Technical Manual

State 04/2025 - Version 1.0

KNX Bus Power Supply with diagnostic function

STC-xxx0.01

Further documents:

Datasheet:
https://www.mdt.de/EN_Downloads_Datasheets.html

Assembly and Operation instructions:
https://www.mdt.de/EN_Downloads_Instructions.html

Solution proposals for MDT products:
https://www.mdt.de/en/for-professionals/tips-tricks.html

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1 Content

2 Overview

2.1 Overview devices

This manual refers to the following devices (article numbers in **bold**):

- **STC-0640.01** KNX Bus Power Supply with diagnostic function, 4 SU MDRC, 640 mA
- **STC-0960.01** KNX Bus Power Supply with diagnostic function, 6 SU MDRC, 960 mA
- **STC-1280.01** KNX Bus Power Supply with diagnostic function, 6 SU MDRC, 1280 mA

2.2 Functions

Bus Power Supply
The overload-safe and short-circuit-proof MDT bus power supply STC reliably supplies the bus participants of a KNX line with a stabilised DC voltage of 30 V.

Unchoked power output
The device also has an unchoked 30 V voltage output for supplying components which require an auxiliary voltage.

Diagnosis function
The diagnostic function of the bus power supply monitors the device temperature, the voltage, the current and the bus traffic load. The last 9 events are stored with a time stamp in a ring buffer.

Device monitoring
The integrated device monitoring checks up to 100 KNX devices. Monitoring can be either active or passive. Events such as the failure of a device or a missing bus device are indicated by an alarm LED, sent as an alarm object and additionally stored as a plain text message with a time stamp in the internal ring buffer of the bus voltage supply.

2.3 Wiring diagram

The following figures shows the exemplary wiring diagram:

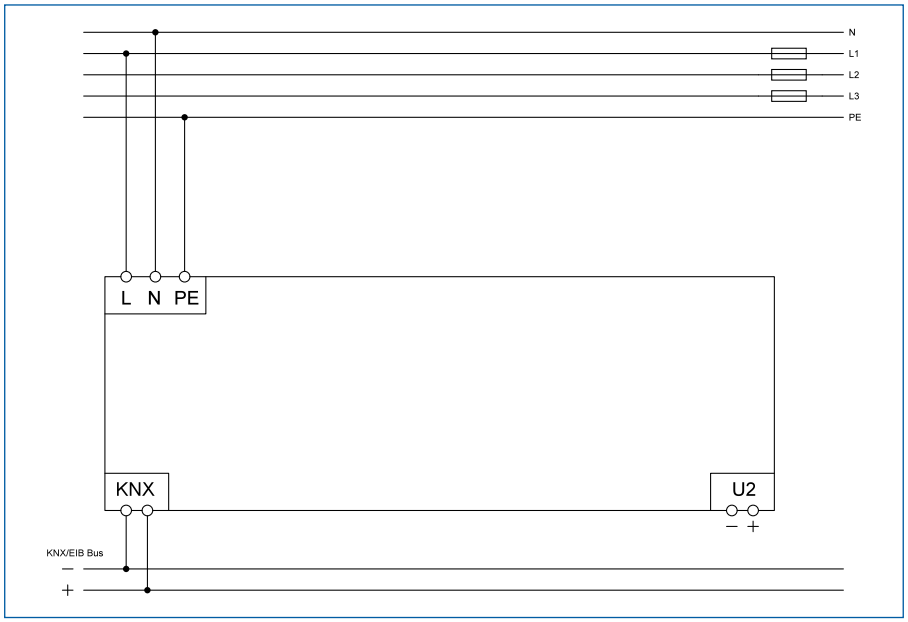

Figure 1: Wiring diagram

Note: It is **not permitted** to connect several STC - Bus Voltage Supplies in parallel.

2.4 Structure and Handling

The following pictures shows the structure of the devices:

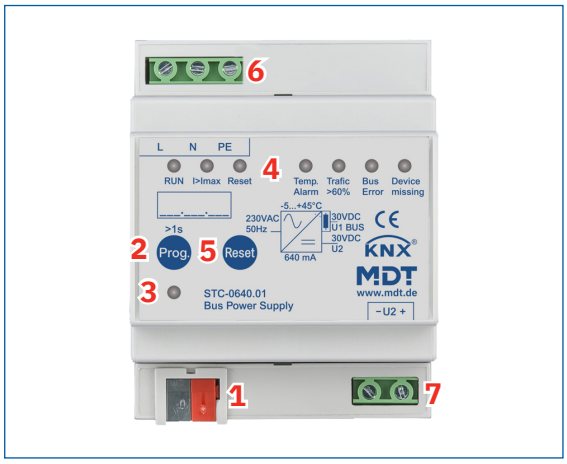

Figure 2: Structure and Handling: STC-0640.01

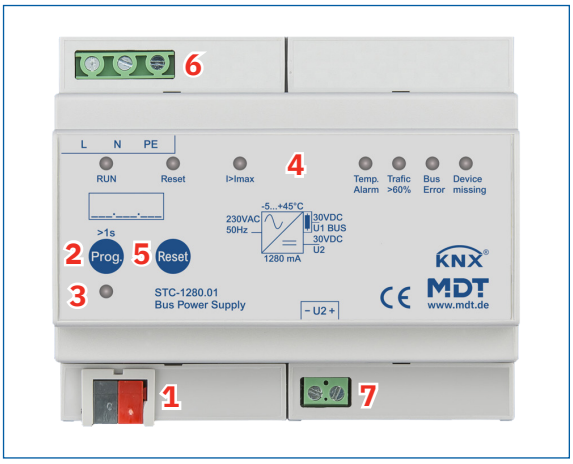

Figure 3: Structure and Handling: STC-0960.01 / STC-1280.01

1 – KNX Bus connection terminal
2 – Programming button
3 – Programming LED (red)
4 – Status LEDs
5 – Bus-Reset button
6 – Mains power supply terminal
7 – Unchoked power output

Button	Usage	
Reset	Perform a manual bus voltage reset	
Prog	Switches the device to programming mode	
LED	**Colour**	**Function**
RUN	Green	The power supply is in normal operation.
I>Imax	Red	The measured total current is above the maximum value.
Reset	Red	A bus voltage reset is carried out.
Temp. Alarm	Red	The device temperature is above the permitted range.
Traffic > 60 %	Red	The bus is overloaded due to too many telegrams.
Bus Error	Red	■ There are unconfirmed telegrams on the bus. ■ Dead or unconfirmed group addresses were found. ■ Address collisions were detected.
Device missing	Red	■ The device monitoring system has reported an alarm. ■ A device is missing or not responding.

