

Ministério da Saúde

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Fundação Oswaldo Cruz



Contratação de Serviço de Engenharia para Elaboração de  
Projeto do Novo Edifício do Segetrans/COGIC da Fiocruz/Rio de Janeiro.

# **FOLHAS DE DADOS AUTOMAÇÃO**

Janeiro/2024

# ABB i-bus® KNX

## Line Coupler, MDRC

### LK/S 4.2, 2CDG 110 171 R0011







2CDC 071 022 S0012

The ABB i-bus® KNX Line Coupler LK/S 4.2 is a modular installation device with a module width of 2 space units. It is used as a line or area coupler or as a repeater. As a line coupler, the LK/S connects a line with a main line, as an area coupler it connects a main line with an area line. It provides electrical isolation in this way.

If required, the LK/S filters telegrams and only routes the telegrams intended for other lines. It is possible to route or block all telegrams for diagnostic purposes.

#### Technical data

<b>Supply</b>	Rated voltage	21...31 V DC, via the bus
	Power consumption	Maximum 0.25 W
	Current consumption	Maximum 12 mA
<b>Connections</b>	KNX, subline (2 = Line)	Via left bus connection terminal
	KNX, subline (1 = Main line)	Via right bus connection terminal
<b>Operating and display elements</b>	Button/LED  (red)	For assignment of the physical address
	LED  ON (green)	For indicating operation
	LED  Main Line (yellow)	For indicating telegram traffic on the main line
	LED  Line (yellow)	For indicating telegram traffic on the sub line
<b>Enclosure</b>	IP 20	To EN 60 529
<b>Safety class</b>	III, in the installed state	To EN 61 140
<b>Insulation category</b>	Overvoltage category	III to EN 60 664-1
	Pollution degree	II to EN 60 664-1
<b>KNX safety extra low voltage</b>	SELV 31 V DC	
<b>EMC requirements</b>	Compliant to EN 61000-6-2, EN 61000-6-3 and EN 50090-2-2	
<b>Temperature range</b>	Operation	– 5 °C...+ 45 °C
	Storage	– 25 °C...+ 55 °C
	Transport	– 25 °C...+ 70 °C
<b>Ambient conditions</b>	Maximum air humidity	To EN 50 491 95 %, no condensation allowed
<b>Design</b>	Modular installation device (MDRC)	Modular installation device, Pro M
	Dimensions	90 x 36 x 64.5 mm (H x W x D)
	Mounting width	2 modules at 18 mm
	Mounting depth	64.5 mm
<b>Installation</b>	On 35 mm mounting rail	To EN 60 715
<b>Mounting position</b>	As required	
<b>Weight without packaging</b>	0.075 kg	
<b>Housing/colour</b>	Plastic housing, grey	
<b>Approval</b>	EN 60 669-1, EN 50 428	
<b>KNX certification</b>	EN 50 090-2-2, EN 50 491	
<b>CE mark</b>	In accordance with the EMC guideline and low voltage guideline, RoHS	

# ABB i-bus® KNX

## Line Coupler, MDRC

### LK/S 4.2, 2CDG 110 171 R0011

Device type	Application program	Maximum number of communication objects	Maximum number of group addresses	Maximum number of associations
LK/S 4.2	Couple Repeat/...*	0	0	0
	Couple/...*	0	0	0
	Repeat/...*	0	0	0

\* ... = current version number of the application program. **Please observe the software information on our homepage for this purpose.**

#### Note

For a detailed description of the application program see “*Line Coupler LK/S 4.2*” product manual. It is available free-of-charge at [www.abb.com/knx](http://www.abb.com/knx). The ETS and the current version of the device application program are required for programming.

The current application program can be found with the respective software information for download on the Internet at [www.abb.com/knx](http://www.abb.com/knx). After import it is available in the ETS under *ABB/System devices/Couplers*.

The device does not support the locking function of a KNX device in the ETS. If you inhibit access to all devices of the project with a *BCU code*, it has no effect on this device. Data can still be read and programmed.

#### Note

Different application programs are available with the LK/S 4.2 for ETS 3 and ETS 4. Some of the functions for the ETS 4 are not available in the applications for the ETS 3.

In ETS 3, there is a separate application for coupling and for repeating (*Couple/1.x* or *Repeat/1.x*), in ETS 4, there is a common application (*Couple Repeat/2.x*).

All applications are upwards compatible, i.e.:

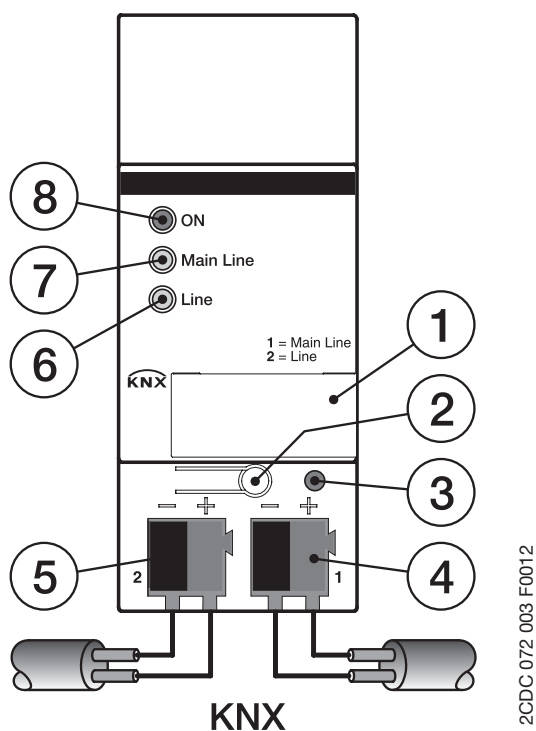
- The old applications of LK/S 4.1 can be loaded in the LK/S 4.2 (ETS 3). This is particularly useful if in an existing project an LK/S 4.1 has to be replaced by an LK/S 4.2.
- The applications *Couple/1.x* or *Repeat/1.x* can be loaded in the LK/S 4.2 via the ETS 3 or the ETS 4.
- The new application *Couple Repeat/2.x* with extended functional range is only available for the ETS 4.

# ABB i-bus® KNX

## Line Coupler, MDRC

### LK/S 4.2, 2CDG 110 171 R0011

Circuit diagram



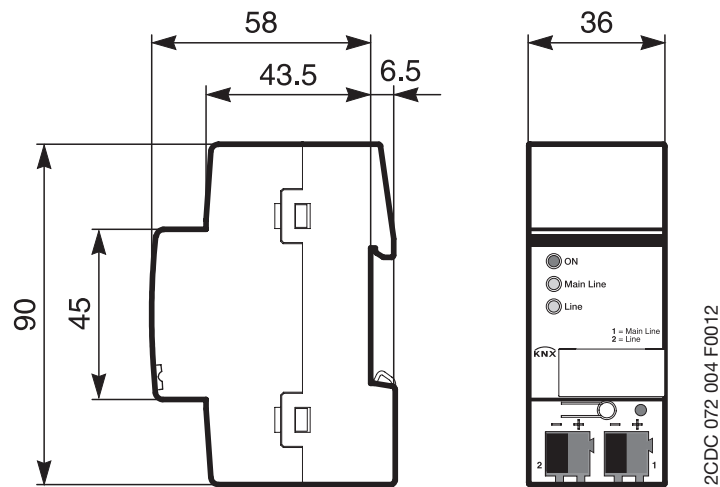
- 1 Label carrier
- 2 Button *Programming*
- 3 LED *Programming*
- 4 Bus connection terminal ABB i-bus® KNX of the primary/main line
- 5 Bus connection terminal ABB i-bus® KNX of the secondary line
- 6 LED Line (yellow)
- 7 LED Main Line (yellow)
- 8 LED ON (green)

#### Note

The main and secondary lines must each be supplied with power from separate power sources (electrically isolated).

# ABB i-bus® KNX Line Coupler, MDRC LK/S 4.2, 2CDG 110 171 R0011

Dimension drawing



## AT2012 - CHAVE DE FLUXO PARA AR

## APLICAÇÃO

Utilizado para ar-condicionado, equipamentos para refrigeração, sistemas de ventilação, entre outros, a chave de fluxo é aplicada como sensor para indicar a presença/ausência, queda/aumento de vazão no fluxo de ar, atuando sempre como um dispositivo complementar de segurança e proteção para ligar/desligar alarmes, motores, máquinas, sinalização em painéis de controle, etc., ajudando a detectar eventuais problemas como por exemplo: quebra de correia, mancal, obstrução da passagem de ar, entre outros.

## INDICAÇÃO

- Para ar que circula em duto ou tubulação;
- **ATENÇÃO!** A chave de fluxo nunca deve ser usada como dispositivo único de segurança e proteção. Recomenda-se o uso de outros dispositivos para trabalhar em conjunto.

## DESCRIÇÃO DE MATERIAIS, ACABAMENTOS E ESPECIFICAÇÕES TÉCNICAS E MECÂNICAS:

- Base quadrada em ferro e junta de borracha para apoio;
- Caixa nylon 6.0, com aditivo antichama, sendo inadequado o uso ao tempo ou exposto a gases, vapor ou pó (grau de proteção IP-54);
- Microchave reversível (SPDT-COM-NO-NC) com

capacidade de 10A (resistivo) – ½ HP – 125/250 VAC e vida mecânica de 10.000.000 ciclos e vida elétrica de 200.000 ciclos (dados fornecidos pelo fabricante);

- Borne para ligação elétrica;
- 1 (uma) palheta em aço inox austenítico;
- Ajustado na fábrica para vazões mínimas de 10 m/s, permitindo detectar maiores velocidades de fluxo acima da mínima, girando parafuso de regulagem no sentido horário (fig. 1);
- Máxima temperatura de trabalho: até 60°;
- Vida mecânica: 20.000 ciclos;

CONJUNTO DE REGULAGEM

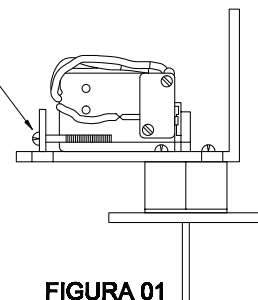


FIGURA 01

## IDENTIFICAÇÃO ELÉTRICA

Com = comum

NO = normalmente aberto

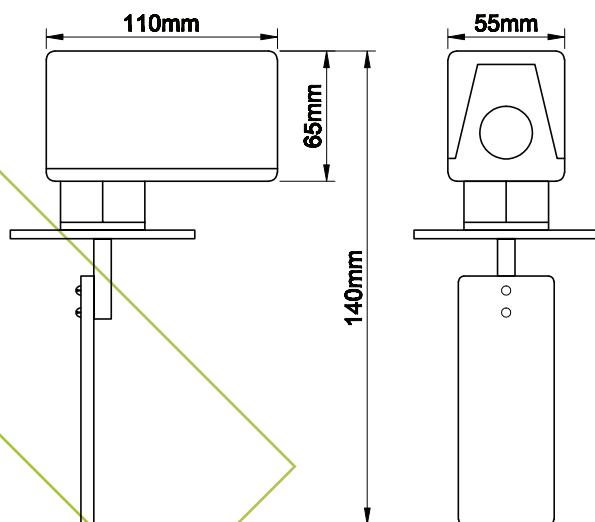
NC = normalmente fechado

Antes de utilizar qualquer ferramenta elétrica, recomendamos a observação de determinadas medidas básicas de segurança, a fim de evitar choques elétricos, acidentes pessoais, risco de incêndio ou até mesmo quebra do equipamento:

- Confirmar a voltagem do equipamento, antes de ligar;
- Verificar se o equipamento está ligado;

- Verificar se todos os componentes/ acessórios estão ligados;
- Utilizar óculos de segurança;
- Nunca expor o equipamento à chuva ou locais úmidos;
- Nunca sobrecarregar a ferramenta;
- Manter o local de trabalho limpo e organizado;
- Utilizar ferramentas adequadas.

A chave de fluxo é fabricada dentro das normas ABNT que regem este modelo de produto.



# Power supply CP-D 24/2.5

## Primary switch mode power supply

The CP-D range of modular power supply units in MDRC design (modular DIN rail components) is ideally suited for installation in distribution panels. This range offers devices with output voltages of 12 V DC and 24 V DC at output currents of 0.42 A to 4.2 A. Thanks to a high thermal efficiency corresponding to low power and heat dissipation, the devices can be operated without forced cooling. This device features the U/I output characteristic (fold forward behaviour). All power supply units in the CP-D range are approved according to all relevant international standards.



2CDC 271 028 F0007

### Characteristics

- Rated output voltage 24 V DC
- Output voltage adjustable via front-face potentiometer "OUTPUT Adjust"
- Rated output current 2.5 A
- Rated output power 60 W
- Wide range input 100–240 V AC (90–264 V AC, 120–375 V DC)
- Efficiency of typ. 86 %
- Low power dissipation and low heating
- Free convection cooling (no forced cooling with ventilators)
- Ambient temperature range during operation –40...+70 °C
- Open-circuit, overload and short-circuit stable
- Integrated input fuse
- U/I characteristic (fold-forward behaviour at overload – no switch-off)
- LEDs for the indication of operational states
- Structural form ideal for installation in distribution panels
- Light-grey enclosure in RAL 7035

### Approvals

UL 508, CAN/CSA C22.2 No.107.1 <sup>1)</sup>UL 1310, CAN/CSA C22.2 No.223  
(Class 2 Power Supply) <sup>1)</sup>UL 62368-1, CAN/CSA-C22.2 No. 62368-1 <sup>1)</sup>EAC <sup>1)</sup><sup>1)</sup> Approval refers to rated input voltage  $U_{in}$ 

### Marks



CE

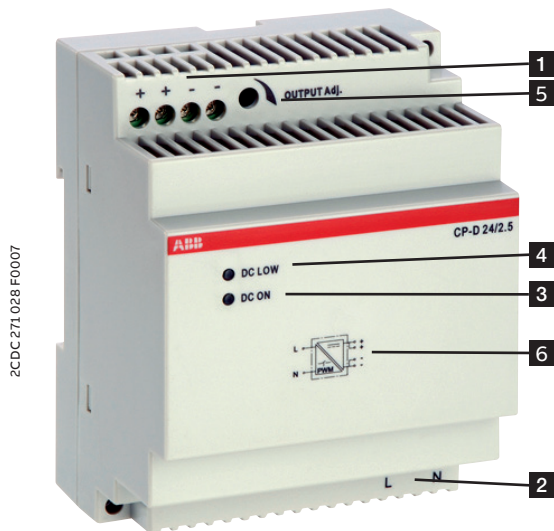


RCM

### Order data

Type	Input voltage range	Rated output voltage / current	Order code
CP-D 24/2.5	90–264 V AC / 120–375 V DC	24 V DC / 2.5 A	1SVR427044R0200

# Functions



- 1 OUTPUT ++, --:  
terminals – output
- 2 INPUT L, N:  
terminals – input
- 3 DC ON:  
green LED – output voltage applied
- 4 DC LOW:  
output voltage too low
- 5 OUTPUT Adjust:  
potentiometer – adjustment of output voltage
- 6 Circuit diagram

## Application

The primary switch mode power supply has two voltage input ranges. This enables the supply with AC or DC. Furthermore it is equipped with two generous capacitors, which ensure mains buffering of at least 60 ms. That is why the device can be used worldwide also in high fluctuating networks and battery-powered plants.

## Operating mode

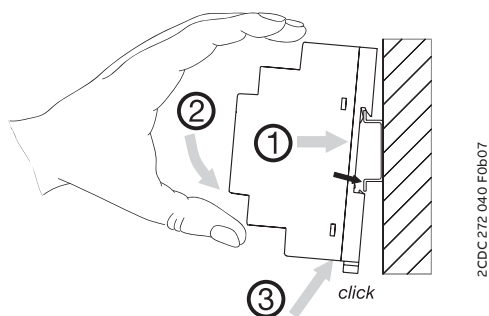
Adjustable output voltage

This device features an continuously adjustable output voltage from 24–28 V DC. Thus they can be optimally adapted to the application, e.g. compensating the voltage drop caused by a long line length.

# Installation

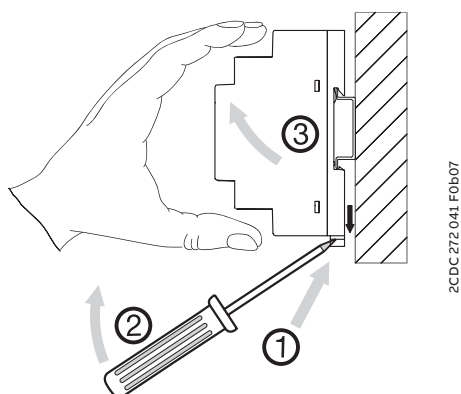
## Mounting

The switch mode power supply can be snapped on a DIN rail according to EN 60715 as shown in the accompanying picture. For that the device is set with its mounting rail slide on the upper edge of the mounting rail and locked by lifting it downwards.



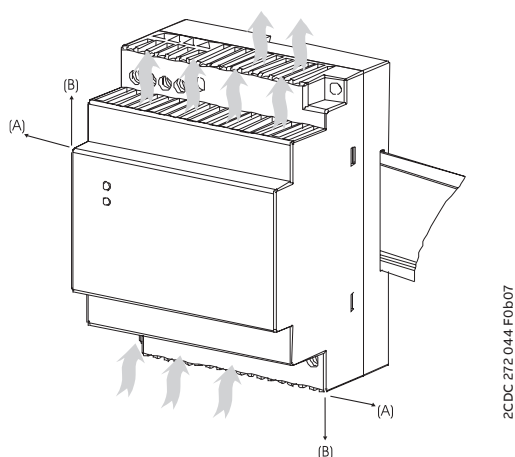
## Demounting

Remove the switch mode power supply as shown in the accompanying picture. For that the latching lever is pulled downwards by means of the screwdriver. Alternatively you can press the unlock button to release the device. Then in both cases the device can be unhinged from the mounting rail edge and removed.



## Mounting position

The devices have to be mounted horizontally with the input terminals on the bottom. In order to ensure a sufficient convection, the minimum distance to other modules should not be less than 25 mm in vertical direction and horizontal direction.

