

PRODUCT MANUAL

ABB i-bus[®] KNX

BCI/S 1.1.1

Boiler/Chiller Interface



ABB i-bus[®] KNX

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1 General

1.1 Using the product manual

This manual provides detailed technical information on the function, installation and programming of the ABB i-bus[®] KNX device.

1.2 Legal disclaimer

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1.3 Explanation of symbols

1.	Instructions in specified sequence
2.	
▶	Individual actions
a)	Priorities
1)	Processes run by the device in a specific sequence
•	1st-level list
○	2nd-level list

Table 1: Explanation of symbols

Notes and warnings are represented as follows in this manual:



DANGER –

This symbol is a warning about electrical voltage and indicates high-risk hazards that will definitely result in death or serious injury unless avoided.



DANGER –

Indicates high-risk hazards that will definitely result in death or serious injury unless avoided.



WARNING –

Indicates medium-risk hazards that could result in death or serious injury unless avoided.



CAUTION –

Indicates low-risk hazards that could result in slight or moderate injury unless avoided.



ATTENTION –

Indicates a risk of malfunctions or damage to property and equipment, but with no risk to life and limb.

Example:

For use in application, installation and programming examples

📘 Note

For use in tips on usage and operation

2 Safety

2.1 General safety instructions

- ▶ Protect the device from moisture, dirt and damage during transport, storage and operation.
- ▶ Operate the device only within the specified technical data.
- ▶ Operate the device only in a closed housing (distribution board).
- ▶ Mounting and installation must be carried out by qualified electricians.
- ▶ Disconnect the device from the supply of electrical power before mounting.

2.2 Proper use

The boiler/chiller interface must be installed centrally in an electrical distribution board.

The device is a modular DIN rail component for quick installation in distribution boards on 35 mm mounting rails according to EN 60715.

3 Product overview

3.1 Product overview

The device is a modular DIN rail component (MDRC) in pro *M* design. The module width of the device is six space units. It is designed for installation in distribution boards on 35 mm mounting rails.

The device is powered by the bus and requires no additional auxiliary voltage. The device connects to the ABB i-bus[®] KNX via the front bus connection terminal.

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

The device is ready for operation after connecting the supply voltage.

Abbreviation	Description
B	Boiler/
C	Chiller
I	Interface
/S	MDRC
X	1 = 1-fold
X	1 = 0-10 V interface to the generator
X	X = Version number (x = 1, 2 etc.)

Table 2: Product name description

BCI/S 1.1.1	
Inputs	
Temperature sensor	2
Contact scanning	5
Outputs	
Pump control (relay)	X
Generator activation	
0 ... 10 V	X
Enable (relay)	X

Table 3: Product overview

ABB i-bus[®] KNX Function

3.2 Ordering details

Description	MB	Type	Order No.	Packaging unit [pcs.]	Weight 1 pc. [g]
Boiler/chiller interface	6	BCI/S 1.1.1	2CDG110222R0011	1	210

Table 4: Ordering details

3.3 Boiler/chiller interface BCI/S 1.1.1



Fig. 1: Device illustration, BCI/S 1.1.1

The boiler/chiller interface is a modular DIN rail component that acts as an interface to the heating/cooling system generator. Via a relay output it is possible to enable or switch on and off the generator, the analog output can be used specify set the setpoint temperature via a 0-10 V input on the generator.

Two binary inputs are available to monitor the status of the generator via floating contacts and report it to the KNX bus. In addition, the supply and return flow temperatures are measured via analog inputs.

The pump can be switched on or enabled via a relay.

In addition, three binary inputs are available for monitoring the pump function.

The device is powered via the ABB i-bus[®] KNX and requires no additional auxiliary voltage.

The device is ready for operation after connecting the bus voltage.

ABB i-bus[®] KNX Function

3.3.1

Dimension drawing

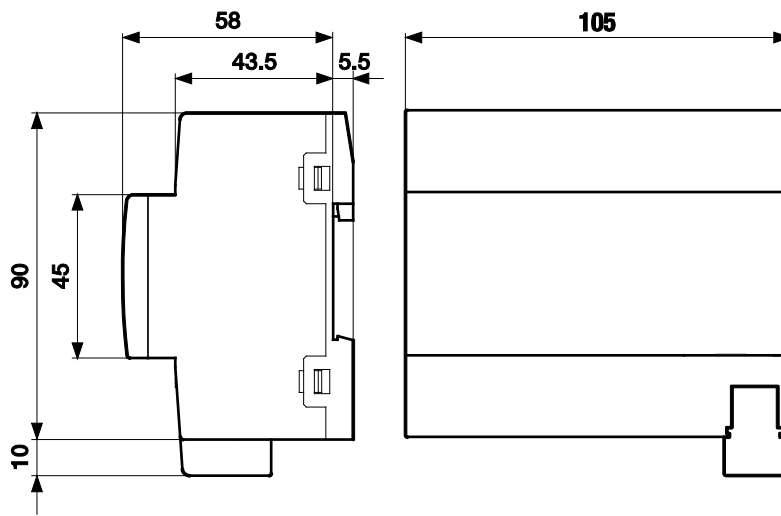


Fig. 2: Dimension drawing

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ABB i-bus[®] KNX Function

3.3.2

Connection diagram

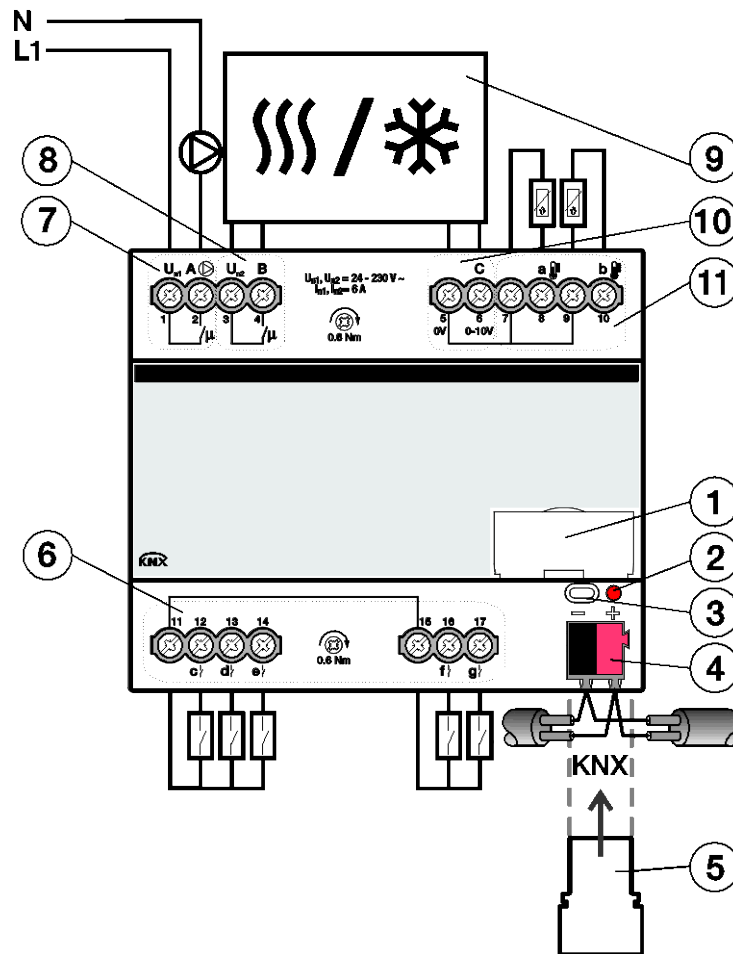


Fig. 3: Connection diagram

Legend

- | | | | |
|---|---|----|---|
| 1 | Label carrier | 7 | Relay output A (pump) |
| 2 | KNX programming LED (red) | 8 | Relay output B (generator/enable) |
| 3 | KNX programming button | 9 | Boiler/chiller |
| 4 | KNX connection | 10 | Analog output C (setpoint encoder boiler / chiller) |
| 5 | Cover cap | 11 | Temperature inputs (a, b) |
| 6 | Binary inputs (c, d, e, f, g)
c, d, e: Binary inputs for pump
f, g: Binary inputs for generator | | |

ABB i-bus[®] KNX Function

3.3.3

Operating and display elements


Button/LED	Description	LED indicator
	Assignment of the physical address	On: device is in programming mode

Table 5: Operating and display elements

ABB i-bus[®] KNX

Function

3.3.4 Technical data

3.3.4.1 General technical data

Supply	Bus voltage	21...32 V DC
	Current consumption, bus	< 12 mA
	Power loss, bus	Maximum 250 mW
	Power loss, device	Maximum 3 W
	KNX connection	0.25 W
	Relay 5 A	0.6 W
Connections	KNX	Via bus connection terminal
	Inputs/outputs	Via screw terminals
Connection terminals	Screw terminal	Screw terminal with universal head (PZ1)
	Screw terminal 1	0.2...2.5 mm ² stranded, 2 x (0.2...2.5 mm ²)
	Screw terminal 2	0.2...4 mm ² solid, 2 x (0.2...4 mm ²)
	Ferrule without plastic sleeve	0.25...2.5 mm ²
	Ferrule with plastic sleeve	0.25...4 mm ²
	TWIN ferrules	0.25...4 mm ²
	Ferrule contact pin length	At least 10 mm
	Tightening torque	Maximum 0.6 Nm
Degree of protection and protection class	Grid	6.35
	Degree of protection	IP 20 according to EN 60529
Isolation category	Protection class	II according to EN 61140
	Overvoltage category	III according to EN 60664-1
SELV	Pollution degree	II according to EN 60664-1
	KNX safety extra low voltage	SELV 24 V DC

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Function

Temperature range	Operation	-5...+45 °C
	Transport	-25...+70 °C
	Storage	-25...+55 °C
Ambient conditions	Maximum air humidity	95 %, no condensation allowed
	Atmospheric pressure	Atmosphere up to 2,000 m
Design	Modular DIN rail component (MDRC)	Modular installation device
	Design	pro <i>M</i>
	Housing/color	Plastic, gray
Dimensions	Dimensions	90 x 105 x 63.5 mm (H x W x D)
	Mounting width in space units	6x modules of 17.5 mm
	Mounting depth	63.5 mm
Mounting	35 mm mounting rail	According to EN 60715
	Mounting position	Any
	Weight	0.24 kg
Approvals	Fire classification	Flammability V-0 as per UL94
	KNX certification	According to EN 50491
	Certification	According to EN 60669
	CE marking	In accordance with the EMC and Low Voltage Directives

Table 6: Technical data

ABB i-bus[®] KNX Function

3.3.4.2 Device type

Device type	Heating/cooling circuit controller	BCI/S 1.1.1
	Application	Boiler/chiller interface/ ...*
	Maximum number of group objects	42
	Maximum number of group addresses	255
	Maximum number of assignments	255

* ... = Current version number of the application. Please refer to the software information on our homepage.

Table 7: Device type

3.3.4.3 Generator output (analog)

Rated values	Quantity	1, non-floating, short-circuit proof
	Control signal	0...10 V DC
	Signal type	Analog
	Output load	> 10 kOhm
	Output tolerance	± 10 %
	Current limitation	Up to 1.5 mA

Table 8: Generator output (analog)

3.3.4.4 Pump and generator outputs (relay 5 A)

Rated values	Quantity	2 (1 x pump, 1 x generator)
	U _n rated voltage	250 V AC (50/60 Hz)
	I _n rated current (per output pair)	5 A
Switching currents	AC3* operation (cos φ = 0.45)	According to EN 60947-4-1
	AC1* operation (cos φ = 0.8)	According to EN 60947-4-1
	Fluorescent lighting load AX	According to EN 60669-1
	Minimum switching capacity at 20 mA	5 V AC
	Minimum switching capacity at 10 mA	12 V AC
	Minimum switching capacity at 7 mA	24 V AC
Service life	DC switching capacity, resistive load, at 5 A	24 V DC
	Mechanical service life	>10 ⁷ cycles
	Electrical service life of switching contacts according to IEC 60947-4-1	>10 ⁶ cycles
Switching times	Maximum relay position changes per output and minute if only one relay is switched	>500

Table 9: Pump and generator outputs (relay 5 A)

ABB i-bus[®] KNX Function

3.3.4.5

Inputs

Rated values	Quantity	10
For temperature measurement	Quantity	2
For contact scanning	Quantity	5
Contact scanning	Scanning current	1 mA
	Scanning voltage	12 V
Resistance	Selection	User-defined
	PT 1000	2-conductor technology
	PT 100	2-conductor technology
	KT	1 k
	KTY	2 k
	NI	1 k
	NTC	10 k
	NTC	20 k
Cable length	Between sensor and device input	Max. 100 m, one-way

Table 10: Inputs

4 Function

4.1 Boiler/chiller overview

A boiler or chiller is used to generate hot or cold water for heating/cooling the building. The heated or cooled water can be adjusted to suit the demand in the building or the outside temperature.

Here the boiler/chiller is the link in the buildings heating/cooling circuit. It heats or cools the water arriving via the return from the rooms and then feeds it back to the heating/cooling circuits via the supply.

A circulation pump directly after the boiler/chiller ensures that the heated or cooled water is transported to the distributor for the heating/cooling circuits. From there the water is distributed to the individual rooms.

4.2 Functional overview

The BCI/S is used to control a boiler or chiller. For this purpose a 0 ...10 V interface is used to instruct the generator to increase or decrease the supply flow temperature measured by the control in the generator, or to specify a setpoint temperature to the control in the generator. In this situation a signal that corresponds to the setpoint received via KNX is transferred to the generator. The generator only uses this value as the setpoint; the controller in the generator is still responsible for achieving the setpoint temperature.

Internal protective measures ensure the controller integrated into the generator can influence the control such that correct operation is ensured.

In addition, the device has a relay output to switch on and off the generator, or to provide to the generator an enable for heating or cooling. Floating contacts on the generator can also be monitored via two binary signal inputs. The inputs are used to evaluate a status message (Generator On/Off), and an error signal (Error/No error).

ABB i-bus[®] KNX

Function

To switch the pump, the device has a relay output. The pump is switched on or off directly using this output, or it is used to enable the pump (depending on pump variant). Three binary inputs are available to monitor the pump status. The following pump status messages can be acquired using these inputs:

- Status of pump (pump running)
- Pump fault (pump faulty)
- Pump repair switch (pump shut down manually)

Not all pumps provide all this information, or indeed any of this information on a floating contact. While the information *Pump running* is only acquired for information purposes (e.g. indication on display), a signal on the other two inputs causes the immediate shutdown of the pump.

In addition to the monitoring of the pump, the supply and return flow temperatures can be measured and sent as information on the KNX bus.

Further functions included in the device are:

- Pump automatic function: automatic switching on/off of the pump depending on the generator activity
- Manual override of the pump via the bus
- Manual override of the generator via the bus
- Reaction on bus voltage failure: pump, generator relay
- Reaction on bus voltage recovery: pump, control value
- Reaction after ETS download & reset: pump, control value
- Forced operation: pump and generator setpoint
- Cyclical monitoring: setpoint, if received via bus: pump status, pump fault, pump repair mode, generator error
- Usage of the binary inputs as free binary inputs

ABB i-bus[®] KNX Function

The following graphic shows an example generator and its integration into the heating/cooling system in the building.

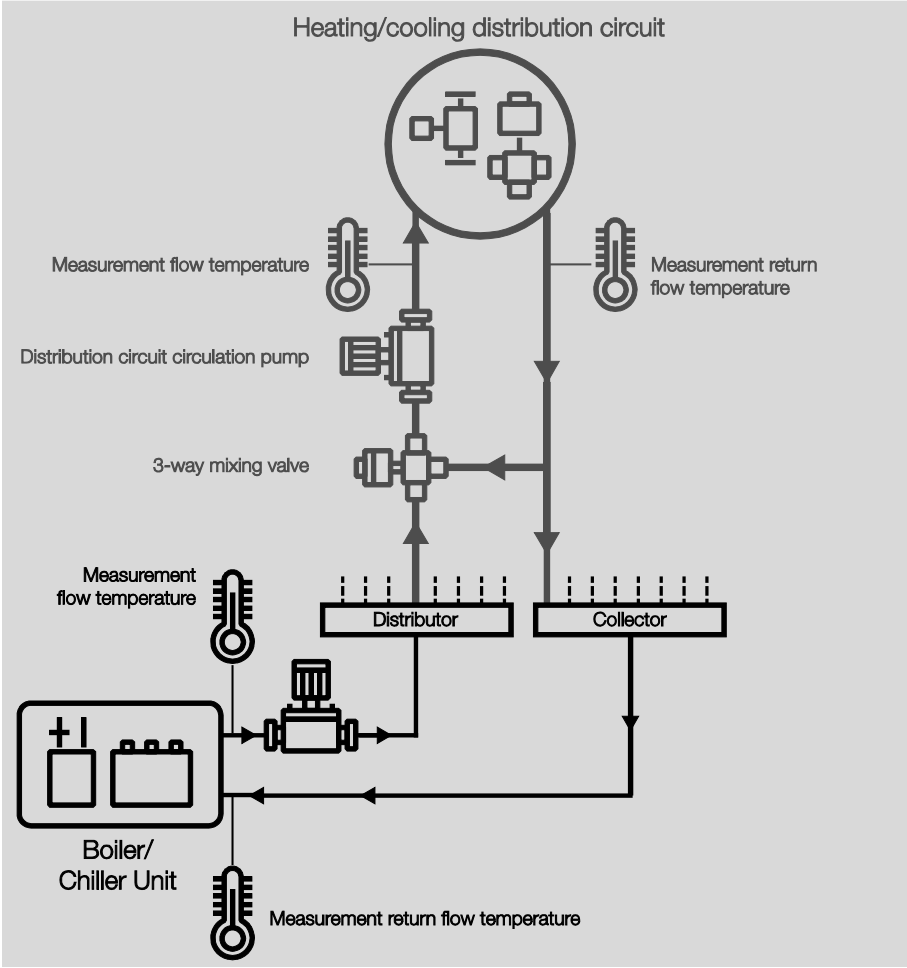


Fig. 4: Heating/cooling circuit

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4.3 Functions of the inputs

4.3.1 Temperature inputs

Temperature sensor	
Type	PT 100
	PT 1000
	KT/KTY
	KT/KTY user-defined
	NTC 10 k
	NTC 20 k
	NI-1000

Table 11: Temperature inputs

4.3.2 Binary signal input (floating)

Binary signal input	
Usage	Acquisition of pump status
	Acquisition of pump fault
	Acquisition of pump repair switch
	Acquisition of generator status
	Acquisition of generator error
	Free binary signal input

Table 12: Binary signal input (floating)

4.4 Functions of the outputs

4.4.1 Generator activation (analog)

Function	
Analog control signal	0...10 V with adjustable characteristic (4 points)

Table 13: Generator activation (analog)

4.4.2 Generator activation (relay)

Function	
Switching the generator	X
Inclusion of pump status (fault + repair switch)	X

Table 14: Generator activation (relay)

4.4.3 Pump output

Function	
Switching the pump	X
Switching the pump depending on generator activity	X
Inclusion of pump status (fault + repair switch)	X

Table 15: Pump output

4.5 Integration in the i-bus[®] Tool

The device possesses an interface to the i-bus[®] Tool.

