MEAN WELL



KNX-40E-1280D
Instruction Manual

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KNX-40E-1280D Instruction Manual

1.Overview

1.1 Overview devices

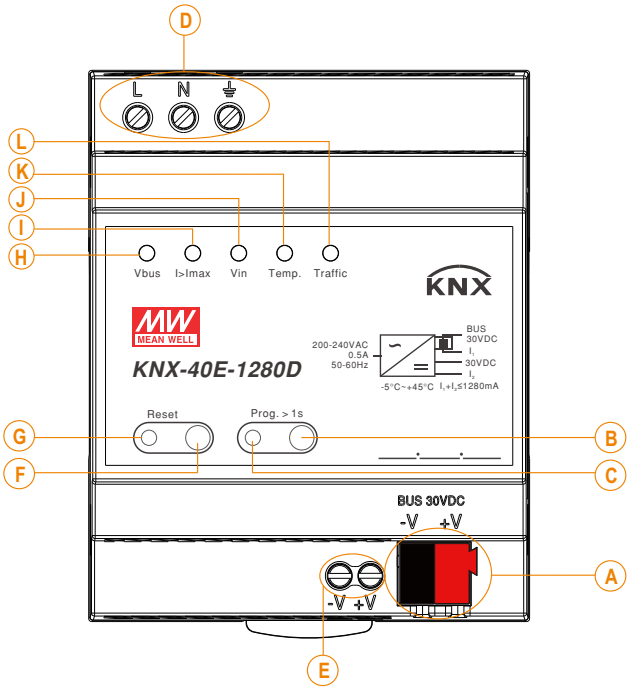
The manual refers to the following devices: (Order Code respectively printed in bold type):

- **KNX-40E-1280D**: INPUT: 180 ~ 264VAC 47 ~ 63Hz, OUTPUT: 1280mA, 30V

1.2 Usage & possible applications

The KNX power supply KNX-40E-1280D is a 1280mA power supply with high efficiency and a small footprint of only 4SU (72mm). The device has a KNX bus choke output and additional output for auxiliary power. The -30 ~ +70℃ wide temperature operating range can meet all kinds of applications. For troubleshooting, monitoring purpose, output voltage, output current, bus traffic, device temperature and other actual measurement values can be sent via KNX. LED indicators are used in case of normal operation, overload conditions and RESET operation. It is perfectly suitable to power up any products labeled with the KNX trademark.