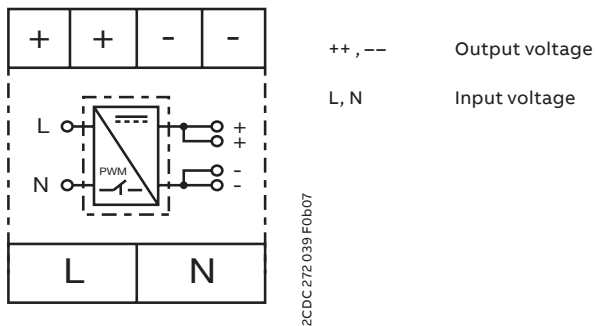


# Electrical connection

Connect the input terminals L and N. The installation must be executed acc. to EN 62368-1, provide a suitable disconnecting device (e. g. line protection switch) in the supply line. The input side is protected by an internal input fuse.

Rate the lines for the maximum output current or provide a separate fuse protection. We recommend to choose the cable section as large as possible in order to minimize voltage drops. Observe the polarity. Actuate plug connector only when power is off. The device is overload, short-circuit and open-circuit proof. The secondary side of the power supply is electrically isolated from the input and internally not earthed (SELV) and can therefore be earthed by the user according to the needs with + or – (PELV).

## Connection diagram



# Safety instructions and warnings

**In operation pay attention to:**

- Do not modify the installation (primary and secondary side)! High current!  
Risk of electric arcs and electric shock (danger to life)!
- Risk of burns: Depending on the operation conditions the housing can become hot.
- The device contains no user serviceable parts. In any case of device malfunction please send the unit back to manufacturer.



The device must be installed by qualified persons only and in accordance with the specific national regulations (e. g. VDE, etc.).

The CP-D power supplies are chassis-mounted units. It is maintenance-free and does not contain any integral setting elements and should therefore not be opened.

**Before any installation, maintenance or modification work:**

- Read the operating and installation instructions carefully and completely!
- Disconnect the system from the supply network and protect against switching on!

**CAUTION**

Improper installation/operation may impair safety of personnel and cause operational difficulties or destruction of the unit.

**WARNING****Before start of operation the following must be ensured:**

- Connection to mains or DC supply according to the specific national regulations for class of protection I. Power supply cables and unit must be sufficiently fused. A disconnecting device has to be provided for the end product to disengage unit and supply cables from supply mains if required.
- Rate the output lines for the output current of the power supply and connect them with the correct polarity.
- In order to ensure sufficient convection the distance to the other devices has to be considered.

**WARNING****Danger to life!**

Never carry out work when voltage is present. The power supply contains components with high stored energy and circuits with high voltage! Do not introduce any objects into the unit and do not open the unit. With some units of this range the output is capable of providing hazardous energy. Ensure that the service personnel is protected against inadvertent contact with parts carrying energy. If the internal fuse is blown most probably the device is defect. In this case an examination of the device by the manufacturer is necessary.

# Technical data

Data at  $T_a = 25\text{ °C}$ ,  $U_{in} = 230\text{ V AC}$  and rated values, unless otherwise indicated

## Input circuits

Supply circuits		
Rated input voltage $U_{in}$	L,N	100–240 V AC
Typical input current / power consumption	115 V AC	1120 mA / 69.3 W
	230 V AC	660 mA / 70.1 W
Input voltage range	AC	90–264 V AC
	DC	120–375 V DC
Frequency range	AC	47–63 Hz
Inrush current	115 V AC	max. 30 A
	230 V AC	max. 60 A
Power failure buffering time		min. 60 ms
Internal input fuse (apparatus protection, not accessible)		2 A slow-acting / 250 V AC
Power factor correction (PFC)		no

## User interface

Indication of operational states		
Output voltage	DC ON: green LED	<input type="checkbox"/> : output voltage applied
	DC LOW: red LED	<input type="checkbox"/> : output voltage too low

### Operation Controls

Potentiometer – OUTPUT Adjust: Potentiometer	OUTPUT Adjust	Output adjustment
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## Output circuits

Rated output voltage	++, --	24 V DC
Tolerance of the output voltage		$\pm 1\%$
Adjustment range of the output voltage		24–28 V DC
Rated output power		60 W
Rated output current $I_r$	$T_a \leq 55\text{ °C}$	2.5 A
Derating of the output current	$55\text{ °C} < T_a \leq 70\text{ °C}$	2.5 %/°C
Deviation	load change statical	max. 1 %
	change of output voltage within the input voltage range	max. 1 %
Control time		< 1 ms
Starting time after applying supply voltage	at $I_r$	1000 ms
Rise time	at rated load	typ. 1 ms
Residual ripple and switching peaks	BW = 20 MHz	50 mV
Parallel connection		yes, use of CP-D RU required
Series connection		yes, to increase voltage
Resistance to reverse feed		35 V / 1 s
Characteristic curve of output		U/I characteristic curve
Short-circuit protection		continuous short-circuit stability
Short-circuit behaviour		continuation with output power limiting
Current limiting at short circuit		typ. 6.05 A
Overload protection		output power limiting
Overvoltage protection		30–33 V DC
No-load protection		continuous no-load stability
Starting of capacitive loads		unlimited

## General data

Duty time		100 %
Dimensions (W x H x D)		71 x 91 x 57.5 mm (2.8 x 3.58 x 2.26 inches)
Material of housing	housing	plastic
Efficiency		typ. 86 %
Weight		0.252 kg (0.55 lb)
Mounting position		horizontal
Minimum distance to other units in normal operation mode	horizontal	25 mm (0.98 inch)
	vertical	25 mm (0.98 inch)
Mounting		DIN rail (IEC/EN 60715), snap-on mounting without any tool
Degree of protection	housing / terminals	IP20 / IP20
Class of protection		II

## Electrical connection

Input circuit / Output circuit		Screw connection
Connecting capacity	fine-strand with wire end ferrule	0.2–2.5 mm <sup>2</sup> (24–14 AWG)
	rigid	0.2–2.5 mm <sup>2</sup> (24–12 AWG)
Stripping length		7 mm (0.28 in)
Tightening torque		0.7 Nm (6 lb.in)

## Environmental data

Ambient temperature range	operation	-40...+70 °C (-40...+158 °F)
	full load	-40...+55 °C (-40...+131 °F)
	storage	-40...+85 °C (-40...+185 °F)
Altitude during operation (IEC/EN 60068-2-13)		max. 4850 m
Damp heat, cyclic (IEC/EN 60068-2-30)		4 x 24 h cycles, 40 °C, 95 % RH
Vibration, half-sine (IEC/EN 60068-2-6)		50 m/s <sup>2</sup> , 10 Hz – 2 kHz
Shock, half-sine (IEC/EN 60068-2-27)		40 m/s <sup>2</sup> , 22 ms

## Isolation data

Rated isolation voltage U <sub>i</sub>	input circuit / output circuit	4 kV AC
Pollution degree		2
Overvoltage category		II

## Standards / Directives

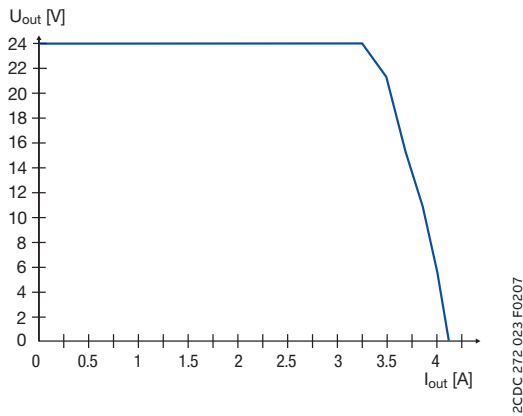
Standards	IEC/EN 62368-1
Low Voltage Directive	2014/35/EU
Protective low voltage	SELV (IEC 60950-1)
EMC Directive	2014/30/EU
RoHS Directive	2011/65/EU

## Electromagnetic compatibility

Interference immunity to		IEC/EN 61000-6-2
electrostatic discharge	IEC/EN 61000-4-2	Level 4 (4 kV / 15 kV)
radiated, radio-frequency, electromagnetic field	IEC/EN 61000-4-3	Level 3 (10 V/m)
electrical fast transient / burst	IEC/EN 61000-4-4	Level 4 (4 kV)
surge	IEC/EN 61000-4-5	Level 3 (2 kV L-L)
conducted disturbances, induced by radio-frequency fields	IEC/EN 61000-4-6	Level 3 (10 V)
Interference emission		IEC/EN 61000-6-3
high-frequency radiated	IEC/CISPR 22, EN 55022	Class B
high-frequency conducted	IEC/CISPR 22, EN 55022	Class B

# Technical diagrams

## Output behaviour



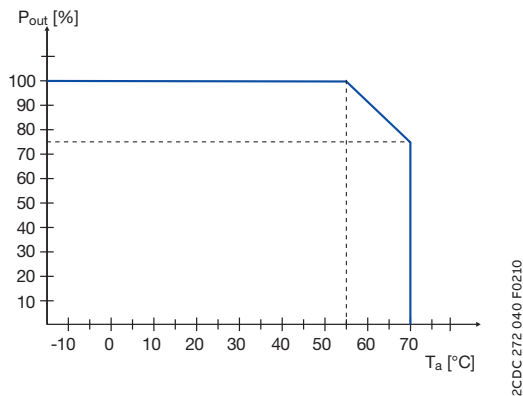
Characteristic curve of output at  $T_a = 25\text{ °C}$

The switch mode power supply CP-D 24/2.5 is able to supply at 24 V DC output voltage and

- at an ambient temperature of:  
 $\leq 55\text{ °C}$  a continuous output current of approx. 2.5 A
- at ambient temperatures of:  
 $55\text{ °C} < T_a \leq 70\text{ °C}$  the output power has to be reduced by 2,5 % per °C temperature increase.

If the switch mode power supply is loaded with an output current  $> 2.5\text{ A}$ , the operating point is passing through the U/I characteristic curve shown.

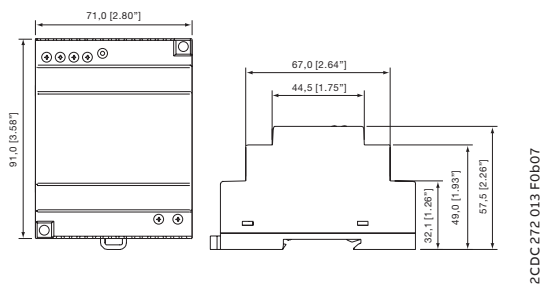
## Temperature behaviour



Characteristic curve of temperature at  $U_{out}$

# Dimensions

in mm [inches]



## Further Documentation

Document title	Document type	Document number
Electronic Products and Relays	Technical catalogue	2CDC 110 004 C02xx
Power Supply Units	Application manual	2CDC 114 048 M020x

You can find the documentation on the internet at [www.abb.com/lowvoltage](http://www.abb.com/lowvoltage)

-> Automation, control and protection -> Power supplies.

## CAD system files

You can find the CAD files for CAD systems at <http://abb-control-products.partcommunity.com>

-> Low Voltage Products & Systems -> Control Products -> Power Supplies.





The EIB / KNX Power Supply produces and monitors the EIB / KNX system voltage. The bus line is decoupled from the power supply with the integrated choke.

The power supply is connected to the bus line with a bus connection terminal. A reset is triggered by pressing the reset push button and lasts for 20 seconds (regardless of the duration of the push button action). The bus line is disconnected from the power supply and the bus devices connected to this bus line are returned to their initial state.

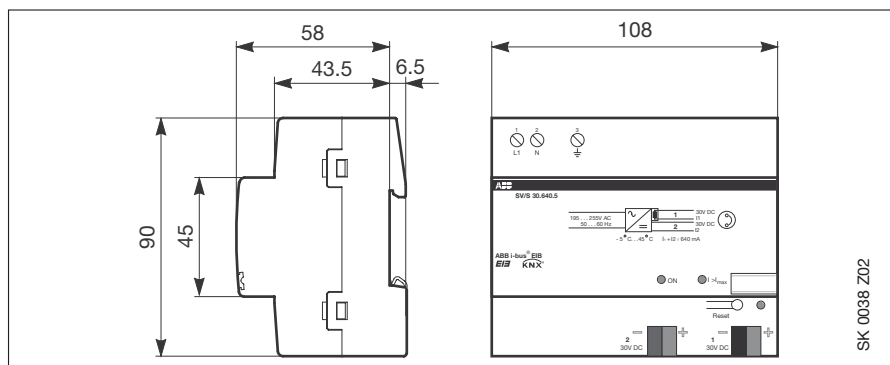
If the line should be disconnected for a longer period, the bus connection terminal must be removed from the power supply.

A 30 V DC auxiliary voltage is made available via an additional connection terminal. This voltage can be used to supply a further bus line (in connection with a separate choke). The 30 V DC auxiliary voltage may not be used for other purposes.

#### Technical data

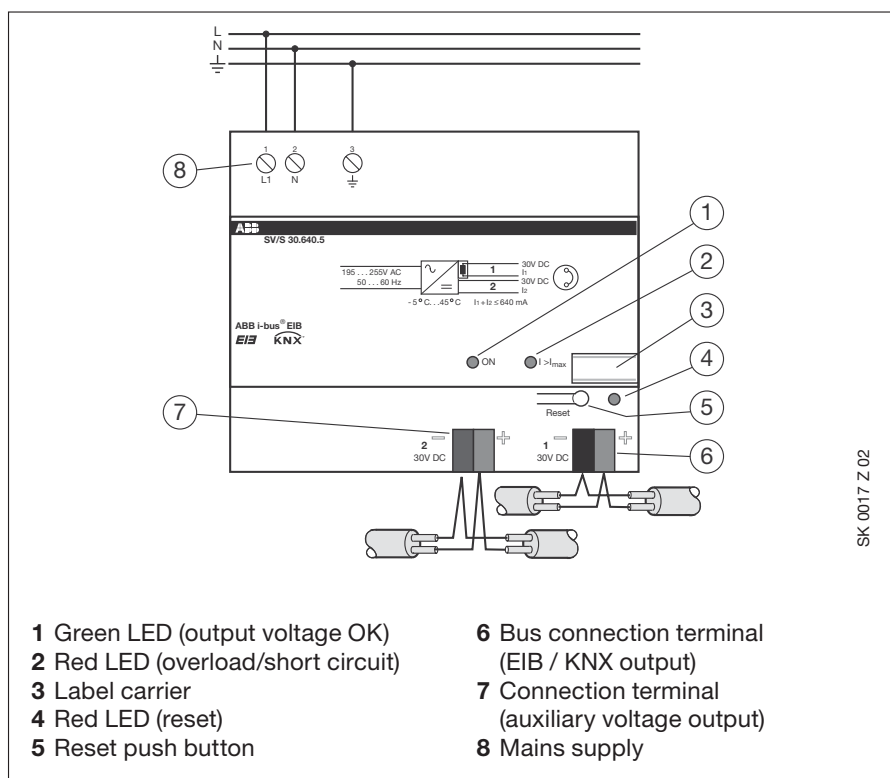
<b>Power supply</b>	<ul style="list-style-type: none"> <li>– Power supply</li> <li>– Power consumption</li> <li>– Power loss</li> </ul>	230 V AC +10/–15%, 45 ... 65 Hz < 45 VA < 6 W
<b>Outputs</b>	<ul style="list-style-type: none"> <li>– EIB / KNX output</li> <li>– EIB / KNX nominal voltage</li> <li>– Auxiliary voltage output</li> <li>– Auxiliary voltage</li> <li>– Nominal current (total of EIB / KNX and auxiliary voltage output)</li> <li>– Sustained short-circuit current</li> <li>– Mains failure back-up time</li> </ul>	1 line with integrated choke 30 V DC +1/–2 V, SELV 1 (without choke) 30 V DC +/–1 V, SELV 640 mA, short-circuit-proof < 1.5 A 200 ms
<b>Operating and display elements</b>	<ul style="list-style-type: none"> <li>– Green LED</li> <li>– Red LED</li> <li>– Reset push button</li> <li>– Red LED</li> </ul>	“ON”: output voltage is OK „I>I <sub>max</sub> ”: overload or short circuit Reset at the EIB / KNX output (starts when the push button is pressed and lasts 20 s) Reset at the EIB / KNX output
<b>Connections</b>	<ul style="list-style-type: none"> <li>– Power supply</li> <li>– EIB / KNX output</li> <li>– Auxiliary voltage output</li> </ul>	3 screw terminals Cable cross-section: multi-core 0.2 – 2.5 mm <sup>2</sup> single-core 0.2 – 4.0 mm <sup>2</sup> Bus connection terminal (black/red) Connection terminal (yellow/grey)
<b>Type of protection</b>	– IP 20, EN 60 529	
<b>Ambient temperature range</b>	<ul style="list-style-type: none"> <li>– Operation</li> <li>– Storage</li> <li>– Transport</li> </ul>	– 5 °C ... + 45 °C – 25 °C ... + 55 °C – 25 °C ... + 70 °C
<b>Design</b>	– Modular installation device, proM	
<b>Housing, colour</b>	– Plastic housing, grey	
<b>Mounting</b>	– On 35 mm mounting rail, DIN EN 60 715	
<b>Dimensions</b>	– 90 x 108 x 64.5 mm (H x W x D)	
<b>Mounting depth/width</b>	– 68 mm/ 6 modules at 18 mm	
<b>Weight</b>	– 0.35 kg	
<b>Certification</b>	– EIB / KNX-certified	
<b>CE norm</b>	– In accordance with the EMC guideline and the low voltage guideline	

## Dimension drawing



SK 0038 Z02

## Device connection



SK 0017 Z02

## Installation and commissioning

Switch on the mains voltage once the device has been correctly installed.

The green “ON” LED lights up.  
All the other LEDs are switched off.  
The device is functioning correctly.