The i-bus[®] Tool can be used to read out data and test functions on the device connected.

In addition, values can be simulated for test purposes. If there is no communication, output values are no longer output on the bus, even if they are simulated using the i-bus[®] Tool.

The i-bus[®] Tool can be used to specify setpoints to test the correct reaction of the generator.

The device's physical inputs and outputs can be tested via the i-bus[®] Tool.

You can download the i-bus[®] Tool free of charge from our homepage (www.abb.com/knx).

A description of the functions is provided in the i-bus[®] Tool online help.

4.6 Special operating states

4.6.1 Reaction on bus voltage failure/recovery, download and ETS reset

The device's reaction on bus voltage failure/recovery, download and ETS reset can be set in the device parameters.

4.6.1.1 Bus voltage failure

Bus voltage failure describes the sudden drop in/failure of the bus voltage, e.g. due to a power failure.

4.6.1.2 Bus voltage recovery

Bus voltage recovery is the state after bus voltage is restored after failing previously due to a bus voltage failure.

4.6.1.3 ETS reset

Generally an ETS reset is defined as a reset of the device via ETS. To trigger an ETS reset, go to the ETS *Commissioning* menu and select *Reset device*. This stops and restarts the application.

4.6.1.4 Download

Downloading describes loading a modified or updated application onto the device with ETS.

 **Note**

The device will no longer function after the application is uninstalled or after an interrupted download.

ABB i-bus[®] KNX

Mounting and installation


5 Mounting and installation

5.1 Information about mounting

The mounting position can be selected as required.

The electrical connection is made using screw terminals. The connection to the bus is implemented using the bus connection terminal supplied. The terminal assignment is located on the housing.

The device is ready for operation after connection to the bus voltage.

 **Note**

The maximum permissible current on a KNX line must not be exceeded.
During planning and installation ensure that the KNX line is correctly dimensioned.
The device has a maximum current consumption of <12 mA.



DANGER – Severe injuries due to touch voltage

Feedback from differing phase conductors can produce touch voltages and lead to severe injuries.
Operate the device only in a closed housing (distribution board).
Disconnect all phases before working on the electrical connection.

ABB i-bus[®] KNX

Mounting and installation

5.2 Mounting on DIN rail

The device is fitted and removed without auxiliary tools.

Make sure the device is accessible for operation, testing, visual inspection, maintenance and repair.

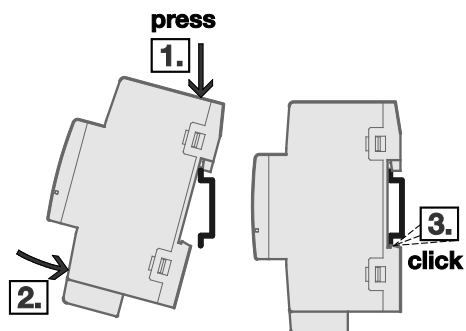


Fig. 5: Mounting on DIN rail

1. Place the DIN rail holder on the upper edge of the DIN rail and push down.
2. Push the lower part of the device toward the DIN rail until the DIN rail holder engages.
⇒ The device is now mounted on the DIN rail.
- ▶ Relieve the pressure on the top of the housing.

5.3 Supplied state

The device is supplied with the physical address 15.15.255. The application is preloaded.

The complete application can be reloaded if required. Downloads may take longer after an application is uninstalled or when changing applications.

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ABB i-bus[®] KNX Commissioning

6 Commissioning

6.1 Prerequisites for commissioning

To commission the device, a PC with ETS is required along with a connection to the ABB i-bus[®], e.g. via a KNX interface.

The device is ready for operation after the bus voltage is applied.

6.2 Commissioning overview

The *Boiler/chiller interface* application is available for the boiler/chiller interface BCI/S 1.1.1. ETS from version 4 is required to parameterize the device.

For information on how to use the i-bus[®] Tool, see [chapter 4.5 Integration in the i-bus[®] Tool](#)

The following functions are available:

Function	
Analog generator activation	Activation of the generator for the specification of the supply flow setpoint temperature Switching on/enabling the generator
Pump output	Switching/enabling of the pump depending on the generator activation Manual pump override
Inputs	2 temperature inputs for the acquisition of supply and return flow temperature 3 binary signal inputs for the acquisition of the pump status 2 binary signal inputs for the acquisition of the generator status

Table 16: Functions

6.3 Assignment of the physical address

The physical address, group address and parameters are assigned and programmed in ETS.

The device features a *Programming* button for physical address assignment. The red *Programming* LED lights up after the button has been pressed. It goes off once ETS has assigned the physical address or the *Programming* button is pressed again.

The device performs an ETS reset during physical address programming. This resets all states.

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Commissioning

6.4 Software/application

6.4.1 Download reaction

Due to the complexity of the device, the progress bar for the download may take up to one and a half minutes before it appears depending on the PC used.

6.4.2 Copying, exchanging and converting

The *ABB Update Copy Convert* ETS application can be used to copy or exchange parameter settings and to convert the application version. The application is available free of charge from the KNX online shop.

It also provides the following functions:

- *Update*: Changes the application program to a later or earlier version while retaining current configurations
- *Convert*: Transfers/adopts a configuration from an identical or compatible source device
- *Channel Copy*: Copies a channel configuration to other channels on a multichannel device
- *Channel Exchange*: Exchanges configurations between two channels on a multichannel device
- *Import/Export*: Saves and reads device configurations as external files

ABB i-bus[®] KNX

Parameters

7 Parameters

7.1 General

ETS (Engineering Tool Software) is used to parameterize the device.

In ETS, the applications are in the Catalogs window under Manufacturers/ABB/Heating, ventilation, air conditioning/Primary systems.

The following chapters describe the device parameters based on the parameter windows. Parameter windows are structured dynamically so that further parameters may be enabled depending on the parameterization and function of the outputs.

The default values of the parameters are underlined, e.g.:

Options: No

7.2 General parameter window

General	Sending and switching delay after bus voltage recovery	2 s
+ Application	State after sending and switching delay has elapsed	<input checked="" type="radio"/> Last value received <input type="radio"/> Ignore received values
+ Pump	Limit number of telegrams	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Generator activation	Enable group object "In operation", 1 bit	<input checked="" type="radio"/> No <input type="radio"/> Yes
+ Inputs	Access to i-bus Tool	Full access

Fig. 6: General parameter window

Sending and switching delay after bus voltage recovery

Options: 2...255

During the sending and switching delay, telegrams are only received. However, the telegrams are not processed and the outputs remain unchanged. No telegrams are sent on the bus.

After the sending and switching delay, telegrams are sent and the state of the outputs is set to correspond with the parameterization or the group object values.

If group objects are read out via the bus during the sending and switching delay, e.g. by a visual display system, these requests are stored and a response is sent once the delay time has expired.

An initialization time of about two seconds is included in the delay time. The initialization time is the time that the processor requires before it is ready to function.

Note

After bus voltage recovery, the device always waits for the sending delay time to elapse before sending telegrams via the bus.

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Parameters

State after sending and switching delay has elapsed

Options: Last value received
 Ignore received values

- *Last value received*: During the sending and switching delay, the inputs continue reading and the outputs send the current value after the delay has elapsed.
- *Ignore received values*: No new values are accepted during the sending and switching delay. The first value received after the sending and switching delay has elapsed applies.

Limit number of telegrams

Options: No
 Yes

The bus load generated by the device is limited using this parameter. This limit relates to all telegrams sent by the device.

—

Dependent parameter

Maximum number of telegrams

Options: 1...20...50

—

Dependent parameter

In period

Options: 1 second
 2 seconds
 5 seconds
 10 seconds
 30 seconds
 1 minute

This parameter defines the number of telegrams sent by the device within a certain period of time. The telegrams are sent as quickly as possible at the start of a period.

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Parameters

Note

The device counts the number of telegrams sent within the parameterized period. As soon as the maximum number of sent telegrams is reached, no further telegrams are sent on the KNX bus until the end of the period. A new period commences at the end of the previous period. The telegram counter is reset to zero, and sending of telegrams is allowed again. The current group object value at the time of sending is always sent.

The first period (break time) is not precisely predefined. It can be anywhere between zero seconds and the parameterized time. The subsequent sending times correspond to the parameterized time.

Example:

Maximum number of telegrams sent = 5, period = 5 s. 20 telegrams are ready to send. The device immediately sends 5 telegrams. The next 5 telegrams are sent after a maximum of 5 seconds. From this point, a further 5 telegrams are sent via the bus every 5 seconds. The telegrams are sent in the order in which they arise (first in – first out).

ABB i-bus[®] KNX Parameters

Enable group object "In operation", 1 bit

Options: No
 Yes

- No: The group object is not enabled.
- Yes: The group object is enabled.

—

Dependent parameter

Send:

Options: Value 0
 Value 1

—

Dependent parameter

Sending cycle time

Options: 00:00:01...00:01:00...18:12:15 hh:mm:ss

This parameter specifies the interval at which the group object *In operation* sends a telegram cyclically.

Note

After bus voltage recovery, the group object sends its value after the sending and switching delay set.

Access to i-bus[®] Tool

Options: Deactivated
 Value display only
 Full access

The access for the ABB i-bus[®] Tool is restricted or completely disabled using this parameter. If *Deactivated* is selected, access by the i-bus[®] Tool is completely disabled. If *Value display only* is selected, no values can be changed by the i-bus[®] Tool; only the status is displayed. If *Full access* is selected, the i-bus[®] Tool functions without restriction; values can be displayed and changed (see [chapter 4.5 Integration into the i-bus[®] Tool](#)).

7.3 Application parameter window

7.3.1 Device function

General	Caution!
- Application	Its is important to note the parameter settings in the 'Generator signal' parameter window. They influence the parameters in this window.
Device function	Reaction on bus voltage failure pump <input type="text" value="Unchanged"/>
Monitoring and safety	Reaction on bus voltage failure generator relay <input type="text" value="Unchanged"/>
+ Pump	Reaction after bus voltage recovery pump follows generator activation
+ Generator activation	Generator status after bus voltage recovery <input type="text" value="Unchanged"/>
+ Inputs	Generator activation after bus voltage recovery <input checked="" type="radio"/> As before bus voltage failure <input type="radio"/> Selection
	Reaction after ETS download pump follows generator activation
	Generator status after ETS download <input type="text" value="Unchanged"/>
	Generator activation after ETS download <input checked="" type="radio"/> Unchanged <input type="radio"/> Selection

Fig. 7: Device function parameter window

Reaction on bus voltage failure pump

Options: Switch on pump
 Switch off pump
 Unchanged

This parameter specifies the reaction of the pump on bus voltage failure.

- *Unchanged*: The pump remains active in the current state if bus voltage failure occurs.
- *Switch on pump*: The pump is switched on if bus voltage failure occurs.
- *Switch off pump*: The pump is switched off if bus voltage failure occurs

ABB i-bus[®] KNX

Parameters

Reaction on bus voltage failure generator relay

Options: Switch on generator relay
 Switch off generator relay
 Unchanged

This parameter specifies the reaction of the pump on bus voltage failure.

- *Unchanged*: The generator relay remains active in the current state if bus voltage failure occurs.
- *Switch on generator relay*: The generator relay is switched on if bus voltage failure occurs.
- *Switch off generator relay*: The generator relay is switched off if bus voltage failure occurs

Reaction after bus voltage recovery pump

Options: Switch on pump
 Switch off pump
 Follows generator activation/Unchanged

This parameter specifies the mode in which the device is to be after bus voltage recovery.

- *Switch on pump*: The pump is switched on after bus voltage recovery.
- *Switch off pump*: The pump is switched off after bus voltage recovery.
- *Follows generator activation/Unchanged*: The option visible here is dependent on the selection in the *Automatically switch on pump when generator is in activation range* parameter in the *Pump* parameter window. If the *Yes* option is selected, the *Follows generator activation* option appears here. If the *No* option is selected, the *Unchanged* option appears here.
If the *Follows generator activation* option is selected, the pump is switched on or off depending on the generator activation. On the selection of the *Unchanged* option, the state of the pump remains unchanged after bus voltage recovery.

ABB i-bus[®] KNX

Parameters

Generator relay status after bus voltage recovery

Options: Unchanged
 Switch on generator relay
 Switch off generator relay

This parameter is only visible if the *No* option has been selected for the *Use of relay output for generator activation* parameter in the *Generator signal* parameter window.

This parameter specifies how the generator relay is to react after bus voltage recovery because the relay is independent of the generator signal and therefore does not need to be related directly to the generator.

- *Unchanged*: The generator relay remains in the current state on bus voltage recovery.
- *Switch on generator relay*: On bus voltage recovery the generator relay is switched on.
- *Switch off generator relay*: On bus voltage recovery the generator relay is switched off.

Generator activation after bus voltage recovery

Options: As before bus voltage failure
 Selection

This parameter specifies how the generator is to be activated after bus voltage recovery until a new setpoint has been received via the bus.

- *As before bus voltage failure*: The same setpoint as before the bus voltage failure applies.
- *Selection*: A setpoint can be specified. This setpoint applies until a new setpoint is received via the bus. The dependent parameter *Generator status after bus voltage recovery* is enabled.

ABB i-bus[®] KNX

Parameters

—
Dependent parameter

Generator status after bus voltage recovery

Options: Switch on generator
 Switch off generator

This parameter is only visible if the *Selection* option has been selected in the *Generator activation after bus voltage recovery* parameter.

This parameter specifies whether the generator is to be switch on or off after bus voltage recovery until a new setpoint has been received via the bus.

- *Switch on generator*: The generator is switched on. The output voltage is in the activation range. The dependent parameter *Setpoint generator signal* is enabled. If the generator relay is used to activate the generator, the relay is switched on.
- *Switch off generator*: The generator is switched off. The output voltage is in the "Generator Off" voltage range. If the generator relay is used to activate the generator, the relay is switched off.

—
Dependent parameter

Setpoint generator signal

Options: 0...50...100 °C
 -50...0...50 K
 0...50...100 %

This parameter is only visible if the *Switch on generator* option has been selected in the *Generator status after bus voltage recovery* parameter.

This parameter is used to specify the setpoint for the generator signal that is to apply after bus voltage recovery until a new setpoint is received.

Which option appears is dependent on the options selected on the *Generator signal* parameter page in the *Type of generator activation* and *Signal output (voltage to temperature)* parameters. The following table shows which option appears with which parameter configuration.

Selection in <i>Type of generator activation</i> parameter	Selection in <i>Signal output (voltage to temperature)</i> parameter	
	Normal	Inverted
Absolute temperature	0... <u>50</u> ...100 °C	0... <u>15</u> ...30 °C
Temperature offset	-50... <u>0</u> ...50 K	-50... <u>0</u> ...50 K
Power specified	0... <u>50</u> ...100 %	0... <u>50</u> ...100 %

Table 17: Setpoint generator signal

ABB i-bus[®] KNX Parameters

Reaction after ETS download pump

Options: Switch on pump
 Switch off pump
 Follows generator activation/Unchanged

This parameter specifies the reaction of the pump after ETS download

- *Switch on pump*: The pump is switched on after ETS download.
- *Switch off pump*: The pump is switched off after ETS download.
- *Follows generator activation/Unchanged*: The option visible at this point is dependent on the selection in the *Automatically switch on pump when generator is in activation range* parameter in the *Pump* parameter window. If the *Yes* option is selected, the *Follows generator activation* option appears here. If the *No* option is selected, the *Unchanged* option appears here. If the *Follows generator activation* option is selected, the pump is switched on or off depending on the generator activation. On the selection of the *Unchanged* option, the state of the pump remains unchanged after ETS download.

Generator relay status after ETS download

Options: Unchanged
 Switch on generator
 Switch off generator

This parameter is only visible if the *No* option has been selected for the *Use of relay output for generator activation* parameter in the *Generator signal* parameter window.

This parameter specifies how the generator relay is to react after ETS download because the relay is independent of the generator signal and therefore does not need to be related directly to the generator.

- *Unchanged*: The generator relay remains in the current state after ETS download.
- *Switch on generator relay*: The generator relay is switched on after ETS download.
- *Switch off generator relay*: The generator relay is switched off after ETS download.

ABB i-bus[®] KNX Parameters

Generator activation after ETS download

Options: Unchanged
 Selection

This parameter specifies which setpoint is to apply for generator activation after ETS download until a new setpoint has been received via the bus.

- *Unchanged*: The same setpoint as before the ETS download applies
- *Selection*: A setpoint can be specified. The dependent parameter *Generator status after ETS download* is enabled.

Note

The reaction parameterized here also applies during the sending and switching delay. After ETS download it can take up to 2 seconds until the device has started and the outputs can be switched/controlled again.

—

Dependent parameter

Generator status after ETS download

Options: Switch on generator
 Switch off generator

This parameter is only visible if the *Selection* option has been selected in the *Generator activation after ETS download* parameter.

The parameter specifies whether the generator is to be switch on or off after bus voltage recovery until a new setpoint has been received via the bus.

- *Switch on generator*: The generator is switched on. The output voltage is in the activation range. If the generator relay is used to activate the generator, the relay is switched on.
- *Switch off generator*: The generator is switched off. The output voltage is in the "Generator Off" voltage range. If the generator relay is used to activate the generator, the relay is switched off.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Setpoint generator signal

Options: 0...50...100 °C
 -50...0...50 K
 0...50...100 %

This parameter is only visible if the *Switch on generator* option has been selected in the *Generator status after ETS download* parameter.

