

TECHNICAL DATA

ABB i-bus[®] KNX

VC/S 4.2.1

Valve drive controller



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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 following device functions for each channel are available for activating floor heating systems, radiators and cooling ceilings:

- Controller channel
- Actuator channel

Controller channel

The internal controller is activated in the function as a controller channel. The controller is used to process the data received at the inputs (actual values) or via the bus (ABB i-bus® KNX) (actual values, setpoints and operating mode changes). The control values are calculated from the data received and transmitted to the outputs.

Actuator channel

The internal controller is deactivated in the function as an actuator channel. The control values for activating the outputs are calculated by an external controller and received via the bus (ABB i-bus® KNX).

The four device channels are independent of each other. It is possible to control four different rooms.

Connections

The devices possess the following connections:

- 12 inputs for sensors or analog room control units (SAF/A or SAR/A)
- 4 valve outputs for activating thermoelectric or magnetic valve drives.
- 1 bus connection

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

Valve outputs

	VC/S 4.1.1	VC/S 4.2.1
Thermoelectric Valve Drives (PWM)	4	4
Magnetic valve drives (open/closed)	4	4

Physical inputs

	VC/S 4.1.1	VC/S 4.2.1
Analog room control units	4	4
Binary sensors (floating)	12	12
Temperature sensors	8	8

Inputs

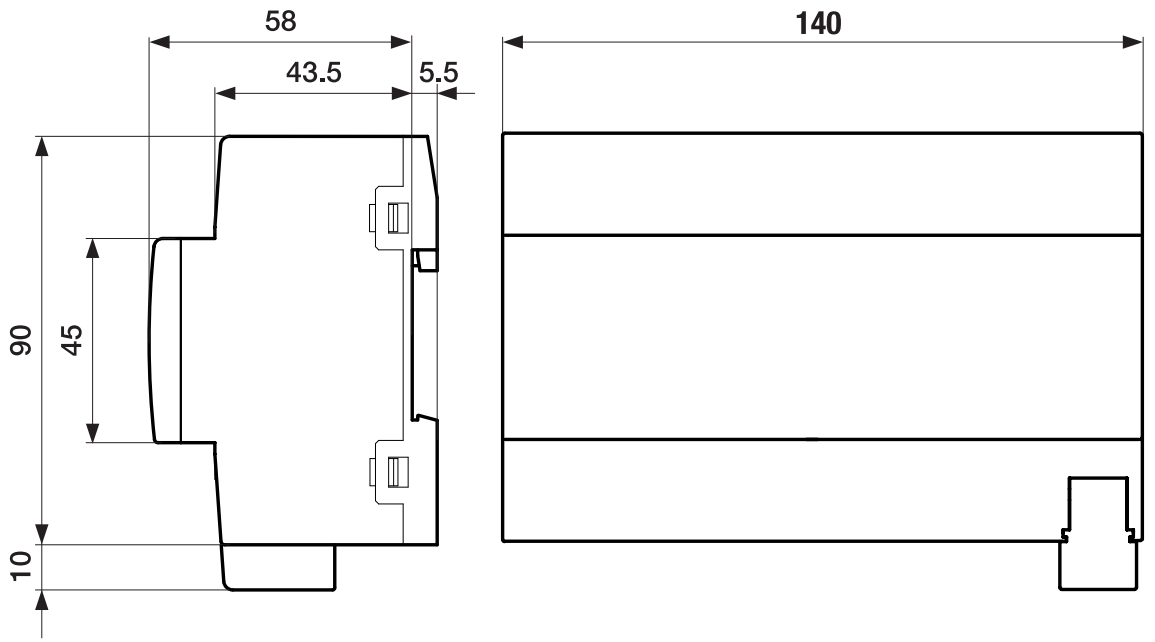
Function	a	b	c	d	e	f	g	h	i	j	k	l
Temperature sensor												
PT100	x	x		x	x		x	x		x	x	
PT1000	x	x		x	x		x	x		x	x	
KT/KTY	x	x		x	x		x	x		x	x	
KT/KTY user-defined	x	x		x	x		x	x		x	x	
NTC10k	x	x		x	x		x	x		x	x	
NTC20k	x	x		x	x		x	x		x	x	
NI-1000	x	x		x	x		x	x		x	x	
Analog room control unit	x			x			x			x		
Binary sensor (floating)	x	x	x	x	x	x	x	x	x	x	x	x
Dew point sensor (floating)	x	x	x	x	x	x	x	x	x	x	x	x
Fill level sensor (floating)	x	x	x	x	x	x	x	x	x	x	x	x
Window contact (floating)	x	x	x	x	x	x	x	x	x	x	x	x