Table 1: Function of button and status LEDs

2.5 Commissioning

1. Wire the device according to the wiring diagram.
2. Connect programming interface to the bus.
3. Switch on mains voltage.
4. Press the programming button on the device (red programming LED lights up continuously).
5. Set and programme the individual address in the ETS (Programming LED turns off).
6. Configure and programme the settings in the application programme.

3 Communication objects

3.1 Standard settings of the communication objects

Standard settings – General								
No.	Name	Object Function	Length	C	R	W	T	U
0	Operation	Send status	1 Bit	■			■	
1	Bus reset	Reset enable	1 Bit	■		■		
2	Day time	Receive value	3 Byte	■		■		
3	Date	Receive value	3 Byte	■		■		
4	Date and time	Receive value	8 Byte	■		■		
20	All measured data	Start request	1 Bit	■		■		
21	All min/max values	Reset	1 Bit	■		■		

Table 2: Communication objects – Standard settings: General

Standard settings – Current monitoring								
No.	Name	Object Function	Length	C	R	W	T	U
5	Current measurement value	Send measurement value	2 Byte 4 Byte	■	■		■	
8	Exceedance of current	Alarm message	1 Bit	■	■		■	
14	Current monitoring	Maximum of current value	2 Byte 4 Byte	■	■		■	
15	Current monitoring	Minimum of current value	2 Byte 4 Byte	■	■		■	

Table 3: Communication objects – Standard settings: Current monitoring

Standard settings – Voltage monitoring								
No.	Name	Object Function	Length	C	R	W	T	U
6	Voltage measurement value	Send measurement value	2 Byte 4 Byte	■	■		■	
10	Lower deviation of voltage	Alarm message	1 Bit	■	■		■	
16	Voltage monitoring	Maximum of current value	2 Byte 4 Byte	■	■		■	
17	Voltage monitoring	Minimum of current value	2 Byte 4 Byte	■	■		■	

Table 4: Communication objects – Standard settings: Voltage monitoring

Standard settings – Bus traffic monitoring								
No.	Name	Object Function	Length	C	R	W	T	U
7	Bus traffic	Monitoring	1 Byte	■	■		■	
13	Exceedance of bus traffic	Alarm message	1 Bit	■	■		■	
18	Bus traffic monitoring	Maximum of bus traffic	1 Byte	■	■		■	
19	Bus traffic monitoring	Minimum of bus traffic	1 Byte	■	■		■	

Table 5: Communication objects – Standard settings: Bus traffic monitoring

Standard settings – Temperature monitoring								
No.	Name	Object Function	Length	C	R	W	T	U
11	Temperature monitoring	Alarm at exceedance of temperature	1 Bit	■	■		■	

Table 6: Communication objects – Standard settings: Temperature monitoring

Standard settings – Device monitoring								
No.	Name	Object Function	Length	C	R	W	T	U
22	Device 1	Monitoring via group address	1 Bit 1 Byte 2 Byte 4 Byte	■		■	■	■
22	Device 1	Monitoring via group address	1 Bit 1 Byte 2 Byte 4 Byte	■		■		
+1	**next device**							
122	Device 1	Monitoring result	1 Bit	■	■		■	
+1	**next device**							
222	Device group 1	Monitoring result	1 Bit	■	■		■	
+1	**next device group**							
227	Device group 1	Switch	1 Bit	■			■	
+1	**next device group**							
232	All device groups	Monitoring result	1 Bit	■	■		■	
233	Device monitoring	Lock	1 Bit	■		■		
234	Device monitoring	Status	1 Bit	■			■	

Table 7: Communication objects – Standard settings: Device monitoring

Standard settings – Status output								
No.	Name	Object Function	Length	C	R	W	T	U
235	Status output	Status of last event	14 Byte	■			■	
236	Status output for visualisation	Status text	14 Byte	■			■	
237	Menu navigation for visualisation	Scroll text messages	1 Bit	■		■		
238	Menu navigation for visualisation	Confirm menu selection	1 Bit	■		■		
239	Event memory for status output	Reset	1 Bit	■		■		

Table 8: Communication objects – Standard settings: Status output

Standard settings – Operating hours counter								
No.	Name	Object Function	Length	C	R	W	T	U
240	Operating hours counter	Operating hours	2 Byte	■	■		■	
241	Operating hours counter	Operating hours since last restart	2 Byte	■	■		■	
242	Operating hours counter	Operating hours reset	1 Bit	■		■		
243	Operating hours counter	Operating hours 4 Byte	4 Byte	■	■		■	
244	Operating hours counter	Operating hours since last restart 4 Byte	4 Byte	■	■		■	

Table 9: Communication objects – Standard settings: Operating hours counter

The table above shows the preset default settings. The priority of the individual communications objects and the flags can be adjusted by the user as required. The flags assign the communication objects their respective tasks in programming, where C stands for communication, R for read, W for write, T for transmit and U for update.