This parameter is used to specify the setpoint for the generator signal that is to apply after ETS download until a new setpoint is received.

Which option appears is dependent on the options selected on the *Generator signal* parameter page in the *Type of generator activation* and *Signal output (voltage to temperature)* parameters. The following table shows which option appears with which parameter configuration.

Selection in <i>Type of generator activation</i> parameter	Selection in <i>Signal output (voltage to temperature)</i> parameter	
	Normal	Inverted
Absolute temperature	0... <u>50</u> ...100 °C	0... <u>15</u> ...100 °C
Temperature offset	-50... <u>0</u> ...50 K	-50... <u>0</u> ...50 K
Power specified	0... <u>50</u> ...100 %	0... <u>50</u> ...100 %

Table 18: Setpoint generator signal

7.3.2 Monitoring and safety

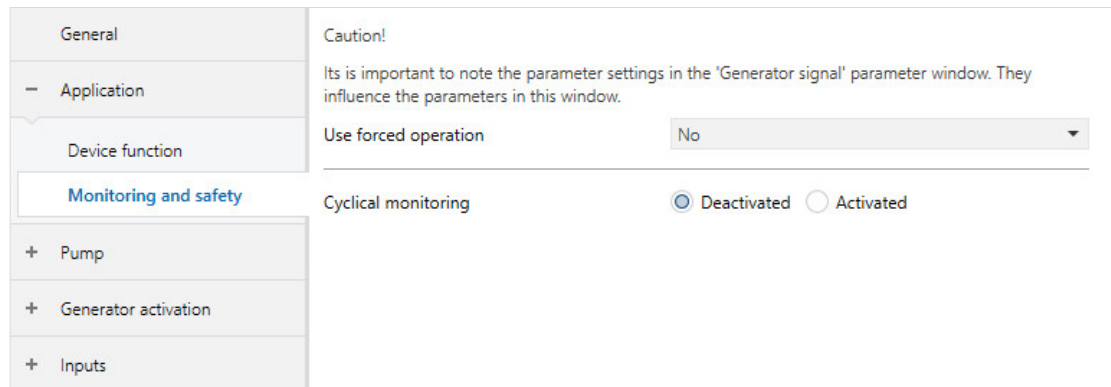


Fig. 8: Monitoring and safety parameter window

Use forced operation

Options: No
 Forced operation 1 bit; 1 active
 Forced operation 1 bit; 0 active
 Forced operation, 2 bit

The usage of forced operation is activated using this parameter. In addition, the selection of the parameter defines which type of forced operation is used.

The forced operation is used to place the outputs on the device in a pre-defined state by switching a 1- or 2-bit group object. Forced operation overrides the normal control of the device (value specifications via group objects). For the device to function normally, forced operation must be actively disabled.

- **Forced operation 1 bit; 1 active:** Forced operation is enabled. The dependent group object *Forced operation, 1 bit* is activated. Forced operation is activated on receiving a "1" via this group object. If a "0" is received, forced operation is deactivated. The dependent parameters *Generator state* and *Pump status* are enabled.
- **Forced operation 1 bit; 0 active:** Forced operation is enabled. The dependent group object *Forced operation, 1 bit* is activated. Forced operation is activated on receiving a "0" via this group object. If a "1" is received, forced operation is deactivated. The dependent parameters *Generator state* and *Pump state* are enabled.
- **Forced operation 2 bit:** Forced operation is enabled. The dependent group object *Forced operation, 2 bit* is activated. The dependent parameters *Generator state for forced operation ON*, *Pump state for forced operation ON*, *Generator state for forced operation OFF* and *Pump state for forced operation OFF* are enabled.

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ABB i-bus[®] KNX Parameters

Note

With forced operation 2 bit, two forced operation states (forced operation On and forced operation Off) can be used. These states are activated using the 2-bit group object. The first bit defines whether the forced operation is active (bit 1 (high) = 1) or inactive (bit 1 (high) = 0), the second bit decides on the Off (bit 2 (low) = 0) or On (bit 2 (low) = 1) state.

Value	Bit 1	Bit 0	State
0	0	0	Inactive
1	0	1	Inactive
2	1	0	Forced OFF
3	1	1	Forced ON

Table 19: Forced operation states

For information on the priority of the forced operation in comparison to the other properties of the device, see [chapter 12.3, Priorities](#).

Note

The state of the forced operation is saved on bus voltage failure and retrieved again on bus voltage recovery. If forced operation was active on bus voltage failure, it is also active after bus voltage recovery.

Note

Forced operation is deactivated on an ETS reset.
Forced operation overrides the outputs and places them in a defined state.

Note

If forced operation has been changed from 2 bit to 1 bit (or vice versa), forced operation is deactivated after a download.

ABB i-bus® KNX Parameters

Forced operation dependent parameters

The following parameters are available with forced operation activated. The name of the related parameter is dependent on which selection has been made in the *Use forced operation* parameter:

- If the *Forced operation 1 bit, 1 active* option is selected, the dependent parameters *Relay output*, *Generator state*, *Setpoint generator signal* and *Pump status* are enabled.
- If the *Forced operation 1 bit, 0 active* option is selected, the dependent parameters *Relay output*, *Generator state*, *Setpoint generator signal* and *Pump status* are enabled.
- If the *Forced operation 2 bit* option is selected, the dependent parameters *Relay output*, *Generator state*, *Setpoint generator signal* and *Pump* are enabled. If the *Forced operation 2 bit* option is selected, these parameters are available twice, once for the ON state and once for the OFF state.

—

Dependent parameter

Relay output

This parameter is only visible if the *No* option has been selected for the *Use of relay output for generator activation* parameter in the *Generator signal* parameter window and every option except *No* has been selected for the *Use forced operation* parameter in the *Monitoring and safety* parameter window.

Options: Unchanged
 On
 Off

This parameter specifies how the relay output (generator relay) is to react on forced operation.

- *Unchanged*: The relay output remains in the current state
- *On*: The relay output is switched on
- *Off*: The relay output is switched off

If the relay output is used directly for generator activation, the reaction of the relay output with forced operation is specified by the *Generator state* parameter.

ABB i-bus[®] KNX

Parameters

—

Dependent parameter

Generator state

Options: Switch on
 Switch off

This parameter specifies whether the generator is to be switched on or off on the activation of forced operation.

- *Switch on*: The generator is switched on if forced operation is activated. The dependent parameter *Setpoint generator signal* is displayed.
- *Switch off*: The generator is switched off if forced operation is activated.

—

Dependent parameter

Setpoint generator signal

This parameter is only visible if the *On* option has been selected in the *Generator state* parameter.

Options: 0...50...100 °C
 -50...0...50 K
 0...50...100 %

This parameter is used to specify the setpoint that is to apply to actuate the generator with forced operation active (for 2-bit in the related state, ON or OFF).

Which option appears is dependent on the options selected on the *Generator signal* parameter page in the *Type of generator activation* and *Signal output (voltage to temperature)* parameters. The following table shows which option appears with which parameter configuration.

Selection in <i>Type of generator activation</i> parameter	Selection in <i>Signal output (voltage to temperature)</i> parameter	
	Normal	Inverted
Absolute temperature	0... <u>50</u> ...100 °C	0... <u>15</u> ...100 °C
Temperature offset	-50... <u>0</u> ...50 K	-50... <u>0</u> ...50 K
Power specified	0... <u>50</u> ...100 %	0... <u>50</u> ...100 %

Table 20: *Setpoint generator signal*

Note

The standard value for the specification of the power depends on the corresponding parameter. In the *Setpoint generator signal* parameter it is 50 %, in the *Setpoint generator signal forced operation ON* parameter it is 100 %, and in the *Setpoint generator signal forced operation OFF* parameter it is 0 %.

ABB i-bus[®] KNX Parameters

—
Dependent parameter

Pump status / Pump

Options: Switch on pump
 Switch off pump
 Follows generator activation

The name of the parameter is dependent on which selection has been made in the *Use forced operation* parameter.

This parameter is used to specify the pump state that is to apply with forced operation active (for 2-bit in the related state, ON or OFF).

- *Start pump*: The pump is switched on if forced operation is activated and remains on for the duration of the forced operation.
- *Switch off pump*: The pump is switched off if forced operation is activated and remains off for the duration of the forced operation.
- *Follows generator activation*: The pump is switched on or off depending on setpoint specified for the generator.

Note

After forced operation is disabled, the currently valid generator signal is output. The pump changes to the pump automatic mode on the deactivation of forced operation. During forced operation the device continues to receive group objects via the bus, however it does not react to them until forced operation is ended. The device therefore continues to work normally after forced operation is disabled.

ABB i-bus[®] KNX Parameters

Cyclical monitoring

Options: Deactivated
 Activated

The cyclical monitoring is used to monitor specific, selected group objects for the correct function of the device. For each group object monitored it is possible to define a monitoring time during which the group object monitored must be received.

If the group object is received in the defined time, the monitoring time starts again immediately after the reception of the group object. If the group object is not received in this time, it can be specified how the device is to behave.

- *Deactivated:* The cyclical monitoring is deactivated.
- *Activated:* The cyclical monitoring is activated. The dependent parameters for monitoring the individual group objects are enabled. For each group object it is possible to decide separately whether it is to be monitored or not.

Note

For all cyclically monitored group objects it is important to set the behavior of the sending device correctly. The group objects must be sent cyclically and the cycle time must be less (= more frequent) than the receive time monitored. Recommendation: monitoring time = 2 × sending cycle time. Do not select times that are too low because this configuration can cause a high bus load and the probability of an error increases.

ABB i-bus[®] KNX

Parameters

—

Dependent parameter

Monitor receipt of setpoint temperature/setpoint power group object

The name of the parameter is dependent on whether *Absolute temperature*, *Temperature offset* or *Power specified* has been selected in the *Type of generator activation* parameter on the *Generator signal* parameter page.

Options: Deactivated
 Activated

With the monitoring of the *Setpoint temperature/Setpoint power* group objects, the device can monitor the regular receipt of the setpoint temperature/setpoint power. With this monitoring it is possible to use a pre-defined setpoint temperature/setpoint power on the failure of the device that sets the setpoint, until a new value is received.

- *Deactivated*: The cyclic monitoring of the *Setpoint temperature/Setpoint power* group objects is deactivated.
- *Activated*: The cyclic monitoring is activated, the following dependent parameters are also enabled.

—

Dependent parameter

Time interval for cyclical monitoring

Options: 00:00:30...00:05:00... 18:12:15 hh:mm:ss

The monitoring time within which the group object must be received is specified using this parameter. Otherwise the *Error: setpoint receipt* alarm object is changed to *Alarm* and the value set in the *Setpoint temperature / Setpoint power on exceeding monitoring time* parameter applies.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Setpoint temperature / Setpoint power on exceeding monitoring time

The name of the parameter is dependent on the selection made in the *Type of generator activation* parameter in the *Generator signal* parameter window.

Options: 0...50...100 °C
 -50...0...50 K
 0...50...100 %

The value set here is valid if a setpoint has not been received by the device within the monitoring time parameterized and remains active until a setpoint is received.

Which option appears is dependent on the options selected on the *Generator signal* parameter page in the *Type of generator activation* and *Signal output (voltage to temperature)* parameters. The following table shows which option appears with which parameter configuration.

Selection in <i>Type of generator activation</i> parameter	Selection in <i>Signal output (voltage to temperature)</i> parameter	
	Normal	Inverted
Absolute temperature	0... <u>50</u> ...100 °C	0... <u>15</u> ...100 °C
Temperature offset	-50... <u>0</u> ...50 K	-50... <u>0</u> ...50 K
Power specified	0... <u>50</u> ...100 %	0... <u>50</u> ...100 %

Table 21: Setpoint temperature

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Monitor receipt of pump fault group object

This parameter is only visible if the *Via group object* option has been selected for the *Monitor pump fault* parameter in the *Pump* parameter window.

Options: Deactivated
 Activated

The monitoring of the *Pump fault input* group object is activated using this parameter. The regular reception of the *Pump fault input* group objects can be monitored using this parameter.

- *Deactivated*: The monitoring of the Pump fault group object is deactivated.
- *Activated*: The monitoring of the group object is active. The dependent parameter *Time interval for cyclical monitoring* and the *Error: pump fault receipt* group object are enabled.

—

Dependent parameter

Time interval for cyclical monitoring

Options: 00:00:30...00:05:00...18:12:15 hh:mm:ss

The monitoring time within which the group object must be received is specified using this parameter. Otherwise the *Error: pump fault receipt* alarm object is changed to *Alarm* and the device reacts as if the value 1 had been received in the *Pump fault input* group object. This means the device switches off the pump or allows the pump to be switched off because it assumes the pump is faulty.

This mode remains active until a new value is received in the group object monitored.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Monitor receipt of pump repair switch group object

This parameter is only visible if the *Via group object* option has been selected for the *Monitor pump repair switch* parameter in the *Pump* parameter window.

Options: Deactivated
 Activated

The monitoring of the *Pump repair switch* group object is activated using this parameter. The regular reception of the *Pump repair switch* group objects can be monitored using this parameter.

- *Deactivated*: The monitoring of the Pump repair switch group object is deactivated.
- *Activated*: The monitoring of the group object is active. The *Time interval for cyclical monitoring* dependent parameter and the *Error: pump repair switch receipt* group object are enabled.

—

Dependent parameter

Time interval for cyclical monitoring

Options: 00:00:30...00:05:00...18:12:15 hh:mm:ss

The monitoring time within which the group object must be received is specified using this parameter. Otherwise the *Error: pump repair switch receipt* alarm object is changed to *Alarm* and the device reacts as if the value 1 had been received in the *Pump repair switch input* group object. This means the device switches off the switching contact for the pump or allows the contact to be switched off because it assumes the pump has been deactivated by the actuation of the repair switch.

This mode remains active until a new value is received in the group object monitored.

ABB i-bus[®] KNX

Parameters

—

Dependent parameter

Monitor receipt of generator error group object

This parameter is only visible if the *Via group object* option has been selected for the *Monitor generator error* parameter in the *Generator signal* parameter window.

Options: Deactivated
 Activated

The monitoring of the *Generator error input* group object is activated using this parameter. The regular reception of the *generator error* status can be monitored using this parameter.

- *Deactivated*: The monitoring of the *Generator error* group object is deactivated.
- *Activated*: The monitoring of the group object is active. The *Time interval for cyclical monitoring* dependent parameter and the *Error: generator error receipt* group object are enabled.

—

Dependent parameter

Time interval for cyclical monitoring

Options: 00:00:30...00:05:00...18:12:15 hh:mm:ss

The monitoring time within which the group object must be received is specified using this parameter. Otherwise the *Error: generator error receipt* alarm object is changed to *Alarm* and the device reacts as if the value 1 had been received in the *Generator error input* group object. This means the device switches off the generator or allows the generator to be switched off because it assumes the generator is faulty.

This mode remains active until a new value is received in the group object monitored.

7.4 Pump parameter window

The settings for the behavior of the pump output and the monitoring of the status of the pump are made on this page.

General	Automatically switch on pump when generator is in activation range	<input type="radio"/> No <input checked="" type="radio"/> Yes
+ Application	Run-on time	<input type="text" value="00:00:05"/> hh:mm:ss
- Pump	Activate manual pump overdrive via group object	<input checked="" type="radio"/> No <input type="radio"/> Yes
Pump	Monitor pump status	<input checked="" type="radio"/> Deactivated <input type="radio"/> Via physical device input
+ Generator activation	Monitor pump error	<input type="text" value="Deactivated"/>
+ Inputs	Monitor pump repair switch	<input type="text" value="Deactivated"/>
	Send status value	<input type="text" value="After a change or request"/>

Fig. 9: Pump parameter window

Automatically switch on pump when generator is in activation range

Options: No
 Yes

Use this parameter to set whether a change in the generator setpoint to the activation range will also cause the pump to switch on, and whether a change in the generator setpoint to the *off* activation range is to cause the pump to switch off.

- *No*: The pump is not switched on and off depending on the generator setpoint, but instead only via group object. The Switch on/off pump group object is displayed.
- *Yes*: If the generator setpoint changes to the activation range, the pump is switched on, if the setpoint changes to the off range the pump is shutdown.

Run-on time

Options: 00:00:00...00:00:05...01:00:00 hh:mm:ss

This parameter specifies the run-on time for the pump after the reception of a shutdown command, or shutdown based on the generator signal.

The pump remains switched on for the time set after the shutdown command.

ABB i-bus® KNX

Parameters

Activate manual pump override via group object

Options: No
 Yes

The manual override of the pump via group object is enabled using this parameter.

- *No*: The manual override of the pump via group object is deactivated
- *Yes*: The manual override of the pump via group object is activated. The *Override pump*, *Pump override via KNX (deactivate/activate)* and *Status pump automatic* group objects as well as the *Return from manual pump control to automatic mode* dependent parameter are enabled.

Using the group objects it is possible to activate the pump override and then to override the pump using the *Override pump* group object.

The manual pump override can be used to place the pump in a defined state for maintenance purposes or if there is a fault.

—

Dependent parameter

Return from manual pump control to automatic mode

Options: Via group object
 Via group object or automatic (time)

This parameter specifies how the pump override is to be cleared and the control specified by the device is to become active again.

- *Via group object*: On the selection of this option, the *Pump override via KNX (deactivate/activate)* group object is enabled. It is possible to enable or disable the pump override using this object. If override is enabled, the pump reacts to the command in the *Override pump* group object. If override is disabled, the pump reacts again to the state specified by the device.
- *Via group object or automatic (time)*: On the selection of this option, the *Pump override via KNX (deactivate/activate)* group object is enabled. It is possible to activate or deactivate the pump override using this object. If override is activated, the pump reacts to the command in the *Override pump* group object. If override is disabled, the pump reacts again to the state specified by the device. In addition, the dependent parameter *Reset time* is enabled. If overridden, the pump is returned to control by the device after the time parameterized here.

ABB i-bus[®] KNX Parameters

—
Dependent parameter

Reset time

Options: 00:00:30 ... 00:05:00 ... 18:12:15 hh:mm:ss

The time set here specifies when the pump is to change from overridden operation back to normal operation defined by the device.