1.3 Displays and operating elements



Ⓐ : Bus connection terminal

Ⓑ : Programming button

Ⓒ : Programming LED

Ⓓ : AC input

Ⓔ : Ancillary power output

Ⓕ : Reset button

Ⓖ : Reset LED

Ⓗ : Bus voltage LED, V_{bus}

Ⓘ : Output current LED, I > I_{max}

Ⓙ : Power Input LED, V_{in}

Ⓚ : Internal temperature LED, T_{emp}

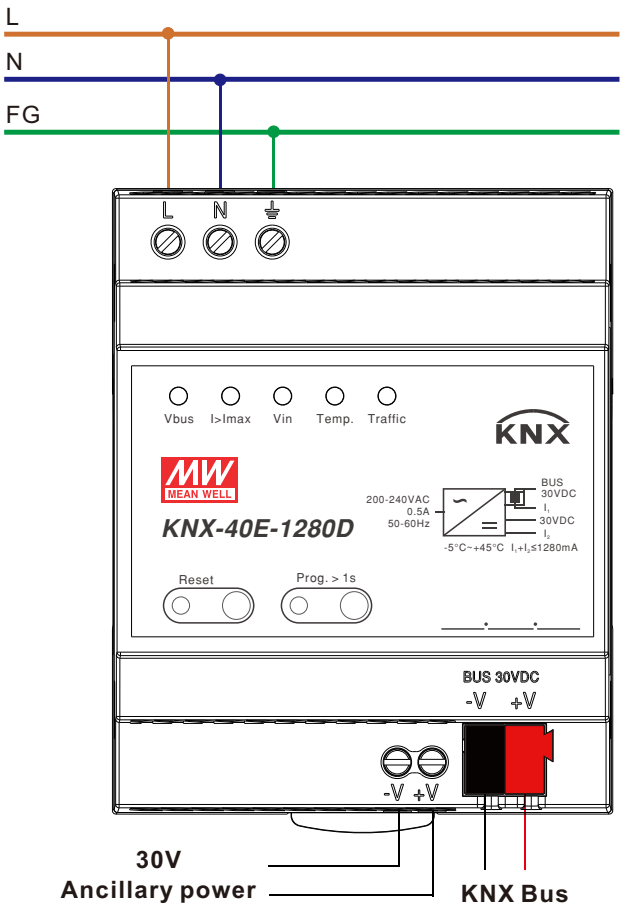
Ⓛ : Telegram traffic LED, T_{raffic}

1.4 Explanation of LED status

Number	LED light	Color, Indicate type	Explanation/Range
C	Programming	Red, constant	Device is in Program mode
G	KNX Reset	Red, constant	Device is during a KNX bus restart
H	Bus voltage, V_{bus}	Green, constant	KNX Bus voltage is 28~31VDC
		Red, constant	KNX Bus voltage < 28VDC
		Orange, constant	KNX Bus voltage > 31VDC
I	Output current, I > I_{max}	Green, constant	Output current < 1280mA
		Orange, constant	Output current is 1280mA~1600mA
		Red, constant	Output current >1600 mA (Overload)
J	Power Input, V_{in}	Green, constant	Powered by AC input
		Green, flashing	Powered by DC input
		Red, constant	AC/DC input fails
K	Internal Temperature, T_{emp}	Green, constant	Internal Temperature is 0~75°C
		Red, constant	Internal Temperature is out of this range
L	Telegram traffic, T_{raffic}	Green, flashing	Telegram load < 80 %
		Red, constant	Telegram load >= 80 %

Note: Application data base needs to be downloaded into KNX-40E-1280D for the LED indicator to work properly.

1.5 Circuit diagrams



1.6 Wiring

- Use wires with an adequate cross-section
- Use suitable mounting tools to do the wiring and mounting
- The maximum number of bus devices connected is 256
- The maximum length of a line segment is 350 m, measured along the line between the power supply and the furthest bus device
- The maximum distance between two bus devices cannot exceed 700 m
- The maximum length of a bus line is 1000 m, keeping into account all segments

Type	**AC and ancillary power terminals (L, N, ⏚, +V, -V)**	**KNX bus terminal (BUS +V, BUS -V)**
Solid wire	0.5 ~ 4.0mm	0.6 ~ 0.8Φ
Stranded wire	0.5 ~ 2.5mm^2	------
American wire gauge	12 ~ 26AWG	20 ~ 22AWG
Wire stripping length	6.5mm (0.255")	5mm (0.196")
Screwdriver	3mm Slotted	-----
Recommended tightening torque	8 kgf-cm (7 lb-in)	-----

1.7 Information at the ETS-Software

Selection at the product database:
Manufacturer: MEANWELL Enterprises
Co.Ltd. Product family: System Devices
Product type: Power Supply Unit
Product name: addicted to the used type, e.g.: KNX-40E-1280D, Power Supply (230V/1280mA)
Order number: addicted to the used type, e.g.: KNX-40E-1280D

1.8 Starting up

After wiring, the allocation of the physical address and the parameterization of every channel follow:
(1)Connect the interface with the bus, e.g. MEANWELL USB interface KSI-01U.
(2)Switching the power supply.
(3)Set bus power up.
(4)Press the programming button at the device (red programming LED lights).
(5)Loading of the physical address out of the ETS-Software by using the interface (red LED goes out, as well this process was completed successful).
(6)Loading of the application, with requested parameterization.
(7)If the device is enabled you can test the requested functions (also possible by using the ETS-Software).

