 VA		
Max. cable length			100 m	100 m			
Switching current per output							
AC3 operation (cos φ = 0.45) EN 60 947-4-1	6 A / 230 V	8 A / 230 V	6 A / 230 V	6 A / 230 V			
AC1 operation (cos φ = 0.45) EN 60 947-4-1	6 A / 230 V	16 A / 230 V	6 A / 230 V	6 A / 230 V			
Fluorescent lighting load AX to EN 60 669	6 A / 250 V (70 µF)	16 A / 250 V (70 µF)	6 A / 250 V (70 µF)	6 A / 250 V (70 µF)			
Minimum switching capacity	100 mA / 12 V 100 mA / 24 V	100 mA / 12 V 100 mA / 24 V	100 mA / 12 V 100 mA / 24 V	100 mA / 12 V 100 mA / 24 V			
DC current switching capacity (resistive load)	6 A / 24 V=	16 A / 24 V=	6 A / 24 V=	6 A / 24 V=			
Lamp loads at 230 V AC							
– Incandescent lamp load	1380 W	2300 W	1380 W	1380 W			
Fluorescent lamps T5 / T8							
– Uncompensated	1380 W	2300 W	1380 W	1380 W			
– Parallel compensated	1380 W	1500 W	1380 W	1380 W			
– DUO connection	1380 W	1500 W	1380 W	1380 W			
Low-volt halogen lamps							
– Inductive transformer	1200 W	1200 W	1200 W	1200 W			
– Electronic transformer	1380 W	1500 W	1380 W	1380 W			
– Halogen lamp 230 V	1380 W	2300 W	1380 W	1380 W			
Dulux lamp							
– Uncompensated	1100 W	1100 W	1100 W	1100 W			
– Parallel compensated	1100 W	1100 W	1100 W	1100 W			
Mercury-vapour lamp							
– Uncompensated	1380 W	2000 W	1380 W	1380 W			
– Parallel compensated	1380 W	2000 W	1380 W	1380 W			
Switching capacity							
– Max. peak inrush-current I _p (150 µs)	400 A	400 A	400 A	400 A			
– Max. peak inrush-current I _p (250 µs)	320 A	320 A	320 A	320 A			
– Max. peak inrush-current I _p (600 µs)	200 A	200 A	200 A	200 A			
Number of electronic ballasts (T5/T8, single element)							
– 18 W (ABB EVG 1x18 CF)	23	23	23	23			
– 24 W (ABB EVG-T5 1x24 CY)	23	23	23	23			
– 36 W (ABB EVG 1x36 CF)	14	14	14	14			
– 58 W (ABB EVG 1x58 CF)	11	11	11	11			
– 80 W (Helvar EL 1x80 SC)	10	10	10	10			

Further technical specifications can be found in the corresponding product manuals at www.abb.com/knx

ABB i-bus® KNX

Room Automation – Room Controller Basis Devices

A
4



Configuration example
RC/A 8.1

Room Controller

The Room Controller controls all the functions in the room as a central device. Due to its modular design, it can be adapted flexibly to the required functionality. On-site installation enables short assembly and commissioning times. A structured cable entry creates clarity and flexibility for changes in function – both during planning and operation.

Special features

- Height 50 mm: optimised for underfloor installation or suspended ceilings
- Room Controller counts as just one bus device
- Robust housing, IP 54 degree of protection
- Manual operation for immediate testing – even without bus voltage
- Comprehensive software functionality



RC/A 4.2

Room Controller, Basis Device for 4 Modules, SM

It accommodates up to 4 plug-in modules and controls their functions. The RC/A 4.2 communicates as a bus device. Any module type can be plugged into each module slot. A manual control for module function test is integrated. Dimensions: (H x W x D) 200 x 275 x 50.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	RC/A 4.2	2CDG110104R0011		1	0.98



RC/A 8.2

Room Controller, Basis Device for 8 Modules, SM

It accommodates up to 8 plug-in modules and controls their functions. Any module type can be plugged into each module slot. The inserted module is automatically detected. The manual operation facility enables an immediate function test even when bus voltage is not applied. Dimensions: (H x W x D) 270 x 316 x 50.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	RC/A 8.2	2CDG110106R0011		1	1.695

Please note: With the new DALI Light Controller 4-fold, SM DLR/A 4.8.1.1 the DALI Lighting Control can be integrated in a decentralised KNX installation too! Further information about DLR/A 4.8.1.1 in chapter 8.

ABB i-bus® KNX

Room Automation – Room Controller Function Modules



BE/M 4.230.1

Binary Input Modules, 4-fold

Each of the modules provides 4 inputs. There are 3 module types available for the connection of 115/230 V, 12/24 V (AC or DC) or floating contacts to cover all demands.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
230 V	–	BE/M 4.230.1	2CDG110005R0011		1	0.13
12/24 V	–	BE/M 4.24.1	2CDG110006R0011		1	0.13
Contact scanning	–	BE/M 4.12.1	2CDG110007R0011		1	0.13



SA/M 2.6.1

Switch Actuator Module, 2-fold, 6 A

For switching loads up to 16 A at a maximum continuous current of 6 A.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SA/M 2.6.1	2CDG110002R0011		1	0.17



SA/M 2.16.1

Switch Actuator Module, 2-fold, 16 A, floating contacts

For switching two loads up to 16 A. The switched voltage is independent of the basic device and is connected directly to the module.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SA/M 2.16.1	2CDG110100R0011		1	0.16



JA/M 2.230.1

Shutter Actuator Modules, 2-fold

For controlling two independent blind or shutter drives. There are two module types available for 115/230 V AC or 24 V DC drives.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
230 V AC	–	JA/M 2.230.1	2CDG110003R0011		1	0.17
24 V DC	–	JA/M 2.24.1	2CDG110004R0011		1	0.17



SD/M 2.6.2

Switch/Dim Actuator Module, 2-fold, 6 AX

It enables the switching and dimming of two groups of luminaries in conjunction with electronic ballasts via a 1...10 V control voltage. Enhanced switching capacity.
(Replaces the SD/M 2.6.1).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SD/M 2.6.2	2CDG110107R0011		1	0.17

ABB i-bus® KNX

Room Automation – Room Controller Function Modules

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LR/M 1.6.2

Light Controller Module, 1-fold, 6 AX

Enables switching and dimming of a lighting group via 1...10 V control voltage. The device can be used for constant lighting control in conjunction with Light Sensor LF/U 2.1.

(Replaces the LR/M 1.6.1).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	LR/M 1.6.2	2CDG110108R0011		1	0.13



UD/M 1.300.1

Universal Dim Actuator Module, 1-fold, 300 VA

For dimming incandescent lamps, 230 V or low-voltage halogen lamps up to 300 W/VA. The automatic load detection detects the connected load and optimises the control. The minimum load is just 2 W.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	UD/M 1.300.1	2CDG110012R0011		1	0.18



ES/M 2.230.1

Electronic Switch Actuator Module, 2-fold

With 2 overload-proof outputs for noiseless control of heating systems and chilled ceilings via thermoelectric valve drives. Two module types for voltages from 115/230 V or 24 V (AC or DC) are available.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
115/230 V	–	ES/M 2.230.1	2CDG110013R0011		1	0.15
24 V	–	ES/M 2.24.1	2CDG110014R0011		1	0.15

ABB i-bus® KNX

Room Automation – Room Master



RM/S 1.1



RM/S 2.1



RM/S 3.1



RM/S 4.1

Room Master

The Room Master is a KNX device with a combination of inputs and outputs. The quantities, technical data and the functions of these inputs and outputs are compiled, so that overall control of all the functions in rooms of a live-in character or apartments, are implemented via a device. Typical areas of application of the Room Master are hotel rooms, hospital rooms as well as apartments in institutions for residential care or in student residential homes. The Room Master with its compact design covers all the basic requirements for

- Lighting control
- Heating/Air conditioning
- Shading control (shutters, blinds or curtains - with the RM/S 2.1)
- Control of further loads via switched electrical sockets

Function extensions are possible at any time, e.g. devices for dimming via ABB i-bus® KNX.

Overview of the inputs and outputs

	RM/S 1.1	RM/S 2.1	RM/S 3.1	RM/S 4.1	Application possibilities
Binary inputs via contact scanning	8	18	12	8	For connection of switches or push-buttons (light on/off, shutter up/down, etc.) or sensors (window contacts, door contacts, water sensors, condensation water sensors, hotel card readers, etc.)
Outputs 20 A (16 AX)	1	3	4	–	Bathroom fan, switching of electrical sockets
Outputs 16 A (10 AX)	2	1	–	–	Auxiliary electrical heating of fan-coil units (at RM/S 1.1 and 2.1), lighting
Outputs 6 A	3	12	–	8	3-speed fan control (at RM/S 1.1 and 2.1), lighting
Outputs 0.5 A electronic	4	4	–	–	Valve control (heating, cooling)
Outputs 6 A changeover contact	–	1	4 (configurable as switch outputs too)	–	Blind or roller blind control

- RM/S 1.1 and RM/S 2.1 are preprogrammed ex factory
- RM/S 3.1 and RM/S 4.1 are programmable with predefined and tested example projects (ETS 4) for different fields of application (office, schools, hotel rooms, ...)
- Commissioning of the preprogrammed devices on the construction site without notebook and ETS programming. With the electrical connection all room functions are available.
- Optional functional extensions via integration into KNX networks with ETS software.

Further information about Room Master on www.abb.com/knx

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Inputs, Outputs, Fan Coil	8	RM/S 1.1	2CDG110094R0011		1	0.45
Inputs, Outputs, Blind Control, Fan Coil	12	RM/S 2.1	2CDG110095R0011		1	0.76
Inputs, Outputs, Blind Control or Outputs	12	RM/S 3.1 NEW	2CDG110165R0011		1	0.55
Inputs, Outputs	8	RM/S 4.1 NEW	2CDG110170R0011		1	0.3

ABB i-bus® KNX

Room Automation – Flush-mounted Combined Devices

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6173/11 U-500

Flush-mounted combined actuator

For controlling blind or awning motors. For connecting thermoelectric actuating drives. With 3 inputs and 2 outputs. A first output (O1) allows the control of electrically-operated Venetian blinds, roller shutters, awnings, venting louvers or similar blinds for 230 V AC mains voltage. One additional electronic switching output (O2) allows silent control of electrothermal valve drives for heating or cooling systems. The bus can be connected via enclosed terminal block. Rated voltage: 230 V~, +10% / -10%, 50 Hz – 60 Hz. Input polling voltage 5V. O1 Rated current 3 A, cos φ 0.8; Output voltage: 250 V~. O2: Rated current: 25 mA, cos φ 1, Output voltage: 250 V~.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit 1 pc.	Weight 1 pc. kg
	–	6173/11 U-500	6151-0-0249		1	0.07



6151/11 U-500

Switch actuator, 16 A

For switching 230 V~ consumers. Equipped with two extension inputs which depending on parameterization can act directly on the switching output or alternatively as binary inputs on the KNX bus. One Normally open contact, potential free; switching voltage: 230 V AC; 50/60 Hz; max. switching current: 16 A; switching capacity: up to 2.500 W depending on the consumer. Rated voltage: 230 V~, +10% / -10%, 50 Hz – 60 Hz. The bus can be connected via enclosed terminal block.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit 1 pc.	Weight 1 pc. kg
	–	6151/11 U-500	6151-0-0245		1	0.07



6152/11 U-500

Blind actuator

For controlling blind or awning motors. With 3 inputs and 1 change-over output – normally open contact, potential-bound -. Rated voltage: 230 V~, +10% / -10%, 50 Hz – 60 Hz. Input polling voltage: 5 V. Output rated current: 3 A, cos φ 0.8, Output voltage: 250 V~. The bus can be connected via enclosed terminal block.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit 1 pc.	Weight 1 pc. kg
	–	6152/11 U-500	6152-0-0040		1	0.06



6164/11 U-500

Heating actuator

1 electronic output (noiseless) For connecting thermoelectric actuating drives. The device possesses three additional input. Rated voltage: 230 V~, +10% / -10%, 50 Hz – 60 Hz. Input polling voltage 5 V. Output Rated current: 25 mA, cos φ 1. Output voltage: 250 V~. The bus can be connected via enclosed terminal block.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit 1 pc.	Weight 1 pc. kg
	–	6164/11 U-500	6151-0-0247		1	0.05

ABB i-bus® KNX Inputs



Application

Operation of KNX systems via conventional push buttons and switches
Processing of binary signals (signalling contacts)

Benefits

Flexible application due to wide-range inputs
Reduced stock requirement due to streamlined product range
Simplified commissioning using the copy function

Product

BE/S 4.20.2.1 with 4 inputs for contact scanning and manual operation
BE/S 4.230.2.1 with 4 wide-range inputs and manual operation
BE/S 8.20.2.1 with 8 inputs for contact scanning and manual operation
BE/S 8.230.2.1 with 8 wide-range inputs and manual operation

Wide-range inputs and a streamlined range – The new ABB i-bus® KNX Binary Inputs.

ABB i-bus® KNX Binary Inputs serve as an interface for operation of KNX systems via conventional push buttons and switches as well as for processing binary signals (signalling contacts).

In contrast to the existing solutions, where the input voltages of 24 V and 230 V required separate devices, the new Binary Inputs now feature **wide-range inputs**, which can process voltage signals ranging from 10 to 230 V AC/DC. This offers the **installer significantly greater flexibility**.

In addition to two devices with 4 and 8 wide-range inputs, the new ABB i-bus® KNX Binary Input product range is rounded off by two devices with 4 and 8 inputs with scanning voltage. On these types, a pulsed scanning voltage is provided for connection of floating contacts from the device.

With an identical range of applications, the number of ABB i-bus® KNX Binary Inputs is now reduced from 6 types to 4.

All Binary Inputs feature a **high-quality membrane keypad for comfortable manual operation and display of the device functions**. Input states can be simulated at the device, so that the conventional push buttons, switches or floating contacts do not need to be connected for commissioning purposes. The device functions can be easily tested during commissioning in this way.

The Binary Inputs are powered via the KNX and do not require an additional power supply.

The software functionality of the Binary Inputs has also been extended. It is now possible to send **several switching telegrams with just a single push of a button**.

Especially useful, just as in the case of the Switch Actuators, it is also possible **to copy the channels of the device in the ETS**. The parameters and group addresses of a channel can be simply transferred to other channels in this way. This simplifies project engineering and helps reduce sources of error.

ABB i-bus® KNX Inputs

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Binary Inputs Selection Table

	BE/S 4.20.2.1	BE/S 4.230.2.1	BE/S 8.20.2.1	BE/S 8.230.2.1	US/U 2.2	US/U 4.2	US/U 12.2
General							
Voltage range	–	10...230 V	–	10...230 V	–	–	–
Voltage type	–	AC/DC	–	AC/DC	–	–	–
Contact scanning	■	–	■	–	■	■	■
Inputs	4	4	8	8	2	4	12
Type of installation	MDRC	MDRC	MDRC	MDRC	FM	FM	FM
Module width (space unit)	2	2	4	4	–	–	–
Switch sensor							
Send switch value after any edge	■	■	■	■	■	■	■
Send switch value after signal length and/or cyclically	■	■	■	■	■	■	■
Send switch value 1 cyclically	■	■	■	■	■	■	■
Send switch value 2	■	■	■	■			
Send switch value 3	■	■	■	■			
Difference between short and long operation	■	■	■	■	■	■	■
Dim sensor							
Start-stop dimming, step-by-step dimming	■	■	■	■	■	■	■
One-touch dimming	■	■	■	■	■	■	■
Shutter Sensor							
Shutter operation via a push button/switch	■	■	■	■	■	■	■
Shutter operation via two push buttons/switches	■	■	■	■	■	■	■
Value/Forced operation							
1 bit [0/1], 2 bit forced operation	■	■	■	■	■	■	■
1/2/4 bytes	■	■	■	■	■	■	■
Signed	■	■	■	■			
3 byte, time, weekday	■	■	■	■			
Control scene							
8 bit scene	■	■	■	■	■	■	■
Store scene	■	■	■	■	■	■	■
Switching sequence							
Several preset sequences can be set	■	■	■	■	■	■	■
Link several push buttons in a switching sequence (actuating number)	■	■	■	■	■	■	■
Multiple operation							
Telegram for long operation	■	■	■	■	■	■	■
Multiple operation can be set	■	■	■	■	■	■	■
Pulse counter							
Adjustable data type and threshold values	■	■	■	■	■	■	
Temporary counter activation	■	■	■	■	■	■	
Send counter level cyclically	■	■	■	■	■	■	
Manual operation							
Energy-saving mode	■	■	■	■			
Enable/release manual operation	■	■	■	■			
Manual operating status	■	■	■	■			
Enable/release manual operation button per input	■	■	■	■			
Input LED can be inverted	■	■	■	■			
Special functions							
Copying and exchanging parameter settings	■	■	■	■			
Enable/disable input	■	■	■	■	■	■	■
Adjustable debounce time and minimum signal time	■	■	■	■	■	■	■
Limit the number of telegrams	■	■	■	■	■	■	■
Device sends an "In operation" telegram	■	■	■	■			
Heating valve control (electric relay)					■	■	■
Switch LEDs					■	■	■

■ = Function is supported

ABB i-bus® KNX Inputs



BE/S 8.230.2.1

Binary Inputs, 10 – 230 V AC/DC, MDRC

Detects AC/DC signals in the voltage range from 12...230 V. The state of the input is displayed via yellow LEDs. The binary inputs enable detection of independent input signals. The devices feature a manual operation pushbutton for each channel. The devices are powered via the ABB i-bus® and do not require an additional power supply.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
4-fold	2	BE/S 4.230.2.1	2CDG110091R0011		1	0.12
8-fold	4	BE/S 8.230.2.1	2CDG110093R0011		1	0.23



BE/S 4.20.2.1

Binary Inputs, Contact Scanning, MDRC

Scans floating contacts with internally generated scanning voltage. The state of the input is displayed via yellow LEDs. The binary inputs enable detection of independent input signals. The devices feature a manual operation pushbutton for each channel. The devices are powered via the ABB i-bus® and do not require an additional power supply.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
4-fold	2	BE/S 4.20.2.1	2CDG110090R0011		1	0.12
8-fold	4	BE/S 8.20.2.1	2CDG110092R0011		1	0.23



US/U 4.2

Universal Interface, FM

The universal interface has 2, 4 or 12 channels which can be parametrised as inputs or outputs with the ETS software. Conventional push-buttons, auxiliary contacts, LEDs and the electronic relay ER/U can be connected. The connecting cables can be extended up to 10 m. The contact scanning voltage and the supply voltage for the LEDs are made available by the device, the series resistors for the LEDs are integrated.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	–	US/U 2.2	GHQ6310074R0111		1	0.06
4-fold	–	US/U 4.2	GHQ6310070R0111		1	0.06
12-fold	–	US/U 12.2	2CDG110065R0011		1	0.08

ABB i-bus® KNX Inputs

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AE/S 4.1.1.3



AE/A 2.1



AE/S 4.2



WZ/S 1.3.1.2



WES/A 3.1

Analogue Input, 4-fold, MDRC

Analogue Input, 2-fold, SM

NEW

Used wherever analogue variables should be detected. The sophisticated housing concept of the surface mounted device and the new screw terminals of the MDRC device enable quick and clear wiring and improve the speed of connection of the sensors.

Comprehensive range of adjustment for many typical sensors (1 – 10 V, 0(4) – 20 mA, 0 – 1 V, PT 100, PT 1000,...) for detection of temperature, brightness, fill levels, etc.

For active sensors the auxiliary voltage is supplied by AE/S 4.1.1.3; in case of AE/A 2.1 a separate auxiliary voltage supply is required.

Availability January 2015

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit	Weight 1 pc. kg
4-fold, MDRC	4	AE/S 4.1.1.3	2CDG110190R0011		1	
2-fold, SM	–	AE/A 2.1	2CDG110086R0011		1	0.3

Analogue Input, 4-fold, MDRC

To be discontinued

It is used to detect and process 4 independent analogue input signals according to IEC 60381 (0 – 1 V, 0 – 5 V, 0 – 10 V, 1 – 10 V, 0 – 20 mA, 4 – 20 mA, 0 – 1000 Ohm, PT 100 in 2-wire technology and floating contacts). The 24 V DC voltage for the sensors (max. 300 mA) is also supplied by the device. The mains voltage supply is 115 ... 230 V AC, 50/60 Hz.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit	Weight 1 pc. kg
	4	AE/S 4.2	2CDG110030R0011		1	0.23

Weather Unit, MDRC and Weather Sensor, SM

NEW

It is used to detect and process weather data from weather sensor. It supplies data for twilight and brightness levels in 3 directions, rain, temperature, information on day/night, wind speed, date and time. An additional input for the connection of a PT - 1000 sensor is provided.

Four value memories which can store up to 24 values each are available. [The Weather Unit WZ/S 1.3.1.2 can be operated either with the new Weather Sensor WES/A 3.1 or with the former sensor WES/A 2.1.](#) The Weather Unit also provides the supply voltage for the connected sensor. The Weather Unit has to be supplied with a operating voltage of 85 to 265 V AC.

The Weather Unit supports the ABB i-bus Tool for advanced diagnosis and improved commissioning.

The Weather Sensor WES/A 3.1 detects twilight, brightness in three directions, rain, temperature, day/night, wind speed and the date and time using a GPS module. An additional heating transformer is not required. The new Weather Sensor WES/A 3.1 can be connected to the new Weather Unit WZ/S 1.3.1.2 or to the former Weather Unit WZ/S 1.1.

Availability January 2015

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit	Weight 1 pc. kg
Weather Unit	4	WZ/S 1.3.1.2	2CDG110184R0011			0.20
Weather Sensor	–	WES/A 3.1	2CDG120046R0011			0.17

ABB i-bus® KNX

Inputs



WZ/S 1.1

Weather Unit, MDRC and Weather Sensor, SM

To be discontinued

It is used to detect and process weather data from weather sensor. It supplies data for twilight and brightness levels in 3 directions, rain, temperature, information on day/night, wind speed, date and time (DCF radio receiver). Four value memories which can store up to 24 values each are available. The Weather Unit WZ/S 1.1 is has been configured for the Weather Sensor WES/A and supplies it with power. The device can be operated optionally with a operating voltage of 115 to 230 V AC, 50/60 Hz.



WES/A 2.1

The Weather Sensor WES/A 1.1 detects twilight, brightness in three directions, rain, temperature, day/night, wind speed and the date and time using the radio receiver. An additional heating transformer is not required.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	WZ/S 1.1	2CDG110034R0011		1	0.23
	–	WES/A 2.1	2CDG120033R0011		1	0.39



WS/S 4.1.1.2

Weather Station, 4-fold, MDRC

NEW

All common weather sensors for wind speed, wind direction, rain, amount of rain, brightness, light intensity, pyranometers, twilight, air pressure, humidity or temperature can be connected to the device. The power supply generates the 24 V DC voltage for external sensors (max. 300 mA). The device can be operated with 85 to 265 V AC, 50/60 Hz. The application software is configured for the detection of weather based data and enables quick sensor programming. The Weather Station supports the ABB i-bus Tool for advanced diagnosis and improved commissioning.

Availability January 2015

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	WS/S 4.1.1.2	2CDG110191R0011			0.27



WS/S 4.1

Weather Station, 4-fold, MDRC

To be discontinued

All common weather sensors for wind speed, wind direction, rain, amount of rain, brightness, light intensity, pyranometers, twilight, air pressure, humidity or temperature can be connected to the device. The power supply generates the 24 V DC voltage for external sensors (max. 300 mA). The device can be operated with 115 to 230 V AC, 50/60 Hz.

The application software is configured for the detection of weather based data and enables quick sensor programming.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	WS/S 4.1	2CDG110032R0011		1	0.23

ABB i-bus® KNX

Outputs – A Complete Switch Actuator Range

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Switch Actuators are responsible for reliable switching of different electrical loads in the KNX system. Many different load situations are possible. ABB offers a suitable Switch Actuator for all application areas. The range has been rounded off with a new series. Now 16/20 AX C-Load Switch Actuators with and without a current detection feature are available; each featuring 2, 4, 8 or 12 outputs.

In the following table, you will find an overview of the ABB i-bus® Switch Actuators and their type designations:

–	SA/S 2.6.2.1	SA/S 2.10.2.1	SA/S 2.16.2.1	SA/S 2.16.5.1	SA/S 2.16.6.1
SA/S 4.6.1.1	SA/S 4.6.2.1	SA/S 4.10.2.1	SA/S 4.16.2.1	SA/S 4.16.5.1	SA/S 4.16.6.1
SA/S 8.6.1.1	SA/S 8.6.2.1	SA/S 8.10.2.1	SA/S 8.16.2.1	SA/S 8.16.5.1	SA/S 8.16.6.1
SA/S 12.6.1.1	SA/S 12.6.2.1	SA/S 12.10.2.1	SA/S 12.16.2.1	SA/S 12.16.5.1	SA/S 12.16.6.1

Note:

The codes represent the following:

SA/S

= Switch Actuator, DIN Rail mounting

SA/S x.

x = Number of outputs

SA/S 8.y.

y = Rated current in Ampere A

SA/S 8.16.1

1 = Standard without manual operation

SA/S 8.16.2

2 = With manual operation

SA/S 8.16.5

5 = C-Load (200 µF)

SA/S 8.16.6

6 = C-Load with current detection

SA/S 8.16.6.z

z = Version

ABB i-bus® KNX

Outputs – Switching Capacity Overview

The following table provides an overview of the rated values, switching performance, lamp loads or the number of lamps, which can be connected to a contact:

	SA/S 4.6.1.1 SA/S 8.6.1.1 SA/S 12.6.1.1	SA/S 2.6.2.1 SA/S 4.6.2.1 SA/S 8.6.2.1 SA/S 12.6.2.1	SA/S 2.10.2.1 SA/S 4.10.2.1 SA/S 8.10.2.1 SA/S 12.10.2.1	SA/S 2.16.2.1 SA/S 4.16.2.1 SA/S 8.16.2.1 SA/S 12.16.2.1	SA/S 2.16.5.1 SA/S 4.16.5.1 SA/S 8.16.5.1 SA/S 12.16.5.1	SA/S 2.16.6.1 SA/S 4.16.6.1 SA/S 8.16.6.1 SA/S 12.16.6.1
I_n rated current (A)	6 A	6 AX	10 AX	16 A	16/20 AX C-Load	16/20 AX C-Load
U_n rated voltage (V)	250/440 V AC	250/440 V AC	250/440 V AC	250/440 V AC	250/440 V AC	250/440 V AC
AC1 operation (cos φ = 0.8) DIN EN 60947-4-1	6 A	6 A	10 A	16 A	20 A	20 A
AC3 operation (cos φ = 0.45) DIN EN 60947-4-1	6 A	6 A	8 A	— ⁴⁾	16 A	16 A
C-Load switching capacity	—	—	—	—	20 A	20 A
Fluorescent lighting load AX to EN 60669-1	6 A (35 µF) ³⁾	6 AX (140 µF) ³⁾	10 AX (140 µF) ³⁾	16 A (70 µF) ³⁾	20 AX (200 µF) ³⁾	20 AX (200 µF) ³⁾
Minimum switching capacity	10 mA/12 V	100 mA/12 V	100 mA/12 V	100 mA/12 V	100 mA/12 V	100 mA/12 V
DC current switching capacity (resistive load)	7 A/24 V =	6 A/24 V =	10 A/24 V =	16 A/24 V =	20 A/24 V =	20 A/24 V =
Mechanical service life	> 10 ⁷	> 3 x 10 ⁶	> 3 x 10 ⁶	> 3 x 10 ⁶	> 10 ⁶	> 10 ⁶
Electronic endurance to IEC 60947-4-1:						
– Rated current AC1 (240 V/0.8)	100,000	100,000	100,000	100,000	100,000	100,000
– Rated current AC3 (240 V/0.45)	15,000	30,000	30,000	30,000	30,000	30,000
– Rated current AC5a (240 V/0.45)	15,000	30,000	30,000	30,000	30,000	30,000
Incandescent lamp load at 230 V AC	1,200 W	1,380 W	2,500 W	2,500 W	3,680 W	3,680 W
Fluorescent lamp T5 / T8:						
– Uncorrected	800 W	1,380 W	2,500 W	2,500 W	3,680 W	3,680 W
– Parallel compensated	300 W	1,380 W	1,500 W	1,500 W	2,500 W	2,500 W
– DUO circuit	350 W	1,380 W	1,500 W	1,500 W	3,680 W	3,680 W
Low-voltage halogen lamps:						
– Inductive transformer	800 W	1,200 W	1,200 W	1,200 W	2,000 W	2,000 W
– Electronic transformer	1,000 W	1,380 W	1,500 W	1,500 W	2,500 W	2,500 W
Halogen lamp 230 V	1,000 W	1,380 W	2,500 W	2,500 W	3,680 W	3,680 W
Dulux lamps:						
– Uncorrected	800 W	1,100 W	1,100 W	1,100 W	3,680 W	3,680 W
– Parallel compensated	800 W	1,100 W	1,100 W	1,100 W	3,000 W	3,000 W
Mercury-vapour lamps:						
– Uncorrected	1,000 W	1,380 W	2,000 W	2,000 W	3,680 W	3,680 W
– Parallel compensated	800 W	1,380 W	2,000 W	2,000 W	3,000 W	3,000 W
Sodium-vapour lamps:						
– Uncorrected	1,000 W	1,380 W	2,000 W	2,000 W	3,680 W	3,680 W
– Parallel compensated	800 W	1,380 W	2,000 W	2,000 W	3,000 W	3,000 W
Max. peak inrush-current I_p (150 µs)	200 A	400 A	400 A	400 A	600 A	600 A
Max. peak inrush-current I_p (250 µs)	160 A	320 A	320 A	320 A	480 A	480 A
Max. peak inrush-current I_p (600 µs)	100 A	200 A	200 A	200 A	300 A	300 A
Number of electronic ballasts (T5/T8, single element):²⁾						
18 W (ABB ballasts 1 x 18 SF)	10 ballasts	23 ballasts	23 ballasts	23 ballasts	26 ¹⁾ ballasts	26 ¹⁾ ballasts
24 W (ABB ballasts 1 x 24 CY)	10 ballasts	23 ballasts	23 ballasts	23 ballasts	26 ¹⁾ ballasts	26 ¹⁾ ballasts
36 W (ABB ballasts 1 x 36 CF)	7 ballasts	14 ballasts	14 ballasts	14 ballasts	22 ballasts	22 ballasts
58 W (ABB ballasts 1 x 58 CF)	5 ballasts	11 ballasts	11 ballasts	11 ballasts	12 ¹⁾ ballasts	12 ¹⁾ ballasts
80 W (Helvar EL 1 x 80 SC)	3 ballasts	10 ballasts	10 ballasts	10 ballasts	12 ¹⁾ ballasts	12 ¹⁾ ballasts

¹⁾ The number of ballasts is limited by the protection with B16/B20 circuit-breakers.

²⁾ For multiple element lamps or other types, the number of electronic ballasts must be determined using the peak inrush current of the electronic ballasts.

³⁾ The maximum peak inrush current may not be exceeded.

⁴⁾ Not intended for AC3 operation, see Technical Data for maximum AC3 current.

ABB i-bus® KNX

Outputs – An Overview of all Software Functions

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The following table provides an overview of the functions possible with the Switch Actuators and their application programs:

	SA/S 4.6.1.1 SA/S 8.6.1.1 SA/S 12.6.1.1	SA/S 2.6.2.1 SA/S 4.6.2.1 SA/S 8.6.2.1 SA/S 12.6.2.1	SA/S 2.10.2.1 SA/S 4.10.2.1 SA/S 8.10.2.1 SA/S 12.10.2.1	SA/S 2.16.2.1 SA/S 4.16.2.1 SA/S 8.16.2.1 SA/S 12.16.2.1	SA/S 2.16.5.1 SA/S 4.16.5.1 SA/S 8.16.5.1 SA/S 12.16.5.1	SA/S 2.16.6.1 SA/S 4.16.6.1 SA/S 8.16.6.1 SA/S 12.16.6.1
Type of installation	MDRC	MDRC	MDRC	MDRC	MDRC	MDRC
Number of outputs	4/8/12	2/4/8/12	2/4/8/12	2/4/8/12	2/4/8/12	2/4/8/12
Module width (space unit)	4/6/8	2/4/8/12	2/4/8/12	2/4/8/12	2/4/8/12	2/4/8/12
Manual operation	–	■	■	■	■	■
Contact position display	–	■	■	■	■	■
I _n rated current (A)	6 A	6 AX	10 AX	16 A	16/20 AX C-Load	16/20 AX C-Load
Current detection	–	–	–	–	–	■

Switch function						
– ON/OFF delay	■	■	■	■	■	■
– Staircase light	■	■	■	■	■	■
– Warning before end of staircase lighting	■	■	■	■	■	■
– Staircase lighting time set via object	■	■	■	■	■	■
– Flashing	■	■	■	■	■	■
– Switch response can be set (N.O./N.C.)	■	■	■	■	■	■
– Thresholds	■	■	■	■	■	■
Current detection	–	–	–	–	–	■
– Threshold value monitoring	–	–	–	–	–	■
– Measured value detection	–	–	–	–	–	■
Function Scene	■	■	■	■	■	■

Function Logic						
– Logic AND function	■	■	■	■	■	■
– Logic OR function	■	■	■	■	■	■
– Logic XOR function	■	■	■	■	■	■
– Gate function	■	■	■	■	■	■
Priority object/forced operation	■	■	■	■	■	■

Heating/fan control						
– Switch ON/OFF (2 point control)	■	■	■	■	■	■
– Cyclical fault monitoring	■	■	■	■	■	■
– Automatic purging	■	■	■	■	■	■
Fan Coil control ¹⁾	■	■	■	■	■	■

Special functions						
– Default position on bus voltage failure/recovery	■	■	■	■	■	■
– Status messages	■	■	■	■	■	■

¹⁾ See special ABB i-bus® KNX devices of the HVAC area, e.g. Fan/Fan Coil actuator LFA/S or Fan Coil actuator FCA/S.
■ = possible functions

ABB i-bus® KNX Outputs



SA/S 8.6.1.1

Switch Actuators, 6 A, MDRC

Using floating contacts it switches 4, 8 or 12 independent electrical loads. The 6 A-AC3 devices are suited for switching resistive, inductive and capacitive loads. Please note: Increased module width compared to previous generation.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
4-fold	4	SA/S 4.6.1.1	2CDG110152R0011		1	0.15
8-fold	6	SA/S 8.6.1.1	2CDG110153R0011		1	0.22
12-fold	8	SA/S 12.6.1.1	2CDG110154R0011		1	0.30



SA/S 8.6.2.1

Switch Actuators, 6 A, MDRC, Manual Operation

Switches 2, 4, 8 and 12 independent electrical loads using floating contacts. Every output can be operated manually and features display of the switching state. The 6 A-AC3 devices are suited for switching resistive, inductive and capacitive loads.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	2	SA/S 2.6.2.1	2CDG110180R0011		1	0.18
4-fold	4	SA/S 4.6.2.1	2CDG110181R0011		1	0.29
8-fold	8	SA/S 8.6.2.1	2CDG110182R0011		1	0.51
12-fold	12	SA/S 12.6.2.1	2CDG110183R0011		1	0.74



SA/S 4.10.2.1

Switch Actuators, 10 AX, MDRC

Switches 2, 4, 8 and 12 independent electrical loads using floating contacts. Every output can be operated manually and features display of the switching state. The 10AX-AC1 devices are especially suited for switching resistive, inductive and capacitive loads such as fluorescent lighting (AX) compliant to EN 60669.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	2	SA/S 2.10.2.1	2CDG110155R0011		1	0.18
4-fold	4	SA/S 4.10.2.1	2CDG110156R0011		1	0.29
8-fold	8	SA/S 8.10.2.1	2CDG110157R0011		1	0.51
12-fold	12	SA/S 12.10.2.1	2CDG110158R0011		1	0.74



SA/S 8.16.2.1

Switch Actuators, 16 AC1, MDRC

Switches 2, 4, 8 and 12 independent electrical loads using floating contacts. Every output can be operated manually and features display of the switching state. The 16A-AC1 devices are suited for switching resistive, inductive and capacitive loads.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	2	SA/S 2.16.2.1	2CDG110159R0011		1	0.17
4-fold	4	SA/S 4.16.2.1	2CDG110160R0011		1	0.29
8-fold	8	SA/S 8.16.2.1	2CDG110161R0011		1	0.51
12-fold	12	SA/S 12.16.2.1	2CDG110162R0011		1	0.67

ABB i-bus® KNX Outputs

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SA/S 12.16.5.1

Switch Actuator, 16/20 AX, C-Load, MDRC

Uses floating contacts to switch independent electrical loads via ABB i-bus® KNX. Every output can be operated manually and features display of the switching state. The 16AX-AC3, C-Load devices are especially suited for switching loads with high surge currents such as luminaries with ballasts or fluorescent lighting (AX) according to EN 60669.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	2	SA/S 2.16.5.1	2CDG110132R0011		1	0.21
4-fold	4	SA/S 4.16.5.1	2CDG110133R0011		1	0.38
8-fold	8	SA/S 8.16.5.1	2CDG110134R0011		1	0.69
12-fold	12	SA/S 12.16.5.1	2CDG110137R0011		1	0.90



SA/S 8.16.6.1

Switch Actuator with Current Detection, 16/20 AX, C-Load

Switches with floating contacts, 2, 4, 8 or 12 independent electrical loads with high surge currents. The Switch Actuators feature a circuit for high precision current detection for each output that is used to monitor the connected circuits. Every output can be operated manually and features display of the switching state. The 16/20A, C-Load devices are especially suited for switching loads with high surge currents such as luminaries with ballasts or fluorescent lighting (AX) according to EN 60669.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	2	SA/S 2.16.6.1	2CDG110112R0011		1	0.21
4-fold	4	SA/S 4.16.6.1	2CDG110113R0011		1	0.38
8-fold	8	SA/S 8.16.6.1	2CDG110114R0011		1	0.69
12-fold	12	SA/S 12.16.6.1	2CDG110138R0011		1	0.90



IO/S 4.6.1.1

I/O Actuator, 6 A, MDRC

For the control of loads in residential areas, typically in hotel rooms and apartments. The I/O Actuators provide binary inputs for the connection of conventional push-buttons and outputs for switching loads. Inputs and outputs can be internally connected by ETS. By integrating the devices into KNX networks further functions can be realised: e.g. central control or room based emergency calls to a control centre.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
4-fold	4	IO/S 4.6.1.1	2CDG110168R0011		1	0.17
8-fold	8	IO/S 8.6.1.1	2CDG110169R0011		1	0.3



AA/S 4.1

Analogue Actuator, 4-fold and Analogue Actuator Module, 4-fold, MDRC

The device outputs receives telegrams as analogue signals via four analogue outputs, which can be used independently from one another as current or voltage outputs. With the analogue actuator module AAM/S, the number of analogue outputs can be increased to 8 outputs. The devices requires an external 24 V power supply for operation.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	AA/S 4.1	2CDG120005R0011		1	0.21
	4	AAM/S 4.1	2CDG120006R0011		1	0.18

ABB i-bus® KNX

Shutters and Sun Protection

Modern building installation enables a high degree of functionality and simultaneously complies with increased security requirements. Due to the structured installation of the electrical components, it is possible to carry out rapid planning, installation and setup as well as achieve cost benefits during operation.

Modern sun protection devices have a significant role, as they must fulfil many demands:

- Anti-glare protection (e.g. PC workstations)
- Utilization of daylight by tracking the sun's position and directing available daylight
- Protecting furniture and carpets from fading
- Regulating the room temperature (overheating protection in summer; harvesting the available energy on cold days)
- Providing protection from people looking in from the outside
- Protection against intruders.

With the new Blind/Roller Shutter Actuators JRA/S, the complex requirements on a sustainable and energy efficient automatic sun protection control can be implemented in offices, residential and functional buildings via ABB i-bus® KNX.

The Blind/Roller Shutter Actuators are ideal for the control of drives in the area of sun protection:

- Blinds, exterior blinds, slat blinds and panel curtains
- Roller shutters, roller blinds, screens, vertical blinds
- Awnings, pleated blinds, pleated curtains, etc.



Optimum room air quality via automatic ventilation

The demands for the reduction of energy consumption often results in poor ventilation in today's heavily insulated buildings. The quality of the room air does not comply with the desired and required level.

Natural ventilation is often an effective and efficient method for exchanging the "used" room air and improving the air quality in the room. If the air quality in the room is monitored with sensors (temperature, humidity, CO₂ concentration), the ventilation flaps can be opened automatically and in good time ensuring that the air quality is kept in a comfortable range.

Blind/Roller Shutter Actuators are ideal for control of ventilation elements such as

- Ventilation flaps
- Roof hatches, skylights
- Windows, doors and gates



ABB i-bus® KNX

Shutters and Sun Protection – Innovations

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Automatic travel detection

Travel times for the connected drives can be easily determined during operation with the automatic travel detection feature. It saves time during setup. Furthermore, compensation of age and weather-related length changes to blinds or roller shutters is assured. It facilitates precise positioning of the blinds/shutter when using sun position-dependent control.

Diagnostics

Enhanced diagnostic messages can be issued with the new Blind/Roller Shutter Actuators. They are particularly useful during setup or in the event of faults. It is possible, for example, to detect and signal if the power supply to a drive is interrupted.

Copy and exchange

This function allows parameter settings of an output to be copied or exchanged with other freely selectable outputs. This is possible within a device or in conjunction with several devices. Copy and exchange is useful particularly on projects, where all drives of a facade are controlled identically. It shortens the setup process and reduces the possible sources of error with parameterization.

Integration in the room temperature control

The intelligent and networked blind and roller shutter control plays an important role in the energy efficient usage of a building. The level of sunlight in the room and heating up due to the sun's energy can be controlled in conjunction with the room climate control. The new software function "overheat control" prevents unintentional overheating of a room. The blinds are closed in good time. The shutter control can be actively involved in the room temperature control – a requirement for implementing high-efficient buildings compliant to EN 15232.



ABB i-bus® KNX

Shutters and Sun Protection

The following table provides an overview of technical data and software functions for the shutter actuator range:

	STANDARD				SMI	
	JRA/S X.230.5.1	JRA/S 4.24.5.1	JRA/S X.230.2.1	JRA/S X.230.1.1	SJR/S 4.24.2.1	JA/S 4.SMI.1M
General						
Number of outputs	X = 2, 4, 8	4	X = 2, 4, 8	X = 2, 4, 8	4 x 4 SMI LoVo (broadcast)	4 x 4 SMI (broadcast)
Nominal voltage	230 V AC	24 V DC	230 V AC	230 V AC	LoVo 24 V	230 V
Auxiliary voltage 230 V	–	–	–	–	■	■
Type of installation	MDRC	MDRC	MDRC	MDRC	MDRC	MDRC
Module width (space unit)	2-fold: 4 4-fold: 4 8-fold: 8	4	2-fold: 4 4-fold: 4 8-fold: 8	2-fold: 4 4-fold: 4 8-fold: 8	4	4
Manual functions						
Disable/enable man. operation and status man. operation	■	■	■	–	■	■
Operating modes						
Control with slat adjustment (blinds, etc.)	■	■	■	■	■	■
Control without slat adjustment (roller shutters, awnings, etc.)	■	■	■	■	■	■
Ventilation flaps, switch mode including stair case lighting function	■	■	■	■	–	–
General device functions						
Automatic travel detection	■	■	–	–	–	–
Time-delayed switching of drives	■	■	■	■	■	■
Sending and switching delay time	■	■	■	■	–	–
In operation function	■	■	■	■	–	–
Request status values	■	■	■	■	–	–
Extended setting options for drives and blind/shutter	■	■	■	■	■	■
Direct functions						
UP/DOWN, STOP/Slat adjustment	■	■	■	■	■	■
Position height/slat 0...255	■	■	■	■	■	■
Preset Move to position/Set position	■	■	■	■	■	■
Enable limitation	■	■	■	■	■	■
Trigger travel detection	■	■	–	–	–	–
Trigger reference movement	■	■	■	■	–	–
8 bit scene	■	■	■	■	■	■
Safety functions						
Wind, Rain, Frost alarm	■	■	■	■	■	■
Block	■	■	■	■	■	■
Forced operation (1-Bit and 2-Bit)	■	■	■	■	■	■
Automatic functions						
Activation of automatic control	■	■	■	■	■	■
Position height/slat on sun	■	■	■	■	■	■
Presence	■	■	■	■	■	■
Heating/Cooling	■	■	■	■	■	■
Overheat control	■	■	■	■	–	–
Enable/block automatic	■	■	■	■	■	■
Enable/block direct control	■	■	■	■	■	■
Status messages						
Status height/slat 0...255	■	■	■	■	■	■
Status upper/lower end position	■	■	■	■	■	■
Status of operation	■	■	■	■	■	■
Status automatic control	■	■	■	■	■	■
Status information (2 byte)	■	■	■	■	–	–
Status SMI	–	–	–	–	■	■
Status of positions/limit position	–	–	–	–	■	■
Status auxiliary voltage	–	–	–	–	■	■
SMI diagnostic byte	–	–	–	–	■	■
Sonstiges						
Extended settings for drives and blinds/shutters	■	■	■	■	–	–
Total turning of slats after move down command	■	■	■	■	–	–
Position of slat after arriving on lower end position	■	■	■	■	■	■
Control and diagnosis via i-bus Tool	■	■	■	■	–	–

ABB i-bus® KNX Shutters and Sun Protection

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JRA/S 8.230.5.1

Blind/Roller Shutter Actuator with Travel Detection and Manual Operation, 230 V AC, MDRC

For the control of independent 230 V AC drives via ABB i-bus® KNX. The devices are designed for positioning blinds, roller shutters, awnings and other shading products as well as for controlling doors, windows and ventilation flaps. Additional auxiliary voltage is not needed. The travel times of the drive are detected automatically via current detection. To protect the drives, the output contacts are electromechanically locked against each other. Push buttons are located at the front of the device to control the outputs e.g. during commissioning. The current status of the output is displayed via LEDs.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	4	JRA/S 2.230.5.1	2CDG110124R0011		1	0.21
4-fold	4	JRA/S 4.230.5.1	2CDG110125R0011		1	0.25
8-fold	8	JRA/S 8.230.5.1	2CDG110126R0011		1	0.46



JRA/S 4.24.5.1

Blind/Roller Shutter Actuator with Travel Detection and Manual Operation, 4-fold, 24 V DC, MDRC

For the control of up to 4 independent 24 V DC drives via ABB i-bus® KNX. The device is designed for positioning blinds, roller shutters, awnings and other shading products as well as for controlling doors, windows and ventilation flaps. Additional auxiliary voltage is not needed. The travel times of the drive are detected automatically via current detection. Push buttons are located at the front of the device to control the outputs e.g. during commissioning. The current status of the output is displayed via LEDs.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	JRA/S 4.24.5.1	2CDG110128R0011		1	0.21



JRA/S 2.230.2.1

Blind/Roller Shutter Actuator with Manual Operation, 230 V AC, MDRC

For the control of independent 230 V AC drives via ABB i-bus® KNX. The devices are designed for positioning blinds, roller shutters, awnings and other shading products as well as for controlling doors, windows and ventilation flaps. Additional auxiliary voltage is not needed. To protect the drives, the output contacts are electromechanically locked against each other. Push buttons are located at the front of the device to control the outputs e.g. during commissioning. The current status of the output is displayed via LEDs.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	4	JRA/S 2.230.2.1	2CDG110120R0011		1	0.21
4-fold	4	JRA/S 4.230.2.1	2CDG110121R0011		1	0.25
8-fold	8	JRA/S 8.230.2.1	2CDG110122R0011		1	0.46

ABB i-bus® KNX

Shutters and Sun Protection



JRA/S 2.230.1.1

Blind/Roller Shutter Actuator, 230 V AC, MDRC

For the control of independent 230 V AC drives via ABB i-bus® KNX. The devices are designed for positioning blinds, roller shutters, awnings and other shading products as well as for controlling doors, windows and ventilation flaps. Additional auxiliary voltage is not needed. To protect the drives, the output contacts are electromechanically locked against each other.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	4	JRA/S 2.230.1.1	2CDG110129R0011		1	0.21
4-fold	4	JRA/S 4.230.1.1	2CDG110130R0011		1	0.25
8-fold	8	JRA/S 8.230.1.1	2CDG110131R0011		1	0.46



JA/S 4.SMI.1M

SMI Shutter Actuator with Manual Operation, 4-fold, MDRC

It controls four independent groups (broadcast) with up to four SMI (Standard Motor Interface) drives (230 V) for positioning blinds, roller shutters, awnings and other shading products. Status signals (motor fault, direction of movement) can also be sent from the SMI drive on the bus. Push buttons are located at the front of the device to control the outputs e.g. during commissioning. The current status of the output is displayed via LEDs.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	JA/S 4.SMI.1M	2CDG110028R0011		1	0.25



SJR/S 4.24.2.1

SMI Blind/Roller Shutter Actuator, 4-fold, LoVo, MDRC

It controls four independent groups (broadcast) with up to four SMI (Standard Motor Interface) LoVo drives for positioning blinds, roller shutters, awnings and other shading products. Status signals (motor fault, direction of movement) can also be sent from the SMI drive on the bus. Push buttons are located at the front of the device to control the outputs e.g. during commissioning. The current status of the output is displayed via LEDs.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	SJR/S4.24.2.1	2CDG110143R0011		1	0.25

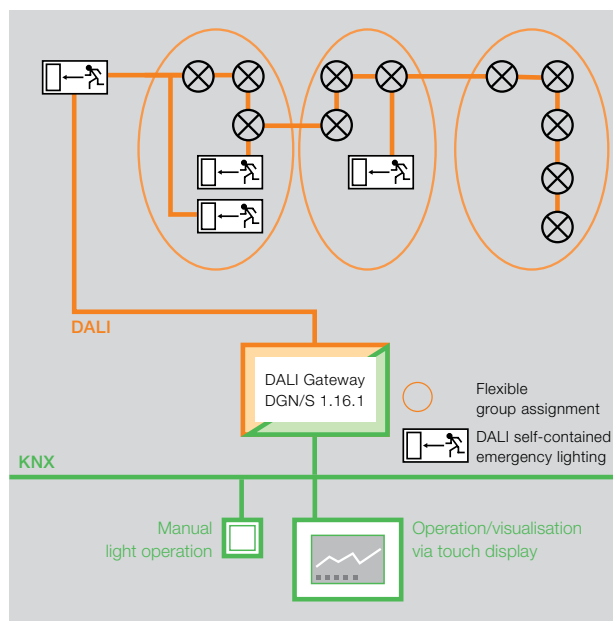


JSB/S 1.1

Shutter Control Unit, MDRC

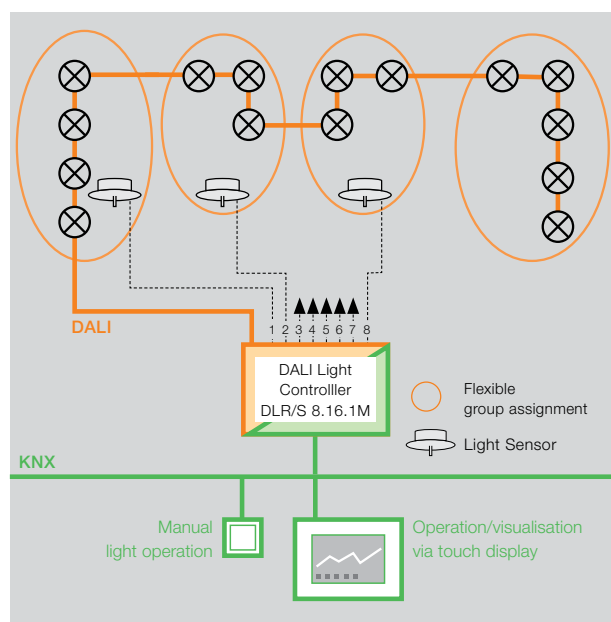
Controls shutter and blind actuators according to the position of the sun. The shutter control unit contains the functions of anti-glare protection and daylight redirection for up to 4 facades. Automatic shading can be implemented for every building and climatic control can be supported by the comprehensive range of parameter settings in the ETS.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	JSB/S 1.1	GHQ6310084R0111		1	0.12



The new ABB i-bus® KNX DALI Gateway with emergency lighting function combines modern flexible lighting control in intelligent building control systems with DALI emergency lighting.