4 ETS Parameter

4.1 Diagnosis functions

4.1.1 General settings

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Startup timeout	2 ... 200 s **[10 s]**	Setting the time between a restart and the functional start-up of the device.
Operation cycle time	0 min (inactive) – 4 h **[10 min]**	Setting whether and at what interval an “In operation” telegram is sent.
Language selection for status output	■ **German** ■ English	Setting the language for the status output of the device monitoring.
Operating hours counter	■ not active ■ **active**	Activating the operating hours counter.
If „Operating hours counter“ → „active“		
Object selection	■ **2 Byte** ■ 4 Byte	Setting the object length for the operating hours counter.
Report cyclic all (0 = not active)	0 ... 255 h **[0 h]**	Setting whether and at what interval the operating hours are sent.

Table 10: General settings

Startup timeout
This time defines when the device ‘boots up’ after a restart (reset, reprogramming, bus power return). This can be important if, for example, a bus reset is performed. If there are many devices on a line, they would all start at the same time and put a load on the bus. With a variable time, the devices can start at different times.

Operation cycle time
The “Operation” object is used to show on the bus that the device is ‘alive’. When activated, an ON telegram is sent cyclically.

Object „Bus Reset – Reset enable“
This object interrupts the bus power supply for 20 seconds, forcing a bus reset and restart of all devices connected to the bus power supply.

Object “All measured data – Start request”
This object is used to start the transmission of the current / voltage measured values and the bus load, including the associated minimum and maximum values, via the corresponding objects.

Object “All measured data – Reset”
With this object, the minimum and maximum values of the current measurement, the voltage measurement and the bus load are reset.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
0	Operation – Send status	1 Bit	Sending a cyclic telegram.
1	Bus Reset – Reset enable	1 Bit	Activating a bus reset.
2	Day time – Receive value	3 Byte	Receiving the time.
3	Date – Receive value	3 Byte	Receiving the date.
4	Date and time – Receive value	8 Byte	Receiving date and time.
20	All measured date – Start request	1 Bit	Start transmitting all measured values.
21	All min/max values – Reset	1 Bit	Resets all minimum and maximum values.
240	Operating hours counter – Operating hours	2 Byte	Sending operating hours. **If „Object selection“ → „2 Byte“.**
241	Operating hours counter – Operating hours since last restart	2 Byte	Sending the operating hours since the last restart. **If „Object selection“ → „2 Byte“.**
242	Operating hours counter – Operating hours reset	1 Bit	Resetting the operating hours counter.
243	Operating hours counter – Operating hours 4 Byte	4 Byte	Sending operating hours. **If „Object selection“ → „4 Byte“.**
244	Operating hours counter – Operating hours since last restart 4 Byte	4 Byte	Sending the operating hours since the last restart. **If „Object selection“ → „4 Byte“.**

Table 11: Communication objects – General settings

4.1.2 Temperature monitoring

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Temperature alarm	■ **not active** ■ active	Activates the alarm for the temperature monitoring.
Action at temperature alarm	■ **no send** ■ send value = 1 to object ■ send value = 0 to object	Setting whether and which value is sent in the event of a temperature alarm.
Action at return of temperature alarm	■ **no send** ■ send value = 1 to object ■ send value = 0 to object	Setting whether and which value is sent in normal operation.
Cycle time	**no send** 1 min – 24 h	Setting whether and at what interval the value is sent.

Table 12: Settings – Diagnosis functions: Temperature monitoring

Temperature alarm
The temperature alarm is triggered when the device temperature is uncharacteristically high. The temperature threshold is set internally and cannot be configured. If the temperature alarm is active, the “Temp Alarm” LED lights up red.

The limits are defined as follows:

Device	Temperature
STC-0640.01	63 °C
STC-0960.01	60 °C
STC-1280.01	60 °C

Table 13: Temperature monitoring– Threshold values

Action at temperature alarm / at return of temperature alarm (normal operation)
These parameters can be used to specify which value is sent when the device temperature exceeds the limit and which value is transmitted when the temperature is below the limit.

Example: Either an alarm message (for temperature alarm = “1”) or a message that the temperature is within the tolerance range (normal operation = “1”) can be sent. In these cases, the other value is set to “0”.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
11	Temperature monitoring – Alarm at exceedance of temperature	1 Bit	Sending a value for exceeding / not exceeding the maximum temperature.

Table 14: Communication objects – Diagnosis functions: Temperature monitoring

4.1.3 Current monitoring

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Selection of object for bus current measurement	■ **2 Byte unsigned value in mA (DPT 7.012)** ■ 2 Byte floating value in mA (DPT 9.021) ■ 4 Byte floating value in A (DPT 14.019)	Selecting the DPT for the measured value..
Send measurement value after change	**no send** 5 % – 50 %	Setting whether and at what change the measured value is sent.
Send current value cyclic	**no send** 1 min – 24 h	Setting whether and at what interval the measured value is sent.
Current monitoring		
Overcurrent	■ **not active** ■ active	Activates the current monitoring.
Action at exceedance	■ **no send** ■ send value = 1 to object ■ send value = 0 to object	Setting whether and which value is sent in the event of overcurrent.
Action at not exceedance (Normal operation)	■ **no send** ■ send value = 1 to object ■ send value = 0 to object	Setting whether and which value is sent in normal operation.
Cycle time	**no send** 1 min – 24 h	Setting whether and at what interval values are sent.
Reaction rate	■ high ■ **medium** ■ low	Defines the reaction speed of the current monitoring.
Send min / max values	■ **not active** ■ active	Setting whether the minimum and maximum values are transmitted.

Table 15: Settings – Diagnosis functions: Current monitoring

Overcurrent

An overcurrent alarm is detected when the measured current value is higher than the maximum current permitted for the device. An active overcurrent alarm is signalled via the “I > Imax” LED on the device.