Monitor pump status

Options: Deactivated
Via physical device input

This parameter specifies whether the pump status is monitored. The status acquired is output on the bus as status information. There is no evaluation of the status in the device.

Note

This function can only be used for pumps with a floating contact that is closed with the pump running and open with the pump shutdown (or vice versa).

- *Deactivated*: The monitoring of the pump status is deactivated
- *Via physical device input*: The pump status is acquired via one of the inputs on the device (input c). The *Pump operating status* group object is enabled. The input is parameterized as the pump status input. The other settings on the opening/closing behavior as well as how the status is sent are made in the *c: Binary input* parameter window.

Note

It is to be ensured that the corresponding pump status switch is actually connected to the input; if this is not the case, there will be an erroneous status message.

ABB i-bus[®] KNX Parameters

Monitor pump fault

Options: Deactivated
 Via physical device input
 Via group object

This parameter specifies whether and, if so, how a pump fault switch is monitored. The status acquired is used to check whether the pump is signaling a fault or it is running fault-free.

If the function is used and the device receives an error message via the input, the pump is switched off immediately.

Note

This function can only be used for pumps with a floating contact that reflects the fault status (e.g. no fault: contact closed; fault: contact opened).

- *Deactivated*: The monitoring of the pump fault is deactivated
- *Via physical device input*: The pump fault is acquired via one of the inputs on the device (input d). The *Pump fault alarm* group object is enabled. The input is parameterized as the pump fault input. The other settings on the opening/closing behavior as well as how the status is sent are made in the *d: Binary input* parameter window.

Note

It is to be ensured that the corresponding pump status switch is actually connected to the input; if this is not the case, there will be an erroneous status message.

- *Via group object*: The pump fault switch is acquired via another device and sent via KNX. The *Pump fault input* group object is enabled.

ABB i-bus[®] KNX Parameters

Monitor pump repair switch

Options: Deactivated
 Via physical device input
 Via group object

This parameter specifies whether and, if so, how a pump repair switch is monitored. The status acquired is used to check whether the pump can be switched on.

If the function is used and the device receives via the input the signal that the repair switch is open (the pump is therefore disconnected from the electrical supply or shutdown), the pump relay is opened.

Note

This function can only be used for pumps with a floating contact that reflects the status (e.g. repair switch closed: contact closed; repair switch open: contact opened).

- *Deactivated*: The monitoring of the repair switch is deactivated
- *Via physical device input*: The repair switch is acquired via one of the inputs on the device (input e). The *Pump repair switch* group object is enabled. The input is parameterized as the pump repair status input. The other settings on the opening/closing behavior as well as how the status is sent are made in the *e: Binary input* parameter window.

Note

It is to be ensured that the corresponding status output from the repair switch is actually connected to the input; if this is not the case, there will be an erroneous status message.

- *Via group object*: The pump repair switch is acquired via another device and sent via KNX. The *Pump repair switch input* group object is enabled.

ABB i-bus[®] KNX Parameters

Send status values

Options: After a change
 Cyclically
 After a change and cyclically
 On request
 After a change or request
 On request and cyclically
 After a change or request and cyclically

This parameter specifies when the pump status values are to be sent. This parameter affects the following pump output group objects:

- *Status pump relay*
- *After a change*: The values are sent after a change in the object values (e.g. change from 0 to 1).
- *Cyclically*: If this option is selected, the status values are sent automatically after an adjustable time has elapsed. The *Every* dependent parameter is enabled.
- *After a change and cyclically*: The values are sent after a change and cyclically. The *Every* dependent parameter is enabled.
- *On request*: All status values are sent on the receipt of a command via the Request status values group object.
- *After a change or request*: The values are sent on request and after a change.
- *On request and cyclically*: The values are sent on request and cyclically. The *Every* dependent parameter is enabled.
- *After a change or request and cyclically*: The values are sent on request, after a change and cyclically. The *Every* dependent parameter is enabled.

—

Dependent parameter

Every

Options: 00:00:30...00:01:00...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

7.5 Generator activation parameter window

7.5.1 Generator signal

General	Type of generator activation	Absolute temperature
+ Application	Caution! The following voltage ranges must not overlap.	
+ Pump	Minimum output voltage - failure	0 V
- Generator activation	Maximum output voltage - failure	2 V
Generator signal	Min. output voltage for generator Off	2.1 V
Generator relay	Max. output voltage for generator Off	5 V
+ Inputs	Min. voltage for generator activation	
	Maximum voltage for generator activation	10 V
	Signal output (voltage to temperature/ power)	<input checked="" type="radio"/> Normal <input type="radio"/> Inverted
	Lower temperature limit for generator activation	25 °C
	Upper temperature limit for generator activation	60 °C
	Use of relay output for generator activation	<input checked="" type="radio"/> No <input type="radio"/> Yes
	Monitor generator status	<input checked="" type="radio"/> Deactivated <input type="radio"/> Via physical device input
	Monitor generator error	Deactivated
	Activate generator overdrive via group object	<input checked="" type="radio"/> No <input type="radio"/> Yes
	Send status values	After a change or request

Fig. 10: Generator signal parameter window

ABB i-bus[®] KNX Parameters

Type of generator activation

Options: Absolute temperature
 Temperature offset
 Power specified

This parameter specifies how the setpoint is to be received and transferred to the generator.

- *Absolute temperature*: The setpoint is received and transferred as an absolute temperature value. The dependent parameters *Lower temperature limit for generator activation* and *Upper temperature limit for generator activation* are enabled. The *Setpoint temperature* group object is enabled and set for the reception of the absolute temperature values (DPT 9.001).
- *Temperature offset*: The setpoint is received and transferred as a relative temperature value (temperature change). The dependent parameters *Maximum temperature increase for generator activation* and *Maximum temperature decrease for generator activation* are enabled. The *Setpoint temperature* group object is enabled and set for the reception of the relative temperature values (DPT 9.002).
- *Power specified*: The setpoint is received and transferred as specified power. The dependent parameters *Minimum power specified for generator activation* and *Maximum power specified for generator activation* are enabled. The *Setpoint power* group object is enabled (DPT 5.001).

Minimum output voltage - failure

Options: 0.0 ... 10.0 V

Maximum output voltage - failure

Options: 0.0 ... 2.0 ... 10.0 V

These parameters define the lowest and highest voltage range for the activation of the generator. This voltage range is defined as a failure and indicates a failure of the device that sets the setpoint to the generator. The device is therefore never actively activated in this range.

If this range is not required, set both parameters to 0 V.

Note

There must not be an overlap or reversal of the values. The values must not overlap with the values for the two parameters that follow.
Should this nevertheless occur, the device always outputs 0 V as the output voltage, because the parameterization is invalid.

ABB i-bus[®] KNX Parameters

Min. output voltage for generator Off

The value for this parameter is calculated automatically from the value set in the *Maximum output voltage - failure* parameter. For this purpose the value 0.1 V is always added.

The value specifies the minimum voltage that causes the generator to switch off.

Max. output voltage for generator Off

Min. voltage for generator activation

Options: 0.0 ... 5.0 ... 10.0 V

This parameter specifies both the maximum voltage for switching off the generator, and at the same time the lower value for the activation range for setpoint specification.

If the device enters the "Generator Off" range, the average value between the minimum output voltage for "Generator Off" and the maximum output voltage for "Generator off" is used.

Example:

Min. output voltage for "Generator Off": 2 V

Max. output voltage for "Generator Off": 5 V

Voltage for "Generator Off": $(2 \text{ V} + 5 \text{ V}) / 2 = 3.5 \text{ V}$

The activation of the "Generator Off" voltage range can be triggered by sending a setpoint below the permitted value range or by the Generator On/Off object.

Maximum voltage for generator activation

Options: 0.0 ... 10.0 V

This parameter specifies the upper end of the activation range for the generator.

If the device receives a setpoint, the setpoint is converted to the range specified using the *Min. voltage for generator activation* and *Maximum voltage for generator activation* parameters and the corresponding voltage output.

ABB i-bus[®] KNX Parameters

Signal output (voltage to temperature/power)

Options: Normal
 Inverted

This parameter specifies the generator type that is to be controlled using the device. The value range and standard values for the activation of the generator are specified depending on the selection in the parameter. In addition, the activation direction of the output signal changes:

- *Normal*: If the setpoint temperature is increased, a higher output voltage is output. If the setpoint temperature is reduced, a lower output voltage is output. This type of activation is particularly common for heat generators (e.g. boilers).
- *Inverted*: If the setpoint temperature is increased, a lower output voltage is output. If the setpoint temperature is reduced, a higher output voltage is output. This type of activation may be necessary above all for chillers.

The following table shows the value that can be set for generator activation depending on the options selected here:

Selection in <i>Type of generator activation</i> parameter	Selection in <i>Signal output (voltage to temperature)</i> parameter	
	Normal	Inverted
Absolute temperature	0... <u>50</u> ...100 °C	0... <u>15</u> ...100 °C
Temperature offset	-50... <u>0</u> ...50 K	-50... <u>0</u> ...50 K
Power specified	0... <u>50</u> ...100 %	0... <u>50</u> ...100 %

Table 22: Signal output

Note

A change in this parameter causes the reset of the setpoint after the download. The change can cause the voltage output to change significantly.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Lower temperature limit for generator activation

This parameter is only visible if the *Absolute temperature* option has been selected for the *Type of generator activation* parameter.

Options: 0.0...25...100.0 °C

This parameter specifies the lowest temperature value that is used to activate the generator. The value entered here is the same as the voltage in the *Min. voltage for generator activation* parameter.

If a setpoint lower than the limit set here is received, the device changes to the "Generator Off" voltage range.

—

Dependent parameter

Upper temperature limit for generator activation

This parameter is only visible if the *Absolute temperature* option has been selected for the *Type of generator activation* parameter.

Options: 0.0 ...60.0 ... 100 °C

This parameter specifies the highest temperature value that is used to activate the generator. The value entered here is the same as the voltage in the *Maximum voltage for generator activation* parameter.

If a setpoint greater than the limit set here is received, the value is automatically limited to the maximum value allowed and the maximum possible voltage as per the parameterization is output.

ABB i-bus[®] KNX

Parameters

—

Dependent parameter

Maximum temperature decrease for generator activation

This parameter is only visible if the *Temperature offset* option has been selected in the *Type of generator activation* parameter.

Options: -50.0 ... -10.0 ... 50.0 K

This parameter specifies the maximum temperature reduction that is to be used to activate the generator. The value entered here is the same as the voltage in the *Min. voltage for generator activation* parameter.

If a setpoint lower than the limit set here is received, the device changes to the "Generator Off" voltage range.

—

Dependent parameter

Maximum temperature increase for generator activation

This parameter is only visible if the *Temperature offset* option has been selected in the *Type of generator activation* parameter.

Options: -50.0 ... 10.0 ... 50.0 K

This parameter specifies the maximum temperature increase that is to be used to activate the generator. The value entered here is the same as the voltage in the *Maximum voltage for generator activation* parameter.

If a setpoint greater than the limit set here is received, the value is automatically limited to the maximum value allowed and the maximum possible voltage as per the parameterization is output.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Minimum power specified for generator activation

This parameter is only visible if the *Power specified* option has been selected for the *Type of generator activation* parameter.

Options: 0.0 ... 1.0 ... 99.0 %

This parameter specifies the lowest power value that is used to activate the generator. The value entered here is the same as the voltage in the *Min. voltage for generator activation* parameter.

If a setpoint lower than the limit set here is received, the device outputs the voltage for "Generator Off".

On the reception of the value 0, the voltage for "Generator Off" is always output.

—

Dependent parameter

Maximum power specified for generator activation

This parameter is only visible if the *Power specified* option has been selected for the *Type of generator activation* parameter.

Options: 1.0 ... 100.0 %

This parameter specifies the highest power value that is used to activate the generator. The value entered here is the same as the voltage in the *Maximum voltage for generator activation* parameter.

If a setpoint greater than the limit set here is received, the value is automatically limited to the maximum value allowed and the maximum possible voltage as per the parameterization is output.

ABB i-bus[®] KNX Parameters

Use of relay output for generator activation

Options: No
Yes

This parameter specifies whether relay output B is to be used to activate the generator. The generator can be switched on/off or enabled/disabled via the input, or a signal sent to the generator.

- **Yes:** The relay output is used to activate the generator. If the voltage output for the generator is in the activation range, the relay is switched on. If the voltage is in the "Generator Off" range, the relay is also switched off.
- **No:** The relay output is not used to activate the generator.

The relay output can also be used if the *No* option has been selected for this parameter. However, in this situation the relay must be switched via the bus. The device itself does not switch the relay.

Note

The relay output is parameterized on the *Generator relay* parameter page.

Monitor generator status

Options: Deactivated
Via physical device input

This parameter specifies whether the generator status is monitored. The status acquired is output on the bus as status information. There is no evaluation of the status in the device.

Note

This function can only be used for generators with a floating contact that is closed with the generator active and open with the generator shutdown (or vice versa).

- **Deactivated:** The monitoring of the generator status is deactivated.
- **Via physical device input:** The generator status is acquired via one of the inputs on the device (input f). The *Generator operating status* group object is enabled. The input is parameterized as the generator status input. The other settings on the opening/closing behavior as well as how the status is sent are made in the *f: Binary input* parameter window.

Note

It is to be ensured that the corresponding generator status switch is actually connected to the input; if this is not the case, there will be an erroneous status message.

ABB i-bus[®] KNX Parameters

Monitor generator error

Options: Deactivated
 Via physical device input
 Via group object

This parameter specifies whether and, if so, how a generator error switch is to be monitored. The status acquired is used to check whether the generator is signaling an error or it is running error-free.

If the function is used and the device receives an error message via the input, the generator is switched off immediately.

Note

This function can only be used for generators with a floating contact that reflects the error status (e.g. no error: contact closed; fault: contact opened).

- *Deactivated*: The monitoring of the generator error is deactivated
- *Via physical device input*: The generator error is acquired via one of the inputs on the device (input g). The *Generator error alarm* group object is enabled. The input is parameterized as the generator error input. The other settings on the opening/closing behavior as well as how the status is sent are made in the *g: Binary input* parameter window.

Note

It is to be ensured that the corresponding generator is actually connected to the input; if this is not the case, there will be an erroneous status message.

- *Via group object*: The generator error switch is acquired via another device and sent via KNX. The *Generator error input* group object is enabled.

ABB i-bus[®] KNX

Parameters

Activate generator override via group object

Options: No
 Yes

The manual override of the generator via group object is enabled using this parameter.

- *No*: The manual override of the generator via group object is deactivated
- *Yes*: The manual override of the generator via group object is activated. The group objects *Override setpoint generator*, *Override generator relay*, and *Enable/disable manual generator override control*, as well as the dependent parameter *Return from manual generator override* are enabled.

Using the group objects it is possible to activate the generator override and then to override the generator using the *Override setpoint generator* and *Override generator relay* group object.

The manual generator override can be used for maintenance purposes or to specify a specific value to the generator in a defined state if there is an error.

Note

The object *Override generator relay* is only displayed if the *Yes* option has been selected in the *Use of relay output for generator activation* parameter.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Return from manual generator override

Options: Via group object
 Via group object or automatic (time)

This parameter specifies how the generator override is to be cleared and the value received by the Setpoint temperature/Setpoint power object is to be used again.

- *Via group object*: On the selection of this option, the generator override is only deactivated via the *Enable/disable manual generator override control* object. It is possible to enable or disable the generator override using this object. If override is enabled, the generator reacts to the value in the *Override setpoint generator* and *Override generator relay* group objects. If override is disabled, the generator reacts again to the value received via the *Setpoint temperature/Setpoint power* group object.
- *Via group object or automatic (time)*: On the selection of this option, the generator override is only deactivated via the *Enable/disable manual generator override control* object. It is possible to enable or disable the generator override using this object. If override is enabled, the generator reacts to the value in the *Override setpoint generator* and *Override generator relay* group objects. If override is disabled, the generator reacts again to the value received via the *Setpoint temperature/Setpoint power* group object. In addition, the dependent parameter *Reset time* is enabled. After the time parameterized has elapsed, the generator reacts again to the value received via the *Setpoint temperature/Setpoint power* group object.

—

Dependent parameter

Reset time

Options: 00:00:30 ... 00:05:00 ... 18:12:15 hh:mm:ss

The time set here specifies when the generator is to act again according to the value received via the *Setpoint temperature/Setpoint power* group object.

ABB i-bus® KNX Parameters

Send status values

Options: After a change
 Cyclically
 After a change and cyclically
 On request
 After a change or request
 On request and cyclically
 After a change or request and cyclically

This parameter specifies when the generator status values are to be sent. This parameter affects the following pump output group objects:

- *Generator activation status*
- *Generator status On/Off*

- *After a change*: The values are sent after a change in the object values (e.g. change from 0 to 1).
- *Cyclically*: If this option is selected, the status values are sent automatically after an adjustable time has elapsed. The *Every* dependent parameter is enabled.
- *After a change and cyclically*: The values are sent after a change and cyclically. The *Every* dependent parameter is enabled.
- *On request*: All status values are sent on the receipt of a command via the Request status values group object.
- *After a change or request*: The values are sent on request and after a change.
- *On request and cyclically*: The values are sent on request and cyclically. The *Every* dependent parameter is enabled.
- *After a change or request and cyclically*: The values are sent on request, after a change and cyclically. The *Every* dependent parameter is enabled.

—

Dependent parameter

Every

Options: 00:00:30...00:05:00...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

ABB i-bus[®] KNX Parameters

7.5.2

Generator relay

General	Output is	<input type="radio"/> Deactivated <input checked="" type="radio"/> Activated
+ Application	Output reaction	<input type="radio"/> Normally closed <input checked="" type="radio"/> Normally open
+ Pump	Object value Relay status	<input checked="" type="radio"/> 1 = closed; 0 = open <input type="radio"/> 0 = closed; 1 = open
- Generator activation	Send status values	After a change or request
Generator signal		
Generator relay		
+ Inputs		

Fig. 11: Generator relay parameter window

Output is

Options: Deactivated
 Activated

A relay output can be deactivated or activated using this parameter. If the output has been deactivated, the relay can no longer be switched. The related *Status generator relay* and *Switch generator relay* group objects are hidden.