Up to 64 DALI devices can be flexibly installed via 16 lighting groups and controlled and monitored by KNX.



The new DALI Light Controller DLR/A 4.8.1.1 is a surface mounting device for switching and dimming of 8 independent lighting groups. A maximum of 64 DALI devices can be connected. The device can be used for 4 - fold constant lighting control in connection with 4 Light Sensors LF/U 2.1. Furthermore staircase lighting and master / slave functions are provided. Fault feedback messages, e.g. concerning ballast or lamp failures, can be programmed and activated via KNX. The compact surface-mounted housing allows the decentralized installation in the underfloor or in false ceilings – optimal for the use with Room Controller RC/A.

DALI Gateway DGN/S 1.16.1

Lighting control and emergency lighting functions combined



Control via 16 lighting groups
Conventional lighting and individual emergency lighting battery combined

Normal DALI lighting and DALI emergency lighting can be combined as required.

Furthermore, the DALI gateway with emergency lighting function supports the DALI standard EN 62386-202 that specifies DALI emergency lighting with individual batteries.

DALI Light Controller DLR/S 8.16.1M

Energy through constant lighting control

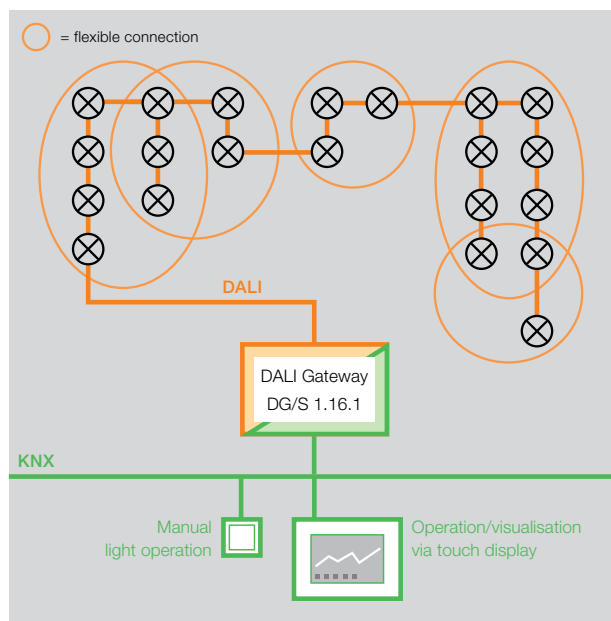


Control via 16 lighting groups. Up to 8 lighting groups can be controlled with 8 light sensors. Master-slave, staircase light and Scene mode round off the functions.

DALI Light Controller DLR/A 4.8.1.1

Decentralized Constant Lighting Control



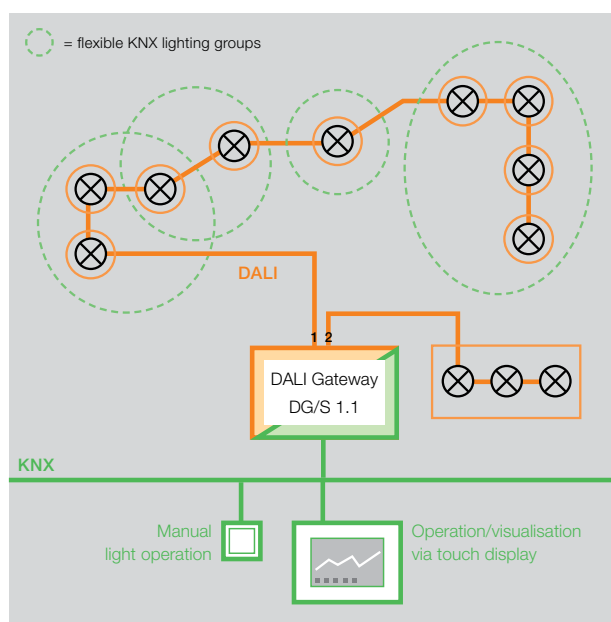


DALI Gateway DG/S 1.16.1

Flexibility in a good light



Large lighting groups can be controlled via flexible DALI groups.
1 x 64 DALI devices in 16 lighting groups.
Overlapping groups are possible.

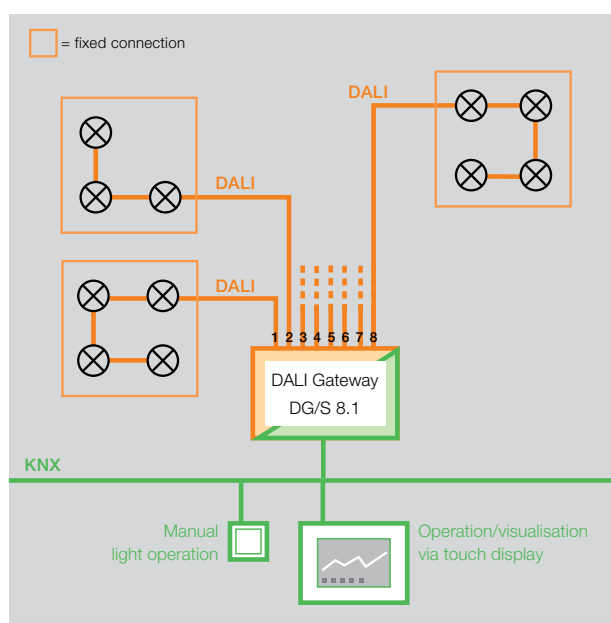


DALI Gateway DG/S 1.1

Individual lighting control



Lighting groups are formed in KNX. Individual lamps are indicated on the KNX. 1 x 64 DALI devices in unlimited lighting groups.



DALI Gateway DG/S 8.1

The proven technology



Lighting groups are formed via "rigid" hardware wiring.
Fast commissioning as no addressing is necessary.
No readdressing when a ballast is exchanged. 8 x 16 DALI devices.

ABB i-bus® KNX

Illumination and Light Sensors – DALI

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DG/S 8.1

DALI Gateway, 8-fold, MDRC

For controlling up to 128 DALI devices. There are 8 separate, independent DALI outputs/channels available. Up to 16 DALI devices can be connected per channel. The DALI power supply is integrated in the gateway. The functions of switching, dimming, set values and fault indication for lamps and electronic ballasts are available for each output. It is possible to set the lamp burn-in time and 16 light scenes. Commissioning is simplified as no addressing or commissioning of the DALI devices is necessary.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	6	DG/S 8.1	2CDG110025R0011		1	0.31



DG/S 1.1

DALI Gateway, 1-fold, MDRC

The device is used to interface between DALI and KNX installations and incorporates the DALI power supply. Up to 2 x 64 DALI devices can be connected. 64 devices can be individually switched, dimmed and controlled with a brightness value. The second 64 devices operate in broadcast mode. The DALI functions such as scene control or fault indication can be programmed and activated via the KNX.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	DG/S 1.1	2CDG110026R0011		1	0.22



DG/S 1.16.1

DALI Gateway, 1-fold, Group Control, MDRC

The device is used to interface between DALI and KNX installations and incorporates the DALI power supply. Up to 16 DALI devices can be assigned to 16 lighting groups. Each group can be switched, dimmed and controlled with a brightness value. Scenes and sequencer functions are available for lighting effects. Fault feedback messages can be programmed and activated via KNX.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	DG/S 1.16.1	2CDG110103R0011		1	0.22



DGN/S 1.16.1

DALI-Gateway with Emergency Lighting Control, 1-fold, Group Control, MDRC

For controlling DALI devices via the ABB i-bus®. Up to 64 DALI Slaves can be connected. Self contained emergency converter acc. EN 62386-202 will be supported. Control and status feedback is carried out via KNX with 16 lighting groups. By means of KNX and emergency converter different emergency tests (e.g. function and duration test) can be triggered. Feedback is sent. Slave-, staircase- and sequencer- function are integrated. For an individual change of the DALI address or group assignment a separate DGS-Software-Tool is available.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	DGN/S 1.16.1	2CDG110142R0011		1	0.22

ABB i-bus® KNX

Illumination and Light Sensors – DALI



DLR/S 8.16.1M

DALI Light Controller, 8-fold, MDRC

For switching and dimming of 16 independent lighting groups. A maximum of 64 DALI devices can be connected. The device can be used for 8-fold constant lighting control in connection with eight Light Sensors LF/U 2.1. Fault feedback messages can be programmed and activated via KNX. With comfortable manual operation and status display.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	6	DLR/S 8.16.1M	2CDG110101R0011		1	0.26



DLR/A 4.8.1.1

DALI Light Controller, 4-fold, SM

Surface mounting device for switching and dimming of 16 independent groups of luminaires. Up to 64 DALI participants can be connected to one DALI control line. When combined with the light sensor LF/U 2.1 the device can be used as a 8-fold light controller for constant light control. Additionally a staircase and master/slave function is integrated. A great number of status feedback e.g. lamp and ballast fault can be transferred from DALI to KNX. With this functions the DALI light controller is a key factor in every energy efficient building automation. With his surface mounting housing it is possible to insert the device central in false ceiling or underfloor installation.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	DLR/A 4.8.1.1	2CDG110172R0011		1	0.66



DSA/S 2.16.1

DALI Switch Actuator, 2-fold, 16 AX, C-load, MDRC

Uses floating contacts (N.O.) to switch 2 independent electrical loads. The devices are especially suited for switching resistive, inductive or capacitive loads with high surge currents. The device features a DALI interface to IEC 60929. The control is implemented via the DALI control signal. Both channels operate as two independent DALI devices.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	DSA/S 2.16.1	2CDG110009R0011		1	0.24

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LR/S 4.16.1

Light Controller, 16 A, MDRC

The device enables the switching and dimming of 2 or 4 independent lighting circuits in conjunction with electronic ballasts. In combination with the Light Sensor LF/U 2.1, the device can be used for constant lighting control. 2 or 4 light sensors can be connected to the controller for precise detection of the lighting conditions.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	4	LR/S 2.16.1	2CDG110087R0011		1	0.25
4-fold	6	LR/S 4.16.1	2CDG110088R0011		1	0.40



LF/U 2.1

Light Sensor, FM

Used for implementing constant lighting control applications in conjunction with light controllers LR/S, LR/M, DLR/S 8.16.1M or DLR/A 4.8.1.1. The scope of delivery includes different optical rods, the connection terminals and the cover for discrete fitting in a room.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	LF/U 2.1	2CDG110089R0011		1	0.07



SD/S x.16.1

Switch/Dim Actuator, 16 A, MDRC

Used for switching and dimming of 2, 4 or 8 independent groups of luminaires with electronic ballasts with 1 – 10 V control interfaces. On each channel the power supply of the ballasts is switched by a floating load relay (16 A – AC1). Every output can be operated manually and features display of the switching state. The device can assume a range of applications thanks to the programming options. The switching load is identical to the SA/S x.16.2.1 range (see capital 6).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
2-fold	4	SD/S 2.16.1	2CDG110079R0011		1	0.21
4-fold	6	SD/S 4.16.1	2CDG110080R0011		1	0.32
8-fold	8	SD/S 8.16.1	2CDG110081R0011		1	0.56



UD/S 2.300.2

Universal Dim Actuator, 2-fold, 300 VA, MDRC

For switching and dimming of incandescent lamps, 230 V halogen lamps or low-voltage halogen lamps which are powered by wound or electronic transformers (automatic load detection). Output power 2 x 300 VA or 1 x 500 VA up to 45 °C ambient temperature at a minimum load of just 2 W. Both outputs are independent of one another and can be supplied by different phases. Comprehensive application program with scene and time functions.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	UD/S 2.300.2	2CDG110074R0011		1	0.24

ABB i-bus® KNX

Illumination and Light Sensors



6197/13-101-500

Universal Dim Actuator, MDRC

Multi-channel universal dimming actuator for control of incandescent lamps, 230 V halogen lamps, lowvoltage halogen lamps with conventional or electronic transformers and dimmable energy-efficient lamps. Optimized for dimming of Philips retrofit LEDs (LEDi). Parallel connection of channels to increase load capacity via wire jumpers possible. Status/state indication of the outputs via LED. Local operation even without bus voltage or in non-programmed state possible.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
4-fold, 210 VA	8	6197/12-101-500	6197-0-0036		1	0.42
4-fold, 315 VA	8	6197/13-101-500	6197-0-0037		1	0.42
6-fold, 315 VA	12	6197/14-101-500	6197-0-0038		1	0.91
4-fold, 600 VA	12	6197/15-101-500	6197-0-0039		1	0.91
1-fold, 1.260 VA	12	6197/52-101-500	6197-0-0040		1	
1-fold, 2.400 VA	12	6197/53-101-500	6197-0-0041		1	



HS/S 4.2.1

Interface for Outside Light Sensor, MDRC

The device is used for the connection and evaluation of up to 3 Outside Light Sensors LFO/A 1.1. The Outside Light Sensors can be analysed individually or combined. Amongst others 10 logical switching channels for the evaluation of threshold values are provided. Threshold values can be adjusted directly on the device. The device can be used as a twilight switch (1 ... 100 lux) or as a light value switch (100 ... 20.000 lux). One Outside Light Sensor LFO/A 1.1 is supplied with the device.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	HS/S 4.2.1	2CDG120044R0011		1	0.24



LFO/A 1.1

Outside Light Sensor

Outside Light Sensor for the connection with the Interface HS/S 4.2.1.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	LFO/A 1.1	2CDG120045R0011		1	

ABB i-bus® KNX

Illumination and Light Sensors

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6131/20-24-500

Busch-Presence detector mini KNX 8 meter

NEW

Detection range (for mounting height 2.5 m, 3 m and 4 m): circular.

Seated persons Ø: 5 m, 6,5 m and 9 m.

Walking persons Ø: 6,5 m, 8 m and 10,5 m.

Visible height 16 mm. With 2 channels.

Targeted for connection and disconnection of lights bands depending on the room brightness. Regulation in response to the movement possible. Using the device as presence and/or movement detectors. Detectors application with 2 power off stages. Detectors application with integrated monitoring function. Constant light switch with up to two independent channels. Constant light switch with max. 2 outputs for brightnessdependent switching of two light bands in the area. With integrated KNX bus coupler. Connections: KNX-line: Bus connection terminal. Brightness limit value: 1 Lux – 1000 Lux. Mounting height: 2 m – 4 m.

Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C.

Dimensions: (L x W x D): 80 mm x 80 mm x 45 mm. Mounting depth: 29 mm.

Availability December 2014

Description	MW	Type	Order code	Price 1 pc. unit € pc.	Pack 1 pc.	Weight 1 pc. kg
alpine white	–	6131/20-24-500	6132-0-0342		1	
aluminium silver	–	6131/20-183-500	6132-0-0343		1	



6131/21-24-500

Busch-Presence detector mini premium KNX 8 meter

NEW

Detection range (for mounting height 2.5 m, 3 m and 4 m): circular.

Seated persons Ø: 5 m, 6,5 m and 9 m.

Walking persons Ø: 6,5 m, 8 m and 10,5 m.

Visible height 16 mm. With 4 channels. For dimming/brightness of the rules to a defined value in a designated collection area. HVAC function for controlling heating and/or cooling systems and ventilation systems in the designated collection area. Detectors application with 2 power off stages. Detectors application with integrated monitoring function. Constant light controller with up to two independent channels. Constant light controller with max. 2 outputs for dimming daylight control/rules of two rooflights in the room. Integrated object room temperature controller. 10 freely programmable IR channels (white). Incl. 5 logic channels (logic gates, gates, delay and staircase lighting). Weighting of up to 2 external brightness values and the internal brightness sensor possible. With integrated KNX bus coupler. Connections: KNX-line: Bus connection terminal. Brightness limit value: 1 Lux – 1000 Lux. Mounting height: 2 m – 4 m. Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C. Dimensions: (L x W x D): 80 mm x 80 mm x 45 mm. Mounting depth: 29 mm.

Availability December 2014

Description	MW	Type	Order code	Price 1 pc. unit € pc.	Pack 1 pc.	Weight 1 pc. kg
alpine white	–	6131/21-24-500	6132-0-0344		1	
aluminium silver	–	6131/21-183-500	6132-0-0345		1	

ABB i-bus® KNX

Illumination and Light Sensors



6131/30-24-500

Busch-Presence detector KNX 12 meter

NEW

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Detection range (for mounting height 2.5 m, 3 m and 4 m): circular.

Seated persons Ø: 8 m, 10 m and 14 m.

Walking persons Ø: 10 m, 12 m and 16 m.

Visible height 23 mm. With 2 channels. Targeted for connection and disconnection of lights bands depending on the room brightness. Regulation in response to the movement possible. Using the device as presence and/or movement detectors. Detectors application with 2 power off stages. Detectors application with integrated monitoring function. Constant light switch with up to two independent channels. Constant light switch with max. 2 outputs for brightness-dependent switching of two light bands in the area. With integrated KNX bus coupler. Connections: KNX-line: Bus connection terminal. Brightness limit value: 1 Lux – 1000 Lux. Mounting height: 2 m – 4 m.

Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C.

Dimensions: (L x W x D): 91 mm x 91 mm x 45 mm. Mounting depth: 22 mm.

Availability December 2014

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpine white	–	6131/30-24-500	6132-0-0346		1	
aluminium silver	–	6131/30-183-500	6132-0-0347		1	



6131/31-24-500

Busch-Presence detector premium KNX 12 meter

NEW

Detection range (for mounting height 2.5 m, 3 m and 4 m): circular.

Seated persons Ø: 8 m, 10 m and 14 m.

Walking persons Ø: 10 m, 12 m and 16 m.

Visible height 23 mm. With 4 channels. For dimming/brightness of the rules to a defined value in a designated collection area. HVAC function for controlling heating and/or cooling systems and ventilation systems in the designated collection area. Detectors application with 2 power off stages. Detectors application with integrated monitoring function. Constant light controller with up to two independent channels. Constant light controller with max. 2 outputs for dimming daylight control/rules of two rooflights in the room. Integrated object room temperature controller. 10 freely programmable IR channels (white). Incl. 5 logic channels (logic gates, gates, delay and staircase lighting). Weighting of up to 2 external brightness values and the internal brightness sensor possible. With integrated KNX bus coupler. Connections: KNX-line: Bus connection terminal.

Brightness limit value: 1 Lux – 1000 Lux. Mounting height: 2 m – 4 m. Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C.

Dimensions: (L x W x D): 91 mm x 91 mm x 45 mm. Mounting depth: 22 mm

Availability December 2014

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpine white	–	6131/31-24-500	6132-0-0348		1	
aluminium silver	–	6131/31-183-500	6132-0-0349		1	

ABB i-bus® KNX

Illumination and Light Sensors

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6131/40-24-500

Busch-Watchdog Sky KNX 24 meter

NEW

Detection range (for mounting height 6 m and 12 m): circular.

Walking persons Ø: 18 m, 24 m.

Visible height 23 mm. With 2 channels. Targeted for connection and disconnection of lights bands depending on the room brightness. Regulation in response to the movement possible.

Use of the device as a movement detector. Detectors application with 2 power off stages.

Detectors application with integrated monitoring function. Constant light switch with up to two independent channels. Constant light switch with max. 2 outputs for brightnessdependent

switching of two light bands in the area. With integrated KNX bus coupler. The programming button can be activated with the IR transmitter 6010-25 (-500). Connections: KNX-line: Bus connection terminal. Brightness limit value: 1 Lux – 1000 Lux. Mounting height: 4 m – 12 m.

Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C.

Dimensions: (L x W x D): 91 mm x 91 mm x 45 mm. Mounting depth: 22 mm.

Availability December 2014

Description	MW	Type	Order code	Price 1 pc. unit € pc.	Pack 1 pc.	Weight 1 pc. kg
alpine white	–	6131/40-24-500	6132-0-0350		1	



6131/29-24-500

Surface-mounting box

NEW

For Busch-Presence detector mini KNX. For installing a Busch-Presence detector mini KNX 6131/20-xxx(-500) or a Busch-Presence detector mini premium KNX 6131/21-xxx(-500).

Protection class (Device): IP 20. Dimensions: (L x W x D): 80 mm x 80 mm x 35 mm.

Availability December 2014

Description	MW	Type	Order code	Price 1 pc. unit € pc.	Pack 1 pc.	Weight 1 pc. kg
alpine white	–	6131/29-24-500	6132-0-0351		1	
aluminium silver	–	6131/29-183-500	6132-0-0352		1	



6131/39-24-500

Surface-mounting box

NEW

For Busch-Presence detector KNX and Busch-Watchdog Sky KNX. For installing a Busch-Presence detector KNX 6131/30-xxx(-500) or a Busch-Presence detector premium KNX 6131/31-xxx(-500) or a Busch-Watchdog Sky KNX 6131/40-24(-500).

Protection class (Device): IP 20. Dimensions: (L x W x D): 91 mm x 91 mm x 33 mm.

Availability December 2014

Description	MW	Type	Order code	Price 1 pc. unit € pc.	Pack 1 pc.	Weight 1 pc. kg
alpine white	–	6131/39-24-500	6132-0-0353		1	
aluminium silver	–	6131/39-183-500	6132-0-0354		1	

ABB i-bus® KNX

Illumination and Light Sensors



6131/10-24-500

Presence Detector, FM

To be discontinued

with integrated bus coupling unit.

Standard version for switching illumination in conjunction with brightness and movement. With two switching channels and two constant brightness switching channels (control of switch actuators via adjusted brightness level). Detection zone (installation height = 2,5 m) circular Detection zone (installation height = 2,5 m) circular Ø 8 m. Detection angle: 360°. Brightness limit value: 1 – 1000 Lux. Mounting height: 2,5 m recommended. Protection class (device): IP 20.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpine white	–	6131/10-24-500	6132-0-0295		1	0.17
aluminium silver	–	6131/10-183-500	6132-0-0297		1	



6131/11-24-500

Presence Detector, DualLine, FM

To be discontinued

with integrated bus coupling unit.

DualLine version for switching illumination in conjunction with brightness and movement. With two switching channels and two channels for constant brightness control (control of dim-actuators via adjusted brightness level). With two HVAC channels. With logic functions and IR receiver. Detection zone (installation height = 2,5 m) circular Detection zone (installation height = 2,5 m) circular Ø 8 m. Detection angle: 360°. Brightness limit value: 1 – 1000 Lux. Mounting height: 2,5 m recommended. Protection class (device): IP 20.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpine white	–	6131/11-24-500	6132-0-0299		1	0.17
aluminium silver	–	6131/11-183-500	6132-0-0301		1	



6885-500

Surface Mounting Base for Presence Detector

To be discontinued

Surface mounting base for for installation of flush-mounted inserts in combination with presence detector 6131/10 and 6131/11.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpine white	–	6885-500	6899-0-0282		1	0.15
aluminium silver	–	6885-183-500	6899-0-0297		1	

ABB i-bus® KNX

Illumination and Light Sensors

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6179/01-204-500

Busch-Watchdog 220 MasterLINE KNX

Sensor angle: 220° Range: approx. 16 m. With 2 movement channels. With 1 twilight channel with 3 switching thresholds. No remote control possible via IR remote control KNX. With integrated KNX bus coupler. No additional power supply necessary. Surveillance density: 92 sectors with 368 switching segments. Twilight sensor: approx. 1 – 1000 lux. Switch-off delay: approx. 10 sec to 1092 min.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
white	–	6179/01-204-500	6132-0-0313		1	
silver metallic	–	6179/01-208-500	6132-0-0314		1	



6179/02-204-500

Busch-Watchdog 220 MasterLINE KNX premium

Sensor angle: 220° Range: approx. 16 m. With 4 movement channels. With 1 twilight / brightness channel with 3 switching thresholds. With 1 temperature channel with three switching thresholds. With 7-channel IR remote control. Remote control possible via IR remote control KNX 6179 (included in scope of delivery). With integrated KNX bus coupler. No additional power supply necessary. Surveillance density: 92 sectors with 368 switching segments. Twilight sensor: approx. 1 – 1000 lux; Brightness sensor: approx. 1 – 80 klux; Temperature sensor: approx. – 25 to + 55 °C; Switch-off delay: approx. 10 sec to 1092 min.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
white	–	6179/02-204-500	6132-0-0317		1	
silver metallic	–	6179/02-208-500	6132-0-0318		1	



6179-500

IR Remote Control KNX

For Busch-Watchdog 220 MasterLINE KNX premium. The functions can be freely assigned. With coded transmission signal. Power supply: lithium button cell battery. Type CR2025 (included in delivery). Battery life: typically 2 years. Rated voltage: 3 V, Protection class (Device): IP 40, Temperature range (Device): 0 °C – 45 °C, Dimensions: (L x W x D): 86 mm x 40 mm x 7 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
grey / anthracite	–	6179-500	6132-0-0320		1	

Influencing Variables on Room Temperature

Internal and external factors have an effect on the thermal conditions in a room or a building. As an external factor the solar radiation is important for the indoor temperature – particularly with regard to modern architecture with glass fronts. Besides this, the room temperature is strongly affected by the exchange of thermal energy through windows and walls as well as the loss of thermal energy through open doors and windows.

Depending on the intensity, all these interactions influence also the energy efficiency of a building and have therefore to be optimised.

Internal thermal inputs from lighting, devices or persons have also an influence on the room climate. By planning a heating, ventilation or air conditioning system all these internal and external factors have to be considered.

Influencing Variables on Air Quality

The indoor climate in living and working areas has a scientifically proven impact on health, job performance and well-being of people. A suitable indicator for determination of the room air quality is the CO₂ concentration. In addition the values for room temperature and air humidity must be controlled to meet the requirements for a comfortable room climate.

Studies have shown, that high CO₂ concentration in the air influences the well-being as well as the performance and learning ability of people. Besides the normal CO₂ concentration in the air, human respiration is an important factor increasing the CO₂ concentration in a room. Therefore it is important to measure the CO₂ concentration in rooms where many persons are present (schools, conference rooms, open-plan offices). Monitoring of thresholds enables fans to be switched via ABB i-bus KNX allowing automatic control of the CO₂ concentration and sufficient supply of fresh air.

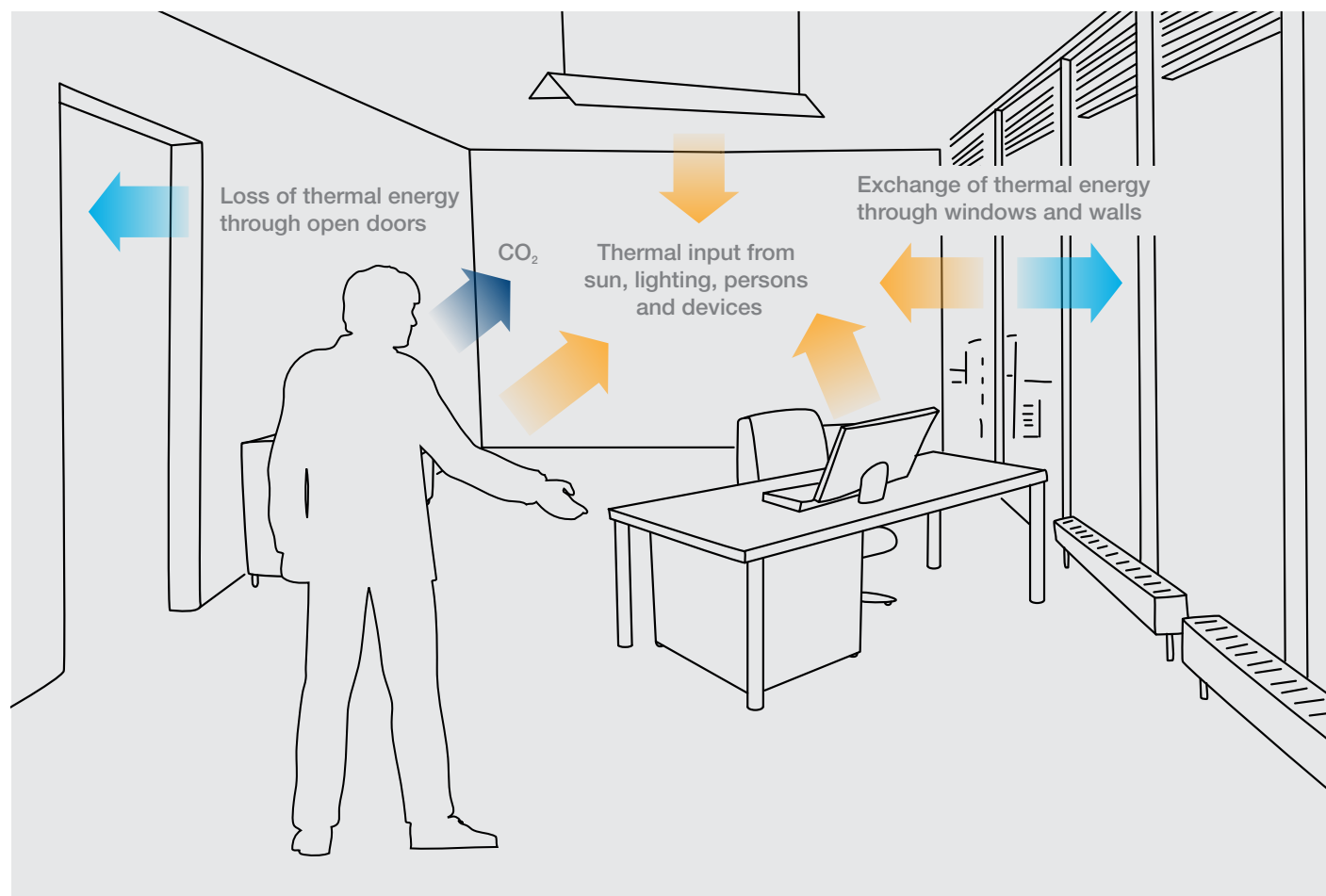


ABB i-bus® KNX

Heating and Cooling – Room Thermostat FanCoil

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Living and working with a feeling of well-being. And here the air in the room is one of the most important factors. Because the body takes an ideal temperature for granted and therefore easily reacts to changes. Heated or air-conditioned rooms can be optimally adjusted – to a consistently pleasant ambience.

The KNX Fan Coil room temperature controller for stand-alone applications. The Fan Coil room temperature controller with display is a room temperature controller for ventilator convectors or conventional systems for heating and cooling. This option offers complete air-conditioning for rooms. The temperature can be adjusted precisely for personal comfort. The fan speeds can be selected by push buttons. Even very large rooms can be heated or cooled to a comfortable temperature quickly – with additional air-conditioning units. The KNX Fan Coil room temperature controller can be operated individually. The bus coupler is integrated into the control element.

Function

- Temperature sensor
- RTC setting
- Illuminated display
- Fan Coil operation for heating and cooling

Features

- Very easy to operate with large, clear display
- Complete air conditioning
- Fan speeds can be manually selected
- Integrated bus coupler
- Surface-mounted, independent switching program
- Colours: studio white, aluminium silver



ABB i-bus® KNX

Heating and Cooling



ES/S 4.1.2.1

Electronic Switch Actuator, 4-fold, 1 A, MDRC

Controls thermoelectric valve drives (e.g. TSA/K) in heating and cooling systems. Each output (24...230 V AC/DC) is protected against short-circuit and overload. With manual operation and status display for each output.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
4-fold	4	ES/S 4.1.2.1	2CDG110058R0011		1	0.25
8-fold	8	ES/S 8.1.2.1	2CDG110059R0011		1	0.38



ER/U 1.1

Electronic Relay, 1-fold, FM

The device combination with the Universal Interface US/U and a room thermostat noiselessly controls the heating system and chilled ceiling temperature via thermo-electric valve drives e.g. TSA/K, 24 V...230 V AC/DC).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	ER/U 1.1	GHQ6310044R0111		1	0.08
2-fold	–	US/U 2.2	GHQ6310074R0111		1	0.06
4-fold	–	US/U 4.2	GHQ6310070R0111		1	0.06



VAA/S 6.230.2.1

Valve Drive Actuator, 230 V, MDRC

Controls thermoelectric valve drives (e.g. TSA/K) in heating or cooling systems. Each three outputs are protected against short-circuit and overload. With manual operation and status display.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
6-fold	4	VAA/S 6.230.2.1	2CDG110116R0011		1	0.17
12-fold	8	VAA/S 12.230.2.1	2CDG110117R0011		1	0.3



VAA/A 6.24.1

Valve Drive Actuator, 6-fold, 24 V, SM

In conjunction with the thermostat it controls up to 13 thermoelectric valve drives (24 V), max. 4 per channel. The device is suitable for the installation in heating circuit distribution systems where the application of a triac ensures noiseless switching of the drives. Mains plug on the transformer (230 V) for ease of installation.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	VAA/A 6.24.1	2CDG120032R0011		1	1.8

ABB i-bus® KNX Heating and Cooling

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FCL/S 1.6.1.1



FCL/S 2.6.1.1



6138/11-84-500



FCA/S 1.1M

Blower Actuator, 6 A, MDRC

NEW

to control blowers or fans with up to three fan speeds via step or changeover control. The FCL/S 1.6.1.1 have one fan output and one additional floating switch output. The FCL/S 2.6.1.1 feature two fan outputs plus two floating switch outputs. Alternatively the second fan output can be used as three switch outputs.

The fan speed can be directly chosen, increased and decreased as well as controlled by the control value of a closed-loop controller.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1-fold	4	FCL/S 1.6.1.1	2CDG110163R0011		1	0.18
2-fold	6	FCL/S 2.6.1.1	2CDG110164R0011		1	0.26

Room Thermostat Fan Coil with Display, SM

Sends control values for the room to the Fan Coil Actuators or devices with the respective outputs (e.g. Room Master). The intuitive control operation allows each user to individually set the room temperature and the fan speed. The large LC display can display the actual and target temperatures, the current operating mode as well as the fan speeds. **With integrated Bus Coupler.**

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpine white	—	6138/11-84-500	6138-0-0003		1	0.092
aluminium silver	—	6138/11-83-500	6138-0-0005		1	0.092

Fan Coil Actuator, MDRC

For the control of typical blower convectors via two electronic outputs for thermoelectric or motor-driven valve drives (FCA/S 1.1M) or via two analogue outputs for 0...10 V valve drives (FCA/S 1.2.2.1). Furthermore 3 outputs for individual fan speeds are provided. An additional load output switches an additional load (up to 16 A), such as auxiliary heating. A window contact and a condensed water signal can be read via two binary inputs and transferred on the KNX. The easy to understand manual operation enables quick commissioning.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
For thermoelectric or motor-driven valve drives	4	FCA/S 1.1M	2CDG110084R0011		1	0.12
For 0...10 V valve drives	6	FCA/S 1.2.2.1	2CDG110141R0011		1	0.16

ABB i-bus® KNX

Heating and Cooling



FC/S 1.1

Fan Coil Controller, MDRC

It controls motor-driven and thermoelectric valve drives as well as multi-speed fans. Control without further additional components can be undertaken in combination with the optional Temperature Sensor TS/K. There are two binary inputs available for 24 V AC signal contacts for window contact or dew point signals. A 230 V power supply is required.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	6	FC/S 1.1	2CDG120001R0011		1	0.5
Temperature Sensor for FC/S 1.1	–	TS/K 1.1	2CDG120002R0011		1	0.055



LGS/A 1.1

Air Quality Sensor, SM

Accurately measures the CO₂ concentration, humidity and temperature in a room. Three independent thresholds can be set for the CO₂ concentration and the relative humidity in addition to a threshold for the temperature. Exceeding or underrunning the thresholds can trigger a response. Disable object for every threshold. Measured variables can be transmitted directly on the bus. Communication object "Ventilation" is used for RPM control or as a position indicator for the ventilation flaps. Maintenance free sensor. The sensor is powered via the bus. **With integrated Bus Coupler.**

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	LGS/A 1.1	2CDG120038R0011		1	0.136



ST/K 1.1

Electromotor Valve Drive

The drive is a proportional valve drive for controlling heating valves and is mounted on thermostat valve bases. Valve Adapters VA10, VA78 for conventional valves are supplied. The control is carried out via a continuous KNX room thermostat. The actual valve position is indicated by 5 LEDs. The valve drive has two binary inputs for a presence contact and/or window contact and for further signal indication.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	ST/K 1.1	2CDG120004R0011		1	0.32

ABB i-bus® KNX Heating and Cooling

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TSA/K 230.1

Thermoelectric Valve Drives

For opening and closing valves in heating, ventilation and air-conditioning systems. Both variants (230 V and 24 V) feature a plug-in connection cable (1 m) and a splash-proof housing. The mounting on the valve is easily implemented using the Valve Adapter VA/Z xx.1.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
230 V	–	TSA/K 230.1	2CDG120007R0011		1	0.16
24 V	–	TSA/K 24.1	2CDG120008R0011		1	0.16
Valve Adapter for valves from Dumser, Chronatherm, Vescal, KaMo	–	VA/Z 10.1	2CDG120009R0011		1	0.06
Valve Adapter for valves from Honeywell, Reich, Cazzaniga, Landis & Gyr, MNG	–	VA/Z 50.1	2CDG120010R0011		1	0.05
Valve Adapter for valves from Danfoss RA	–	VA/Z 78.1	2CDG120011R0011		1	0.03
Valve Adapter for valves from Heimeier, Herb, Onda, Schlösser (ab 93), Oventrop	–	VA/Z 80.1	2CDG120012R0011		1	0.06

ABB i-bus® KNX

Control, Logic and Time



LM/S 1.1

Logic Module, MDRC

Used to solve a varied range of project-specific control tasks and can implement 3 functions simultaneously. The following functions are available for selection: logic gate, filter, time delay, multiplier, min/max value detector, temperature comparator, toggle values, threshold detection, format converter, scenes, increment/decrement values, staircase lighting.

Description	MW	Type	Order code	Price 1 pc. unit € pc.	Pack 1 pc.	Weight 1 pc. kg
	2	LM/S 1.1	GHQ6310080R0111		1	0.1



ABL/S 2.1

Application Unit, Logic, MDRC

Allows the compilation of complex logical functions by simply combining different logic elements and gates using a graphical user interface as an ETS plug-in and does not require additional software. 50 logical elements, 50 gates, 30 timer modules and 10 comparators are available.

Description	MW	Type	Order code	Price 1 pc. unit € pc.	Pack 1 pc.	Weight 1 pc. kg
	2	ABL/S 2.1	2CDG110073R0011		1	0.12



ABZ/S 2.1

Application Unit, Time, MDRC

It provides a yearly time clock program with 15 daily routines (800 switching events), a weekly schedule and allowance for 100 special days. Additionally, the unit can control up to 300 participants in 30 macro groups, that can be triggered using a single command. In this way, each time controlled switching event can cause a series of actions. The switching times can be modified with the free PZM software without using ETS. PZM Software and additional information on www.abb.com/knx.

Description	MW	Type	Order code	Price 1 pc. unit € pc.	Pack 1 pc.	Weight 1 pc. kg
	2	ABZ/S 2.1	2CDG110072R0011		1	0.12

ABB i-bus® KNX

Control, Logic and Time

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FW/S 8.2.1

Radio Time Switch , 8-channel, MDRC

The Radio Time Switch sends current time and date on the bus. The time can be optionally received via a DCF or GPS antenna. Furthermore the device can be used to easily adjust the time programs.

The device provides 8 channels. Every channel supplies an independent daily, time and/or yearly program. Additionally, special programs (e.g. for vacation or public holiday days) are possible.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	3	FW/S 8.2.1	2CDG120039R0011		1	0.33



FAD/A 1.1

DCF Antenna for Radio Time Switch

For the connection to the Radio Time Switch FW/S 8.2.1. The time signal from the DCF 77 transmitter can be received within a radius of approx. 1000 km around Frankfurt.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	FAD/A 1.1	2CDG120040R0011		1	0.17



FAG/A 1.1

GPS Antenna for Radio Time Switch

For the connection to the Radio Time Switch FW/S 8.2.1. The device receives time and date via GPS signal which is available worldwide.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	FAG/A 1.1	2CDG120041R0011		1	0.21



PS/E 2.1

Programming Set OBELISK top2 for Radio Time Switch

The programming set contains a CD ROM with the Obelisk top2 for the creation of switching programs for the Radio Time Switch FW/S 8.2.1, a memory card PK/E 2.1 for transferring switching programs to the Radio Time Switch and a USB programming adapter for the memory card.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	PS/E 2.1	2CDG120042R0011		1	0.20



PK/E 2.1

Memory Card OBELISK top2

The memory card can be used for transferring switching programs to Radio Time Switch.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	PK/E 2.1	2CDG120043R0011		1	0.02

ABB i-bus® KNX

Visualisation, Display and Signalling



TG/S 3.2

Telephone Gateway, Analogue, MDRC

It sends configurable voice messages via the telephone network to up to 10 users. 100 objects are available in the ETS program as inputs and outputs. As well as voice messages, emails or SMS messages can be sent. If the device is called, states can be polled and commands executed. The device has an integrated web server which enables simple operation and parametrisation using a conventional browser.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	8	TG/S 3.2	2CDG110135R0011		1	0.3
Accessory Set contains a crossover cable (RJ45), a telephone cable (RJ11) and a TAE adapter for the telephone cable.	–	TG/Z 1.1	2CDG110119R0011		1	0.055



UK/S 32.2

Universal I/O Concentrator, 32-fold, MDRC

Used to connect push buttons or signal lamps, e.g. to an operating/display tableau. It has 32 channels which can be freely parameterised as inputs/outputs using the ETS software. The device requires an external 12 or 24 V DC auxiliary power supply, (e. g. NT/S 24.800).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	UK/S 32.2	2CDG110071R0011		1	0.18



MT 701.2, WS
with T-RAHM, WS

Control and Display Tableau, LCD

For indication of switching status, fault reports and measurement values. Using the robust push buttons, electrical consumers can be manually switched, values can be set in addition to timer programs and light scenes. The alarms can also issue an acoustic warning. The FM wall box simplifies mounting.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
white	–	MT 701.2, WS	GHQ6050059R0005		1	1.16
silver	–	MT 701.2, SR	GHQ6050059R0006		1	1.24
Coverframe, white	–	T-RAHM, WS	GHQ6050059R0011		1	0.16
Coverframe, silver	–	T-RAHM, SR	GHQ6050059R0012		1	0.17
Wall box	–	UP-KAST 2	GHQ6050059R0014		1	0.44

ABB i-bus® KNX

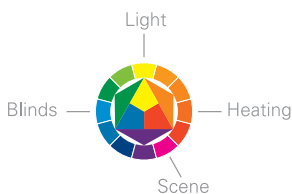
Visualisation, Display and Signalling – Busch-ComfortTouch®

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11

The Busch-ComfortTouch® offers not only an extremely versatile range of switching and control functions for KNX systems, but also satisfies the highest design requirements. Its unique colour coding concept makes for particularly easy operation.

Busch-ComfortTouch® unites the functions of a home control system, an information and entertainment centre with the highest design requirements. You can use Busch-ComfortTouch® to switch lamps on and off, dim them, control blinds, room temperature or select scenes comprising a combination of the above-named functions – even via remote control. There is also an integrated audio and video player. These functions are not only of interest for private households – the system is often used in doctor's surgeries, offices, restaurants or stores to provide attrac-

tive lighting, soft background music or comfortable room climates. A presence simulation function and alarm message display provide added security. It is also possible to display images from surveillance cameras. The system can be connected to the Internet, enabling you to call up e-mails, the latest stock market news, the weather forecast or traffic information. Operation is simple and easy via touch screen. A menu created individually for the user with clearly assigned buttons and a unique colour coding concept allow simple and intuitive operation.



Simplicity and user-friendliness are always the top priorities for operation. Busch-Jaeger has developed a unique colour coding concept for the user interface of its intelligent home control system. Each comfort area is assigned a specific colour. Yellow stands for lighting, blue for the blind control unit, magenta for light scenes and orange for the heating control unit. These colours are also used in the menus on the display.



reddot design award
winner 2013

01



01 Busch-ComfortTouch® 12.1
Glass black

02 Busch-ComfortTouch® 9
Glass black

03 Busch-ComfortTouch® 9
White glass

04 Busch-ComfortTouch® 12.1
Glass black

05 Busch-ComfortTouch® 12.1
White glass

02



03



04



05



ABB i-bus® KNX

Visualisation, Display and Signalling – Busch-ComfortTouch®

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11

The system is controlled via the Busch-ComfortTouch® – it couldn't be easier. Buttons with text and symbols allow intuitive operation. Just a touch of the finger, and you can call up the MP3-player and play individual titles or playlists. And the volume is regulated via the panel, too. The ideal solution, not only for homes – the system is, for example, popular in restaurants. No more CDs lying around, no more finding space for a conventional hifi centre. The system can also be used to call up light scenes for various situations, from a cosy dinner at home to night-time light-

ing for store windows, at the press of a button or via a time-controlled function. Another useful feature is the handy memo field allowing you to write text by hand - use it, for example to write a shopping list or for leaving messages for others. Colour pictures from surveillance cameras on stairways or outside the building can be called up on the display, offering added security. This allows you to keep an eye on the building at all times – handy, for example, for checking the surrounding area before opening the door for customers in the morning or when the doorbell rings.



Media player



Video surveillance



Door communication



Control of household appliance



Dashboard



Remote control by tablets (APP)



reddot design award
winner 2013



Busch-ComfortTouch®
controllable via app



ABB i-bus® KNX

Visualisation, Display and Signalling

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11



8136/09-811-500

Busch-ComfortTouch® 9"

Free programmable IP/KNX touch display can be used as a control, infotainment and entertainment centre for the whole house. With a closed capacitive glass surface and a design strip made of stainless steel (brushed). With integrated camera and proximity sensor. Easy control using intuitive navigation concept. House control: switching, dimming, blinds, RTR, scene/sequences, timed controls. Entertainment: Multimedia, remote control RC5 and B&O. Infotainment: IP telephony, RSS reader, intercom with picture, e-mail, voice and graphic memo, consumption data monitoring. Door communication: Indoor station for the ABB-Welcome system in combination with IP gateway 83341. Safety: video surveillance with IP cameras, alarm function, message function, presence simulation. Representation from individual floor plans, room images and operation pages. 23 cm (9") Touch-display with 800 x 480 pixel. Compatible with ABB i-bus® KNX Maintenance via remote control over IP. Control with smartphones and tablets via the ComfortTouch App (Apple iOS /Google Android from Version 4).

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit pc.	Weight 1 pc. kg
white glass	–	8136/09-811-500	8136-0-0024		1	
black	–	8136/09-825-500	8136-0-0026		1	



8136/12-811-500

Busch-ComfortTouch® 12.1"

Free programmable IP/KNX touch display can be used as a control, infotainment and entertainment centre for the whole house. With a closed capacitive glass surface and a design strip made of stainless steel (brushed). With integrated camera and proximity sensor. Easy control using intuitive navigation concept. House control: switching, dimming, blinds, RTR, scene/sequences, timed controls. Entertainment: Multimedia, remote control RC5 and B&O. Infotainment: IP telephony, RSS reader, intercom with picture, e-mail, voice and graphic memo, consumption data monitoring. Door communication: Indoor station for the ABB-Welcome system in combination with IP gateway 83341. Safety: video surveillance with IP cameras, alarm function, message function, presence simulation. Representation from individual floor plans, room images and operation pages. 31 cm (12.1") touchdisplay with 1280 x 800 pixel. Compatible with ABB i-bus® KNX Maintenance via remote control over IP. Control with smartphones and tablets via the ComfortTouch App (Apple iOS /Google Android from Version 4).

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit pc.	Weight 1 pc. kg
white glass	–	8136/12-811-500	8136-0-0028		1	
black	–	8136/12-825-500	8136-0-0030		1	



6186/01 UP-500

Power adapter module ABB i-bus® KNX

Power adapter for the power supply of Comfort-Touch 8136/09-... and 8136/12-.... With integrated KNX bus coupler for the establishment of the local bus connection to the ABB i-bus® KNX. With integrated audio outputs (LineOut). Rated voltage: 110 V~ – 230 V~, +10% / –10%. Rated frequency: 50 Hz – 60 Hz.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit pc.	Weight 1 pc. kg
	–	6186/01 UP-500	6186-0-0023		1	

ABB i-bus® KNX

Visualisation, Display and Signalling



8136/01 UP-500

Flush-mounted installation box

For flush-mounted und hollow-wall installation of the Busch-ComfortTouch® 8136/09-..., 8136/12-... or the SMARTtouch. Windproof.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	8136/01 UP-500	8136-0-0032		1	



6136/100 C-102-500

Controlpanel SMARTtouch

The SMARTtouch (210 functions) offers a colour touch display. The panels clearly display switch states, error messages and measured values, and allow comfortable operation and setting of timing programs and light scenes. Acoustic warnings or alarm functions can be programmed. The integrated room thermostat can be integrated into room climate control. Commissioning is via the bus or multimedia card/SD card. For flush mounting in walls and hollow panels the wall box 6136/UP can be used.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
SMARTtouch, colour (210 functions)	–	6136/100 C-102-500	6136-0-0185		1	
Bang & Olufsen, colour (210 functions)	–	6136/100 CB-102	6136-0-0186		1	



6136/15-500

Design Frame for SMARTtouch

Design frame made of real metal for 6136/100C xxx, 6136/100CB xxx, 6936/100C xxx, 6936/100CB xxx. Real metals: Dark glass with flap in chrome, dark glass with flap in aluminium, white glass satin finish with flap in aluminium.

Dimensions (H x W x D): 184.6 mm x 218 mm x 9 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Dark glass with flap in chrome	–	6136/10-500	6136-0-0139		1	
Dark glass with flap in aluminium	–	6136/11-500	6136-0-0141		1	
White glass, satin finish with flap in aluminium	–	6136/15-500	6136-0-0196		1	



6136/UP

Flush Mounted Wall Box for Busch-Controlpanel

To be discontinued

For flush mounting and hollow panel mounting of the Room and Control Panels.

Dimensions (H x W x D): 163.5 mm x 199 mm x 60 mm. Mounting depth: 60 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6136/UP	6136-0-0124		1	

ABB i-bus® KNX

Operation – Unique diversity of the range

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01



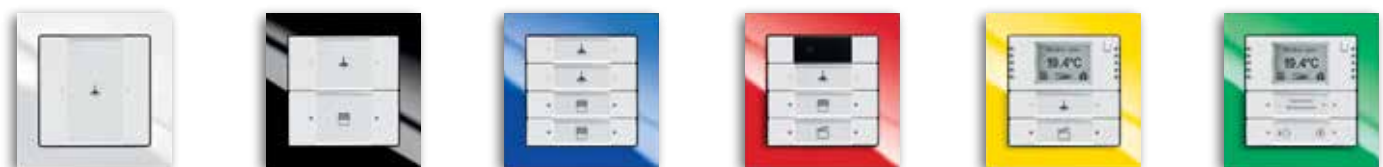
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ABB i-bus® KNX

Operation – Unique diversity of the range

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01 carat®

02 pure stainless steel

03 solo®

04 Busch-axcent®

05 future® linear

06 Millenium*

07 Zenit for VDE markets

08 Zenit for NEMA markets

09 Busch-triton®

10 Busch-priOn®

11 Bus Coupling Unit – for all the conventional series of Busch-Jaeger**

* Millenium and Zenit series are only available in selected markets.

** Busch Jaeger switch ranges only available for selected markets. For further information please contact your local ABB office.