The threshold value for the maximum current is:

Device	Maximal current
STC-0640.01	900 mA
STC-0960.01	1300 mA
STC-1280.01	1600 mA

Table 16: Current monitoring – Threshold values

Action at exceedance / at not exceedance (normal operation)
These parameters can be used to specify which value is sent when the current of the connected KNX components exceeds the limit value and which value is transmitted when the current is below the limit value.

Example: Either an alarm message ("... at exceedance" = "1") or a message that the current measurement is within the tolerance range ("... at not exceedance" = "1") can be sent. In these cases, the other value is set to "0".

Reaction rate
The current measurement is delayed by adjusting the reaction rate so that no alarm is triggered by short-term current spikes.

The following filter options are available:

- **high:** The alarm is triggered even by short-term exceedance of the maximum current.
- **medium:** The current monitoring is done with a slight filtering and triggers an alarm when the maximum current is exceeded for at least 5 seconds.
- **low:** The current monitoring is filtered more strongly and reports an alarm when the maximum current is exceeded for at least 10 seconds.

Send min / max values
When activated, the objects "Current monitoring – minimum of current value" and "Current monitoring – maximum of current value" are enabled and transmitted if they change.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
5	Current measurement value – Send measurement value	2 Byte 4 Byte	Transmit the measured value.
8	Exceedance of current – Alarm message	1 Bit	Send a value when the maximum current value is exceed / not exceed.
14	Current monitoring – Maximum of current value	2 Byte 4 Byte	Transmit the highest measured current value.
15	Current monitoring – Minimum of current value	2 Byte 4 Byte	Transmit the lowest measured current value.

Table 17: Communication objects – Diagnosis functions: Current monitoring

4.1.4 Voltage monitoring

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Selection of object for bus voltage measurement	■ 4 Byte floating value in V (DPT 14.027) ■ **2 Byte floating value in mV (DPT 9.020)**	Selecting the DPT for the measured value.
Send measurement value after change	**no send** 5 % – 50 %	Setting whether and at what change the measured value is sent.
Send voltage value cyclic	**no send** 1 min – 24 h	Setting whether and at what interval the measured value is sent.
Voltage monitoring		
Undervoltage (U < 28 V)	■ **not active** ■ active	Activates the voltage monitoring.
Action at lower deviation	■ **no send** ■ send value = 1 to object ■ send value = 0 to object	Setting whether and which value is send in event of too low voltage.
Action at not lower deviation (normal operation)	■ **no send** ■ send value = 1 to object ■ send value = 0 to object	Setting whether and which value is sent in normal operation.
Cycle time	**no send** 1 min – 24 h	Setting whether and at what interval values are sent.
Reaction rate	■ high ■ **medium** ■ low	Defines the reaction speed of the voltage monitoring.
Send limit values	■ **not active** ■ active	Setting whether the minimum and maximum values are transmitted.

Table 18: Settings – Diagnosis functions: Voltage monitoring

Undervoltage
A undervoltage alarm is detected when the measured voltage value is less than 28 V.
This is not signalised by the LED.

Action at lower deviation / at nor lower deviation (normal operation)
These parameters can be used to specify, which value is sent when the voltage drops under the limit value of 28 V and which value is transmitted when the voltage is above this limit value.

Example: Either an alarm message ("... at lower deviation" = "1") or a message that the voltage monitoring is within the tolerance range ("... at not lower deviation" = "1") can be sent. In these cases, the other value is set to "0".

Reaction rate
The voltage monitoring is delayed by adjusting the reaction rate so that no alarm is triggered by short-term voltage drops.

The following filter options are available:

- **high:** The alarm is triggered even by short-term undercutting of the minimum voltage.
- **medium:** The voltage is monitored with a light filtering and an alarm is only triggered if the minimum voltage is undercut for at least 5 seconds..
- **low:** The current monitoring is filtered more strongly and reports an alarm when the minimum voltage is undercut for at least 10 seconds.

Minimum / Maximum values
The objects '"Voltage monitoring – minimum of voltage value" and "Voltage monitoring – maximum of voltage value" are enabled when the 'Send limit values' parameter is activated and transmitted when changed.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
6	Voltage measurement value – Send measurement value	2 Byte 4 Byte	Transmit the measured value.
10	Lower deviation of voltage – Alarm message	1 Bit	Send a value when the limit value is undercut / not undercut.
16	Voltage monitoring – Maximum of voltage value	2 Byte 4 Byte	Transmit the highest measured voltage value.
17	Voltage monitoring – Minimum of voltage value	2 Byte 4 Byte	Transmit the lowest measured voltage value.

Table 19: Communication objects – Diagnosis functions: Voltage monitoring

4.1.5 Bus traffic monitoring

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Send measurement value after change	**no send** 5 % – 50 %	Setting whether and at what change the measured value is sent.
Send current value cyclic	**no send** 1 min – 24 h	Setting whether and at what interval the measured value is sent.
Bus traffic monitoring		
Thresholds for max bus traffic	■ **not active** ■ active	Activates the Bus traffic monitoring
Action at exceedance	■ **no send** ■ send value = 1 to object ■ send value = 0 to object	Setting whether and which value is sent in the event of Bus traffic is > 60 %.
Action at not exceedance (Normal operation)	■ **no send** ■ send value = 1 to object ■ send value = 0 to object	Setting whether and which value is sent in normal operation.
Cycle time	**no send** 1 min – 24 h	Setting whether and at what interval values are sent.
Reaction rate	■ high ■ **medium** ■ low	Defines the reaction speed of the bus traffic monitoring.
Send min / max values	■ **not active** ■ active	Setting whether the minimum and maximum values are transmitted.

Table 20: Settings – Diagnosis functions: Bus traffic monitor

Thresholds for max bus traffic
An alarm is detected when the measured bus load exceeds a value of 60 %.
An active alarm is signalled by the “Traffic > 60 %” LED on the device.

Note: The detected bus traffic includes every telegram on the bus. This is not to be compared with the information in the ETS bus monitor, because this does not display repeated and unconfirmed telegrams.

