

TECHNICAL DATA

ABB i-bus[®] KNX

BCI/S 1.1.1

Boiler/chiller interface



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Device description

The device is a modular installation device (MDRC) in *proM* design. It is designed for installation in electrical distribution boards and small housings with a 35 mm mounting rail (to EN 60715).

The device is KNX-certified and can be used as a product in a KNX system → EU declaration of conformity.

The device is powered via the bus (ABB i-bus® KNX) and requires no additional auxiliary voltage supply. The connection to the bus is made via a bus connection terminal on the front of the housing. The loads are connected to the outputs using screw terminals → terminal designation on the housing.

The software application Engineering Tool Software (ETS) is used for physical address assignment and parameterization.

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Device functions

The device is an interface between the setpoint encoder and the boiler/chiller in a heating/cooling circuit.

The setpoint received via the bus (ABB i-bus® KNX) is converted into a 0-10 V signal. The generator is activated using the 0-10 V signal. The internal controller in the generator is responsible for reaching the setpoint temperature.

The generator can be switched on/off via the device's generator relay output.

The pump for the heating/cooling circuit can be switched as a function of the generator activation.

Generator and pump status, as well as supply flow and return flow temperature in the heating/cooling circuit, can be monitored via the device inputs.

Connections

The device has the following connections:

- 7 inputs for sensors
- 1 pump output
- 1 generator relay output
- 1 analog output for generator activation
- 1 bus connection

The tables below provide an overview of the maximum number of devices that can be connected to the individual product variants.

Pump output

	BCI/S 1.1.1
Pump, 1-phase	1

Generator relay output, analog output

	BCI/S 1.1.1
Boiler/chiller	1

Physical inputs

	BCI/S 1.1.1
Binary sensors (floating)	5
Temperature sensors	2

Inputs

Function	a	b	c	d	e	f	g
Temperature sensor							
PT100	x	x					
PT1000	x	x					
KT/KTY	x	x					
KT/KTY user-defined	x	x					
NTC10k	x	x					
NTC20k	x	x					
NI-1000	x	x					
Binary sensor (floating)			x	x	x	x	x
Pump status (floating contact)			x				
Pump fault (floating contact)				x			
Pump repair switch (floating contact)					x		
Generator status (floating contact)						x	
Generator error (floating contact)							x

Outputs

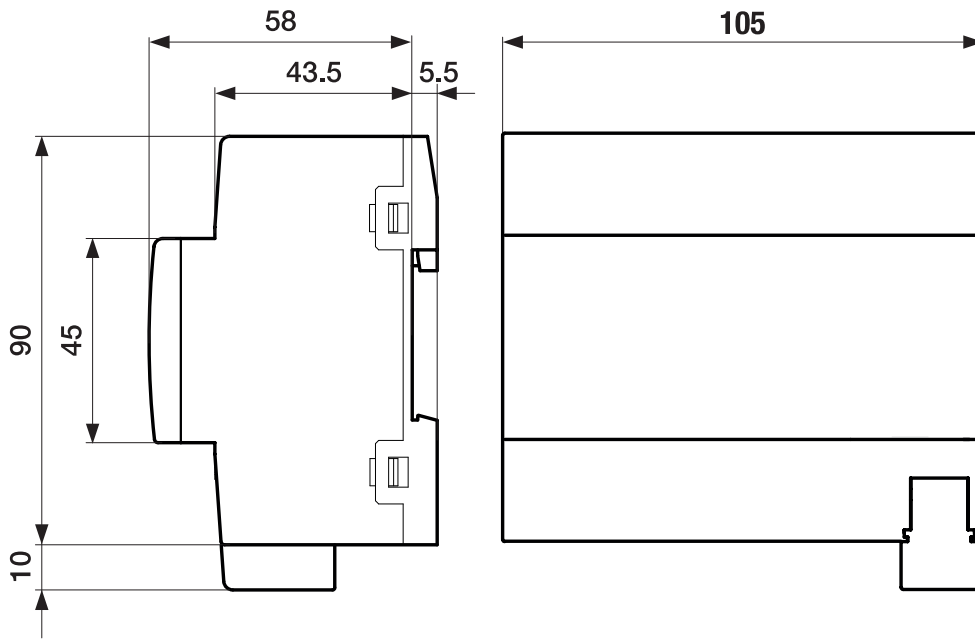
Pump output

Function	A
Individual pump	
Automatic operation	x
Direct operation	x
Automatic switch off on fault	x