ABB i-bus® KNX

Operation – Functional Overview

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Program	Standard control elements, bus coupler included with package	Multifunction control elements, suitable for KNX bus coupler				
						
	6125/01 1gang 6126/01 2gang 6127/01 4gang	6125/02 1/2gang 6126/02 2/4gang 6127/02 4/8gang	6129/01 3/6gang with IR	6124/01 RTC	6128/01 2/4gang with RTC	
KNX function						
Switching, rocker switch total	●	●	●	–	●	
Switching, rocker switch left/right	–	●	●	–	●	
Dimming, rocker switch total	●	●	●	–	●	
Dimming, switch rocker left/right	–	●	●	–	●	
Blind switch rocker total	●	●	●	–	●	
Venetian blind switch rocker total left/right	–	●	●	–	●	
Short-long operation, switch rocker left/right	–	●	●	–	●	
Value sender rocker switch total	●	●	●	–	●	
Value sender switch rocker left/right	–	●	●	–	●	
Value dimming sensor, switch rocker total	–	●	●	–	●	
Red/green LED status illumination (red/green/off)	Two LEDs per switch rocker	–	–	–	–	
RGB LED function illumination + status illumination	–	Two LEDs per switch rocker	Two LEDs per switch rocker	Two LEDs per switch rocker	Two LEDs per switch rocker	
Setting the RTC operating mode	–	●	●	–	●	
Value sender, 2 objects, switch rocker left/right	●	●	●	–	●	
Light scene extension unit with light scene memory function	●	●	●	–	●	
Level switch, switch rocker total	–	●	●	–	●	
Level switch, switch rocker total left/right	–	●	●	–	●	
Multiple operation, rocker switch left/right	–	●	●	–	●	
IR remote control channels (up to 5 channels)	–	–	●	–	–	
Room temperature controller only						
Temperature reading	–	–	–	●	●	
RTC settings	–	–	–	●	●	
Illuminated display	–	–	–	●	●	
Fan Coil operation for heating and cooling	–	–	–	●	●	
Logic function (including light scenes)	–	●	●	●	●	
Busch-Watchdog 4 channels	–	–	–	–	–	
Design series						
Reflex SI	–	–	–	–	–	
Busch Duro 2000® SI	–	–	–	–	–	
future®linear	●	●	●	●	●	
alpha exclusive / nea	–	–	–	–	–	
Busch-axcent®	●	●	●	●	●	
solo®	●	●	●	●	●	
impuls	–	–	–	–	–	
pure stainless steel	●	●	●	●	●	
carat®	●	●	●	●	●	
ocean®	–	–	–	–	–	
All Weather 44®	–	–	–	–	–	
Busch-priOn®	–	–	–	–	–	
Busch-triton®	–	–	–	–	–	

Operation – Functional Overview

**A
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ABB i-bus® KNX

Operation – Functional Overview

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Program	Busch-triton® (next generation) Monoblock		Busch-priOn® suitable for KNX bus coupler	
				
	6320/10 1/2gang 6320/30 3/6gang 6320/50 5/10gang	6320/38 3/6gang with RTC 6320/58 5/10gang with RTC	6340-xx-101 1/2gang	6341-xx-101 rotary-control element
KNX function				
Switching, rocker switch total	●	●	●	–
Switching, rocker switch left/right	●	●	●	●
Dimming, rocker switch total	●	●	●	–
Dimming, rocker switch left/right	●	●	●	–
Blind switch rocker total	●	●	●	–
Blind switch rocker total left/right	●	●	●	●
Short-long operation, switch rocker left/right	●	●	●	–
Value sender rocker switch total	●	●	●	–
Value sender switch rocker left/right	●	●	●	–
Value dimming sensor, switch rocker total	●	●	●	●
Red/green LED status illumination (red/green/off)	1 LED per switch rocker	1 LED per switch rocker	–	–
RGB LED function illumination + status illumination	–	–	1 LED per switch rocker	1 LED per button
Setting the RTC operating mode	●	●	●	–
Value sender, 2 objects, rocker switch left/right	●	●	●	–
Light scene extension unit with light scene memory function	●	●	●	–
Level switch, switch rocker total	●	●	●	–
Level switch, switch rocker total left/right	●	●	●	–
Multiple operation, rocker switch left/right	–	–	●	–
IR remote control channels (up to 13 channels)	●	●	–	–
Light scene unit (8 scenes for up to 8 actuators)	●	●	–	–
Light scene unit (10 scenes for up to 10 actuators)	–	–	–	–
Programmable shift key	●	●	–	–
Proximity function	–	–	–	–
Room temperature controller only				
Temperature reading	–	●	–	–
RTC settings	–	●	–	–
Illuminated display	–	●	–	–
Fan Coil operation for heating and cooling	–	●	–	–
Media box/CD/DVD/Radio	–	–	–	–
Short-time timer	–	–	–	–
Weekly timer	–	–	–	–
Alarm clock	–	–	–	–
Messages	–	–	–	–
Screen saver	–	–	–	–
Display text/value	–	–	–	–
Device lock	–	–	–	–
Logic function (including light scenes)	–	–	●	●
Busch-Watchdog 4 channels	–	–	–	–

Operation – Functional Overview

6120/12-101 or 6120/13 (depending on the specific combination)

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ABB i-bus® KNX

Operation – Functional Overview

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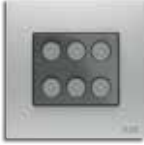
Program	Millenium						
							
	6125/20-500 1/2gang	6126/20-500 2/4gang	6129/20-500 3/6gang	6129/21-500 3/6gang with IR	6122/20-500	6124/20-500	
KNX function							
Switching, button pair	●	●	●	●	–	–	
Switching, button upper/lower	●	●	●	●	–	–	
Dimming, button pair	●	●	●	●	–	–	
Dimming, button upper/lower	●	●	●	●	–	–	
Blind, button pair	●	●	●	●	–	–	
Blind, button upper/lower	●	●	●	●	–	–	
Short-long operation, button upper/lower	●	●	●	●	–	–	
Value transmitter, button pair	●	●	●	●	–	–	
Value transmitter, button upper/lower	●	●	●	●	–	–	
Value dimming sensor, button pair	●	●	●	●	–	–	
Value dimming sensor, upper/lower	●	●	●	●	–	–	
RGB LED function illumination + status illumination	●	●	●	●	–	–	
Setting the RTC operating mode	●	●	●	●	–	–	
Value transmitter, 2 objects, button upper/lower	●	●	●	●	–	–	
Light scene extension unit with light scene memory function	●	●	●	●	–	–	
Step switch, button pair	●	●	●	●	–	–	
Step switch, button upper/lower	●	●	●	●	–	–	
Multiple operation, button upper/lower	●	●	●	●	–	–	
IR remote control channels (up to 5 channels)	–	–	–	●	–	–	
Room temperature controller only							
Temperature reading	–	–	–	–	–	●	
RTC settings	–	–	–	–	–	●	
Illuminated display	–	–	–	–	–	●	
Fan Coil operation for heating and cooling	–	–	–	–	–	●	
10 logic channels (incl. light scene, actuator, sequence actuator, logic gates, etc.)	●	●	●	●	–	●	
Busch-Watchdog 4 channels	–	–	–	–	●	–	

ABB i-bus® KNX

Operation – Functional Overview

A
12

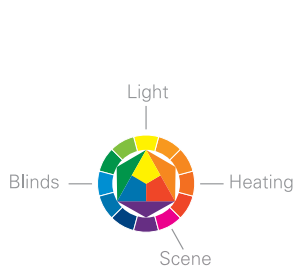
Program	Zenit (VDE and NEMA)					
						
	6125/98-509 1/2gang	6126/98-509 2/4gang	6129/96-509 3/6gang	6129/98-509 3/6gang with IR	6122/98-509	6124/98-509
KNX function						
Switching, button pair	●	●	●	●	–	–
Switching, button upper/lower	●	●	●	●	–	–
Dimming, button pair	●	●	●	●	–	–
Dimming, button upper/lower	●	●	●	●	–	–
Blind, button pair	●	●	●	●	–	–
Blind, button upper/lower	●	●	●	●	–	–
Short-long operation, button upper/lower	●	●	●	●	–	–
Value transmitter, button pair	●	●	●	●	–	–
Value transmitter, button upper/lower	●	●	●	●	–	–
Value dimming sensor, button pair	●	●	●	●	–	–
Value dimming sensor, upper/lower	●	●	●	●	–	–
RGB LED function illumination + status illumination	●	●	●	●	–	–
Setting the RTC operating mode	●	●	●	●	–	–
Value transmitter, 2 objects, button upper/lower	●	●	●	●	–	–
Light scene extension unit with light scene memory function	●	●	●	●	–	–
Step switch, button pair	●	●	●	●	–	–
Step switch, button upper/lower	●	●	●	●	–	–
Multiple operation, button upper/lower	●	●	●	●	–	–
IR remote control channels (up to 5 channels)	–	–	–	●	–	–
Room temperature controller only						
Temperature reading	–	–	–	–	–	●
RTC settings	–	–	–	–	–	●
Illuminated display	–	–	–	–	–	●
Fan Coil operation for heating and cooling	–	–	–	–	–	●
10 logic channels (incl. light scene, actuator, sequence actuator, logic gates, etc.)	●	●	●	●	–	●
Busch-Watchdog 4 channels	–	–	–	–	●	–

ABB i-bus® KNX

Operation – Busch-priOn®

A
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Busch-priOn® allows you to control and monitor functions for the entire room. Light, scenes, timer, blind control unit, heating control unit – all functions are controlled simply and intuitively via a rotary dial, and freely programmable functions can be called up via the rocker switches. Busch-priOn® is a non-fixed, modular concept.



01



02



03



Colours that make life easier.

A consistent colour coding concept and durable LED technology make Busch-priOn® extremely easy to operate. The dial lights up in the colours of the coding system, thus providing feedback on the function currently selected. Yellow stands for lighting, blue for the blind control unit, magenta for light scenes and orange for the heating control unit. These colours are also found on the rocker switches of the control element panels.

The rotary control element is equipped with a freely programmable button which can be pressed and turned. It can be used to switch and dim individual lamps, but also to switch on whole groups of lamps with one press of a button and vary their brightness continuously via the dial.

Function

Dimming | Blinds | Value | Light scenes | Logic functions | Time functions

Features

Illuminated dial | Colour coding concept | Anti-theft protection | Day/night operation

The single control element is equipped with a freely programmable „large“ operating button. It can be assigned to one topic and can carry out a maximum of two commands.

Function

Switching | Dimming | Blinds | Value | Buttons | Light scenes | Logic functions | Time functions

Features

Illuminated rocker switch | Colour coding concept | Freely programmable control button | Anti-theft protection | Replaceable labelling symbol (Fig. shows Lighting labelling symbol)

The triple control element is equipped with 3 freely programmable control buttons. Each can be assigned to one topic and can carry out a maximum of two commands.

Function

Switching | Dimming | Blinds | Value | Buttons | Light scenes | Logic functions | Time functions

Features

Illuminated rocker switches | Colour coding concept | Freely programmable control buttons | Anti-theft protection | Replaceable labelling symbol (Fig. shows labelling symbols Lighting, Blinds and Scene)

01 Rotary control element

02 1gang control element

03 3gang control element

04 Glass black

05 Studiowhite, glossy

06 Stainless steel

07 White glass

04



05



06



07



reddot design award
best of the best 2008

Busch-priOn® received special commendment in the category „best of the best,“ winning the „red dot award: communication design 2008“ for its interface design.

ABB i-bus® KNX

Operation – Busch-priOn®

A
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01



A single-line display with integrated room temperature controller has been designed for the Busch-priOn® 3gang control element, technically reduced to the basics and optically elegant. It is particularly easy to read due to the monochromatic design for white on black information. The room temperature controller, information function like time and date, up to 17 freely programmable text displays, IR sensor and proximity sensor have been integrated into the display. The design of the display is available in the colour and material “glass black” only.

The 8.9 cm (3.5”) TFT display gives a clear overview of all information. The user can choose from 3 surface designs: black, blue and silver.

02



The 8.9 cm (3.5”) TFT display gives a clear overview of all information. Operation is simple intuitive, supported the colour coding concept. It is possible freely combine several Busch-priOn® elements with each other. display and a special allow simple and convenient control.

03



Busch-priOn® is a nonfixed, modular-design system. The rocker switches of the triple control element allow you to call up freely programmable functions such as light scenes, blind functions or specific lamps.

04



Busch-priOn® is ideal in combination with the carat® switch series, which has surfaces in the same design.

05



The Busch-priOn® flush-mounted movement sensor can be used individually or with other Busch-priOn® modules. Practical because users thus do not have to look for the light switch and are greeted with light when first entering a dark room.



Blinds



Climate control



Scene

01 3gang control element with single-line display and temperature controller

02 2gang combination

03 3gang combination

04 carat® glass black

05 Flush-mounted movement sensor

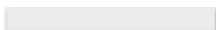
Note: We can only give you a rough idea here of the wide range of combinations offered by this modular concept. For more detailed information, see our separate product brochure / planning aid or the catalogue.

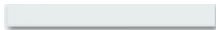
ABB i-bus® KNX

Operation – Planning aid for Busch-priOn®

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End strips without function


studio white,
Article-No. 6348-24G-101-500


white glass,
Article-No. 6348-811-101-500


glass black,
Article-No. 6348-825-101-500

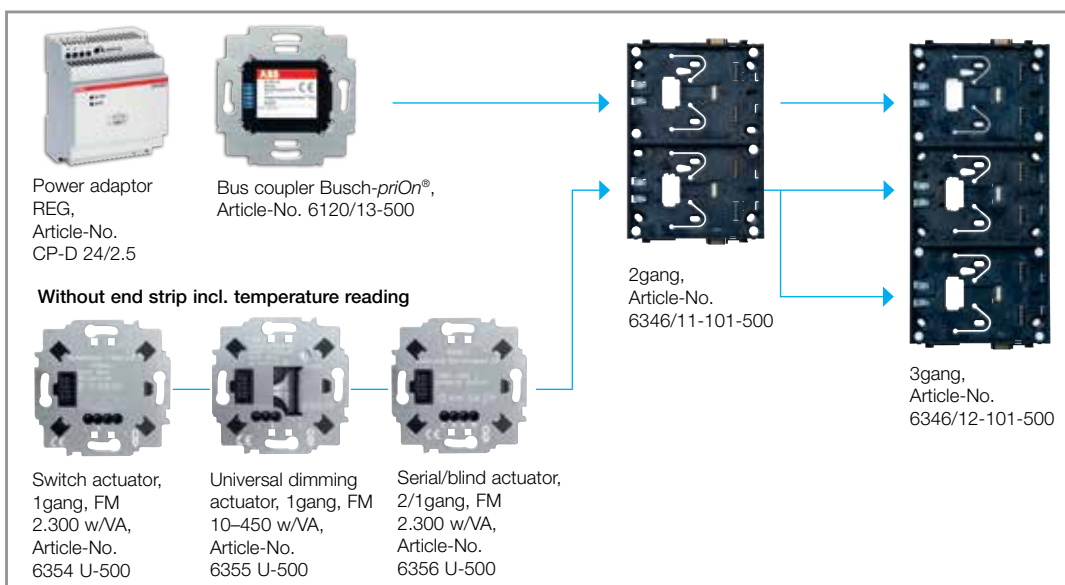

stainless steel,
Article-No. 6348-860-101-500

Support frame, bus coupler



Note:

This power adaptor can
supply up to 15 power
bus couplers with current.



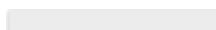
FM actuators

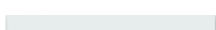
End strip



Commissioning adaptor,
Article-No. 6149/21-500

End strips without function


studio white,
Article-No. 6349-24G-101-500


white glass,
Article-No. 6349-811-101-500


glass black,
Article-No. 6349-825-101-500


stainless steel,
Article-No. 6349-860-101-500

ABB i-bus® KNX

Operation – Planning aid for Busch-priOn®

End strip with IR proximity function

glass black,
Article-No.
6350-825-101-500

Note:
only combinable with
3gang control element



Single-line display and
room thermostat,
Article-No.
6351-825-101-500



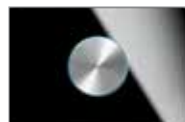
Control element,
1gang,
Article-No.
6340-825-101-500



Control element,
3gang, Article-No.
6342-825-101-500



Colour display with
rotary control
element,
Article-No.
6344-825-101-500



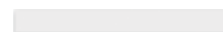
Rotary control element,
1gang,
Article-No.
6341-825-101-500



Busch-Watchdog,
180 FM,
Article-No.
6345-825-101-500

End strips with
temperature sensor.

Not combinable with FM actuators.



studio white,
Article-No. 6352-24G-101-500



white glass,
Article-No. 6352-811-101-500



glass black,
Article-No. 6352-825-101-500



stainless steel,
Article-No. 6352-860-101-500

Colour range



Busch-priOn®
glass black



Busch-priOn®
white glass



Busch-priOn®
stainless steel



Busch-priOn®
studio white, gloss

Labelling symbols



Labelling inserts for blinds, lighting, RTC
and scene. The colours are repeated in
the Busch-Jaeger colour concept.

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ABB i-bus® KNX

Operation – Busch-priOn®

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6120/12-101-500

Bus Coupler, FM

for Busch-priOn® support frame 1-fold 6346/10-10x and control elements 6122/0x-xxx, 6124/0x-xxx, 6125/0x-xxx, 6126/0x-xxx, 6127/0x-xxx, 6128/0x-xxx and 6129/0x-xxx.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6120/12-101-500	6120-0-0075		1	
swiss version	–	6120/12-101-508	6120-0-0076		1	



6120/13-500

Power Bus Coupler, FM, Busch-priOn®

For Busch-priOn® base frame 1-fold, 2-fold and 3-fold.

Separate power supply required. The KNX connection is used exclusively for bus communication.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6120/13-500	6120-0-0072		1	
swiss version	–	6120/13-508	6120-0-0073		1	



6354 U-500

Switch Actuator/Sensor, 1-fold, FM, Busch-priOn®

For switching incandescent lamps, 230 V halogen lamps, fluorescent lamps and low-voltage halogen lamps operated using transformers 3-wire technology (Neutral conductor required). Only in conjunction with a 2-fold and 3-fold base frame Cannot be combined with the lower finishing strip with temperature sensor.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6354 U-500	6310-0-0097		1	



6356 U-500

Shutter/2-fold Actuator, FM, Busch-priOn®

Only in conjunction with a 2-fold and 3-fold base frame. Not suitable for switching fluorescent lamps, HQI lamps and HQL lamps. Cannot be combined with the lower finishing strip with temperature sensor.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6356 U-500	6310-0-0099		1	



6355 U-500

Shutter/2-fold Actuator, FM, Busch-priOn®

Only in conjunction with a 2-fold and 3-fold base frame Not suitable for switching fluorescent lamps, HQI lamps and HQL lamps. Cannot be combined with the lower finishing strip with temperature sensor.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6355 U-500	6310-0-0098		1	

ABB i-bus® KNX

Operation – Busch-priOn®

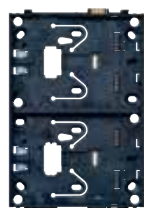


6346/10-101-500

Base Frame, 1-fold, Busch-priOn®

For Busch-priOn® for seating and contact connection of rotary control elements, operating element 1-fold and 3-fold as well as the top/bottom finishing strip. For contacting with the Bus Coupler priOn or Power Bus Coupler priOn.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6346/10-101-500	6310-0-0135		1	



6346/11-101-500

Base Frame, 2-fold, Busch-priOn®

For Busch-priOn® for seating and contact connection of 8.89 cm (3.5") TFT colour display with rotary control element, rotary control element 1-fold and 3-fold as well as the top/bottom finishing strip. For contacting with the Power Bus Coupler priOn.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6346/11-101-500	6310-0-0137		1	



6346/12-101-500

Base Frame, 3-fold, Busch-priOn®

For Busch-priOn® for seating and contact connection of 8.89 cm (3.5") TFT colour display with rotary control element, rotary control element 1-fold and 3-fold as well as the top/bottom finishing strip. For contacting with the Power Bus Coupler priOn.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6346/12-101-500	6310-0-0139		1	



6340-825-101-500

Control Element, 1-fold, Busch-priOn®

Freely programmable multi-function operation element for installation in the Base Frame 1-fold, 2-fold or 3-fold. Supports the KNX functions with innovative colour concept on the labelling symbols or standard lighting in red/green. The accompanying symbol can be substituted by other alternative labelling symbols.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
studio white, high gloss	–	6340-24G-101-500	6310-0-0109		1	
white glass	–	6340-811-101-500	6310-0-0168		1	
glass black	–	6340-825-101-500	6310-0-0108		1	
stainless steel	–	6340-866-101-500	6310-0-0106		1	

ABB i-bus® KNX

Operation – Busch-priOn®

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6342-825-101-500

Control Element, 3-fold, Busch-priOn®

Freely programmable multi-function operation element for installation in the Base Frame 1-fold, 2-fold or 3-fold. Supports the KNX functions with innovative colour concept on the labelling symbols or standard lighting in red/green. The accompanying symbol can be substituted by other alternative labelling symbols.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
studio white, high gloss	–	6342-24G-101-500	6310-0-0125		1	
white glass	–	6342-811-101-500	6310-0-0172		1	
glass black	–	6342-825-101-500	6310-0-0124		1	
stainless steel	–	6342-866-101-500	6310-0-0122		1	



6341-825-101-500

Rotary Control Element, 1-fold, Busch-priOn®

Freely programmable multi-function rotary control element for installation in the Base Frame 1-fold, 2-fold or 3-fold. Supports the KNX functions with innovative colour concept on the rotary knob or standard lighting in red/green. Rotary knob stainless steel.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
studio white, high gloss	–	6341-24G-101-500	6310-0-0117		1	
white glass	–	6341-811-101-500	6310-0-0170		1	
glass black	–	6341-825-101-500	6310-0-0116		1	
stainless steel	–	6341-866-101-500	6310-0-0114		1	



6344-825-101-500

8.89 cm (3.5") TFT Colour Display with Rotary Control Element, Busch-priOn®

Freely programmable 8.89 cm (3.5") TFT colour display with rotary control element for installation in the Base Frame, 2-fold or 3-fold. For representation of up to 120 functions. With integrated weekly time switch, alarm, timer, with light scene function, screensaver and control of multimedia devices (in conjunction with additional device). Free function inscription with user-defined texts and symbols. Supports the KNX functions with innovative colour concept on the rotary knob. Rotary knob stainless steel.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
studio white, high gloss	–	6344-24G-101-500	6310-0-0133		1	
white glass	–	6344-811-101-500	6310-0-0174		1	
glass black	–	6344-825-101-500	6310-0-0132		1	
stainless steel	–	6344-866-101-500	6310-0-0130		1	

ABB i-bus® KNX

Operation – Busch-priOn®



6345-825-101-500

Busch Watchdog® 180 FM Sensor, Busch-priOn®

Sends switching commands with motion detection in combination with the bus coupler Busch-priOn®. Programmable via ETS for automatic and semi-automatic operation.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
studio white, high gloss	–	6345-24G-101-500	6310-0-0081		1	
white glass	–	6345-811-101-500	6310-0-0176		1	
glass black	–	6345-825-101-500	6310-0-0080		1	
stainless steel	–	6345-866-101-500	6310-0-0078		1	



6348-825-101-500

Top End Strip, Busch-priOn®

For mounting on Base Frame 1-fold to 3-fold.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
studio white, high gloss	–	6348-24G-101-500	6310-0-0147		1	
white glass	–	6348-811-101-500	6310-0-0178		1	
glass black	–	6348-825-101-500	6310-0-0146		1	
stainless steel	–	6348-866-101-500	6310-0-0144		1	



6350-825-101-500

Top End Strip with IR Receiver and Proximity Sensor, Busch-priOn®

For mounting on Base Frame 1-fold to 3-fold. With integrated IR receiver for control by IR handheld control as well as integrated proximity function.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
glass black	–	6350-825-101-500	6310-0-0157		1	



6349-825-101-500

Bottom End Strip without logo, Busch-priOn®

For mounting on Base Frame 1-fold to 3-fold.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
studio white, high gloss	–	6349-24G-101-500	6310-0-0155		1	
white glass	–	6349-811-101-500	6310-0-0180		1	
glass black	–	6349-825-101-500	6310-0-0154		1	
stainless steel	–	6349-860-101-500	6310-0-0152		1	

ABB i-bus® KNX

Operation – Busch-priOn®

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6352-825-101-500

Bottom End Strip with Temperature Sensor, Busch-priOn®

For mounting on Base Frame 1-fold to 3-fold. Provides the value measured by the temperature sensor to the 8.89 cm (3.5") TFT colour display or the room thermostat.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
studio white, high gloss	–	6352-24G-101-500	6310-0-0165		1	
white glass	–	6352-811-101-500	6310-0-0182		1	
glass black	–	6352-825-101-500	6310-0-0164		1	
stainless steel	–	6352-860-101-500	6310-0-0162		1	



6351-825-101-500

Top End Strip with Display, Room Thermostat, IR Receiver and Proximity Sensor, Busch-priOn®

In combination with control element 3-fold, Busch-priOn®. With integrated room thermostat, display, proximity sensor and IR receiver. Room thermostat for heating and cooling (PI, PWM or 2-point) and control of up to 5-speed Fan Coil Actuators. Display for indication of 1 bit; 1, 2, 3, 4 or 14 byte values as text or symbols.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
glass black	–	6351-825-101-500	6310-0-0092		1	



6353/20-860-500

Inscription Symbols, Busch-priOn®

For Busch-priOn® operating element 1-fold to 3-fold with different symbols.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
lighting	–	6353/20-860-500	6310-0-0093		10	
blind	–	6353/30-860-500	6310-0-0094		10	
Room Temperature	–	6353/40-860-500	6310-0-0095		10	
scene	–	6353/50-860-500	6310-0-0096		10	



6149/21-500

Commissioning Interface / Adapter

6120/12-101-500 and 6120/13-500 via USB port or via SD card slot. With integrated battery for independent operation for up to 8 h.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6149/21-500	6133-0-0201		1	



CP-D 24/2.5

Power Supply, 24 V, 2.5 A, MDRC

For Busch-priOn® Power Bus Coupler 6120/13-500.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	CP-D 24/2.5	2CDG120037R0011		1	

ABB i-bus® KNX

Operation – Standard control elements

A
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The standard control elements are available as 1/2gang, 2/4gang or 4/8gang models. Every switch rocker has two LEDs, which display the status of the connected loads. The separate switch rockers are freely programmable and are suitable for switching and dimming, and also for operating blinds and as a light scene extension unit. They can also be used in commercial applications. Anti-theft protection has also been integrated – an important factor for installations in public areas.

Customised text. Pictograms can be applied to push buttons for easier orientation. A clear text template with standard symbols is included for every sensor. The self-explanatory pictograms are available for the complete range of building control technology and if necessary can be easily replaced. If the appropriate symbol is not included, the push buttons can be labelled as desired. The related bus-coupler unit is included in delivery.

01



Function
Switching | Dimming | Blinds | Push-button | Value transmitter | Light scene extension unit

Features
Labellable switch rockers | Anti-theft protection | Freely programmable switches | Status/orientation light (red/green/OFF)

02



Function
Switching | Dimming | Blinds | Push-button | Value transmitter | Light scene extension unit

Features
Labellable switch rockers | Anti-theft protection | Freely programmable switches | Status/orientation light (red/green/OFF)

03



Function
Switching | Dimming | Blinds | Push-button | Value transmitter | Light scene extension unit

Features
Labellable switch rockers | Anti-theft protection | Freely programmable switches | Status/orientation light (red/green/OFF)

- [01 Standard control element 1/2gang](#)
- [02 Standard control element 2/4gang](#)
- [03 Standard control element 4/8gang](#)

ABB i-bus® KNX

Operation – Standard control elements

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6125/01



6126/01



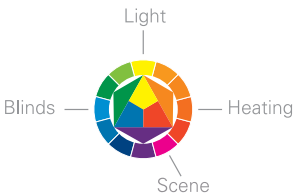
6127/01

Standard control element, 1-fold with bus coupler enclosed						Standard control element, 2-fold with bus coupler enclosed			Standard control element, 4-fold with bus coupler enclosed		
With 1 Control element: rocker switch left/right						With 2 Control elements: rocker switch left/right			With 4 Control elements: rocker switch left/right		
With labelling field. Transparent labelling sheet with standard symbols included in delivery. Display elements: Two LED per rocker via separate communication object for status (Red/Green/OFF) or orientation light. Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C. Dimensions: (L x W x D): 63 mm x 63 mm											
Pack unit pc.	Weight 1 pc. kg	Description	Type	Order code	Price 1 pc. €	Type	Order code	Price 1 pc. €	Type	Order code	Price 1 pc. €
		future® linear									
1		anthracite	6125/01-81-500	6115-0-0205		6126/01-81-500	6116-0-0195		6127/01-81-500	6117-0-0221	
1		savanne/ivory	6125/01-82-500	6115-0-0206		6126/01-82-500	6116-0-0196		6127/01-82-500	6117-0-0222	
1		aluminium silver ¹⁾	6125/01-83-500	6115-0-0207		6126/01-83-500	6116-0-0197		6127/01-83-500	6117-0-0223	
1		davos/studio white	6125/01-84-500	6115-0-0183		6126/01-84-500	6116-0-0174		6127/01-84-500	6117-0-0200	
1		studio white, matt ¹⁾	6125/01-884-500	6115-0-0214		6126/01-884-500	6116-0-0204		6127/01-884-500	6117-0-0230	
1		black, matt ¹⁾	6125/01-885-500	6115-0-0215		6126/01-885-500	6116-0-0205		6127/01-885-500	6117-0-0231	
		solo®									
1		savanne/ivory	6125/01-82-500	6115-0-0206		6126/01-82-500	6116-0-0196		6127/01-82-500	6117-0-0222	
1		davos/studio white	6125/01-84-500	6115-0-0183		6126/01-84-500	6116-0-0174		6127/01-84-500	6117-0-0200	
1		meteor/grey metallic ¹⁾	6125/01-803-500	6115-0-0212		6126/01-803-500	6116-0-0202		6127/01-803-500	6117-0-0228	
1		sahara/yellow	6125/01-815-500	6115-0-0213		6126/01-815-500	6116-0-0203		6127/01-815-500	6117-0-0229	
		carat									
1		anthracite	6125/01-81-500	6115-0-0205		6126/01-81-500	6116-0-0195		6127/01-81-500	6117-0-0221	
1		savanne/ivory	6125/01-82-500	6115-0-0206		6126/01-82-500	6116-0-0196		6127/01-82-500	6117-0-0222	
1		davos/studio white	6125/01-84-500	6115-0-0183		6126/01-84-500	6116-0-0174		6127/01-84-500	6117-0-0200	
		pure stainless steel ¹⁾									
1		pure stainless steel	6125/01-866-500	6115-0-0211		6126/01-866-500	6116-0-0201		6127/01-866-500	6117-0-0227	
		Busch-axcent®									
1		davos/studio white	6125/01-84-500	6115-0-0183		6126/01-84-500	6116-0-0174		6127/01-84-500	6117-0-0200	
1		chalet-white	6125/01-896-500	6115-0-0449		6126/01-896-500	6116-0-0224		6127/01-896-500	6117-0-0249	

¹⁾ Surface painted

ABB i-bus® KNX

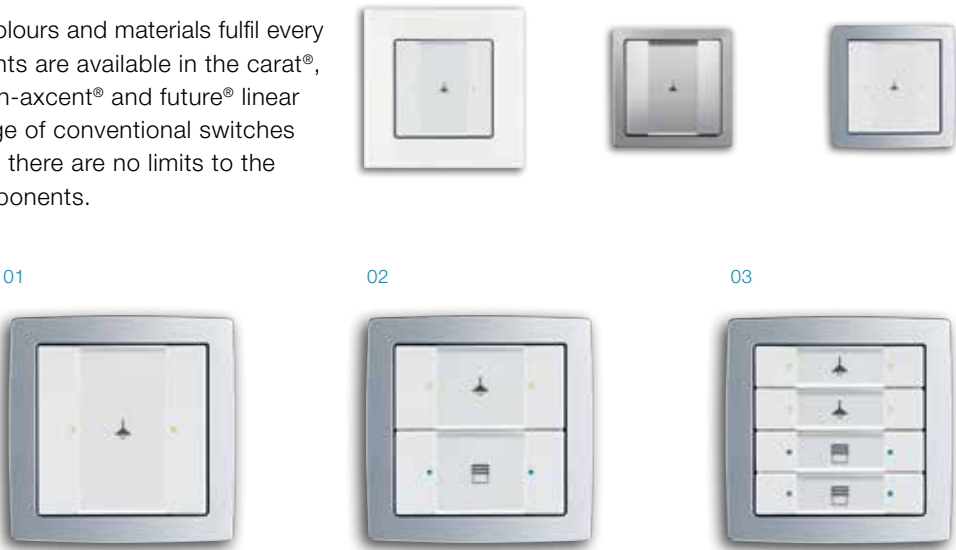
Operation – Multifunction control elements



The multifunction control elements with LED colour code concept meet the highest demands for comfort and technology. They each come with two RGB LEDs per rocker switch, which conform to a consistent colour concept. This makes the function obvious at a glance, and the surfaces can be additionally fitted with pictograms. Each side of a rocker switch can be occupied with its own function – each for calling up one light scene, for instance. This turns a 4gang control element into an 8gang control element.

Wide range. Different shapes, colours and materials fulfil every requirement. KNX control elements are available in the carat®, pure stainless steel, solo®, Busch-axcent® and future® linear programmes. The complete range of conventional switches from these series is available, so there are no limits to the options for combining KNX components.

01	Multifunction control element 1/2gang
02	Multifunction control element 2/4gang
03	Multifunction control element 4/8gang
04	Room temperature controller
05	Multifunction control element 2/4gang, integrated room thermostat
06	Multifunction control element 3/6gang with IR reception
07	FM movement detector standard
08	FM movement detector comfort



Function
Switching | Dimming | Blinds | Push-button | Value transmitter | Light scene extension unit | Step-type | Multiple operation | Logic function (including light scenes)

Features
Labellable switch rockers | Anti-theft protection | Freely programmable switches | LED colour code concept

Function
Switching | Dimming | Blinds | Push-button | Value transmitter | Light scene extension unit | Step-type | Multiple operation | Logic function (including light scenes)

Features
Labellable switch rockers | Anti-theft protection | Freely programmable switches | LED colour code concept

Function
Switching | Dimming | Blinds | Push-button | Value transmitter | Light scene extension unit | Step-type | Multiple operation | Logic function (including light scenes)

Features
Labellable switch rockers | Anti-theft protection | Freely programmable switches | LED colour code concept

ABB i-bus® KNX

Operation – Multifunction control elements

A
12



04



Function

Comfort | Stand-by | Night mode | Frost protection | Specified temperature | Time | Date | Heating | Cooling | Fan Coil operation for heating and cooling | Light scenes | Light scene extension unit | Value | Logic function (including light scenes)

Features

Labellable switch rockers | Anti-theft protection | Display illumination | LED colour code concept

05



Function

Comfort | Stand-by | Night mode | Frost protection | Specified temperature | Time | Date | Heating | Cooling | Fan Coil operation for heating and cooling | Light scenes | Light scene extension unit | Value | Logic function (including light scenes)

Features

Labellable switch rockers | Anti-theft protection | Display illumination | Colour concept

06



Function

10 freely programmable IR channels | Switching | Dimming | Blinds | Button | Light scenes | Light scene extension unit | Value | Logic function (including light scenes)

Features

Labellable switch rockers | Anti-theft protection | Display illumination | Colour concept

07



08



Function

4 channels | Logic function (including light scenes)

ABB i-bus® KNX

Operation – Multifunction control elements

A
12



6125/02



6126/02



6127/02

For BCU 6120/12-101-500 or 6120/13-500.
With labelling field. Support of KNX functions through innovative colour concept or standard illumination red/green. Push switch function: switching/dimming/blind/sending values/scenes etc. Transparent labelling sheet with standard symbols included in delivery. Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.).

Display elements: Two LED per rocker via separate communication object for status (Red/Green/OFF) or orientation light.

Protection class (Device): IP 20.

Temperature range (Device): – 5 °C to 45 °C.

Dimensions: (L x W x D): 63 mm x 63 mm

Control element, 1/2-fold
Multi-function/colour concept

With 1 Control element: rocker switch left/right

Control element, 2/4-fold
Multi-function/colour concept

With 2 Control elements: rocker switch left/right

Control element, 4/8-fold
Multi-function/colour concept

With 4 Control elements: rocker switch left/right

Pack unit pc.	Weight 1 pc. kg	Description	Type	Order code	Price 1 pc. €	Type	Order code	Price 1 pc. €	Type	Order code	Price 1 pc. €
		future® linear									
1		anthracite	6125/02-81-500	6115-0-0216		6126/02-81-500	6116-0-0206		6127/02-81-500	6117-0-0232	
1		savanne/ivory	6125/02-82-500	6115-0-0217		6126/02-82-500	6116-0-0207		6127/02-82-500	6117-0-0233	
1		aluminium silver ¹⁾	6125/02-83-500	6115-0-0218		6126/02-83-500	6116-0-0208		6127/02-83-500	6117-0-0234	
1		davos/studio white	6125/02-84-500	6115-0-0219		6126/02-84-500	6116-0-0209		6127/02-84-500	6117-0-0235	
1		studio white, matt ¹⁾	6125/02-884-500	6115-0-0226		6126/02-884-500	6116-0-0216		6127/02-884-500	6117-0-0242	
1		black, matt ¹⁾	6125/02-885-500	6115-0-0227		6126/02-885-500	6116-0-0217		6127/02-885-500	6117-0-0243	
		solo®									
1		savanne/ivory	6125/02-82-500	6115-0-0217		6126/02-82-500	6116-0-0207		6127/02-82-500	6117-0-0233	
1		davos/studio white	6125/02-84-500	6115-0-0219		6126/02-84-500	6116-0-0209		6127/02-84-500	6117-0-0235	
1		meteor/grey metallic ¹⁾	6125/02-803-500	6115-0-0224		6126/02-803-500	6116-0-0214		6127/02-803-500	6117-0-0240	
1		sahara/yellow ¹⁾	6125/02-815-500	6115-0-0225		6126/02-815-500	6116-0-0215		6127/02-815-500	6117-0-0241	
		carat									
1		anthracite	6125/02-81-500	6115-0-0216		6126/02-81-500	6116-0-0206		6127/02-81-500	6117-0-0232	
1		savanne/ivory	6125/02-82-500	6115-0-0217		6126/02-82-500	6116-0-0207		6127/02-82-500	6117-0-0233	
1		davos/studio white	6125/02-84-500	6115-0-0219		6126/02-84-500	6116-0-0209		6127/02-84-500	6117-0-0235	
		pure stainless steel ¹⁾									
1		pure stainless steel	6125/02-866-500	6115-0-0223		6126/02-866-500	6116-0-0213		6127/02-866-500	6117-0-0239	
		Busch-axcent®									
1		davos/studio white	6125/02-84-500	6115-0-0219		6126/02-84-500	6116-0-0209		6127/02-84-500	6117-0-0235	
1		chalet-white	6125/02-896-500	6115-0-0451		6126/02-896-500	6116-0-0226		6127/02-896-500	6117-0-0251	

¹⁾ Surface painted

ABB i-bus® KNX

Operation – Multifunction control elements



6129/01

Control Element, 3/6-fold, multifunction, with IR-Interface, FM

suitable for KNX bus coupler 6120/12-101-500 and 6120/13-500. With IR interface for Busch-remote controllers 6010-25 or 6020-.../6021-... . Push button function: switching/dimming/ blind/value sending/light scenes/step-type switch functions. Switch contacts left/right. Two freely programmable RGB LEDs per rocker. With RGB colour code concept or red/green/ OFF-operation. With labeling field. Transparent labeling sheet with standard symbols included in delivery.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
future® linear						
anthracite	–	6129/01-81-500	6135-0-0156		1	
savanne/ivory	–	6129/01-82-500	6135-0-0157		1	
aluminium silver ¹⁾	–	6129/01-83-500	6135-0-0158		1	
davos/studio white	–	6129/01-84-500	6135-0-0146		1	
studio white, matt ¹⁾	–	6129/01-884-500	6135-0-0165		1	
black, matt ¹⁾	–	6129/01-885-500	6135-0-0166		1	
solo®						
savanne/ivory	–	6129/01-82-500	6135-0-0157		1	
davos/studio white	–	6129/01-84-500	6135-0-0146		1	
meteor/grey metallic ¹⁾	–	6129/01-803-500	6135-0-0163		1	
sahara/yellow	–	6129/01-815-500	6135-0-0164		1	
carat						
anthracite	–	6129/01-81-500	6135-0-0156		1	
savanne/ivory	–	6129/01-82-500	6135-0-0157		1	
davos/studio white	–	6129/01-84-500	6135-0-0146		1	
pure stainless steel ¹⁾						
pure stainless steel	–	6129/01-866-500	6135-0-0162		1	
Busch-axcent®						
davos/studio white	–	6129/01-84-500	6135-0-0146		1	
chalet-white	–	6129/01-896-500	6135-0-0170		1	

¹⁾ Surface painted

A
12

ABB i-bus® KNX

Operation – Movement Detectors

A
12



6122/01



6122/02

Movement detector with up to 4 channels.
For ABB i-bus® KNX 6120/12-101, 6120/13.

Busch-Watchdog 180 flush-mounted standard sensor

Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.)

Busch-Watchdog 180 flush-mounted comfort sensor II

Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.)

Pack unit pc.	Weight 1 pc. kg	Description	Type	Order code	Price 1 pc. €	Type	Order code	Price 1 pc. €
		future® linear						
1		anthracite	6122/01-81-500	6132-0-0272		6122/02-81-500	6132-0-0283	
1		savanne/ivory	6122/01-82-500	6132-0-0273		6122/02-82-500	6132-0-0284	
1		aluminium silver ¹⁾	6122/01-83-500	6132-0-0274		6122/02-83-500	6132-0-0285	
1		davos/studio white	6122/01-84-500	6132-0-0250		6122/02-84-500	6132-0-0263	
1		studio white, matt ¹⁾	6122/01-884-500	6132-0-0281		6122/02-884-500	6132-0-0292	
1		black, matt ¹⁾	6122/01-885-500	6132-0-0282		6122/02-885-500	6132-0-0293	
		solo®						
1		savanne/ivory	6122/01-82-500	6132-0-0273		6122/02-82-500	6132-0-0284	
1		davos/studio white	6122/01-84-500	6132-0-0250		6122/02-84-500	6132-0-0263	
1		meteor/grey metallic ¹⁾	6122/01-803-500	6132-0-0279		6122/02-803-500	6132-0-0290	
1		sahara/yellow	6122/01-815-500	6132-0-0280		6122/02-815-500	6132-0-0291	
		carat						
1		anthracite	6122/01-81-500	6132-0-0272		6122/02-81-500	6132-0-0283	
1		savanne/ivory	6122/01-82-500	6132-0-0273		6122/02-82-500	6132-0-0284	
1		davos/studio white	6122/01-84-500	6132-0-0250		6122/02-84-500	6132-0-0263	
		pure stainless steel ¹⁾						
1		pure stainless steel	6122/01-866-500	6132-0-0278		6122/02-866-500	6132-0-0289	
		Busch-axcent®						
1		davos/studio white	6122/01-84-500	6132-0-0250		6122/02-84-500	6132-0-0263	
1		chalet-white	6122/01-896-500	6132-0-0322		6122/02-896-500	6132-0-0324	

¹⁾ Surface painted

ABB i-bus® KNX

Operation – Room Thermostats

A
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6124/01



6128/01

Room Thermostat with Display, FM						Room Thermostat with Display and 2/4-fold Switch Sensor, FM		
suitable for KNX bus coupler 6120/12-101-500 and 6120/13-500. For heating and cooling (PI, PWM or 2-point). Constant room temperature controller for fan-coil applications (up to 5-speed level ventilation actuators in 2- and 4-pipe systems) and conventional heating and cooling systems. With manual and automatic adjustment of fan levels.						Push button function: switching/dimming/blind/value sending/light scenes/step-type switch functions. Switch contacts left/right. Two freely programmable RGB LEDs per rocker. With RGB colour code concept or red/green/OFF-operation. LCD displaying operation mode, temperature, time and date. With labeling field. Transparent labeling sheet with standard symbols included in delivery.		
Pack unit pc.	Weight 1 pc. kg	Description	Type	Order code	Price 1 pc. €	Type	Order code	Price 1 pc. €
		future® linear						
1		anthracite	6124/01-81-500	6134-0-0295		6128/01-81-500	6134-0-0284	
1		savanne/ivory	6124/01-82-500	6134-0-0274		6128/01-82-500	6134-0-0285	
1		aluminium silver ¹⁾	6124/01-83-500	6134-0-0275		6128/01-83-500	6134-0-0286	
1		davos/studio white	6124/01-84-500	6134-0-0248		6128/01-84-500	6134-0-0261	
1		studio white, matt ¹⁾	6124/01-884-500	6134-0-0282		6128/01-884-500	6134-0-0293	
1		black, matt ¹⁾	6124/01-885-500	6134-0-0283		6128/01-885-500	6134-0-0294	
		solo®						
1		savanne/ivory	6124/01-82-500	6134-0-0274		6128/01-82-500	6134-0-0285	
1		davos/studio white	6124/01-84-500	6134-0-0248		6128/01-84-500	6134-0-0261	
1		meteor/grey metallic ¹⁾	6124/01-803-500	6134-0-0280		6128/01-803-500	6134-0-0291	
1		sahara/yellow	6124/01-815-500	6134-0-0281		6128/01-815-500	6134-0-0292	
		carat						
1		anthracite	6124/01-81-500	6134-0-0295		6128/01-81-500	6134-0-0284	
1		savanne/ivory	6124/01-82-500	6134-0-0274		6128/01-82-500	6134-0-0285	
1		davos/studio white	6124/01-84-500	6134-0-0248		6128/01-84-500	6134-0-0261	
		pure stainless steel ¹⁾						
1		pure stainless steel	6124/01-866-500	6134-0-0279		6128/01-866-500	6134-0-0290	
		Busch-axcent®						
1		davos/studio white	6124/01-84-500	6134-0-0248		6128/01-84-500	6134-0-0261	
1		chalet-white	6124/01-896-500	6134-0-0304		6128/01-896-500	6134-0-0306	

¹⁾ Surface painted

ABB i-bus® KNX

Operation – Frames

A
12



1721-184K

Frames, future® linear

For vertical and horizontal installation.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1-fold, anthracite	–	1721-181K	1754-0-4240		10	
1-fold, savanna/ivory	–	1721-182K-500	1754-0-4506		10	
1-fold, aluminium silver ¹⁾	–	1721-183K-500	1754-0-4529		10	
1-fold, davos/studio white	–	1721-184K-500	1754-0-4498		10	
1-fold, studio white, matt ¹⁾	–	1721-884K-500	1754-0-4531		10	
1-fold, black matt ¹⁾	–	1721-885K-500	1754-0-4532		10	
2-fold, anthracite	–	1722-181K	1754-0-4241		10	
2-fold, savanna/ivory	–	1722-182K	1754-0-4231		10	
2-fold, aluminium silver ¹⁾	–	1722-183K-500	1754-0-4530		10	
2-fold, davos/studio white	–	1722-184K-500	1754-0-4499		10	
2-fold, studio white, matt ¹⁾	–	1722-884K	1754-0-4415		10	
2-fold, black matt ¹⁾	–	1722-885K-500	1754-0-4534		10	
3-fold, anthracite	–	1723-181K	1754-0-4242		10	
3-fold, savanna/ivory	–	1723-182K	1754-0-4232		10	
3-fold, aluminium silver ¹⁾	–	1723-183K-500	1754-0-4533		10	
3-fold, davos/studio white	–	1723-184K-500	1754-0-4502		10	
3-fold, studio white, matt ¹⁾	–	1723-884K	1754-0-4416		10	
3-fold, black matt ¹⁾	–	1723-885K	1754-0-4421		10	
4-fold, anthracite	–	1724-181K	1754-0-4243		10	
4-fold, savanna/ivory	–	1724-182K	1754-0-4233		10	
4-fold, aluminium silver ¹⁾	–	1724-183K	1754-0-4309		10	
4-fold, davos/studio white	–	1724-184K	1754-0-4238		10	
4-fold, studio white, matt ¹⁾	–	1724-884K	1754-0-4417		10	
4-fold, black matt ¹⁾	–	1724-885K	1754-0-4422		10	
5-fold, anthracite	–	1725-181K	1754-0-4244		1	
5-fold, savanna/ivory	–	1725-182K	1754-0-4234		1	
5-fold, aluminium silver ¹⁾	–	1725-183K	1754-0-4310		1	
5-fold, davos/studio white	–	1725-184K-500	1754-0-4517		1	
5-fold, studio white, matt ¹⁾	–	1725-884K	1754-0-4418		1	
5-fold, black matt ¹⁾	–	1725-885K	1754-0-4423		1	

¹⁾ Surface painted

ABB i-bus® KNX

Operation – Frames



1721-80

Frames, solo®

For vertical and horizontal installation.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1-fold, chrome, matt	–	1721-80-500	1754-0-4535		10	
1-fold, chrome, glossy	–	1721-80G-500	1754-0-4538		10	
1-fold, davos/studio white	–	1721-84-500	1754-0-4536		10	
2-fold, chrome, matt	–	1722-80-500	1754-0-4537		10	
2-fold, chrome, glossy	–	1722-80G	1754-0-4327		10	
2-fold, davos/studio white	–	1722-84-500	1754-0-4539		10	
3-fold, chrome, matt	–	1723-80-500	1754-0-4540		10	
3-fold, chrome, glossy	–	1723-80G	1754-0-4328		10	
3-fold, davos/studio white	–	1723-84-500	1754-0-4541		10	
4-fold, chrome, matt	–	1724-80	1754-0-4107		1	
4-fold, chrome, glossy	–	1724-80G	1754-0-4329		1	
4-fold, davos/studio white	–	1724-84	1754-0-4112		1	
5-fold, chrome, matt	–	1725-80	1754-0-4108		1	
5-fold, chrome, glossy	–	1725-80G	1754-0-4330		1	
5-fold, davos/studio white	–	1725-84	1754-0-4113		1	



1721-860

Frames, carat®

For vertical and horizontal installation.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1-fold, white glass	–	1721-811	1754-0-4442		1	
1-fold, bronze	–	1721-821	1754-0-4258		1	
1-fold, gold ¹⁾	–	1721-823-101	1754-0-4356		1	
1-fold, glass black	–	1721-825	1754-0-4322		1	
1-fold, chrome	–	1721-826-101	1754-0-4360		1	
1-fold, stainless steel	–	1721-860	1754-0-4254		1	
2-fold, white glass	–	1722-811	1754-0-4443		1	
2-fold, bronze	–	1722-821	1754-0-4259		1	
2-fold, gold ¹⁾	–	1722-823-101	1754-0-4357		1	
2-fold, glass black	–	1722-825	1754-0-4323		1	
2-fold, chrome	–	1722-826-101	1754-0-4361		1	
2-fold, stainless steel	–	1722-860	1754-0-4255		1	
3-fold, white glass	–	1723-811	1754-0-4444		1	
3-fold, bronze	–	1723-821	1754-0-4260		1	
3-fold, gold ¹⁾	–	1723-823-101	1754-0-4358		1	
2-fold, glass black	–	1722-825	1754-0-4323		1	
3-fold, chrome	–	1723-826-101	1754-0-4362		1	
3-fold, stainless steel	–	1723-860	1754-0-4256		1	
4-fold, white glass	–	1724-811	1754-0-4445		1	
4-fold, bronze	–	1724-821	1754-0-4261		1	
4-fold, gold ¹⁾	–	1724-823-101	1754-0-4359		1	
4-fold, glass black	–	1724-825	1754-0-4325		1	
4-fold, chrome	–	1724-826-101	1754-0-4363		1	
4-fold, stainless steel	–	1724-860	1754-0-4257		1	

¹⁾ Gold plated 24 carat

ABB i-bus® KNX

Operation – Frames

A
12



1721-866K

Frames, pure stainless steel

For vertical and horizontal installation. Stainless steel material.