# Product datasheet

Specifications



## SpaceLogic KNX BMS IP Gateway BACnet certified

LSS100300

### Main

Range	KNX
Product Or Component Type	Gateway with power supply

### Complementary

Communication Port Protocol	BACnet KNX
[Us] Rated Supply Voltage	24 V DC
Power Consumption In W	2 W 12 W
Led Indicator	LED (green) for CPU load LED (green/red) for KNX powered/reset
Physical Interface	1 x RJ45 1 x TP-UART2
Port Ethernet	10BASE-T/100BASE-TX
Control Type	RESET push-button
Connections - Terminals	KNX bus: bus terminal 1 cable(s) Power supply: 2 screw terminals 1 cable(s) Power supply: screw terminals 1 cable(s)
Mounting Support	DIN rail
Height	90 mm
Width	71 mm
Depth	61 mm

### Environment

Ambient Air Temperature For Operation	0...45 °C
Operating Altitude	<= 2000 m
Relative Humidity	0...93 %
Ip Degree Of Protection	IP20
Standards	IEC 60950-1

### Packing Units

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1
Package 1 Height	8.000 cm
Package 1 Width	12.300 cm

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Package 1 Length	15.700 cm
Package 1 Weight	229.000 g
Unit Type Of Package 2	S03
Number Of Units In Package 2	15
Package 2 Height	30.000 cm
Package 2 Width	30.000 cm
Package 2 Length	40.000 cm
Package 2 Weight	3.871 kg

Sustainability



**Green Premium™ label** is Schneider Electric’s commitment to delivering products with best-in-class environmental performance. Green Premium promises compliance with the latest regulations, transparency on environmental impacts, as well as circular and low-CO<sub>2</sub> products.

**Guide to assessing product sustainability** is a white paper that clarifies global eco-label standards and how to interpret environmental declarations.




[Learn more about Green Premium >](#)

[Guide to assess a product’s sustainability >](#)



Transparency   RoHS/REACH

## Well-being performance

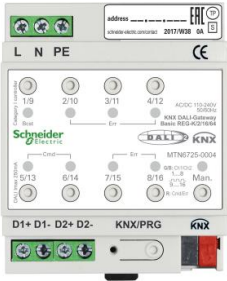
 Reach Free Of Svhc	
 Mercury Free	
 Rohs Exemption Information	Yes

## Certifications & Standards

Reach Regulation	<a href="#">REACH Declaration</a>
Eu Rohs Directive	Compliant <a href="#">EU RoHS Declaration</a>
China Rohs Regulation	<a href="#">China RoHS declaration</a> Pro-active China RoHS declaration (out of China RoHS legal scope)
Environmental Disclosure	<a href="#">Product Environmental Profile</a>
Circularity Profile	<a href="#">End of Life Information</a>

# Product datasheet

Specifications



## KNX DALI-Gateway Basic REG-K/2/16/64

MTN6725-0004

### Main

Range Of Produc	KNX
Product Or Component Type	KNX DALI gateway
Bus Type	KNX
Function Available	Updateable software

### Complementary

Total Number Of 18 Mm Modules	4
Mounting Support	DIN rail
[Ue] Rated Operational Voltage	100...240 V
Network Frequency	50/60 Hz
Communication Port Protocol	DALI
Local Signalling	LED

### Environment

Ip Degree Of Protection	IP20
-------------------------	------

### Packing Units

Unit Type Of Package 1	PCE
Number Of Units In Package 1	1
Package 1 Height	8.200 cm
Package 1 Width	13.300 cm
Package 1 Length	15.900 cm
Package 1 Weight	228.000 g
Unit Type Of Package 2	S04
Number Of Units In Package 2	28
Package 2 Height	30.000 cm
Package 2 Width	40.000 cm
Package 2 Length	60.000 cm
Package 2 Weight	6.984 kg

Price is "List Price" and may be subject to a trade discount – check with your local distributor or retailer for actual price.

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Sustainability



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[Learn more about Green Premium >](#)

[Guide to assess a product’s sustainability >](#)



Transparency   RoHS/REACH

Well-being performance

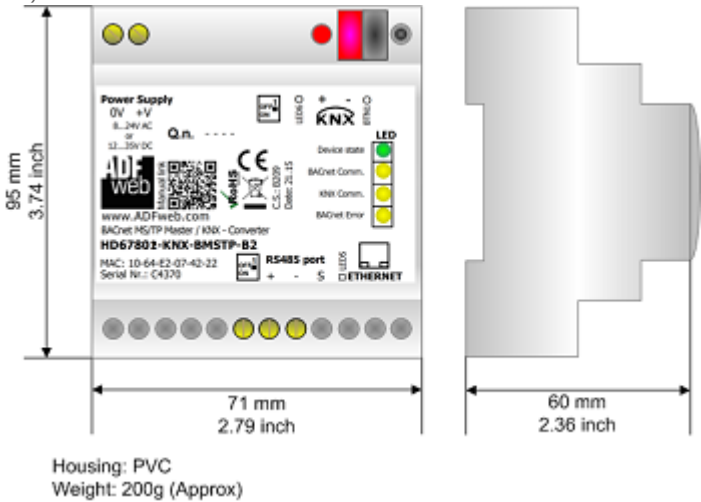
✓ Toxic Heavy Metal Free	
✓ Mercury Free	
✓ Rohs Exemption Information	Yes

Certifications & Standards

Reach Regulation	<a href="#">REACH Declaration</a>
Eu Rohs Directive	Compliant <a href="#">EU RoHS Declaration</a>
China Rohs Regulation	<a href="#">China RoHS declaration</a> Pro-active China RoHS declaration (out of China RoHS legal scope)
Environmental Disclosure	<a href="#">Product Environmental Profile</a>
Weee	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
Circularity Profile	<a href="#">End of Life Information</a>

**HD67813-KNX-485-B2**  
**Modbus 485 slave/ KNX - Converter**  
( Housing type: B, Terminal Blocks Connectors )

[▶ Prices and Shipping info](#)



Specifications:	
Ports:	1xKNX; 1xRS485
KNX protocol	KNX TP
Modbus protocol	Modbus 485 slave
Data Rates KNX	9600 bit/s
Data Rates Modbus	Up to 115200 bit/s
KNX connector	KNX Bus connector
Modbus connector	3way 5mm terminal block
Power supply	8..24V AC; 12..35V DC
Power supply connector	2way 5mm terminal block
Operating temperature	-40° to +85° (-40°F to +185°F)
Dimensions	71x60x95 (DxWxH)
Weight	200g approx
Mechanical fixing	35mm DIN Rail montage
Software	SW67813
ORDER CODE:	HD67813-KNX-485-B2

[<<< Back](#)

[www.adfweb.com](http://www.adfweb.com)



The IP Interface 2.1 is a modular installation device (MDRC) and forms the interface between KNX installations and IP networks. It utilises the local network (LAN) for fast exchange of telegrams.

KNX devices can be programmed via the LAN using ETS 3.0. The device uses the KNXnet/IP protocol from the KNX Association (Tunnelling).

The IP address can be fixed or can be received from a DHCP server.

The power supply range is from 10 to 30 V DC.

### Technical data

<b>Supply</b>	Supply voltage $U_s$	10...30 V DC via plug-in terminal Ripple: < 5 %
	Power consumption	Maximum 1.9 W at 10 V
	Current consumption	Maximum 190 mA at 10 V
	Leakage loss	Maximum 1.9 W at 10 V
	Rated voltage $U_n$	12 V DC
	Rated current $I_n$	145 mA at 12 V
	Current consumption KNX	From KNX < 10 mA
<b>Connections</b>	KNX	Bus connection terminal
	Plug-in terminal for operating voltage	Plug-in terminal
	LAN	RJ45 socket for 10/100BaseT, IEEE 802.3 networks, AutoSensing
<b>Operating and display elements</b>	LED red and button	For assignment of the physical address
	LED green	Operating mode display
	LED yellow	Network connection indicator
		KNX telegram traffic indicator
<b>Enclosure</b>	IP 20	to DIN EN 60529
<b>Safety class</b>	II	to DIN EN 61140
<b>Isolation category</b>	Overvoltage category	III to DIN EN 60664-1
	Pollution degree	2 to DIN EN 60664-1
<b>KNX safety extra low voltage</b>	SELV 24 V DC	
<b>Temperature range</b>	Operation	0 °C...+45 °C
	Storage	-25 °C...+55 °C
	Transport	-25 °C...+70 °C
<b>Ambient conditions</b>	Maximum air humidity	93 %, no condensation allowed
<b>Design</b>	Modular installation device (MDRC)	Modular installation device, ProM
	Dimensions	90 x 36 x 64 mm (H x W x D)
	Mounting width	2 modules at 18 mm
	Mounting depth	68 mm
<b>Installation</b>	On 35 mm mounting rail	to DIN EN 60 715

Mounting position	as required
Weight	0.100 kg
Housing, colour	Plastic housing, grey
Approvals	KNX to EN 50 090-1, -2
CE mark	in accordance with the EMC guideline and low voltage guideline

Application program	Maximum number of communication objects	Maximum number of group addresses	Maximum number of associations
IP Interface	0	0	0

**Note**

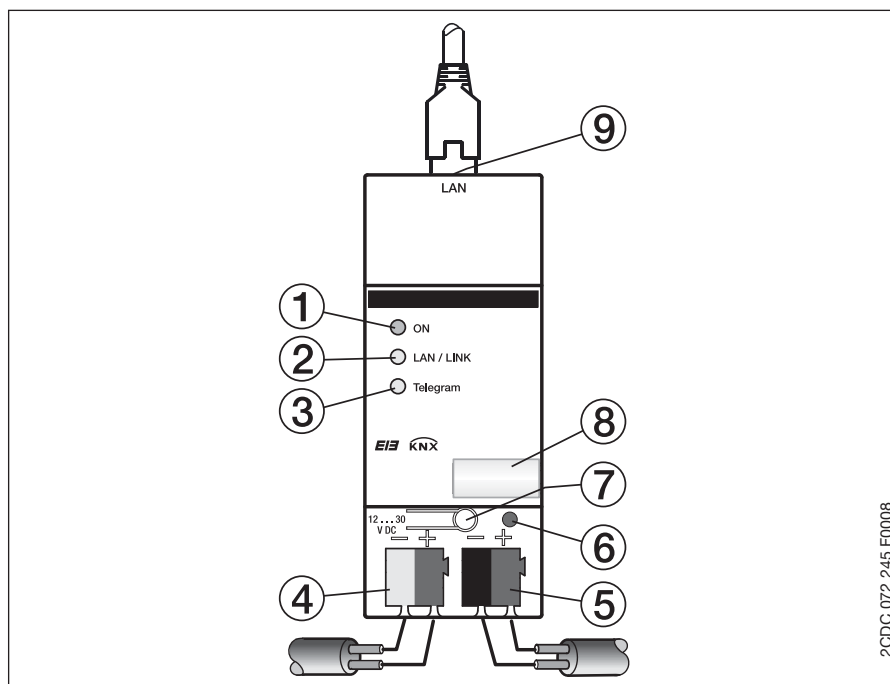
For a detailed description of the application program see “IP Interface IPS/S 2.1” product manual. It is available free-of-charge at [www.ABB.de/KNX](http://www.ABB.de/KNX).

The programming requires EIB Software Tool ETS3 V3.0e or higher.

If ETS3 is used a \*.VD3 or higher type file must be imported. The application program is available in the ETS3 at ABB/System devices/Interfaces.

The device does not support the closing function of a project or the KNX device in the ETS. If you inhibit access to all devices of the project with a *BCU code* (ETS3), it has no effect on this device. Data can still be read and programmed.

## Circuit diagram

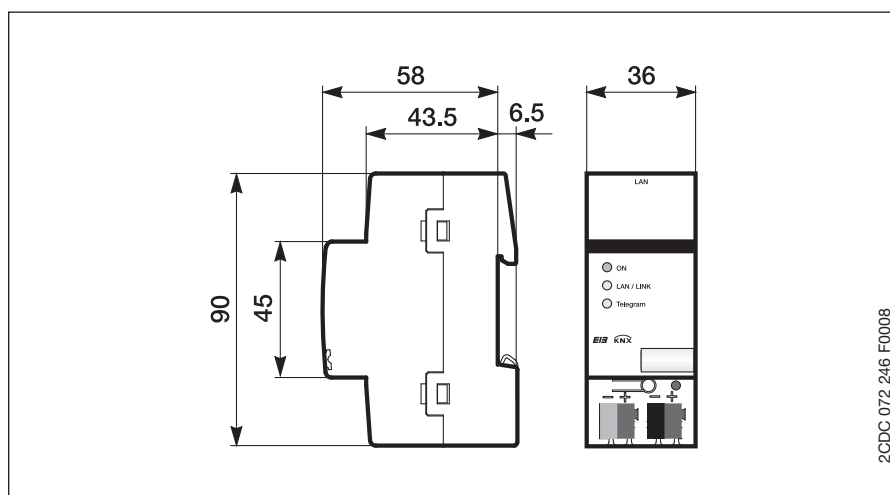


2CDC 072 245 F0008

- 1 LED ON
- 2 LED LAN/LINK
- 3 LED telegram
- 4 Supply voltage connection
- 5 KNX connection

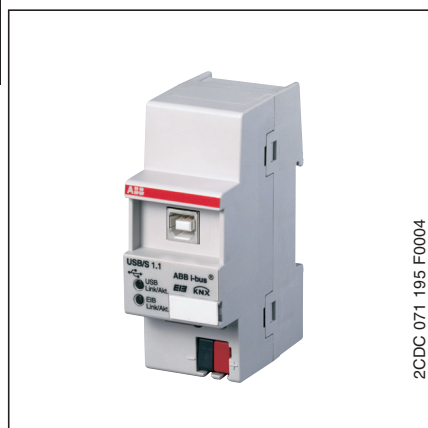
- 6 Programming LED
- 7 Programming button
- 8 Label carrier
- 9 LAN connection

## Dimension drawing



2CDC 072 246 F0008

This image shows a full page of blank graph paper. The grid consists of small, uniform squares formed by thin, light gray lines. There are no margins, text, or other markings on the page.



The USB interface USB/S 1.1 enables communication between the PC and the EIB installation. The data transfer is indicated by the EIB LED and the USB LED.

The USB interface can be used from ETS 3 V1.0 onwards.

The USB interface is simply connected to the ABB i-bus® and then connected to the USB. The USB interface is automatically detected under the PC operating system and installed.

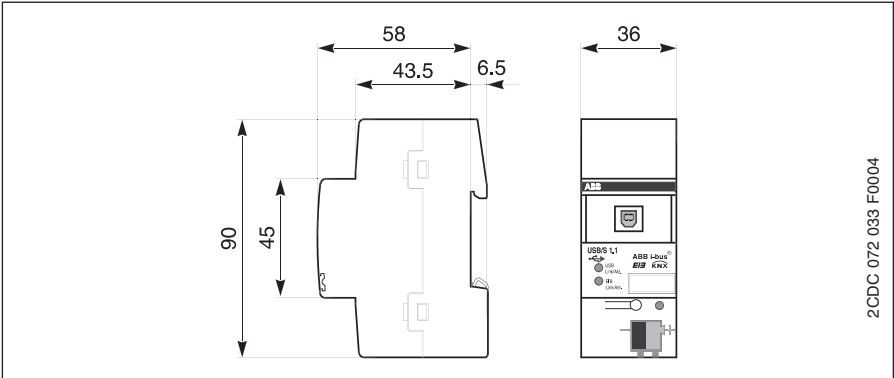
The ABB i-bus® connection is carried out at the front of the device via the bus connecting terminal supplied. The connection to the USB is likewise carried out at the front of the device.

## Technical Data

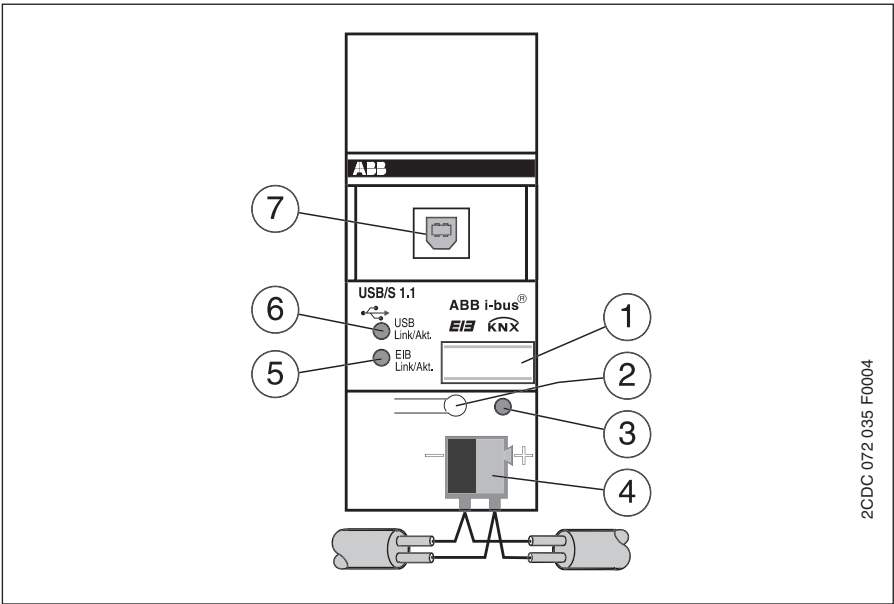
<b>Operating voltage</b>	– ABB i-bus® EIB / KNX	typically 30 V DC (21 ... 32 V DC)
	– Max. power consumption from the ABB i-bus® EIB / KNX	12 mA at 20 V
	– Max. leakage loss of the ABB i-bus® EIB / KNX	240 mW
	– USB voltage	5 V DC
	– Max. power consumption from the USB	60 mA
	– Max. leakage loss of the USB	300 mW
	– Max. total leakage loss (ABB i-bus® EIB / KNX and USB)	540 mW
<b>Interface</b>	– USB	USB standard 1.1
<b>Operating and display elements</b>	– Programming LED	for assignment of the phys. address
	– Programming button	for assignment of the phys. address
<b>Connections</b>	– ABB i-bus® EIB / KNX	via bus connecting terminal, screwless
	– USB	via USB socket type B, max. cable length 5m (standard)
<b>Temperature range</b>	– Operation	0 °C ... + 45 °C
	– Storage	– 25 °C ... + 55 °C
	– Transport	– 25 °C ... + 70 °C
<b>Type of protection</b>	– IP 20	DIN EN 60 529
<b>Protection class</b>	– Class II	
<b>CE norm</b>	– in accordance with EMC and low voltage guidelines	
<b>Certification</b>	– EIB / KNX	Certificate
<b>Installation</b>	– on 35 mm mounting rail	DIN EN 60 715
<b>Dimensions</b>	– 90 x 36 x 64.5	(H x W x D)
<b>Mounting depth</b>	– 64.5 mm	
<b>Width in modules</b>	– 2	2 modules at 18 mm
<b>Weight</b>	– 0.09 kg	
<b>Housing</b>	– Plastic	
<b>Housing colour</b>	– grey	
<b>Model</b>	– Modular installation device	
<b>Device type</b>	– Modular DIN rail mounted device	MDRC
<b>Design</b>	– System pro M	

2	Application programs	Number of communication objects	Max. number of group addresses	Max. number of associations	2
	USB Interface /1	0	0	0	

Dimension drawing



Circuit diagram



- 1 Label carrier

2 Programming button

3 Programming LED

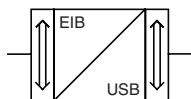
4 Bus connecting terminal
- 5 EIB LED

6 USB LED

7 USB socket

## 2

## USB Interface /1



## Selection in ETS2

- ABB
  - └ Communication
    - └ USB

## Commissioning requirements

The USB interface USB/S 1.1 functions under the following operating systems: Microsoft Windows 98, NT, 2000, ME, XP-Professional and XP-Home.