Note

If the relay output is used automatically depending on the activation range for the generator (the *Yes* option is selected for the *Use of relay output for generator activation* parameter on the *Generator signal* parameter page), the device automatically switches on the relay output if the output voltage is in the activation range. The device switches off the relay if the output voltage is in the "Off" range.

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ABB i-bus[®] KNX Parameters

—

Dependent parameter

Output reaction

Options: Normally open
 Normally closed

This parameter sets whether the output operates as a normally closed contact or normally open contact.

- *Normally open*: An ON telegram (1) closes the contact and an OFF telegram (0) opens the contact.
- *Normally closed*: An ON telegram (1) opens the contact and an OFF telegram (0) closes the contact.

—

Dependent parameter

Object value Relay status

Options: 1 = closed, 0 = open
 0 = closed, 1 = open

This parameter specifies the group object value of the switching status (relay status).

- *1 = closed, 0 = open*: A closed contact is represented by group object value 1 and an open contact is represented by the value 0.
- *0 = closed, 1 = open*: A closed contact is represented by group object value 0 and an open contact is represented by the value 1.

ABB i-bus[®] KNX Parameters

Send status values

Options: After a change
 Cyclically
 After a change and cyclically
 On request
 After a change or request
 On request and cyclically
 After a change or request and cyclically

This parameter specifies when the status value for the generator relay is to be sent.

- *After a change*: The values are sent after a change in the object values (e.g. change from 0 to 1).
- *Cyclically*: If this option is selected, the status values are sent automatically after an adjustable time has elapsed. The *Every* dependent parameter is enabled.
- *After a change and cyclically*: The values are sent after a change and cyclically. The *Every* dependent parameter is enabled.
- *On request*: All status values are sent on the receipt of a command via the Request status values group object.
- *After a change or request*: The values are sent on request and after a change.
- *On request and cyclically*: The values are sent on request and cyclically. The *Every* dependent parameter is enabled.
- *After a change or request and cyclically*: The values are sent on request, after a change and cyclically. The *Every* dependent parameter is enabled.

—

Dependent parameter

Every

Options: 00:00:30...00:05:00...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

7.6 Inputs parameter window

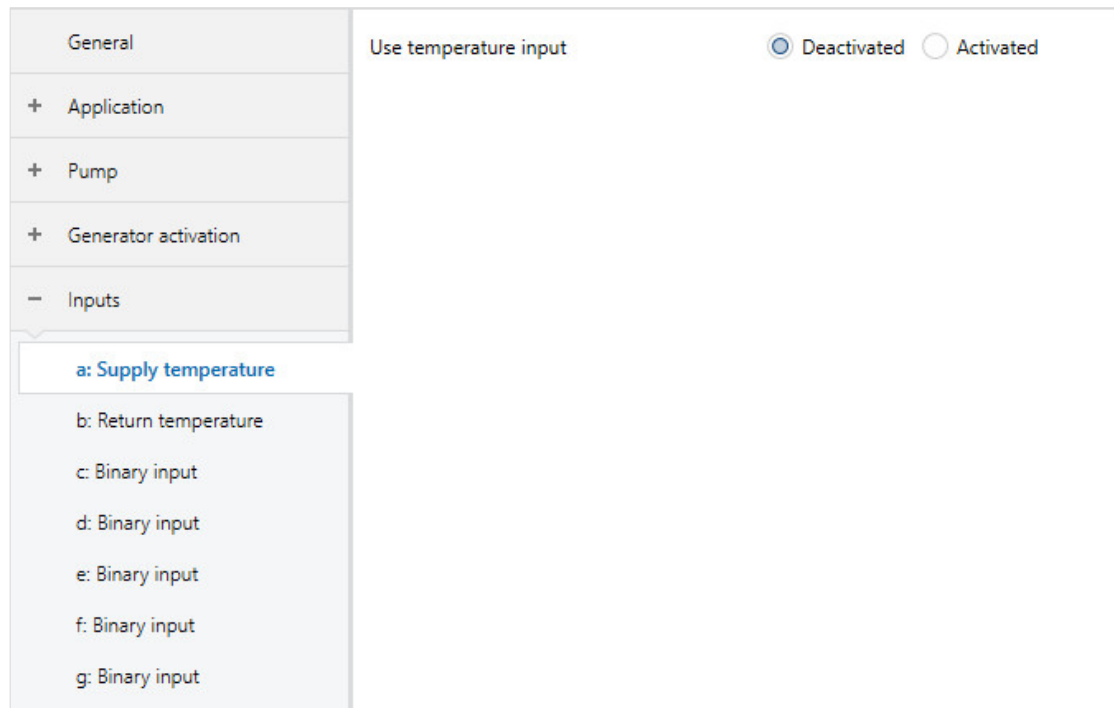


Fig. 12: Inputs parameter window

ABB i-bus[®] KNX Parameters

7.6.1 a: Supply flow temperature

Use temperature input

Options: Deactivated
 Activated

This parameter determines how the supply flow temperature is acquired for the control.

- *Activated*: The supply flow temperature is measured via the physical input on the device (input a). The dependent parameters for specifying the temperature sensor and its detailed settings are enabled. The *Input a – Temperature* and *Input a – Sensor error* group objects are enabled.
- *Deactivated*: There is no measurement of the supply flow temperature.

On the selection of the *Activated* option, the input is used for the temperature measurement for the supply flow temperature.

The temperature value is output via the 2-byte group object *Input x – Temperature*. It is also possible to establish whether there is a fault on the input, e.g. a short circuit or cable break. A fault is reported if the resistance falls below 50 ohms or exceeds 100 kohms.

Faults are reported via the 1-bit group object *Input a – Sensor error*. If a fault occurs, this object changes state from 0 to 1. These two group objects are sent depending on the reaction parameterized in *Send status values*.

Note

Inputs are scanned after a bus voltage recovery, download or ETS reset. Their current status is sent on the bus when the sending and switching delay is complete.

ABB i-bus® KNX Parameters

—

Dependent parameter

Temperature sensor type

Options: PT1000 [-30...+110°C]
 PT100 [-30...+110°C]
 NTC
 KTY [-15...+110]
 NI1000 - 01 [-30...+110°C]
 NI1000 - 02 [-30...+110°C]

This parameter specifies which type of temperature sensor is connected. Please refer to the sensor's datasheet for technical information. The measurable range for each type of sensor appears in square brackets after the type.

- *NTC*: Selecting this type of sensor opens the dependent parameter window NTC type so that you can select an NTC subtype.
- *KTY*: Selecting this type of sensor opens the dependent parameter window KTY type so that you can select a KTY subtype.

—

Dependent parameter

NTC type

Options: NTC10-01 [-15...+100°C]
 NTC10-02 [-15...+100°C]
 NTC10-03 [-15...+100°C]
 NTC20 [0...+100°C]

This parameter allows you to choose the NTC sensor type that is connected. An NTC10 sensor has a resistance of 10 kohms at 25 °C. An NTC 20 has a resistance of 20 kohms. Individual types vary in terms of their resistance curves.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

KTY type

Options: KT 100 / 110 / 130
KT 210 / 230
KTY 10-5 / 11-5 / 13-5
KTY 10-6 / 10-62 / 11-6 / 13-6 / 16-6 / 19-6
KTY 10-7 / 11-7 / 13-7
KTY 21-5 / 23-5
KTY 21-6 / 23-6
KTY 21-7 / 23-7
KTY 81-110 / 81-120 / 81-150
KTY 82-110 / 82-120 / 82-150
KTY 81-121 / 82-121
KTY 81-122 / 82-122
KTY 81-151 / 82-151
KTY 81-152 / 82-152
KTY 81-210 / 81-220 / 81-250
KTY 82-210 / 82-220 / 82-250
KTY 81-221 / 82-221
KTY 81-222 / 82-222
KTY 81-251 / 82-251
KTY 81-252 / 82-252
KTY 83-110 / 83-120 / 83-150
KTY 83-121
KTY 83-122
KTY 83-151
User-defined

This parameter specifies a pre-defined KTY sensor.

- *User-defined*: The dependent parameter *Resistance in ohms at -20...+120 °C* is enabled.

Note

If a KTY sensor is used that is not in the list, you can use the *User-defined* option to enter its characteristic. To ensure that the analog input works properly with respect to user-defined entries, the resistance values, like those in the preset values, must be in ascending order. An incorrect entry can result in unrealistic output values.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Resistance in ohms at -20...+120 °C

Options: 650...4,600

A resistance characteristic can be entered via these 8 parameters. Please refer to the sensor manufacturer's technical documentation for this data.

—

Dependent parameter

Temperature offset

Options: -10.0...00.0...+10.0 °C

A maximum offset of ± 10 °C is added to the temperature measured using this parameter.

—

Dependent parameter

Cable error compensation

Options: None
Via cable length
Via cable resistance

- *Via cable length*: Cable error is compensated by entering the cable length.

 **Note**

Cable error compensation may only be used for copper cables.

- *Via cable resistance*: Cable error is compensated by entering the cable resistance value.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Cable length, one-way distance

Options: 01.0...10.0...100.0 m

This parameter specifies the one-way cable length for the temperature sensor connected.

Note

The maximum cable length permitted between the sensor and device input is 100 m.

—

Dependent parameter

Cross-section of conductor, Value * 0.01 mm²

Options: 1...100...150 mm²

This parameter specifies the conductor cross-section for the temperature sensor connected.

Note

The 150 option corresponds to a cross-section of 1.5 mm².

—

Dependent parameter

Cable resistance [total of fwd and rtn conductor]

Options: 0...500...10,000

This parameter specifies the magnitude of the cable resistance for the temperature sensor connected.

Note

To measure the cable resistance correctly, the conductors must be shorted together at the end of the cable and should not be connected to the analog input.

ABB i-bus[®] KNX Parameters

—
Dependent parameter

Filter

Options: Inactive
 Low (floating mean value over 30 seconds)
 Medium (floating mean value over 60 seconds)
 High (floating mean value over 120 seconds)

This parameter sets a filter (floating mean value filter). This can be used to set the output value as a mean value using three different options.

- *Inactive*: Filter is not active
- *Low*: Floating mean value over 30 seconds
- *Medium*: Floating mean value over 60 seconds
- *High*: Floating mean value over 120 seconds

Note

Using the filter "smooths" the output via the mean value so that it is available for further processing. The filter therefore has immediate effects on thresholds and calculation values. The higher the degree of filtering, the smoother the result. This means that changes to the output value become slower. Example: On an erratic change in the sensor signal on the *Medium* setting, it will take 30 seconds for the output value to propagate.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Send temperature value

Options: After a change
 Cyclically
 After a change and cyclically
 On request
 After a change or on request
 On request and cyclically
 After a change or request and cyclically

This parameter specifies how the output value is to be sent.

- *After a change*: Sends the output value after a change.
- *Cyclically*: Sends the output value cyclically.
- *After a change and cyclically*: Sends the output value after a change, and cyclically.
- *On request*: Sends the output value on request.
- *After a change or request*: Sends the output value after a change and after a request
- *On request and cyclically*: Sends the output value on request, and cyclically
- *After a change or request and cyclically*: Sends the output value after a change, on request, and cyclically.

The value is sent on request if the *General – Request Status values* group object receives a value.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Value is sent from a change of

This parameter is enabled if an option containing *After a change* has been selected for the *Send temperature value* parameter.

Options: 00.2...01.0...10.0

This parameter specifies the temperature change from which the output value is to be sent.

—

Dependent parameter

Every

This parameter is enabled if an option containing *Cyclically* has been selected for the *Send temperature value* parameter.

Options: 00:00:30...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

ABB i-bus[®] KNX Parameters

7.6.2 b: Return flow temperature

Use temperature input

Options: Deactivated
 Activated

The input for the measurement of the return flow temperature is enabled using this parameter.

- *Activated*: The return flow temperature is measured via the physical input on the device (input b). The dependent parameters for specifying the temperature sensor and its detailed settings are enabled. The *Input b – Temperature* and *Input b – Sensor error* group objects are enabled.

The temperature value is output via the 2-byte group object *Input x – Temperature*. It is also possible to establish whether there is a fault on the input, e.g. a short circuit or cable break. A fault is reported if the resistance falls below 50 ohms or exceeds 100 kohms.

Faults are reported via the 1-bit group object *Input a – Sensor error*. If a fault occurs, this object changes state from 0 to 1. These two group objects are sent depending on the reaction parameterized in *Send status values* parameter

Note

Inputs are scanned after a bus voltage recovery, download or ETS reset. Their current status is sent on the bus when the sending and switching delay is complete.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Temperature sensor type

Options: PT1000 [-30...+110°C]
 PT100 [-30...+110°C]
 NTC
 KTY [-15...+110]
 NI1000 - 01 [-30...+110°C]
 NI1000 - 02 [-30...+110°C]

In this parameter it is specified which type of temperature sensor is connected. Please refer to the sensor's datasheet for technical information. The measurable range for each type of sensor appears in square brackets after the type.

- *NTC*: Selecting this type of sensor opens the dependent parameter window NTC type so that you can select an NTC subtype.
- *KTY*: Selecting this type of sensor opens the dependent parameter window KTY type so that you can select a KTY subtype.

—

Dependent parameter

NTC type

Options: NTC10-01 [-15...+100°C]
 NTC10-02 [-15...+100°C]
 NTC10-03 [-15...+100°C]
 NTC20 [0...+100°C]

The NTC sensor type is selected using this parameter. An NTC10 sensor has a resistance of 10 kohms at 25 °C. An NTC 20 has a resistance of 20 kohms. Individual types vary in terms of their resistance curves.

ABB i-bus[®] KNX Parameters

—
Dependent parameter

KTY type

Options: KT 100 / 110 / 130
KT 210 / 230
KTY 10-5 / 11-5 / 13-5
KTY 10-6 / 10-62 / 11-6 / 13-6 / 16-6 / 19-6
KTY 10-7 / 11-7 / 13-7
KTY 21-5 / 23-5
KTY 21-6 / 23-6
KTY 21-7 / 23-7
KTY 81-110 / 81-120 / 81-150
KTY 82-110 / 82-120 / 82-150
KTY 81-121 / 82-121
KTY 81-122 / 82-122
KTY 81-151 / 82-151
KTY 81-152 / 82-152
KTY 81-210 / 81-220 / 81-250
KTY 82-210 / 82-220 / 82-250
KTY 81-221 / 82-221
KTY 81-222 / 82-222
KTY 81-251 / 82-251
KTY 81-252 / 82-252
KTY 83-110 / 83-120 / 83-150
KTY 83-121
KTY 83-122
KTY 83-151
User-defined

A pre-defined KTY sensor is selected using this parameter.

- *User-defined*: The dependent parameter *Resistance in ohms at -20...+120 °C* is enabled.

Note

If a KTY sensor is used that is not in the list, you can use the *User-defined* option to enter its characteristic. To ensure that the analog input works properly with respect to user-defined entries, the resistance values as visible for the preset values must be in ascending order. An incorrect entry can result in unrealistic output values.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Resistance in ohms at -20...+120 °C

Options: 650...4,600

A resistance characteristic can be entered via these 8 parameters. Please refer to the sensor manufacturer's technical documentation for this data.

—

Dependent parameter

Temperature offset

Options: -10.0...00.0...+10.0 °C

A maximum offset of ± 10 °C is added to the recorded temperature using this parameter.

—

Dependent parameter

Cable error compensation

Options: None
Via cable length
Via cable resistance

- *Via cable length*: Cable error is compensated by entering the cable length.

 **Note**

Cable error compensation may only be used for copper cables.

- *Via cable resistance*: Cable error is compensated by entering the cable resistance value.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Cable length, one-way distance

Options: 01.0...10.0...100.0 m

This parameter specifies the one-way cable length for the temperature sensor connected.

Note

The maximum cable length permitted between the sensor and device input is 100 m.

—

Dependent parameter

Cross-section of conductor, Value * 0.01 mm²

Options: 1...100...150 mm²

This parameter specifies the conductor cross-section for the temperature sensor connected.

Note

The 150 option corresponds to a cross-section of 1.5 mm².

—

Dependent parameter

Cable resistance [total of fwd and rtn conductor]

Options: 0...500...10,000

This parameter specifies the magnitude of the cable resistance for the temperature sensor connected.

Note

To measure the cable resistance correctly, the conductors must be shorted together at the end of the cable and should not be connected to the analog input.

ABB i-bus[®] KNX Parameters

—
Dependent parameter

Filter

Options: Inactive
 Low (floating mean value over 30 seconds)
 Medium (floating mean value over 60 seconds)
 High (floating mean value over 120 seconds)

This parameter sets a filter (floating mean value filter). This can be used to set the output value as a mean value using three different options.

- *Inactive*: Filter is not active
- *Low*: Floating mean value over 30 seconds
- *Medium*: Floating mean value over 60 seconds
- *High*: Floating mean value over 120 seconds

Note

Using the filter "smooths" the output via the mean value so that it is available for further processing. The filter therefore has immediate effects on thresholds and calculation values. The higher the degree of filtering, the smoother the result. This means that changes to the output value become slower. Example: On an erratic change in the sensor signal with the *Medium* setting, it will take 30 seconds for the output value to propagate.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Send temperature value

Options: After a change
 Cyclically
 After a change and cyclically
 On request
 After a change or on request
 On request and cyclically
 After a change or request and cyclically

This parameter specifies how the output value is to be sent.

- *After a change*: Sends the output value after a change.
- *Cyclically*: Sends the output value cyclically.
- *After a change and cyclically*: Sends the output value after a change, and cyclically.
- *On request*: Sends the output value on request.
- *After a change or request*: Sends the output value after a change and after a request
- *On request and cyclically*: Sends the output value on request, and cyclically
- *After a change or request and cyclically*: Sends the output value after a change, on request, and cyclically.

The value is sent on request if the *General – Request Status values* group object receives a value.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Value is sent from a change of

This parameter is enabled if an option containing *After a change* has been selected for the *Send temperature value* parameter.

Options: 00.2...01.0...10.0

This parameter specifies the temperature change from which the output value is to be sent.

—

Dependent parameter

Every

This parameter is enabled if an option containing *Cyclically* has been selected for the *Send temperature value* parameter.

Options: 00:00:30...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

ABB i-bus[®] KNX Parameters

7.6.3

c: Binary input

Use input

Options: Deactivated
 As pump status input
 As binary signal input

This parameter specifies the type of usage of the input.