Anti-fingerprint (does not leave any visible fingerprints on the material).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1-fold, stainless steel	–	1721-866K-500	1754-0-4500		10	
2-fold, stainless steel	–	1722-866K-500	1754-0-4501		10	
3-fold, stainless steel	–	1723-866K	1754-0-4319		10	
4-fold, stainless steel	–	1724-866K	1754-0-4320		1	
5-fold, stainless steel	–	1725-866K	1754-0-4321		1	



1722-283

Frames, axcent

For vertical and horizontal installation.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1-fold, black	–	1721-281	1754-0-4409		10	
1-fold, brown glass	–	1721-283	NEW 1754-0-4543		1	
1-fold, davos/studio white	–	1721-284	NEW 1754-0-4331		10	
1-fold, yellow	–	1721-285	NEW 1754-0-4334		10	
1-fold, green	–	1721-286	NEW 1754-0-4337		10	
1-fold, red	–	1721-287	NEW 1754-0-4340		10	
1-fold, blue	–	1721-288	NEW 1754-0-4343		10	
1-fold, white glass	–	1721-280	1754-0-4437		1	
1-fold, entrée-grey	–	1721-291-500	NEW 1754-0-4471		10	
1-fold, château-black	–	1721-295-500	NEW 1754-0-4491		10	
1-fold, chalet-white	–	1721-296-500	NEW 1754-0-4486		10	
1-fold, foyer-red	–	1721-297-500	NEW 1754-0-4476		10	
1-fold, maison-beige	–	1721-299-500	NEW 1754-0-4481		10	
2-fold, black	–	1722-281	1754-0-4410		10	
2-fold, brown glass	–	1722-283	NEW 1754-0-4544		1	
2-fold, davos/studio white	–	1722-284	NEW 1754-0-4332		10	
2-fold, yellow	–	1722-285	NEW 1754-0-4335		10	
2-fold, green	–	1722-286	NEW 1754-0-4338		10	
2-fold, red	–	1722-287	NEW 1754-0-4341		10	
2-fold, blue	–	1722-288	NEW 1754-0-4344		10	
2-fold, white glass	–	1722-280	1754-0-4438		1	
2-fold, entrée-grey	–	1722-291-500	NEW 1754-0-4472		10	
2-fold, château-black	–	1722-295-500	NEW 1754-0-4492		10	
2-fold, chalet-white	–	1722-296-500	NEW 1754-0-4487		10	
2-fold, foyer-red	–	1722-297-500	NEW 1754-0-4477		10	
2-fold, maison-beige	–	1722-299-500	NEW 1754-0-4482		10	

Continuation of table „Frames, axcent“ on next page

ABB i-bus® KNX

Operation – Frames

Continuation of table „Frames, axcent“

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
3-fold, black	–	1723-281	1754-0-4411		10	
3-fold, brown glass	–	1723-283 NEW	1754-0-4545		1	
3-fold, davos/studio white	–	1723-284 NEW	1754-0-4333		10	
3-fold, yellow	–	1723-285 NEW	1754-0-4336		10	
3-fold, green	–	1723-286 NEW	1754-0-4339		10	
3-fold, red	–	1723-287 NEW	1754-0-4342		10	
3-fold, blue	–	1723-288 NEW	1754-0-4345		10	
3-fold, white glass	–	1723-280	1754-0-4439		1	
3-fold, entrée-grey	–	1723-291-500 NEW	1754-0-4473		10	
3-fold, château-black	–	1723-295-500 NEW	1754-0-4493		10	
3-fold, chalet-white	–	1723-296-500 NEW	1754-0-4488		10	
3-fold, foyer-red	–	1723-297-500 NEW	1754-0-4478		10	
3-fold, maison-beige	–	1723-299-500 NEW	1754-0-4483		10	
4-fold, black	–	1724-281	1754-0-4412		1	
4-fold, brown glass	–	1724-283 NEW	1754-0-4546		1	
4-fold, davos/studio white	–	1724-284 NEW	1754-0-4346		1	
4-fold, yellow	–	1724-285 NEW	1754-0-4348		1	
4-fold, green	–	1724-286 NEW	1754-0-4350		1	
4-fold, red	–	1724-287 NEW	1754-0-4352		1	
4-fold, blue	–	1724-288 NEW	1754-0-4354		1	
4-fold, white glass	–	1724-280	1754-0-4440		1	
4-fold, entrée-grey	–	1724-291-500 NEW	1754-0-4474		1	
4-fold, château-black	–	1724-295-500 NEW	1754-0-4494		1	
4-fold, chalet-white	–	1724-296-500 NEW	1754-0-4489		1	
4-fold, foyer-red	–	1724-297-500 NEW	1754-0-4479		1	
4-fold, maison-beige	–	1724-299-500 NEW	1754-0-4484		1	
5-fold, black	–	1725-281	1754-0-4413		1	
5-fold, brown glass	–	1725-283 NEW	1754-0-4547		1	
5-fold, davos/studio white	–	1725-284 NEW	1754-0-4347		1	
5-fold, yellow	–	1725-285 NEW	1754-0-4349		1	
5-fold, green	–	1725-286 NEW	1754-0-4351		1	
5-fold, red	–	1725-287 NEW	1754-0-4353		1	
5-fold, blue	–	1725-288 NEW	1754-0-4355		1	
5-fold, white glass	–	1725-280	1754-0-4441		1	
5-fold, entrée-grey	–	1725-291-500 NEW	1754-0-4475		1	
5-fold, château-black	–	1725-295-500 NEW	1754-0-4495		1	
5-fold, chalet-white	–	1725-296-500 NEW	1754-0-4490		1	
5-fold, foyer-red	–	1725-297-500 NEW	1754-0-4480		1	
5-fold, maison-beige	–	1725-299-500 NEW	1754-0-4485		1	

ABB i-bus® KNX

Operation – Busch-triton®

A
12

With freely programmable switch rockers, backlit label fields and IR sensor Busch-triton® is ideal for any application and with its elegant design it is commonly installed in hotels and public areas. Busch-triton® is equipped with an integrated bus coupler and IR receiver. The unit composed of control element and integrated bus coupler now really has everything required to control building systems elegantly and comfortably.

Colour-coordinated.

The Busch-triton® is available in five stunning colours, offering exactly the right ambience for any environment. The colours offer exactly the right accent to the carat®, impuls, alpha and future® linear ranges – such as the use of the colour-coordinated socket outlets or motion detectors.



01



02



03



01 1/2gang control element with rear-illuminated labelling area and IR reception

02 3/6gang control element with rear-illuminated labelling area and IR reception

03 5/10gang control element with rear-illuminated labelling area and IR reception

Function

Switching | Dimming | Blinds | Value transmitter | Value dimming sensor | Light scene extension unit | Step-type switch | Short/long operation | 13 freely programmable IR channels | 8 light scenes

Features

Labellable switch rockers | Rear-illuminated labelling field | Anti-theft protection | Freely programmable switches | IR remote-controllable | Freely programmable additional key

Function

Switching | Dimming | Blinds | Value transmitter | Value dimming sensor | Light scene extension unit | Step-type switch | Short/long operation | 13 freely programmable IR channels | 8 light scenes

Features

Labellable switch rockers | Rear-illuminated labelling field | Anti-theft protection | Freely programmable switches | IR remote-controllable

Function

Switching | Dimming | Blinds | Value transmitter | Value dimming sensor | Light scene extension unit | Step-type switch | Short/long operation | 13 freely programmable IR channels | 8 light scenes

Features

Labellable switch rockers | Rear-illuminated labelling field | Anti-theft protection | Freely programmable switches | IR remote-controllable | Freely programmable additional key

ABB i-bus® KNX

Operation – Busch-triton®

A
12



01



Function

LCD display room temperature controller | Comfort | Stand-by | Night operation | Frost protection | Heating | Cooling | Fan control | Switching | Dimming | Blinds | Value | 13 freely programmable IR channels | 8 light scenes

Features

Labellable switch rockers | Rear-illuminated labelling field | Anti-theft protection | Freely programmable switches | IR remote-controllable | Freely programmable additional key

02



Function

LCD display room temperature controller | Comfort | Stand-by | Night operation | Frost protection | Heating | Cooling | Fan control | Switching | Dimming | Blinds | Value | 13 freely programmable IR channels | 8 light scenes

Features

Labellable switch rockers | Rear-illuminated labelling field | Anti-theft protection | Freely programmable switches | IR remote-controllable | Freely programmable additional key

01 3/6gang control element with rear-illuminated labelling field, integrated room thermostat, LCD display and IR reception

02 5/10gang control element with rear-illuminated labelling field, integrated room thermostat, LCD display and IR reception

ABB i-bus® KNX

Operation – Busch-triton®

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6320/10-24G-500

Busch-triton® Control Element, 1/2-fold, FM

With integrated bus coupling unit. With IR interface for Busch-remote controllers. Push button function: switching/dimming/blind/value sending/light scenes/step-type switch functions. Switch contacts left/right. One freely programmable LED per rocker (red/green/OFF). With labeling field.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpha						
platinum	–	6320/10-20-500	6320-0-0002		1	
studio white,high gloss	–	6320/10-24G-500	6320-0-0004		1	
palladium	–	6320/10-260-500	6320-0-0010		1	
impuls						
champagne metallic	–	6320/10-79-500	6320-0-0006		1	
future® linear						
aluminium silver	–	6320/10-83-500	6320-0-0008		1	



6320/30-24G-500

Busch-triton® Control Element, 3/6-fold, FM

With integrated bus coupling unit. With IR interface for Busch-remote controllers. Push button function: switching/dimming/blind/value sending/light scenes/step-type switch functions. Switch contacts left/right. One freely programmable LED per rocker (red/green/OFF). With labeling field.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpha						
platinum	–	6320/30-20-500	6320-0-0012		1	
studio white,high gloss	–	6320/30-24G-500	6320-0-0014		1	
palladium	–	6320/30-260-500	6320-0-0020		1	
impuls						
champagne metallic	–	6320/30-79-500	6320-0-0016		1	
future® linear						
aluminium silver	–	6320/30-83-500	6320-0-0018		1	

ABB i-bus® KNX

Operation – Busch-triton®



6320/50-24G-500

Busch-triton® Control Element, 5/10-fold, FM

With integrated bus coupling unit. With IR interface for Busch-remote controllers. Push button function: switching/dimming/blind/value sending/light scenes/step-type switch functions. Switch contacts left/right. One freely programmable LED per rocker (red/green/OFF). With labeling field.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpha						
platinum	–	6320/50-20-500	6320-0-0032		1	
studio white,high gloss	–	6320/50-24G-500	6320-0-0034		1	
palladium	–	6320/50-260-500	6320-0-0040		1	
impuls						
champagne metallic	–	6320/50-79-500	6320-0-0036		1	
future® linear						
aluminium silver	–	6320/50-83-500	6320-0-0038		1	



6320/38-24G-500

Busch-triton® Control Element with Room Thermostat and 3/6-fold Switch Sensor, FM

With integrated bus coupling unit. With IR interface for Busch-remote controllers. For heating and cooling (PI, PWM or 2-point). Constant room temperature controller for fan-coil applications (up to 5-speed level ventilation actuators in 2- and 4-pipe systems) and conventional heating and cooling systems. With manual and automatic adjustment of fan levels. Push button function: switching/ dimming/blind/value sending/light scenes/step-type switch functions. Switch contacts left/right. One freely programmable LED per rocker (red/green/OFF). LCD displaying operation mode and temperature. With labeling field.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpha						
platinum	–	6320/38-20-500	6320-0-0022		1	
studio white,high gloss	–	6320/38-24G-500	6320-0-0024		1	
palladium	–	6320/38-260-500	6320-0-0030		1	
impuls						
champagne metallic	–	6320/38-79-500	6320-0-0026		1	
future® linear						
aluminium silver	–	6320/38-83-500	6320-0-0028		1	

ABB i-bus® KNX

Operation – Busch-triton®

A
12



6320/58-24G-500

Busch-triton® Control Element with Room Thermostat and 5/10-fold Switch Sensor, FM

With integrated bus coupling unit. With IR interface for Busch-remote controllers. For heating and cooling (PI, PWM or 2-point). Constant room temperature controller for fan-coil applications (up to 5-speed level ventilation actuators in 2- and 4-pipe systems) and conventional heating and cooling systems. With manual and automatic adjustment of fan levels. Push button function: switching/dimming/blind/value sending/light scenes/step-type switch functions. Switch contacts left/right. One freely programmable LED per rocker (red/green/OFF). LCD displaying operation mode and temperature. With labeling field.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpha						
platinum	–	6320/58-20-500	6320-0-0042		1	
studio white,high gloss	–	6320/58-24G-500	6320-0-0044		1	
palladium	–	6320/58-260-500	6320-0-0050		1	
impuls						
champagne metallic	–	6320/58-79-500	6320-0-0046		1	
future® linear						
aluminium silver	–	6320/58-83-500	6320-0-0048		1	



6010-25-500

Infra-Red Hand Held Transmitter

For infra-red receiver and KNX flush-mounted infra-red interface. Switching and dimming of up to 10 consumers in 2 groups (1-5/6-10). Programming and selection of 2 MEMO memories per group is possible. Power supply: 4 alkaline manganese batteries, IEC LR03 (microcell) not included in scope of supply Detection range: frontal 15 m.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6010-25-500	6020-0-1133		1	

ABB i-bus® KNX

Operation – Push Button Coupling Unit

A
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The push-button coupling unit with a centre position offers maximum flexibility. Installed in a flush-mounted wall box, it accepts switch rockers from conventional switch ranges* like a completely standard flush-mounted insert. Covers from all conventional ranges can now be used for KNX. This offers maximum freedom in the selection of the switch range and makes retrofitting easier.



Features
Easy mounting and uncomplicated commissioning
All flush-mounted switch ranges* can be used for the ABB i-bus® KNX
Affordable solution for renovations
Status/orientation light (red/green/OFF) (only with 1gang push-button/switches)
Integration in surface-mounted water protected units

01	Push-button coupler 1/2gang with integrated bus coupler
02	Push-button coupler 2/4gang with integrated bus coupler
03	Push-button coupler 1/2gang for ocean with integrated bus coupler
04	Push-button coupler 2/4gang for ocean with integrated bus coupler

Design without limits. The push-button coupling unit includes the complete range* of switches for KNX. Switch rockers from all switch ranges can now be converted to KNX push buttons, which not only switch on and off but also dim or show the status with an LED (6108/01 and 6108/04 only). 1gang and 2gang models for single and 2gang switch rockers are available.

KNX – water protected
The push-button coupling unit also allows special products to be used for KNX. Special models for water-protected installation allow covers from, for example, the ocean® surface-mounted range to be used. This means that KNX sensors can also be safely installed in a cellar, outside on a patio or in commercial applications. Temperature range: -25 °C to 45 °C

*except impuls, basic55® and All Weather 44 Busch Jaeger switch ranges only available for selected markets. For further information please contact your local ABB office.

ABB i-bus® KNX

Operation – Push Button Coupling Unit



6108/01-500

KNX Switch Connection Unit, FM

with integrated bus coupling unit. With neutral position. Suitable for conventional switch rockers of the following Busch-Jaeger design ranges: Busch-Duro 2000® SI/SI Linear, Reflex SI/SI Linear, future® linear, alpha, solo®, Busch-axcent®, carat® and pure stainless steel*. One freely programmable red/green LED (only 6108/01-500).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1/2-fold	–	6108/01-500	6133-0-0207		1	
2/4-fold	–	6108/02-500	6133-0-0209		1	



6108/04-500

KNX Switch Connection Unit for design ocean® (IP44), FM

with integrated bus coupling unit. For integration into SM-housing of ocean® range*.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1/2-fold	–	6108/04-500	6133-0-0211		1	
2/4-fold	–	6108/05-500	6133-0-0213		1	

*All available switch rockers and additional information about Busch-Jaeger design ranges under www.busch-jaeger.com

ABB i-bus® KNX

Operation – Room Temperature Controller

A
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6108/03-500

Room Temperature Controller, Commercial, FM

Room temperature controller without „local operation“. With integrated bus coupling unit. For heating and cooling. Constant room temperature controller for fan-coil applications (up to 5-speed level ventilation actuators in 2- and 4-pipe systems) and conventional heating and cooling systems. Suitable for cover plates 2114-xxx or 6541-xxx but not suitable for cover plates like 6541-20, -21, -260 and -266.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6108/03-500	6134-0-0271		1	



6541-84

Cover Plate for Room Temperature Controller

For room temperature controller, commercial.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
future® linear						
anthracite	–	6541-81	6599-0-2882		10	
savanna/ivory	–	6541-82	6599-0-2832		10	
aluminium silver ¹⁾	–	6541-83	6599-0-2885		10	
davos/studio white	–	6541-84	6599-0-2835		10	
studio white, matt ¹⁾	–	6541-884	6599-0-2962		10	
black matt ¹⁾	–	6541-885	6599-0-2967		10	
solo®						
savanna/ivory	–	6541-82	6599-0-2832		10	
davos/studio white	–	6541-84	6599-0-2835		10	
meteor/grey metallic ¹⁾	–	6541-803	6599-0-2940		10	
sahara/yellow	–	6541-815	6599-0-2936		10	
carat						
anthracite	–	6541-81	6599-0-2882		10	
savanna/ivory	–	6541-82	6599-0-2832		10	
davos/studio white	–	6541-84	6599-0-2835		10	
pure stainless steel ¹⁾						
pure stainless steel	–	6541-866	6599-0-2924		10	
Busch-axcent®						
davos/studio white	–	6541-84	6599-0-2835		10	
chalet-white	–	6541-896	6599-0-2998		10	

¹⁾ Surface painted

ABB i-bus® KNX

Operation – Room Temperature Controller



6541-24

Cover Plate for Temperature Controller, Commercial

For room temperature controller, commercial.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpha						
ivory	–	6541-22G	6599-0-2795		10	
studio white, matt	–	6541-24	6599-0-1557		10	
studio white, high gloss	–	6541-24G	6599-0-2332		10	
platinum ¹⁾	–	6541-20	6599-0-1466		10	
bronze ¹⁾	–	6541-21	6599-0-1524		10	
palladium ¹⁾	–	6541-260	6599-0-2853		10	
titanium ¹⁾	–	6541-266	6599-0-2856		10	
impuls						
alpine white	–	6541-74	6599-0-2076		10	
champagne metallic	–	6541-79	6599-0-2142		10	
ivory	–	6541-72	6599-0-2918		10	
studio white matt ²⁾	–	6541-774	6599-0-2971		10	
black matt ²⁾	–	6541-775	6599-0-2975		10	
blackberry ²⁾	–	6541-777	6599-0-2933		10	
aluminium silver ²⁾	–	6541-783	6599-0-2919		10	

¹⁾ Real metal surface

²⁾ Surface painted



2114-212

Cover Plate for Temperature Controller, Commercial

For room temperature controller, commercial.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Busch-Duro 2000 SI						
white (SI-Series)	–	2114-212	6599-0-1193		10	
Reflex SI						
alpine white (SI-Series)	–	2114-214-500	6599-0-3008		10	

ABB i-bus® KNX

Operation – Millenium

A
12

The new Millenium collection is the first metal range to incorage the KNX system, the most intelligent way of managing spaces and optimizing performance in terms of energy savings. Millenium is based on a combinable concept which creates a very comprehensive range, suitable for any types of needs. This makes it the ideal collec-tion for all types of homes, hotels, offices and shops.

Wide range. Millenium range offers special mounting plates for KNX sensors to reduce the height and improve the aesthetics for ultra slim design. The KNX sensors allow to replace the buttons with desired symbols in order to adjust the sensors to specific design and needs like light, blind, scene, RTC or fan coil. Millenium offers a wide and elegant choice of finishes in stainless steel material: from the Brush Stainless Steel, to the soft new touch given by the Silk Black, and the luxury of the sophisticated gold finishes, Matt Gold and Antique Gold.



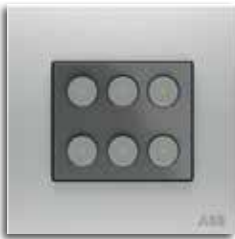
01



02



03



- 01 Switch Sensor 2gang KNX
- 02 Switch Sensor 4gang KNX
- 03 Switch Sensor 6gang KNX
- 04 Switch Sensor 6gang KNX with IR
- 05 Busch watchdog 180° KNX
- 06 Room Thermostat KNX

Function
Switching | Dimming | Blinds |
Sending values | Scenes etc.

Features
Incl. 10 logic channels (light scene
actuator | sequence actuator | logic
gates, etc.)
Control element: Switch contacts
Display elements: LED to indicate
the function

Function
Switching | Dimming | Blinds |
Sending values | Scenes etc.

Features
Incl. 10 logic channels (light scene
actuator | sequence actuator | logic
gates, etc.)
Control element: Switch contacts
Display elements: LED to indicate
the function

Function
Switching | Dimming | Blinds |
Sending values | Scenes etc.

Features
Incl. 10 logic channels (light scene
actuator | sequence actuator | logic
gates, etc.)
Control element: Switch contacts
Display elements: LED to indicate
the function

ABB i-bus® KNX

Operation – Millenium

A
12



04



Function

Switching | Dimming | Blinds |
Sending values | Scenes etc. |
6gang sensor with IR.

Features

Incl. 10 logic channels (light scene
actuator | sequence actuator | logic
gates, etc.)
Control element: Switch contacts
Display elements: LED to indicate
the function

05



Function

Movement sensor with up to four
channels.
Detection range: frontal: 6 m,
lateral: 6 m
Detection angle: 180 °
Brightness limit value:
5 Lux - 150 Lux
Mounting height: 1.1 m

06



Function

Control element with room
thermostat function for triggering the
heating, ventilation and fan-coil
actuators. The controller is a
thermostat for Fan Coil units in 2-
and 4-pipe systems and conventional
heating or cooling systems. The fan
stage can be switched manually or in
automatic mode.

The Millenium range is only available
in the following countries:

China, Dubai, India, Kuwait, Oman,
Qatar, Saudi Arabia, Singapore, UAE
and UK.

Frames and special mounting plates
for KNX sensores have to ordered by:
ABB, S.A.

Low Voltage Products-Niessen,
Olartzun / Spain
www.abb.es/niessen

Features

Incl. 10 logic channels (light scene
actuator | sequence actuator | logic
gates, etc.)
Switch contacts for operating mode
selection and dial for setpoint or fan
speed adjustment.
Display elements: LCD showing
operation modes.
Protection class (Device): IP 20
Temperature range (Device): - 5 °C
to 45 °C

ABB i-bus® KNX

Operation – Millenium

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6125/20-981-500

2-fold sensor

Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.).
Control element: Switch contacts. Display elements: LED to indicate the function.
Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C.
Dimensions: (L x W x D): 53 mm x 44 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	AMD72053-AN (6125/20-981-500)			1	



6126/20-981-500

4-fold sensor

Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.).
Control element: Switch contacts. Display elements: LED to indicate the function.
Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C.
Dimensions: (L x W x D): 53 mm x 44 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	AMD74053-AN (6126/20-981-500)			1	



6129/20-981-500

6-fold sensor

Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.).
Control element: Switch contacts. Display elements: LED to indicate the function.
Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C.
Dimensions: (L x W x D): 53 mm x 44 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	AMD76053-AN (6129/20-981-500)			1	



6129/21-981-500

6-fold sensor with IR

Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.).
Control element: Switch contacts. Display elements: LED to indicate the function.
Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C.
Dimensions: (L x W x D): 53 mm x 44 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	AMD76153-AN (6129/21-981-500)			1	

ABB i-bus® KNX

Operation – Millenium



6122/20-981-500

Watchdog 180 flush mounted

Movement sensor with up to four channels. Detection range: frontal: 6 m, lateral: 6 m. Detection angle: 180 °. Brightness limit value: 5 Lux – 150 Lux. Mounting height: 1.1 m. Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C. Dimensions: (L x W x D): 53 mm x 44 mm. Position for installation: vertical.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	AMD70153-AN (6122/20-981-500)			1	



6124/20-981-500

Room thermostat heating/cooling Fan Coil

Control element with room thermostat function for triggering the heating, ventilation and fan-coil actuators. The controller is a thermostat for Fan Coil units in 2- and 4-pipe systems and conventional heating or cooling systems. The fan stage can be switched manually or in automatic mode. Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.). Switch contacts for operating mode selection and dial for setpoint or fan speed adjustment. Display elements: LCD showing operation modes. Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C. Dimensions: (L x W x D): 53 mm x 44 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	AMD70053-AN (6124/20-981-500)			1	



Buttons with symbols

Buttons with symbols for Millenium control covers 1 / 2-gang, 2 / 4-gang, 3 / 6-gang and 3 / 6-gang with infrared.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Ceiling light symbol	–	AM50701-GR (6123/20-500)			10	
Blinds symbol	–	AM50702-GR (6123/21-500)			10	
Scene symbol	–	AM50703-GR (6123/22-500)			10	
Temperature symbol	–	AM50704-GR (6123/23-500)			10	
Light symbol	–	AM50705-GR (6123/24-500)			10	
Fan Coil symbol	–	AM50706-GR (6123/26-500)			10	

ABB i-bus® KNX

Operation – Millenium

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Triple rocker / KNX frame 1 gang

Frame includes metal mounting plate. Dimensions 86 x 86 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Stainless Steel	–	AMD5153-ST			1	
Silk Black	–	AMD5153-SB			1	
Matt Gold	–	AMD5153-MG			1	
Antique Gold	–	AMD5153-AG			1	



Triple rocker / KNX frame 2 gang

Frame includes metal mounting plate. Dimensions 86 x 147 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Stainless Steel	–	AMD5253-ST			1	
Silk Black	–	AMD5253-SB			1	
Matt Gold	–	AMD5253-MG			1	
Antique Gold	–	AMD5253-AG			1	



AMD5053

Special metal mounting plate for KNX sensors

Allows reduction height of KNX sensors to 1mm. Only for following items: AMD72053-AN, AMD74053-AN, AMD76053-AN, AMD76153-AN.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Special metal mounting plate for KNX sensors 1 gang	–	AMD5053			1	

Zenit offers two different mounting plates for KNX sensors corresponding to different market standards: VDE and NEMA.



Model 15-500-00



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ABB i-bus® KNX Operation – Zenit

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04



Function

Switching | Dimming | Blinds |
Sending values | Scenes etc. |
6gang sensor with IR.

Features

Incl. 10 logic channels (light scene
actuator | sequence actuator | logic
gates, etc.)
Control element: Switch contacts
Display elements: LED to indicate
the function

05



Function

Movement sensor with up to four
channels.
Detection range: frontal: 6 m,
lateral: 6 m
Detection angle: 180 °
Brightness limit value:
5 Lux - 150 Lux
Mounting height: 1.1 m

06



Function

Control element with room
thermostat function for triggering the
heating, ventilation and fan-coil
actuators. The controller is a
thermostat for Fan Coil units in 2-
and 4-pipe systems and conventional
heating or cooling systems. The fan
stage can be switched manually or in
automatic mode.

The Zenit VDE range is only available
in the following countries:

Spain, Portugal, Russia, France

The Zenit NEMA range is only
available in the following countries:
Latin America, Australia, Thailand,
Vietnam.

Sensors, frames and special
mounting plates for KNX sensores
have to ordered by:

ABB, S.A.

Low Voltage Products-Niessen,
Oartzun / Spain

www.abb.es/niessen

Features

Incl. 10 logic channels (light scene
actuator | sequence actuator | logic
gates, etc.)
Switch contacts for operating mode
selection and dial for setpoint or fan
speed adjustment.
Display elements: LCD showing
operation modes.
Protection class (Device): IP 20
Temperature range (Device): – 5 °C
to 45 °C

ABB i-bus® KNX

Operation – Zenit

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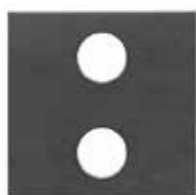
6125/98-509

1/2-Fold sensor

NEW

Push switch function: switching / dimming / blind / sending values / scenes etc. Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.). Control element: Switch contacts. Display elements: LED to indicate the function.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6125/98-509	6115-0-0444		1	



N2221.2

Cover Zenit 1/2 fold

NEW

Cover Zenit 1/2 fold. Available in white (BL), antrachite (AN) and silver (PL).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Cover Zenit 1/2 fold – white	–	N2221.2 BL	2CL0N222121		1	
Cover Zenit 1/2 fold – antrachite	–	N2221.2 AN	2CL0N222128		1	
Cover Zenit 1/2 fold – silver	–	N2221.2 PL	2CL0N222123		1	



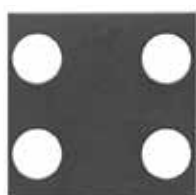
6126/98-509

2/4 -Fold sensor

NEW

Push switch function: switching / dimming / blind / sending values / scenes etc. Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.). Control element: Switch contacts. Display elements: LED to indicate the function.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6126/98-509	6116-0-0219		1	



N2221.4

Cover Zenit 2/4 fold

NEW

Cover Zenit 2/4 fold. Available in white (BL), antrachite (AN) and silver (PL).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Cover Zenit 2/4 fold – white	–	N2221.4 BL	2CL0N222141		1	
Cover Zenit 2/4 fold – antrachite	–	N2221.4 AN	2CL0N222148		1	
Cover Zenit 2/4 fold – silver	–	N2221.4 PL	2CL0N222143		1	

ABB i-bus® KNX

Operation – Zenit



6129/96-509

3/6 -Fold sensor

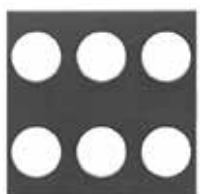
NEW

Push switch function: switching / dimming / blind / sending values / scenes etc. Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.)

Control element: Switch contacts. Display elements: LED to indicate the function. Protection class (Device): IP 20. Temperature range (Device): – 5 °C to 45 °C.

Dimensions: (L x W x D): 44 mm x 44 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6129/96-509	6118-0-0105		1	



N2221.6

Cover Zenit 3/6 fold

NEW

Cover Zenit 3/6 fold. Available in white (BL), antrachite (AN) and silver (PL).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Cover Zenit 3/6 fold – white	–	N2221.6 BL	2CL0N222161		1	
Cover Zenit 3/6 fold – antrachite	–	N2221.6 AN	2CL0N222168		1	
Cover Zenit 3/6 fold – silver	–	N2221.6 PL	2CL0N222163		1	



6129/98-509

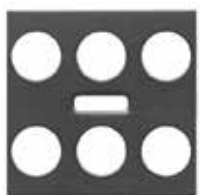
3/6 -Fold sensor with IR

NEW

Push switch function: switching / dimming / blind / sending values / scenes etc. Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.). With infrared.

Control element: Switch contacts. Display elements: LED to indicate the function.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6129/98-509	6118-0-0108		1	



N2221.7

Cover Zenit 3/6 fold with IR

NEW

Cover Zenit 3/6 fold with IR. Available in white (BL), antrachite (AN) and silver (PL).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Cover Zenit 3/6 fold with IR – white	–	N2221.7 BL	2CL0N222171		1	
Cover Zenit 3/6 fold with IR – antrachite	–	N2221.7 AN	2CL0N222178		1	
Cover Zenit 3/6 fold with IR – silver	–	N2221.7 PL	2CL0N222173		1	

ABB i-bus® KNX

Operation – Zenit

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6124/98-509

Room thermostat heating / cooling Fan Coil

NEW

Control element with room thermostat function for triggering the heating, ventilation and fan-coil actuators. The controller is a thermostat for Fan Coil units in 2 - and 4-pipe systems and conventional heating or cooling systems. The fan stage can be switched manually or in automatic mode. Incl. 10 logic channels (light scene actuator, sequence actuator, logic gates, etc.). Switch contacts for operating mode selection and dial for setpoint or fan speed adjustment. Display elements: LCD showing operation modes.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6124/98-509	6134-0-0297		1	



N2240.4

Cover Zenit room thermostat

NEW

Cover Zenit room thermostat. Available in white (BL), antrachite (AN) and silver (PL).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Cover Zenit RTC – white	–	N2240.4 BL	2CL0N224041		1	
Cover Zenit RTC – antrachite	–	N2240.4 AN	2CL0N224048		1	
Cover Zenit RTC – silver	–	N2240.4 PL	2CL0N224043		1	



6122/98-509

Watchdog 180 flush mounted.

NEW

Movement sensor with up to four channels. Detection range: frontal: 6 m, lateral: 6 m. Detection angle: 180 °. Brightness limit value: 5 Lux – 150 Lux. Mounting height: 1.1 m.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6122/98-509	6132-0-0307		1	



N2241.4

Cover Zenit watchdog

NEW

Cover Zenit watchdog. Available in white (BL), antrachite (AN) and silver (PL).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Cover Zenit Watchdog – white	–	N2241.4 BL	2CL0N224141		1	
Cover Zenit Watchdog – antrachite	–	N2241.4 AN	2CL0N224148		1	
Cover Zenit Watchdog – silver	–	N2241.4 PL	2CL0N224143		1	

ABB i-bus® KNX

Operation – Zenit



Buttons with symbols

Buttons with symbols for Zenit control covers 1 / 2-gang, 2 / 4-gang, 3 / 6-gang and 3 / 6-gang with infrared.

NEW

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Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Ceiling light symbol	–	6123/20-500	6123-0-0001		10	
Blinds symbol	–	6123/21-500	6123-0-0002		10	
Scene symbol	–	6123/22-500	6123-0-0003		10	
Temperature symbol	–	6123/23-500	6123-0-0004		10	
Light symbol	–	6123/24-500	6123-0-0005		10	
Fan Coil symbol	–	6123/26-500	6123-0-0006		10	



N2271 XX

Frames, Zenit VDE

NEW

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	–	N2271 XX				
1 fold basic (without logo), Available in AN, BL, CV, PL*	–	N2271.1 XX				
2 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	–	N2272 XX				
2 fold basic (without logo), Available in AN, BL, CV, PL*	–	N2272.1 XX				
3 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	–	N2273 XX				
3 fold basic (without logo), Available in AN, BL, CV, PL*	–	N2273.1 XX				
4 fold, Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*	–	N2274 XX				
4 fold basic (without logo), Available in AN, BL, CV, PL*	–	N2274.1 XX				



N2271.9

Metal mounting plate

Metal mounting plate for Zenit VDE KNX sensors.

NEW

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Metal mounting plate	–	N2271.9			20	

* AN = Antrachite, BL = white, CB = white glass, CN = black glass, CV = Cava, OX = Stainless Steel, PL = Silver, PZ = Slate, WG = Wenge

ABB i-bus® KNX

Operation – Zenit

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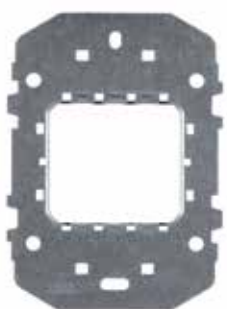
N2372.1 XX

Frame, Zenit NEMA

Dimensions (L x W): 122 x 90 mm. Available in AN, BL, CB, CN, CV, OX, PL, PZ, WG*.

NEW

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
1 fold	–	N2372.1 XX				



N2371.9V

Metal mounting plate

Metal mounting plate for Zenit NEMA KNX sensors. Dimensions (L x W): 102 x 74 mm.

NEW

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Metal mounting plate	–	N2371.9V			20	

* AN = Antrachite, BL = white, CB = white glass, CN = black glass, CV = Cava, OX = Stainless Steel, PL = Silver, PZ = Slate ,
WG = Wenge

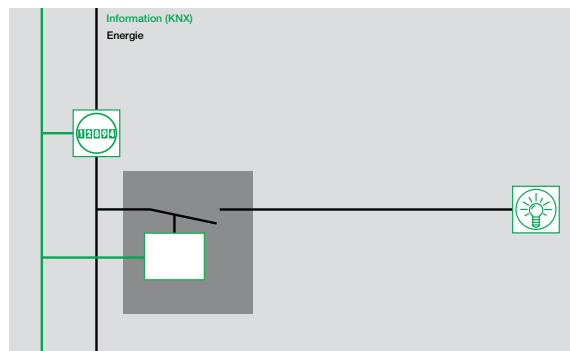
ABB i-bus® KNX

Energy measurement

ABB offers various solutions for decentral energy measurement on the basis of the KNX standard.

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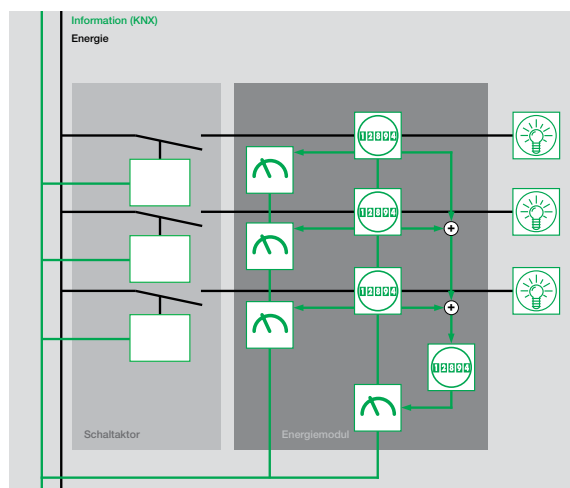
Version 1



Electronic energy meters make the current energy values available on the KNX bus system in conjunction with a KNX interface. The measured data can be intermediately stored, evaluated and visualized from here.



Version 2

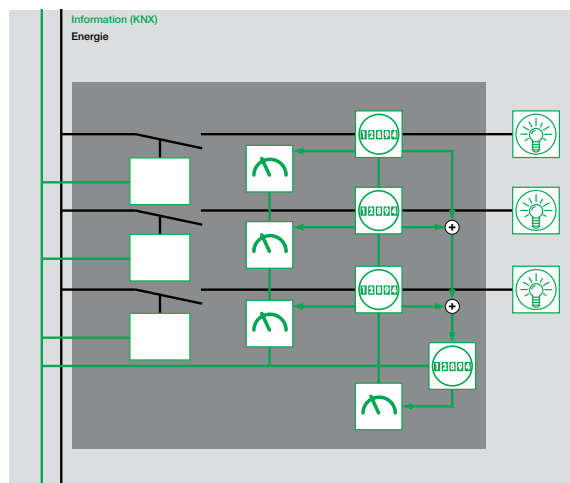


The Energy Module can record the energy consumption for the individual devices. It is used particularly when upgrading existing KNX systems and wherever energy measurement is required without switch functions. It facilitates a detailed and transparent insight into the energy consumption of a building.

The current meter values can be sent and evaluated.



Version 3



The Energy Actuator facilitates control of the connected consumer loads via the ABB i-bus® KNX. For each of the three switch channels, the individual consumption can be measured in the same way as for the Energy Module. For every channel, the proven functionality of the ABB i-bus® KNX Switch Actuators are available.



Intermediate meter for electrical energy



Electrical consumer (load)



Energy meter

ABB i-bus® KNX

Energy measurement

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SE/S 3.16.1

Energy Actuator, 3-fold, 16/20 AX, MDRC

Records the energy consumption of the connected electrical loads in the load circuit. Various electrical variables can be monitored and load peaks can be limited by simple load control. The 3 output channels can be manually operated and display the current switching state. The Energy Actuator can switch resistive, inductive and capacitive loads. The switching capacity corresponds to the SA/S X.16.6.1.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	SE/S 3.16.1	2CDG110136R0011		1	0.3



EM/S 3.16.1

Energy Module, MDRC

Measures energy consumption and various electrical parameters in the terminal current. Active power, Current, Voltage and Frequency can be monitored via threshold values and peak loads can be limited through a simple load control. The measured values are provided via ABB i-bus® KNX.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	4	EM/S 3.16.1	2CDG110148R0011		1	0.2



ZS/S 1.1

Meter Interface Module, MDRC

It records consumption and measured values of the electrical energy consumption meters. Using an infra-red interface, the ABB energy meter types of the A- and B-series are incorporated. The information and data which is read can be used, for example, for cost centre accounting, energy optimisation, monitoring of installations and visualisation.

The following values are available (depending on the meter type):

Meter reading

Active energy	Tariff 1-4, total
Reactive energy	Tariff 1-4, total

Power values

Active power	L1, L2, L3, total
Reactive power	L1, L2, L3, total
Apparent power	L1, L2, L3, total
Phase angle power	L1, L2, L3, total
Power factor	L1, L2, L3, total

Instrument values

Voltages	L1-N, L2-N, L3-N, L1-L2, L2-L3, L1-L3
----------	--

Currents	L1, L2, L3, N
Phase angle voltage	L1, L2, L3, total
Phase angle current	L1, L2, L3, total
Quadrant	L1, L2, L3, total
Mains frequency	

Other

Transformer ratio	Read CT and VT
Power failures	Send and delete
Tariffs	Read and change-over
Status information	Send and read
Communication monitoring	
Intermediate meter	Read and reset

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	ZS/S 1.1	2CDG110083R0011		1	0.13

Electricity Meters

Introduction

Modular DIN rail products offer a wide range of functions to be integrated in electrical installations with significant benefits for the user. DIN rail mounted electricity meters are designed for high level performance and are safe and fast to install. The DIN rail mounted electricity meters are available in several models: the new EQ meters C11, B21, A41 and A42 for single phase metering, the new EQ meters C13, B23, B24, A43 and A44 for three phase metering.

ABB Low Voltage Products

The Low Voltage Products division manufactures low voltage circuit breakers, switches, control products, wiring accessories, enclosures and cable systems to protect people, installations and electronic equipment from electrical overload. The division further makes KNX systems that integrate and automate a building's electrical installations, ventilation systems, and security and data communication networks. All these products help customers to save energy, improve productivity and increase safety.

Global business

The Low Voltage Products division is a global business producing mainly low-voltage electrical equipment that is sold to

wholesalers, original equipment manufacturers as well as system integrators, and has moderate service requirements.

ABB's broad program of standardized products and components are the 'building blocks' of system solutions, incorporating functionalities that will allow seamless integration in real time automation and information systems. At the product level, all the low voltage products can operate together perfectly.

To create a system solution, every product is equipped with the tools necessary to install, operate and maintain it efficiently throughout the product life cycle.

The range of low voltage products is supported by technical documentation. This together with compact design makes it easier than ever to incorporate our products in your system.

Our customers can find all product related documentation such as brochures, catalogues, selection program, certificates, drawings and other information directly at

www.abb.com/lowvoltage



Electricity Meters

Selection Guide

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How do I select the best meter for my application?

There are many versions of EQ meters in order to meet your requests. The EQ program comprises meters with different functionalities such as tariffs, communication interfaces or advanced clock functions. Spend a little time to evaluate the functions and imagine how they could add extra value to your metering. For example, the input counter (from silver level) on an EQ meter can be used to count products produced by a machine and be read out together with the energy consumption of the same machine. In one easy go you can allocate energy to any produced product from one source. Another useful function is previous values (from gold level). If you charge users in intervals the meter can secure the data even in the event of a broken communication link. You can collect the correct interval data later and also make it visible for your counterpart immediately on the meters display in case of any discussions.

Make the meter an asset.

Take the step from passive meter reading to an active user of the data you can retrieve. The meter can be an important asset for you in order to avoid costs like penalties or extra charge for reactive energy (from bronze level). Keep track of your maximum demand and reduce them to avoid charges. EQ meters can tell you the value of the maximum demand and also when it occurred. Harmonics is the source of many problems for all sorts of equipment connected to the low voltage network. Use an EQ meter (platinum level) to measure the THD and isolate the source before you have to take the cost and consequences of poor power quality

Function	Single phase				Three phase				
	C11	B21	A41	A42	C13	B23	B24	A43	A44
Direct connected	1	1 2 3	1 2 3 4 5		1	1 2 3		1 2 3 4 5	
Transformer connected				1 2 3 4 5			1 2 3		1 2 3 4 5
2 element metering						1 2 3	1 2 3	1 2 3 4 5	1 2 3 4 5
3 element metering					1	1 2 3	1 2 3	1 2 3 4 5	1 2 3 4 5
Accuracy 1%, Class 1, Class B	1	1 2 3	1 2 3 4 5	1 2 3 4	1	1 2 3	1 2	1 2 3 4 5	1 2 3
Accuracy 0,5%, Class 0,5 S, Class C				5			3		3 4 5
Active energy	1	1 2 3	1 2 3 4 5	1 2 3 4 5	1	1 2 3	1 2 3	1 2 3 4 5	1 2 3 4 5
Reactive energy		2 3	2 3 4 5	2 3 4 5		2 3	2 3	2 3 4 5	2 3 4 5
Apparent energy		2 3	2 3 4 5	2 3 4 5		2 3	2 3	2 3 4 5	2 3 4 5
Import/Export energy		2 3	2 3 4 5	2 3 4 5		2 3	2 3	2 3 4 5	2 3 4 5
Tariff registers, 1-4		3	3 4 5	3 4 5		3	3	3 4 5	3 4 5
Instrument values	1	1 2 3	1 2 3 4 5	1 2 3 4 5	1	1 2 3	1 2 3	1 2 3 4 5	1 2 3 4 5
Alarm function	1	1 2 3	1 2 3 4 5	1 2 3 4 5	1	1 2 3	1 2 3	1 2 3 4 5	1 2 3 4 5
Harmonics, THD and no 2-16			5	5				5	5
Previous values - day, week, month			4 5	4 5				4 5	4 5
Max and min demand			4 5	4 5				4 5	4 5
Load profiles - 8 channels			5	5				5	5
Pulse output	1	1 2	1 2	1 2	1	1 2	1 2	1 2	1 2
I/O board - 2 in, 2 out		3	3 4	3 4		3	3	3 4	3 4
Configurable I/O - 4 I/O channels			5	5				5	5
Tariffs controlled by input		3	3 4 5	3 4 5		3	3	3 4 5	3 4 5
Tariffs controlled by communication		3	3 4 5	3 4 5		3	3	3 4 5	3 4 5
Tariffs controlled by clock			4 5	4 5				4 5	4 5
MID approved, verified	optional	1 2 3	1 2 3 4 5	1 2 3 4 5	optional	1 2 3	1 2 3	1 2 3 4 5	1 2 3 4 5
IEC approved	1	1 2 3	1 2 3 4 5	1 2 3 4 5	1	1 2 3	1 2 3	1 2 3 4 5	1 2 3 4 5
Communication - Infrared (M-Bus)		1 2 3	1 2 3 4 5	1 2 3 4 5		1 2 3	1 2 3	1 2 3 4 5	1 2 3 4 5
Communication - M-Bus		optional	optional	optional		optional	optional	optional	optional
Communication - RS-485 Modbus		optional	optional	optional		optional	optional	optional	optional
Communication - RS-485 EQ bus		optional	optional	optional		optional	optional	optional	optional

1 = Steel

2 = Bronze

3 = Silver

4 = Gold

5 = Platinum

= Not available

Optional = Available on some order codes

Electricity Meters

Selection Guide

Connection of EQ meters

There are both one phase and three phase meters in the program. When the current exceeds the maximum current for a direct connected meter, a meter can be used from A or B series with current transformers (CT's). If the voltage is outside the specification of the meter you can use an A series meter with voltage transformers (VT's). Please note that three phase meters in A and B series can be configured to be used in three or four wire applications.

C, B and A series

	Single phase				Three phase				
	C11	B21	A41	A42	C13	B23	B24	A43	A44
Connection	Direct	Direct	Direct	CTVT	Direct	Direct	CT	Direct	CTVT
Max Amp	40A	65A	80A	6A ^{*)}	40A	65A	6A ^{*)}	80A	6A ^{*)}
Communication	-	IR, M-Bus, RS-485	IR, M-Bus, RS-485	IR, M-Bus, RS-485	-	IR, M-Bus, RS-485	IR, M-Bus, RS-485	IR, M-Bus, RS-485	IR, M-Bus, RS-485
Functionality	1	1 2 3	1 2 3 4 5	1 2 3 4 5	1	1 2 3	1 2 3	1 2 3 4 5	1 2 3 4 5

- 1 = Steel
 - 2 = Bronze
 - 3 = Silver
 - 4 = Gold
 - 5 = Platinum
 - = Not available
- Optional = Available on some order codes

^{*)}6A is the secondary current of a connected current transformer used in cases with currents exceeding the max current for direct connected meters.



Electricity Meters

A Series – Product brief

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Key applications

- Applications in industry
- Applications in commercial buildings
- Object metering
- Billing applications

Meter performance

- Three phase and single phase
- Direct connected up to 80 A
- Transformer connected 1, 2 or 5 A
- Active or active and reactive energy
- Accuracy class C, B or A (Cl. 0,5 S, 1 or 2)
- Import or import and export measurement of energy
- Wide voltage range (100 – 500 V)
- Pixel-oriented display
- Up to 4 tariffs
- Up to 4 inputs and outputs
- Low power consumption
- Optional clock functionality with tariff control, previous values, max/min demand, load profiles
- Harmonics measurement up to 16th harmonic and THD evaluation

Communication

- Pulse output
- Built-in M-Bus
- Built-in RS-485 for Modbus RTU and EQ bus
- IR port for Serial Communication Adapters

Installation

- Terminal according to DIN 43857 ("Utility terminal")
- Wide temperature range
- Sealable push buttons for configuration

Approvals

- MID type approval "annex B"
- MID initial verification "annex D"
- IEC type approval

Electricity Meters

A Series – Description

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The A series EQ meters are meters for single phase and three phase metering. The A series meters are mounted on a DIN rail and are suitable for installation in distribution boards and small enclosures such as consumer units. With the main terminals in accordance with DIN 43857 and accessible from the below the meters, the A series is suitable for many applications.

General features

The A series meters are ideal for many applications and installations. The meters support a wide voltage range as well as a wide temperature range. The display is pixel-oriented and can display up to four quantities at the same time. Navigating the meter is easily done via the push-buttons below the display. To configure the meter settings, the set button must be accessed and this button is protected against unauthorized use when the “glass lid” on the front of the meter is closed and sealed. The power consumption of the meter is very low, less than 0.8 VA.

Communication

Data from the A series meters can be collected via pulse output or serial communication. The pulse output is a solid state relay that generates pulses proportionally to the measured energy. The meters can also be equipped with built-in serial communication interfaces for M-Bus or Modbus RTU (RS-485). Meters with RS-485 interface can also be set to communicate over the new EQ bus with the new gateway G13. All meters in the A series come with an infrared port for communication with an external Serial Communication Adapter (SCA) such as the KNX adapter.

Instrumentation

The A series meters support reading of instrument values. A large number of electrical properties can be read. Depending on version of the meter the following data is available:

- Active power
- Apparent power
- Reactive power
- Current
- Voltage
- Frequency
- Power factor
- Harmonics
- Total harmonic distortion

Inputs and outputs

The A series support up to four I/O's. It can be two inputs and two outputs in a fixed configuration or four I/O points that are freely configured to input or output. Inputs can be used for counting pulses from e.g. a water meter, or reading status



from external devices. Outputs can be used as pulse outputs or controlling external apparatus like a contactor or an alarm (connected via an external relay). Outputs need an external voltage supply.

Approvals

The A series meters are type approved according to IEC and they are both type approved and verified according to MID. MID is the Measuring Instruments Directive 2004/22/EC from the European Commission. MID type approval and verification is mandatory for meters in billing applications within EU and EEA. The type approval is according to standards that covers all relevant technical aspects of the meter. These include climate conditions, electromagnetic compatibility (EMC), electrical requirements, mechanical requirements and accuracy.

Tariffs

The tariffs are controlled via inputs, via communication or via an internal clock.

Event log

Gold and Platinum meters have an event log function. The event log will log overvoltage, undervoltage, phase voltage outage, negative power, total power outage and presence of harmonics.

Optional functionality

A series meters with a functionality level of Gold or Platinum have an internal clock for advanced functionality. The clock functions are briefly presented below.

Electricity Meters

A Series – Description

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Internal clock

The internal clock, sometimes called real time clock or RTC, has a built-in calendar and automatically keeps track of leap year and daylight savings time (DST). The DST function is optional. Backup of the clock during a power failure is provided by a supercapacitor. The time is controlled by a quartz crystal based clock. Time and date is set via push buttons or via communication. The internal clock is approved according to IEC 62052-21 and IEC 62054-21. These standards specify the requirements for time switches in electricity meter related products. The accuracy is better than 5 ppm at room temperature.

Previous values

The previous value feature is available on Gold and Platinum meters and will store all energy registers and input counter values together with a date/time stamp upon change of day, week or month. All total values are stored and in meters equipped with the tariff feature all the tariff registers will also be stored.

Maximum and minimum demand

The demand function is available on Gold and Platinum meters. In the demand function, the mean power in each interval is measured and the maximum and minimum mean values are stored together with a date/time stamp.

For each set of demand values the end date/time of the period is stored. The quantities that can be stored for each interval are active, reactive and apparent power (imported power only), and the number of pulses registered on inputs.

Load profile

The load profile function is available on the Platinum meters. The load profile stores the energy consumption at pre-defined intervals. The quantities that can be stored for each interval are active and reactive energy, both imported and exported energy, and the number of pulses registered on inputs. The load profile function uses the standard time setting irrespective if the daylight savings time function is activated or not.

THD

The THD and harmonics measurement is available on the Platinum meters. The voltage and current harmonics (2-16) together with the fundamental is measured sequentially one at a time. The total harmonic distortion is evaluated and displayed in percent. The separate harmonic frequencies measured are multiples of the fundamental frequency up to the 16th harmonic. THD data as well as individual harmonics are shown on the display. THD data and data for individual harmonics can also be read out via serial communication.



Electricity Meters

A41 – Single phase meter

80A, 4 DIN with IR port



A41

Description

Direct connected electricity meter. Verified and approved according to MID. IEC approval. Instrument values. Alarm function. Communication - Infrared (M-Bus). Optional - Communication with M-Bus, RS-485 Modbus, RS-485 EQ bus.