With Microsoft Windows 98, it should be noted when the USB interface is connected that the file HIDDEV.INF must be installed in the directory Windows/INF with the hardware assistant of Microsoft Windows.

The interface is fully functional on an active hub with an external power supply. It does not function on a passive hub without an external power supply as the device is supplied both from the USB and the ABB i-bus®.

After booting up the PC and starting the ETS 3 program, the USB interface is first connected to the ABB i-bus® and then to the USB.

## Application description

**No** application program is required for the operation of the USB/S 1.1.

For documentation purposes, ETS 3 contains a dummy application. This application can be imported as usual in ETS 3. A note appears on the first parameter page stating that it is only a dummy application.

There are no parameters or communication objects.

The physical address can be set both locally and via the ABB i-bus®.

## Display

The EIB LED lights up as soon as the ABB i-bus® device is connected and ready for operation. It flashes as soon as telegram traffic takes place on the ABB i-bus®.

The USB LED lights up as soon as the ABB i-bus® and USB device are connected and ready for operation. It flashes as soon as telegram traffic takes place between the USB and ABB i-bus®.

## 2





The 8-fold Binary Input BE/S 8.20.2.1 with manual operation is a modular installation device for installation in distribution boards. The device is suitable for detection of floating contacts. The pulsed scanning voltage is generated internally.

Buttons for manual operation, which can be used to simulate the input state are located on the front. The current status of the inputs is indicated via yellow LEDs.

The device is ready for operation after connecting the bus voltage. The Binary Input is parameterized via ETS. The connection to the KNX is implemented using the bus connection terminal on the front.

## Technical data

5	<b>Supply</b>	Bus voltage	21...32 V DC
		Current consumption, bus	Maximum 7 mA
		Power consumption, Bus	Maximum 150 mW
		Leakage loss, bus	Maximum 150 mW
5	<b>Inputs</b>	Number	8
		Scanning voltage $U_n$	35 V, pulsed
		Scanning current $I_n$	0.1 mA
		Scanning current $I_n$ at switch on	Maximum 355 mA
		Permissible cable length	Maximum 100 m at 1.5 mm <sup>2</sup>
	<b>Connections</b>	KNX	Via bus connection terminals
		Inputs	Via universal head screw terminals (PZ 1)
	<b>Bus connection terminals</b>	Screw terminal	Screw terminals with universal head (PZ 1) 0.2...4 mm <sup>2</sup> stranded, 2 x (0.2...2.5 mm <sup>2</sup> ) 0.2...6 mm <sup>2</sup> single core, 2 x (0.2...4 mm <sup>2</sup> )
		Ferrules without/with plastic sleeves	without: 0.25...2.5 mm <sup>2</sup> with: 0.25...4 mm <sup>2</sup>
		TWIN ferrules	0.5...2.5 mm <sup>2</sup>
		Tightening torque	Maximum 0.8 Nm
		Grid	6.35
	<b>Operating and display elements</b>	Programming Button	For assignment of the physical address
		Programming LED	
		Button  /LED	For toggling between manual operation/operation via ABB i-bus® and displays
		Button  /LED	For switching and display
		(applies for all binary inputs, A...H)	
	<b>Enclosure</b>	IP 20	To DIN EN 60 529
	<b>Safety class</b>	II	To DIN EN 61 140
	<b>Isolation category</b>	Overvoltage category	III to DIN EN 60 664-1
		Pollution degree	2 to DIN EN 60 664-1
	<b>KNX safety extra low voltage</b>	SELV 24 V DC	
	<b>Temperature range</b>	Operation	-5 °C...+45 °C
		Storage	-25 °C...+55 °C
		Transport	-25 °C...+70 °C
	<b>Ambient conditions</b>	Maximum air humidity	93 %, no condensation allowed

Design	Modular installation device (MDRC)	Modular installation device, Pro M
	Dimensions	90 x 72 x 67.5 mm (H x W x D)
	Mounting width in space units	4 modules at 18 mm
	Mounting depth	67.5 mm
Installation	On 35 mm mounting rail	To DIN EN 60 715
Mounting position	As required	
Weight	0.2 kg	
Housing/colour	Plastic housing, grey	
Approvals	KNX to EN 50 090-1, -2	Certification
CE mark	In accordance with the EMC guideline and low voltage guideline	

Device type	Application program	Maximum number of communication objects	Maximum number of group addresses	Maximum number of associations
BE/S 8.20.2.1	Binary 8f 2021/...*	83	254	254
* ... = current version number of the application program				

Note

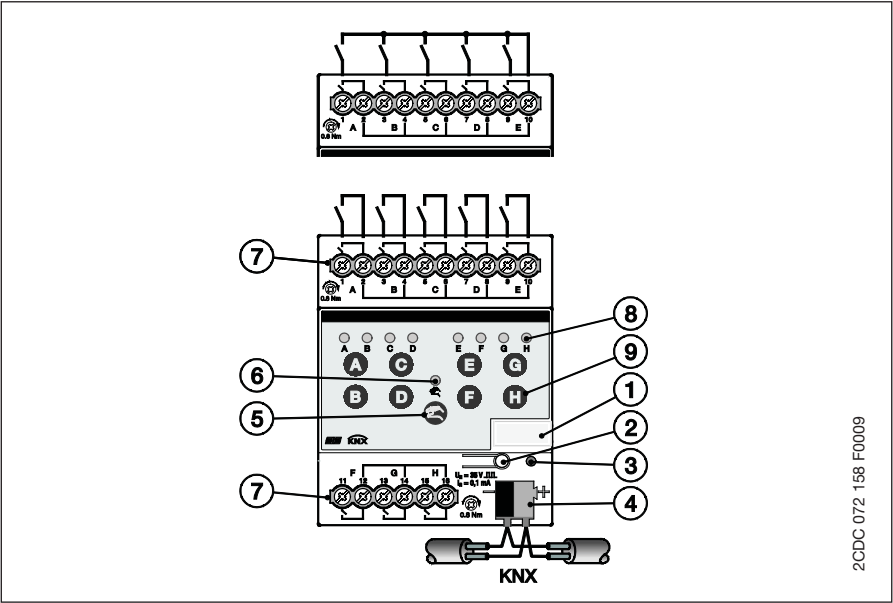
For a detailed description of the application program see „Binary Inputs“ product manual.  
It is available free-of-charge at [www.ABB.de/KNX](http://www.ABB.de/KNX).

The ETS and the current version of the device application program are required for programming.

The current version of the application program is available for download on the Internet at [www.abb.com/knx](http://www.abb.com/knx). After import it is available in the ETS under *ABB/Input/Binary input 8-fold*.

The device does not support the closing function of a KNX device in the ETS. If you inhibit access to all devices of the project with a BCU code, it has no effect on this device. Data can still be read and programmed.

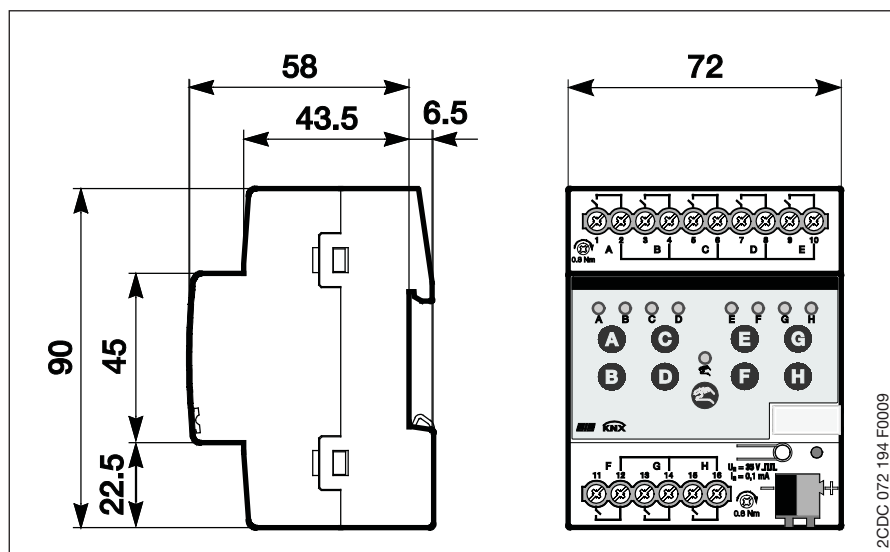
Circuit diagram  
BE/S 8.20.2.1



- |                           |                        |
|---------------------------|------------------------|
| 1 Label carrier           | 6 Manual operation LED |
| 2 Programming button      | 7 Connection terminals |
| 3 Programming LED         | 8 Binary input LED     |
| 4 Bus connection terminal | 9 Binary input button  |
| 5 Manual operation button |                        |

**Note**

An external voltage connection to Binary Input BE/S 8.20.2.1 is not allowed.  
Terminals 2, 4, 6, 8, 10, 12, 14 and 16 are internally interconnected.

Dimension drawing  
BE/S 8.20.2.1

## ABB i-bus® KNX

Switch Actuator, x-fold, 10 A, MDRC

SA/S x.10.2.1, 2CDG11015xR0011



SA/S 8.10.2.1

### Product description

Switch Actuators SA/S x.6.2.1, 10 A are modular installation devices in ProM design for installation in the distribution board. They are suitable for switching resistive, inductive and capacitive loads as well as fluorescent lamp loads (AX) to EN 60 669.

The Switch Actuator can be actuated manually using a button. This simultaneously indicates the contact position.

The Switch Actuators can switch up to 12 independent electrical loads via floating contacts. The connection of the outputs is implemented using combohead screw terminals. Each output is controlled separately via KNX.

The device does not require an additional power supply and is ready for immediate use, after the bus voltage has been applied.

The Switch Actuators are parameterized via ETS. Connection to KNX is implemented using the bus connection terminal on the front.

# ABB i-bus® KNX

## Switch Actuator, x-fold, 10 A, MDRC

### SA/S x.10.2.1, 2CDG11015xR0011

#### Technical data

Supply	KNX bus voltage	21...31 VDC			
	Current consumption via bus	< 12 mA			
	Power consumption via bus	Maximum 250 mW			
Rated output value	SA/S type	2.10.2.1	4.10.2.1	8.10.2.1	12.10.2.1
	Current detection	no	no	no	no
	Number (floating contacts 2/group)	2	4	8	12
	U <sub>n</sub> rated voltage	250/440 V AC (50/60 Hz)			
	I <sub>n</sub> rated current	10 AX	10 AX	10 AX	10 AX
	Leakage loss per device at max. load	1.5 W	2.0 W	2.5 W	6.5 W
Output switching current	AC3 <sup>1)</sup> operation (cos φ = 0.45)	8 A/230 V AC			
	To DIN EN 60 947-4-1				
	AC1 <sup>1)</sup> operation (cos φ = 0.8)	10 A/230 V AC			
	To DIN EN 60 947-4-1				
	Fluorescent lighting load to DIN EN 60 669-1	10 AX/250 V AC (140 µF) <sup>2)</sup>			
	Minimum switching capacity	100 mA/12 V AC 100 mA/24 V AC			
Output service life	DC current switching capacity (resistive load)	10 A/24 V DC			
	Mechanical service life	> 3 x 10 <sup>6</sup>			
	Electrical endurance				
	To DIN IEC 60 947-4-1				
	AC1 <sup>1)</sup> (240 V/cos φ = 0.8)	> 10 <sup>5</sup>			
	AC3 <sup>1)</sup> (240 V/cos φ = 0.45)	> 3 x 10 <sup>4</sup>			
Output switching times <sup>3)</sup>	SA/S type	2.10.2.1	4.10.2.1	8.10.2.1	12.10.2.1
	Maximum output relay position change per minute if all relays are switched simultaneously. The position changes should be distributed equally within the minute.	60	30	15	10
	Maximum output relay position change per minute if only one relay is switched.	120	120	120	120
Connections	KNX	Via bus connection terminals, 0.8 mm Ø, solid			
	Load circuits	Universal head screw terminal (PZ 1) 0.2... 4 mm <sup>2</sup> fine stranded, 2 x 0.2...2.5 mm <sup>2</sup> 0.2... 6 mm <sup>2</sup> solid, 2 x 0.2...4 mm <sup>2</sup>			
	Ferrules without/with plastic sleeves	0.25...2.5/4 mm <sup>2</sup>			
	TWIN ferrules	0.5...2.5 mm <sup>2</sup>			
	Tightening torque	Contact pin length min. 10 mm max. 0.6 Nm			

# ABB i-bus® KNX

## Switch Actuator, x-fold, 10 A, MDRC

### SA/S x.10.2.1, 2CDG11015xR0011

<b>Operating and display elements</b>	Programming button/LED	For assignment of the physical address			
	Contact position display	Relay operator			
<b>Degree of protection</b>	IP 20	To EN 60 529			
<b>Protection class</b>	II	To EN 61 140			
<b>Isolation category</b>	Overvoltage category	III to EN 60 664-1			
	Pollution degree	2 to EN 60 664-1			
<b>KNX safety extra low voltage</b>	SELV 24VDC				
<b>Temperature range</b>	Operation	- 5 °C...+45 °C			
	Storage	-25 °C...+55 °C			
	Transport	-25 °C...+70 °C			
<b>Ambient conditions</b>	Maximum air humidity	95%, no condensation allowed			
<b>Design</b>	Modular installation device (MDRC)	Modular installation device, ProM			
	SA/S type	2.10.2.1	4.10.2.1	8.10.2.1	12.10.2.1
	Dimensions	90 x W x 64.5 mm (H x W x D)			
	Width W in mm	36	72	144	216
	Mounting width in units (18 mm modules)	2	4	8	12
	Mounting depth in mm	64.5	64.5	64.5	64.5
<b>Weight</b>	in kg	0.18	0.29	0.51	0.74
<b>Mounting</b>	On 35 mm mounting rail	To EN 60 715			
<b>Mounting position</b>	as required				
<b>Housing/color</b>	Plastic housing, gray				
<b>Approvals</b>	KNX to EN 50 090-1, -2	Certification			
<b>CE mark</b>	in accordance with the EMC guideline and low voltage guideline				

<sup>1)</sup> Further information concerning electrical endurance to IEC 60 947-4-1 can be found in the Product Manual at: AC1, AC3, AX, C-load specifications.

<sup>2)</sup> The maximum inrush current peak may not be exceeded.

<sup>3)</sup> The specifications apply only after the bus voltage has been applied to the device for at least 30 seconds. Typical relay delay is approx. 20 ms.

# ABB i-bus® KNX

## Switch Actuator, x-fold, 10 A, MDRC

### SA/S x.10.2.1, 2CDG11015xR0011

#### Lamp output load 10 A

<b>Lamps</b>	Incandescent lamp load	2,500 W
<b>Fluorescent lamps T5/T8</b>	Uncorrected	2,500 W
	Parallel compensated	1,500 W
	DUO circuit	1,500 W
<b>Low-voltage halogen lamps</b>	Inductive transformer	1,200 W
	Electronic transformer	1,500 W
	Halogen lamps 230V	2,500 W
<b>Dulux lamp</b>	Uncorrected	1,100 W
	Parallel compensated	1,100 W
<b>Mercury-vapor lamp</b>	Uncorrected	2,000 W
	Parallel compensated	2,000 W
<b>Switching capacity (switching contact)</b>	Maximum peak inrush current $I_p$ (150 µs)	400 A
	Maximum peak inrush current $I_p$ (250 µs)	320 A
	Maximum peak inrush current $I_p$ (600 µs)	200 A
<b>Number of electronic ballasts (T5/T8, single element)<sup>1)</sup></b>	18 W (ABB EVG 1 x 18 SF)	23
	24 W (ABB EVG-T5 1 x 24 CY)	23
	36 W (ABB EVG 1 x 36 CF)	14
	58 W (ABB EVG 1 x 58 CF)	11
	80 W (Helvar EL 1 x 80 SC)	10

<sup>1)</sup> For multiple element lamps or other types, the number of electronic ballasts must be determined using the peak inrush current of the electronic ballasts, see the Product Manual: Ballast calculation.

Device type	Application program	Maximum number of communication objects	Maximum number of group addresses	Maximum number of associations
<b>SA/S 2.10.2.1</b>	Switch 2f 10A/...*	34	254	254
<b>SA/S 4.10.2.1</b>	Switch 4f 10A/...*	64	254	254
<b>SA/S 8.10.2.1</b>	Switch 8f 10A/...*	124	254	254
<b>SA/S 12.10.2.1</b>	Switch 12f 10A/...*	184	254	254

\* ... = current version number of the application program. **Please observe the software information on our homepage for this purpose..**

#### Note

For a detailed description of the application program see “SA/S Switch Actuators” product manual. It is available free-of-charge at [www.abb.com/knx](http://www.abb.com/knx).

The ETS and the current version of the device application program are required for programming.

The current application program can be found with the respective software information for download on the Internet at [www.abb.com/knx](http://www.abb.com/knx). After import into ETS it appears in the *Catalogs* window under *Manufacturers/ABB/Output/Binary output xf 10A/...\** (x = 2, 4, 8 or 12).

The device does not support the locking function of a KNX device in the ETS. If you inhibit access to all devices of the project with a *BCU* code, it has no effect on this device. Data can still be read and programmed.