Outputs

Valve outputs

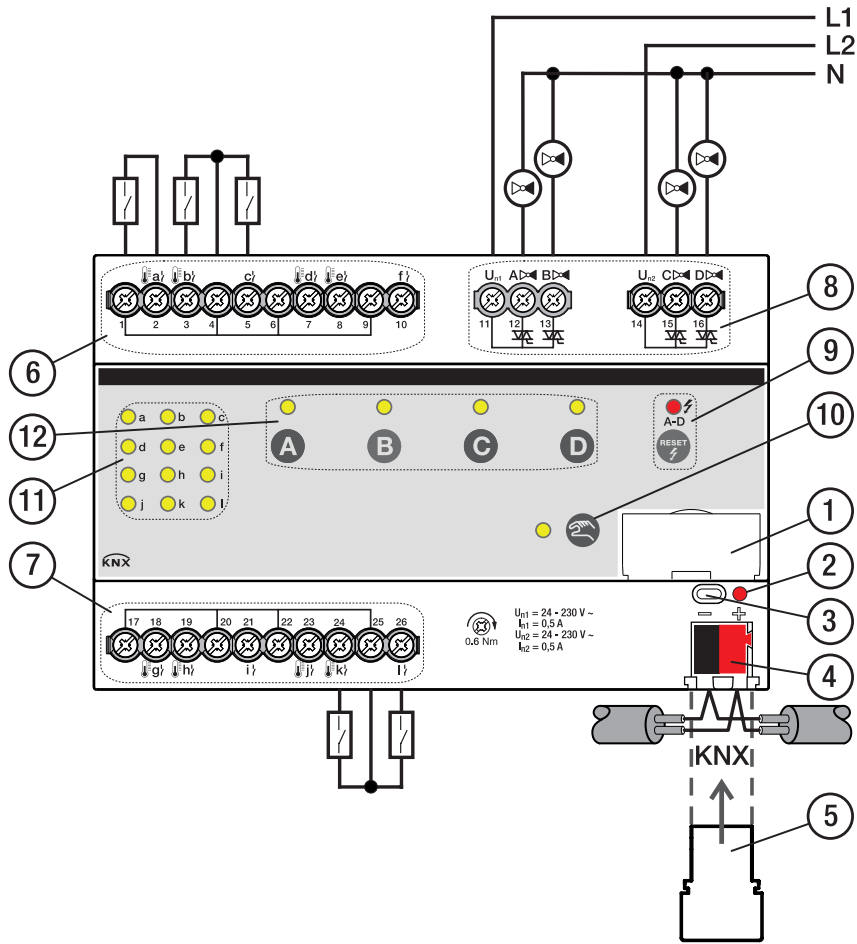
Function	A	B	C	D
Thermoelectric Valve Drives (PWM)	x	x	x	x
Magnetic valve drives (open/closed)	x	x	x	x
Fault detection (overload/short circuit)	x	x	x	x

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Dimension drawing



2CDC07202F0017


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Connection diagram




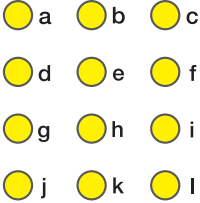


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Legend

- | | |
|-----------------------------|---------------------------------------------|
| 1 Label carriers | 7 Binary input |
| 2 <i>Programming</i> LED | 8 Valve output |
| 3 <i>Programming</i> button | 9 Reset button / valve output error LED |
| 4 Bus connection terminal | 10 <i>Manual operation</i> button/LED |
| 5 Cover cap | 11 <i>Input</i> LED |
| 6 Input | 12 <i>Valve output switching</i> button/LED |


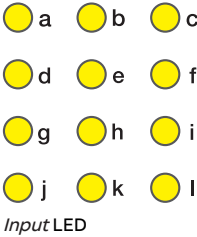


Operating and display elements

Operating control/LED	Description/function	Display
 Programming button/LED	Assignment of the physical address	LED On: Device in programming mode