Ordering details

Voltage V	Accuracy Class	I/O	Communication	Type	Order Code		Pkg qty	Weight 1 pc
Steel								
Active energy								
57.7...288 V AC	Class B (Cl. 1)	Pulse output	–	A41 111 - 100	2CMA170554R1000		1	0.23
			RS-485	A41 112 - 100	2CMA170500R1000		1	0.23
			M-Bus	A41 113 - 100	2CMA100240R1000		1	0.23
Bronze								
Active and reactive energy, import/export.								
57.7...288 V AC	Class B (Cl. 1) Reactive Cl. 2	Pulse output	RS-485	A41 212 - 100	2CMA170501R1000		1	0.23
Silver								
Active and reactive energy, import/export, tariffs 1-4, tariff control via inputs and communication.								
57.7...288 V AC	Class B (Cl. 1) Reactive Cl. 2	2 output, 2 input	–	A41 311 - 100	2CMA170502R1000		1	0.23
			RS-485	A41 312 - 100	2CMA170503R1000		1	0.23
			M-Bus	A41 313 - 100	2CMA170504R1000		1	0.23
Gold								
Active and reactive energy, import/export, tariffs 1-4, tariff controlled via inputs, communication or clock, previous values, max and min demand.								
57.7...288 V AC	Class B (Cl. 1) Reactive Cl. 2	2 output, 2 input	RS-485	A41 412 - 100	2CMA170505R1000		1	0.23
			M-Bus	A41 413 - 100	2CMA170506R1000		1	0.23
Platinum								
Active and reactive energy, import/export, tariffs 1-4, tariff controlled via inputs, communication or clock, previous values, max and min demand, advanced load profiles, harmonics and THD.								
57.7...288 V AC	Class B (Cl. 1) Reactive Cl. 2	Configurable 4 I/O channels	RS-485	A41 512 - 100	2CMA100237R1000		1	0.23
			M-Bus	A41 513 - 100	2CMA170508R1000		1	0.23

Electricity Meters

A42 – Single phase meter

6A, 4 DIN with IR port

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A42

Description

Transformer CTVT connected electricity meter. Verified and approved according to MID. IEC approval. Voltage V - 57...288 V AC. Instrument values. Alarm function. Communication - Infrared (M-Bus). Optional - Communication with M-Bus, RS-485 Modbus, RS-485 EQ bus.

Ordering details

Voltage V	Accuracy Class	I/O	Communi- cation	Type	Order Code		Pkg qty	Weight 1 pc
Steel								
Active energy								
57.7...288 V AC	Class B (Cl. 1)	Pulse output	–	A42 111 - 100	2CMA170555R1000		1	0.20
			RS-485	A42 112 - 100	2CMA170510R1000		1	0.20
			M-Bus	A42 113 - 100	2CMA100242R1000		1	0.20
Bronze								
Active and reactive energy, import/export.								
57.7...288 V AC	Class B (Cl. 1) Reactive Cl. 2	Pulse output	RS-485	A42 212 - 100	2CMA170511R1000		1	0.20
Silver								
Active and reactive energy, import/export, tariffs 1-4, tariff control via inputs and communication.								
57.7...288 V AC	Class B (Cl. 1) Reactive Cl. 2	2 output, 2 input	RS-485	A42 312 - 100	2CMA170512R1000		1	0.20
Gold								
Active and reactive energy, import/export, tariffs 1-4, tariff controlled via inputs, communication or clock, previous values, max and min demand.								
57.7...288 V AC	Class B (Cl. 1) Reactive Cl. 2	2 output, 2 input	RS-485	A42 412 - 100	2CMA170513R1000		1	0.20
			M-Bus	A42 413 - 100	2CMA170514R1000		1	0.20
Platinum								
Active and reactive energy, import/export, tariffs 1-4, tariff controlled via inputs, communication or clock, previous values, max and min demand, advanced load profiles, harmonics and THD.								
57.7...288 V AC	Class C (Cl. 0,5 S) Reactive Cl. 2	Configurable 4 I/O channels	RS-485	A42 552 - 100	2CMA100238R1000		1	0.20
			M-Bus	A42 553 - 100	2CMA170516R1000		1	0.20

Electricity Meters

A43 – Three phase meter

80A, 7 DIN with IR port



A43

Description

Direct connected electricity meter. Verified and approved according to MID. IEC approval. 2- and 3-element metering. Instrument values. Alarm function. Communication - Infrared (M-Bus). Optional - Communication with M-Bus, RS-485 Modbus, RS-485 EQ bus.

Ordering details

Voltage V	Accuracy Class	I/O	Communication	Type	Order Code	Pkg qty	Weight 1 pc
Steel							
Active energy							
3 x 57.7/100... 288/500 V AC	Class B (Cl. 1)	Pulse output	–	A43 111 - 100	2CMA170520R1000	1	0.44
			RS-485	A43 112 - 100	2CMA100244R1000	1	0.44
			M-Bus	A43 113 - 100	2CMA100245R1000	1	0.44
	Class A (Cl. 2)	–	A43 121 - 100	2CMA170521R1000	1	0.44	
Bronze							
Active and reactive energy, import/export.							
3 x 57.7/100... 288/500 V AC	Class B (Cl. 1) Reactive Cl. 2	Pulse output	–	A43 211 - 100	2CMA100012R1000	1	0.44
			RS-485	A43 212 - 100	2CMA170522R1000	1	0.44
			M-Bus	A43 213 - 100	2CMA170523R1000	1	0.44
Silver							
Active and reactive energy, import/export, tariffs 1-4, tariff control via inputs and communication.							
3 x 57.7/100... 288/500 V AC	Class B (Cl. 1) Reactive Cl. 2	2 output, 2 input	–	A43 311 - 100	2CMA170524R1000	1	0.44
			RS-485	A43 312 - 100	2CMA170525R1000	1	0.44
			M-Bus	A43 313 - 100	2CMA170526R1000	1	0.44
Gold							
Active and reactive energy, import/export, tariffs 1-4, tariff controlled via inputs, communication or clock, previous values, max and min demand.							
3 x 57.7/100... 288/500 V AC	Class B (Cl. 1) Reactive Cl. 2	2 output, 2 input	RS-485	A43 412 - 100	2CMA170528R1000	1	0.44
			M-Bus	A43 413 - 100	2CMA170529R1000	1	0.44
Platinum							
Active and reactive energy, import/export, tariffs 1-4, tariff controlled via inputs, communication or clock, previous values, max and min demand, advanced load profiles, harmonics and THD.							
3 x 57.7/100... 288/500 V AC	Class B (Cl. 1) Reactive Cl. 2	Configurable 4 I/O channels	–	A43 511 - 100	2CMA100143R1000	1	0.44
			RS-485	A43 512 - 100	2CMA170531R1000	1	0.44
			M-Bus	A43 513 - 100	2CMA170532R1000	1	0.44

Electricity Meters

A44 – Three phase meter

6A, 7 DIN with IR port

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A44

Description

Transformer CTVT connected electricity meter. Verified and approved according to MID. IEC approval. 2- and 3-element metering. Instrument values. Alarm function. Communication - Infrared (M-Bus). Optional - Communication with M-Bus, RS-485 Modbus, RS-485 EQ bus.

Ordering details

Voltage V	Accuracy Class	I/O	Communication	Type	Order Code		Pkg qty	Weight 1 pc
Steel								
Active energy								
3 x 57.7/100... 288/500 V AC	Class B (Cl. 1)	Pulse output	–	A44 111 - 100	2CMA170533R1000		1	0.35
			RS-485	A44 112 - 100	2CMA100248R1000		1	0.35
			M-Bus	A44 113 - 100	2CMA100249R1000		1	0.35
Bronze								
Active and reactive energy, import/export.								
3 x 57.7/100... 288/500 V AC	Class B (Cl. 1) Reactive Cl. 2	Pulse output	–	A44 211 - 100	2CMA100013R1000		1	0.35
			RS-485	A44 212 - 100	2CMA170534R1000		1	0.35
			M-Bus	A44 213 - 100	2CMA170535R1000		1	0.35
Silver								
Active and reactive energy, import/export, tariffs 1-4, tariff control via inputs and communication.								
3 x 57.7/100... 288/500 V AC	Class B (Cl. 1) Reactive Cl. 2	2 output, 2 input	–	A44 311 - 100	2CMA170536R1000		1	0.35
			RS-485	A44 352 - 100	2CMA170537R1000		1	0.35
			M-Bus	A44 353 - 100	2CMA170538R1000		1	0.35
Gold								
Active and reactive energy, import/export, tariffs 1-4, tariff controlled via inputs, communication or clock, previous values, max and min demand.								
3 x 57.7/100... 288/500 V AC	Class C (Cl. 0,5 S) Reactive Cl. 2	2 output, 2 input	RS-485	A44 452 - 100	2CMA170540R1000		1	0.35
			M-Bus	A44 453 - 100	2CMA170541R1000		1	0.35
Platinum								
Active and reactive energy, import/export, tariffs 1-4, tariff controlled via inputs, communication or clock, previous values, max and min demand, advanced load profiles, harmonics and THD.								
3 x 57.7/100... 288/500 V AC	Class C (Cl. 0,5 S) Reactive Cl. 2	Configurable 4 I/O channels	RS-485	A44 552 - 100	2CMA170545R1000		1	0.35
			M-Bus	A44 553 - 100	2CMA170546R1000		1	0.35

Electricity Meters

A series – Technical data

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	A41	A42	A43	A44
Voltage/current inputs				
Nominal voltage	230 V AC		3x230/400 V AC	
Voltage range	57.7 - 288 V AC (-20% - +15%)		3x57.7/100 ... 288/500 V AC (-20% - +15%)	
Power dissipation voltage circuits	0.8 VA (0.8 W) total			
Power dissipation current circuits	0.007 VA (0.007 W) at 230 VAC and I _b	0.001 VA (0.001 W) at 230 VAC and I _n	0.007 VA (0.007 W) per phase at 230 VAC and I _b	0.001 VA (0.001 W) per phase at 230 VAC and I _n
Base current I _b	5 A	–	5 A	–
Rated current I _n	–	1 A	–	1 A
Reference current I _{ref}	5 A	–	5 A	–
Transitional current I _{tr}	0.5 A	0.05 A	0.5 A	0.05 A
Maximum current I _{max}	80 A	6 A	80 A	6 A
Minimum current I _{min}	0.25 A	0.02 A	0.25 A	0.01 A
Starting current I _{st}	< 20 mA	< 1 mA	< 20 mA	< 1 mA
Terminal wire area	1 - 25 mm²	0.5 - 10 mm²	1 - 25 mm²	0.5 - 10 mm²
Recommended tightening torque	3 Nm	1.5 Nm	3 Nm	1.5 Nm
Communication				
Terminal wire area	0.5 - 1 mm²		0.5 - 1 mm²	
Recommended tightening torque	0.25 Nm			
Transformer ratios				
Configurable voltage ratio (VT)	–	1/999 - 999999/1	–	1/999 - 999999/1
Configurable current ratio (CT)	–	1/9 - 9999/1	–	1/9 - 9999/1
Pulse indicator (LED)				
Pulse frequency	1000 imp/kWh	5000 imp/kWh	1000 imp/kWh	5000 imp/kWh
Pulse length	40 ms	40 ms	40 ms	40 ms
General data				
Frequency	50 or 60 Hz ± 5%			
Accuracy Class	B (Cl.1) or Reactive Cl. 2	B (Cl.1), C (Cl. 0,5 S) or Reactive Cl. 2	A (Cl.2), B (Cl.1) or Reactive Cl. 2	B (Cl.1), C (Cl. 0,5 S) or Reactive Cl. 2
Active energy	1%	0.5%, 1%	1%, 2%	0.5%, 1%
Display of energy	Pixel oriented			
Environmental				
Operating temperature	– 40 °C - + 70 °C			
Storage temperature	– 40 °C - + 85 °C			
Humidity	75% yearly average, 95% on 30 days/year			
Resistance to fire and heat	Terminal 960 °C, cover 650 °C (IEC 60695-2-1)			
Resistance to water and dust	IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529.			
Mechanical environment	Class M1 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).			
Electromagnetic environment	Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).			
Outputs				
Current	2 - 100 mA			
Voltage	5 - 240 V AC/DC. For meters with only 1 output, 5 - 40 V DC.			
Pulse output frequency	Programmable: 1 - 999999 imp/kWh			
Pulse length	Programmable: 10 - 990 ms			
Terminal wire area	0.5 - 1 mm²			
Recommended tightening torque	0.25 Nm			
Inputs				
Voltage	0 - 240 V AC/DC			
OFF	0 - 12 V AC/DC			
ON	57-240 V AC/24 - 240 V DC			
Min. pulse length	30 ms			
Terminal wire area	0.5 - 1 mm²			
Recommended tightening torque	0.25 Nm			
EMC compatibility				
Impulse voltage test	6 kV 1.2/50 µs (IEC 60060-1)			
Surge voltage test	4 kV 1.2/50 µs (IEC 61000-4-5)			
Fast transient burst test	4 kV (IEC 61000-4-4)			
Immunity to electromagnetic HF-fields	80 MHz - 2 GHz at 10 V/m (IEC 61000-4-3)			
Immunity to conducted disturbance	150 kHz - 80 MHz, (IEC 61000-4-6)			
Immunity to disturbance with harmonics	2kHz - 150kHz			
Radio frequency emission	EN 55022, class B (CISPR22)			
Electrostatic discharge	15 kV (IEC 61000-4-2)			
Standards	IEC 62052-11, IEC 62053-21 class 1 & 2, IEC 62053-22 class 0,5 S, IEC 62053-23 class 2, IEC 62054-21, GB/T 17215.211-2006, GBT 17215.321-2008 class 1 & 2, GB/T 17215.322-2008 class 0,5 S, GB 4208-2008, EN 50470-1, EN 50470-3 category A, B & C			
Mechanical				
Material	Polycarbonate in transparent front glass, bottom case, upper case and terminal cover, Glass reinforced polycarbonate in terminal block.			
Dimensions				
Width	70 mm		123 mm	
Height	97 mm		97 mm	
Depth	65 mm		65 mm	
DIN modules	4		7	

¹ Only A44 552 - 110 and A44 553 - 110

Electricity Meters

B series – Product brief

A
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Key applications

- Applications in commercial buildings
- Object metering

Meter performance

- Single phase and three phase
- Direct connected up to 65 A
- Active or active and reactive energy
- Import or import and export of energy
- Accuracy class B (Cl. 1) or C (Cl. 0,5 S)
- Low power consumption
- Transformer connected 1, 2 or 5 A
- Up to 4 tariffs
- Alarm function

Communication

- Pulse output
- IR port for serial communication adapter
- Built-in M-Bus
- Built-in RS-485 for Modbus RTU or EQ bus

Installation

- Wide temperature range
- Easy configuration

Approvals

- MID type approval “annex B”
- MID initial verification “annex D”
- IEC type approval

Electricity Meters

B series – Description

The B series EQ meters are meters for single phase and three phase metering. The B series meters are mounted on a DIN rail and are suitable for installation in distribution boards and small enclosures such as consumer units. The B series are suitable in applications where there is a need for reliable energy measurements and where space is limited.

General features

The B series meters are high runner meters for many applications and installations. Navigating the meter is easily done via the push-buttons below the display. To configure the meter settings, the set button must be accessed and this button is protected against unauthorized use when the “glass lid” on the front of the meter is closed and sealed. The power consumption of the meter is very low, less than 0.8 VA.

Communication

Data from the B series meters can be collected via pulse output or serial communication. The pulse output is a solid state relay that generates pulses proportionally to the measured energy. The meters can also be equipped with built-in serial communication interfaces for M-Bus or Modbus RTU (RS-485). Meters with RS-485 interface can also be set to communicate over the new EQ bus with the new gateway G13. All meters in the B series come with an infrared port for communication with an external Serial Communication Adapter (SCA) such as the KNX adapter.

Instrumentation

The B series meters support reading of instrument values. A large number of electrical properties can be read. Depending on version of the meter the following data is available:

- Active power
- Apparent power
- Reactive power
- Current
- Voltage
- Frequency
- Power factor



Inputs and outputs

The B series support two inputs and two outputs in a fixed configuration. Inputs can be used for counting pulses from e.g. a water meter, or reading status from external devices. Outputs can be used as pulse outputs or controlling external apparatus like a contactor or an alarm (connected via an external relay).

Approvals

The B series meters are type approved according to IEC and they are both type approved and verified according to MID. MID is the Measuring Instruments Directive 2004/22/EC from the European Commission. MID type approval and verification is mandatory for meters in billing applications within EU and EEA. The type approval is according to standards that covers all relevant technical aspects of the meter. These include climate conditions, electromagnetic compatibility (EMC), electrical requirements, mechanical requirements and accuracy.

Tariffs

The tariffs are controlled via inputs or communication.

Electricity Meters

B21 – Single phase meter

65A, 2 DIN with IR port

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B21

Description

Direct connected electricity meter. Verified and approved according to MID. IEC approval. Instrument values. Alarm function. - Communication - Infrared (M-Bus). Optional - Communication with M-Bus, RS-485 Modbus, RS-485 EQ bus.

Ordering details

Voltage V	Accuracy Class	I/O	Communi- cation	Type	Order Code		Pkg qty	Weight 1 pc
Steel								
Active energy								
1 x 230 V AC	Class B (Cl. 1)	Pulse output	–	B21 111 - 100	2CMA100149R1000		1	0,14
			RS-485	B21 112 - 100	2CMA100150R1000		1	0,15
			M-Bus	B21 113 - 100	2CMA100151R1000		1	0,15
Bronze								
Active and reactive energy, import/export.								
1 x 230 V AC	Class B (Cl. 1) Reactive Cl. 2	Pulse output	RS-485	B21 212 - 100	2CMA100152R1000		1	0,15
Silver								
Active and reactive energy, import/export, tariffs 1-4, tariff control via inputs and communication.								
1 x 230 V AC	Class B (Cl. 1) Reactive Cl. 2	2 output, 2 input	–	B21 311 - 100	2CMA100154R1000		1	0,14
			RS-485	B21 312 - 100	2CMA100155R1000		1	0,15
			M-Bus	B21 313 - 100	2CMA100156R1000		1	0,15

Electricity Meters

B23 – Three phase meter

65A, 4 DIN with IR port



B23

Description

Direct connected electricity meter. Verified and approved according to MID. IEC approval. 2- and 3-element metering. Instrument values. Alarm function. Communication - Infrared (M-Bus). Optional - Communication with M-Bus, RS-485 Modbus, RS-485 EQ bus.

Ordering details

Voltage V	Accuracy Class	I/O	Communi- cation	Type	Order Code		Pkg qty	Weight 1 pc
Steel								
Active energy								
3 x 230/400 V AC	Class B (Cl. 1)	Pulse output	–	B23 111 - 100	2CMA100163R1000		1	0.31
			RS-485	B23 112 - 100	2CMA100164R1000		1	0.32
			M-Bus	B23 113 - 100	2CMA100165R1000		1	0.33
Bronze								
Active and reactive energy, import/export.								
3 x 230/400 V AC	Class B (Cl. 1) Reactive Cl. 2	Pulse output	RS-485	B23 212 - 100	2CMA100166R1000		1	0.32
Silver								
Active and reactive energy, import/export, tariffs 1-4, tariff control via inputs and communication.								
3 x 230/400 V AC	Class B (Cl. 1) Reactive Cl. 2	2 output, 2 input	–	B23 311 - 100	2CMA100168R1000		1	0.33
			RS-485	B23 312 - 100	2CMA100169R1000		1	0.34
			M-Bus	B23 313 - 100	2CMA100170R1000		1	0.35

Electricity Meters

B24 – Three phase meter

6A, 4 DIN with IR port

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B24

Description

Transformer CT connected electricity meter. Verified and approved according to MID. IEC approval. 2- and 3-element metering. Instrument values. Alarm function. Communication - Infrared (M-Bus). Optional - Communication with M-Bus, RS-485 Modbus, RS-485 EQ bus.

Ordering details

Drawing details							
Voltage V	Accuracy Class	I/O	Communication	Type	Order Code	Pkg qty	Weight 1 pc
Steel							
Active energy							
3 x 230/400 V AC	Class B (Cl. 1)	Pulse output	–	B24 111 - 100	2CMA100177R1000	1	0.25
			RS-485	B24 112 - 100	2CMA100178R1000	1	0.25
			M-Bus	B24 113 - 100	2CMA100179R1000	1	0.27
Bronze							
Active and reactive energy, import/export.							
3 x 230/400 V AC	Class B (Cl. 1) Reactive Cl. 2	Pulse output	RS-485	B24 212 - 100	2CMA100180R1000	1	0.25
Silver							
Active and reactive energy, import/export, tariffs 1-4, tariff control via inputs and communication.							
3 x 230/400 V AC	Class C (Cl. 0,5 S) Reactive Cl. 2	2 output, 2 input	–	B24 351 - 100	2CMA100182R1000	1	0.27
			RS-485	B24 352 - 100	2CMA100183R1000	1	0.27
			M-Bus	B24 353 - 100	2CMA100184R1000	1	0.29

Electricity Meters

B series – Technical data

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	B21	B23	B24
Voltage/current inputs			
Nominal voltage	230 V AC	3x230/400 V AC	
Voltage range	220-240 VAC (-20% - +15%)	3x220-240 VAC (-20% - +15%)	
Power dissipation voltage circuits	0.9 VA (0,4 W) total	1.6 VA (0,7 W) total	
Power dissipation current circuits	0.014 VA (0.014 W) at 230 V AC and I _b	0.007 VA (0.007 W) per phase at 230 V AC and I _b	
Base current I _b	5 A		–
Rated current I _n	–		1 A
Reference current I _{ref}	5 A		–
Transitional current I _{tr}	0.5 A		0.05 A
Maximum current I _{max}	65 A		6 A
Minimum current I _{min}	0.25 A		0.02 A
Starting current I _{st}	< 20 mA		< 1 mA
Terminal wire area	1 - 25 mm²		0.5 - 10 mm²
Recommended tightening torque	3 Nm		1.5 Nm
Communication			
Terminal wire area	0.5 - 1 mm²		
Recommended tightening torque	0.25 Nm		
Transformer ratios			
Configurable current ratio (CT)	–		1/9 - 9999/1
Pulse indicator (LED)			
Pulse frequency	1000 imp/kWh	1000 imp/kWh	5000 imp/kWh
Pulse length	40 ms	40 ms	40 ms
General data			
Frequency	50 or 60 Hz ± 5%		
Accuracy Class	B (Cl. 1) and Reactive Cl. 2	B (Cl. 1) and Reactive Cl. 2	B (Cl. 1) or C (Cl. 0,5 S) and Reactive Cl. 2
Active energy	1%	1%	0.5%, 1%
Display of energy	6 digit LCD	7 digit LCD	
Environmental			
Operating temperature	– 40 °C - + 70 °C		
Storage temperature	– 40 °C - + 85 °C		
Humidity	75% yearly average, 95% on 30 days/year		
Resistance to fire and heat	Terminal 960 °C, cover 650 °C (IEC 60695-2-1)		
Resistance to water and dust	IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529.		
Mechanical environment	Class M1 in accordance with the Measuring Instrument Directive (MID). (2004/22/EC).		
Electromagnetic environment	Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).		
Outputs			
Current	2 - 100 mA		
Voltage	5 - 240 V AC/DC. For meters with only 1 output 5 - 40 VDC.		
Pulse output frequency	Programmable: 1 - 999999 imp/kWh		
Pulse length	Programmable: 10 - 990 ms		
Terminal wire area	0.5 - 1 mm²		
Recommended tightening torque	0.25 Nm		
Inputs			
Voltage	0 - 240 V AC/DC		
OFF	0 - 12 V AC/DC		
ON	57 - 240 V AC/24 - 240 V DC		
Min. pulse length	30 ms		
Terminal wire area	0.5 - 1 mm²		
Recommended tightening torque	0.25 Nm		
EMC compatibility			
Impulse voltage test	6 kV 1.2/50µs (IEC 60060-1)		
Surge voltage test	4 kV 1.2/50µs (IEC 61000-4-5)		
Fast transient burst test	4kV (IEC 61000-4-4)		
Immunity to electromagnetic HF-fields	80 MHz - 2 GHz (IEC 61000-4-6)		
Immunity to conducted disturbance	150kHz - 80MHz (IEC 61000-4-6)		
Immunity to disturbance with harmonics	2kHz - 150kHz		
Radio frequency emission	EN 55022, class B (CISPR22)		
Electrostatic discharge	15 kV (IEC 61000-4-2)		
Standards	IEC 62052-11, IEC 62053-21 class 1 & 2, IEC 62053-22 class 0,5 S, IEC 62053-23 class 2, IEC 62054-21, GB/T 17215.211-2006, GB/T 17215.312-2008 class 1 & 2, GB/T 17215.322-2008 class 0,5 S, GB 4208-2008, EN 50470-1, EN 50470-3 category A, B & C		
Mechanical			
Material	Polycarbonate in transparent front glass. Glass reinforced polycarbonate in bottom case and upper case. Polycarbonate in terminal cover.		
Dimensions			
Width	35 mm	70 mm	
Height	97 mm	97 mm	
Depth	65 mm	65 mm	
DIN modules	2	4	

Electricity Meters

C series – Product brief

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Key applications

- Landlord sub-metering
- Object metering

Meter performance

- Direct connected up to 40 A
- Active energy
- Low power consumption
- Alarm function

Communication

- Pulse output

Installation

- Small size - 1 DIN (single phase) or 3 DIN (three phase) modules width
- Wide temperature range
- Easy configuration

Approvals

- MID type approval “annex B”
- MID initial verification “annex F”
- IEC type approval

Electricity Meters

C series – Description



The EQ meters, C series are truly compact meters for single phase and three phase metering. The C series is mounted on a DIN rail and is suitable for installation in distribution boards and small consumer units.

General features

Only one module wide, the C series is a very compact meter for single phase and three phase applications. The meters have an LCD with large digits showing energy register and instrumentation values. The meters have a wide temperature range which makes it possible to install the meters in many locations. Navigating the meters are easily done via the push-button below the display.

Instrumentation

The C series meters support reading of instrument values. A number of electrical properties can be read:

- Power factor
- Active power
- Current
- Voltage

Outputs

The C series meters have an output that can be used as pulse output or alarm output. The alarm quantity and levels is easily configured on the meter with the push button. The output can be used for controlling external apparatus like a contactor or an alarm indicator (connected via an external relay).

Approvals

The C series meters are type approved according to IEC and MID. MID is the Measuring Instruments Directive 2004/22/EC from the European Commission. The type approval is according to standards that covers all relevant technical aspects of the meter. These include climate conditions, electromagnetic compatibility (EMC), electrical requirements, mechanical requirements and accuracy.

MID versions have initial verification according to annex F of the Measuring Instruments Directive.

Electricity Meters

C11 and C13 – Single and three phase meter 40A

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C11

Description C11

Direct connected electricity meter. IEC approval. Instrument values. Alarm function. Optional - Verified and approved according to MID, 1 DIN.

Ordering details

Voltage V	Accuracy Class	I/O	Communi- cation	Type	Order Code	Pkg qty	Weight 1 pc
Steel							
Active energy							
1 x 230 V AC	Class B (Cl. 1)	Pulse output	–	C11 110 - 100*	2CMA100014R1000	1	0.07
	Class 1			C11 110 - 300	2CMA170550R1000	1	0.07

*1 MID approval



C13

Description C13

Direct connected electricity meter. IEC approval. 3 element metering. Instrument values. Alarm function. Optional - Verified and approved according to MID, 3DIN.

Ordering details

Voltage V	Accuracy Class	I/O	Communi- cation	Type	Order Code	Pkg qty	Weight 1 pc
Steel							
Active energy							
3 x 230/400 V AC	Class B (Cl. 1)	Pulse output	–	C13 110 - 100*	2CMA100191R1000	1	0.17
	Class 1		–	C13 110 - 300	2CMA100192R1000	1	0.17

*1 MID approval

Electricity Meters

C series – Technical data

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	C11	C13
Voltage/current inputs		
Nominal voltage	230 V AC	3x230/400
Voltage range	230 V AC (-20% - +15%)	3x220-240 V AC (-20% - +15%)
Power dissipation voltage circuits	< 0.8 VA (0.2 W) total	1.5 VA (0.6 W) total
Power dissipation current circuits	0.02 W at 230 V AC and I _b	0.04 VA (0.04 W) per phase at 230 V AC and I _b
Base current I _b	5 A	
Rated current I _n	–	
Reference current I _{ref}	5 A	
Transitional current I _{tr}	0.5 A	
Maximum current I _{max}	40 A	
Minimum current I _{min}	0.25 A	
Starting current I _{st}	< 20 mA	
Terminal wire area	1 - 10 mm²	0.5 - 10 mm²
Recommended tightening torque	0,8 Nm	
General data		
Frequency	50 or 60 Hz ± 5%	
Accuracy Class	B (Cl.1)	
Active energy	1%	
Display of energy	6 digits LCD	
Communication		
Terminal wire area	–	
Recommended tightening torque	–	
Pulse indicator (LED)		
Pulse frequency	1000 imp/kWh	
Pulse length	40 ms	
Environmental		
Operating temperature	– 25 °C - + 70 °C	
Storage temperature	– 25 °C - + 85 °C	
Humidity	75% yearly average, 95% on 30 days/year	
Resistance to fire and heat	Terminal 960 °C, cover 650 °C (IEC 60695-2-1)	
Resistance to water and dust	IP20 on terminal block without protective enclosure and IP51 in protective enclosure, according to IEC 60529.	
Mechanical environment	Class M1 in accordance with the Measuring Instrument Directive (MID). (2004/22/EC).	
Electromagnetic environment	Class E2 in accordance with the Measuring Instrument Directive (MID), (2004/22/EC).	
Outputs		
Current	2 - 100 mA	
Voltage	5 - 40 V DC	
Pulse output frequency	100 (imp/kWh)	
Pulse length	200 ms	
Terminal wire area	0.5 - 6 mm²	
Recommended tightening torque	0.8 Nm	
EMC compatibility		
Impulse voltage test	6 kV 1.2/50 µs (IEC 60060-1)	
Surge voltage test	4 kV 1.2/50 µs (IEC 61000-4-5)	
Fast transient burst test	4 kV (IEC 61000-4-4)	
Immunity to electromagneti HF-fields	80 MHz - 2 GHz at 10 V/m (IEC 61000-4-3)	
Immunity to conducted disturbance	150 kHz - 80 MHz, (IEC 61000-4-6)	
Immunity to disturbance with harmonics	2kHz - 150kHz	
Radio frequency emission	EN 55022, class B (CISPR22)	
Electrostatic discharge	15 kV (IEC 61000-4-2)	
Standards	IEC 62052-11, IEC 62053-21 class 1, GB/T 17215.211-2006, GBT 17215.321-2008 class 1, GB 4208-2008, EN 50470-1, EN 50470-3 category B	
Mechanical		
Material	Glass reinforced polycarbonate	
Dimensions		
Width	17,5 mm	54 mm
Height	111 mm	122 mm
Depth	65 mm	65 mm
DIN modules	1	3



SMB/S 1.1

Fault Monitoring Unit, MDRC

It is used to detect and manage up to 100 fault messages which are processed within the unit and can be forwarded to a display unit. Furthermore, an optical and an acoustic collective status signal is provided. Messages can be acknowledged and data losses can be reported. The devices support message formats to DIN 19 235: messages with continuous lighting, new value messages with simple flashing light, initial value messages with simple acknowledgement, motor messages. Current values can be centrally scanned.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	SMB/S 1.1	GHQ6310085R0111		1	0.12



EUB/S 1.1

Monitoring Unit, MDRC

Monitors up to 100 bus devices in KNX systems, which can be divided into 5 groups. The devices are monitored to ensure their presence and minimum functionality (send and receive). Monitoring can be undertaken based on the physical address or the group address. A total of four different monitoring modes are available.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	EUB/S 1.1	2CDG110066R0011		1	0.12



BDB/S 1.1

Data Logging Unit, MDRC

It detects local operation cycles and operating hours to plan the maintenance or durability evaluation of the devices. For each of the 35 channels to be monitored, limit values can be set and a message sent if this limit is exceeded. The logging of operating hours can be predetermined for the total or remaining time. These values can be modified via communication objects.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	BDB/S 1.1	2CDG110067R0011		1	0.12

ABB i-bus® KNX

Security and Surveillance – Approved Security with KNX

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The compact solution for security applications – the Security Terminals

The Security Terminal provides a compact security solution for KNX applications for detection and signalling of intrusion, personal attack and technical hazards. They are used as the interface between the security technology sensors and KNX.

Depending on the configuration, the devices feature 2, 4 or 8 inputs – so-called detector circuits or zones. They are used for monitoring connected passive detectors (e.g. magnetic contacts, glass break sensors, etc.) to the ABB i-bus® KNX as well as for connection of floating contacts in applications with enhanced security requirements.

Through the connection of security technology and KNX, the detectors employed can, in addition to the security functions, also be used for heating control (e.g. window contact signal for control of the heating valve) or lighting control (e.g. central switch off of the lighting when the alarm logic is set).

The Security Terminals can be used as autonomous systems with the integrated alarm logic, in conjunction with the Security Module SCM/S or with an Intrusion Alarm Panel GM/A 8.1 or L240.

The application program offers several functions for security applications, such as

- Direct and delayed setting
- Internal setting with occupancy and external setting when absent
- Setting of the connected detector types
- Reset input and setting input
- Detector monitoring
- Zones (detector circuits) can be switched off
- Different types of alarms
- Setting for freely programmable relay outputs, e.g. for direct control of signalling devices.



SCM/S 1.1

Security Module, MDRC

The module provides the necessary logic functions to link the various KNX devices (e.g. zone terminals) to a security system. Up to 64 different zones can be evaluated via communication objects. Arming, operation and display are also implemented using communication objects. The device has a freely programmable relay output for connection of a signal encoder. An uninterruptible KNX power supply with battery back-up is recommended for security function buffering on mains failure.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	SCM/S 1.1	2CDG110024R0011		1	0.13



MT/S 8.12.2M

Security Terminal

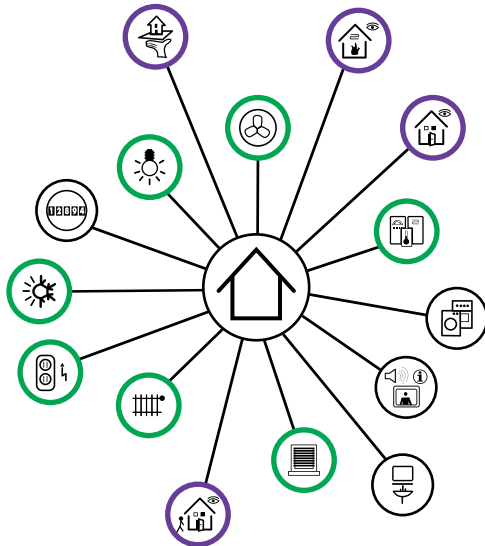
They are used as the interface between the security technology sensors and the KNX. The device features inputs, so-called zones. They are used for monitoring connected passive detectors, e.g. magnetic contacts and/or glass break sensors on the ABB i-bus® KNX and/or for connection of floating contacts in applications with enhanced security requirements. The device can be used as a system with autonomous alarm logic or in combination with the Security Module SCM/S or an Intrusion Alarm Panel. The device requires an external 12 V DC SELV auxiliary power supply, (e.g. NTU/S 12.2000.1).

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
8-fold, MDRC	4	MT/S 8.12.2M	2CDG110110R0011		1	0.19
4-fold, MDRC	4	MT/S 4.12.2M	2CDG110109R0011		1	0.19
2-fold, FM	–	MT/U 2.12.2	2CDG110111R0011		1	0.08

ABB i-bus® KNX

Security and Surveillance – The new KNX Security Panel

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Professional alarm system for KNX experts

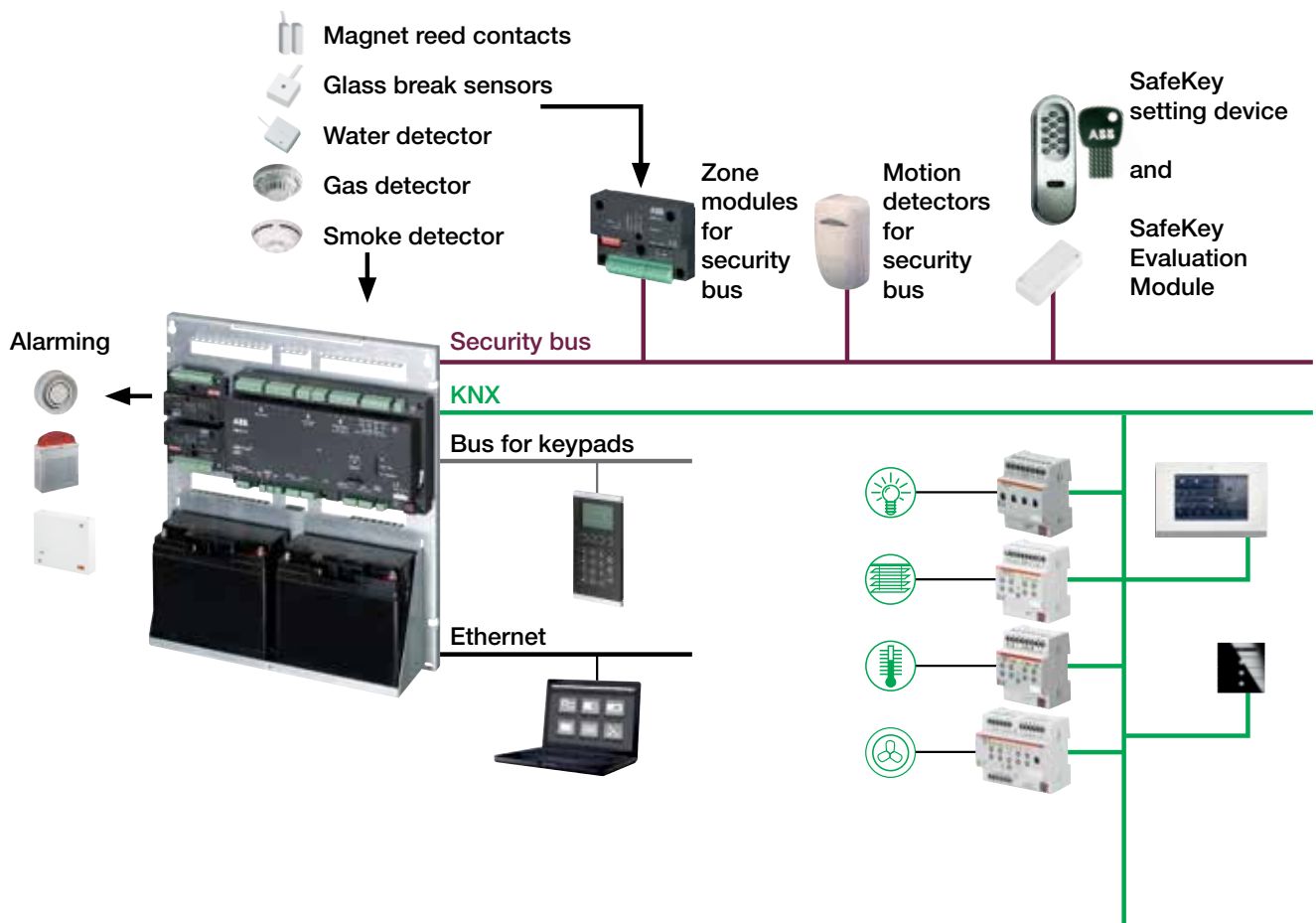
With the new KNX Security Panel GM/A 8.1 ABB presents the first security system that is compatible with both, the international KNX standard (14543-3-x ISO / IEC) and the international standard for alarm systems (ISO / IEC 62642). Therefore the KNX Security Panel GM/A 8.1 is ready for a worldwide usage and expands business opportunities of nearly 40,000 KNX partners in 124 countries. The new system is the perfect solution for projects ranging from simple to high security requirements.

This innovation is the result of more than 30 years of system and application knowledge in alarm technology and building automation at ABB.

ABB i-bus® KNX

Security and Surveillance – The new KNX Security Panel

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A complete product portfolio: One system – all interfaces

To fulfill the project requirements ABB provides the user besides the new panel and keypad a complete product portfolio for professional alarm technology as well as known solutions for all trades of KNX building automation.

The KNX Security Panel is for universal usage for all kinds of hazardous situations in buildings like intrusion, personal attack, smoke, gas- and water leakage.



KNX Security Panel without cover, integrated zone modules and batteries

- ↔ Ethernet connection for programming, diagnostics and operation via a standard webbrowser
- ← Direct inputs for security sensors
- ↔ Keypads
- Internal, external or remote alarming
- ↔ Security bus for security sensors, zone modules and setting devices
- ↔ KNX interface to display alarm states via displays of building automation and to control automatic building functions with support of security sensors.

The KNX Security Panel provides all needed system interfaces: An ethernet connection is used for programming, diagnostics and operation via a standard webbrowser as well as integration into the building network. The security sensors will be connected directly to the panel inputs or via the security bus, where the setting device for the system is also connected. Furthermore the panel provides interfaces for the also newly developed keypads and for internal, external or remote alarming. Finally the integrated KNX interface allows on the one hand to display alarm states via displays of building automation and on the other to control automatic building functions with support of security sensors.



GM/A 8.1

KNX Security Panel, SM

NEW

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for the protection of small to medium residential or commercial properties against intrusion and technical faults. The Security Panel is suitable for up to five logical setting zones. It has 8 integrated zones for detectors, a Security Bus for Bus-detectors, Bus-Zone Modules or Setting devices, Ethernet connection (RJ45) for programming, operating and displaying system status via Web-Browser and an integrated KNX interface. The Security Panel GM/A 8.1 complies with the requirements to VdS classes A, B and C, to the European Standard EN 50131, Grade 1 to 3 and to ISO/IEC 62642 Grade 1 to 3.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	GM/A 8.1	2CDG110150R0011		1	10.5
Off the wall tamper contact for GM/A 8.1	–	WA/Z 1.1	2CDG110174R0011		1	0.1



BT/A 1.1

Keypad for GM/A 8.1

NEW

to connect to Security Panel GM/A 8.1 via the Keypad-Bus. The Keypad allows easy operation of the Security Panel. System messages are displayed on a four-line LCD display. Five Keypads can be connected to each Security Panel. There is no need for an external voltage supply, the keypads are supplied via the Keypad-Bus.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	BT/A 1.1	2CDG280001R0011		1	0.5



MG/E 4.4.1

Zone Module, 4fold

NEW

to connect to Security Panel GM/A 8.1 via the Security-Bus. For expansion of the Security-Panel by 4 detector zones. Used for connection to the exterior perimeter detectors such as magnetic reed contacts and passive glass break sensors. The module has 4 zones to which several detectors can be connected. The status of each zone is displayed with a status LED. The Zone Module delivers the control signals and the supply voltage for the external detectors. There is no need for an external voltage supply, the Zone Modules are supplied via the Security-Bus.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
to mount in the Security Panel housing	–	MG/E 4.4.1	2CDG110178R0011		1	0.1
in a surface mounting housing for installation in the building	–	MG/A 4.4.1	2CDG110186R0011		1	0.1

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L240

Intrusion Alarm Panel L240

For the protection of small to medium residential and commercial properties against intrusion and technical faults. VdS approved as an Intrusion Alarm Panel for VdS classes A, B, C. Corresponds to DIN VDE 0833 parts 1 & 3, Stage 3 according to European standard EN 50131-1 "medium to high risk".

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	L240/ENG	2CDG230017R0011		1	



L240/PT

LCD Keypad for L240

For operation and programming of the panel. The messages are displayed on a two-line LCD display. Menu driven operation and programming of the panel. Internal and external setting on the keypad is possible. VdS class C.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	L240/PT	2CDG230014R0011		1	



XS/S 1.1

KNX-Interface for Intrusion Alarm Panel, MDRC

The Intrusion Alarm Panel L240 with a comprehensive range of sensors for all surveillance tasks, and the comfortable arming mechanism SafeKey, provide a universal solution for professional applications. Integration into KNX systems is possible using the Interface XS/S1.1. Accordingly there are numerous benefits: For example, a door/window opening detector can be used to switch off the heating and save energy in the unset state. When an alarm is triggered, the KNX devices can carry out actions such as switching on the light or operating the blinds. The interaction offers further benefits in terms of system integration, which comply to the demands of the VdS up to Class C.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	2	XS/S 1.1	2CDG110075R0011		1	0.11



L208/V.24

Serial Interface Module for L240

For programming of the L240 via PC with serial interface V24, incl. Software WinPC.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	L208/V.24	GHQ3280220R0001		1	



L240/IP

IP Interface Module for L240

For programming of the L240 via PC with Ethernet interface, incl. Software WinPC.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	L240/IP	2CDG230013R0011		1	

ABB i-bus® KNX

Security and Surveillance – System Components



SAK7

Sealed Lead Acid Battery, 12 V DC

For Intrusion Alarm Panel emergency power. 2 units can be installed. VdS class C.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SAK7	GHV9240001V0011		1	
	–	SAK17	GHV9240001V0013		1	



IR/XB
IR/XC

Infra-Red Motion Detector for security-bus

For direct connection to the security-bus of the Intrusion Alarm Panel GM/A 8.1 or L240.

The motion detectors with passive infra-red technology are registered for VdS classes B and C (anti-masking monitored). They facilitate monitoring of an area with an IR range of up to 15 m.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
VdS-No. G 110 506	–	IR/XB	2CDG230023R0011		1	
VdS-No. G 110 062	–	IR/XC	2CDG230024R0011		1	



EIM/XB
EIM/XC

Dual Motion Detector for security-bus

For direct connection to the security-bus of the Intrusion Alarm Panel GM/A 8.1 or L240. The Dual-Motion Detector combines proven passive infra-red technology with temperature-independent microwave technology. The combination of both functional principles results in a detector featuring high immunity to false alarms, even with unfavourable ambient conditions, and which still has high detection security. The detectors are registered for VdS classes B and C (anti-masking monitored). They facilitate monitoring of an area with an IR range of up to 15 m.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
VdS-No. G 110 513	–	EIM/XB	2CDG230025R0011		1	
VdS-No. G 110 061	–	EIM/XC	2CDG230026R0011		1	



MW

Mounting Bracket

For motion detectors.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	MW	GHV9230039V0020		1	

ABB i-bus® KNX

Security and Surveillance – System Components

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L240/MG2

Zone Bus-Module, 2-fold, FM

For expansion of the panel by 2 detector circuits. Used for connection to the exterior perimeter detectors such as magnetic reed contacts and passive glass break sensors. The module has 2 zones to which 2 detectors can be connected via LSA terminals. The module is an intelligent distributor by simple installation in a 60 mm installation box in the vicinity of the window.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	L240/MG2	2CDG220003R0011		1	



L840/MG4

Zone Bus-Module, 4-fold

For expansion of the panel by 4 detector circuits. An SAD enclosure is required for installation.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	L840/MG4	GHQ3280011R0001		1	



WEL/A, ES

SafeKey Wall Reader, SM

For setting/unsetting with the Evaluation Module L240/BS. The unit is actuated by inserting the electronic SafeKey chipkey. The SafeKey Wall Reader WEL is equipped with the key reader and an acknowledgement buzzer. VdS class C.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	WEL/A, ES	GHQ3050023R0001		1	



WELT/A, ES

SafeKey Wall Reader, SM

For setting/unsetting with the Evaluation Module L240/BS. The unit is actuated by inserting the electronic SafeKey chipkey. The SafeKey Wall Reader WEL is equipped with the key reader and an acknowledgement buzzer. VdS class C.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	WELT/A, ES	GHQ3050024R0001		1	



SCS

SafeKey Chipkey

It is an electronic carrier medium for lock actuation and for setting/unsetting on a strike plate, door cylinder or wall reader. A SafeKey Chipkey can be authorized for any number of different SafeKey systems with different levels of authorization.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SCS	GHQ3050027R0001		1	

ABB i-bus® KNX

Security and Surveillance – System Components



L240/BS

SafeKey Evaluation Module

For connection of the SafeKey components as well as all components required for a setting door (magnetic contacts, lock bolt switching contact, bolt lock, internal siren). For direct connection to the security-bus of the Intrusion Alarm Panel GM/A 8.1 or L240. The management of the electronic keys from the SafeKey range is undertaken completely on the LCD keypad of the panel.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	L240/BS	GHQ3050031R0001		1	



SSM/A

SafeKey Switching Module

is used for an easy connection and evaluation of the SafeKey Wall Reader with or without keypad (WEL or WELT). Applicable for potential-free switching of electrical components up to 5 A at a max. voltage of 12...24 V DC/AC, i.e. electrical door opener or garage doors, or to set/unset a KNX security system via the connection to a Security Terminal MT/x.