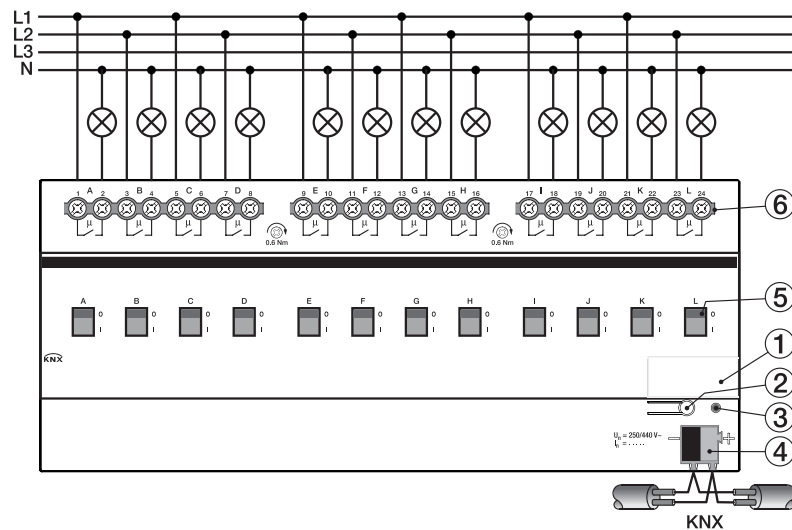
# ABB i-bus® KNX

## Switch Actuator, x-fold, 10 A, MDRC

### SA/S x.10.2.1, 2CDG11015xR0011

#### Connection schematic

#### SA/S 12.10.2.1



2CDC072086F0011

- 1 Label carrier
- 2 Programming button
- 3 Programming LED
- 4 Bus connection terminal
- 5 Contact position display and manual operation
- 6 Load current circuits, for every 2 connection terminals



**Danger**

Touch voltages.

Danger of injury.

Observe all-pole disconnection.

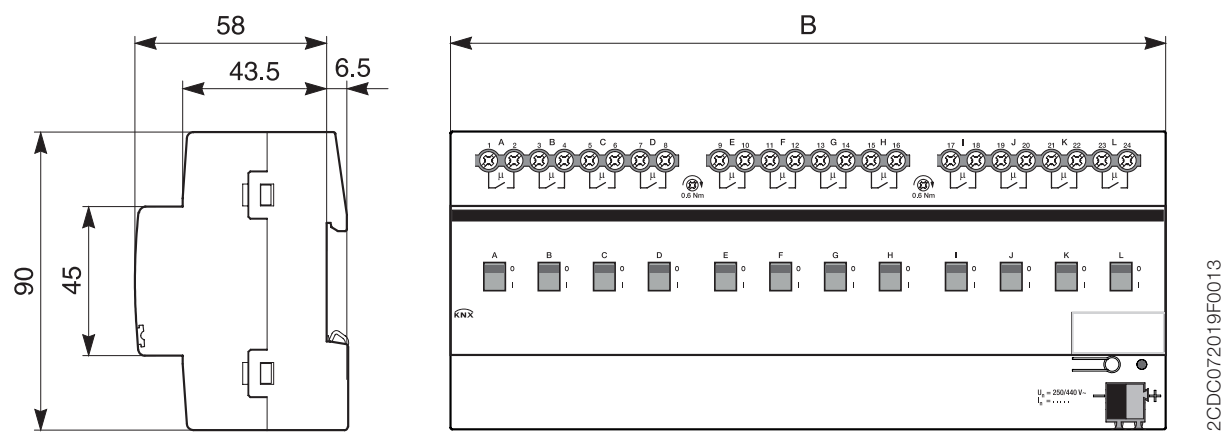
# ABB i-bus® KNX

## Switch Actuator, x-fold, 10 A, MDRC

### SA/S x.10.2.1, 2CDG11015xR0011

#### Dimension drawing

#### SA/S 12.10.2.1



	SA/S 2.10.2.1	SA/S 4.10.2.1	SA/S 8.10.2.1	SA/S 12.10.2.1
Width W	36 mm	72 mm	144 mm	216 mm
Mounting width (18 mm modules)	2 units	4 units	8 units	12 units

ABB i-bus® KNX

Switch Actuator, x-fold, 10 A, MDRC

SA/S x.10.2.1, 2CDG11015xR0011

Notes

# Contact

## **ABB STOTZ-KONTAKT GmbH**

Eppelheimer Straße 82

69123 Heidelberg, Germany

Telefon: +49 (0)6221 701 607

Telefax: +49 (0)6221 701 724

E-Mail: [knx.marketing@de.abb.com](mailto:knx.marketing@de.abb.com)

## **Further information and local contacts:**

**[www.abb.com/knx](http://www.abb.com/knx)**

## **Note:**

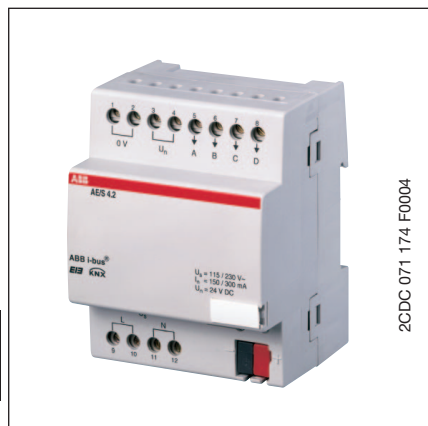
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Analogue Input AE/S 4.2 is used to record analogue data. Four conventional sensors can be connected to AE/S 4.2. The connection to the bus is established using the enclosed bus connection terminal at the front of the device. The device is ready for operation after connecting the mains voltage of 115...230 V AC and the bus voltage. Analogue Input AE/S 4.2 is parameterised using ETS2 V1.3 or higher.

## Technical Data

<b>Power supply</b>	– Bus voltage	21 ... 32 V DC
	– Power input, bus	< 10 mA
	– Mains voltage $U_s$	115 ... 230 V AC (+ 10 % – 15 %), 50/60 Hz
	– Power consumption	Max. 11 W, at 230 V AC
	– Power input, mains	80/40 mA, at 115/230 V AC
	– Leakage loss	Max. 3 W, at 230 V AC
<b>Auxiliary voltage output to supply the sensors</b>	– Nominal voltage $U_n$	24 V DC
	– Nominal current $I_n$	300 mA
<b>Inputs</b>	– Number	4 independent sensor inputs
	– Input signal/resolution/accuracy	0 – 1 V / 1 mV / +/- 2 % of the upper limit of the effective range (of ULE)
		0 – 5 V / 5 mV / +/- 2 % of ULE
		0 – 10 V / 10 mV / +/- 2 % of ULE
		1 – 10 V / 10 mV / +/- 2 % of ULE
		0 – 20 mA / 20 µA / +/- 2 % of ULE
		4 – 20 mA / 20 µA / +/- 2 % of ULE
		0 – 1000 ohm resistance / 2.5 ohm / +/- 2 % of ULE
		PT100 2-conductor technology
		– 30...+ 70 °C / 0.1 K / +/- 1 K of ULE
		PT100 2-conductor technology
		– 200...+ 800 °C / 1.5 K / +/- 10 K of ULE
<b>Connections</b>	Floating contact interrogation (pulse width min. 100 ms)	
	– Input resistance to voltage measurement	> 50 kohm
	– Input resistance to current measurement	260 ohm
<b>Connecting terminals</b>	– EIB / KNX	Via bus connection terminal, screwless
	– Mains voltage	Via screw terminals
	– Supply for the sensors	Via screw terminals
	– Sensor inputs	Via screw terminals
<b>Operating and display elements</b>	– Tightening torque	Max. 0.6 Nm
	– Programming LED	For assigning the physical address
<b>Type of protection</b>	– Programming button	For assigning the physical address
	– IP 20	In accordance with DIN EN 60 529
<b>Protection class</b>	– II	In accordance with DIN EN 61 140

<b>Temperature range</b>	– Operation	– 5 °C ... + 45 °C
	– Storage	– 25 °C ... + 55 °C
	– Transport	– 25 °C ... + 70 °C
<b>Design</b>	– DIN rail mounted device (MDRC)	Modular installation device, ProM
	– Dimensions	90 x 72 x 64.5 mm (H x W x D)
	– Mounting width in modules	4, 4 modules at 18 mm
	– Mounting depth	64.5 mm
<b>Installation</b>	– On 35 mm mounting rail	In accordance with DIN EN 60 715
<b>Mounting position</b>	– As required	
<b>Weight</b>	– 0.2 kg	
<b>Housing / colour</b>	– Plastic, grey	
<b>Certification</b>	– EIB / KNX in accordance with EN 50 090-1, -2	Certificate
<b>CE mark</b>	– In accordance with EMC and low-voltage guidelines	

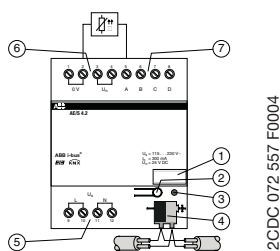
Application program	Number of communication objects	Max. number of group addresses	Max. number of assignments
Threshold value measurement/1	42	100	100

**Note**

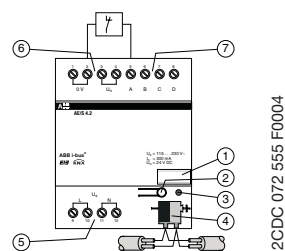
ETS2 V 1.3 or higher is required for programming. When using ETS3, a file of type “.VD3” must be imported. The application program is stored in ETS2/ETS3 under ABB/Input/Analogue Input, 4-fold.

## Circuit diagrams

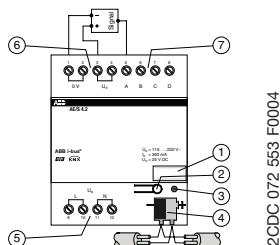
5

Fig. 2: Circuit diagram of a  
PT100 temperature sensor

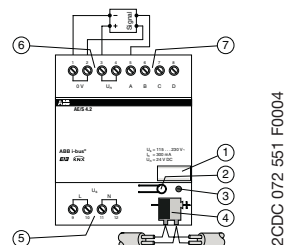
2CDC 072 557 F0004

Fig. 3: Circuit diagram  
of a floating contact

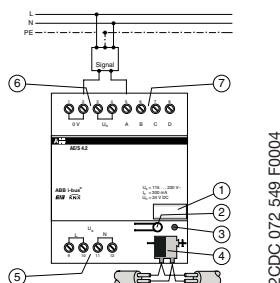
2CDC 072 555 F0004

Fig. 4: Circuit diagram of a  
3-conductor sensor with intrinsic  
supply

2CDC 072 553 F0004

Fig. 5: Circuit diagram of a 4-conductor  
sensor with intrinsic supply

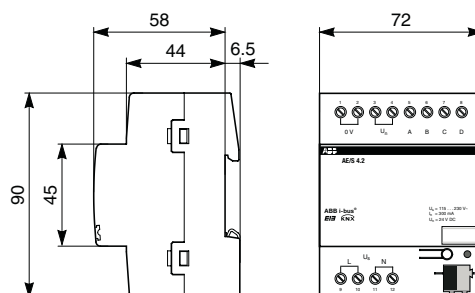
2CDC 072 551 F0004

Fig. 6: Circuit diagram of a sensor with an  
external supply

2CDC 072 549 F0004

- 1 Label carrier
- 2 Programming button
- 3 Programming LED
- 4 Bus connection terminal
- 5 Power supply
- 6 Auxiliary voltage output  
to supply the sensors
- 7 Sensor inputs

## Dimension drawing



2CDC 072 039 F0004

5



# Chave de nível tipo pera Modelo SLS

WIKAL folha de dados LM 32.01



outras aprovações veja  
página 3

## Aplicações

- Plantas de saneamento básico
- Estações de bombeamento

## Características especiais

- Adequado para esgotos, águas residuais e fluidos que contém sólidos em suspensão
- Ecológico, uma vez que é isento de mercúrio e chumbo
- Caixa em PP neutra para águas subterrâneas
- Longa vida útil mecânica e elétrica do contato elétrico
- Também adequado para uso em zonas Ex 0, 1 e 2



Fig. esquerda: Modelo SLS-M2  
Fig. central: Modelo SLS-MS1  
Fig. direita: Modelo SLS-MS1-Ex

## Descrição

Chaves de nível tipo pera são conectadas a um cabo altamente flexível, penduradas por cima e contém um contato elétrico, o qual é envasado e fechado à prova de choques e fraturas, em um sistema de câmara dupla. Quando o corpo do flutuador estiver imerso em líquido, a pera inclina-se e atua o contato elétrico.

Com série do modelo MS1, um peso de estabilização também está embutido, assim esta chave também está adequado para conteúdo com sólidos grandes.

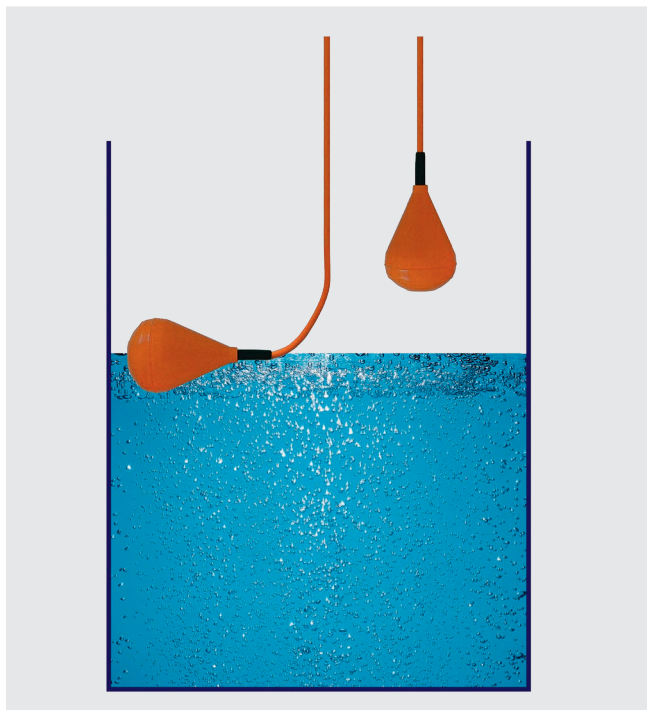
Uma chave de nível tipo pera é necessária para cada ponto de chaveamento. O contato é projetado como contato reversível, assim ele pode ser configurado tanto como alarme alto ou alarme baixo.

Devido o contato elétrico patenteado, montado centralmente, a chave de nível tipo pera pode chavear em qualquer direção, e não depende da direção em qual o contato se inclina.

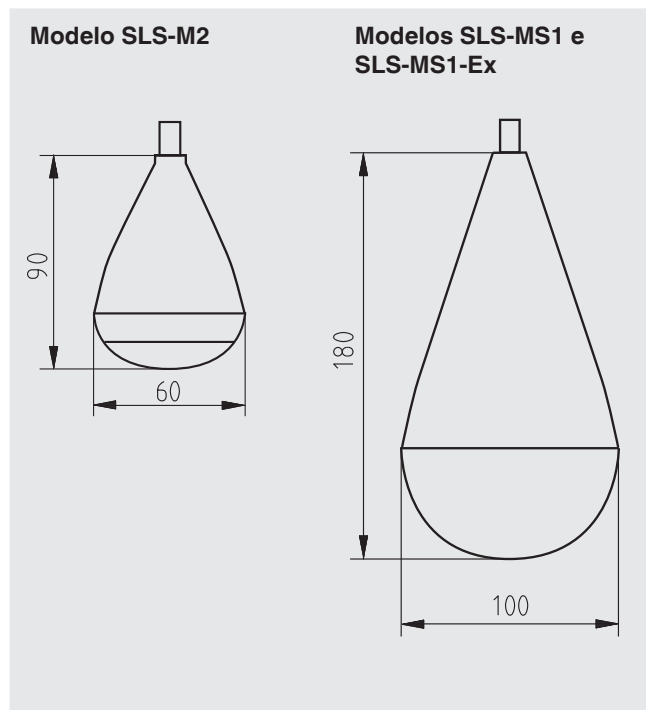
## Especificações

Especificações	Modelo SLS-M2			Modelo SLS-MS1			Modelo SLS-MS1-Ex			Modelo SLS-MS1-UL	
Densidade do meio	950 ... 1.050 kg/m <sup>3</sup>			950 ... 1.050 kg/m <sup>3</sup>			950 ... 1.050 kg/m <sup>3</sup>			952 ... 1.050 kg/m <sup>3</sup>	
Temperatura máxima	80 °C			80 °C			80 °C			60 °C	
Capacidade de medição	2 A, 250 V			5 A, 250 V			1 ... 100 mA, 4 ... 40 V			5 A, 125 V	
Caixa	PP			PP			PP PRE-ELEC (antiestática)			PP UL94 V0	
Cor	Laranja			Laranja			Preto			Preto	
Grau de proteção	IP68			IP68			IP68			IP68	
Cabo	TPK/PVC, laranja			TPK/PVC, laranja			TPK/PVC, azul			SJOW 3/18 AWG	
Seção transversal	3 x 0,5 mm <sup>2</sup>			3 x 0,75 mm <sup>2</sup>			4G 0,75 mm <sup>2</sup>			3/18 AWG	
Comprimento do cabo	5 m	10 m	20 m	5 m	10 m	20 m	5 m	10 m	20 m	15 pés	65 pés
Número de pedido	006109	006110	006111	006115	006116	112391	010924	006119	006121	125290	125291
Aprovação	-			-			SEV 13 ATEX 0102 II 1G Ex ia IIC T6 IECEx SEV 13.0001			cETLus 4004472 UL 508, CSA C22.2	






## Ilustração do princípio



## Dimensões em mm



## Aprovações

Logo	Descrição	País
 	<b>Declaração de conformidade UE</b> <ul style="list-style-type: none"><li>■ Diretiva de baixa tensão</li><li>■ Diretiva RoHS</li><li>■ Diretiva ATEX (apenas modelo SLS-MS1-Ex) Áreas classificadas</li></ul>	União Europeia
 	<b>IECEx (apenas modelo SLS-MS1-Ex)</b> Áreas classificadas	Internacional
 Intertek	<b>ETL (apenas modelo SLS-MS1-UL)</b> Segurança (unidades de controle industrial e inflamabilidade para plásticos) Testado de acordo com a norma UL 94 e UL 508	EUA

Aprovações e certificados, veja o site

### Informações para cotações

Para aquisição do produto, informar apenas o modelo do mesmo é suficiente.

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www.wika.com.br



## ■ Product Description

ULM-1000C is an ultrasonic non-contacting level meter designed sensor and transmitter in one housing. The measurement range is 6 meters, 10 meters. ULM-1000C is two wire loop-powered product and provides the user friendly design so it is very convenience operating and installation. Also simple maintenance expects saving the maintenance costs. The quality optimized for various applications enables you the effective level monitoring and your facilities running safely and reliably.