Note

The *As pump status input* option is dependent on the settings on the *Pump* parameter page and is not available as an option that can be selected freely.

If the *Via physical device input* option is selected for the *Monitor pump status* parameter on the *Pump* parameter page, this parameter has the fixed setting *As pump status input*. This setting can also only be changed on the *Pump* parameter page. In this case the status of the input is included in the control of the pump.

- *Deactivated*: The input is deactivated and is not used
- *As pump status input*: The input is used to acquire the operational state (On/Off) of the pump. This correct function of the pump can be monitored using this information. The *Actively detected if* and *Send status value* dependent parameters as well as the *Pump operating status* group object are enabled.
- *As binary signal input*: The input is used as an arbitrary binary signal input, any binary sensor can be connected. The dependent parameters for setting the input (see [chapter 7.6.6, x: Binary signal input](#)), as well as the group object *Switch* are enabled.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Actively detected if

Options: Contact open
 Contact closed

This parameter specifies when the sensor connected to the physical input is to be evaluated as having the state *Pump active*:

- *Contact open*: The pump is active if the contact is open, inactive if the contact is closed.
- *Contact closed*: The pump is active if the contact is closed, inactive if the contact is open.

—

Dependent parameter

Send status value

Options: After a change
 After a change and cyclically

This parameter defines when the state of the input is to be sent.

- *After a change*: The state of the input is sent after every change.
- *On change and cyclically*: The state of the input is sent after every change and cyclically after a specific interval; the dependent parameter *Send input status cyclically* is enabled.

—

Dependent parameter

Send input status cyclically

Options: 00:00:30...00:05:00...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

ABB i-bus[®] KNX Parameters

7.6.4 d: Binary input

Use input

Options: Deactivated
 As pump fault input
 As binary signal input

This parameter specifies the type of usage of the input.

Note

The *As pump fault input* option is dependent on the settings on the *Pump* parameter page and is not available as an option that can be selected freely.

If the *Via physical device input* option is selected for the *Monitor pump status* parameter on the *Pump* parameter page, this parameter has the fixed setting *As pump fault input*. This setting can also only be changed on the *Pump* parameter page. In this case the status of the input is included in the control of the pump.

- *Deactivated*: The input is deactivated and is not used
- *As pump fault input*: The input is used to acquire a floating contact on the pump via which the pump can output an internal fault. This correct function of the pump can be monitored using this information. The *Actively detected if* and *Send status value* dependent parameters as well as the *Pump fault alarm* group object are enabled.
- *As binary signal input*: The input is used as an arbitrary binary signal input, any binary sensor can be connected. The dependent parameters for setting the input (see [chapter 7.6.6, x: Binary signal input](#)), as well as the group object *Switch* are enabled.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Actively detected if

Options: Contact open
 Contact closed

This parameter specifies when the sensor connected to the physical input is to be evaluated as having the state *Pump active*:

- *Contact open*: There is a pump fault if the contact is open, no fault if the contact is closed.
- *Contact closed*: There is a pump fault if the contact is closed, no fault if the contact is open.

—

Dependent parameter

Send status value

Options: After a change
 After a change and cyclically

This parameter defines when the state of the input is to be sent.

- *After a change*: The state of the input is sent after every change.
- *On change and cyclically*: The state of the input is sent after every change and cyclically after a specific interval; the dependent parameter *Send input status cyclically* is enabled.

—

Dependent parameter

Send input status cyclically

Options: 00:00:30...00:05:00...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

Use input

Options: Deactivated
 As pump repair status input
 As binary signal input

This parameter specifies the type of usage of the input.

Note

The *As pump repair status input* option is dependent on the settings on the *Pump* parameter page and is not available as an option that can be selected freely.

If the *Via physical device input* option is selected for the *Monitor pump repair switch* parameter on the *Pump* parameter page, this parameter has the fixed setting *As pump repair status input*. This setting can also only be changed on the *Pump* parameter page. In this case the status of the input is included in the control of the pump.

- *Deactivated*: The input is deactivated and is not used
- *As pump repair status input*: The input is used to acquire the state of the pump's repair switch. The repair switch is used to disconnect the pump from the electrical supply during maintenance work etc. If the repair switch has been actuated, it is not possible to use the pump. The *Actively detected if* and *Send status value* dependent parameters as well as the *Pump repair switch* group object are enabled.
- *As binary signal input*: The input is used as an arbitrary binary signal input, any binary sensor can be connected. The dependent parameters for setting the input (see [chapter 7.6.6, x: Binary signal input](#)), as well as the group object *Switch* are enabled.

ABB i-bus[®] KNX

Parameters

—

Dependent parameter

Actively detected if

Options: Contact open
 Contact closed

This parameter specifies when the sensor connected to the physical input is to be evaluated as having the state *repair switch active* (= repair switch actuated):

- *Contact open*: The repair switch has been actuated if the contact is open, the repair switch has not been actuated if the contact is closed.
- *Contact closed*: The repair switch has been actuated if the contact is closed, the repair switch has not been actuated if the contact is open.

—

Dependent parameter

Send status value

Options: After a change
 After a change and cyclically

This parameter defines when the state of the input is to be sent.

- *After a change*: The state of the input is sent after every change.
- *On change and cyclically*: The state of the input is sent after every change and cyclically after a specific interval; the dependent parameter *Send input status cyclically* is enabled.

—

Dependent parameter

Send input status cyclically

Options: 00:00:30...00:05:00...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

ABB i-bus[®] KNX Parameters

7.6.6

f: Binary input

Use input

Options: Deactivated
 As generator status input
 As binary signal input

This parameter specifies the type of usage of the input.

Note

The *As generator status input* option is dependent on the settings on the *Generator signal* parameter page and is not available as an option that can be selected freely.

If the *Via physical device input* option is selected for the *Monitor generator status* parameter on the *Generator signal* parameter page, this parameter has the fixed setting *As generator error input*. This setting can also only be changed on the *Generator signal* parameter page. In this case the status of the input is included in the control of the generator.

- *Deactivated*: The input is deactivated and is not used
- *As generator status input*: The input is used to acquire the operational state (On/Off) of the generator. This correct function of the generator can be monitored using this information. The *Actively detected if* and *Send status value* dependent parameters as well as the *Generator operating status* group object are enabled.
- *As binary signal input*: The input is used as an arbitrary binary signal input, any binary sensor can be connected. The dependent parameters for setting the input (see [chapter 7.6.6, x: Binary signal input](#)), as well as the group object *Switch* are enabled.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Actively detected if

Options: Contact open
 Contact closed

This parameter specifies when the sensor connected to the physical input is to be evaluated as having the state *Generator active*:

- *Contact open*: The generator is active if the contact is open, inactive if the contact is closed.
- *Contact closed*: The generator is active if the contact is closed, inactive if the contact is open.

—

Dependent parameter

Send status value

Options: After a change
 After a change and cyclically

This parameter defines when the state of the input is to be sent.

- *After a change*: The state of the input is sent after every change.
- *On change and cyclically*: The state of the input is sent after every change and cyclically after a specific interval; the dependent parameter *Send input status cyclically* is enabled.

—

Dependent parameter

Send input status cyclically

Options: 00:00:30...00:05:00...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

Use input

Options: Deactivated
 As generator error input
 As binary signal input

This parameter specifies the type of usage of the input.

Note

The *As generator error input* option is dependent on the settings on the *Generator signal* parameter page and is not available as an option that can be selected freely.

If the *Via physical device input* option is selected for the *Monitor generator error* parameter on the *Generator signal* parameter page, this parameter has the fixed setting *As generator error input*. This setting can also only be changed on the *Generator signal* parameter page. In this case the status of the input is included in the control of the generator.

- *Deactivated*: The input is deactivated and is not used
- *As generator error input*: The input is used to acquire a floating contact on the generator via which the generator can output an internal error. This correct function of the generator can be monitored using this information. The *Actively detected if* and *Send status value* dependent parameters as well as the *Generator error alarm* group object are enabled.
- *As binary signal input*: The input is used as an arbitrary binary signal input, any binary sensor can be connected. The dependent parameters for setting the input (see [chapter 7.6.6, x: Binary signal input](#)), as well as the group object *Switch* are enabled.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Actively detected if

Options: Contact open
 Contact closed

This parameter specifies when the sensor connected to the physical input is to be evaluated as having the state *Generator error*:

- *Contact open*: There is a generator error if the contact is open, no fault if the contact is closed.
- *Contact closed*: There is a generator error if the contact is closed, no fault if the contact is open.

—

Dependent parameter

Send status value

Options: After a change
 After a change and cyclically

This parameter defines when the state of the input is to be sent.

- *After a change*: The state of the input is sent after every change.
- *On change and cyclically*: The state of the input is sent after every change and cyclically after a specific interval; the dependent parameter *Send input status cyclically* is enabled.

—

Dependent parameter

Send input status cyclically

Options: 00:00:30...00:05:00...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

ABB i-bus[®] KNX Parameters

7.6.8 x: Binary signal input

The following parameters are enabled if the *As binary signal input* option has been selected for one of the binary inputs (c...e).

—

Dependent parameter

Maximum dead time

The maximum dead time is 200 ms.

The maximum dead time prevents unwanted multiple actuation of the input, e.g. due to contact bounce.

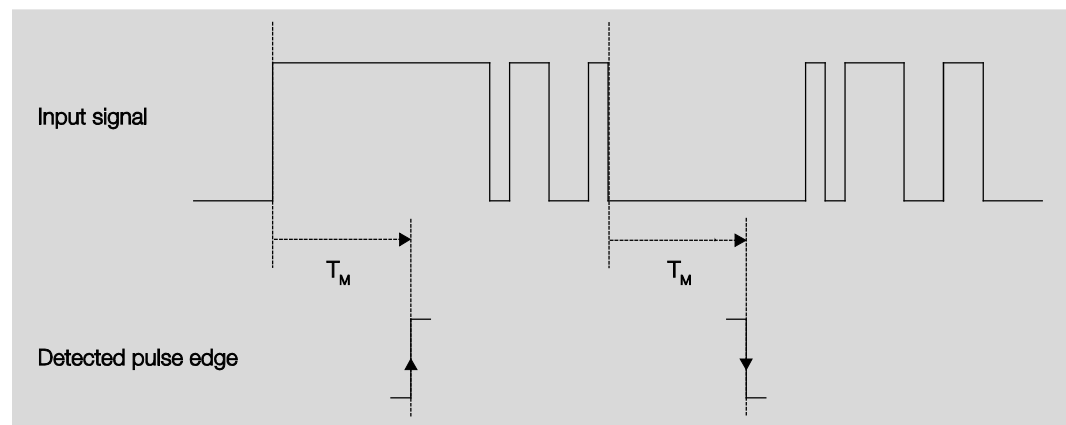
What is the maximum dead time?

An edge change on the input is evaluated with a maximum dead time (delay) of 200 ms. This time may vary from 0 ms to 200 ms.

Note

No further debouncing is possible.

Example: Maximum dead time of the input signal for a detected edge



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Fig. 13: Maximum dead time of the input signal for a detected edge

After detection of an edge on the input, further edges are ignored for the maximum dead time TD.

—
Dependent parameter

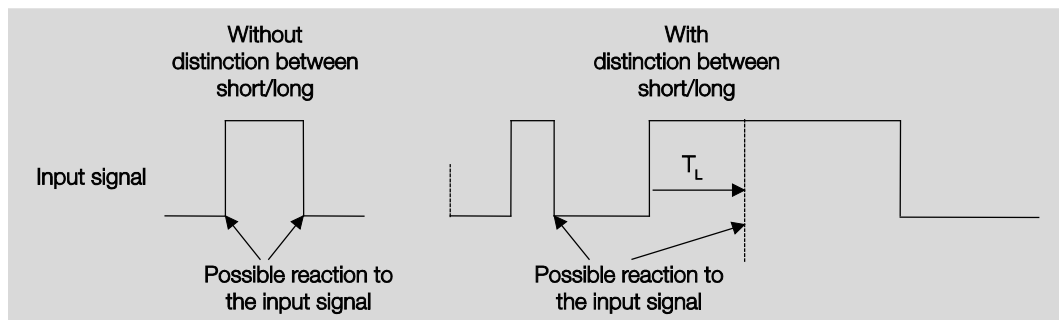
Distinction between long and short operation

Options: No
Yes

This parameter specifies whether the input differentiates between short and long operation.

- Yes: After opening/closing the contact, it must first of all be ascertained if a long or short operation has occurred. Then a possible reaction will be triggered.

The following diagram shows the function in detail:



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Fig. 14: Distinguishing between a short/long operation

Note

T_L is the time from which a long operation is detected.

ABB i-bus[®] KNX Parameters

No

If the *No* option has been selected for the *Distinction between long and short operation* parameter, the following parameters appear:

Note

Opening the contact -> event 0

Closing the contact -> event 1

—

Dependent parameter

Activate minimum signal duration

Options: No
 Yes

—

Dependent parameter

When contact opens

Options: 00.0...01.0...100.0

Dependent parameter

When contact closes

Options: 00.0...01.0...100.0

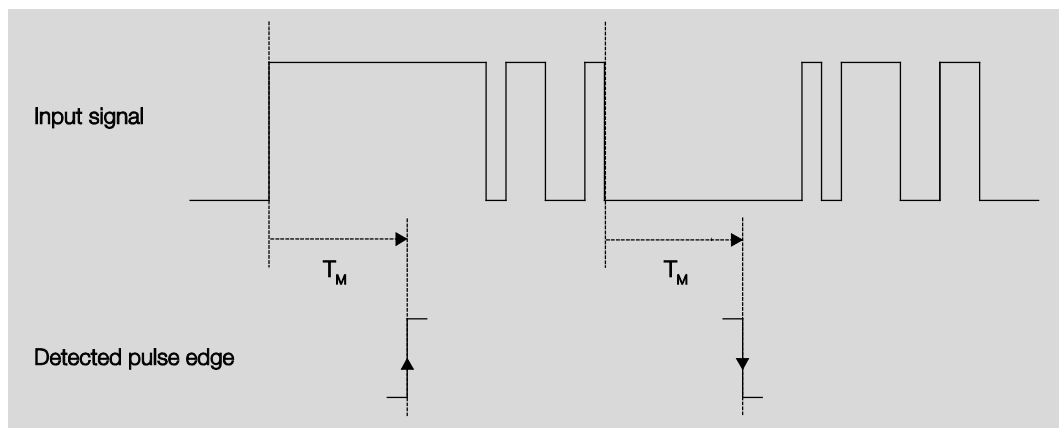
What is the minimum signal duration?

In contrast to the maximum dead time, a telegram only sent once the minimum signal duration has elapsed.

In more detail:

If an edge is detected on the input, the minimum signal duration starts to elapse. No telegrams are sent on the bus at this time. The signal on the input is monitored for the minimum signal duration. If a further edge appears on the input during the minimum signal duration, it is interpreted as a new operation, and the minimum signal duration restarts. If no further edges occur on the input after the minimum signal duration starts, a telegram is sent on the bus after it has elapsed.

Example: Minimum signal duration of the input signal for a detected edge



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Fig. 15: Minimum signal duration of the input signal for a detected edge

There are only two cases where no further edge changes occur within the minimum signal duration T_M after a change of edge. For this reason, only these two cases are detected as valid.

Note

The minimum signal duration is not considered after a download and/or ETS reset.

Note

After a bus voltage recovery, the minimum signal duration starts once the inputs can be scanned. When the sending and switching delay has elapsed, the current state at that point is sent on the bus.

ABB i-bus[®] KNX Parameters

Yes

If the Yes option has been selected for the Distinction between long and short operation parameter, the following parameters appear:

Note

Opening the contact -> event 0
Closing the contact -> event 1

—

Dependent parameter

Input on operation

Options: Contact open
 Contact closed

- *Open*: The input is open on operation.
- *Closed*: The input is closed on operation.

If a normally open contact is connected to the input, select the Closed option; for a normally closed contact, select the Open option.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Long operation after

Options: 01.0...10.0

The time period TL after which an operation is considered long is defined here.

—

Dependent parameter

1-bit group object "Disable input"

Options: No
Yes

- Yes: Enables the 1-bit group object Disable input. This can be used to disable the input.

If the input is disabled and the *Send cyclically* option is set, the last state is still sent regardless of the disabling. The *Disable input* option disables the physical input; sending continues internally.

When the input is disabled there is essentially no reaction to a signal change on the input, but:

- Waiting for a long button push or a minimum signal duration is suspended
- Parameterized cyclic sending is not interrupted
- It is still possible to write to the *Switch* group object

If the input state changes during the disabled phase, the new group object value is sent immediately after the disable is removed. If the input state remains the same during the disabled phase, the group object value is not sent. The minimum signal duration does not start until the disable has elapsed.

The disable is deactivated after an ETS reset, a bus voltage recovery or a download.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Reaction on event X

The following explanations apply to the *Reaction on event 0* and *Reaction on event 1* parameters.

Options:

- No edge evaluation
- On
- Off
- Toggle
- End cyclic transmission

The standard value for Reaction on event 1 is *On*. The standard value for Reaction on event 0 is *Off*.

This determines how the group object reacts. If the *Yes* option has been selected for the *Distinction between long and short operation* parameter, the reaction occurs with a short or long operation. If the *No* option has been selected, it occurs with each edge change.

Note

If it the *End cyclic transmission* option is set, it is important to note that this is only effective if the *After a change and cyclically* option is set in the *Send status value* parameter.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

Send status value

Options: After a change
 After a change and cyclically

- *After a change*: Sends the value only after a change
- *After a change and cyclically*: Sends the value after a change, and cyclically. The *Telegram is repeated every* and *On object value* dependent parameters are enabled.

Note

Cyclic sending

Cyclic sending enables the Switch group object to send automatically at a fixed interval. If cyclic sending applies to a specific object value only (ON or OFF), this condition refers to the value of the group object. It is therefore possible in principle to start cyclic sending by sending a value to the Switch group object. As this behavior is unwanted, the Write and Update flags of the group object are deleted in the preliminary setting so that they cannot be changed via the bus. If this functionality is required irrespectively, set these flags accordingly. If the Switch group object changes and after bus voltage recovery (after the sending delay time has elapsed), the group object value is sent immediately on the bus, and the sending cycle time restarts.