In subject to the housing type the module can be used for surface or flush mount. A 12 V power supply is required.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Surface mounting	–	SSM/A	2CDG240019R0011		1	
Flush mounting	–	SSM/U	2CDG240020R0011		1	



ESPE

Electromechanical Bolt Lock

Prevents access to the set zone of an Intrusion Alarm Panel. The unit is mounted in the door frame. Only a single bore or the counterpart for the locking bolt in the door panel is required. Suitable for use with WEL and WELT. VdS class C.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	ESPE	GHV9250010V0001		1	
Replacement Locking Bolt	–	EVSB	GHV9250010V0002		1	
Mounting kit, flat door panel and frame	–	AMSP	GHV9250010V0004		1	
Mounting kit, raised door panel	–	AMSE	GHV9250010V0003		1	



SAD/GAP

Distribution Enclosures

For installation of the Bus Modules L840/MG4 and L240/BS.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Surface mounting	–	SAD/GAP	GHQ3280015R0001		1	
Flush mounting	–	SAD/GUP	GHQ3280013R0001		1	
Wall box for SAD/GUP	–	SAD/ED	GHQ3280014R0001		1	

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MRS/W

Magnet Reed Contact Set

For opening surveillance of windows and doors, complete for bolting or drilling Contents: 1 magnet, 1 reed contact with 4.0 m connection cable LIYY 4 x 0.14 mm², 2 housings, 2 spacer plates, 2 flanges and 4 anti-magnetic fixing screws. VdS No. G 191549. VdS class B.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
white	–	MRS/W	GHQ3201972R0001		1	
brown	–	MRS/B	GHQ3201972R0002		1	
Saver Set (20 pcs.), white	–	VMRS/W	GHQ3201972R0011		1	
Saver Set (20 pcs.), brown	–	VMRS/B	GHQ3201972R0012		1	



RTK

Rolling Door Magnet Reed Contact Set

For monitoring opening or rolling doors or other large doors in the industrial field. Contents: 1 magnet, 1 reed contact with 2 m connection cable 4 x 0.14 mm², 1 m protective tubing and 1 set of mounting accessories. Degree of protection: IP 68; Environmental class to VdS 4; VdS class B.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	RTK	GHQ3201973R0021		1	



SPGS/W

Glass Break Sensor

For surveillance of glass surfaces of windows, display windows and doors with high interference immunity and integrated memory display. For operation directly on detector circuits of intrusion alarm panels or security terminals. Extremely compact dimensions. Dimensions: H x W x D = 18 x 18 x 9 mm. Mounted onto glass using Loctite adhesive (LKS). With 5 m connection cable. VdS No. G 194524. VdS class B.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
white	–	SPGS/W	GHV9220004V0009		1	
brown	–	SPGS/B	GHV9220004V0010		1	
Mechanical Glass Break Test Device	–	GP2	GHV9220004V0004		1	
Loctite adhesive	–	LKS	GHQ4001906R0001		1	



WRK/W

Lock Bolt Switching Contact

For installation in the strike plate, for lock monitoring on doors. Water-tight IP 67, with 2.5 m connection cable LIYY 3 x 0.14 mm². VdS No. G 190008. VdS class C.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	WRK/W	2CDG250003R0011		1	

ABB i-bus® KNX

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VSUE

Window Lock Monitoring Contact

Lock monitoring is carried out with a special magnet and a reed contact. The magnet is mounted on the push rod of the window sash while the reed contact is mounted on the frame. The connection cable LIYY 4 x 0.14 mm² is 4 m in length. VdS No. G 190074. VdS class C.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	VSUE	GHV9210018V0022		1	



ADB

Window opening Plungers

Indirect lock monitoring by mechanical push opening of the window in conjunction with magnetic contacts that monitor opening. Available in 2 spring strengths.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
150 N	–	ADB	GHV9210018V0020		1	
35 N	–	ADB1	GHV9210018V0021		1	



ND/W

Emergency Call Button

For manual alarm tripping. Complies with the police regulations since it features permanent trip recognition, momentary-contact function, with cover contact. Surface mount version. Colour: white. VdS class C.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Surface mounting	–	ND/W	GHQ7132443R0011		1	
Flush mounting	–	NDU/W	GHQ7132443R0021		1	
Spare Papers (10 pcs.)	–	EP	GHQ7132443R0003		1	



NDA/W

Cover plate

Used primarily in the banking sector or other institutions, where unintentional alarm triggering is possible due to public access.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	NDA/W	GHQ7132443R0004		1	



IR/KB

Passive Infra-Red Detector

For conventional wiring to zone inputs of an Intrusion Alarm Panel or a KNX Security Terminal. With a volumetric lens for interior monitoring. Can be optionally set for hall monitoring function up to 15 m. Color: RAL 9010 pure white; for use up to VdS class B.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
VdS-No. G 110 502	–	IR/KB	2CDG230027R0011		1	

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Security and Surveillance – System Components

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EIM/KB

Dual Motion Detector

This new dual detector is based on proven detection principles of the EIM detector AND incorporation of infrared technology and electromagnetic field detection. The detector enables a detection range of 15 m with 17 zones on 6 levels. The range of the infra-red component the electromagnetic field can be adjusted separately using a jumper. Up to VdS class C; Color RAL 9010 pure white.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
VdS-No. G 110 503	–	EIM/KB	2CDG230028R0011		1	
VdS-No. G 110 060	–	EIM/KC	2CDG230029R0011		1	



MW

Mounting Bracket

For motion detectors.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	MW	GHV9230039V0020		1	



EIM/D

Dual Ceiling Detector

Operates according to the proven detection principle of the EIM detector (infra-red technology and electromagnetic field) over 360°. The range of the infrared component can be adapted via the mounting height while the range of the electromagnetic field can be adjusted separately using a jumper. The detector is fitted with a walk test LED. Colour: RAL 9010 pure white.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	EIM/D	2CDG230039R0011		1	



SGL

Gas Detector

For measurement and evaluation of the concentration of natural gas or liquefied gas in the air. The detector requires a 10 – 30 V DC voltage supply and has a normally open relay output contact for connection to the intrusion alarm panels and fire alarm panels, features an LED display and a Piezo buzzer. For ceiling and wall mounting.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SGL	GHQ3050008R0001		1	



SWM 4

Water Detector

A resin-encapsulated water detector with gold-plated Termipoint pins, detects water ingress, e.g., pipe fractures, ingress of groundwater and sewage, water damage caused by washing machines and dishwashers etc. before the damage becomes too expensive. For operation directly on detector circuits of intrusion alarm panels or security terminals.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SWM 4	GHQ4030001R0004		1	

ABB i-bus® KNX

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SWM 4/RN

Water Detector with Relay Output

Features a potential free changeover contact output, an LED parallel output and a LED display. The detector resets itself automatically when the affected area dries out. The device draws its power from an external 10 ... 23 V DC voltage source.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SWM4/RN	GHQ4030001R0012		1	



FC650/O

Optical Smoke Detector

Optical smoke detector in threshold alarm technology that detects smoke according to the scattered-light principle. The detectors feature an alarm indicator on the detector head that is visible from all angles, and which can be triggered with a permanent magnet for test purposes. A detector base is provided for mounting and cable connection purposes into which the detector is simply screwed in via the bayonet connection. Each detector is equipped with an alarm LED, which displays the stored alarm in the event of an alarm. Detector/base diameter: 110 mm. VdS approved.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	FC650/O	2CDG430073R0011		1	



FC650/TMAX

Heat Detector

Static Heat Detector in threshold alarm technology, – trigger temperature 78 °C. The detectors feature an alarm indicator on the detector head that is visible from all angles, and which can be triggered with a permanent magnet for test purposes. A detector base is provided for mounting and cable connection purposes into which the detector is simply screwed-in via the bayonet connection. Each detector is equipped with an alarm LED, which displays the stored alarm in the event of an alarm. Detector/base diameter: 110 mm. VdS approved.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	FC650/TMAX	2CDG430081R0011		1	



FC600/BREL

Detector Base, 12 V

Enables system-independent connection of the FC650 series fire detector to systems or devices that are not specifically designed for this detector technology. Examples include Intrusion Alarm Panels, KNX Security Terminals, elevator controls or other signal processing equipment. The detector base must be supplied by either a 12 V or a 24 V DV voltage supply. A floating 30 V DC/1 A changeover contacting is provided for transferring an alarm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	FC600/BREL	2CDG430051R0011		1	

ABB i-bus® KNX

Security and Surveillance – System Components

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FPA03

Testing Aerosol

For optical smoke detector testing, 250 ml.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	FPA03	GHV9020012V0021		1	

Reed Relay, 12 V

For connection, e.g. to transistor outputs of Intrusion Alarm Panels. Coil voltage 8.5...14 V DC. Current consumption 5 mA at 12 V DC. Contact loading 24 V/100 mA.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	RL	GHV9270013V0100		1	



SSS

Electronic Solid-State Siren

Electronic solid-state siren with intermittent tone for alarm purposes in indoor installations. External dimensions: ø x H = 90 x 37 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SSS	GHV9270001V0001		1	



SSF/G

Siren in Enclosure

An aluminium protective housing with additional protective enamel coating. Protected against sabotage by a case tamper contact. The alarm inputs are wired onto a terminal strip. With fixing screw (M4) for potential equalization on the base.

Dimensions: H x W x D = 200 x 205 x 88 mm; Color: RAL 9002 Environmental class III to VdS.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SSF/G	GHQ3050017R0001		1	



SSF/GB

Combination Signalling Device

Siren in an aluminium protective housing with additional protective enamel coating and strobe light mounted on top. Protected against sabotage by a case tamper contact.

The alarm inputs are wired onto a terminal strip. Dimensions: H x W x D = 258 x 205 x 88 mm; Color RAL 9002. VdS No. G 101147. VdS class C.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	SSF/GB	GHQ3050018R0001		1	



6833/01-84-500

Busch Smoke Alarm® ProfessionalLine

NEW

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For early detection of smouldering fires and open fires with smoke development indoors according to the photooptical measurement principle (Tyndall). With installed Lithium battery. Battery life min. 10 years. With test button and muting. Can be networked with up to 12 detectors using the radio module. Can be networked via 2-wire twisted pair cable with up to 12 detectors. Acoustic alarm: installed horn (85 dBA). Cyclic functional test. Including attachment material – VdS certified. Conform to EN 14604 studio white.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit 1 pc.	Weight 1 pc. kg
not networkable	–	6833-84-500	6800-0-2720		1	
networkable	–	6833/01-84-500	6800-0-2721		1	



6835/01-84-500

Busch Heat Alarm ProfessionalLine

NEW

Signal triggered at over 57 °C. With installed Lithium battery. Battery life min. 10 years. With test button and muting. Can be networked via 2-wire twisted pair cable with up to 12 detectors. Can be networked with up to 12 detectors using the radio module. Acoustic alarm: installed horn (85 dBA). Cyclic functional test. Including attachment material – VdS certified. Conform to EN 14604.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit 1 pc.	Weight 1 pc. kg
studio white	–	6835/01-84-500	6800-0-2723		1	



6827-84

Busch Smoke Alarm® Radio Module

For wireless networking of multiple Busch smoke alarms® / heat alarms. With installed Lithium battery. Battery life min. 10 years. Radio frequency: 868 MHz. Range: max. 100 m outdoors, max. 30 m indoors.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit 1 pc.	Weight 1 pc. kg
	–	6828	6800-0-2514		1	



6829-84

Busch Smoke Alarm® Relay

For connecting external systems, e.g. KNX. Relay contact, floating changeover contact 230 V~ max. 5 A. Cable connection: up to 2 x 2 x 1.5 mm². With installed radio module. Rated voltage: 230 V~.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit 1 pc.	Weight 1 pc. kg
studio white	–	6829-84	6800-0-2515		1	



6824-84

Busch Smoke Alarm® Remote Control

For service purposes. With muting, test and search function.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit 1 pc.	Weight 1 pc. kg
studio white	–	6824-84	6800-0-2516		1	

WaveLINE Wireless Control RF Sensors

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01



02



03



04



05

01 SM WaveLINE movement detector,
Article-No. 6747 AGM-204-500

The WaveLINE Busch-Watchdog 220 is a battery-operated movement detector. Since it is installed without cables it can be mounted in the most ideal position. The battery has a service life of 5 years.

02 WaveLINE media converter TP-RF,
Article-No. 6770-500

The KNX and Busch radio control are coupled via the WaveLINE media converter TP-RF. Telegrams can be exchanged in both directions. One application serves to transmit the window sensor to the KNX system.

03 Window sensor,
Article-No. 6720-64

The WaveLINE window sensor is retrofitted between the window and window handle, which means the original window handle is retained. The window handle is used for the following window positions: opened, tilted and closed.

04 Universal detector,
Article-No. 6721-64

The WaveLINE universal detector is suited for skylights or sliding doors and is activated via a reed contact. The universal detector has a second channel which can be permanently wired to a floating contact (NO or NC contacts).

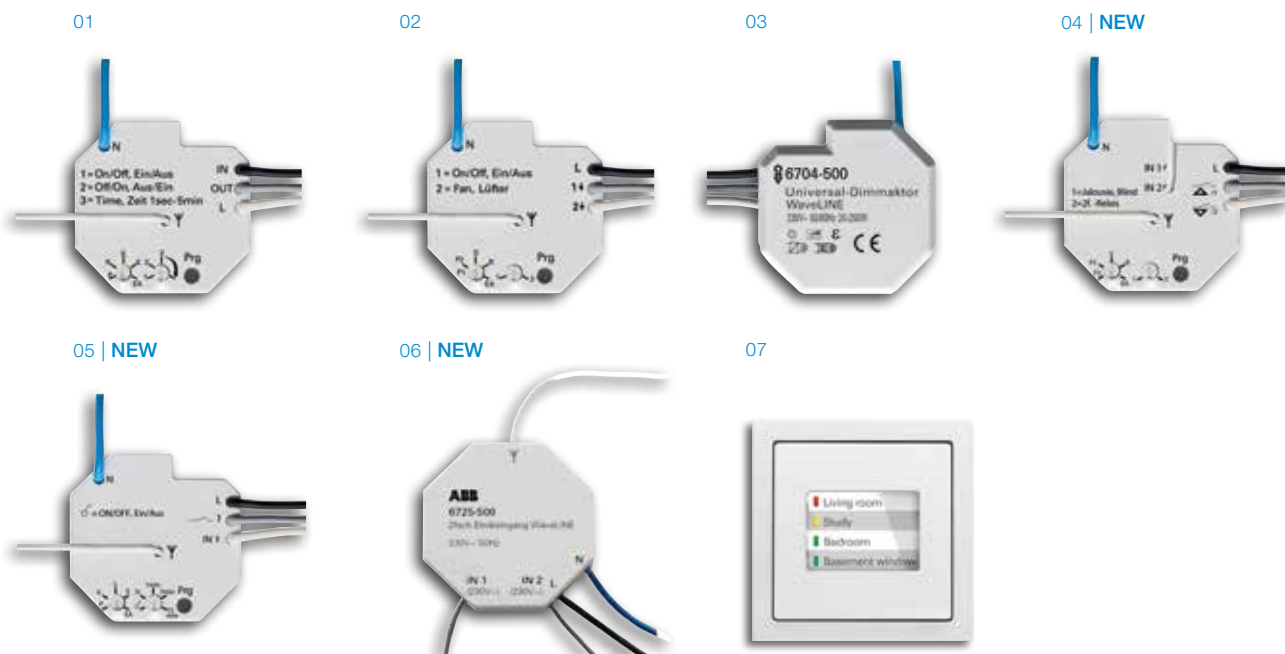
05 Remote control RF,
Article-No. 6780-500

The remote control is used as mobile control for the WaveLINE. Loads can be controlled individually and scenes can be started.

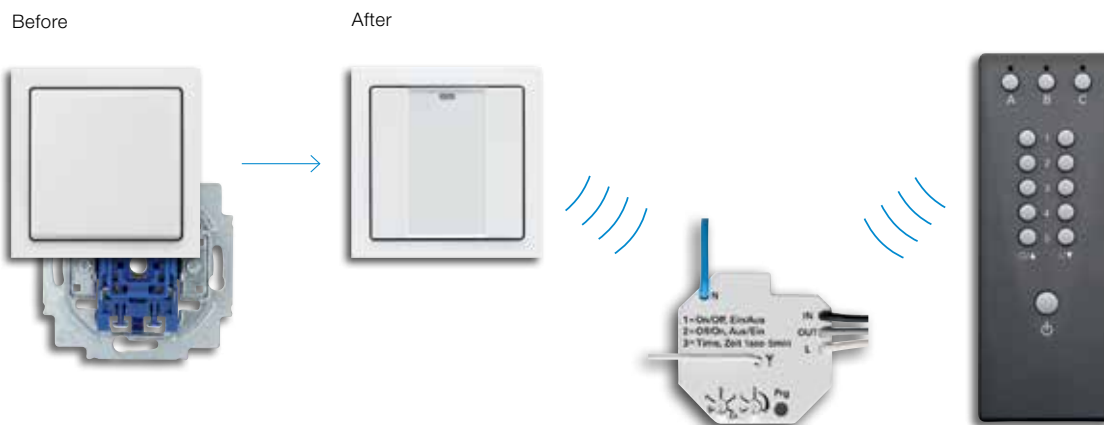
Control elements					
					
Switch ranges	1gang	2gang	4gang	1gang	2gang
pure stainless steel	6731-866-500	6732-866-500	6733-866-500		
solo®	6731-xx-500	6732-xx-500	6733-xx-500		
Busch-axcent®	6731-xx-500	6732-xx-500	6733-xx-500		
future® linear	6731-xx-500	6732-xx-500	6733-xx-500		
Reflex SI				6731-214-500	6732-214-500
Busch-Duro 2000® SI				6731-212-500	6732-212-500

WaveLINE Wireless Control RF Actuators / Displays

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- 01 1gang WaveLINE actuator, Article-No. 6702-500
- 02 2gang WaveLINE actuator, Article-No. 6703-500
- 03 WaveLINE dimming actuator, Article-No. 6704-500
- 04 WaveLINE blind actuator, Article-No. 6705-101-500
- 05 1gang WaveLINE actuator, Article-No. 6701-101-500
- 06 WaveLINE binary input, 2gang Article-No. 6725-500
- 07 WaveLINE LED display, 4gang with switching function, Article-No. 6730-84



Usage of frequency might be restricted in certain countries.

WaveLINE Wireless Control Transmitter

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6731-214-500

Wall-mounted transmitter WaveLINE 1-channel

1gang wall-mounted transmitter independent of mains power supply. For switching and dimming. For controlling blinds and light scenes. 1 radio channel can be operated or up to 2 light scenes can be called up. For flush-mounted WaveLINE actuators 6701-101, 6702, 6703, 6704 and 6705-101. For LED display WaveLINE 6730-xxx. Compatible with WaveLINE KNX gateway TP-RF 6770. Send frequency: 868 MHz. Free-field range: approx. 100 m. Power supply: lithium button cell battery Type CR2032. Battery included in delivery; service life: typically 5 years.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Busch-Duro 2000® SI white	–	6731-212-500	6730-0-0028		1/10	
Reflex SI alpine white	–	6731-214-500	6730-0-0030		1/10	



6732-214-500



6731-84-500

Wall-mounted transmitter WaveLINE 2-channel

2gang wall-mounted transmitter independent of mains power supply. For switching and dimming. For controlling blinds and light scenes. 2 radio channels can be operated or up to 4 light scenes can be called up. For flush-mounted WaveLINE actuators 6701-101, 6702, 6703, 6704 and 6705-101. For LED display WaveLINE 6730-xxx. Compatible with WaveLINE KNX gateway TP-RF 6770. Send frequency: 868 MHz. Free-field range: approx. 100 m. Power supply: lithium button cell battery Type CR2032. Battery included in delivery; service life: typically 5 years.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Busch-Duro 2000® SI white	–	6732-212-500	6730-0-0029		1/10	
Reflex SI alpine white	–	6732-214-500	6730-0-0031		1/10	
future® linear ivory white	–	6731-82-500	6730-0-0032		1/10	
aluminium silver ²⁾	–	6731-83-500	6730-0-0035		1/10	
studio white	–	6731-84-500	6730-0-0038		1/10	
pure stainless steel ²⁾ stainless steel	–	6731-866-500	6730-0-0041		1/10	

WaveLINE Wireless Control Transmitter



6732-84-500

Wall-mounted transmitter WaveLINE

2-channel

2gang wall-mounted transmitter independent of mains power supply. With labelling field and labelling strip. For switching and dimming. For controlling blinds and light scenes. 2 radio channels can be operated or up to 4 light scenes can be called up. For flush-mounted WaveLINE actuators 6701-101, 6702, 6703, 6704 and 6705-101. For LED display WaveLINE 6730-xxx. Compatible with WaveLINE KNX gateway TP-RF 6770. Send frequency: 868 MHz. Free-field range: approx. 100 m. Power supply: lithium button cell battery Type CR2032. Battery included in delivery; service life: typically 5 years.

Description	MW	Type	Order code	Price 1 pc. unit € pc.	Pack 1 pc.	Weight 1 pc. kg
future® linear						
ivory white	–	6732-82-500	6730-0-0033		1/10	
aluminium silver ²⁾	–	6732-83-500	6730-0-0036		1/10	
studio white	–	6732-84-500	6730-0-0039		1/10	
pure stainless steel ²⁾						
stainless steel	–	6732-866-500	6730-0-0042		1/10	



6733-84-500

Wall-mounted transmitter WaveLINE

4-channel

4gang wall-mounted transmitter independent of mains power supply. With labelling field and labelling strip. For switching and dimming. For controlling blinds and light scenes. 4 radio channels can be operated or up to 8 light scenes can be called up. For flush-mounted WaveLINE actuators 6701-101, 6702, 6703, 6704 and 6705-101. For LED display WaveLINE 6730-xxx. Compatible with WaveLINE KNX gateway TP-RF 6770. Send frequency: 868 MHz. Free-field range: approx. 100 m. Power supply: lithium button cell battery Type CR2032. Battery included in delivery; service life: typically 5 years.

Description	MW	Type	Order code	Price 1 pc. unit € pc.	Pack 1 pc.	Weight 1 pc. kg
future® linear						
ivory white	–	6733-82-500	6730-0-0034		1/10	
aluminium silver ²⁾	–	6733-83-500	6730-0-0037		1/10	
studio white	–	6733-84-500	6730-0-0040		1/10	
pure stainless steel ²⁾						
stainless steel	–	6733-866-500	6730-0-0043		1/10	

WaveLINE Wireless Control Transmitter

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6780-500

Remote control WaveLINE ¹⁾

Network-independent radio control. For switching and dimming. For controlling blinds and light scenes. With 3 groups (A, B or C) with 5 pairs of channels. There are 15 radio channels operated singly or up to 30 light scenes can be called. With "ALL OFF" function for associated actuators. For flush-mounted WaveLINE actuators 6701-101, 6702, 6703, 6704 and 6705-101. For LED display WaveLINE 6730-xxx. Compatible with WaveLINE KNX gateway TP-RF 6770. Send frequency: 868 MHz. Free-field range: approx. 100 m. Power supply: lithium button cell battery Type CR2032. Battery included in delivery; service life: typically 5 years.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
black	–	6780-500	6780-0-0001		1/10	



6725-500

WaveLINE binary input, 2gang, 230 V~

NEW

Radio control telegrams are sent when the two extension units are activated with mains voltage (AC 230 V~). Operation also possible via conventional push-buttons (2020 US, 2012/6 UK).

The 2gang binary input has 5 function modes 2-channel switching; 2-channel dimming; 1-channel blind; Two-channel light scene control; Channel 1: Switching ON. Channel 2: Continuous switching ON/OFF.

In dependence of the selected function, it can be combined with WaveLINE actuators 6701-101, 6702, 6703, 6704, 6705-101. Compatible with WaveLINE KNX gateway TP-RF 6770. Repeater function can be activated for extended range. For universal attachment or installation. Phase and neutral conductor required. For installation in (deep) flush-mounted boxes to German Standard DIN 49073, Part 1. Send/receive frequency: 868 MHz. Free-field range: approx. 100 m. Control element: Adjustable potentiometer. Display elements: LED for status display. Rated voltage: 230 V~, +10 % / –10 %. Rated frequency: 50 Hz. Inputs: 2. Polling voltage: 230 V~, potential-connected.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
white	–	6725-500	6720-0-0008		1/10	

WaveLINE Wireless Control Transmitter



6747 AGM-204-500

Busch-Watchdog 220 WaveLINE

Wireless movement detector for detecting thermal motion. With display for detection and status indication. With ground and rear-field detection. With high-quality lens for optimum detection. Surveillance density: 84 sectors with 336 switching segments. With integrated dismantling protection. All functions controlled by microprocessor. With automatic range stabilization. With automatic interference suppression. With automatic dazzle-proofing. With automatic battery monitoring. Battery type: Lithium batteries 1250 mAh (L92 AAA 1.5 V). Battery included in delivery. Battery service life: typically 5 years, therefore practically maintenance-free. With brightness-independent test mode for evaluating the detection zone. Individual adjustment of detection range via enclosed protective foil which can be cut to size. Combinable with switch actuator WaveLINE, 1gang, with extension unit 6701-101. Compatible with WaveLINE KNX gateway TP-RF 6770. For standalone and group operation. Switch-off delay: 3 min. (single mode), individually adjustable at actuator (group mode). Send frequency: 868 MHz. Free-field range: approx. 100 m. Rated voltage: 4.5 V-. Detection range: frontal: 16 m, lateral: 16 m. Detection angle: 220 °. Brightness limit value: 0.5 Lux – 300 Lux, Daytime operation. Mounting height: 2.5 m.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
brown	–	6747 AGM-201-500	6700-0-0038		1	
alpine white	–	6747 AGM-204-500	6700-0-0035		1	
silver metallic	–	6747 AGM-208-500	6700-0-0036		1	
anthracite	–	6747 AGM-35-500	6700-0-0037		1	

WaveLINE Wireless Control

Actuators, RF/

KNX Media Converters

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6701-101-500

WaveLINE switch actuator, 1gang, with extension unit

NEW

For wireless switching of electrical loads. Functions via radio control: ON/OFF, timer and light scene control. Functions via the extension unit: ON/OFF, timer and sending a radio control telegram. Operation also possible via conventional push-buttons (2020 US, 2012/6 UK). For Busch-Watchdog WaveLINE. For wall mounted transmitter Waveline 6731-xxx, 6732-xxx und 6733-xxx. For remote control WaveLINE 6780. For WaveLINE window position sensor 6720-6x. For WaveLINE 6721-xx universal signalling unit. For Busch-EnergyControl 6762-xx. Compatible with WaveLINE KNX gateway TP-RF 6770. Controllable up to 32 transmission addresses. Send/receive frequency: 868 MHz. Free-field range: approx. 100 m. Control element: Adjustable potentiometer. Display elements: Status indication of output via LED. Rated voltage: 230 V~, +10 % / -10 %. Rated frequency: 50 Hz. Inputs: 1. Polling voltage: 230 V~, Sensing pulse, L-wire. Outputs: 1x Normally open contact, potential-bound.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit pc.	Weight 1 pc. kg
	-	6701-101-500	6700-0-0040		1/10	



6702-500

Switch actuator WaveLINE

For wireless switching of electrical loads. For functions ON/OFF, timer and lightscene control. For wall mounted transmitter Waveline 6731-xxx, 6732-xxx und 6733-xxx. For remote control WaveLINE 6780. For WaveLINE window position sensor 6720-6x. For WaveLINE 6721-xx universal signalling unit. For Busch-EnergyControl 6762-xx. Compatible with WaveLINE KNX gateway TP-RF 6770. Controllable up to 32 transmission addresses. Send/receive frequency: 868 MHz. Free-field range: approx. 100 m. Control element: Adjustable potentiometer. Display elements: Status indication of output via LED. Rated voltage: 230 V~, +10 % / -10 %. Rated frequency: 50 Hz. Outputs: 1x Normally open contact, potential free.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit pc.	Weight 1 pc. kg
	-	6702-500	6700-0-0023		1/10	



6703-500

2gang switch actuator WaveLINE

For wireless switching of electrical loads. For operation mode 2gang switch, 2 separate outputs. For operation mode timer: output 1 (eg lighting), output 2: ON/Off delay in dependence of output 1 (eg fan control). For functions: ON/OFF and light scene control. For wall mounted transmitter Waveline 6731-xxx, 6732-xxx und 6733-xxx. For remote control WaveLINE 6780. For WaveLINE window position sensor 6720-6x. For WaveLINE 6721-xx universal signalling unit. For Busch-EnergyControl 6762-xx. Compatible with WaveLINE KNX gateway TP-RF 6770. Controllable up to 32 transmission addresses. Send/receive frequency: 868 MHz. Free-field range: approx. 100 m. Control element: Adjustable potentiometer. Display elements: Status indication of output via LED. Rated voltage: 230 V~, +10 % / -10 %. Rated frequency: 50 Hz. Outputs: 2x Normally open contact, potential-bound.

Description	MW	Type	Order code	Price 1 pc. € pc.	Pack unit pc.	Weight 1 pc. kg
	-	6703-500	6700-0-0024		1/10	

WaveLINE Wireless Control

Actuators, RF/ KNX Media Converters



6704-500

Universal dimming actuator WaveLINE

For wireless switching and dimming of electrical loads. For functions ON/OFF, dimming and lightscene control. With soft ON/OFF function. With selectable light value storage. For wall mounted transmitter Waveline 6731-xxx, 6732-xxx und 6733-xxx. For remote control WaveLINE 6780. Compatible with WaveLINE KNX gateway TP-RF 6770. Repeater function can be activated for extended range. Controllable up to 32 transmission addresses.

Send/receive frequency: 868 MHz. Free-field range: approx. 100 m. Control element: Adjustable potentiometer. Display elements: Status indication of output via LED. Rated voltage: 230 V~, +10 % / -10 %. Rated frequency: 50 Hz. Outputs: 1x dimming channel.

Suitable for: 230 V incandescent lamps. Output voltage: 230 V~. Rated power: 35 – 210 W.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6704-500	6700-0-0025		1/10	



6705-101-500

WaveLINE series/blind actuator with extension unit

NEW

For wireless switching of electrical loads. For driving and adjusting blinds/shutters and awnings over radio. Functions via radio control: 2gang switch, blind switch and light scene control.

Functions via extension unit: 2gang switch, blind switch and send radio control telegram.

Operation also possible via conventional push-buttons (2020 US, 2012/6 UK). For wall mounted transmitter Waveline 6731-xxx, 6732-xxx und 6733-xxx. For remote control WaveLINE 6780. For WaveLINE window position sensor 6720-6x. For WaveLINE 6721-xx universal signalling unit. For Busch-EnergyControl 6762-xx. Compatible with WaveLINE KNX gateway TP-RF 6770. Controllable up to 32 transmission addresses. Send/receive frequency: 868 MHz. Free-field range: approx. 100 m. Control element: Adjustable potentiometer. Display elements: Status indication of output via LED. Rated voltage: 230 V~, +10 % / -10 %. Rated frequency: 50 Hz. Inputs: 2. Polling voltage: 230 V~, Sensing pulse, L-wire. Outputs: 2x Normally open contact, potential-bound.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6705-101-500	6700-0-0042		1/10	



6770-500

KNX TP/RF WaveLine Gateway, SM

Media converter with internal antenna for conversion of KNX RF WaveLine radio signals to KNX twisted pair networks with 24 channels. For the evaluation and transfer of up to 24 channels each with 4 sub-channels as transmitter or receiver. Simple operation due to “programming button” and display on the device. Is surface-mounted. The KNX/WaveLine Gateway is powered via KNX and does not require an additional power supply.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6770-500	6770-0-0002		1	

WaveLINE Wireless Control

Window Sensor, Universal Detector

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6730-214

WaveLINE LED display

For status display of window handle positions: open = red, closed = green, tilted = yellow. Direct onsite operation possible for switching / dimming an electrical device depending on the flush-mounted insert. 4 individual LED display channels. Up to 8 WaveLine transmitters can be taught-in on each LED display channel. Up to 8 WaveLine transmitters can be taught-in on onsite operation. User-friendly start-up without PC / software. Printed labelling sheet with 8 different inlay sheets (see labelling sheet 1799 xx). For WaveLINE window position sensor 6720-6x. For WaveLINE 6721-xx universal signalling unit. For Busch-Watchdog 220 WaveLINE 6747 AGM. For Busch-Universal relay switch insert 6404 U. For universal dimmer switch insert 6595 U. Free-field range: approx. 100 m. Send/receive frequency: 868 MHz.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
Busch-Duro 2000® SI white	–	6730-212	6730-0-0001		1	
Reflex SI alpine white	–	6730-214	6730-0-0002		1	



6730-24G

WaveLINE LED display

For status display of window handle positions: open = red, closed = green, tilted = yellow. Direct onsite operation possible for switching / dimming an electrical device depending on the flush-mounted insert. 4 individual LED display channels. Up to 8 WaveLine transmitters can be taught-in on each LED display channel. Up to 8 WaveLine transmitters can be taught-in on onsite operation. User-friendly start-up without PC / software. Printed labelling sheet with 8 different inlay sheets (see labelling sheet 1799 xx). For WaveLINE window position sensor 6720-6x. For WaveLINE 6721-xx universal signalling unit. For Busch-Watchdog 220 WaveLINE 6747 AGM. For Busch-Universal relay switch insert 6404 U. For universal dimmer switch insert 6595 U. For ABB i-bus® KNX devices 6110 U, 6114 U, 6120 U-102. Free-field range: approx. 100 m. Send/receive frequency: 868 MHz.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
alpha						
platinum ³⁾	–	6730-20	6730-0-0007		1	
bronze ³⁾	–	6730-21	6730-0-0008		1	
ivory	–	6730-22G	6730-0-0009		1	
studio white matt	–	6730-24	6730-0-0010		1	
studio white	–	6730-24G	6730-0-0011		1	
palladium ³⁾	–	6730-260	6730-0-0005		1	
titanium ³⁾	–	6730-266	6730-0-0006		1	

WaveLINE Wireless Control

Window Sensor, Universal Detector



6730-84

WaveLINE LED display

For status display of window handle positions: open = red, closed = green, tilted = yellow. Direct onsite operation possible for switching / dimming an electrical device depending on the flush-mounted insert. 4 individual LED display channels. Up to 8 WaveLine transmitters can be taught-in on each LED display channel. Up to 8 WaveLine transmitters can be taught-in on onsite operation. User-friendly start-up without PC / software. Printed labelling sheet with 8 different inlay sheets (see labelling sheet 1799 xx). For WaveLINE window position sensor 6720-6x. For WaveLINE 6721-xx universal signalling unit. For Busch-Watchdog 220 WaveLINE 6747 AGM. For Busch-Universal relay switch insert 6404 U. For universal dimmer switch insert 6595 U. Free-field range: approx. 100 m. Send/receive frequency: 868 MHz.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
future® linear						
anthracite	–	6730-81	6730-0-0014		1	
ivory white	–	6730-82	6730-0-0015		1	
aluminium silver ¹⁾	–	6730-83	6730-0-0016		1	
studio white	–	6730-84	6730-0-0017		1	
studio white, matt ¹⁾	–	6730-884	6730-0-0026		1	
black matt ¹⁾	–	6730-885	6730-0-0027		1	
solo®						
ivory white	–	6730-82	6730-0-0015		1	
studio white	–	6730-84	6730-0-0017		1	
grey metallic ¹⁾	–	6730-803	6730-0-0025		1	
yellow	–	6730-815	6730-0-0024		1	
Busch-axcent®						
studio white	–	6730-84	6730-0-0017		1	
chalet-white	–	6730-896-500	6730-0-0066		1	
carat® ²⁾						
anthracite	–	6730-81	6730-0-0014		1	
ivory white	–	6730-82	6730-0-0015		1	
studio white	–	6730-84	6730-0-0017		1	
pure stainless steel ¹⁾						
stainless steel	–	6730-866	6730-0-0023		1	

WaveLINE Wireless Control

Window Sensor, Universal Detector

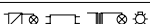
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6404 U

Busch-Universal relay switch insert

For switching incandescent lamps, 230 V tungsten halogen lamps, fluorescent lamps and low-voltage halogen lamps, that are actuated via transformers. 3 wire connection (neutral conductor required). With operating mode switch for operating mode: switch, time switch. Operation also possible via conventional push buttons (2020 US, 2021/6 UK). For LED display WaveLINE 6730-xxx. Rated voltage: 230 V~, +10 % / -10 %. Rated frequency: 50 Hz. Inputs: 1. Polling voltage: 230 V~, Sensing pulse, L-wire. Outputs: 1x Normally open contact, potential-bound. Suitable for: ohmic, capacitive and inductive loads. Rated current: 10 AX. Rated power: 2300 W/VA.

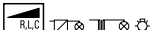
Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6404 U	6401-0-0055		1	



6595 U

Universal Dimmer Switch Insert

For dimming and switching of incandescent lamps, 230 V halogen lamps and low-voltage halogen lamps with conventional or electronic transformers. 2-wire connection (neutral conductor not required). With soft ON/OFF function. Operation also possible via conventional push buttons (2020 US, 2021/6 UK). Do not operate conventional transformers and electronic transformers together on the universal dimmer switch insert. For LED display WaveLINE 6730-xxx. Rated voltage: 230 V~, +10 % / -10 %. Rated frequency: 50 Hz. Inputs: 1. Polling voltage: 230 V~, Sensing pulse, L-wire. Outputs: 1x electronic output, potential-bound. Suitable for: ohmic, capacitive and inductive loads. Rated power: 60 – 450 W/VA.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	6595 U	6590-0-0188		1	

WaveLINE Wireless Control Window Sensor, Universal Detector



6720-64

WaveLINE window sensor

For monitoring and transmission of the current window handle position (window open, closed, tilted). The WaveLINE window sensor transmits the current window handle position immediately upon operation. Existing window handle is used. The WaveLINE window sensor is installed between the existing window handle and window frame. Suitable for window handle: 7 mm square fastener, 43 mm attachment screw separation, lifter dia. 10 and 12 mm, max. mounting plate size 34 x 77 mm (WxH). No wire laying required. Accessories for assembly (square fastener extension, screws, adapter for lifter) of the WaveLINE window position sensor included in delivery. Battery included in delivery. Battery service life: typically 5 years, therefore practically maintenance-free. Monitoring of battery life and transmission of battery condition. For LED display WaveLINE 6730-xxx. For flush-mounted WaveLINE actuators 6701-101, 6702, 6703, 6704 and 6705-101. Compatible with WaveLINE KNX gateway TP-RF 6770. Free-field range: approx. 100 m. Send frequency: 868 MHz.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
studio white matt	–	6720-64	6720-0-0001		1	
basalt black	–	6720-65	6720-0-0002		1	
stainless steel ¹⁾	–	6720-66	6720-0-0003		1	



6721-64

WaveLINE universal sensor

For monitoring and transmission of the state (open, closed) of dormer windows, skylights, doors and gates. For window surveillance with open fireplace and extractor hood pursuant to Article 4 of the German Fire Prevention Regulations. Additional connection option for an external, potential-free sensor (choice of normally closed or normally open contact). Isolated evaluation and monitoring of channels. The WaveLINE universal sensor immediately transmits the current information when there is a change in state. Addition cyclic transmission for monitoring of the transmission link and the fault-free state of equipment. Attachment of WaveLINE universal sensor and magnets by using adhesive foil or screws. Accessories (adhesive foil, screws, magnet) included in delivery. Battery included in delivery. Battery service life: typically 5 years, therefore practically maintenance-free. Monitoring of battery life and transmission of battery condition. For LED display WaveLINE 6730-xxx. For flush-mounted WaveLINE actuators 6701-101, 6702, 6703, 6704 and 6705-101. Compatible with WaveLINE KNX gateway TP-RF 6770. External sensor max. wire length: 5 m. External sensor terminal connection diameter : 0.14...0.5 mm² (single wire). Free-field range: approx. 100 m. Send frequency: 868 MHz.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
studio white matt	–	6721-64	6720-0-0004		1	
basalt black	–	6721-65	6720-0-0005		1	

¹⁾ Surface painted.

Newron

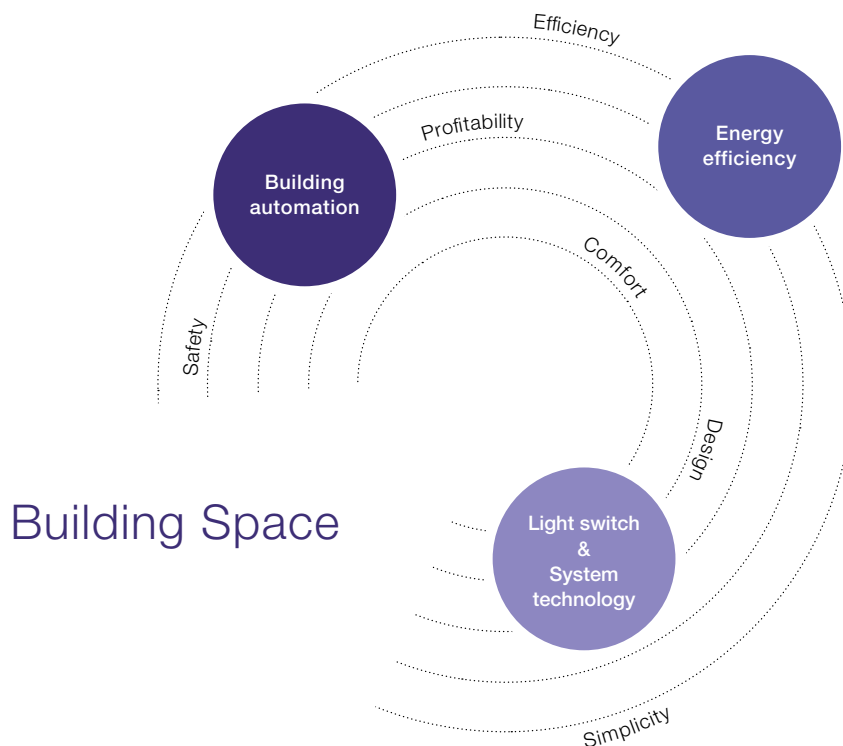
Integration in Building Management Systems

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Modern buildings today are more than merely the expression of future-oriented architecture. Integral systems must do justice to the increasing demands for energy efficiency, comfort, safety and profitable operation. For this, real estate needs intelligence in the form of well-designed technology. It is used to integrate information of the entire building auto-mation and to control heating and cooling systems, ventilation and air conditioning systems, lighting, sun-shading systems, as well as fire protection and safety systems. Depending on the type of its use, a building presents special challenges to everyone concerned. That is why Busch-Jaeger, as subsidiary of the expert global brand ABB, now offers an integral solution – Building Space.

Under this umbrella all available expert know-how of building automation as well as the electrical and building systems

technology sectors is merged as solution for buildings of the future. This portfolio of products and services is unique. With this growing power of expertise, efficient buildings can be made a reality safely and reliably – from functional buildings up to exclusive luxury hotels. And that on an international level. This how impressive solutions with the greatest possible freedom for design and implementation are created. Because Building Space solutions adapt themselves precisely to the respective object and its use. Even later modifications and extensions are possible at any time. When the building is to be used later for a different purpose, for example. Newron solutions guarantee an assured future and efficient operation. Thanks to openness and flexibility they are suitable for a complete IT and architectural building management solution for intelligent functional buildings.



Newron Total Networking

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System integrators can now work even more efficiently. Because with the innovative Newron solutions ABB and Busch-Jaeger offer simple and efficient possibilities for intelligent building management.

More possibilities in less time. Newron solutions allow a simple and flexible data exchange to take place between the different levels of a building management system and the most commonly used protocols used in functional buildings. And here the solutions support all open standards such as BACnet, LON, KNX, Modbus, OPC, M-Bus and oBIX. This kind of flexibility allows devices of different manufacturers and different protocol families to be combined in a building in a very simple way. The performance of the system is designed for processing large amounts of data and the efficient integration of numerous data points.

Newron solutions support distributed IT architecture as well as IP convergence. The term convergence in general means the integration of forms of communication based on different technologies into a single network. IP convergence in the context of building management refers to the integration of different bus systems into one IP network. IP

convergence offers a number of advantages with regard to expandability, performance, a uniform infrastructure as well as the possibility of joint management. This creates the prerequisites for the integral, service-oriented consideration of information processing.

The outstanding features of Newron solutions are the intuitively operable user interface and the easy-to-understand internal architecture. They are ideally suited for medium to large projects in functional buildings. Newron solutions offer the system integrator the working environment for processing major projects more efficiently and to simultaneously reduce integration time. Newron solutions follow an integrating approach and are therefore the direct interface to all central levels of intelligent building management. They form the bridge between technical system components and management level. Newron in a practical way supplements the numerous innovative KNX solutions for building automation in the existing program and rounds off the portfolio. For planners and system integrators Newron opens new possibilities and a highly attractive field of business – for example, the integration of KNX into the different trades of a building management system.



Newron

All the advantages at a glance

A
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doMOOV

doMOOV is a building management software for building automation and makes possible the exchange of data between different protocols. The user-friendly interface and the simple internal structure ensure short programming times and facilitate modification and adaptation.

Software solution

- » Fast to configure
- » User-friendly HMI (Human Machine Interface)
- » Supports decentralized IT structure
- » Multi-protocol gateway – supports the protocols:
KNX, LonWorks, BACnet, Modbus, M-bus
- » Universal SCADA server OPC, BACnet, oBIX
- » Integrated services: schedule/calendar, trends, alarms





doGATE

doGATE is an automation server optimized to doMOOV that is equipped with all necessary physical interfaces, which can also take over backup and remote control functions related to rooms.

Automation-Server

- » Automation server that works functionally stable
- » Attuned to the requirements of functional buildings and the building management software doMOOV
- » Makes available all necessary interfaces
- » Redundancy: can be defined as backup device
- » Additional functions: virtual remote control and Web Dashboard



MOOVnGROUP

MOOVnGROUP is an engineering tool, which as application for the KNX commissioning software ETS4 with a graphic user interface, facilitates the setup and editing of KNX projects. Here for example group addresses are automatically generated.

Graphic engineering tool

- » Graphic engineering tool for the ETS4
- » Zone concept: simple, fast setup/modification of rooms/connections, as well as modification of parameters
- » Reduction of complexity due to the automatic generation of group addresses
- » Working with templates: reuse of created device and zone templates
- » Automatic generation of data for Web Dashboard, virtual remote control LIZ, BACnet objects for SCADA (visualization) and trend data points

doGATE Automation-Server ^{1) 2) 3)}**NEW****For 1,000 data points**

Multi-Protocol Gateway that enables the integration of different protocols over TCP/IP in a Building Management System (BMS) and allows data exchange between the protocols. The integrated BACnet server offers scheduler, trend and alarm services. Data import of standard data bases (ETS for KNX, LNS for LON, EDE for BACnet) and MS Excel is supported. Enables decentralized IT structure. Redundancy: can be defined as backup device. Offers additional functions: virtual remote control and Web-Dashboard. Supports the protocols KNX, BACnet, LonWorks, Modbus, M-Bus. By default supported protocol/server: Modbus protocol and BACnet server.

Optional 1 additional protocol: KNX, BACnet or LONWorks.

Optional 2 additional protocols: KNX, BACnet or LONWorks.

Optional 3 additional protocols: KNX, BACnet and LONWorks.

For further information please contact central sales service of ABB Busch-Jaeger Elektro GmbH.

Rated voltage: 10 – 28 V–. Protection class (Device): IP 20.

Temperature range (Device): 0 °C to 55 °C.

Dimensions: (L x W x D): 252 mm x 199 mm x 33 mm.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
By default	–	DGT-0-1K-AB	8110-0-0001		1	
1 additional protocol	–	DGT-1-1K-AB	8110-0-0002			
2 additional protocols	–	DGT-2-1K-AB	8110-0-0003			
3 additional protocols	–	DGT-3-1K-AB	8110-0-0004			

doGATE MOOVnGROUP license ³⁾**NEW****For 100 devices**

Runtime license for MOOVnGROUP.

For usage in combination with Automation-Server doGATE.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	DGT-MNG-100-AB	8110-0-0023		1	

doGATE Web-Dashboard-VIS license ³⁾**NEW****For 1,000 data points**

Runtime license for Web-Dashboard-VIS. Web-Dashboard is a visualization based in the Automation-Server doGate and allows to display/modify data points, trends, scheduler and alarms. Web-Dashboard supports HTML5 standard. Can be combined with all popular windows browsers. Web-Dashboard data's are automatically generated from the predefined MOOVnGROUP zones. All other doGATE datapoints can be added manually.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	DGT-VIS-1K-AB	8110-0-0030		1	

1) Scope of doGATE services is managed by license keys.

2) Usage of, the into doGATE integrated software on Windows PC is possible.

3) without picture

doGATE Virtual remote control-LIZ license ¹⁾**NEW****For 100 zones**

Runtime license for virtual remote control-LIZ. For usage in combination with Automation-Server doGATE. Via LIZ rooms (zones) can be controlled by smartphone (Android, iPhone) or PC widget. LIZ data's are automatically generated from the predefined MOOVnGROUP zones. The user makes a LIZ spatial control. The different rooms are enabled by passwords.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	DGT-LIZ-100-AB	8110-0-0036		1	

doGATE M-Bus protocol ¹⁾**NEW**

Additional protocol for Automation-Server doGATE. Protocol: M-Bus.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	DGT-MBU-AB	8110-0-0017		1	

doGATE OPC server ¹⁾**NEW**

Permits to bring data up to SCADA/Visualization into OPC, from one or several doGATES. Runs on an external computer.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	DGT-OPC-AB	8110-0-0018		1	

doGATE MDRC Mounting kit ¹⁾**NEW**

For vertical or horizontal mounting of Automation-Server doGATE on mounting rail TS 35.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	DGT-DIN-AB	8110-0-0020		1	

doGATE Obix server ¹⁾**NEW**

Additional Obix server for Automations-Server doGATE. Server: Obix.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	DGT-OBi-AB	8110-0-0022		1	

doGATE Power supply ¹⁾**NEW**

Power supply for Automation-Server doGATE with main connection cable including connectors for various power outlets. Rated voltage: 100 - 240 V~. Secondary: 19 V~. Rated frequency: 47 Hz/63 Hz.