## ■ Features

- Compact Size
- User Friendly menu
- 5 key buttons for operation
- Built-in temperature compensation sensor
- Two wire loop-powered

## ■ Specification

Dimension	Overall	117(D)×209(H) mm
Process Connection	2" PF	
Weight	Nominal	1.5Kg
Sensor Material	Polypropylene	
IP Rating	IP67	
Temperature	-20℃~70℃ (-4°F~158°F)	

Measuring Range	0.3~6 m (0.98 ~ 19.6ft) 0.3~ 10m(0.98~32.8ft)
Accuracy	0.2% of F.S
Display Resolution	1mm
Beam Angle	8° at -3dB
Damping Rate	Adjustable 0.1m/min to 100m/min
Temperature Compensation	Built-in temperature sensor

Analog Output	4~20mA, 550Ω at DC24V
Display	5 Digit Numeric LCD
Power Supply	DC20~30V
Supply Current	Less than 0.022A

Certification	CE
Warranty	3 years

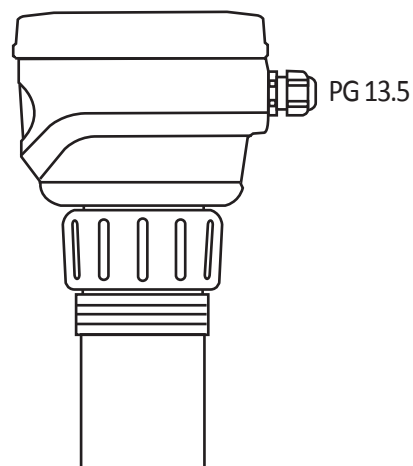
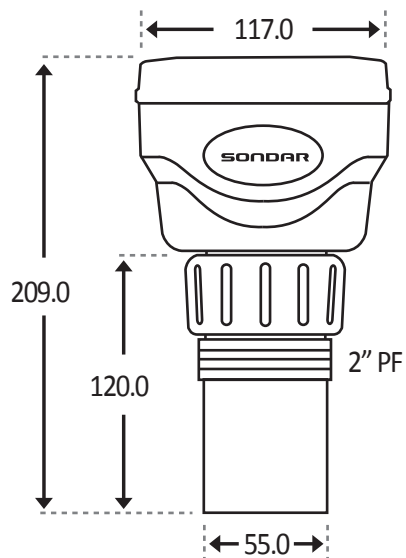
\* The specification is subject to change without the prior notice.

# Ultrasonic Level Meter

## ULM-1000C

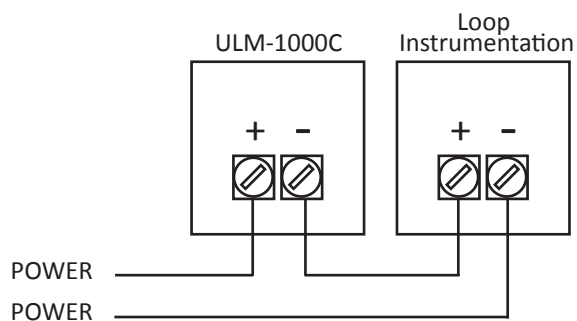
**SONDAR™**

### Dimension



[unit: mm]

### Wiring



### Ordering Code

#### ULM-1000C Ordering Code

##### Range

- 1 06 meters
- 2 10 meters

##### Power Supply

- B DC 20 to 30V

##### Communication

- N none

##### Accessory-Flange

- N none
- 1 80A
- 2 100A
- 3 150A
- 4 200A
- T\* Tailor-made

##### Flange standard

- D DIN
- A ANSI
- J JIS

##### Pipe extension

- N none
- T\* Tailor-made

**ULM10C-**

T\* Specify the exact size.

## L4029E Reset Limit Control

### SPECIFICATION DATA



### FEATURES

- Shuts off the fan when air temperature is indicative of fire
- Internal snap-acting switch actuated by a bimetal strip inserted directly into the air stream responds rapidly to temperature changes
- Requires manual reset

### GENERAL

L4029E Reset Limit Control opens a line or low voltage circuit if the air temperature reaches a critical level at controller location. The primary usage of the L4029E is as a fire thermostat in the ductwork of air conditioning and ventilating systems. If the circulated air reaches a temperature indicative of fire, the limit control shuts off the fan, preventing the fan from contributing to the spread of fire. It is also suitable for use with any warm air furnace to provide positive lockout of the burner in the event of fan failure.



## DESCRIPTION

L4029E Reset Limit Control opens a line or low voltage circuit if the air temperature reaches a critical level at controller location. The primary usage of the L4029E is as a fire thermostat in the ductwork of air conditioning and ventilating systems. If the circulated air reaches a temperature indicative of fire, the limit control shuts off the fan, preventing the fan from contributing to the spread of fire. It is also suitable for use with any warm air furnace to provide positive lockout of the burner in the event of fan failure.

## SPECIFICATIONS

### Model:

L4029E Reset Limit Control with case and cover

### Cutout Setting (Fixed):

To break the circuit at 125, 135, 145, 165, 200, 225, or 240F (52, 57, 63, 73, 93, 107, or 115C)

### Electrical Ratings in Amperes:

	30 Vac	120 Vac	240 Vac
Full Load	2	10	5
Locked Rotor	—	60	30

0.25A full load at 0.25 to 12 Vdc

### Switch Action:

Normally closed spst, opens on temperature rise to setpoint. Switch must be manually reset to resume operation

### Maximum Ambient Temperature:

At switch: 190F (88C)  
At bimetal: 350F (176C)

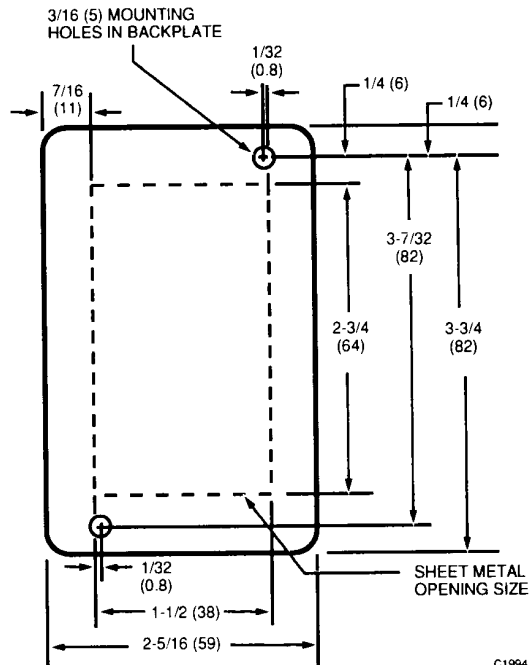
### Manual Reset:

Button through front cover. Must be pressed and released to remake switch after temperature falls approximately 25 degrees below the cutout point.

### Differential:

Manual reset only, after approximately 25F (14K) drop in temperature

### Dimensions in Inches (Millimeters):



### Element Insertion Length:

3 in. (76 mm)

### Mounting Means:

Two screw holes are provided through back of case. May be mounted on a suitable bracket so the air entering the fan is drawn across the element.

### Wiring Knockouts:

Bottom: for 1/2 in. conduit

### Finish:

Smooth gray

### Approvals:

UL File No. MP465, Guide No. MBPR

### Home and Building Control

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P.O. Box 524  
Minneapolis MN 55408-0524

### Honeywell Latin American Division

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### Home and Building Control

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Room 3213-3225  
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Wanchai  
Hong Kong

**Honeywell**

Helping You Control Your World





QMX3.P37    QMX3.P34 / P44 / P74    QMX3.P02    QMX3.P70    QMX3.P30 / P40


Designo™ TRA











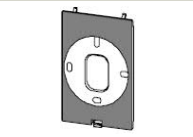


## Wall-mounted sensors and room operator units for KNX PL-Link, KNX S-mode and KNX LTE-Mode

**QMX3.P30**  
**QMX3.P40**  
**QMX3.P70**  
**QMX3.P02**  
**QMX3.P34**  
**QMX3.P44**  
**QMX3.P74**  
**QMX3.P37**

Communicative sensors, switches and room operator units with KNX (S-mode, LTE-Mode) or KNX PL-Link (for Designo™ Total Room Automation)

Functions (depending on type):

- Energy efficiency function ("Green Leaf )
- Room temperature, CO<sub>2</sub>, and humidity measurement
- Control of light, blinds, and scenes
- PID controller for room temperature or ventilation (KNX S-mode)
- LCD Display for room temperature, operating mode, etc.
- Label for light, blinds and scenes (exchangeable, created with Word template)
- Operation via 8 or 16 touchkeys
- Interface KNX (S-mode, LTE-Mode) and KNX PL-Link (for TRA, with plug & play functionality)
- Powered over KNX PL-Link / KNX bus
- LEDs to indicate the switch state or the position of the device in dark rooms

			Product number	Stock number	Features							
					Temperature sensor	Humidity sensor	CO <sub>2</sub> sensor	Air quality indicator with LED	Segmented backlit display and	"Green Leaf" LED	Configurable touch-keys with LED	Window for labels
Sensors			QMX3.P30	S55624-H103	X							
			QMX3.P30-1BSC	S55624-H123								
			QMX3.P40	S55624-H116	X	X						
			QMX3.P40-1BSC	S55624-H124								
			QMX3.P70	S55624-H104	X	X	X	X				
			QMX3.P70-1BSC	S55624-H125								
Room operator units			QMX3.P02	S55624-H107	X						X	X
			QMX3.P02-1BSC	S55624-H128								
			QMX3.P34	S55624-H105	X				X	X		
			QMX3.P34-1BSC	S55624-H126								
			QMX3.P44	S55624-H143	X	X			X	X		
			QMX3.P44-1BSC	S55624-H144								
			QMX3.P74	S55624-H106	X	X	X		X	X		
			QMX3.P74-1BSC	S55624-H127								
			QMX3.P37	S55624-H108	X				X	X	X	X
			QMX3.P37-1BSC	S55624-H129								
Accessories			QMX3.MP1	S55624-H110	Base plate for conduit box / cavity wall box for 68 mm diameter hole 20 pcs. per package							

## Use / compatibility

### Use with KNX PL-Link

The room automation station determines the functions of both LCD display and keys.

- **Measure and indicate** the room temperature, humidity and CO<sub>2</sub>.
- **Operate** the room functions.
- **Indicate external information** (outdoor temp., outdoor humidity, state of a window switch).

### Use with KNX S-mode

#### Measure and indicate

- the room temperature
- the relative humidity
- the CO<sub>2</sub> concentration

#### Control (threshold value switch)

- of the relative humidity
- of the CO<sub>2</sub> concentration

#### Indicate external information

- outdoor temperature
- outdoor humidity
- state of a window switch

#### Control (with a PID controller)

- of the room temperature

**Use with KNX S-mode**  
(continued)

**Switches**

- switching and dimming of lights
- control of blinds
- selecting and saving of scenes

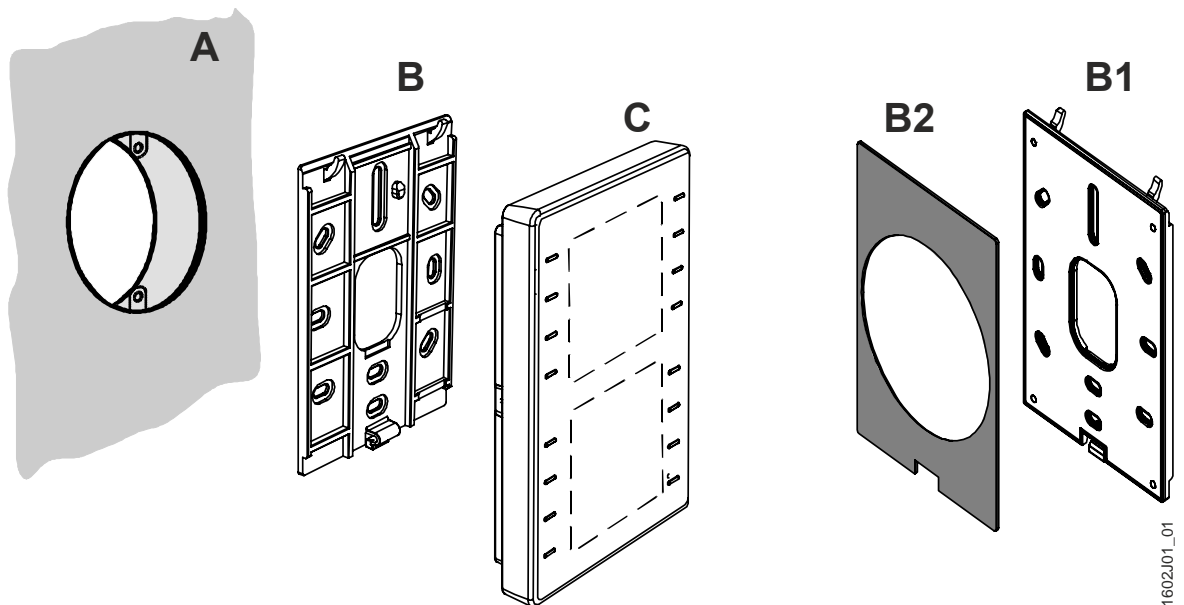
**Use with  
KNX LTE-Mode**

LTE can only use the sensor information of the types QMX3.P30, QMX3.P40, and QMX3.P70.

**NOTICE**

**Devices with CO<sub>2</sub> measurement are not suitable for safety applications such as gas or smoke alarm.**

**Mechanical design**



- The devices are designed for **wall-mounting (A)**. A conduit box is optional.
  - **Conduit box:** Keep in mind the dimensions of the conduit box!
  - **Cable conduits on the wall:** Keep a distance of 30 mm (from above) / 20 mm (from below) to the base plate (**B**), so that the device (**C**) can be snapped onto the base plate.
- The **base plate (B)** has screw holes for all common flush-mount boxes.  
**The screw head height must not exceed 3 mm.**
- The **device (C)** incorporates a KNX / PL-Link plug, a tool plug, and, depending on the type, sensor element, keys, LCD panel, window for the label.  
The cable can be pushed into channels on the rear.
- A KNX plug is enclosed with the devices

The optional metal-reinforced base plate **QMX3.MP1 (B1)** serves for two purposes:

- It is more rigid so that it does not bend when fixed in the middle with two screws only (directly over a conduit box or a cavity wall box).
- It has a removable gray foam plate (**B2**) for mounting on a 68 mm diameter cavity wall box. The plate compensates for the jutting edge of the box (see mounting, page 5).

Note QMX3.MP1 is supplied in boxes with 20 pcs.

### KNX PL-Link

- The room operator units offer plug & play functionality.
- The room operator units receive their power from the connected room automation station via the KNX PL-Link interface.
- KNX PL-Link supports plug & play functionality for pre-configured devices out of the library
- For KNX PL-Link wiring (topology, allowed cables and cable length), see the Desigo installation guide, CM111043.
- Normally, electrical installers only install the base plate and the KNX PL-Link plug.
- Use the tear-off label with the barcode on the packaging / on the display and stick it on the floor plan to prepare commissioning for several room operator units per room automation station.  
The same barcode label with unique identifier is available on the device.

### KNX S-mode

Engineering and commissioning is done using the ETS tool  
For detail information see Technical basics, P1602.

### KNX LTE-Mode

Engineering and commissioning is done using the ACS tool.  
For detail information see Technical basics, P1602.

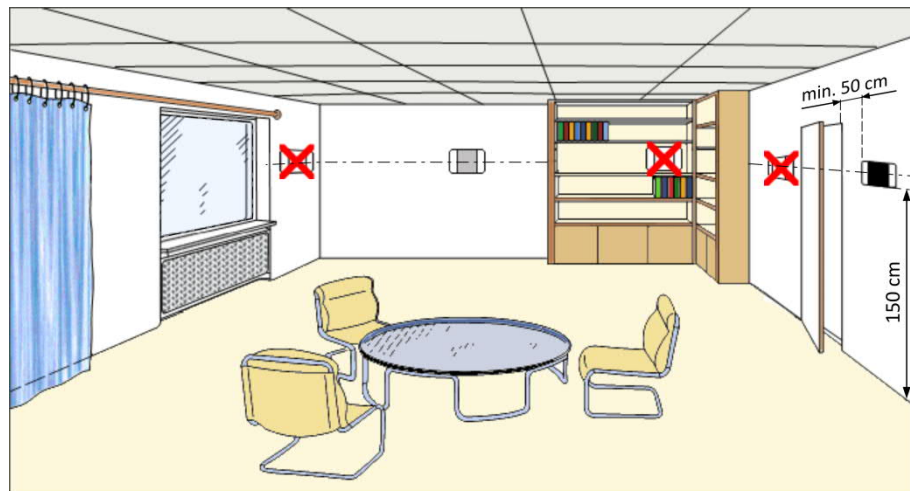
### Labels for switches (QMX3.P02, P37)

- The ABT provides a list of the devices, their function and their location
- Create the labels using a Word template (M1602.1)
- Print the labels on commercially available overhead transparency film
- Cut out the labels
- Insert or exchange the labels as described in the mounting instructions, M1602.