Action at exceedance / not exceedance (Normal operation)
These parameters can be used to specify which value is sent when the bus load exceeds the limit of 60 % and which value is transmitted when the bus load is below this limit.

Example: Either an alarm message (“...at exceedance” = “1”) or a message that the bus load is below 60 % (“...at not exceedance” = “1”) can be sent. In these cases, the other value is set to “0”.

Reaction rate
The adaptation of the reaction speed delays the monitoring of the bus traffic, which means that a brief exceedance of the limit value does not trigger an alarm.

The following filter options are available:

- **high**: The alarm is triggered even by short-term exceedance of 60 % bus load.
- **medium:** Monitoring is carried out with light filtering and an alarm is only triggered when the bus load is above 60 % for at least 5 seconds.
- **low:** The monitoring is more filtered and only reports an alarm when the bus load is more than 60 % for at least 10 seconds.

Send limit values
The objects “Bus traffic monitoring – Minimum of bus traffic” and “Bus traffic monitoring – Maximum of bus traffic” are enabled and transmitted if they changed.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
7	Bus traffic – Monitoring	1 Byte	Transmitting the current bus load.
13	Exceedance of bus traffic – Alarm message	1 Bit	Send a value when the limit value is exceeded / not exceeded.
18	Bus traffic monitoring – Maximum of bus traffic	1 Byte	Transmit the value of the highest bus load.
19	Bus traffic monitoring – Minimum of bus traffic	1 Byte	Transmit the value of the lowest bus load.

Table 21: Communication objects – Diagnosis functions: Bus traffic monitoring

4.1.6 Status output

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Output mode for state output of last event (Object 235)	■ **One-time sending of event** ■ one time sending of string	Defines the transmission behaviour of the status object.
Parameter configuration for “Status output for visualisation” (Object 236)		
Cyclic output	**no send** 1 min – 24 h	Setting whether and at what interval the status text is sent.
Switchover of the different sides	1 ... 255 **[2]**	Setting the time between a single string and the next.
Number of repetitions	0 – 5 **[2]**	Setting whether and how often the object ‘Status output for visualisations – status text’ is repeated as a bundle.
Send overtemperature via output text	■ no ■ **yes**	Specify whether the respective alarm is only transmitted as an object or also stored as an alarm message in the ring buffer.
Send overcurrent via output text	■ no ■ **yes**	
Send exceedance of bus traffic via output text	■ no ■ **yes**	
Send device monitoring 1 (... 5) via output text	■ no ■ **yes**	
From hardware with revision R2.2		
Send status “Busreset” via output text	■ **send no message** ■ send message at activation of reset button ■ send message at activation of reset button and restart	Specify whether the respective alarm is only transmitted as an object or also stored as an alarm message in the ring buffer.

Table 22: Settings – Diagnosis functions: Status output

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
235	Status output – Status of last event	14 Byte	Sends the status message of the last event.
236	Status output for visualisation – Status text	14 Byte	Status output of the selected event from the ring buffer.
237	Menu navigation for visualisation – Scroll text message	1 Bit	Scroll through the status messages.
238	Menu navigation for visualisation – Confirm menu selection	1 Bit	Starts the transmission process for the data packet of the currently selected status text.
239	Event memory for status output – Reset	1 Bit	Deletes all messages in the ring buffer.

Table 23: Communication objects – Diagnosis functions: Status output

4.1.6.1 Status message in plain text

The following status messages can be output:

Message	Meaning	Usage
T>Tmax	Alarm temperature monitoring	The temperature monitor has been triggered. The limit values for the individual devices can be found in chapter 4.1.2 Temperature monitoring.
I>Imax	Alarm current monitoring	The power monitor has detected that the power consumption is too high. The limit values for the individual devices can be found in chapter 4.1.3 Current monitoring .
U<Umin	Alarm voltage monitoring	The voltage monitor has detected a too low voltage.. The voltage has dropped below 28 V.
Busl. max	Alarm bus traffic monitoring	The bus monitoring system has detected a too high bus load. The bus load is higher than 60 %.
Busreset	Bus reset has been executed.	A bus reset was carried out by pressing the ‘Reset’ button or via the “Bus reset – Reset enable” object.
Dev.Lost	Alarm Device monitoring	The device monitoring has detected that a device is missing.

Table 24: Status messages in plain text

Note: There are 2 different status functions. These are described in the following chapters described.

4.1.6.1.1 Status output of last event

The object “Status output of the last event – status text” sends its status immediately when a new event occurs. The parameter “Output mode for status output of the last event” can be used to set whether a single string or a more detailed string sequence should be sent. Sending a single string is achieved with the setting **“One-time sending of event”**.

Sending a string sequence is achieved by setting **“one-time sending of string”** and can be used, for example, to send e-mails with the MDT IP interface / IP router. Here, the object “status output of the last event – status text” is transmitted three times in succession with different values.

- 1. transmitting: Alarm type.
- 2. transmitting: Device affected.
- 3. transmitting: Time (and optionally date) when the alarm occurred.

4.1.6.1.2 Status output for visualisation

The object saves the last 9 alarms in the ring buffer.
In the case of cyclical transmission, “OK” is transmitted via the object “Status output for visualization – status text” up to the first alarm, followed by “Reports: x”, where x is the number of messages.

Object „Menu navigation for visualisation – Scroll text messages“
Each time a “1” is received at this object, starting with message 1, the ring buffer is incremented by one message and, when a “0” is received, the ring buffer is decremented by one message. Each time the buffer is scrolled, the object “Menu navigation for visualization – Status text” is used to send the sequence number and the type of alarm, as described below under “1. Transmission”. (Example: “1/8: DevLost”)

Object „Menu navigation for Visualisation – Confirm menu selection“
This object can be used to call up detailed information about the alarm. When a “1” is received on this object, three messages with different contents are sent via the object “Status output for visualization – status text”.