—

Dependent parameter

Telegram is repeated every

Options: 00:00:30...18:12:15 hh:mm:ss

This parameter specifies the interval at which the values are sent cyclically.

ABB i-bus[®] KNX Parameters

—

Dependent parameter

On object value

Options: 0
 1
 0 or 1

- *0*: Sends the group object value cyclically if 0.
- *1*: Sends the group object value 1 cyclically.
- *0 or 1*: Sends the group object values 0 or 1 cyclically.

—

Dependent parameter

Scan input after download, ETS reset and bus voltage recovery

Options: No
 Yes

- *No*: The object value is not scanned after a download, ETS reset or bus voltage recovery.
- *Yes*: The object value is scanned after a download, ETS reset or bus voltage recovery.

Note

Scanning starts once the device is ready for normal operation again after the download, ETS reset or bus voltage recovery. This can take up to 2 seconds.

ABB i-bus[®] KNX

Group objects

8 Group objects

8.1 Summary of group objects

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
1	In operation	General	1.002	1 bit	X	X		X	
2	Status byte device	General	Non DPT	1 byte	X	X		X	
3	Request status values	General	1.017	1 bit	X		X		
10	Forced operation, 2 bit	Channel - General	2.001	2 bit	X		X		
11	Forced operation, 1 bit	Channel - General	1.002	1 bit	X		X		
12	Error: setpoint receipt	Channel - General	1.005	1 bit	X	X		X	
13	Error: pump fault receipt	Channel - General	1.005	1 bit	X	X		X	
14	Error: repair switch receipt	Channel - General	1.005	1 bit	X	X		X	
15	Error: generator error receipt	Channel - General	1.005	1 bit	X	X		X	
16	Override pump	Channel - Pump	1.001	1 bit	X		X		
17	Status pump relay	Channel - Pump	1.009	1 bit	X	X		X	
19	Pump fault input	Channel - Pump	1.005	1 bit	X		X		
20	Pump repair switch input	Channel - Pump	1.011	1 bit	X		X		
22	Pump override via KNX (deactivate/activate)	Channel - Pump	1.003	1 bit	X		X		
23	Status pump automatic	Channel - Pump	1.011	1 bit	X	X		X	
26	Switch on/off pump	Channel - Pump	1.001	1 bit	X		X		
27	Status generator relay	Channel - Generator relay	1.009	1 bit	X	X		X	
28	Switch generator relay	Channel - Generator relay	1.001	1 bit	X		X		
29	Supply flow temperature	Channel - Input a	9.001	2 bytes	X	X		X	
30	Sensor error	Channel - Input a	1.005	1 bit	X	X		X	
31	Return flow temperature	Channel - Input b	9.001	2 bytes	X	X		X	
32	Sensor error	Channel - Input b	1.005	1 bit	X	X		X	
33	Pump operating status	Channel - Binary input c	1.011	1 bit	X	X		X	
33	Switch	Channel - Binary input c	1.001	1 bit	X	X		X	
34	Disable input	Channel - Binary input c	1.003	1 bit	X		X		
35	Pump fault alarm	Channel - Binary input d	1.005	1 bit	X	X		X	
35	Switch	Channel - Binary input d	1.001	1 bit	X	X		X	
36	Disable input	Channel - Binary input d	1.003	1Bit	X		X		
37	Pump repair switch	Channel - Binary input e	1.011	1 bit	X	X		X	
37	Switch	Channel - Binary input e	1.001	1 bit	X	X		X	
38	Disable input	Channel - Binary input e	1.003	1 bit	X		X		

ABB i-bus[®] KNX

Group objects

No.	Object function	Name	DPT	Length	Flags				
					C	R	W	T	U
39	Generator operating status	Channel - Binary input f	1.011	1 bit	X	X		X	
39	Switch	Channel - Binary input f	1.001	1 bit	X	X		X	
40	Disable input	Channel - Binary input f	1.003	1 bit	X		X		
41	Generator error alarm	Channel - Binary input g	1.005	1 bit	X	X		X	
41	Switch	Channel - Binary input g	1.001	1 bit	X	X		X	
42	Disable input	Channel - Binary input g	1.003	1 bit	X		X		
43	Setpoint temperature	Channel - Generator	9.001	2 bytes	X		X	X	X
43	Setpoint temperature	Channel - Generator	9.002	2 bytes	X		X	X	X
44	Setpoint power	Channel - Generator	5.001	1 byte	X		X	X	X
45	Generator On/Off	Channel - Generator	1.001	1 bit	X		X		
46	Generator status On/Off	Channel - Generator	1.001	1 bit	X	X		X	
47	Generator error input	Channel - Generator	1.005	1 bit	X		X		
48	Enable/disable manual generator override control	Channel - Generator	1.003	1 bit	X		X		
49	Override generator relay	Channel - Generator	1.001	1 bit	X		X		
50	Override setpoint generator	Channel - Generator	9.001	2 bytes	X		X		
50	Override setpoint generator	Channel - Generator	9.002	2 bytes	X		X		
50	Override setpoint generator	Channel - Generator	5.001	1 byte	X		X		
51	Generator activation status	Channel - Generator	9.020	2 bytes	X	X		X	
52	Generator output error	Channel - Generator	1.005	1 bit	X	X		X	

Table 23: Summary of group objects

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Group objects

8.2 Group objects, general

No.	Object function	Name	Data type	Flags
1	In operation	General	1 bit DPT 1.002	C, R, T
<p>This group object is enabled if the <i>Yes</i> option has been selected for the <i>Enable group object "In operation"</i>, 1 bit parameter in the <i>General</i> parameter window.</p> <p>To monitor regularly the presence of the device on the KNX bus, an <i>In operation</i> telegram is sent cyclically on the bus. As long as the group object is activated, it sends a parameterizable <i>In operation</i> telegram. The telegram value depends on the option selected in the <i>Send</i> parameter.</p>				
2	Status byte device	General	1 byte Non DPT	C, R, T
<p>This group object is always enabled and indicates the current device state. It indicates whether the device is working normally or whether manual override is in effect.</p> <p>This group object maps the following information:</p> <ul style="list-style-type: none"> • Bit 0: Manual pump override The pump has been overridden manually via a group object - 0: Manual override inactive - 1: Manual override active • Bit 1: Forced operation Forced operation has been activated. - 0: Forced operation inactive - 1: Forced operation active • Bit 2: Manual setpoint temperature/setpoint power override The generator signal has been overridden manually via a group object. - 0: Manual override inactive - 1: Manual override active • Bit 3: Generator On/Off The status of the generator activation is given - 0: Output voltage is in the "Generator off" range - 1: Output voltage is in the activation range • Bit 4: Safety mode The device is in the safety mode, e.g. due to setpoint failure; a pre-defined control value (see Cyclical monitoring parameter) applies. • Bit 5: Generator output error The setpoint output on the device is in the error mode, e.g. due to a short circuit or an overload on the cable - 0: No error on the output - 1: Error on output, 				
3	Request status values	General	1 bit DPT 1.017	C, W
<p>This group object is always enabled.</p> <p>If a telegram with the value 0 or 1 is received in this group object, all <i>Status</i> group objects are sent on the bus if they were parametrized with the <i>On request</i> option.</p>				

Table 24: Group objects, general

8.3 Group objects, Channel - General

No.	Object function	Name	Data type	Flags
10	Forced operation, 2 bit	Channel - General	2 bit DPT 2.001	C, W
<p>This group object is enabled if the <i>Forced operation, 2 bit</i> option has been selected for the <i>Use forced operation</i> parameter in the <i>Monitoring and safety</i> parameter window.</p> <p>This group object activates and deactivates forced operation.</p> <p>Telegram value: (Bit 1 Bit 0: Status of forced operation):</p> <ul style="list-style-type: none"> • 0 0: Forced operation inactive • 0 1: Forced operation inactive • 1 0: Forced operation active; state OFF • 1 1: Forced operation active; state ON 				
11	Forced operation, 1 bit	Channel - General	1 bit DPT 1.002	C, W
<p>This group object is enabled if the <i>Forced operation 1 bit; 0 active</i> or <i>Forced operation 1 bit; 1 active</i> option has been selected for the parameter <i>Use forced operation</i> in the <i>Monitoring and safety</i> parameter window.</p> <p>This group object activates and deactivates forced operation.</p> <p>Depending on the selected option, forced operation is activated with a 1 or 0 and deactivated with a 0 or 1.</p>				
12	Error: setpoint receipt	Channel - General	1 bit DPT 1.005	C, R, T
<p>This group object is enabled if the <i>Activated</i> option has been selected for the <i>Monitor receipt of setpoint temperature/setpoint power group object</i> parameter in the <i>Monitoring and safety</i> parameter window.</p> <p>If the group object is not received in the time parameterized there, a change is made to the error state and in this way the failure to receive the group object signaled.</p> <p>Telegram value: 1: Error/object not received 0: No error/object received</p>				
13	Error: pump fault receipt	Channel - General	1 bit DPT 1.005	C, R, T
<p>This group object is enabled if the <i>Activated</i> option has been selected for the <i>Monitor receipt of pump fault group object</i> parameter in the <i>Monitoring and safety</i> parameter window.</p> <p>If the group object is not received in the time parameterized there, a change is made to the error state and in this way the failure to receive the group object signaled.</p> <p>Telegram value: 1: Error/object not received 0: No error/object received</p>				

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No.	Object function	Name	Data type	Flags
14	Error: repair switch receipt	Channel - General	1 bit DPT 1.005	C, R, T
<p>This group object is enabled if the <i>Activated</i> option has been selected for the <i>Monitor receipt of pump repair switch group object</i> parameter in the <i>Monitoring and safety</i> parameter window.</p> <p>If the group object is not received in the time parameterized there, a change is made to the error state and in this way the failure to receive the group object signaled.</p> <p>Telegram value: 1: Error/object not received 0: No error/object received</p>				
15	Error: generator error receipt	Channel - General	1 bit DPT 1.005	C, R, T
<p>This group object is enabled if the <i>Activated</i> option has been selected for the <i>Monitor receipt of generator error group object</i> parameter in the <i>Monitoring and safety</i> parameter window.</p> <p>If the group object is not received in the time parameterized there, a change is made to the error state and in this way the failure to receive the group object signaled.</p> <p>Telegram value: 1: Error/object not received 0: No error/object received</p>				

Table 25: Group objects, Channel - General

8.4 Group objects, Pump


No.	Object function	Name	Data type	Flags
16	Override pump	Channel - Pump	1 bit DPT 1.001	C, W
<p>This group object is enabled if the <i>Yes</i> option has been selected for the <i>Activate manual pump override via group object</i> parameter in the <i>Pump</i> parameter window.</p> <p>The pump can be switched on and off using this group object if override is active. The device only reacts to this object if the override has been enabled via the <i>Pump override via KNX (deactivate/activate)</i> group object.</p> <p>Telegram value: 1: Switches on the pump 0: Switches off the pump</p>				
17	Status pump relay	Channel - Pump	1 bit DPT 1.009	C, R, T
<p>This group object indicates the status of the pump relay. This status provides information on whether the device has switched on or off the pump.</p> <p> Note</p> <p>Caution! The status of this group object does not reliably indicate whether the pump is active or inactive, instead only whether it has been switched on or off. To acquire the state of the pump reliably, the pump must be polled, e.g. using a floating contact.</p> <p>Telegram value: 1: Pump relay closed 0: Pump relay open</p>				
19	Pump fault input	Channel - Pump	1 bit DPT 1.005	C, W
<p>This group object is enabled if the <i>Via group object</i> option has been selected for the <i>Monitor pump fault</i> parameter in the <i>Pump</i> parameter window.</p> <p>The error state of the pump can be received via this group object and evaluated by the device. If the pump is switched on and the error status of the pump changes to active, the pump is shut down immediately. If the pump is switched off, but the error status is active, the pump cannot be switched on.</p> <p>Telegram value: 1: Pump fault active 0: Pump fault inactive</p>				

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Group objects

No.	Object function	Name	Data type	Flags
20	Pump repair switch input	Channel - Pump	1 bit DPT 1.011	C, W
<p>This group object is enabled if the <i>Via group object</i> option has been selected for the <i>Monitor pump repair switch</i> parameter in the <i>Pump</i> parameter window.</p> <p>The status of the repair switch for the pump can be received via this group object and evaluated by the device. If the pump is switched on and the status of the repair switch does not change to the operational state active, the pump is shut down again because the repair switch shuts down the supply to the pump. If the pump is switched off, but the repair switch is active, the pump cannot be switched on.</p> <p>Telegram value: 1: Repair switch active 0: Repair switch inactive</p>				
22	Pump override via KNX (deactivate/activate)	Channel - Pump	1 bit DPT 1.003	C, W
<p>This group object is enabled if the <i>Yes</i> option has been selected for the <i>Activate manual pump override via group object</i> parameter in the <i>Pump</i> parameter window.</p> <p>This group object can be used to enable or deactivate pump override via KNX.</p> <p>Telegram value: 1: Pump override is enabled 0: Pump override is disabled/ended</p>				
23	Status pump automatic	Channel - Pump	1 bit DPT 1.011	C, R, T
<p>This group object is enabled if the <i>Yes</i> option has been selected for the <i>Activate manual pump override via group object</i> parameter in the <i>Pump</i> parameter window.</p> <p>This group object indicated whether the pump has been overridden, or whether it is in the automatic mode.</p> <p>Telegram value: 1: Pump is in the automatic mode 0: Pump is overridden</p> <p>ⓘ Note</p> <p>The status of this group object is dependent on whether the pump has been overridden via the <i>Override pump</i> group object; not whether the override has been enabled or disabled via <i>Pump override via KNX (deactivate/activate)</i>.</p>				
26	Switch on/off pump	Channel - Pump	1 bit DPT 1.001	C, W
<p>This group object is enabled if the <i>No</i> option has been selected for the <i>Automatically switch on pump when generator is in activation range</i> parameter in the <i>Pump</i> parameter window.</p> <p>The pump can be switched on and off using the object.</p> <p>Telegram value: 1: Switch on pump 0: Switch off pump</p>				

Table 26: Group objects, Pump

8.5 Group objects, Generator relay

No.	Object function	Name	Data type	Flags
27	Status generator relay	Channel - Generator relay	1 bit DPT 1.009	C, R, T
<p>This group object is enabled if the <i>Activated</i> option has been selected for the <i>Output is</i> parameter in the <i>Relay output</i> parameter window.</p> <p>This group object outputs the current contact position on the generator relay. The telegram value depends on the option selected in the <i>Object value Relay status</i> parameter:</p> <ul style="list-style-type: none"> Option: <i>1 = closed; 0 = open</i> Telegram value: 1: Relay closed 0: Relay open Option: <i>0 = closed; 1 = open</i> Telegram value: 1: Relay open 0: Relay closed 				
28	Switch generator relay	Channel - Generator relay	1 bit DPT 1.001	C, W
<p>This group object is enabled if the <i>Activated</i> option has been parameterized for the <i>Output is</i> parameter in the <i>Relay output</i> parameter window.</p> <p>This generator relay can be switched on or off using this group object</p> <p>Telegram value: 1: Switch on generator 0: Switch off generator</p>				

Table 27: Group objects, Generator relay

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Group objects

8.6 Group objects, Inputs

No.	Object function	Name	Data type	Flags
29	Supply flow temperature	Channel - Input a	2 bytes DPT 9.001	C, R, T
<p>This group object is enabled if, in the <i>a</i>: <i>Supply flow temperature</i> parameter window, the <i>Temperature sensor</i> option has been selected for the <i>Use temperature input</i> parameter.</p> <p>The temperature value measured on the input is sent on the bus using this group object depending on the reaction parameterized in the <i>Send temperature value</i> parameter.</p>				
30	Sensor error	Channel - Input a	1 bit DPT 1.005	C, R, T
<p>This group object is enabled if, in the <i>a</i>: <i>Supply flow temperature</i> parameter window, the <i>Temperature sensor</i> option has been selected for the <i>Use temperature input</i> parameter.</p> <p>This group object changes its status to 1 if a fault (open circuit or short circuit) is found on the input and it is therefore no longer possible to send measured values.</p> <p>If there is no fault on the input, this group object value is 0.</p>				
31	Return flow temperature	Channel - Input b	2 bytes DPT 9.001	C, R, T
<p>This group object is enabled if, in the <i>b</i>: <i>Supply flow temperature</i> parameter window, the <i>Temperature sensor</i> option has been selected for the <i>Use temperature input</i> parameter.</p> <p>The temperature value measured on the input is sent on the bus using this group object depending on the reaction parameterized in the <i>Send temperature value</i> parameter.</p>				
32	Sensor error	Channel - Input b	1 bit DPT 1.005	C, R, T
<p>This group object is enabled if, in the <i>b</i>: <i>Supply flow temperature</i> parameter window, the <i>Temperature sensor</i> option has been selected for the <i>Use temperature input</i> parameter.</p> <p>This group object changes its status to 1 if a fault (open circuit or short circuit) is found on the input and it is therefore no longer possible to send measured values.</p> <p>If there is no fault on the input, this group object value is 0.</p>				

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Group objects


No.	Object function	Name	Data type	Flags
33	Pump operating status	Channel - Binary input c	1 bit DPT 1.011	C, R, T
<p>This group object is enabled if the <i>Via physical device input</i> option has been selected for the <i>Monitor pump status</i> parameter in the <i>Pump</i> parameter window.</p> <p>This group object indicates the pump operating status polled on a floating contact on the pump.</p> <p>Telegram value: 1: Pump operation contact closed/pump running 0: Pump operation contact open/pump not running</p>				
33	Switch	Channel - Binary input c	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if, in the <i>c: Binary input</i> parameter window, the <i>As binary signal input</i> option has been selected for the <i>Use input</i> parameter.</p> <p>Depending on the selected parametrization, this group object indicates the contact position on the binary sensor connected to the input.</p>				
34	Disable input	Channel - Binary input c	1 bit DPT 1.003	C, W
<p>This group object is enabled if, in the <i>c: Binary input</i> parameter window, the <i>As binary signal input</i> option has been selected for the <i>Use input</i> parameter.</p> <p>The physical input is enabled or disabled via this group object.</p> <p> Note</p> <p>If the input is disabled there is in principle no reaction to a signal change on the input, but:</p> <ul style="list-style-type: none"> • Waiting for a long button push or a minimum signal duration is terminated. • Parameterized cyclic transmission is not interrupted. • The Switch group object can still be written. <p>If the input state changed during the disabled phase, the new group object value is sent immediately after enabling. If the input state remains the same during the disabled phase, the group object value is not sent.</p> <p>Telegram value: 1: Disable input c 0: Enable input c</p>				