## Mounting and installation

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### Location (sensors, room operator units)

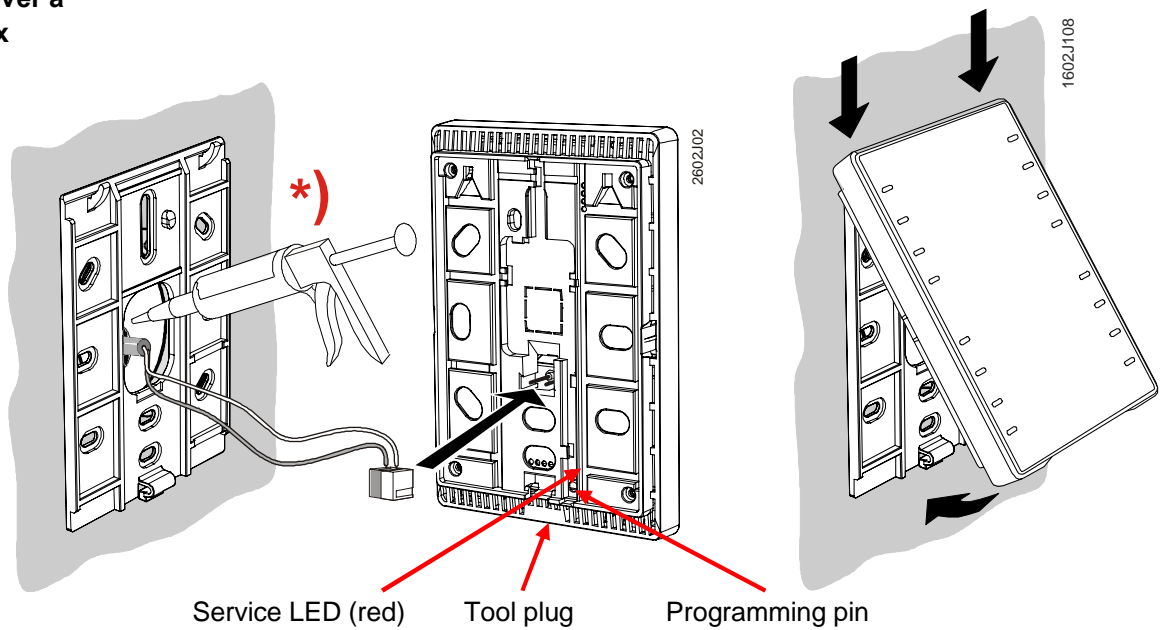


- The devices are suitable for wall mounting.
- Recommended height: 1.50 m above floor.
- Do not mount the devices in recesses, shelves, behind curtains or doors, or above or near heat sources.
- Avoid direct solar radiation and drafts.
- Seal the conduit box or the installation tube, as air currents can affect sensor readings.
- Adhere to allowed ambient conditions.

### Mounting instructions

- Mounting instructions M1602 are enclosed with the devices.

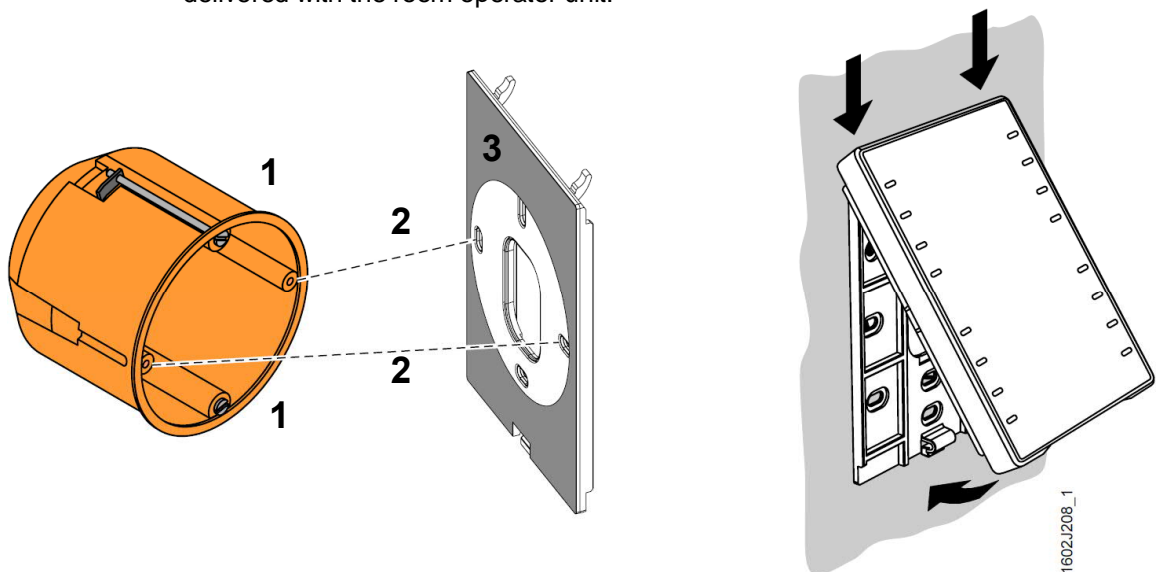
## Mounting over a conduit box



**\*)** The installing tube must be sealed or cold or warm air may enter the device and cause faulty temperature readings by the internal sensor.

## Mounting over a cavity wall box

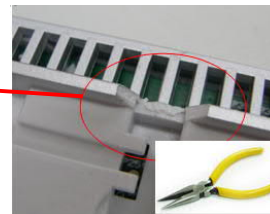
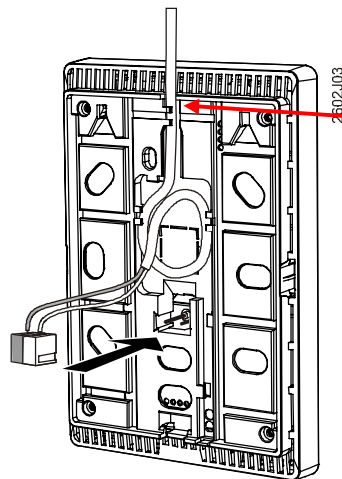
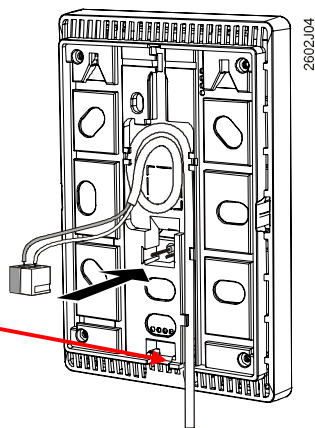
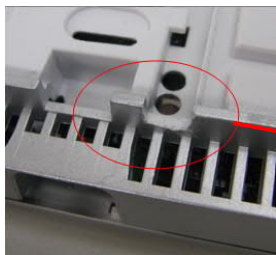
Use a metal-reinforced base plate QMX3.MP1 instead of the standard base plate delivered with the room operator unit.



*The installing tube must be sealed or cold or warm air may enter the device and cause faulty temperature readings by the internal sensor.*

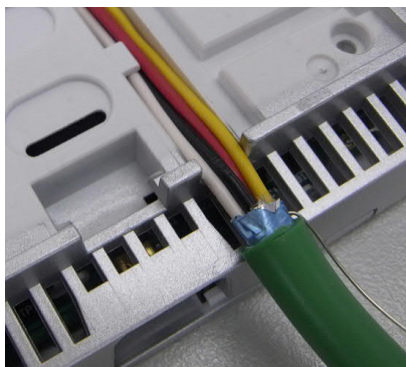
- 1 Fixing the box on the cavity wall.
- 2 Fixing the QMX3.MP1 base plate on the box using 2 screws.
- 3 The gray foam plate (removable) compensates for the jutting edge of the box so that the plate is aligned with the wall.

## Wall mounting



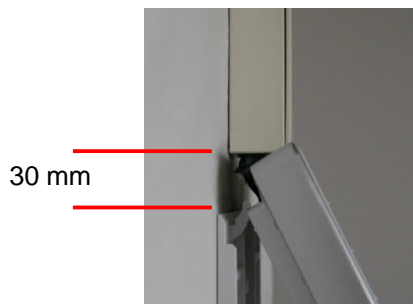
Remove the breakout on the housing before putting the cable into the gaining channel.

## 4-wire cables (daisy chain wiring)



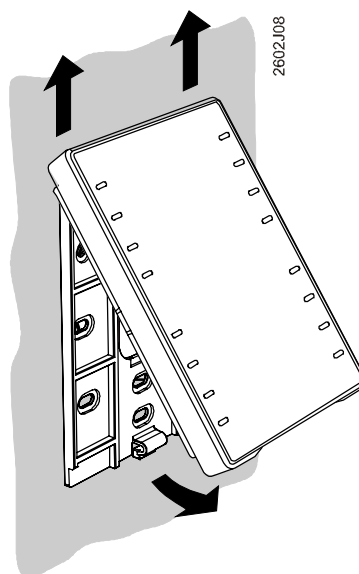
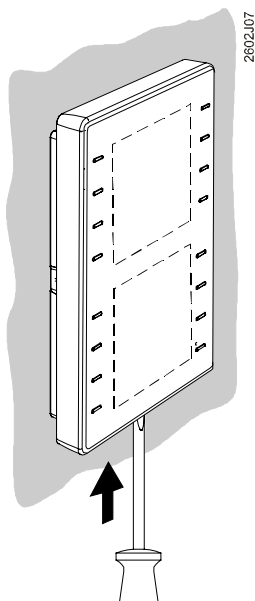
Remove the cable coating, as it will not fit in the gaining channel.

## Cable ducts on the wall

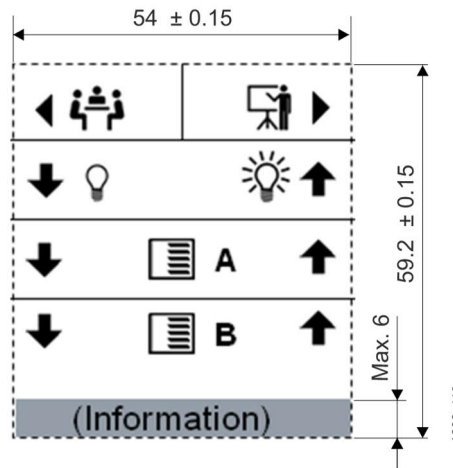


Keep a distance of 30 mm (from above) / 20 mm (from below) to the base plate, so that the device can be snapped onto the base plate.

## Dismounting / service:



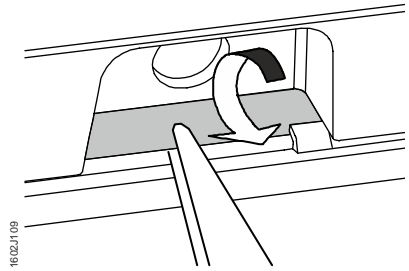
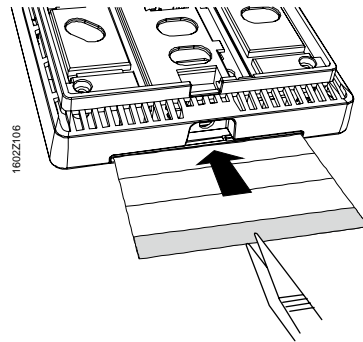
## Labels for QMX3.P02, QMX3.P37



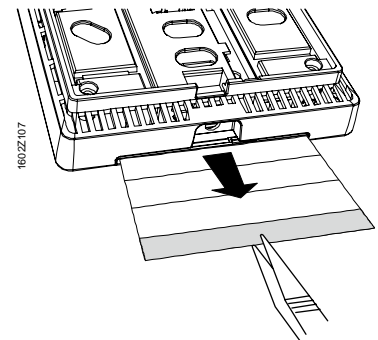
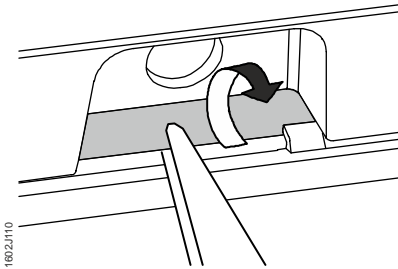
Sample icons are available in the label template M1602.1

Information. e.g. on room operator unit location or on room type (free text)

## Insert label



## Remove label



## Installation

- For KNX PL-Link wiring (topology, allowed cables and cable length), see the Designo TRA installation guide, CM111043.
- Use the correct cables for the KNX PL-Link bus
- Do not interchange the wires of the KNX PL-Link cable.
  - The red terminal is for KNX PL-Link +
  - The gray terminal is for KNX PL-Link –
- For KNX S-mode follow the KNX regulations
- Observe all local installation regulations.



**Caution!**

- **The devices are not protected against accidental connection to AC 230 V.**

## Prerequisite for commissioning (KNX PL-Link)

### Load application on the room automation station

The room automation station must be running and an application must be loaded.


The application is not loaded on the room operator unit, but the room automation station.  
Download of the application is done using the SSA-DNT (Pack & Go) or the ABT.  
For this purpose (or for service), connect the ABT to the room automation station (USB or Ethernet).

## Manual commissioning (KNX PL-Link)

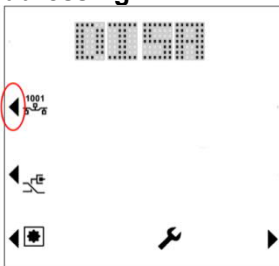
All commissioning work is done via the room automation station, using the SSA-DNT or the ABT.

The ABT is never connected directly to a room operator unit.

When more than one QXM3.P... room operator unit is on the same trunk of the KNX PL-Link bus, manual commissioning is done as follows:

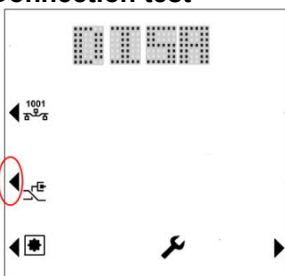
1. Connect the SSA-DNT or the ABT to the room automation station and activate the online commissioning function.
2. Load the web page "KNX PL-Link identification".  
Activate the identification function.  
The room automation station now waits for a signal from the room operator unit.
3. On the room operator unit, simultaneously press the upper left and bottom right button for at least 5 seconds (keys 1 and 8).
4. The "Engineering" page  is displayed.
5. Press "Prog. Mode" (Key 2).  
The display changes from "DISA" to "EnAB".  
The tool identifies the current room operator unit that is operated and assigns it.
6. After the device is commissioned, reset the device to programming mode to "disabled" by pressing key 2.

### Addressing

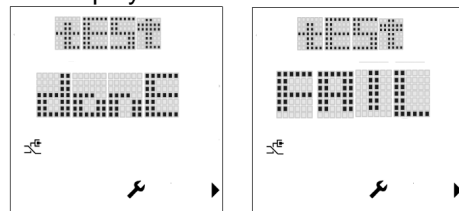


Note: Programming mode resets to "disabled" each time the device restarts.

### Connection test

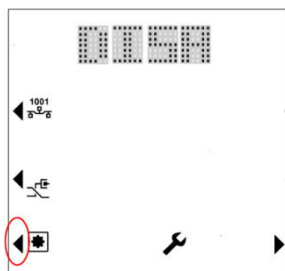


1. Press "Conn. Test" (key 3) to test the KNX PL-Link connection.  
The display shows the result of the connection test:



2. Press key 8 to return to the engineering page.

### Reset to factory setting



Press "Fact. Reset" (Key 4). The device is locked and reboots within 10 seconds.  
The room automation station deletes it from its device list. During this time, it is safe to remove the device from the network.  
If the bus plug remains connected, the device acts like a newly inserted device requiring again automated or manual configuration.



**Note! This operation resets all user preference data and configuration settings to factory default.  
This operation is irreversible.**

The devices are equipped with a programming pin and a red service LED on the back side (see page 4)

### Addressing

1. Short press the programming pin (<0.5 s).  
The device goes into programming mode; the service LED is continuously on. The tool identifies the current room operator unit that is operated and assigns it.
2. After the device is commissioned, deactivate the programming mode by shortly pressing the programming pin (<0.5 s). The service LED goes off.

Note: Programming mode resets to “disabled” each time the device restarts.

### Connection test

1. Medium press the programming pin (>2 s and <20 s) to test the KNX PL-Link connection. After releasing the programming pin, the test of the KNX PL-Link connection starts; the service LED flashes (1/4 s on, 7/4 s off).  
After approx. 10 s, the test result is displayed:
  - If the test is positive, the LED goes on continuously.
  - If the test fails, it flashes (1 s on, 1 s off).
2. Short press the programming pin (<0.5 s) to stop displaying the result of the connection test. The service LED goes off.

### Reset to factory setting

Long press the programming pin (>20 s). The device is locked and reboots within 10 seconds. The room automation station deletes it from its device list. During this time, it is safe to remove the device from the network.

Note: there is no LED activity during this operation.

If the bus plug remains connected, the device acts like a newly inserted device requiring again automated or manual configuration.

#### **NOTICE**

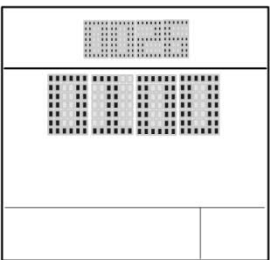
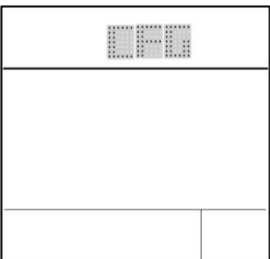
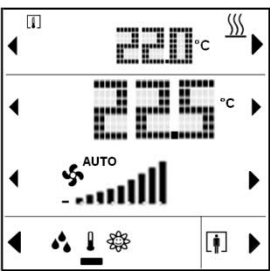

**This operation resets all user preference data and configuration settings to factory default.**

**This operation is irreversible.**

## Commissioning (plug & play, KNX PL-Link)

When **only one device** is connected to the KNX PL-Link bus, the room operator unit automatically establishes communications with the room automation station, from where the functions are downloaded to the room operator unit (plug & play).

The following routine is executed:

Step	With display	Description
1		The Build number and the version number of the device are displayed.
2		<p>The Individual Address (IA) is downloaded to the device via KNX PL-Link.</p> <p>This step is skipped if the device is already configured.</p> <p>Note: The configuration file can be downloaded any time; as a result, these characters are displayed every time the room automation station initializes download.</p>
3a		After startup, the device goes to normal operation (example view; picture depends on application in room automation station).
3b		<p>When configuration is faulty, "UCFG" is displayed, along with the temperature that is measured by the local temperature sensor.</p> <p>In this case, manual commissioning must be performed (see above).</p>

## Commissioning (KNX)

The devices are equipped with a programming pin and a red service LED for KNX commissioning (see page 4).

### Addressing

1. Short press the programming pin (<0.5 s).  
The device goes into programming mode; the service LED is continuously on.  
The tool identifies the current room operator unit that is operated and assigns it.
2. After the device is commissioned, deactivate the programming mode by shortly pressing the programming pin (<0.5 s). The service LED goes off.

Note: Programming mode resets to "disabled" each time the device restarts.

### Reset to factory setting

Long press the programming pin (>20 s). The device is locked and reboots within 10 seconds. The room automation station deletes it from its device list. During this time, it is safe to remove the device from the network.

If the bus plug remains connected, the device acts like a newly inserted device requiring again automated or manual configuration.