- 1. transmitting: Alarm type.
- 2. transmitting: Device affected.
- 3. transmitting: Time (and optionally date) when the alarm occurred.

The “Number of repetitions” parameter in the ETS menu can be used to set how often the message package is sent in sequence.

The messages can be displayed in plain text in a visualization.

Object „Logging for status output – Reset“
Sending a “1” to this object clears the ring buffer and sets the message counter to 0. If the alarm memory is successfully reset, an “OK” is transmitted via the object “Status output for visualization - Status text” up to the first alarm.

4.2 Device monitoring

With device monitoring, up to 100 devices can be requested to see if they are on the bus.
The test can be carried out both actively (actively querying physical addresses or group addresses) and passively (detecting whether group addresses are sent cyclically).
In the event of an error, the devices can be temporarily disconnected from the bus (using an additional switching actuator) to avoid a false alarm.
The monitored devices can be divided into up to 5 groups. These groups are also used to generate collective messages.

4.2.1 General settings

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Device monitoring	■ not active ■ **active**	Activation of device monitoring.
If „Device monitoring“ → „active“		
Polarity of status	■ **as alarm** **(if contactable = „Off“)** ■ as Operation object (if contactable = „On“)	Setting the polarity of the status.
Duration of locking of device monitoring at bus power return	10 s – 8 h **[10 min]**	Setting the duration after which the device monitoring starts again after a bus voltage recovery.
Duration of locking of device monitoring via lock object	unlimited 1 min – 8 h **[10 min]**	Setting to determine whether and after what interval the device monitoring is automatically restarted.
Cyclic time for collective message “All devices”	**no send** 1 min – 24 h	Setting whether and at what interval sending takes place.
Cyclic sending of group Message “Group 1 (... 5)“	**no send** 1 min – 24 h	Setting whether and at what interval sending takes place.
Objects for disconnecting of KNX - devices (all groups)	■ **not active** ■ active	Activating the objects for disconnecting device groups from the bus.
Time of “OFF”-signal	5 s - 4 min **[5 s]**	Duration of disconnection from the KNX bus. **If „Objects for disconnecting ...” → „active“.**

Table 25: Settings – Device monitoring: General settings

Duration of locking of device monitoring at bus power return
Defines the duration for which device monitoring is inactive after a bus voltage recovery:

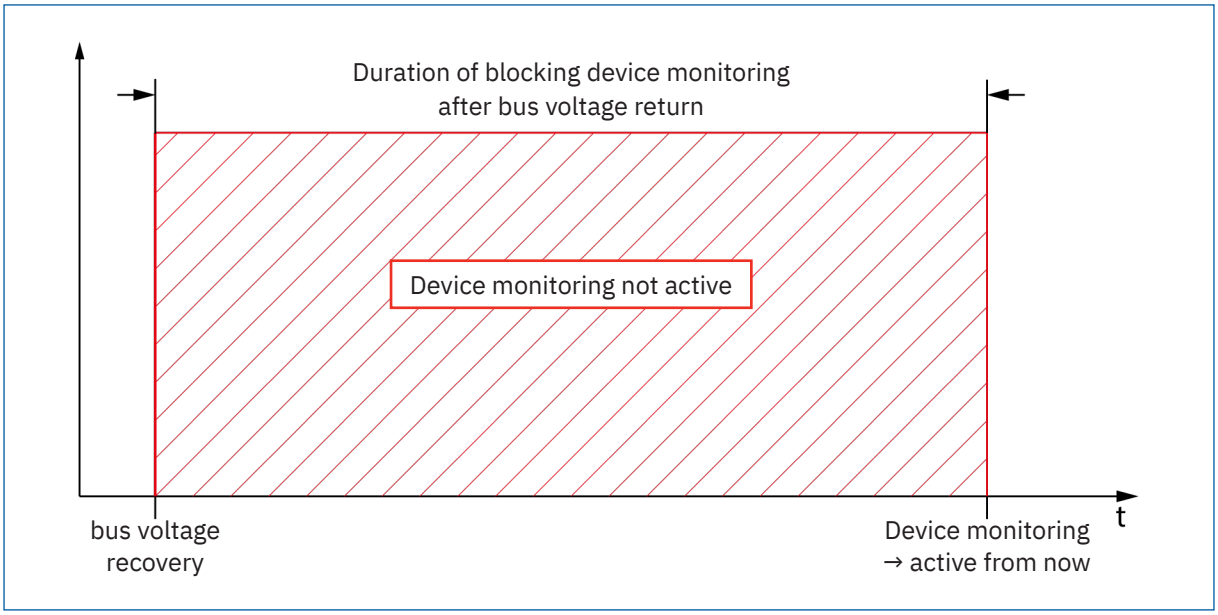

Figure 4: Diagram – Device monitoring after bus voltage recovery

Duration of locking of device monitoring via lock object
Defines the duration after which the device monitoring is active after a locking via lock object:

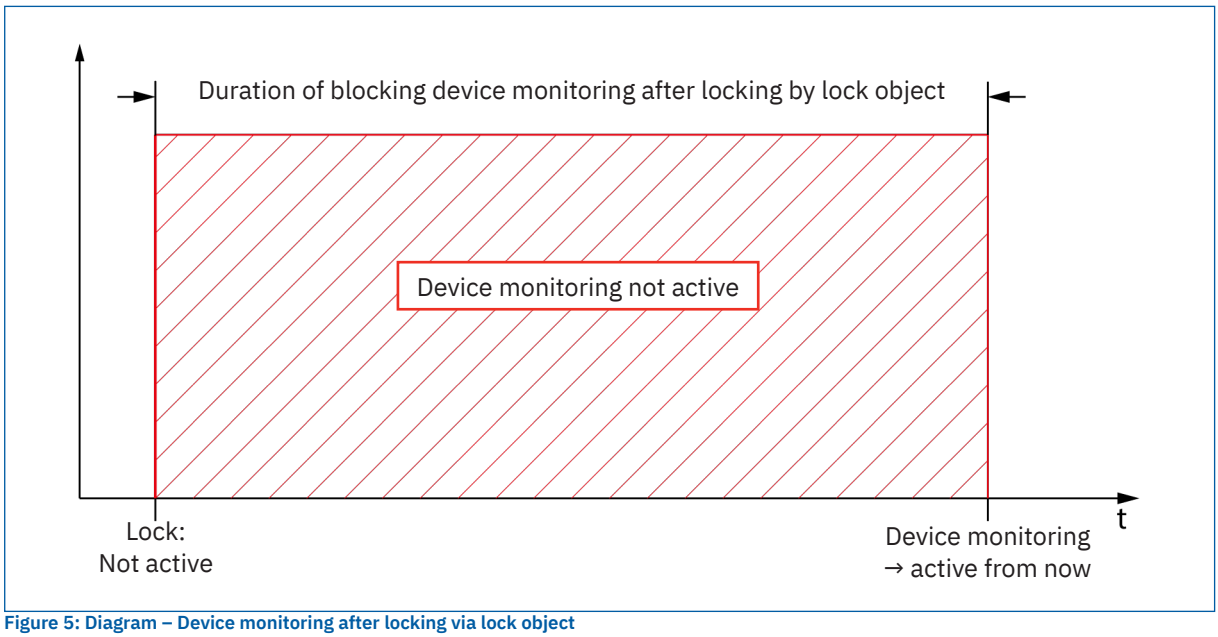

Figure 5: Diagram – Device monitoring after locking via lock object

Objects for disconnecting of KNX - devices (all groups)
This setting allows to disconnect devices from the bus automatically in the event of a fault. This is particularly useful where older/faulty devices are used that can only be reset in the event of a fault by a bus voltage reset.
To do this, the following structure is required in the topology:

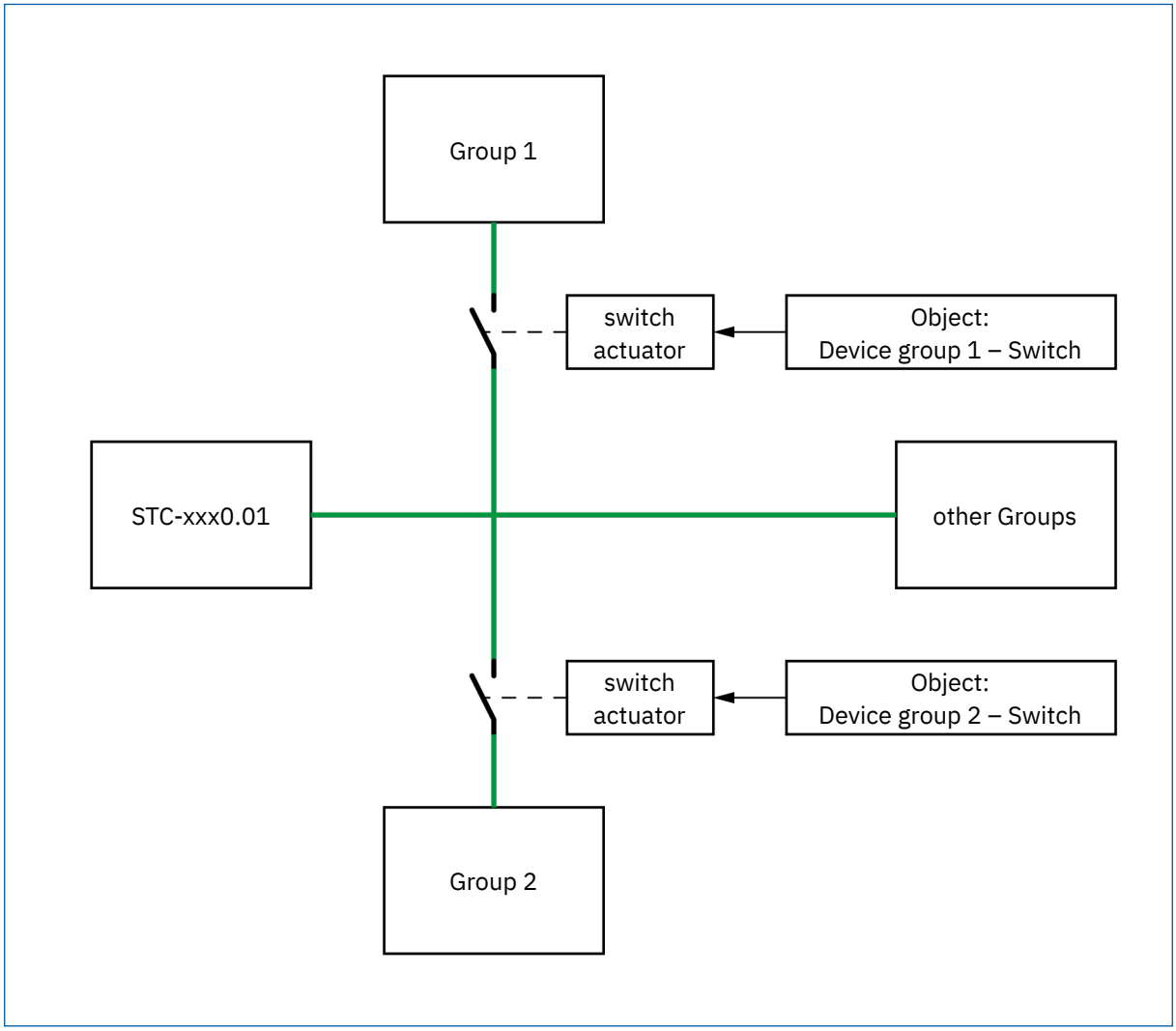

Figure 6: Diagram – Topology for switching KNX participants

The KNX bus must be routed via the contact of a switch actuator. The switch actuator is switched with the associated communication object for this group. If a fault is detected in a device of the group, the switch actuator assigned to this group is switched off for the set duration and then switched on again. If the problem persists, this switching operation will not be repeated.