Description	MW	Type	Order code	Price 1 pc. €	Pack unit pc.	Weight 1 pc. kg
	–	DGT-PWR-AB	8110-0-0019		1	

¹⁾ without picture

Appendix

Selection Table According to Order Code.....	174
Selection Table According to Type.....	189



Selection Table According to Order Code

Order code	Type	EAN	PG	Page
1754-0-4107	1724-80	40 11395 99488 7	4	87
1754-0-4108	1725-80	40 11395 99492 4	4	87
1754-0-4112	1724-84	40 11395 99617 1	1	87
1754-0-4113	1725-84	40 11395 99619 5	1	87
1754-0-4231	1722-182K	40 11395 05070 5	1	86
1754-0-4232	1723-182K	40 11395 05071 2	1	86
1754-0-4233	1724-182K	40 11395 05073 6	1	86
1754-0-4234	1725-182K	40 11395 05074 3	1	86
1754-0-4238	1724-184K	40 11395 05078 1	1	86
1754-0-4240	1721-181K	40 11395 05080 4	4	86
1754-0-4241	1722-181K	40 11395 05081 1	4	86
1754-0-4242	1723-181K	40 11395 05082 8	4	86
1754-0-4243	1724-181K	40 11395 05083 5	4	86
1754-0-4244	1725-181K	40 11395 05084 2	4	86
1754-0-4254	1721-860	40 11395 05679 0	4	87
1754-0-4255	1722-860	40 11395 05681 3	4	87
1754-0-4256	1723-860	40 11395 05683 7	4	87
1754-0-4257	1724-860	40 11395 05685 1	4	87
1754-0-4258	1721-821	40 11395 05687 5	4	87
1754-0-4259	1722-821	40 11395 05689 9	4	87
1754-0-4260	1723-821	40 11395 05691 2	4	87
1754-0-4261	1724-821	40 11395 05693 6	4	87
1754-0-4309	1724-183K	40 11395 07483 1	4	86
1754-0-4310	1725-183K	40 11395 07484 8	4	86
1754-0-4319	1723-866K	40 11395 08837 1	4	88
1754-0-4320	1724-866K	40 11395 08839 5	4	88
1754-0-4321	1725-866K	40 11395 08842 5	4	88
1754-0-4322	1721-825	40 11395 08891 3	4	87
1754-0-4323	1722-825	40 11395 08892 0	4	87
1754-0-4323	1722-825	40 11395 08892 0	4	87
1754-0-4325	1724-825	40 11395 08894 4	4	87
1754-0-4327	1722-80G	40 11395 11306 6	4	87
1754-0-4328	1723-80G	40 11395 11307 3	4	87
1754-0-4329	1724-80G	40 11395 11308 0	4	87
1754-0-4330	1725-80G	40 11395 11309 7	4	87
1754-0-4331	1721-284	40 11395 11324 0	1	88
1754-0-4332	1722-284	40 11395 11325 7	1	88
1754-0-4333	1723-284	40 11395 11326 4	1	89
1754-0-4334	1721-285	40 11395 11327 1	4	88
1754-0-4335	1722-285	40 11395 11328 8	4	88
1754-0-4336	1723-285	40 11395 11329 5	4	89
1754-0-4337	1721-286	40 11395 11331 8	4	88
1754-0-4338	1722-286	40 11395 11332 5	4	88
1754-0-4339	1723-286	40 11395 11333 2	4	89
1754-0-4340	1721-287	40 11395 11334 9	4	88
1754-0-4341	1722-287	40 11395 11335 6	4	88
1754-0-4342	1723-287	40 11395 11336 3	4	89
1754-0-4343	1721-288	40 11395 11337 0	4	88
1754-0-4344	1722-288	40 11395 11338 7	4	88
1754-0-4345	1723-288	40 11395 11339 4	4	89
1754-0-4346	1724-284	40 11395 11341 7	1	89
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1754-0-4353	1725-287	40 11395 11348 6	4	89
1754-0-4354	1724-288	40 11395 11349 3	4	89
1754-0-4355	1725-288	40 11395 11351 6	4	89
1754-0-4356	1721-823-101	40 11395 11522 0	4	87
1754-0-4357	1722-823-101	40 11395 11523 7	4	87
1754-0-4358	1723-823-101	40 11395 11524 4	4	87

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1754-0-4359	1724-823-101	40 11395 11525 1	4	87
1754-0-4360	1721-826-101	40 11395 11526 8	4	87
1754-0-4361	1722-826-101	40 11395 11527 5	4	87
1754-0-4362	1723-826-101	40 11395 11528 2	4	87
1754-0-4363	1724-826-101	40 11395 11529 9	4	87
1754-0-4409	1721-281	40 11395 12636 3	4	88
1754-0-4410	1722-281	40 11395 12637 0	4	88
1754-0-4411	1723-281	40 11395 12638 7	4	89
1754-0-4412	1724-281	40 11395 12639 4	4	89
1754-0-4413	1725-281	40 11395 12661 5	4	89
1754-0-4415	1722-884K	40 11395 12825 1	1	86
1754-0-4416	1723-884K	40 11395 12826 8	1	86
1754-0-4417	1724-884K	40 11395 12827 5	1	86
1754-0-4418	1725-884K	40 11395 12828 2	1	86
1754-0-4421	1723-885K	40 11395 12832 9	4	86
1754-0-4422	1724-885K	40 11395 12833 6	4	86
1754-0-4423	1725-885K	40 11395 12834 3	4	86
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1754-0-4443	1722-811	40 11395 15702 2	4	87
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1754-0-4445	1724-811	40 11395 15704 6	4	87
1754-0-4471	1721-291-500	40 11395 16507 2	4	88
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1754-0-4502	1723-184K-500	40 11395 17456 2	1	86
1754-0-4506	1721-182K-500	40 11395 17460 9	1	86
1754-0-4517	1725-184K-500	40 11395 17472 2	1	86
1754-0-4529	1721-183K-500	40 11395 17594 1	4	86
1754-0-4530	1722-183K-500	40 11395 17595 8	4	86
1754-0-4531	1721-884K-500	40 11395 17596 5	1	86
1754-0-4532	1721-885K-500	40 11395 17597 2	4	86
1754-0-4533	1723-183K-500	40 11395 17599 6	4	86

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1754-0-4534	1722-885K-500	40 11395 17600 9	4	86
1754-0-4535	1721-80-500	40 11395 17611 5	4	87
1754-0-4536	1721-84-500	40 11395 17612 2	1	87
1754-0-4537	1722-80-500	40 11395 17613 9	4	87
1754-0-4538	1721-80G-500	40 11395 17615 3	4	87
1754-0-4539	1722-84-500	40 11395 17616 0	1	87
1754-0-4540	1723-80-500	40 11395 17617 7	4	87
1754-0-4541	1723-84-500	40 11395 17623 8	1	87
1754-0-4543	1721-283	40 11395 18556 8	4	88
1754-0-4544	1722-283	40 11395 18557 5	4	88
1754-0-4545	1723-283	40 11395 18558 2	4	89
1754-0-4546	1724-283	40 11395 18559 9	4	89
1754-0-4547	1725-283	40 11395 18561 2	4	89
2CDG110002R0011	SA/M 2.6.1	40 16779 58314 5	26	17
2CDG110003R0011	JA/M 2.230.1	40 16779 58315 2	26	17
2CDG110004R0011	JA/M 2.24.1	40 16779 58316 9	26	17
2CDG110005R0011	BE/M 4.230.1	40 16779 58311 4	26	17
2CDG110006R0011	BE/M 4.24.1	40 16779 58312 1	26	17
2CDG110007R0011	BE/M 4.12.1	40 16779 58313 8	26	17
2CDG110008R0011	USB/S 1.1	40 16779 58921 5	26	12
2CDG110009R0011	DSA/S 2.16.1	40 16779 58584 2	26	39
2CDG110012R0011	UD/M 1.300.1	40 11395 04281 6	26	18
2CDG110013R0011	ES/M 2.230.1	40 16779 58361 9	26	18
2CDG110014R0011	ES/M 2.24.1	40 16779 58362 6	26	18
2CDG110024R0011	SCM/S 1.1	40 16779 58391 6	26	139
2CDG110025R0011	DG/S 8.1	40 16779 58582 8	26	38
2CDG110026R0011	DG/S 1.1	40 16779 58583 5	26	38
2CDG110028R0011	JA/S 4.SMI.1M	40 16779 65423 4	26	35
2CDG110029R0011	DR/S 4.1	40 16779 58755 6	26	8
2CDG110030R0011	AE/S 4.2	40 16779 58763 1	26	24
2CDG110032R0011	WS/S 4.1	40 16779 58771 6	26	25
2CDG110034R0011	WZ/S 1.1	40 16779 58612 2	26	25
2CDG110058R0011	ES/S 4.1.2.1	40 16779 67206 1	26	49
2CDG110059R0011	ES/S 8.1.2.1	40 16779 67207 8	26	49
2CDG110060R0011	DSM/S 1.1	40 16779 65205 6	26	13
2CDG110061R0011	IPR/S 2.1	40 16779 65229 2	26	10
2CDG110065R0011	US/U 12.2	40 16779 65012 0	26	23
2CDG110066R0011	EUB/S 1.1	40 16779 64991 9	26	137
2CDG110067R0011	BDB/S 1.1	40 16779 65753 2	26	137
2CDG110070R0011	NTU/S 12.2000.1	40 16779 68117 9	26	9
2CDG110071R0011	UK/S 32.2	40 16779 65577 4	26	55
2CDG110072R0011	ABZ/S 2.1	40 16779 65236 0	26	53
2CDG110073R0011	ABL/S 2.1	40 16779 65264 3	26	53
2CDG110074R0011	UD/S 2.300.2	40 16779 66306 9	26	40
2CDG110075R0011	XS/S 1.1	40 16779 66704 3	26	144
2CDG110079R0011	SD/S 2.16.1	40 16779 65996 3	26	40
2CDG110080R0011	SD/S 4.16.1	40 16779 65937 6	26	40
2CDG110081R0011	SD/S 8.16.1	40 16779 65918 5	26	40
2CDG110083R0011	ZS/S 1.1	40 16779 66207 9	26	114
2CDG110084R0011	FCA/S 1.1M	40 16779 66508 7	26	50
2CDG110086R0011	AE/A 2.1	40 16779 66401 1	26	24
2CDG110087R0011	LR/S 2.16.1	40 16779 66405 9	26	40
2CDG110088R0011	LR/S 4.16.1	40 16779 66489 9	26	40
2CDG110089R0011	LF/U 2.1	40 16779 66416 5	26	40
2CDG110090R0011	BE/S 4.20.2.1	40 16779 71078 7	26	23
2CDG110091R0011	BE/S 4.230.2.1	40 16779 71106 7	26	23
2CDG110092R0011	BE/S 8.20.2.1	40 16779 71076 3	26	23
2CDG110093R0011	BE/S 8.230.2.1	40 16779 71077 0	26	23
2CDG110094R0011	RM/S 1.1	40 16779 66556 8	26	19
2CDG110095R0011	RM/S 2.1	40 16779 66567 4	26	19
2CDG110096R0011	NTI/Z 28.30.1	40 16779 66316 8	26	8
2CDG110098R0011	IPS/S 2.1	40 16779 66484 4	26	10
2CDG110100R0011	SA/M 2.16.1	40 16779 68158 2	26	17

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2CDG110101R0011	DLR/S 8.16.1M	40 16779 67656 4	26	39
2CDG110103R0011	DG/S 1.16.1	40 16779 66950 4	26	38
2CDG110104R0011	RC/A 4.2	40 16779 67647 2	26	16
2CDG110106R0011	RC/A 8.2	40 16779 68126 1	26	16
2CDG110107R0011	SD/M 2.6.2	40 16779 68066 0	26	17
2CDG110108R0011	LR/M 1.6.2	40 16779 68067 7	26	18
2CDG110109R0011	MT/S 4.12.2M	40 16779 71187 6	26	139
2CDG110110R0011	MT/S 8.12.2M	40 16779 71186 9	26	139
2CDG110111R0011	MT/U 2.12.2	40 16779 71176 0	26	139
2CDG110112R0011	SA/S 2.16.6.1	40 16779 70830 2	26	30
2CDG110113R0011	SA/S 4.16.6.1	40 16779 70831 9	26	30
2CDG110114R0011	SA/S 8.16.6.1	40 16779 70832 6	26	30
2CDG110116R0011	VAA/S 6.230.2.1	40 16779 82986 1	26	49
2CDG110117R0011	VAA/S 12.230.2.1	40 16779 82987 8	26	49
2CDG110119R0011	TG/Z 1.1	40 16779 69788 0	26	55
2CDG110120R0011	JRA/S 2.230.2.1	40 16779 69839 9	26	34
2CDG110121R0011	JRA/S 4.230.2.1	40 16779 69840 5	26	34
2CDG110122R0011	JRA/S 8.230.2.1	40 16779 69841 2	26	34
2CDG110124R0011	JRA/S 2.230.5.1	40 16779 69843 6	26	34
2CDG110125R0011	JRA/S 4.230.5.1	40 16779 69844 3	26	34
2CDG110126R0011	JRA/S 8.230.5.1	40 16779 69845 0	26	34
2CDG110128R0011	JRA/S 4.24.5.1	40 16779 69847 4	26	34
2CDG110129R0011	JRA/S 2.230.1.1	40 16779 69848 1	26	35
2CDG110130R0011	JRA/S 4.230.1.1	40 16779 69849 8	26	35
2CDG110131R0011	JRA/S 8.230.1.1	40 16779 69850 4	26	35
2CDG110132R0011	SA/S 2.16.5.1	40 16779 70827 2	26	30
2CDG110133R0011	SA/S 4.16.5.1	40 16779 70828 9	26	30
2CDG110134R0011	SA/S 8.16.5.1	40 16779 70829 6	26	30
2CDG110135R0011	TG/S 3.2	40 16779 70851 7	26	55
2CDG110136R0011	SE/S 3.16.1	40 16779 70977 4	26	114
2CDG110137R0011	SA/S 12.16.5.1	40 16779 71107 4	26	30
2CDG110138R0011	SA/S 12.16.6.1	40 16779 76516 9	26	30
2CDG110141R0011	FCA/S 1.2.2.1	40 16779 87727 5	26	50
2CDG110142R0011	DGN/S 1.16.1	40 16779 84556 4	26	38
2CDG110143R0011	SJR/S4.24.2.1	40 16779 86446 6	26	35
2CDG110144R0011	SV/S 30.160.1.1	40 16779 86666 8	26	6
2CDG110145R0011	SV/S 30.320.2.1	40 16779 83766 8	26	7
2CDG110146R0011	SV/S 30.640.5.1	40 16779 86669 9	26	7
2CDG110148R0011	EM/S 3.16.1	40 16779 87706 0	26	114
2CDG110150R0011	GM/A 8.1	40 16779 90630 2	26	143
2CDG110152R0011	SA/S 4.6.1.1	40 16779 87786 2	26	29
2CDG110153R0011	SA/S 8.6.1.1	40 16779 87785 5	26	29
2CDG110154R0011	SA/S 12.6.1.1	40 16779 87784 8	26	29
2CDG110155R0011	SA/S 2.10.2.1	40 16779 87783 1	26	29
2CDG110156R0011	SA/S 4.10.2.1	40 16779 87782 4	26	29
2CDG110157R0011	SA/S 8.10.2.1	40 16779 87781 7	26	29
2CDG110158R0011	SA/S 12.10.2.1	40 16779 87780 0	26	29
2CDG110159R0011	SA/S 2.16.2.1	40 16779 87779 4	26	29
2CDG110160R0011	SA/S 4.16.2.1	40 16779 87778 7	26	29
2CDG110161R0011	SA/S 8.16.2.1	40 16779 87777 0	26	29
2CDG110162R0011	SA/S 12.16.2.1	40 16779 87776 3	26	29
2CDG110163R0011	FCL/S 1.6.1.1	40 16779 87788 6	26	50
2CDG110164R0011	FCL/S 2.6.1.1	40 16779 87787 9	26	50
2CDG110165R0011	RM/S 3.1	40 16779 88106 7	26	19
2CDG110166R0011	SV/S 30.320.1.1	40 16779 90619 7	26	6
2CDG110167R0011	SV/S 30.640.3.1	40 16779 90621 0	26	6
2CDG110168R0011	IO/S 4.6.1.1	40 16779 88107 4	26	30
2CDG110169R0011	IO/S 8.6.1.1	40 16779 88108 1	26	30
2CDG110170R0011	RM/S 4.1	40 16779 88126 5	26	19
2CDG110171R0011	LK/S 4.2	40 16779 88167 8	26	10
2CDG110172R0011	DLR/A 4.8.1.1	40 16779 88237 8	26	39
2CDG110174R0011	WA/Z 1.1	40 16779 90637 1	26	143
2CDG110178R0011	MG/E 4.4.1	40 16779 92549 5	26	143

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2CDG110180R0011	SA/S 2.6.2.1	40 16779 92506 8	26	29
2CDG110181R0011	SA/S 4.6.2.1	40 16779 92509 9	26	29
2CDG110182R0011	SA/S 8.6.2.1	40 16779 92513 6	26	29
2CDG110183R0011	SA/S 12.6.2.1	40 16779 92515 0	26	29
2CDG110184R0011	WZ/S 1.3.1.2	40 1677958612 2	26	24
2CDG110186R0011	MG/A 4.4.1	40 16779 92552 5	26	143
2CDG110190R0011	AE/S 4.1.1.3	40 1677992929 5	26	24
2CDG110191R0011	WS/S 4.1.1.2	40 1677992937 0	26	25
2CDG120001R0011	FC/S 1.1	40 16779 58383 1	20	51
2CDG120002R0011	TS/K 1.1	40 16779 58381 7	20	51
2CDG120004R0011	ST/K 1.1	40 16779 63022 1	20	51
2CDG120005R0011	AA/S 4.1	40 16779 65886 7	20	30
2CDG120006R0011	AAM/S 4.1	40 16779 65887 4	20	30
2CDG120007R0011	TSA/K 230.1	40 16779 65299 5	20	52
2CDG120008R0011	TSA/K 24.1	40 16779 65300 8	20	52
2CDG120009R0011	VA/Z 10.1	40 16779 65319 0	20	52
2CDG120010R0011	VA/Z 50.1	40 16779 65320 6	20	52
2CDG120011R0011	VA/Z 78.1	40 16779 65321 3	20	52
2CDG120012R0011	VA/Z 80.1	40 16779 65322 0	20	52
2CDG120032R0011	VAA/A 6.24.1	40 16779 67064 7	20	49
2CDG120033R0011	WES/A 2.1	40 16779 69736 1	20	25
2CDG120034R0011	ISM/S 5.1	40 1677969792 7	20	10
2CDG120035R0011	ISS/S 5.1	40 16779 69791 0	20	11
2CDG120036R0011	IPM/S 1.1	40 16779 69790 3	20	11
2CDG120037R0011	CP-D 24/2.5	40 16779 69789 7	20	76
2CDG120038R0011	LGS/A 1.1	40 16779 83712 5	20	51
2CDG120039R0011	FW/S 8.2.1	40 16779 90666 1	20	54
2CDG120040R0011	FAD/A 1.1	40 16779 90668 5	20	54
2CDG120041R0011	FAG/A 1.1	40 16779 90669 2	20	54
2CDG120042R0011	PS/E 2.1	40 16779 90670 8	20	54
2CDG120043R0011	PK/E 2.1	40 16779 90671 5	20	54
2CDG120044R0011	HS/S 4.2.1	40 16779 90672 2	20	41
2CDG120045R0011	LFO/A 1.1	40 16779 90673 9	20	41
2CDG120046R0011	WES/A 3.1	40 1677992893 9	20	24
2CDG120047R0011	EG/A 32.2.1	40 16779 94257 7	26	12
2CDG220003R0011	L240/MG2	40 16779 65737 2	50	146
2CDG230013R0011	L240/IP	40 16779 66856 9	50	144
2CDG230014R0011	L240/PT	40 16779 66855 2	50	144
2CDG230017R0011	L240/ENG	40 16779 66852 1	50	144
2CDG230023R0011	IR/XB	40 16779 67877 3	50	145
2CDG230024R0011	IR/XC	40 16779 67878 0	50	145
2CDG230025R0011	EIM/XB	40 16779 67879 7	50	145
2CDG230026R0011	EIM/XC	40 16779 67880 3	50	145
2CDG230027R0011	IR/KB	40 16779 75716 4	50	149
2CDG230028R0011	EIM/KB	40 16779 75717 1	50	150
2CDG230029R0011	EIM/KC	40 16779 75718 8	50	150
2CDG230039R0011	EIM/D	40 16779 87766 4	50	150
2CDG240019R0011	SSM/A	40 16779 83746 0	50	147
2CDG240020R0011	SSM/U	40 16779 83747 7	50	147
2CDG250003R0011	WRK/W	40 16779 66404 2	50	148
2CDG280001R0011	BT/A 1.1	40 16779 92556 3	26	143
2CDG430051R0011	FC600/BREL	40 16779 70840 1	50	151
2CDG430073R0011	FC650/O	40 16779 86479 4	50	151
2CDG430081R0011	FC650/TMAX	40 16779 86477 0	50	151
2CDG924003R0011	PS 1/4/6-KNX	40 16779 66758 6	20	13
2CDG924004R0011	PS 1/60/6-KNX	40 16779 66759 3	20	13
2CDL000001R0001	PS-END 1-S	40 16779 66698 5		13
2CL0N222121	N2221.2 BL	84 27238 10032 6		108
2CL0N222123	N2221.2 PL	84 27238 10034 0		108
2CL0N222128	N2221.2 AN	84 27238 10033 3		108
2CL0N222141	N2221.4 BL	84 27238 10034 0		108
2CL0N222143	N2221.4 PL	84 27238 10045 6		108
2CL0N222148	N2221.4 AN	84 27238 10044 9		108

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2CLON222161	N2221.6 BL	84 27238 10053 1		109
2CLON222163	N2221.6 PL	84 27238 10055 5		109
2CLON222168	N2221.6 AN	84 27238 10054 8		109
2CLON222171	N2221.7 BL	84 27238 10065 4		109
2CLON222173	N2221.7 PL	84 27238 10055 5		109
2CLON222178	N2221.7 AN	84 27238 10066 1		109
2CLON224041	N2240.4 BL	84 27238 10071 5		110
2CLON224043	N2240.4 PL	84 27238 10073 9		110
2CLON224048	N2240.4 AN	84 27238 10072 2		110
2CLON224141	N2241.4 BL	84 27238 10081 4		110
2CLON224143	N2241.4 PL	84 27238 10083 8		110
2CLON224148	N2241.4 AN	84 27238 10072 2		110
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2CMA100013R1000	A44 211 - 100	73 92696 00013 0		124
2CMA100014R1000	C11 110 - 100	73 92696 00014 7		134
2CMA100143R1000	A43 511 - 100	73 92696 00143 4		123
2CMA100149R1000	B21 111 - 100	73 9269600150 2		128
2CMA100150R1000	B21 112 - 100	73 9269600151 9		128
2CMA100151R1000	B21 113 - 100	73 9269600154 0		128
2CMA100152R1000	B21 212 - 100	73 92696 00152 6		128
2CMA100154R1000	B21 311 - 100	73 9269600155 7		128
2CMA100155R1000	B21 312 - 100	73 9269600156 4		128
2CMA100156R1000	B21 313 - 100	73 9269600163 2		128
2CMA100163R1000	B23 111 - 100	73 9269600164 9		129
2CMA100164R1000	B23 112 - 100	73 9269600165 6		129
2CMA100165R1000	B23 113 - 100	73 9269600168 7		129
2CMA100166R1000	B23 212 - 100	73 92696 00166 3		129
2CMA100168R1000	B23 311 - 100	73 9269600169 4		129
2CMA100169R1000	B23 312 - 100	73 9269600170 0		129
2CMA100170R1000	B23 313 - 100	73 9269600177 9		129
2CMA100177R1000	B24 111 - 100	73 9269600178 6		130
2CMA100178R1000	B24 112 - 100	73 9269600179 3		130
2CMA100179R1000	B24 113 - 100	73 9269600182 3		130
2CMA100180R1000	B24 212 - 100	73 92696 00180 9		130
2CMA100182R1000	B24 351 - 100	73 9269600183 0		130
2CMA100183R1000	B24 352 - 100	73 9269600184 7		130
2CMA100184R1000	B24 353 - 100	73 9269600237 0		130
2CMA100191R1000	C13 110 - 100	73 92696 00191 5		134
2CMA100192R1000	C13 110 - 300	73 92696 00192 2		134
2CMA100237R1000	A41 512 - 100	73 92696 00237 0		121
2CMA100238R1000	A42 552 - 100	73 92696 00238 7		122
2CMA100240R1000	A41 113 - 100	73 9269600240 0		121
2CMA100242R1000	A42 113 - 100	73 92696 00242 4		122
2CMA100244R1000	A43 112 - 100	73 92696 00244 8		123
2CMA100245R1000	A43 113 - 100	73 92696 00245 5		123
2CMA100248R1000	A44 112 - 100	73 92696 00248 6		124
2CMA100249R1000	A44 113 - 100	73 92696 00249 3		124
2CMA170500R1000	A41 112 - 100	73 9269670500 4		121
2CMA170501R1000	A41 212 - 100	73 92696 70501 1		121
2CMA170502R1000	A41 311 - 100	73 92696 70502 8		121
2CMA170503R1000	A41 312 - 100	73 92696 70503 5		121
2CMA170504R1000	A41 313 - 100	73 92696 70504 2		121
2CMA170505R1000	A41 412 - 100	73 92696 70505 9		121
2CMA170506R1000	A41 413 - 100	73 92696 70506 6		121
2CMA170508R1000	A41 513 - 100	73 92696 70508 0		121
2CMA170510R1000	A42 112 - 100	73 92696 70510 3		122
2CMA170511R1000	A42 212 - 100	73 92696 70511 0		122
2CMA170512R1000	A42 312 - 100	73 92696 70512 7		122
2CMA170513R1000	A42 412 - 100	73 92696 70513 4		122
2CMA170514R1000	A42 413 - 100	73 92696 70514 1		122
2CMA170516R1000	A42 553 - 100	73 92696 00244 8		122
2CMA170520R1000	A43 111 - 100	73 92696 70520 2		123
2CMA170521R1000	A43 121 - 100	73 92696 70521 9		123

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2CMA170522R1000	A43 212 - 100	73 92696 70522 6		123
2CMA170523R1000	A43 213 - 100	73 92696 70523 3		123
2CMA170524R1000	A43 311 - 100	73 92696 70524 0		123
2CMA170525R1000	A43 312 - 100	73 92696 70525 7		123
2CMA170526R1000	A43 313 - 100	73 92696 70526 4		123
2CMA170528R1000	A43 412 - 100	73 92696 70528 8		123
2CMA170529R1000	A43 413 - 100	73 92696 70529 5		123
2CMA170531R1000	A43 512 - 100	73 92696 70531 8		123
2CMA170532R1000	A43 513 - 100	73 92696 70532 5		123
2CMA170533R1000	A44 111 - 100	73 92696 70533 2		124
2CMA170534R1000	A44 212 - 100	73 92696 70534 9		124
2CMA170535R1000	A44 213 - 100	73 92696 70535 6		124
2CMA170536R1000	A44 311 - 100	73 92696 70536 3		124
2CMA170537R1000	A44 352 - 100	73 92696 70537 0		124
2CMA170538R1000	A44 353 - 100	73 92696 70538 7		124
2CMA170540R1000	A44 452 - 100	73 92696 70540 0		124
2CMA170541R1000	A44 453 - 100	73 92696 70541 7		124
2CMA170545R1000	A44 552 - 100	73 92696 70545 5		124
2CMA170546R1000	A44 553 - 100	73 92696 70546 2		124
2CMA170550R1000	C11 110 - 300	73 9269670555 4		134
2CMA170554R1000	A41 111 - 100	73 9269670554 7		121
2CMA170555R1000	A42 111 - 100	73 92696 70555 4		122
6020-0-1133	6010-25-500	40 11395 93850 8	19	94
6115-0-0183	6125/01-84-500	40 11395 13559 4	26	79
6115-0-0183	6125/01-84-500	40 11395 13559 4	26	79
6115-0-0183	6125/01-84-500	40 11395 13559 4	26	79
6115-0-0183	6125/01-84-500	40 11395 13559 4	26	79
6115-0-0205	6125/01-81-500	40 11395 13947 9	26	79
6115-0-0205	6125/01-81-500	40 11395 13947 9	26	79
6115-0-0206	6125/01-82-500	40 11395 13948 6	26	79
6115-0-0206	6125/01-82-500	40 11395 13948 6	26	79
6115-0-0206	6125/01-82-500	40 11395 13948 6	26	79
6115-0-0207	6125/01-83-500	40 11395 13949 3	26	79
6115-0-0211	6125/01-866-500	40 11395 13953 0	26	79
6115-0-0212	6125/01-803-500	40 11395 13954 7	26	79
6115-0-0213	6125/01-815-500	40 11395 13955 4	26	79
6115-0-0214	6125/01-884-500	40 11395 13956 1	26	79
6115-0-0215	6125/01-885-500	40 11395 13957 8	26	79
6115-0-0216	6125/02-81-500	40 11395 13958 5	26	82
6115-0-0216	6125/02-81-500	40 11395 13958 5	26	82
6115-0-0217	6125/02-82-500	40 11395 13959 2	26	82
6115-0-0217	6125/02-82-500	40 11395 13959 2	26	82
6115-0-0218	6125/02-83-500	40 11395 13961 5	26	82
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6115-0-0219	6125/02-84-500	40 11395 13962 2	26	82
6115-0-0223	6125/02-866-500	40 11395 13966 0	26	82
6115-0-0224	6125/02-803-500	40 11395 13967 7	26	82
6115-0-0225	6125/02-815-500	40 11395 13968 4	26	82
6115-0-0226	6125/02-884-500	40 11395 13969 1	26	82
6115-0-0227	6125/02-885-500	40 11395 13971 4	26	82
6115-0-0444	6125/98-509	40 11395 15782 4	26	108
6115-0-0449	6125/01-896-500	40 11395 16988 9	26	79
6115-0-0451	6125/02-896-500	40 11395 16991 9	26	82
6116-0-0174	6126/01-84-500	40 11395 13574 7	26	79
6116-0-0174	6126/01-84-500	40 11395 13574 7	26	79
6116-0-0174	6126/01-84-500	40 11395 13574 7	26	79
6116-0-0174	6126/01-84-500	40 11395 13574 7	26	79
6116-0-0195	6126/01-81-500	40 11395 13985 1	26	79
6116-0-0195	6126/01-81-500	40 11395 13985 1	26	79
6116-0-0196	6126/01-82-500	40 11395 13986 8	26	79

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Order code	Type	EAN	PG	Page
6116-0-0196	6126/01-82-500	40 11395 13986 8	26	79
6116-0-0196	6126/01-82-500	40 11395 13986 8	26	79
6116-0-0197	6126/01-83-500	40 11395 13987 5	26	79
6116-0-0201	6126/01-866-500	40 11395 13993 6	26	79
6116-0-0202	6126/01-803-500	40 11395 13994 3	26	79
6116-0-0203	6126/01-815-500	40 11395 13995 0	26	79
6116-0-0204	6126/01-884-500	40 11395 13996 7	26	79
6116-0-0205	6126/01-885-500	40 11395 13997 4	26	79
6116-0-0206	6126/02-81-500	40 11395 13998 1	26	82
6116-0-0206	6126/02-81-500	40 11395 13998 1	26	82
6116-0-0207	6126/02-82-500	40 11395 13999 8	26	82
6116-0-0207	6126/02-82-500	40 11395 13999 8	26	82
6116-0-0207	6126/02-82-500	40 11395 13999 8	26	82
6116-0-0208	6126/02-83-500	40 11395 14001 7	26	82
6116-0-0209	6126/02-84-500	40 11395 14002 4	26	82
6116-0-0209	6126/02-84-500	40 11395 14002 4	26	82
6116-0-0209	6126/02-84-500	40 11395 14002 4	26	82
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6116-0-0213	6126/02-866-500	40 11395 14006 2	26	82
6116-0-0214	6126/02-803-500	40 11395 14007 9	26	82
6116-0-0215	6126/02-815-500	40 11395 14008 6	26	82
6116-0-0216	6126/02-884-500	40 11395 14009 3	26	82
6116-0-0217	6126/02-885-500	40 11395 14011 6	26	82
6116-0-0219	6126/98-509	40 11395 15785 5	26	108
6116-0-0224	6126/01-896-500	40 11395 16993 3	26	79
6116-0-0226	6126/02-896-500	40 11395 16995 7	26	82
6117-0-0200	6127/01-84-500	40 11395 13588 4	26	79
6117-0-0200	6127/01-84-500	40 11395 13588 4	26	79
6117-0-0200	6127/01-84-500	40 11395 13588 4	26	79
6117-0-0200	6127/01-84-500	40 11395 13588 4	26	79
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6117-0-0222	6127/01-82-500	40 11395 14025 3	26	79
6117-0-0223	6127/01-83-500	40 11395 14026 0	26	79
6117-0-0227	6127/01-866-500	40 11395 14030 7	26	79
6117-0-0228	6127/01-803-500	40 11395 14031 4	26	79
6117-0-0229	6127/01-815-500	40 11395 14032 1	26	79
6117-0-0230	6127/01-884-500	40 11395 14033 8	26	79
6117-0-0231	6127/01-885-500	40 11395 14034 5	26	79
6117-0-0232	6127/02-81-500	40 11395 14035 2	26	82
6117-0-0232	6127/02-81-500	40 11395 14035 2	26	82
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6117-0-0235	6127/02-84-500	40 11395 14038 3	26	82
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6117-0-0240	6127/02-803-500	40 11395 14044 4	26	82
6117-0-0241	6127/02-815-500	40 11395 14045 1	26	82
6117-0-0242	6127/02-884-500	40 11395 14046 8	26	82
6117-0-0243	6127/02-885-500	40 11395 14047 5	26	82
6117-0-0249	6127/01-896-500	40 11395 16997 1	26	79
6117-0-0251	6127/02-896-500	40 11395 16999 5	26	82
6118-0-0105	6129/96-509	40 11395 15788 6	26	109
6118-0-0108	6129/98-509	40 11395 15792 3	26	109
6120-0-0072	6120/13-500	40 11395 10227 5	26	72
6120-0-0073	6120/13-508	40 11395 11658 6	26	72
6120-0-0075	6120/12-101-500	40 11395 13548 8	26	72

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Order code	Type	EAN	PG	Page
6120-0-0076	6120/12-101-508	40 11395 14733 7	26	72
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6123-0-0002	6123/21-500	40 11395 15798 5	26	111
6123-0-0003	6123/22-500	40 11395 15799 2	26	111
6123-0-0004	6123/23-500	40 11395 15801 2	26	111
6123-0-0005	6123/24-500	40 11395 17645 0	26	111
6123-0-0006	6123/26-500	40 11395 17646 7	26	111
6132-0-0250	6122/01-84-500	40 11395 13505 1	26	84
6132-0-0250	6122/01-84-500	40 11395 13505 1	26	84
6132-0-0250	6122/01-84-500	40 11395 13505 1	26	84
6132-0-0250	6122/01-84-500	40 11395 13505 1	26	84
6132-0-0263	6122/02-84-500	40 11395 13521 1	26	84
6132-0-0263	6122/02-84-500	40 11395 13521 1	26	84
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6132-0-0272	6122/01-81-500	40 11395 14048 2	26	84
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6132-0-0273	6122/01-82-500	40 11395 14049 9	26	84
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6132-0-0273	6122/01-82-500	40 11395 14049 9	26	84
6132-0-0273	6122/01-82-500	40 11395 14049 9	26	84
6132-0-0274	6122/01-83-500	40 11395 14051 2	26	84
6132-0-0278	6122/01-866-500	40 11395 14055 0	26	84
6132-0-0279	6122/01-803-500	40 11395 14056 7	26	84
6132-0-0280	6122/01-815-500	40 11395 14057 4	26	84
6132-0-0281	6122/01-884-500	40 11395 14058 1	26	84
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6132-0-0284	6122/02-82-500	40 11395 14061 1	26	84
6132-0-0285	6122/02-83-500	40 11395 14062 8	26	84
6132-0-0289	6122/02-866-500	40 11395 14066 6	26	84
6132-0-0290	6122/02-803-500	40 11395 14067 3	26	84
6132-0-0291	6122/02-815-500	40 11395 14068 0	26	84
6132-0-0292	6122/02-884-500	40 11395 14069 7	26	84
6132-0-0293	6122/02-885-500	40 11395 14070 3	26	84
6132-0-0295	6131/10-24-500	40 11395 14772 6	26	45
6132-0-0297	6131/10-183-500	40 11395 14774 0	26	45
6132-0-0299	6131/11-24-500	40 11395 14776 4	26	45
6132-0-0301	6131/11-183-500	40 11395 14778 8	26	45
6132-0-0307	6122/98-509	40 11395 15795 4	26	110
6132-0-0313	6179/01-204-500	40 11395 16854 7	26	46
6132-0-0314	6179/01-208-500	40 11395 16856 1	26	46
6132-0-0317	6179/02-204-500	40 11395 16861 5	26	46
6132-0-0318	6179/02-208-500	40 11395 16862 2	26	46
6132-0-0320	6179-500	40 11395 16865 3	26	46
6132-0-0322	6122/01-896-500	40 11395 16982 7	26	84
6132-0-0324	6122/02-896-500	40 11395 16984 1	26	84
6132-0-0342	6131/20-24-500	40 11395 18588 9	26	42
6132-0-0343	6131/20-183-500	40 11395 18589 6	26	42
6132-0-0344	6131/21-24-500	40 11395 18590 2	26	42
6132-0-0345	6131/21-183-500	40 11395 18591 9	26	42
6132-0-0346	6131/30-24-500	40 11395 18592 6	26	43
6132-0-0347	6131/30-183-500	40 11395 18593 3	26	43
6132-0-0348	6131/31-24-500	40 11395 18594 0	26	43
6132-0-0349	6131/31-183-500	40 11395 18596 4	26	43
6132-0-0350	6131/40-24-500	40 11395 18597 1	26	44
6132-0-0351	6131/29-24-500	40 11395 18598 8	26	44
6132-0-0352	6131/29-183-500	40 11395 18599 5	26	44
6132-0-0353	6131/39-24-500	40 11395 18600 8	26	44
6132-0-0354	6131/39-183-500	40 11395 18601 5	26	44
6133-0-0201	6149/21-500	40 11395 11896 2	26	76

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Order code	Type	EAN	PG	Page
6133-0-0207	6108/01-500	40 11395 13542 6	26	97
6133-0-0209	6108/02-500	40 11395 13544 0	26	97
6133-0-0211	6108/04-500	40 11395 14403 9	26	97
6133-0-0213	6108/05-500	40 11395 14405 3	26	97
6134-0-0248	6124/01-84-500	40 11395 13535 8	26	85
6134-0-0248	6124/01-84-500	40 11395 13535 8	26	85
6134-0-0248	6124/01-84-500	40 11395 13535 8	26	85
6134-0-0261	6128/01-84-500	40 11395 13602 7	26	85
6134-0-0261	6128/01-84-500	40 11395 13602 7	26	85
6134-0-0261	6128/01-84-500	40 11395 13602 7	26	85
6134-0-0271	6108/03-500	40 11395 13546 4	26	98
6134-0-0274	6124/01-82-500	40 11395 14071 0	26	85
6134-0-0274	6124/01-82-500	40 11395 14071 0	26	85
6134-0-0274	6124/01-82-500	40 11395 14071 0	26	85
6134-0-0275	6124/01-83-500	40 11395 14072 7	26	85
6134-0-0279	6124/01-866-500	40 11395 14076 5	26	85
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6134-0-0281	6124/01-815-500	40 11395 14078 9	26	85
6134-0-0282	6124/01-884-500	40 11395 14079 6	26	85
6134-0-0283	6124/01-885-500	40 11395 14081 9	26	85
6134-0-0284	6128/01-81-500	40 11395 14082 6	26	85
6134-0-0284	6128/01-81-500	40 11395 14082 6	26	85
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6134-0-0285	6128/01-82-500	40 11395 14083 3	26	85
6134-0-0286	6128/01-83-500	40 11395 14084 0	26	85
6134-0-0290	6128/01-866-500	40 11395 14088 8	26	85
6134-0-0291	6128/01-803-500	40 11395 14089 5	26	85
6134-0-0292	6128/01-815-500	40 11395 14091 8	26	85
6134-0-0293	6128/01-884-500	40 11395 14092 5	26	85
6134-0-0294	6128/01-885-500	40 11395 14093 2	26	85
6134-0-0295	6124/01-81-500	40 11395 14351 3	26	85
6134-0-0295	6124/01-81-500	40 11395 14351 3	26	85
6134-0-0297	6124/98-509	40 11395 15778 7	26	110
6134-0-0304	6124/01-896-500	40 11395 16986 5	26	85
6134-0-0306	6128/01-896-500	40 11395 17002 1	26	85
6135-0-0146	6129/01-84-500	40 11395 13616 4	26	83
6135-0-0146	6129/01-84-500	40 11395 13616 4	26	83
6135-0-0146	6129/01-84-500	40 11395 13616 4	26	83
6135-0-0146	6129/01-84-500	40 11395 13616 4	26	83
6135-0-0156	6129/01-81-500	40 11395 14094 9	26	83
6135-0-0156	6129/01-81-500	40 11395 14094 9	26	83
6135-0-0157	6129/01-82-500	40 11395 14095 6	26	83
6135-0-0157	6129/01-82-500	40 11395 14095 6	26	83
6135-0-0157	6129/01-82-500	40 11395 14095 6	26	83
6135-0-0158	6129/01-83-500	40 11395 14096 3	26	83
6135-0-0162	6129/01-866-500	40 11395 14100 7	26	83
6135-0-0163	6129/01-803-500	40 11395 14101 4	26	83
6135-0-0164	6129/01-815-500	40 11395 14102 1	26	83
6135-0-0165	6129/01-884-500	40 11395 14103 8	26	83
6135-0-0166	6129/01-885-500	40 11395 14104 5	26	83
6135-0-0170	6129/01-896-500	40 11395 17004 5	26	83
6136-0-0124	6136/UP	40 11395 04437 7	26	59
6136-0-0139	6136/10-500	40 11395 07927 0	26	59
6136-0-0141	6136/11-500	40 11395 07929 4	26	59
6136-0-0185	6136/100 C-102-500	40 11395 10675 4	26	59
6136-0-0186	6136/100 CB-102	40 11395 10676 1	26	59
6136-0-0196	6136/15-500	40 11395 15694 0	26	59
6138-0-0003	6138/11-84-500	40 11395 11609 8	26	50
6138-0-0005	6138/11-83-500	40 11395 11613 5	26	50
6151-0-0245	6151/11 U-500	40 11395 16395 5	26	20

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6151-0-0247	6164/11 U-500	40 11395 16399 3	26	20
6151-0-0249	6173/11 U-500	40 11395 16402 0	26	20
6152-0-0040	6152/11 U-500	40 11395 16397 9	26	20
6186-0-0023	6186/01 UP-500	40 11395 15886 9	34	58
6197-0-0036	6197/12-101-500	40 11395 16366 5	33	41
6197-0-0037	6197/13-101-500	40 11395 16367 2	33	41
6197-0-0038	6197/14-101-500	40 11395 16368 9	33	41
6197-0-0039	6197/15-101-500	40 11395 16369 6	33	41
6197-0-0040	6197/52-101-500	40 11395 16371 9	33	41
6197-0-0041	6197/53-101-500	40 11395 16372 6	33	41
6310-0-0078	6345-866-101-500	40 11395 11868 9	34	75
6310-0-0080	6345-825-101-500	40 11395 11872 6	34	75
6310-0-0081	6345-24G-101-500	40 11395 11873 3	34	75
6310-0-0092	6351-825-101-500	40 11395 11891 7	34	76
6310-0-0093	6353/20-860-500	40 11395 11892 4	34	76
6310-0-0094	6353/30-860-500	40 11395 11893 1	34	76
6310-0-0095	6353/40-860-500	40 11395 11894 8	34	76
6310-0-0096	6353/50-860-500	40 11395 11895 5	34	76
6310-0-0097	6354 U-500	40 11395 11897 9	34	72
6310-0-0098	6355 U-500	40 11395 11898 6	34	72
6310-0-0099	6356 U-500	40 11395 11899 3	34	72
6310-0-0106	6340-866-101-500	40 11395 13088 9	34	73
6310-0-0108	6340-825-101-500	40 11395 13091 9	34	73
6310-0-0109	6340-24G-101-500	40 11395 13092 6	34	73
6310-0-0114	6341-866-101-500	40 11395 13097 1	34	74
6310-0-0116	6341-825-101-500	40 11395 13099 5	34	74
6310-0-0117	6341-24G-101-500	40 11395 13100 8	34	74
6310-0-0122	6342-866-101-500	40 11395 13105 3	34	74
6310-0-0124	6342-825-101-500	40 11395 13107 7	34	74
6310-0-0125	6342-24G-101-500	40 11395 13108 4	34	74
6310-0-0130	6344-866-101-500	40 11395 13114 5	34	74
6310-0-0132	6344-825-101-500	40 11395 13116 9	34	74
6310-0-0133	6344-24G-101-500	40 11395 13117 6	34	74
6310-0-0135	6346/10-101-500	40 11395 13119 0	34	73
6310-0-0137	6346/11-101-500	40 11395 13122 0	34	73
6310-0-0139	6346/12-101-500	40 11395 13124 4	34	73
6310-0-0144	6348-866-101-500	40 11395 13129 9	34	75
6310-0-0146	6348-825-101-500	40 11395 13131 2	34	75
6310-0-0147	6348-24G-101-500	40 11395 13132 9	34	75
6310-0-0152	6349-860-101-500	40 11395 13137 4	34	75
6310-0-0154	6349-825-101-500	40 11395 13140 4	34	75
6310-0-0155	6349-24G-101-500	40 11395 13142 8	34	75
6310-0-0157	6350-825-101-500	40 11395 13144 2	34	75
6310-0-0162	6352-860-101-500	40 11395 13149 7	34	76
6310-0-0164	6352-825-101-500	40 11395 13151 0	34	76
6310-0-0165	6352-24G-101-500	40 11395 13152 7	34	76
6310-0-0168	6340-811-101-500	40 11395 15674 2	34	73
6310-0-0170	6341-811-101-500	40 11395 15676 6	34	74
6310-0-0172	6342-811-101-500	40 11395 15678 0	34	74
6310-0-0174	6344-811-101-500	40 11395 15681 0	34	74
6310-0-0176	6345-811-101-500	40 11395 15683 4	34	75
6310-0-0178	6348-811-101-500	40 11395 15685 8	34	75
6310-0-0180	6349-811-101-500	40 11395 15687 2	34	75
6310-0-0182	6352-811-101-500	40 11395 15689 6	34	76
6320-0-0002	6320/10-20-500	40 11395 13857 1	26	92
6320-0-0004	6320/10-24G-500	40 11395 13873 1	26	92
6320-0-0006	6320/10-79-500	40 11395 13875 5	26	92
6320-0-0008	6320/10-83-500	40 11395 13877 9	26	92
6320-0-0010	6320/10-260-500	40 11395 13879 3	26	92
6320-0-0012	6320/30-20-500	40 11395 13882 3	26	92
6320-0-0014	6320/30-24G-500	40 11395 13885 4	26	92
6320-0-0016	6320/30-79-500	40 11395 13887 8	26	92
6320-0-0018	6320/30-83-500	40 11395 13889 2	26	92

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6320-0-0020	6320/30-260-500	40 11395 13892 2	26	92
6320-0-0022	6320/38-20-500	40 11395 13895 3	26	93
6320-0-0024	6320/38-24G-500	40 11395 13897 7	26	93
6320-0-0026	6320/38-79-500	40 11395 13900 4	26	93
6320-0-0028	6320/38-83-500	40 11395 13902 8	26	93
6320-0-0030	6320/38-260-500	40 11395 13904 2	26	93
6320-0-0032	6320/50-20-500	40 11395 13911 0	26	93
6320-0-0034	6320/50-24G-500	40 11395 13914 1	26	93
6320-0-0036	6320/50-79-500	40 11395 13916 5	26	93
6320-0-0038	6320/50-83-500	40 11395 13918 9	26	93
6320-0-0040	6320/50-260-500	40 11395 13921 9	26	93
6320-0-0042	6320/58-20-500	40 11395 13923 3	26	94
6320-0-0044	6320/58-24G-500	40 11395 13926 4	26	94
6320-0-0046	6320/58-79-500	40 11395 13928 8	26	94
6320-0-0048	6320/58-83-500	40 11395 13931 8	26	94
6320-0-0050	6320/58-260-500	40 11395 13933 2	26	94
6401-0-0055	6404 U	40 11395 09383 2	14	164
6590-0-0188	6595 U	40 11395 09385 6	14	164
6599-0-1193	2114-212	40 11395 37870 0	19	99
6599-0-1466	6541-20	40 11395 38100 7	19	99
6599-0-1524	6541-21	40 11395 38150 2	19	99
6599-0-1557	6541-24	40 11395 38180 9	19	99
6599-0-2076	6541-74	40 11395 54180 7	19	99
6599-0-2142	6541-79	40 11395 55810 2	19	99
6599-0-2332	6541-24G	40 11395 70860 6	19	99
6599-0-2795	6541-22G	40 11395 91730 5	19	99
6599-0-2832	6541-82	40 11395 99569 3	19	98
6599-0-2832	6541-82	40 11395 99569 3	19	98
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6599-0-2853	6541-260	40 11395 00548 4	19	99
6599-0-2856	6541-266	40 11395 00634 4	19	99
6599-0-2882	6541-81	40 11395 05642 4	19	98
6599-0-2882	6541-81	40 11395 05642 4	19	98
6599-0-2885	6541-83	40 11395 07445 9	19	98
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6599-0-2940	6541-803	40 11395 11115 4	19	98
6599-0-2962	6541-884	40 11395 12964 7	19	98
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6599-0-2975	6541-775	40 11395 13692 8	19	99
6599-0-2998	6541-896	40 11395 16703 8	19	98
6599-0-3008	2114-214-500	40 11395 17517 0	19	99
6700-0-0023	6702-500	40 11395 13434 4	16	160
6700-0-0024	6703-500	40 11395 13436 8	16	160
6700-0-0025	6704-500	40 11395 13437 5	16	161
6700-0-0035	6747 AGM-204-500	40 11395 17588 0	29	159
6700-0-0036	6747 AGM-208-500	40 11395 17589 7	29	159
6700-0-0037	6747 AGM-35-500	40 11395 17590 3	29	159
6700-0-0038	6747 AGM-201-500	40 11395 17591 0	29	159
6700-0-0040	6701-101-500	40 11395 18264 2	16	160
6700-0-0042	6705-101-500	40 11395 18266 6	16	161
6720-0-0001	6720-64	40 11395 09372 6	16	165
6720-0-0002	6720-65	40 11395 09381 8	16	165
6720-0-0003	6720-66	40 11395 09382 5	16	165
6720-0-0004	6721-64	40 11395 11211 3	16	165

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6720-0-0005	6721-65	40 11395 11212 0	16	165
6720-0-0008	6725-500	40 11395 18271 0	16	158
6730-0-0001	6730-212	40 11395 09336 8	16	162
6730-0-0002	6730-214	40 11395 09337 5	16	162
6730-0-0005	6730-260	40 11395 09351 1	16	162
6730-0-0006	6730-266	40 11395 09352 8	16	162
6730-0-0007	6730-20	40 11395 09353 5	16	162
6730-0-0008	6730-21	40 11395 09354 2	16	162
6730-0-0009	6730-22G	40 11395 09355 9	16	162
6730-0-0010	6730-24	40 11395 09356 6	16	162
6730-0-0011	6730-24G	40 11395 09357 3	16	162
6730-0-0014	6730-81	40 11395 09361 0	16	163
6730-0-0014	6730-81	40 11395 09361 0	16	163
6730-0-0015	6730-82	40 11395 09362 7	16	163
6730-0-0015	6730-82	40 11395 09362 7	16	163
6730-0-0015	6730-82	40 11395 09362 7	16	163
6730-0-0016	6730-83	40 11395 09363 4	16	163
6730-0-0017	6730-84	40 11395 09364 1	16	163
6730-0-0017	6730-84	40 11395 09364 1	16	163
6730-0-0017	6730-84	40 11395 09364 1	16	163
6730-0-0017	6730-84	40 11395 09364 1	16	163
6730-0-0023	6730-866	40 11395 09371 9	16	163
6730-0-0024	6730-815	40 11395 11119 2	16	163
6730-0-0025	6730-803	40 11395 11120 8	16	163
6730-0-0026	6730-884	40 11395 13035 3	16	163
6730-0-0027	6730-885	40 11395 13036 0	16	163
6730-0-0028	6731-212-500	40 11395 13404 7	16	156
6730-0-0029	6732-212-500	40 11395 13405 4	16	156
6730-0-0030	6731-214-500	40 11395 13406 1	16	156
6730-0-0031	6732-214-500	40 11395 13407 8	16	156
6730-0-0032	6731-82-500	40 11395 13408 5	16	156
6730-0-0033	6732-82-500	40 11395 13409 2	16	157
6730-0-0034	6733-82-500	40 11395 13421 4	16	157
6730-0-0035	6731-83-500	40 11395 13422 1	16	156
6730-0-0036	6732-83-500	40 11395 13423 8	16	157
6730-0-0037	6733-83-500	40 11395 13424 5	16	157
6730-0-0038	6731-84-500	40 11395 13425 2	16	156
6730-0-0039	6732-84-500	40 11395 13427 6	16	157
6730-0-0040	6733-84-500	40 11395 13428 3	16	157
6730-0-0041	6731-866-500	40 11395 13429 0	16	156
6730-0-0042	6732-866-500	40 11395 13431 3	16	157
6730-0-0043	6733-866-500	40 11395 13432 0	16	157
6730-0-0066	6730-896-500	40 11395 16710 6	16	163
6770-0-0002	6770-500	40 11395 11896 2	26	12
6770-0-0002	6770-500	40 11395 11896 2	26	161
6780-0-0001	6780-500	40 11395 13433 7	16	158
6800-0-2514	6828	40 11395 13745 1	14	153
6800-0-2515	6829-84	40 11395 13746 8	14	153
6800-0-2516	6824-84	40 11395 13747 5	14	153
6800-0-2720	6833-84-500	40 11395 18696 1	14	153
6800-0-2721	6833/01-84-500	40 11395 18697 8	14	153
6800-0-2723	6835/01-84-500	40 11395 18699 2	14	153
6899-0-0282	6885-500	40 11395 00468 5	29	45
6899-0-0297	6885-183-500	40 11395 06826 7		45
8100-0-0344	8186/03-500	40 11395 17146 2	32	11
8100-0-0346	8186/04-500	40 11395 17148 6	32	11
8110-0-0001	DGT-0-1K-AB	40 11395 19371 6	37	170
8110-0-0002	DGT-1-1K-AB	40 11395 19372 3	37	170
8110-0-0003	DGT-2-1K-AB	40 11395 19373 0	37	170
8110-0-0004	DGT-3-1K-AB	40 11395 19374 7	37	170
8110-0-0017	DGT-MBU-AB	40 11395 19387 7	37	171
8110-0-0018	DGT-OPC-AB	40 11395 19389 1	37	171
8110-0-0019	DGT-PWR-AB	40 11395 19391 4	37	171

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8110-0-0020	DGT-DIN-AB	40 11395 19392 1	37	171
8110-0-0022	DGT-OB-AB	40 11395 19394 5	37	171
8110-0-0023	DGT-MNG-100-AB	40 11395 19395 2	37	170
8110-0-0030	DGT-VIS-1K-AB	40 11395 19404 1	37	170
8110-0-0036	DGT-LIZ-100-AB	40 11395 19411 9	37	171
8136-0-0024	8136/09-811-500	40 11395 15877 7	34	58
8136-0-0026	8136/09-825-500	40 11395 15879 1	34	58
8136-0-0028	8136/12-811-500	40 11395 15882 1	34	58
8136-0-0030	8136/12-825-500	40 11395 15884 5	34	58
8136-0-0032	8136/01 UP-500	40 11395 15891 3	34	59
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GHQ3050017R0001	SSF/G	40 16779 53466 6	50	152
GHQ3050018R0001	SSF/GB	40 16779 53467 3	50	152
GHQ3050023R0001	WEL/A, ES	40 16779 58570 5	50	146
GHQ3050024R0001	WELT/A, ES	40 16779 58571 2	50	146
GHQ3050027R0001	SCS	40 16779 58575 0	50	146
GHQ3050031R0001	L240/BS	40 16779 58561 3	50	147
GHQ3201972R0001	MRS/W	40 16779 50660 1	50	148
GHQ3201972R0002	MRS/B	40 16779 50659 5	50	148
GHQ3201972R0011	VMRS/W	40 16779 50658 8	50	148
GHQ3201972R0012	VMRS/B	40 16779 50657 1	50	148
GHQ3201973R0021	RTK	40 16779 50655 7	50	148
GHQ3280011R0001	L840/MG4	40 13232 73240 9	50	146
GHQ3280013R0001	SAD/GUP	40 13232 73260 7	50	147
GHQ3280014R0001	SAD/ED	40 13232 73270 6	50	147
GHQ3280015R0001	SAD/GAP	40 13232 73280 5	50	147
GHQ3280220R0001	L208/V.24	40 16779 44510 8	50	144
GHQ4001906R0001	LKS	40 13232 39280 1	50	148
GHQ4030001R0004	SWM 4	40 13232 05740 3	50	150
GHQ4030001R0012	SWM4/RN	40 13232 05750 2	50	151
GHQ6050053R0001	LL/S 1.1	40 16779 39210 5	20	12
GHQ6050056R0002	NT/S 12.1600	40 16779 51467 5	20	9
GHQ6050057R0002	NT/S 24.800	40 16779 51468 2	20	9
GHQ6050059R0005	MT 701.2, WS	40 16779 57581 2	20	55
GHQ6050059R0006	MT 701.2, SR	40 16779 57582 9	20	55
GHQ6050059R0011	T-RAHM, WS	40 16779 49585 1	20	55
GHQ6050059R0012	T-RAHM, SR	40 16779 49586 8	20	55
GHQ6050059R0014	UP-KAST 2	40 16779 51396 8	20	55
GHQ6301901R0001	BUSKLEMME	40 12233 80230 2	20	13
GHQ6301902R0001	KLEMME	40 16779 07930 3	20	13
GHQ6301908R0001	VB/K 200.1	40 16779 46980 7	20	13
GHQ6301908R0002	VB/K 270.1	40 16779 46990 6	20	13
GHQ6301908R0003	VB/K 100.1	40 16779 50103 3	20	13
GHQ6301908R0004	VB/K 360.1	40 16779 84676 9	20	13
GHQ6301910R0001	KS/K 4.1	40 16779 51725 6	20	8
GHQ6301910R0011	KS/K 2.1	40 16779 52893 1	20	8
GHQ6310009R0001	US/E 1	40 16779 00570 8	20	13
GHQ6310044R0111	ER/U 1.1	40 16779 49725 1	26	49
GHQ6310049R0111	SU/S 30.640.1	40 16779 51477 4	26	7
GHQ6310062R0111	AM/S 12.1	40 16779 51481 1	26	7
GHQ6310070R0111	US/U 4.2	40 16779 56481 6	26	23
GHQ6310070R0111	US/U 4.2	40 16779 56481 6	26	49
GHQ6310074R0111	US/U 2.2	40 16779 56483 0	26	23
GHQ6310074R0111	US/U 2.2	40 16779 56483 0	26	49
GHQ6310080R0111	LM/S 1.1	40 16779 58121 9	26	53
GHQ6310084R0111	JSB/S 1.1	40 16779 57993 3	26	35
GHQ6310085R0111	SMB/S 1.1	40 16779 58092 2	26	137
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GHQ7132443R0004	NDA/W	40 13232 61690 7	50	149
GHQ7132443R0011	ND/W	40 13232 02540 2	50	149
GHQ7132443R0021	NDU/W	40 13232 02550 1	50	149
GHV9020012V0021	FPA03	40 16779 53444 4	50	152
GHV9210018V0020	ADB	40 13232 53420 1	50	149