#### NOTICE

**This operation resets all user preference data and configuration settings to factory default.**

**This operation is irreversible.**

## Display and operation

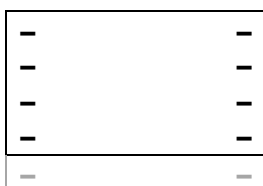
#### NOTICE






**Operation and display of the room operator unit depend on the control program running on the room automation station.**

### Numbering of the keys

1	—	—	5	Keys 1...8 for room operator units
2	—	—	6	
3	—	—	7	
4	—	—	8	
9	—	—	13	Keys 9...16 for switches
10	—	—	14	
11	—	—	15	
12	—	—	16	

### LED display (upper right corner)



-  /  Green Leaf (green, red: Indicates the Energy efficiency (room operator units))
-    green, orange, red: Indicates the air quality (multi sensor QMX3.P70)

### Switches / keys

9	—	—	13
10	—	—	14
11	—	—	15
12	—	—	16

- Each line can be a pair of keys or two separate keys (Light \*), blinds \*\*), scenes \*\*\*)
- Each key is equipped with an LED (green)

\*) Light

- The activity of the LEDs depends on the application running on the room automation station

\*\*) Blinds

- Always dual key operation (Up / Down)
- The activity of the LEDs depends on the application running on the room automation station

\*\*\*) Scenes

- Selecting a predefined scene (short press, <0.5.s). LED is on for 3 s.
- Saving a changed scene (long press > 5s). LED flashes during 3 s. When it goes off, the user can release the key.

## Display layout of room operator units

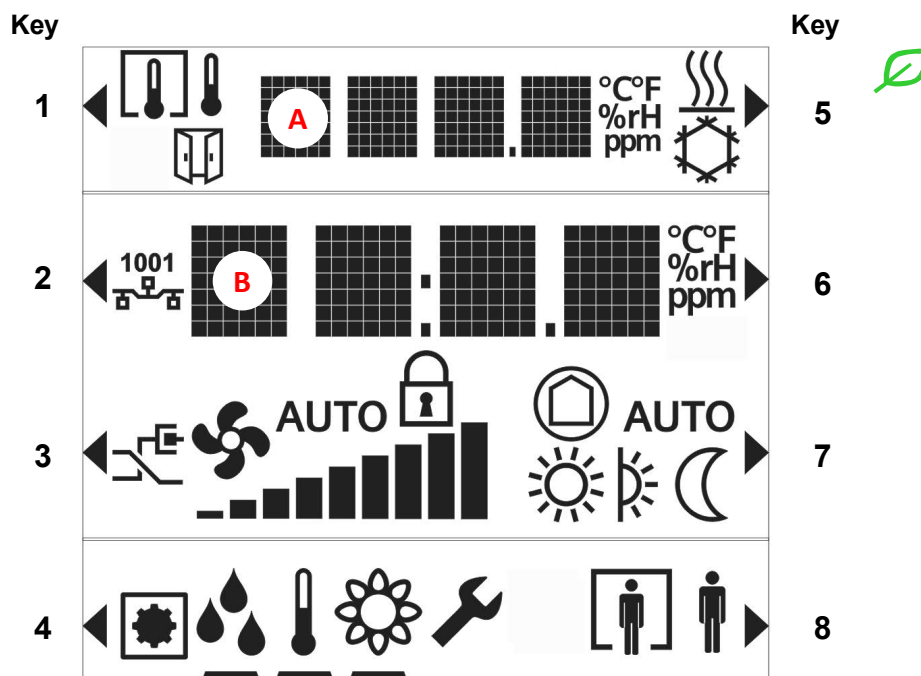
A	
B	
C	
D	E

- A Display (temp., AQ, r.h.)
- B Setpoint adjustment (temperature) \*\*\*\*)
- C Operation (fan, operating mode)
- D Navigation
- E Presence / Comfort prolongation (display, operation)






\*\*\*\*) Setpoint adjustment :

- Absolute value (23.5 °C) or relative value (+2 °C)

## Function of the display elements and keys



	<ul style="list-style-type: none"> <li>• An arrow indicates that an element can be operated</li> </ul>
	<ul style="list-style-type: none"> <li>• Temperature display in °C or °F / humidity in % r.H. / air quality in text, symbol, or ppm of CO<sub>2</sub></li> </ul>
	<ul style="list-style-type: none"> <li>• Toggling (key 1) between indoor and outdoor measurement (temperature, humidity, CO<sub>2</sub>)</li> </ul>
	<ul style="list-style-type: none"> <li>• Indication that a window is open (connected window switch is active)</li> </ul>
	<ul style="list-style-type: none"> <li>• Display of the plant state (Heating or Cooling / inactive)</li> <li>Note: No manual switchover! Key 5 is used for Green Leaf</li> </ul>
	<ul style="list-style-type: none"> <li>• Green Leaf function: Pressing key 5 activates the RoomOptiControl function.</li> </ul>
	<ul style="list-style-type: none"> <li>• Display of the relative or absolute setpoint for temperature</li> <li>• Adjusting the setpoint using keys 2 and 6</li> </ul>
	<ul style="list-style-type: none"> <li>• Display of the present fan speed (when automatic)</li> <li>• Adjusting the fan speed using key 3 (or keys 3 and 7 if operation of room operating mode is disabled)</li> </ul>
	<ul style="list-style-type: none"> <li>• Display of the room operating mode (when automatic)</li> <li>• Adjusting the room operating mode using key 7</li> </ul>
	<ul style="list-style-type: none"> <li>• Navigation: toggle the display / setpoint setting between temperature / humidity / CO<sub>2</sub>, using key 4. The black bar points to the displayed information.</li> </ul>
	<ul style="list-style-type: none"> <li>• Operation of the occupancy state (presence switch, Comfort prolongation)</li> <li>• Activate the Comfort prolongation using key 8 (only available if enabled)</li> </ul>

   	<ul style="list-style-type: none"> <li>Engineering functions (press keys 1 and 8 simultaneously during 5 s) <ul style="list-style-type: none"> <li>– Programming mode (key 2), same function as programming pin</li> <li>– Connection test (Key 3)</li> <li>– Reset device to factory settings (key 4)</li> </ul> </li> </ul> <p><b>Note: This operation is irreversible!</b></p>
	<ul style="list-style-type: none"> <li>Indicates that the room operator unit is locked by the system. <ul style="list-style-type: none"> <li>– Operation is disabled</li> <li>– The display in line 1 shows the temperature from bus</li> </ul> </li> </ul>

## Maintenance

### NOTICE




The device can be cleaned with off-the shelf, solvent-free cleaning agents. Do not use mechanical aids (rough sponge or similar materials) – only a soft, damp cloth.

## Technical data

Supply voltage	Operating voltage range The device receives its power from the connected room automation station via the KNX / PL-Link interface	KNX / PL-Link DC 21...30 V
Power consumption (from room automation station)	QMX3.P02 QMX3.P30 QMX3.P34 QMX3.P44 QMX3.P40 QMX3.P37 QMX3.P70 QMX3.P74	Max 7.5mA at DC 24 V Max 7.5mA at DC 24 V Max 7.5mA at DC 24 V Max 10mA at DC 24 V Max 7.5mA at DC 24 V Max 10mA at DC 24 V Max 15mA at DC 24 V Max 15mA at DC 24 V
Operating data	<div> Temperature sensor (all types) <div> Measuring element  Measuring range  Measuring accuracy (5...30 °C)  Measuring accuracy (25 °C) </div> <div> NTC resistance sensor  0...50 °C  ±0.8 K  ±0.5 K </div> </div> <div> Relative Humidity Sensor (r.h.) (QMX3.P40; QMX3.P44, QMX3.P74; QMX3.P70) <div> Measuring range  Accuracy (20%...80%)  Accuracy (0%...20%, 80%...95%) </div> <div> 10%...95% r.h.  ±4% at 25°C  ±6% at 25°C </div> </div> <div> CO<sub>2</sub> Sensor (QMX3.P74; QMX3.P70) *) <div> Measuring range  Measuring accuracy at 23 °C and 1013 hPa  for measured value 400...2000 ppm  for measured value &gt;2000 ppm  Temperature dependency  Pressure dependency  Long-term drift  Service life </div> <div> 400..10000 ppm  ±(30 ppm +4% of measured value)  degraded accuracy.  ±2 ppm / °C typical  0.14% of measured value / hPa  ±20 ppm per year  15 years </div> </div>	

### \*) Notes on CO<sub>2</sub> sensor

- Function:** The sensor determines the CO<sub>2</sub> concentration via infrared absorption measurement (NDIR). The sensor is maintenance free in normal environments, thanks to the built-in self-correcting ABC (Automatic Baseline Correction) algorithm. This algorithm keeps track of the sensor's lowest reading within 8 days and corrects for any drift detected. The sensor also contains self-diagnostics to assure proper operation during lifetime.
- Use:** Normal environments, such as offices, class rooms, hotel rooms, or other non-permanently occupied areas, typically reach at least once a week the CO<sub>2</sub> concentration of fresh air of 400 ppm. However, exposure to a lowest CO<sub>2</sub> concentration other than fresh air, or incorrect altitude parameter setting, might result in reduced accuracy and incorrect operation.
- Rough handling during **transport, storage or mounting** might adversely affect accuracy during the first days of operation.
- The specified **accuracy** is reached after 25 days of continuous operation.

Display	<b>Type</b> Information displayed depends on the application in the room automation station.	<b>Segment LCD</b> <ul style="list-style-type: none"><li>– Room temperature, humidity, CO<sub>2</sub></li><li>– Setpoint adjustment</li><li>– Control mode</li><li>– Manually selected fan speed</li><li>– Control sequence</li><li>– Scenes (LED next to the button)</li><li>– etc.</li></ul>								
Ports/interfaces	Type of port between room automation station and room operator unit	KNX / PL-Link								
	Baud rate	9.6 kbps								
	Standard KNX plug	Wire diameter0.8 mm, max. 1.0 mm (solid conductors only)								
	Cable type	Solid conductors 2-core, twisted pair								
	Single cable length (from room automation station to room operator unit)	<1000 m								
	Cables must comply with KNX specifications, see TRA Install. manual, CM111043 <sup>*)</sup>									
Housing protection	Protection standard as per EN 60529	IP 30								
Protection class	Insulation protection class	III								
Ambient conditions	IEC 721	Normal operation		Transport						
	Environmental conditions	Class 3K5		Class 2K3						
	Temperature	0...50 °C		– 25...70 °C						
	Humidity	< 85 % rh		< 95 % rh						
	Mechanical conditions	Class 3M2		Class 2M2						
Standards and directives	EU conformity (CE)	CM2T1602xx <sup>*)</sup>								
	 compliance	UL916								
	 compliance	Part 15 of the FCC rules								
	CSA compliance	C22.2 No 205 – Signal equipment C22.2 No 0 – General Requirements								
	 RCM Mark conformity (EMC)	AS/NZS 61000-6-3								
	The product environmental declaration CM2E1602 <sup>*)</sup> contains data on environmentally compatible product design and assessments (RoHS compliance, materials composition, packaging, environmental benefit, disposal)									
	Color	Front housing	Models QMX3.Pxx Models QMX3.Pxx-1BSC			Titanium white similar to RAL9010 Black similar to RAL9005				
Weight [g]		<b>QMX3.</b>	<b>P02</b>	<b>P30</b>	<b>P34</b>	<b>P44</b>	<b>P37</b>	<b>P40</b>	<b>P70</b>	<b>P74</b>
	Operator unit		91	84	122	123	124	85	97	132
	Base plate		20	20	20	20	20	20	20	20
	Packaging		64	64	64	64	64	64	64	64
	Total		175	168	206	207	208	<b>169</b>	181	216

<sup>\*)</sup> The documents can be downloaded from <http://siemens.com/bt/download>.

#### Notes on FCC rules

#### NOTICE

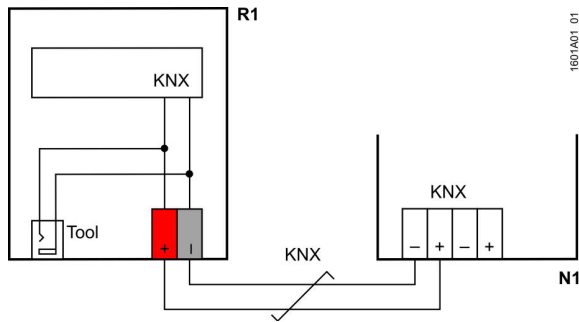
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

#### FCC warning

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## Connection



R1 QMX3... room operator unit

N1 Controller, actuator

✓ = Twisted pair

### KNX / PL-Link plug

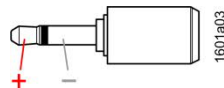
- + Red KNX PL-Link (positive)
- Gray KNX PL-Link (negative)

### NOTICE

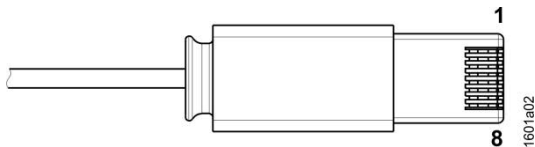
- **Wires are NOT interchangeable.**  
The device is protected against faulty wiring, but communications does not work on interchanged wires.
- **The KNX / KNX PL-Link bus MUST NOT be connected to the tool plug, only the tool.**

### Tool plug

(2.5 mm Jack)



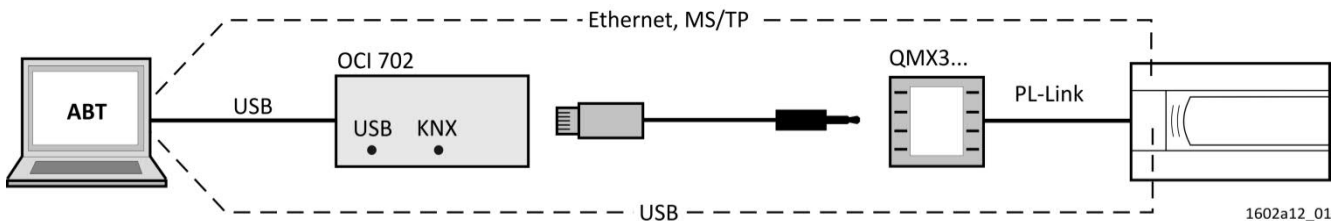
### RJ45 plug of the tool cable



- 1 CE+, KNX
- 2 CE-, KNX
- 3 N.C.
- 4 N.C.

- 5 Spannung 16 V
- 6 N.C.
- 7 Ident'pin
- 8 GND

### Connect the tool



Connect the ABT to load the application in the room automation station, or for service purposes:

- Directly to the room automation station.
- To the room unit using the tool cable and the OCI702 service interface (see data sheet A6V10438951).

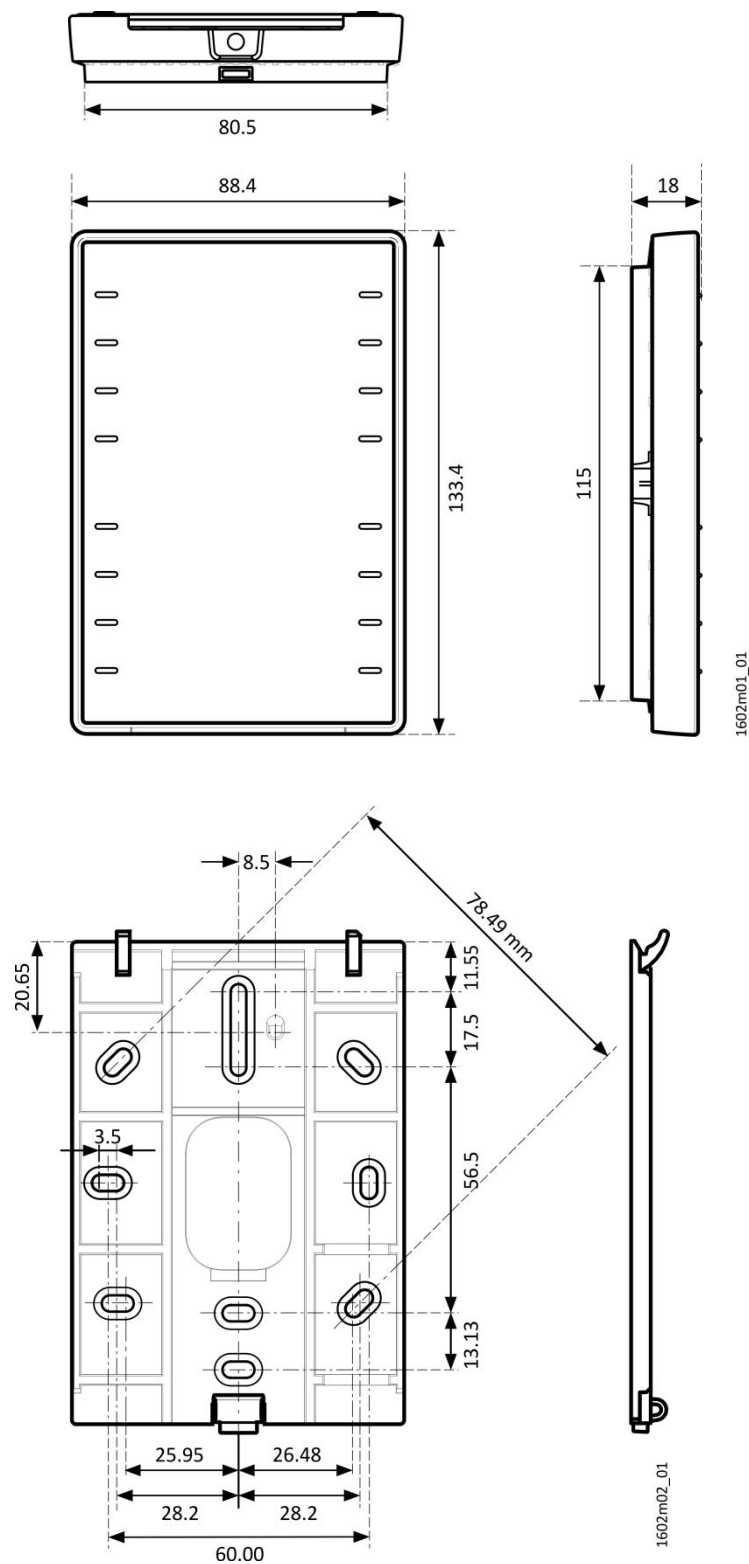
## Disposal



The device is considered electrical and electronic equipment for disposal in terms of the applicable European Directive and may not be disposed of as domestic garbage.

- Dispose of the device through channels provided for this purpose.
- Comply with all local and currently applicable laws and regulations.

## Dimensions



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