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
222	Device group 1 – Monitoring result	1 Bit	Send when at least one device in device group 1 has failure.
+1	**next device group**		
227	Device group 1 – Switch	1 Bit	Switches device group 1 on/off.
+1	**next device group**		
232	All device groups – Monitoring result	1 Bit	Sends when at least 1 device has failed in all device groups.
233	Device monitoring – Lock	1 Bit	Disables device monitoring.
234	Device monitoring – Status	1 Bit	Sends the status of the device monitoring.

Table 26: Communication objects – Device monitoring: General

4.2.2 Device 1 (... 100)

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Monitor device 1 (... 100)	■ **not active** ■ via physical address (active request) ■ via group address (active request) ■ via group address (passive receiving)	Activates device monitoring and defines the type of monitoring.

Table 27: Settings – Monitoring device 1 (... 100)

The setting options and the function depend on the kind of monitoring. If possible, passive monitoring via group address should always be used to minimize the bus load. This kind of monitoring is particularly useful where values are already sent cyclically (in operation, temperature, etc.).

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
122	Device 1 – Monitoring result	1 Bit	Sends if “Device 1” has failed.
+1	**next device**		

Table 28: Communication objects – Monitoring device 1 (... 100)

4.2.2.1 Monitor device via physical address (active request)

With the active request “via physical address”, the devices to be monitored are defined by their physical address. The devices are actively requested at the set monitoring interval.

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Addresses selection	■ **individual setting** ■ same area and line as safety module	Setting whether the device is in the same line as the safety module.
Area	0 – 15 **[0]**	Setting the area. **If „Addresses selection“ → „individual settings”.**
Line	0 – 15 **[0]**	Setting the line. **If „Addresses selection“ → „individual settings”.**
Device	0 ... 255 **[0]**	Setting of the device address which is being monitored.
Monitoring interval	20 s – 24 h **[30 s]**	Setting the interval at which the address is requested.
Group assignment	■ **no mapping** ■ group 1 ■ group 2 ■ group 3 ■ group 4 ■ group 5	Assignment of the device to a device group.

Table 29: Settings – Monitor device via physical address (active)

4.2.2.2 Monitor device via Group address (active request)

When polling actively, a communication object appears that must be linked to an object of the device to be monitored. The object to be monitored must have an L flag and is being requested in the set monitoring interval. For 1 Bit objects, the object value can also be filtered.

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Object size	■ **1 Bit** ■ 1 Byte ■ 2 Byte ■ 4 Byte	Setting the object size.
Monitoring interval	20 s - 24 h **[30 s]**	Setting the interval at which the device is requested.
Group assignment	■ **no mapping** ■ group 1 ■ group 2 ■ group 3 ■ group 4 ■ group 5	Assignment of the device to a device group.
Expected object value	■ device available at OFF ■ device available at ON ■ **device available at each value**	Setting which object value is expected. **If “Object size“ → „1 Bit“.**

Table 30: Settings – Monitor device via group address (active)

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
22	Device 1 – Monitoring via group address	1 Bit 1 Byte 2 Byte 4 Byte	Device monitoring object. DPT depending on parameter setting.
+1	**next device**		

Table 31: Communication objects – Monitor device via group address (active)

4.2.2.3 Monitor device via group address (passive receiving)

In the case of passive monitoring, a communication object is displayed that must be connected to a cyclically sending object of the device to be monitored. There is no active monitoring, but rather the device waits for a telegram input within the monitoring interval.
In the case of 1 Bit objects, the object value can also be filtered.

The following table shows the available settings:

ETS Text	Dynamic range **[Default value]**	Comment
Object size	■ **1 Bit** ■ 1 Byte ■ 2 Byte ■ 4 Byte	Setting the object size.
Monitoring interval	20 s - 24 h **[30 s]**	Setting the interval at which the device is requested.
Group assignment	■ no mapping ■ **group 1** ■ group 2 ■ group 3 ■ group 4 ■ group 5	Assignment of the device to a device group.
Expected object value	■ device available at OFF ■ device available at ON ■ **device available at each value**	Setting which object value is expected. **If "Object size" → „1 Bit".**

Table 32: Settings – Monitor device via group address (passive)

The following table shows the associated communication objects:

No.	Name / Object function	Length	Usage
22	Device 1 – Monitoring via group address	1 Bit 1 Byte 2 Byte 4 Byte	Device monitoring object. DPT depending on parameter setting.
+1	**next device**		

Table 33: Communication objects – Monitor device via group address (passive)

5 Index

5.1 Register of illustrations

5.2 List of tables

6 Appendix

6.1 Statutory requirements

The devices described above must not be used in conjunction with devices which directly or indirectly serve human, health, or life-safety purposes. Furthermore, the devices described must not be used if their use may cause danger to people, animals, or property.
Do not leave the packaging material carelessly lying around. Plastic foils/ bags etc. can become a dangerous toy for children.

6.2 Disposal

Do not dispose of the old devices in the household waste. The device contains electrical components that must be disposed of as electronic waste. The housing is made of recyclable plastic.

6.3 Assembly

Danger to life from electric current!

The device may only be installed and connected by qualified electricians. Observe the country-specific regulations and the applicable KNX guidelines.

The devices are approved for operation in the European Union and in the United Kingdom. The products are respectively marked with the CE and UKCA symbols.

Use in the USA and Canada is prohibited!

6.4 History

V 1.0	First version of technical manual	DB V1.1	04/2025