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Generator outputs

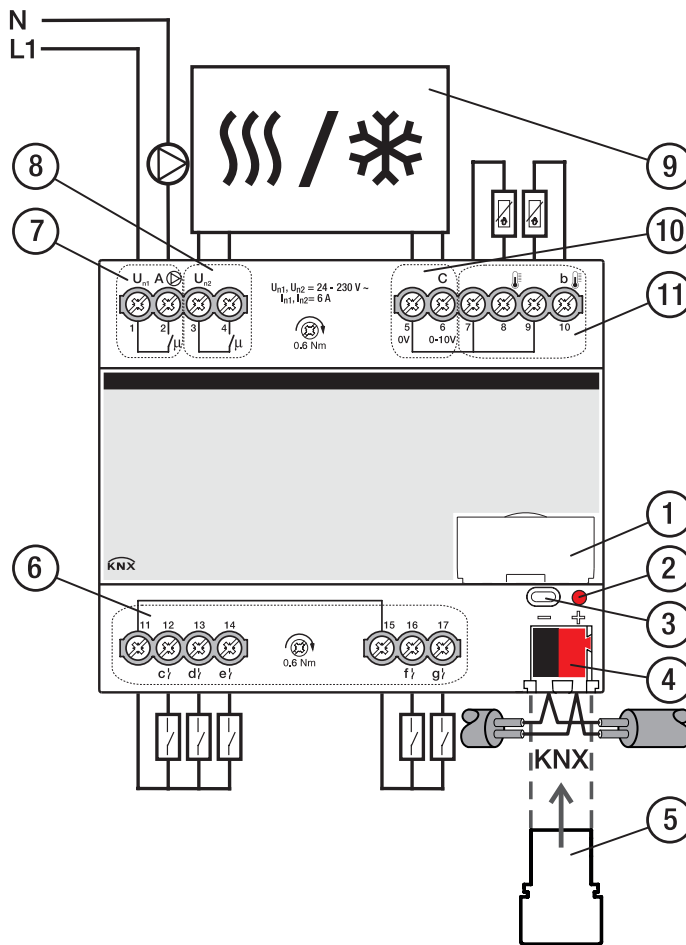
Function	B	C
Boiler/chiller		
Generator relay (On/Off)	x	
Generator activation (0 ... 10 V)		x

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Dimension drawing



2CDC072026F0017


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Connection diagram



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Legend

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|---------------------------|------------------------------|
| 1 Label carriers | 7 Pump output (relay) |
| 2 Programming LED | 8 Generator output (relay) |
| 3 Programming button | 9 Boiler/chiller |
| 4 Bus connection terminal | 10 Generator output (analog) |
| 5 Cover cap | 11 Temperature input |
| 6 Binary input | |

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Operating and display elements

Operating control/LED	Description/function	Display
 The image shows two circular components side-by-side. The left one is a white button with a black outline, and the right one is a solid red circle representing an LED.	Assignment of the physical address	LED On: Device in programming mode
<i>Programming button/LED</i>		

General technical data

Device	Dimensions	90 × 105 × 63.5 mm (H x W x D)
	Mounting width in space units	6 modules, 17.5 mm each
	Weight	0.24 kg
	Mounting position	Any
	Mounting variant	35 mm mounting rail
	Design	proM
	Degree of protection	IP 20
	Protection class	II
	Overvoltage category	III
	Pollution degree	2
Materials	Housing	Polycarbonate, Makrolon FR6002, halogen free
Material note	Fire classification	Flammability V-0
Electronics	Rated voltage, bus	30 V DC
	Voltage range, bus	21 ... 31 V DC
	Current consumption, bus	< 12 mA
	Power loss, device	≤ 3 W
	Power loss, bus	≤ 0.25 W
	Power loss, relay output 5 A	≤ 0.6 W
	KNX safety extra low voltage	SELV
Connections	Connection type, KNX bus	Plug-in terminal
	Cable diameter, KNX bus	0.6 ... 0.8 mm, solid
	Connection type, inputs/outputs	Screw terminal with universal head (PZ 1)
	Pitch	6.35 mm
	Tightening torque, screw terminals	0.5 ... 0.6 Nm
	Conductor cross-section, flexible	1 × (0.2 ... 2.5 mm ²) / 2 × (0.2 ... 2.5 mm ²)
	Conductor cross section, rigid	1 × (0.2 ... 4 mm ²) / 2 × (0.2 ... 4 mm ²)
	Conductor cross section with wire end ferrule without plastic sleeve	1 × (0.25 ... 2.5 mm ²)
	Conductor cross section with wire end ferrule with plastic sleeve	1 × (0.25 ... 4 mm ²)
	Conductor cross section with TWIN wire end ferrule	1 × (0.5 ... 2.5 mm ²)
Length, wire end ferrule contact pin	≥ 10 mm	
Certificates and declarations	Declaration of conformity CE	→ 2CDK508252D2701
Ambient conditions	Operation	-5 ... +45 °C
	Transport	-25 ... +70 °C
	Storage	-25 ... +55 °C
	Humidity	≤ 95 %
	Condensation allowed	No
	Atmospheric pressure	≥ 80 kPa (corresponds to air pressure at 2,000 m above sea level)