Manual mode

Operating control/LED	Description/function	Display
 Manual operation button/LED	Activates the <i>KNX mode</i> with a short button push	LED On: <i>Manual operation</i> active LED Off: <i>KNX operation</i> active
 Input LED	Indication according to use of the inputs	Binary sensor: <ul style="list-style-type: none"> LED On: Contact closed LED Off: Contact open Temperature sensor: <ul style="list-style-type: none"> LED On: Temperature sensor connected LED flashing: Fault (cable break/short circuit) Analog control panel: <ul style="list-style-type: none"> LED On: Control panel connected LED flashing: Fault (cable break/short circuit)
 Reset button / valve output error LED	Resets the outputs with long button push > 5 s	LED On: Error on at least one output
 Valve output button/LED	Opens/closes valve output	LED flashing: Error (overload/malfunction) Magnetic valve drive: <ul style="list-style-type: none"> LED On: Valve open LED Off: Valve closed Thermoelectric Valve Drive: <ul style="list-style-type: none"> LED On: Valve opening/open LED Off: Valve closing/closed

KNX operation

Operating control/LED	Description/function	Display
 Manual operation button/LED	Activates the <i>Manual operation</i> mode with long button push > 5 s	LED On: <i>Manual operation</i> active LED Off: <i>KNX operation</i> active LED flashes when button is pushed: <i>Manual operation</i> deactivated via ETS
 Input LED	Indication according to use of the inputs	Binary sensor: <ul style="list-style-type: none"> LED On: Contact closed LED Off: Contact open Temperature sensor: <ul style="list-style-type: none"> LED On: Temperature sensor connected LED flashing: Fault (cable break/short circuit) Analog control panel: <ul style="list-style-type: none"> LED On: Control panel connected LED flashing: Fault (cable break/short circuit)
 A-D Reset button / valve output error LED	Button without function	LED On: Error on at least one output
 Valve output button/LED	Button without function	LED flashing: Error (overload/malfunction) Magnetic valve drive: <ul style="list-style-type: none"> LED On: Valve open LED Off: Valve closed Thermoelectric Valve Drive: <ul style="list-style-type: none"> LED On: Valve opening/open LED Off: Valve closing/closed

General technical data

Device	Dimensions	90 × 140 × 63.5 mm (H x W x D)
	Mounting width in space units	8 modules, 17.5 mm each
	Weight	0.28 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 ... 32 V DC
	Current consumption, bus	< 12 mA
	Power loss, device	≤ 3 W
	Power loss, bus	≤ 0.25 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 ... 4 mm ²) / 2 × (0.2 ... 2.5 mm ²)
	Conductor cross section, rigid	1 × (0.2 ... 6 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	→ 2CDK508251D2701
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

Rated values	Number of inputs	12
	Inputs for analog room control unit	4
Contact scanning	Scanning current	≤ 1 mA
	Scanning voltage	≤ 12 V DC
Resistance	Selection	User-defined
	PT 1.000	2-conductor technology
	PT100	2-conductor technology
	KT	1k
	KTY	2k
	NI	1k
Cable length	NTC	10k, 20k
	Between sensor and device input, one-way	≤ 100 m

Valve outputs – thermoelectric, PWM

Rated values	Number of outputs	4
	Non-floating	Yes
	Rated voltage U_n	230 V AC
	Voltage range	24 ... 230 V AC
	Rated frequency	50/60 Hz
	Rated current I_n	0.5 A
	Continuous current at T_u Up to 20 °C	0.25 A resistive load per output
	Continuous current at T_u Up to 45 °C	0.15 A resistive load per output
	Inrush current at T_u Up to 45 °C	≤ 1.6 A (for 10 s)
		T_u = Ambient temperature
	Minimum load (per output)	1.2 W

Device type

Device type	Valve Drive Controller	VC/S 4.2.1
	Application	Valve Drive Controller, 4f/ ...
		... = current version number of the application
	Maximum number of group objects	300
	Maximum number of group addresses	300
	Maximum number of assignments	300

i 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]
Valve Drive Controller	8	VC/S 4.2.1	2CDG110217R0011	1	0.29



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