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Group objects

No.	Object function	Name	Data type	Flags
35	Pump fault alarm	Channel - Binary input d	1 bit DPT 1.005	C, R, T
<p>This group object is enabled if the <i>Via physical device input</i> option has been selected for the <i>Monitor pump fault</i> parameter in the <i>Pump</i> parameter window, or the <i>As pump fault input</i> option has been selected for the <i>Use input</i> parameter in the <i>e: Binary input</i> parameter window.</p> <p>This group object indicates the pump fault status polled on a floating contact on the pump.</p> <p>Telegram value: 1: Pump fault contact closed/fault 0: Pump fault contact open/no fault</p>				
35	Switch	Channel - Binary input d	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if, in the <i>d: Binary input</i> parameter window, the <i>As binary signal input</i> option has been selected for the <i>Use input</i> parameter.</p> <p>Depending on the selected parametrization, this group object indicates the contact position on the binary sensor connected to the input.</p>				
36	Disable input	Channel - Binary input d	1 bit DPT 1.003	C, W
<p>This group object is enabled if, in the <i>d: Binary input</i> parameter window, the <i>As binary signal input</i> option has been selected for the <i>Use input</i> parameter.</p> <p>The physical input is enabled or disabled via this group object.</p> <p>i Note</p> <p>If the input is disabled there is in principle no reaction to a signal change on the input, but:</p> <ul style="list-style-type: none"> • Waiting for a long button push or a minimum signal duration is terminated. • Parameterized cyclic transmission is not interrupted. • The Switch group object can still be written. <p>If the input state changed during the disabled phase, the new group object value is sent immediately after enabling. If the input state remains the same during the disabled phase, the group object value is not sent.</p> <p>Telegram value: 1: Disable input d 0: Enable input d</p>				

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Group objects

No.	Object function	Name	Data type	Flags
37	Pump repair switch	Channel - Binary input e	1 bit DPT 1.011	C, R, T
<p>This group object is enabled if the <i>Via physical device input</i> option has been selected for the <i>Monitor pump repair switch</i> parameter in the <i>Pump</i> parameter window, or the <i>As pump repair status input</i> option has been selected for the <i>Use input</i> parameter in the <i>e: Binary input</i> parameter window.</p> <p>This group object indicates the repair switch status polled on a floating contact on the repair switch.</p> <p>Telegram value: 1: Pump repair switch open/pump disconnected 0: Pump repair switch closed/pump in operation</p>				
37	Switch	Channel - Binary input e	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if, in the <i>e: Binary input</i> parameter window, the <i>As binary signal input</i> option has been selected for the <i>Use input</i> parameter.</p> <p>Depending on the selected parametrization, this group object indicates the contact position on the binary sensor connected to the input.</p>				
38	Disable input	Channel - Binary input e	1 bit DPT 1.003	C, W
<p>This group object is enabled if, in the <i>e: Binary input</i> parameter window, the <i>As binary signal input</i> option has been selected for the <i>Use input</i> parameter.</p> <p>The physical input is enabled or disabled via this group object.</p> <p>Note</p> <p>If the input is disabled there is in principle no reaction to a signal change on the input, but:</p> <ul style="list-style-type: none"> • Waiting for a long button push or a minimum signal duration is terminated. • Parameterized cyclic transmission is not interrupted. • The Switch group object can still be written. <p>If the input state changed during the disabled phase, the new group object value is sent immediately after enabling. If the input state remains the same during the disabled phase, the group object value is not sent.</p> <p>Telegram value: 1: Disable input e 0: Enable input e</p>				

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Group objects


No.	Object function	Name	Data type	Flags
39	Generator operating status	Channel - Binary input f	1 bit DPT 1.005	C, R, T
<p>This group object is enabled if the <i>Via physical device input</i> option has been selected for the <i>Monitor generator status</i> parameter in the <i>Generator signal</i> parameter window.</p> <p>This group object indicates the operating status of the generator polled on a floating contact on the generator.</p> <p>Telegram value: 1: Generator operation contact closed/generator active or switched on 0: Generator operation contact open/generator inactive or switched off</p>				
39	Switch	Channel - Binary input f	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if, in the <i>f: Binary input</i> parameter window, the <i>As binary signal input</i> option has been selected for the <i>Use input</i> parameter.</p> <p>Depending on the selected parametrization, this group object indicates the contact position on the binary sensor connected to the input.</p>				
40	Disable input	Channel - Binary input f	1 bit DPT 1.003	C, W
<p>This group object is enabled if, in the <i>f: Binary input</i> parameter window, the <i>As binary signal input</i> option has been selected for the <i>Use input</i> parameter.</p> <p>The physical input is enabled or disabled via this group object.</p> <p> Note</p> <p>If the input is disabled there is in principle no reaction to a signal change on the input, but:</p> <ul style="list-style-type: none"> • Waiting for a long button push or a minimum signal duration is terminated. • Parameterized cyclic transmission is not interrupted. • The Switch group object can still be written. <p>If the input state changed during the disabled phase, the new group object value is sent immediately after enabling. If the input state remains the same during the disabled phase, the group object value is not sent.</p> <p>Telegram value: 1: Disable input f 0: Enable input f</p>				

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Group objects


No.	Object function	Name	Data type	Flags
41	Generator error alarm	Channel - Binary input g	1 bit DPT 1.005	C, R, T
<p>This group object is enabled if the <i>Via physical device input</i> option has been selected for the <i>Monitor generator error</i> parameter in the <i>Generator signal</i> parameter window.</p> <p>This group object indicates the generator error status polled on a floating contact on the generator.</p> <p>Telegram value: 1: Generator error contact closed/error 0: Generator error contact open/no error</p>				
41	Switch	Channel - Binary input g	1 bit DPT 1.001	C, R, T
<p>This group object is enabled if, in the <i>g: Binary input</i> parameter window, the <i>As binary signal input</i> option has been selected for the <i>Use input</i> parameter.</p> <p>Depending on the selected parametrization, this group object indicates the contact position on the binary sensor connected to the input.</p>				
42	Disable input	Channel - Binary input g	1 bit DPT 1.003	C, W
<p>This group object is enabled if, in the <i>g: Binary input</i> parameter window, the <i>As binary signal input</i> option has been selected for the <i>Use input</i> parameter.</p> <p>The physical input is enabled or disabled via this group object.</p> <p> Note</p> <p>If the input is disabled there is in principle no reaction to a signal change on the input, but:</p> <ul style="list-style-type: none"> • Waiting for a long button push or a minimum signal duration is terminated. • Parameterized cyclic transmission is not interrupted. • The Switch group object can still be written. <p>If the input state changed during the disabled phase, the new group object value is sent immediately after enabling. If the input state remains the same during the disabled phase, the group object value is not sent.</p> <p>Telegram value: 1: Disable input g 0: Enable input g</p>				

Table 28: Group objects, Inputs

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Group objects

8.7 Group objects, Generator

No.	Object function	Name	Data type	Flags
43	Setpoint temperature	Channel - Generator	2 bytes DPT 9.001	C, W, T, U
<p>The group object is enabled if the <i>Absolute temperature</i> option has been selected for the <i>Type of generator activation</i> parameter in the <i>Generator signal</i> parameter window.</p> <p>This group object specifies the generator temperature value that is to be transferred to the generator via the output voltage.</p>				
43	Setpoint temperature	Channel - Generator	2 bytes DPT 9.002	C, W, T, U
<p>The group object is enabled if the <i>Temperature offset</i> option has been selected for the <i>Type of generator activation</i> parameter in the <i>Generator signal</i> parameter window.</p> <p>This group object specifies the generator temperature change (offset) that is to be transferred to the generator via the output voltage.</p>				
44	Setpoint power	Channel - Generator	1 byte DPT 5.001	C, W, T, U
<p>The group object is enabled if the <i>Power specified</i> option has been selected in the <i>Type of generator activation</i> parameter in the <i>Generator signal</i> parameter window.</p> <p>This group object specifies the generator power value that is to be transferred to the generator via the output voltage.</p>				
45	Generator On/Off	Channel - Generator	1 bit DPT 1.001	C, W
<p>This group object is used to switch on and off the generator.</p> <p>The generator signal can be switched between the activation range and the off/standby range using this group object.</p> <p>If the relay output is used to activate the generator, the relay is also switched correspondingly.</p> <p>If the Generator is switched off via the group object <i>Generator On/Off</i>, the generator also has to be switched on by using this object. This prevents the generator is unintentionally switched on by a cyclical sending of a set point value after a deliberate shutdown, e.g. due to the summer shutdown.</p> <p>Telegram value:</p> <p>1: The generator signal is switched to the activation range. The last valid setpoint temperature/setpoint power is used. The generator relay is switched on.</p> <p>0: The generator signal is switched to the off/standby range. The generator relay is switched off.</p>				
46	Generator status On/Off	Channel - Generator	1 bit DPT 1.001	C, R, T
<p>This group object specifies whether the output voltage for the generator signal is in the "Generator off" range or in the activation range.</p> <p>Telegram value:</p> <p>1: Output voltage in the activation range</p> <p>0: Output voltage in the "Generator off" range</p>				
47	Generator error input	Channel - Generator	1 bit DPT 1.005	C, W
<p>This group object is enabled if the <i>Via group object</i> option has been selected for the <i>Monitor generator error</i> parameter in the <i>Generator signal</i> parameter window.</p> <p>An error message from the generator can be received via this group object and used to shut down the generator if there is an error.</p> <p>On the reception of the "Error" information via this group object, the output voltage changes to the activation range for "Generator off" and the generator relay is switched off (if used).</p>				

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Group objects

No.	Object function	Name	Data type	Flags
48	Enable/disable manual generator override control	Channel - Generator	1 bit DPT 1.003	C, W
<p>The group object is enabled if the <i>Yes</i> option has been selected for the <i>Activate generator override via group object</i> parameter in the <i>Generator signal</i> parameter window.</p> <p>If manual generator override is enabled, the values in the <i>Override setpoint generator</i> and <i>Override generator relay</i> group objects are used directly for the generator outputs. The value received via the <i>Setpoint temperature/Setpoint power</i> object is overridden.</p> <p>Telegram value: 1: Manual override enabled 0: Manual override disabled</p> <p>If a 0 is received in this group object, manual override is immediately disabled and the value specified via the <i>Setpoint temperature/Setpoint power</i> group object applies again.</p>				
49	Override generator relay	Channel - Generator	1 bit DPT 1.001	C, W
<p>The group object is enabled if the <i>Yes</i> option has been selected for the <i>Activate generator override via group object</i> parameter in the <i>Generator signal</i> parameter window.</p> <p>If manual generator override has been enabled via the <i>Enable/disable manual generator override control</i> group object, the generator relay can be switched on and off.</p> <p>Telegram value: 1: Generator relay is switched on 0: Generator relay is switched off</p>				

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Group objects

No.	Object function	Name	Data type	Flags
50	Override setpoint generator	Channel - Generator	2 bytes DPT 9.001 DPT 9.002 DPT 5.001	C, W
<p>The group object is enabled if the Yes option has been selected for the <i>Activate generator override via group object</i> parameter in the <i>Generator signal</i> parameter window.</p> <p>If manual generator override has been enabled via the <i>Enable/disable manual generator override control</i> group object, this object can be used to specify a setpoint to the generator.</p> <p>The data point type is dependent on the option selected in the <i>Type of generator activation</i> parameter in the <i>Generator signal</i> parameter window:</p> <ul style="list-style-type: none"> Option: <i>Absolute temperature</i> DPT 9.001 Option: <i>Temperature offset</i> DPT 9.002 Option: <i>Power specified</i> DPT 5.001 				
51	Generator activation status	Channel - Generator	2 bytes DPT 9.020	C, W
<p>The voltage output on the analog output (generator activation) on the device is output on the bus using this group object.</p>				
52	Generator output error	Channel - Generator	1 bit DPT 1.005	C, R, T
<p>This group object specifies whether there is a fault on the analog output on the device, e.g. due to a short circuit or overload. If there is a fault, the output switches off automatically. The device then checks regularly whether the fault on the output has been rectified. As soon as this occurs, the value of the group object changes back to 0.</p> <p>Telegram value: 1: Fault on the output 0: No fault on the output</p>				

Table 29: Group objects, Generator

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Operation

9 **Operation**

9.1 **Manual operation**

This chapter is not relevant for this device.

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Maintenance and cleaning

10 Maintenance and cleaning

10.1 Maintenance

The device is maintenance-free. In the event of damage, e.g. during transport and/or storage, repairs are not allowed to be made.

10.2 Cleaning

Disconnect the device from the supply of electrical power before cleaning. If devices become dirty, they can be cleaned using a dry cloth or a cloth dampened with a soapy solution. Corrosive agents or solvents must never be used.

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Disassembly and disposal

11 Disassembly and disposal

11.1 Removal

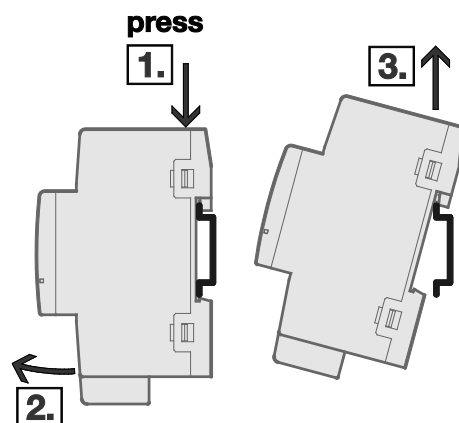


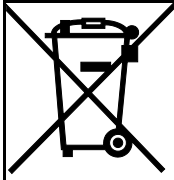
Fig. 16: Removal from the DIN rail

1. Press on the top of the device.
2. Release the bottom of the device from the DIN rail.
3. Lift the device up and off the DIN rail.

11.2 Environment

Consider environmental protection.

Used electrical and electronic devices must not be disposed of as domestic waste.



The device contains valuable resources that can be recycled. Therefore, please take the device to a suitable recycling center. All packaging materials and devices are provided with markings and test seals for proper disposal. Always dispose of packaging material and electrical devices or their components at collection points or disposal companies authorized for this purpose. The products comply with the statutory requirements, particularly the law on electrical and electronic equipment and the REACH regulation. (EU directive 2012/19/EU WEEE and 2011/65/EU RoHS) (EU REACH regulation and the law implementing the regulation (EC) no.1907/2006)

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Planning and application

12 Planning and application

12.1 Introduction

In this chapter you will find some tips and application examples for practical use of the device.

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Planning and application

12.2 Priorities

12.2.1 Generator setpoint temperature/setpoint power

- a) Generator error
- b) Bus voltage failure
- c) Forced operation
- d) i-bus tool
- e) Manual generator override
- f) Normal operation setpoint temperature/setpoint power & generator on/off
- g) Bus voltage recovery

12.2.2 Pump

- a) Pump safety mode on error and repair
- b) Bus voltage failure
- c) Forced operation
- d) i-bus tool
- e) Manual pump override
- f) Pump automatic mode (depending on the generator control value) or manual pump control
- g) Bus voltage recovery

13 Appendix

13.1 Scope of delivery

The heating/cooling circuit controller is supplied together with the following components. The items delivered should be checked against the list below

- 1 x BCI/S 1.1.1 boiler/chiller interface
- 1 x installation and operating instructions
- 1 x bus connection terminal (red/black)
- 1x KNX connection cover cap

13.2 Status byte device

Bit No.	7	6	5	4	3	2	1	0	Bit No.	7	6	5	4	3	2	1	0	Bit No.	7	6	5	4	3	2	1	0
8-bit value									8-bit value									8-bit value								
Hexadecimal									Hexadecimal									Hexadecimal								
Not assigned									Not assigned									Not assigned								
Not assigned									Not assigned									Not assigned								
Generator output error									Generator output error									Generator output error								
Safety mode									Safety mode									Safety mode								
Generator On/Off									Generator On/Off									Generator On/Off								
Manual setpoint temperature/setpoint power override									Manual setpoint temperature/setpoint power override									Manual setpoint temperature/setpoint power override								
Forced operation									Forced operation									Forced operation								
Manual pump override									Manual pump override									Manual pump override								
0	0								58	3A			X	X	X			116	74		X	X	X		X	
1	1							X	59	3B			X	X	X			117	75		X	X	X		X	X
2	2						X		60	3C			X	X	X			118	76		X	X	X		X	X
3	3						X	X	61	3D			X	X	X	X		119	77		X	X	X		X	X
4	4					X			62	3E			X	X	X	X		120	78		X	X	X	X		
5	5					X		X	63	3F			X	X	X	X	X	121	79		X	X	X	X		X
6	6					X	X		64	40		X						122	7A		X	X	X	X		X
7	7					X	X	X	65	41		X						123	7B		X	X	X	X		X
8	8				X				66	42		X				X		124	7C		X	X	X	X	X	
9	9				X			X	67	43		X				X	X	125	7D		X	X	X	X	X	X
10	0A				X		X		68	44		X			X			126	7E		X	X	X	X	X	X
11	0B				X		X	X	69	45		X			X		X	127	7F		X	X	X	X	X	X
12	0C				X	X			70	46		X			X	X		128	80	X						
13	0D				X	X		X	71	47		X			X	X	X	129	81	X						X
14	0E				X	X	X		72	48		X		X				130	82	X					X	
15	0F				X	X	X	X	73	49		X		X			X	131	83	X					X	X
16	10			X					74	4A		X		X		X		132	84	X				X		
17	11			X				X	75	4B		X		X		X	X	133	85	X				X		X
18	12			X			X		76	4C		X		X	X			134	86	X				X	X	
19	13			X			X	X	77	4D		X		X	X		X	135	87	X				X	X	X
20	14			X		X			78	4E		X		X	X	X		136	88	X			X			
21	15			X		X		X	79	4F		X		X	X	X	X	137	89	X			X			X

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Appendix

13.3 Notes

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Appendix

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Appendix

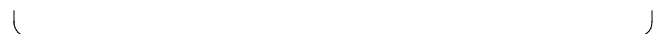


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