Inputs - contact scanning

Rated values	Number of inputs	5
Contact scanning	Scanning current	≤ 1 mA
	Scanning voltage	≤ 12 V DC
Cable length	Between sensor and device input, one-way	≤ 100 m

Inputs - temperature sensor

Rated values	Number of inputs	2
Resistance	Selection	User-defined
	PT 1.000	2-conductor technology
	PT100	2-conductor technology
	KT	1k
	KTY	2k
	NI	1k
	NTC	10k, 20k
Cable length	Between sensor and device input, one-way	≤ 100 m

Generator outputs - analog

Rated values	Number of outputs	1
	Control signal	0 ... 10 V DC
	Signal type	Analog
	Output load	> 10 kohms
	Output tolerance	± 10 %
	Current limitation	Up to 1.5 mA

Generator outputs - relay 5 A

Rated values	Number of outputs	1
	Rated voltage U_n	250 V AC
	Rated current I_n (per output)	5 A
	Rated frequency	50/60 Hz
	Back-up protection	≤ 6 A
	Relay type	Bi-stable
Switching currents	AC-1 operation (cos φ = 0.8)	≤ 5 A
	AC-3 operation (cos φ = 0.45)	≤ 5 A
	Switching current at 5 V AC	≥ 0.02 A
	Switching current at 12 V AC	≥ 0.01 A
	Switching current at 24 V AC	≥ 0.07 A
Service life	Mechanical service life	≥ 10 ⁷ switching operations
	AC-1 operation (cos φ = 0.8)	≥ 10 ⁶ switching operations
	AC-3 operation (cos φ = 0.45)	≥ 10 ⁶ switching operations
Switching operations	Switching operations per minute when one relay switches	≤ 500

Pump outputs - relay 5 A

Rated values	Number of outputs	1
	Rated voltage U_n	250 V AC
	Rated current I_n (per output)	5 A
	Rated frequency	50/60 Hz
	Back-up protection	≤ 6 A
	Relay type	Bi-stable
Switching currents	AC-1 operation (cos φ = 0.8)	≤ 5 A
	AC-3 operation (cos φ = 0.45)	≤ 5 A
	Switching current at 5 V AC	≥ 0.02 A
	Switching current at 12 V AC	≥ 0.01 A
	Switching current at 24 V AC	≥ 0.07 A
Service life	Mechanical service life	≥ 10 ⁷ switching operations
	AC-1 operation (cos φ = 0.8)	≥ 10 ⁶ switching operations
	AC-3 operation (cos φ = 0.45)	≥ 10 ⁶ switching operations
Switching operations	Switching operations per minute when one relay switches	≤ 500

Device type

Device type	Boiler/Chiller Interface	BCI/S 1.1.1
	Application	Boiler/Chiller Interface/ ...
		... = current version number of the application
	Maximum number of group objects	42
	Maximum number of group addresses	255
	Maximum number of assignments	255

Note

Observe software information on the website
→ www.abb.com/knx.

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Ordering details

Description	MW	Type	Order no.	Packaging [pcs.]	Weight (incl. packaging) [kg]
Boiler/chiller interface	6	BCI/S 1.1.1	2CDG110222R0011	1	0.26



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