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1721-181K	1754-0-4240	40 11395 05080 4	4	86
1721-182K-500	1754-0-4506	40 11395 17460 9	1	86
1721-183K-500	1754-0-4529	40 11395 17594 1	4	86
1721-184K-500	1754-0-4498	40 11395 17452 4	1	86
1721-280	1754-0-4437	40 11395 15695 7	4	88
1721-281	1754-0-4409	40 11395 12636 3	4	88
1721-283	1754-0-4543	40 11395 18556 8	4	88
1721-284	1754-0-4331	40 11395 11324 0	1	88
1721-285	1754-0-4334	40 11395 11327 1	4	88
1721-286	1754-0-4337	40 11395 11331 8	4	88
1721-287	1754-0-4340	40 11395 11334 9	4	88
1721-288	1754-0-4343	40 11395 11337 0	4	88
1721-291-500	1754-0-4471	40 11395 16507 2	4	88
1721-295-500	1754-0-4491	40 11395 16509 6	4	88
1721-296-500	1754-0-4486	40 11395 16512 6	1	88
1721-297-500	1754-0-4476	40 11395 16515 7	4	88
1721-299-500	1754-0-4481	40 11395 16517 1	4	88
1721-80-500	1754-0-4535	40 11395 17611 5	4	87
1721-80G-500	1754-0-4538	40 11395 17615 3	4	87
1721-811	1754-0-4442	40 11395 15701 5	4	87
1721-821	1754-0-4258	40 11395 05687 5	4	87
1721-823-101	1754-0-4356	40 11395 11522 0	4	87
1721-825	1754-0-4322	40 11395 08891 3	4	87
1721-826-101	1754-0-4360	40 11395 11526 8	4	87
1721-84-500	1754-0-4536	40 11395 17612 2	1	87
1721-860	1754-0-4254	40 11395 05679 0	4	87
1721-866K-500	1754-0-4500	40 11395 17454 8	4	88
1721-884K-500	1754-0-4531	40 11395 17596 5	1	86
1721-885K-500	1754-0-4532	40 11395 17597 2	4	86
1722-181K	1754-0-4241	40 11395 05081 1	4	86
1722-182K	1754-0-4231	40 11395 05070 5	1	86
1722-183K-500	1754-0-4530	40 11395 17595 8	4	86
1722-184K-500	1754-0-4499	40 11395 17453 1	1	86
1722-280	1754-0-4438	40 11395 15696 4	4	88
1722-281	1754-0-4410	40 11395 12637 0	4	88
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1722-286	1754-0-4338	40 11395 11332 5	4	88
1722-287	1754-0-4341	40 11395 11335 6	4	88
1722-288	1754-0-4344	40 11395 11338 7	4	88
1722-291-500	1754-0-4472	40 11395 16519 5	4	88
1722-295-500	1754-0-4492	40 11395 16522 5	4	88
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1722-80-500	1754-0-4537	40 11395 17613 9	4	87
1722-80G	1754-0-4327	40 11395 11306 6	4	87
1722-811	1754-0-4443	40 11395 15702 2	4	87
1722-821	1754-0-4259	40 11395 05689 9	4	87
1722-823-101	1754-0-4357	40 11395 11523 7	4	87
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1722-860	1754-0-4255	40 11395 05681 3	4	87
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1722-884K	1754-0-4415	40 11395 12825 1	1	86
1722-885K-500	1754-0-4534	40 11395 17600 9	4	86
1723-181K	1754-0-4242	40 11395 05082 8	4	86
1723-182K	1754-0-4232	40 11395 05071 2	1	86
1723-183K-500	1754-0-4533	40 11395 17599 6	4	86
1723-184K-500	1754-0-4502	40 11395 17456 2	1	86

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1723-286	1754-0-4339	40 11395 11333 2	4	89
1723-287	1754-0-4342	40 11395 11336 3	4	89
1723-288	1754-0-4345	40 11395 11339 4	4	89
1723-291-500	1754-0-4473	40 11395 16531 7	4	89
1723-295-500	1754-0-4493	40 11395 16533 1	4	89
1723-296-500	1754-0-4488	40 11395 16535 5	1	89
1723-297-500	1754-0-4478	40 11395 16537 9	4	89
1723-299-500	1754-0-4483	40 11395 16539 3	4	89
1723-80-500	1754-0-4540	40 11395 17617 7	4	87
1723-80G	1754-0-4328	40 11395 11307 3	4	87
1723-811	1754-0-4444	40 11395 15703 9	4	87
1723-821	1754-0-4260	40 11395 05691 2	4	87
1723-823-101	1754-0-4358	40 11395 11524 4	4	87
1723-826-101	1754-0-4362	40 11395 11528 2	4	87
1723-84-500	1754-0-4541	40 11395 17623 8	1	87
1723-860	1754-0-4256	40 11395 05683 7	4	87
1723-866K	1754-0-4319	40 11395 08837 1	4	88
1723-884K	1754-0-4416	40 11395 12826 8	1	86
1723-885K	1754-0-4421	40 11395 12832 9	4	86
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1724-80	1754-0-4107	40 11395 99488 7	4	87
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1724-823-101	1754-0-4359	40 11395 11525 1	4	87
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1725-295-500	1754-0-4495	40 11395 16555 3	4	89
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1725-80	1754-0-4108	40 11395 99492 4	4	87
1725-80G	1754-0-4330	40 11395 11309 7	4	87
1725-84	1754-0-4113	40 11395 99619 5	1	87
1725-866K	1754-0-4321	40 11395 08842 5	4	88
1725-884K	1754-0-4418	40 11395 12828 2	1	86
1725-885K	1754-0-4423	40 11395 12834 3	4	86
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2114-214-500	6599-0-3008	40 11395 17517 0	19	99
6010-25-500	6020-0-1133	40 11395 93850 8	19	94
6108/01-500	6133-0-0207	40 11395 13542 6	26	97
6108/02-500	6133-0-0209	40 11395 13544 0	26	97
6108/03-500	6134-0-0271	40 11395 13546 4	26	98
6108/04-500	6133-0-0211	40 11395 14403 9	26	97
6108/05-500	6133-0-0213	40 11395 14405 3	26	97
6120/12-101-500	6120-0-0075	40 11395 13548 8	26	72
6120/12-101-508	6120-0-0076	40 11395 14733 7	26	72
6120/13-500	6120-0-0072	40 11395 10227 5	26	72
6120/13-508	6120-0-0073	40 11395 11658 6	26	72
6122/01-803-500	6132-0-0279	40 11395 14056 7	26	84
6122/01-81-500	6132-0-0272	40 11395 14048 2	26	84
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6122/01-815-500	6132-0-0280	40 11395 14057 4	26	84
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6122/02-82-500	6132-0-0284	40 11395 14061 1	26	84
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6122/02-82-500	6132-0-0284	40 11395 14061 1	26	84
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6122/02-885-500	6132-0-0293	40 11395 14070 3	26	84
6122/02-896-500	6132-0-0324	40 11395 16984 1	26	84
6122/98-509	6132-0-0307	40 11395 15795 4	26	110
6123/20-500	6123-0-0001	40 11395 15797 8	26	111
6123/21-500	6123-0-0002	40 11395 15798 5	26	111
6123/22-500	6123-0-0003	40 11395 15799 2	26	111
6123/23-500	6123-0-0004	40 11395 15801 2	26	111
6123/24-500	6123-0-0005	40 11395 17645 0	26	111

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6124/01-81-500	6134-0-0295	40 11395 14351 3	26	85
6124/01-81-500	6134-0-0295	40 11395 14351 3	26	85
6124/01-815-500	6134-0-0281	40 11395 14078 9	26	85
6124/01-82-500	6134-0-0274	40 11395 14071 0	26	85
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6124/01-82-500	6134-0-0274	40 11395 14071 0	26	85
6124/01-83-500	6134-0-0275	40 11395 14072 7	26	85
6124/01-84-500	6134-0-0248	40 11395 13535 8	26	85
6124/01-84-500	6134-0-0248	40 11395 13535 8	26	85
6124/01-84-500	6134-0-0248	40 11395 13535 8	26	85
6124/01-84-500	6134-0-0248	40 11395 13535 8	26	85
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6124/01-884-500	6134-0-0282	40 11395 14079 6	26	85
6124/01-885-500	6134-0-0283	40 11395 14081 9	26	85
6124/01-896-500	6134-0-0304	40 11395 16986 5	26	85
6124/98-509	6134-0-0297	40 11395 15778 7	26	110
6125/01-803-500	6115-0-0212	40 11395 13954 7	26	79
6125/01-81-500	6115-0-0205	40 11395 13947 9	26	79
6125/01-81-500	6115-0-0205	40 11395 13947 9	26	79
6125/01-815-500	6115-0-0213	40 11395 13955 4	26	79
6125/01-82-500	6115-0-0206	40 11395 13948 6	26	79
6125/01-82-500	6115-0-0206	40 11395 13948 6	26	79
6125/01-82-500	6115-0-0206	40 11395 13948 6	26	79
6125/01-83-500	6115-0-0207	40 11395 13949 3	26	79
6125/01-84-500	6115-0-0183	40 11395 13559 4	26	79
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6125/01-866-500	6115-0-0211	40 11395 13953 0	26	79
6125/01-884-500	6115-0-0214	40 11395 13956 1	26	79
6125/01-885-500	6115-0-0215	40 11395 13957 8	26	79
6125/01-896-500	6115-0-0449	40 11395 16988 9	26	79
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6125/02-81-500	6115-0-0216	40 11395 13958 5	26	82
6125/02-81-500	6115-0-0216	40 11395 13958 5	26	82
6125/02-815-500	6115-0-0225	40 11395 13968 4	26	82
6125/02-82-500	6115-0-0217	40 11395 13959 2	26	82
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6125/02-84-500	6115-0-0219	40 11395 13962 2	26	82
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6125/02-884-500	6115-0-0226	40 11395 13969 1	26	82
6125/02-885-500	6115-0-0227	40 11395 13971 4	26	82
6125/02-896-500	6115-0-0451	40 11395 16991 9	26	82
6125/98-509	6115-0-0444	40 11395 15782 4	26	108
6126/01-803-500	6116-0-0202	40 11395 13994 3	26	79
6126/01-81-500	6116-0-0195	40 11395 13985 1	26	79
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6126/01-82-500	6116-0-0196	40 11395 13986 8	26	79
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6126/01-82-500	6116-0-0196	40 11395 13986 8	26	79
6126/01-83-500	6116-0-0197	40 11395 13987 5	26	79
6126/01-84-500	6116-0-0174	40 11395 13574 7	26	79
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6126/01-84-500	6116-0-0174	40 11395 13574 7	26	79
6126/01-84-500	6116-0-0174	40 11395 13574 7	26	79

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6126/01-866-500	6116-0-0201	40 11395 13993 6	26	79
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6126/01-885-500	6116-0-0205	40 11395 13997 4	26	79
6126/01-896-500	6116-0-0224	40 11395 16993 3	26	79
6126/02-803-500	6116-0-0214	40 11395 14007 9	26	82
6126/02-81-500	6116-0-0206	40 11395 13998 1	26	82
6126/02-81-500	6116-0-0206	40 11395 13998 1	26	82
6126/02-815-500	6116-0-0215	40 11395 14008 6	26	82
6126/02-82-500	6116-0-0207	40 11395 13999 8	26	82
6126/02-82-500	6116-0-0207	40 11395 13999 8	26	82
6126/02-82-500	6116-0-0207	40 11395 13999 8	26	82
6126/02-83-500	6116-0-0208	40 11395 14001 7	26	82
6126/02-84-500	6116-0-0209	40 11395 14002 4	26	82
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6126/02-866-500	6116-0-0213	40 11395 14006 2	26	82
6126/02-884-500	6116-0-0216	40 11395 14009 3	26	82
6126/02-885-500	6116-0-0217	40 11395 14011 6	26	82
6126/02-896-500	6116-0-0226	40 11395 16995 7	26	82
6126/98-509	6116-0-0219	40 11395 15785 5	26	108
6127/01-803-500	6117-0-0228	40 11395 14031 4	26	79
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6127/01-81-500	6117-0-0221	40 11395 14024 6	26	79
6127/01-815-500	6117-0-0229	40 11395 14032 1	26	79
6127/01-82-500	6117-0-0222	40 11395 14025 3	26	79
6127/01-82-500	6117-0-0222	40 11395 14025 3	26	79
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6127/01-84-500	6117-0-0200	40 11395 13588 4	26	79
6127/01-84-500	6117-0-0200	40 11395 13588 4	26	79
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6127/01-866-500	6117-0-0227	40 11395 14030 7	26	79
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6127/02-81-500	6117-0-0232	40 11395 14035 2	26	82
6127/02-81-500	6117-0-0232	40 11395 14035 2	26	82
6127/02-815-500	6117-0-0241	40 11395 14045 1	26	82
6127/02-82-500	6117-0-0233	40 11395 14036 9	26	82
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6128/01-803-500	6134-0-0291	40 11395 14089 5	26	85
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6128/01-83-500	6134-0-0286	40 11395 14084 0	26	85
6128/01-84-500	6134-0-0261	40 11395 13602 7	26	85
6128/01-84-500	6134-0-0261	40 11395 13602 7	26	85

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6128/01-84-500	6134-0-0261	40 11395 13602 7	26	85
6128/01-866-500	6134-0-0290	40 11395 14088 8	26	85
6128/01-884-500	6134-0-0293	40 11395 14092 5	26	85
6128/01-885-500	6134-0-0294	40 11395 14093 2	26	85
6128/01-896-500	6134-0-0306	40 11395 17002 1	26	85
6129/01-803-500	6135-0-0163	40 11395 14101 4	26	83
6129/01-81-500	6135-0-0156	40 11395 14094 9	26	83
6129/01-81-500	6135-0-0156	40 11395 14094 9	26	83
6129/01-815-500	6135-0-0164	40 11395 14102 1	26	83
6129/01-82-500	6135-0-0157	40 11395 14095 6	26	83
6129/01-82-500	6135-0-0157	40 11395 14095 6	26	83
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6129/01-83-500	6135-0-0158	40 11395 14096 3	26	83
6129/01-84-500	6135-0-0146	40 11395 13616 4	26	83
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6129/01-866-500	6135-0-0162	40 11395 14100 7	26	83
6129/01-884-500	6135-0-0165	40 11395 14103 8	26	83
6129/01-885-500	6135-0-0166	40 11395 14104 5	26	83
6129/01-896-500	6135-0-0170	40 11395 17004 5	26	83
6129/96-509	6118-0-0105	40 11395 15788 6	26	109
6129/98-509	6118-0-0108	40 11395 15792 3	26	109
6131/10-183-500	6132-0-0297	40 11395 14774 0	26	45
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6131/11-24-500	6132-0-0299	40 11395 14776 4	26	45
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6131/29-24-500	6132-0-0351	40 11395 18598 8	26	44
6131/30-183-500	6132-0-0347	40 11395 18593 3	26	43
6131/30-24-500	6132-0-0346	40 11395 18592 6	26	43
6131/31-183-500	6132-0-0349	40 11395 18596 4	26	43
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6136/10-500	6136-0-0139	40 11395 07927 0	26	59
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6136/15-500	6136-0-0196	40 11395 15694 0	26	59
6136/UP	6136-0-0124	40 11395 04437 7	26	59
6138/11-83-500	6138-0-0005	40 11395 11613 5	26	50
6138/11-84-500	6138-0-0003	40 11395 11609 8	26	50
6149/21-500	6133-0-0201	40 11395 11896 2	26	76
6151/11 U-500	6151-0-0245	40 11395 16395 5	26	20
6152/11 U-500	6152-0-0040	40 11395 16397 9	26	20
6164/11 U-500	6151-0-0247	40 11395 16399 3	26	20
6173/11 U-500	6151-0-0249	40 11395 16402 0	26	20
6179/01-204-500	6132-0-0313	40 11395 16854 7	26	46
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6179/02-208-500	6132-0-0318	40 11395 16862 2	26	46
6179-500	6132-0-0320	40 11395 16865 3	26	46
6186/01 UP-500	6186-0-0023	40 11395 15886 9	34	58
6197/12-101-500	6197-0-0036	40 11395 16366 5	33	41
6197/13-101-500	6197-0-0037	40 11395 16367 2	33	41
6197/14-101-500	6197-0-0038	40 11395 16368 9	33	41

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6197/52-101-500	6197-0-0040	40 11395 16371 9	33	41
6197/53-101-500	6197-0-0041	40 11395 16372 6	33	41
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6320/10-24G-500	6320-0-0004	40 11395 13873 1	26	92
6320/10-260-500	6320-0-0010	40 11395 13879 3	26	92
6320/10-79-500	6320-0-0006	40 11395 13875 5	26	92
6320/10-83-500	6320-0-0008	40 11395 13877 9	26	92
6320/30-20-500	6320-0-0012	40 11395 13882 3	26	92
6320/30-24G-500	6320-0-0014	40 11395 13885 4	26	92
6320/30-260-500	6320-0-0020	40 11395 13892 2	26	92
6320/30-79-500	6320-0-0016	40 11395 13887 8	26	92
6320/30-83-500	6320-0-0018	40 11395 13889 2	26	92
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6320/38-24G-500	6320-0-0024	40 11395 13897 7	26	93
6320/38-260-500	6320-0-0030	40 11395 13904 2	26	93
6320/38-79-500	6320-0-0026	40 11395 13900 4	26	93
6320/38-83-500	6320-0-0028	40 11395 13902 8	26	93
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6320/50-79-500	6320-0-0036	40 11395 13916 5	26	93
6320/50-83-500	6320-0-0038	40 11395 13918 9	26	93
6320/58-20-500	6320-0-0042	40 11395 13923 3	26	94
6320/58-24G-500	6320-0-0044	40 11395 13926 4	26	94
6320/58-260-500	6320-0-0050	40 11395 13933 2	26	94
6320/58-79-500	6320-0-0046	40 11395 13928 8	26	94
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6340-825-101-500	6310-0-0108	40 11395 13091 9	34	73
6340-866-101-500	6310-0-0106	40 11395 13088 9	34	73
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6341-825-101-500	6310-0-0116	40 11395 13099 5	34	74
6341-866-101-500	6310-0-0114	40 11395 13097 1	34	74
6342-24G-101-500	6310-0-0125	40 11395 13108 4	34	74
6342-811-101-500	6310-0-0172	40 11395 15678 0	34	74
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6342-866-101-500	6310-0-0122	40 11395 13105 3	34	74
6344-24G-101-500	6310-0-0133	40 11395 13117 6	34	74
6344-811-101-500	6310-0-0174	40 11395 15681 0	34	74
6344-825-101-500	6310-0-0132	40 11395 13116 9	34	74
6344-866-101-500	6310-0-0130	40 11395 13114 5	34	74
6345-24G-101-500	6310-0-0081	40 11395 11873 3	34	75
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6345-825-101-500	6310-0-0080	40 11395 11872 6	34	75
6345-866-101-500	6310-0-0078	40 11395 11868 9	34	75
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6346/11-101-500	6310-0-0137	40 11395 13122 0	34	73
6346/12-101-500	6310-0-0139	40 11395 13124 4	34	73
6348-24G-101-500	6310-0-0147	40 11395 13132 9	34	75
6348-811-101-500	6310-0-0178	40 11395 15685 8	34	75
6348-825-101-500	6310-0-0146	40 11395 13131 2	34	75
6348-866-101-500	6310-0-0144	40 11395 13129 9	34	75
6349-24G-101-500	6310-0-0155	40 11395 13142 8	34	75
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6349-825-101-500	6310-0-0154	40 11395 13140 4	34	75
6349-860-101-500	6310-0-0152	40 11395 13137 4	34	75
6350-825-101-500	6310-0-0157	40 11395 13144 2	34	75
6351-825-101-500	6310-0-0092	40 11395 11891 7	34	76
6352-24G-101-500	6310-0-0165	40 11395 13152 7	34	76
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6353/30-860-500	6310-0-0094	40 11395 11893 1	34	76
6353/40-860-500	6310-0-0095	40 11395 11894 8	34	76
6353/50-860-500	6310-0-0096	40 11395 11895 5	34	76
6354 U-500	6310-0-0097	40 11395 11897 9	34	72
6355 U-500	6310-0-0098	40 11395 11898 6	34	72
6356 U-500	6310-0-0099	40 11395 11899 3	34	72
6404 U	6401-0-0055	40 11395 09383 2	14	164
6541-20	6599-0-1466	40 11395 38100 7	19	99
6541-21	6599-0-1524	40 11395 38150 2	19	99
6541-22G	6599-0-2795	40 11395 91730 5	19	99
6541-24	6599-0-1557	40 11395 38180 9	19	99
6541-24G	6599-0-2332	40 11395 70860 6	19	99
6541-260	6599-0-2853	40 11395 00548 4	19	99
6541-266	6599-0-2856	40 11395 00634 4	19	99
6541-72	6599-0-2918	40 11395 08281 2	19	99
6541-74	6599-0-2076	40 11395 54180 7	19	99
6541-774	6599-0-2971	40 11395 12956 2	19	99
6541-775	6599-0-2975	40 11395 13692 8	19	99
6541-777	6599-0-2933	40 11395 10754 6	19	99
6541-783	6599-0-2919	40 11395 08346 8	19	99
6541-79	6599-0-2142	40 11395 55810 2	19	99
6541-803	6599-0-2940	40 11395 11115 4	19	98
6541-81	6599-0-2882	40 11395 05642 4	19	98
6541-81	6599-0-2882	40 11395 05642 4	19	98
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6595 U	6590-0-0188	40 11395 09385 6	14	164
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6702-500	6700-0-0023	40 11395 13434 4	16	160
6703-500	6700-0-0024	40 11395 13436 8	16	160
6704-500	6700-0-0025	40 11395 13437 5	16	161
6705-101-500	6700-0-0042	40 11395 18266 6	16	161
6720-64	6720-0-0001	40 11395 09372 6	16	165
6720-65	6720-0-0002	40 11395 09381 8	16	165
6720-66	6720-0-0003	40 11395 09382 5	16	165
6721-64	6720-0-0004	40 11395 11211 3	16	165
6721-65	6720-0-0005	40 11395 11212 0	16	165
6725-500	6720-0-0008	40 11395 18271 0	16	158
6730-20	6730-0-0007	40 11395 09353 5	16	162
6730-21	6730-0-0008	40 11395 09354 2	16	162
6730-212	6730-0-0001	40 11395 09336 8	16	162
6730-214	6730-0-0002	40 11395 09337 5	16	162
6730-22G	6730-0-0009	40 11395 09355 9	16	162
6730-24	6730-0-0010	40 11395 09356 6	16	162
6730-24G	6730-0-0011	40 11395 09357 3	16	162
6730-260	6730-0-0005	40 11395 09351 1	16	162
6730-266	6730-0-0006	40 11395 09352 8	16	162
6730-803	6730-0-0025	40 11395 11120 8	16	163
6730-81	6730-0-0014	40 11395 09361 0	16	163

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6730-82	6730-0-0015	40 11395 09362 7	16	163
6730-82	6730-0-0015	40 11395 09362 7	16	163
6730-82	6730-0-0015	40 11395 09362 7	16	163
6730-83	6730-0-0016	40 11395 09363 4	16	163
6730-84	6730-0-0017	40 11395 09364 1	16	163
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6730-884	6730-0-0026	40 11395 13035 3	16	163
6730-885	6730-0-0027	40 11395 13036 0	16	163
6730-896-500	6730-0-0066	40 11395 16710 6	16	163
6731-212-500	6730-0-0028	40 11395 13404 7	16	156
6731-214-500	6730-0-0030	40 11395 13406 1	16	156
6731-82-500	6730-0-0032	40 11395 13408 5	16	156
6731-83-500	6730-0-0035	40 11395 13422 1	16	156
6731-84-500	6730-0-0038	40 11395 13425 2	16	156
6731-866-500	6730-0-0041	40 11395 13429 0	16	156
6732-212-500	6730-0-0029	40 11395 13405 4	16	156
6732-214-500	6730-0-0031	40 11395 13407 8	16	156
6732-82-500	6730-0-0033	40 11395 13409 2	16	157
6732-83-500	6730-0-0036	40 11395 13423 8	16	157
6732-84-500	6730-0-0039	40 11395 13427 6	16	157
6732-866-500	6730-0-0042	40 11395 13431 3	16	157
6733-82-500	6730-0-0034	40 11395 13421 4	16	157
6733-83-500	6730-0-0037	40 11395 13424 5	16	157
6733-84-500	6730-0-0040	40 11395 13428 3	16	157
6733-866-500	6730-0-0043	40 11395 13432 0	16	157
6747 AGM-201-500	6700-0-0038	40 11395 17591 0	29	159
6747 AGM-204-500	6700-0-0035	40 11395 17588 0	29	159
6747 AGM-208-500	6700-0-0036	40 11395 17589 7	29	159
6747 AGM-35-500	6700-0-0037	40 11395 17590 3	29	159
6770-500	6770-0-0002	40 11395 11896 2	26	12
6770-500	6770-0-0002	40 11395 11896 2	26	161
6780-500	6780-0-0001	40 11395 13433 7	16	158
6824-84	6800-0-2516	40 11395 13747 5	14	153
6828	6800-0-2514	40 11395 13745 1	14	153
6829-84	6800-0-2515	40 11395 13746 8	14	153
6833/01-84-500	6800-0-2721	40 11395 18697 8	14	153
6833-84-500	6800-0-2720	40 11395 18696 1	14	153
6835/01-84-500	6800-0-2723	40 11395 18699 2	14	153
6885-183-500	6899-0-0297	40 11395 06826 7		45
6885-500	6899-0-0282	40 11395 00468 5	29	45
8136/01 UP-500	8136-0-0032	40 11395 15891 3	34	59
8136/09-811-500	8136-0-0024	40 11395 15877 7	34	58
8136/09-825-500	8136-0-0026	40 11395 15879 1	34	58
8136/12-811-500	8136-0-0028	40 11395 15882 1	34	58
8136/12-825-500	8136-0-0030	40 11395 15884 5	34	58
8186/03-500	8100-0-0344	40 11395 17146 2	32	11
8186/04-500	8100-0-0346	40 11395 17148 6	32	11
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A41 112 - 100	2CMA170500R1000	73 9269670500 4		121
A41 113 - 100	2CMA100240R1000	73 9269600240 0		121
A41 212 - 100	2CMA170501R1000	73 92696 70501 1		121
A41 311 - 100	2CMA170502R1000	73 92696 70502 8		121
A41 312 - 100	2CMA170503R1000	73 92696 70503 5		121
A41 313 - 100	2CMA170504R1000	73 92696 70504 2		121
A41 412 - 100	2CMA170505R1000	73 92696 70505 9		121
A41 413 - 100	2CMA170506R1000	73 92696 70506 6		121
A41 512 - 100	2CMA100237R1000	73 92696 00237 0		121
A41 513 - 100	2CMA170508R1000	73 92696 70508 0		121

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A42 112 - 100	2CMA170510R1000	73 92696 70510 3		122
A42 113 - 100	2CMA100242R1000	73 92696 00242 4		122
A42 212 - 100	2CMA170511R1000	73 92696 70511 0		122
A42 312 - 100	2CMA170512R1000	73 92696 70512 7		122
A42 412 - 100	2CMA170513R1000	73 92696 70513 4		122
A42 413 - 100	2CMA170514R1000	73 92696 70514 1		122
A42 552 - 100	2CMA100238R1000	73 92696 00238 7		122
A42 553 - 100	2CMA170516R1000	73 92696 00244 8		122
A43 111 - 100	2CMA170520R1000	73 92696 70520 2		123
A43 112 - 100	2CMA100244R1000	73 92696 00244 8		123
A43 113 - 100	2CMA100245R1000	73 92696 00245 5		123
A43 121 - 100	2CMA170521R1000	73 92696 70521 9		123
A43 211 - 100	2CMA100012R1000	73 92696 00012 3		123
A43 212 - 100	2CMA170522R1000	73 92696 70522 6		123
A43 213 - 100	2CMA170523R1000	73 92696 70523 3		123
A43 311 - 100	2CMA170524R1000	73 92696 70524 0		123
A43 312 - 100	2CMA170525R1000	73 92696 70525 7		123
A43 313 - 100	2CMA170526R1000	73 92696 70526 4		123
A43 412 - 100	2CMA170528R1000	73 92696 70528 8		123
A43 413 - 100	2CMA170529R1000	73 92696 70529 5		123
A43 511 - 100	2CMA100143R1000	73 92696 00143 4		123
A43 512 - 100	2CMA170531R1000	73 92696 70531 8		123
A43 513 - 100	2CMA170532R1000	73 92696 70532 5		123
A44 111 - 100	2CMA170533R1000	73 92696 70533 2		124
A44 112 - 100	2CMA100248R1000	73 92696 00248 6		124
A44 113 - 100	2CMA100249R1000	73 92696 00249 3		124
A44 211 - 100	2CMA100013R1000	73 92696 00013 0		124
A44 212 - 100	2CMA170534R1000	73 92696 70534 9		124
A44 213 - 100	2CMA170535R1000	73 92696 70535 6		124
A44 311 - 100	2CMA170536R1000	73 92696 70536 3		124
A44 352 - 100	2CMA170537R1000	73 92696 70537 0		124
A44 353 - 100	2CMA170538R1000	73 92696 70538 7		124
A44 452 - 100	2CMA170540R1000	73 92696 70540 0		124
A44 453 - 100	2CMA170541R1000	73 92696 70541 7		124
A44 552 - 100	2CMA170545R1000	73 92696 70545 5		124
A44 553 - 100	2CMA170546R1000	73 92696 70546 2		124
AA/S 4.1	2CDG120005R0011	40 16779 65886 7	20	30
AAM/S 4.1	2CDG120006R0011	40 16779 65887 4	20	30
ABL/S 2.1	2CDG110073R0011	40 16779 65264 3	26	53
ABZ/S 2.1	2CDG110072R0011	40 16779 65236 0	26	53
ADB	GHV9210018V0020	40 13232 53420 1	50	149
ADB1	GHV9210018V0021	40 13232 58440 4	50	149
AE/A 2.1	2CDG110086R0011	40 16779 66401 1	26	24
AE/S 4.1.1.3	2CDG110190R0011	40 1677992929 5	26	24
AE/S 4.2	2CDG110030R0011	40 16779 58763 1	26	24
AM/S 12.1	GHQ6310062R0111	40 16779 51481 1	26	7
AM50701-GR (6123/20-500)		40 11395 15797 8		103
AM50702-GR (6123/21-500)		40 11395 15798 5		103
AM50703-GR (6123/22-500)		40 11395 15799 2		103
AM50704-GR (6123/23-500)		40 11395 15801 2		103
AM50705-GR (6123/24-500)		40 11395 17645 0		103
AM50706-GR (6123/26-500)		40 11395 17646 7		103
AMD5053				104
AMD5153-AG				104
AMD5153-MG				104
AMD5153-SB				104
AMD5153-ST				104
AMD5253-AG				104
AMD5253-MG				104
AMD5253-SB				104
AMD5253-ST				104
AMD70053-AN (6124/20-981-500)		40 11395 15794 7		103

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AMD70153-AN (6122/20-981-500)		40 11395 15777 0		103
AMD72053-AN (6125/20-981-500)		40 11395 15781 7		102
AMD74053-AN (6126/20-981-500)		40 11395 15784 8		102
AMD76053-AN (6129/20-981-500)		40 11395 15787 9		102
AMD76153-AN (6129/21-981-500)		40 11395 15791 6		102
AMSE	GHV9250010V0003	40 16779 49290 4	50	147
AMSP	GHV9250010V0004	40 16779 49280 5	50	147
B21 111 - 100	2CMA100149R1000	73 9269600150 2		128
B21 112 - 100	2CMA100150R1000	73 9269600151 9		128
B21 113 - 100	2CMA100151R1000	73 9269600154 0		128
B21 212 - 100	2CMA100152R1000	73 92696 00152 6		128
B21 311 - 100	2CMA100154R1000	73 9269600155 7		128
B21 312 - 100	2CMA100155R1000	73 9269600156 4		128
B21 313 - 100	2CMA100156R1000	73 9269600163 2		128
B23 111 - 100	2CMA100163R1000	73 9269600164 9		129
B23 112 - 100	2CMA100164R1000	73 9269600165 6		129
B23 113 - 100	2CMA100165R1000	73 9269600168 7		129
B23 212 - 100	2CMA100166R1000	73 92696 00166 3		129
B23 311 - 100	2CMA100168R1000	73 9269600169 4		129
B23 312 - 100	2CMA100169R1000	73 9269600170 0		129
B23 313 - 100	2CMA100170R1000	73 9269600177 9		129
B24 111 - 100	2CMA100177R1000	73 9269600178 6		130
B24 112 - 100	2CMA100178R1000	73 9269600179 3		130
B24 113 - 100	2CMA100179R1000	73 9269600182 3		130
B24 212 - 100	2CMA100180R1000	73 92696 00180 9		130
B24 351 - 100	2CMA100182R1000	73 9269600183 0		130
B24 352 - 100	2CMA100183R1000	73 9269600184 7		130
B24 353 - 100	2CMA100184R1000	73 9269600237 0		130
BDB/S 1.1	2CDG110067R0011	40 16779 65753 2	26	137
BE/M 4.12.1	2CDG110007R0011	40 16779 58313 8	26	17
BE/M 4.230.1	2CDG110005R0011	40 16779 58311 4	26	17
BE/M 4.24.1	2CDG110006R0011	40 16779 58312 1	26	17
BE/S 4.20.2.1	2CDG110090R0011	40 16779 71078 7	26	23
BE/S 4.230.2.1	2CDG110091R0011	40 16779 71106 7	26	23
BE/S 8.20.2.1	2CDG110092R0011	40 16779 71076 3	26	23
BE/S 8.230.2.1	2CDG110093R0011	40 16779 71077 0	26	23
BT/A 1.1	2CDG280001R0011	40 16779 92556 3	26	143
BUSKLEMME	GHQ6301901R0001	40 12233 80230 2	20	13
C11 110 - 100	2CMA100014R1000	73 92696 00014 7		134
C11 110 - 300	2CMA170550R1000	73 9269670555 4		134
C13 110 - 100	2CMA100191R1000	73 92696 00191 5		134
C13 110 - 300	2CMA100192R1000	73 92696 00192 2		134
CP-D 24/2.5	2CDG120037R0011	40 16779 69789 7	20	76
DG/S 1.1	2CDG110026R0011	40 16779 58583 5	26	38
DG/S 1.16.1	2CDG110103R0011	40 16779 66950 4	26	38
DG/S 8.1	2CDG110025R0011	40 16779 58582 8	26	38
DGN/S 1.16.1	2CDG110142R0011	40 16779 84556 4	26	38
DGT-0-1K-AB	8110-0-0001	40 11395 19371 6	37	170
DGT-1-1K-AB	8110-0-0002	40 11395 19372 3	37	170
DGT-2-1K-AB	8110-0-0003	40 11395 19373 0	37	170
DGT-3-1K-AB	8110-0-0004	40 11395 19374 7	37	170
DGT-DIN-AB	8110-0-0020	40 11395 19392 1	37	171
DGT-LIZ-100-AB	8110-0-0036	40 11395 19411 9	37	171
DGT-MBU-AB	8110-0-0017	40 11395 19387 7	37	171
DGT-MNG-100-AB	8110-0-0023	40 11395 19395 2	37	170
DGT-OBI-AB	8110-0-0022	40 11395 19394 5	37	171
DGT-OPC-AB	8110-0-0018	40 11395 19389 1	37	171
DGT-PWR-AB	8110-0-0019	40 11395 19391 4	37	171
DGT-VIS-1K-AB	8110-0-0030	40 11395 19404 1	37	170
DLR/A 4.8.1.1	2CDG110172R0011	40 16779 88237 8	26	39
DLR/S 8.16.1M	2CDG110101R0011	40 16779 67656 4	26	39
DR/S 4.1	2CDG110029R0011	40 16779 58755 6	26	8
DSA/S 2.16.1	2CDG110009R0011	40 16779 58584 2	26	39

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DSM/S 1.1	2CDG110060R0011	40 16779 65205 6	26	13
EG/A 32.2.1	2CDG120047R0011	40 16779 94257 7	26	12
EIM/D	2CDG230039R0011	40 16779 87766 4	50	150
EIM/KB	2CDG230028R0011	40 16779 75717 1	50	150
EIM/KC	2CDG230029R0011	40 16779 75718 8	50	150
EIM/XB	2CDG230025R0011	40 16779 67879 7	50	145
EIM/XC	2CDG230026R0011	40 16779 67880 3	50	145
EM/S 3.16.1	2CDG110148R0011	40 16779 87706 0	26	114
EP	GHQ7132443R0003	40 13232 04220 1	50	149
ER/U 1.1	GHQ6310044R0111	40 16779 49725 1	26	49
ES/M 2.230.1	2CDG110013R0011	40 16779 58361 9	26	18
ES/M 2.24.1	2CDG110014R0011	40 16779 58362 6	26	18
ES/S 4.1.2.1	2CDG110058R0011	40 16779 67206 1	26	49
ES/S 8.1.2.1	2CDG110059R0011	40 16779 67207 8	26	49
ESPE	GHV9250010V0001	40 13232 70140 5	50	147
EUB/S 1.1	2CDG110066R0011	40 16779 64991 9	26	137
EVSB	GHV9250010V0002	40 16779 44170 4	50	147
FAD/A 1.1	2CDG120040R0011	40 16779 90668 5	20	54
FAG/A 1.1	2CDG120041R0011	40 16779 90669 2	20	54
FC/S 1.1	2CDG120001R0011	40 16779 58383 1	20	51
FC600/BREL	2CDG430051R0011	40 16779 70840 1	50	151
FC650/O	2CDG430073R0011	40 16779 86479 4	50	151
FC650/TMAX	2CDG430081R0011	40 16779 86477 0	50	151
FCA/S 1.1M	2CDG110084R0011	40 16779 66508 7	26	50
FCA/S 1.2.2.1	2CDG110141R0011	40 16779 87727 5	26	50
FCL/S 1.6.1.1	2CDG110163R0011	40 16779 87788 6	26	50
FCL/S 2.6.1.1	2CDG110164R0011	40 16779 87787 9	26	50
FPA03	GHV9020012V0021	40 16779 53444 4	50	152
FW/S 8.2.1	2CDG120039R0011	40 16779 90666 1	20	54
GM/A 8.1	2CDG110150R0011	40 16779 90630 2	26	143
GP2	GHV9220004V0004	40 13232 66670 4	50	148
HS/S 4.2.1	2CDG120044R0011	40 16779 90672 2	20	41
IO/S 4.6.1.1	2CDG110168R0011	40 16779 88107 4	26	30
IO/S 8.6.1.1	2CDG110169R0011	40 16779 88108 1	26	30
IPM/S 1.1	2CDG120036R0011	40 16779 69790 3	20	11
IPR/S 2.1	2CDG110061R0011	40 16779 65229 2	26	10
IPS/S 2.1	2CDG110098R0011	40 16779 66484 4	26	10
IR/KB	2CDG230027R0011	40 16779 75716 4	50	149
IR/XB	2CDG230023R0011	40 16779 67877 3	50	145
IR/XC	2CDG230024R0011	40 16779 67878 0	50	145
ISM/S 5.1	2CDG120034R0011	40 1677969792 7	20	10
ISS/S 5.1	2CDG120035R0011	40 16779 69791 0	20	11
JAM 2.230.1	2CDG110003R0011	40 16779 58315 2	26	17
JAM 2.24.1	2CDG110004R0011	40 16779 58316 9	26	17
JA/S 4.SMI.1M	2CDG110028R0011	40 16779 65423 4	26	35
JRA/S 2.230.1.1	2CDG110129R0011	40 16779 69848 1	26	35
JRA/S 2.230.2.1	2CDG110120R0011	40 16779 69839 9	26	34
JRA/S 2.230.5.1	2CDG110124R0011	40 16779 69843 6	26	34
JRA/S 4.230.1.1	2CDG110130R0011	40 16779 69849 8	26	35
JRA/S 4.230.2.1	2CDG110121R0011	40 16779 69840 5	26	34
JRA/S 4.230.5.1	2CDG110125R0011	40 16779 69844 3	26	34
JRA/S 4.24.5.1	2CDG110128R0011	40 16779 69847 4	26	34
JRA/S 8.230.1.1	2CDG110131R0011	40 16779 69850 4	26	35
JRA/S 8.230.2.1	2CDG110122R0011	40 16779 69841 2	26	34
JRA/S 8.230.5.1	2CDG110126R0011	40 16779 69845 0	26	34
JSB/S 1.1	GHQ6310084R0111	40 16779 57993 3	26	35
KLEMME	GHQ6301902R0001	40 16779 07930 3	20	13
KS/K 2.1	GHQ6301910R0011	40 16779 52893 1	20	8
KS/K 4.1	GHQ6301910R0001	40 16779 51725 6	20	8
L208/V.24	GHQ3280220R0001	40 16779 44510 8	50	144
L240/BS	GHQ3050031R0001	40 16779 58561 3	50	147
L240/ENG	2CDG230017R0011	40 16779 66852 1	50	144
L240/IP	2CDG230013R0011	40 16779 66856 9	50	144

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L240/MG2	2CDG220003R0011	40 16779 65737 2	50	146
L240/PT	2CDG230014R0011	40 16779 66855 2	50	144
L840/MG4	GHQ3280011R0001	40 13232 73240 9	50	146
LF/U 2.1	2CDG110089R0011	40 16779 66416 5	26	40
LFO/A 1.1	2CDG120045R0011	40 16779 90673 9	20	41
LGS/A 1.1	2CDG120038R0011	40 16779 83712 5	20	51
LK/S 4.2	2CDG110171R0011	40 16779 88167 8	26	10
LKS	GHQ4001906R0001	40 13232 39280 1	50	148
LL/S 1.1	GHQ6050053R0001	40 16779 39210 5	20	12
LM/S 1.1	GHQ6310080R0111	40 16779 58121 9	26	53
LR/M 1.6.2	2CDG110108R0011	40 16779 68067 7	26	18
LR/S 2.16.1	2CDG110087R0011	40 16779 66405 9	26	40
LR/S 4.16.1	2CDG110088R0011	40 16779 66489 9	26	40
MG/A 4.4.1	2CDG110186R0011	40 16779 92552 5	26	143
MG/E 4.4.1	2CDG110178R0011	40 16779 92549 5	26	143
MRS/B	GHQ3201972R0002	40 16779 50659 5	50	148
MRS/W	GHQ3201972R0001	40 16779 50660 1	50	148
MT 701.2, SR	GHQ6050059R0006	40 16779 57582 9	20	55
MT 701.2, WS	GHQ6050059R0005	40 16779 57581 2	20	55
MT/S 4.12.2M	2CDG110109R0011	40 16779 71187 6	26	139
MT/S 8.12.2M	2CDG110110R0011	40 16779 71186 9	26	139
MT/U 2.12.2	2CDG110111R0011	40 16779 71176 0	26	139
MW	GHV9230039V0020	40 13232 66580 6	50	145
MW	GHV9230039V0020	40 13232 66580 6	50	150
N2221.2 AN	2CLON222128	84 27238 10033 3		108
N2221.2 BL	2CLON222121	84 27238 10032 6		108
N2221.2 PL	2CLON222123	84 27238 10034 0		108
N2221.4 AN	2CLON222148	84 27238 10044 9		108
N2221.4 BL	2CLON222141	84 27238 10043 2		108
N2221.4 PL	2CLON222143	84 27238 10045 6		108
N2221.6 AN	2CLON222168	84 27238 10054 8		109
N2221.6 BL	2CLON222161	84 27238 10053 1		109
N2221.6 PL	2CLON222163	84 27238 10055 5		109
N2221.7 AN	2CLON222178	84 27238 10066 1		109
N2221.7 BL	2CLON222171	84 27238 10065 4		109
N2221.7 PL	2CLON222173	84 27238 10067 8		109
N2240.4 AN	2CLON224048	84 27238 10072 2		110
N2240.4 BL	2CLON224041	84 27238 10071 5		110
N2240.4 PL	2CLON224043	84 27238 10073 9		110
N2241.4 AN	2CLON224148	84 27238 10072 2		110
N2241.4 BL	2CLON224141	84 27238 10081 4		110
N2241.4 PL	2CLON224143	84 27238 10083 8		110
N2271 XX				111
N2271.1 XX				111
N2271.9				111
N2272 XX				111
N2272.1 XX				111
N2273 XX				111
N2273.1 XX				111
N2274 XX				111
N2274.1 XX				111
N2371.9V				112
N2372.1 XX				112
ND/W	GHQ7132443R0011	40 13232 02540 2	50	149
NDA/W	GHQ7132443R0004	40 13232 61690 7	50	149
NDU/W	GHQ7132443R0021	40 13232 02550 1	50	149
NT/S 12.1600	GHQ6050056R0002	40 16779 51467 5	20	9
NT/S 24.800	GHQ6050057R0002	40 16779 51468 2	20	9
NTI/Z 28.30.1	2CDG110096R0011	40 16779 66316 8	26	8
NTU/S 12.2000.1	2CDG110070R0011	40 16779 68117 9	26	9
PK/E 2.1	2CDG120043R0011	40 16779 90671 5	20	54
PS 1/4/6-KNX	2CDG924003R0011	40 16779 66758 6	20	13
PS 1/60/6-KNX	2CDG924004R0011	40 16779 66759 3	20	13

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PS/E 2.1	2CDG120042R0011	40 16779 90670 8	20	54
PS-END 1-S	2CDL000001R0001	40 16779 66698 5		13
RC/A 4.2	2CDG110104R0011	40 16779 67647 2	26	16
RC/A 8.2	2CDG110106R0011	40 16779 68126 1	26	16
RL	GHV9270013V0100	40 16779 86476 3	50	152
RM/S 1.1	2CDG110094R0011	40 16779 66556 8	26	19
RM/S 2.1	2CDG110095R0011	40 16779 66567 4	26	19
RM/S 3.1	2CDG110165R0011	40 16779 88106 7	26	19
RM/S 4.1	2CDG110170R0011	40 16779 88126 5	26	19
RTK	GHQ3201973R0021	40 16779 50655 7	50	148
SA/M 2.16.1	2CDG110100R0011	40 16779 68158 2	26	17
SA/M 2.6.1	2CDG110002R0011	40 16779 58314 5	26	17
SA/S 12.10.2.1	2CDG110158R0011	40 16779 87780 0	26	29
SA/S 12.16.2.1	2CDG110162R0011	40 16779 87776 3	26	29
SA/S 12.16.5.1	2CDG110137R0011	40 16779 71107 4	26	30
SA/S 12.16.6.1	2CDG110138R0011	40 16779 76516 9	26	30
SA/S 12.6.1.1	2CDG110154R0011	40 16779 87784 8	26	29
SA/S 12.6.2.1	2CDG110183R0011	40 16779 92515 0	26	29
SA/S 2.10.2.1	2CDG110155R0011	40 16779 87783 1	26	29
SA/S 2.16.2.1	2CDG110159R0011	40 16779 87779 4	26	29
SA/S 2.16.5.1	2CDG110132R0011	40 16779 70827 2	26	30
SA/S 2.16.6.1	2CDG110112R0011	40 16779 70830 2	26	30
SA/S 2.6.2.1	2CDG110180R0011	40 16779 92506 8	26	29
SA/S 4.10.2.1	2CDG110156R0011	40 16779 87782 4	26	29
SA/S 4.16.2.1	2CDG110160R0011	40 16779 87778 7	26	29
SA/S 4.16.5.1	2CDG110133R0011	40 16779 70828 9	26	30
SA/S 4.16.6.1	2CDG110113R0011	40 16779 70831 9	26	30
SA/S 4.6.1.1	2CDG110152R0011	40 16779 87786 2	26	29
SA/S 4.6.2.1	2CDG110181R0011	40 16779 92509 9	26	29
SA/S 8.10.2.1	2CDG110157R0011	40 16779 87781 7	26	29
SA/S 8.16.2.1	2CDG110161R0011	40 16779 87777 0	26	29
SA/S 8.16.5.1	2CDG110134R0011	40 16779 70829 6	26	30
SA/S 8.16.6.1	2CDG110114R0011	40 16779 70832 6	26	30
SA/S 8.6.1.1	2CDG110153R0011	40 16779 87785 5	26	29
SA/S 8.6.2.1	2CDG110182R0011	40 16779 92513 6	26	29
SAD/ED	GHQ3280014R0001	40 13232 73270 6	50	147
SAD/GAP	GHQ3280015R0001	40 13232 73280 5	50	147
SAD/GUP	GHQ3280013R0001	40 13232 73260 7	50	147
SAK12	GHV9240001V0012	40 13232 74494 5	50	8
SAK17	GHV9240001V0013	40 13232 74495 2	50	8
SAK17	GHV9240001V0013	40 13232 74495 2	50	145
SAK7	GHV9240001V0011	40 13232 74493 8	50	8
SAK7	GHV9240001V0011	40 13232 74493 8	50	145
SCM/S 1.1	2CDG110024R0011	40 16779 58391 6	26	139
SCS	GHQ3050027R0001	40 16779 58575 0	50	146
SD/M 2.6.2	2CDG110107R0011	40 16779 68066 0	26	17
SD/S 2.16.1	2CDG110079R0011	40 16779 65996 3	26	40
SD/S 4.16.1	2CDG110080R0011	40 16779 65937 6	26	40
SD/S 8.16.1	2CDG110081R0011	40 16779 65918 5	26	40
SE/S 3.16.1	2CDG110136R0011	40 16779 70977 4	26	114
SGL	GHQ3050008R0001	40 16779 53313 3	50	150
SJR/SA.24.2.1	2CDG110143R0011	40 16779 86446 6	26	35
SMB/S 1.1	GHQ6310085R0111	40 16779 58092 2	26	137
SPGS/B	GHV9220004V0010	40 13232 61430 9	50	148
SPGS/W	GHV9220004V0009	40 13232 61420 0	50	148
SSF/G	GHQ3050017R0001	40 16779 53466 6	50	152
SSF/GB	GHQ3050018R0001	40 16779 53467 3	50	152
SSM/A	2CDG240019R0011	40 16779 83746 0	50	147
SSM/U	2CDG240020R0011	40 16779 83747 7	50	147
SSS	GHV9270001V0001	40 13232 02320 0	50	152
ST/K 1.1	2CDG120004R0011	40 16779 63022 1	20	51
SU/S 30.640.1	GHQ6310049R0111	40 16779 51477 4	26	7
SV/S 30.160.1.1	2CDG110144R0011	40 16779 86666 8	26	6

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Further Information and Local Contacts:
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Note:

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