2.Communication Objects

2.1 Summary and Usage

Num	Object Function	Length	DPT	Flag	Function Area	Description
Central Objects:						
1	Heartbeat	1bit	Trigger (DPT 1.017)	CRT	Information	This object is shown permanently and a telegram of “1” is sent at regular intervals when working normally
2	Power supply on	1bit	Trigger (DPT 1.017)	CRT	Information	This object is shown permanently and after initial startup or reset is done, a telegram of “1” will be sent
3	Send measurments	1bit	Switch (DPT 1.001)	CRT	Request	This object is shown permanently. All actually measured values (output current, output voltage, temperature, busload) are sent as response to a telegram with “1”
4	Clear all data	1bit	Switch (DPT 1.001)	CW	Request	This object is shown permanently. All number counter values and time counter values except working time, startup times are set to zero by a telegram with “1”.
5	Send calculations	1bit	Switch (DPT 1.001)	CW	Request	This object is shown permanently. All actual number counter values and time counter values (overload count, overload duration, short circuits count, time load detached, reset count, KNX bus restart, device startup, working time, operating time since last startup, alarm duration 1-4, alarm count 1-4) are sent as response to a telegram with “1
6	Bus reset	1bit	Switch (DPT 1.001)	DPT	Reset Request	This object is shown permanently. Triggered by a telegram with value 0 or 1 the device starts a reset process.
7	Total working time	4 bytes	time lag(s) (DPT=13.100)	CRT	Analysis	The device sends the time counted value of the total working time in s. Note: No matter Total Working Time is enabled or not, this value is saved automatically and cannot be cleared.
8	Time from last start up	4 bytes	time lag(s) (DPT=13.100)	CRT	Analysis	The device sends the time counted value of the time elapsed since last device startup in s.
9	The number of bus restart times	2 bytes	pulses (DPT = 7.001)	CRT	Analysis	The device sends the number counted value of KNX bus restarts.
10	The number of device start up times	2bytes	pulses (DPT = 7.001)	CRT	Analysis	The device sends the number counted value of device startups. Note: No matter Startup Times Count Read is enabled or not, this value is saved automatically and cannot be cleared.
11	Output voltage measured	2bytes	Voltage(mV) (DPT=9.20)	CRT	Measurement	The device sends the measured output voltage value in V or mV at regular intervals.
		4bytes	electric potential(v) (DPT=14.027)			
12	Output voltage alarm	1bit	Alarm (DTP = 1.005)	CRT	Alarm	When the measured value is out of the normal working range a telegram with value 0 or 1 is sent. When the measurement values return to the normal range a telegram with value 0 or 1 is sent.
13	Output current measured	2bytes	current,mA (DPT=7.012)	CRT	Measurement	The device sends the measured output current value in A or mA at regular intervals.
		2bytes	current,mA (DPT=9.021)			
		4bytes	electric current,A (DPT=14.019)			
14	Output current alarm	1bit	Alarm (DTP = 1.005)	CRT	Alarm	When the measured value is above the threshold a telegram with value 0 or 1 is sent. When the measurement values return to the normal range (less than the hysteresis) a telegram with value 0 or 1 is sent.

15	Device temperature measured	2bytes	temperature,°C (DPT=9.001)	CRT	Measurement	The device sends the measured device temperature value in °C at regular intervals.
16	Device temperature alarm	1bit	alarm (DTP = 1.005)	CRT	Alarm	When the measured value is above the threshold a telegram with value 0 or 1 is sent. When the measurement values return to the normal range (less than the hysteresis) a telegram with value 0 or 1 is sent.
17	Maximum output current during tracking period	2bytes	current,mA (DPT=7.012)	CRT	Measurement	The device sends the measured output current value in A or mA at the end of each period.
		2bytes	current,mA (DPT=9.021)			
		4bytes	electric current,A (DPT=14.019)			
18	Maximum device temperature during tracking period	2bytes	temperature,°C (DPT=9.001)	CRT	Measurement	The device sends the measured device temperature value in °C at the end of each period.
19	Busload measured	1byte	percentage, 0~255% (DPT=5.004)	CRT	Measurement	The device sends the measured Bus load value in % at regular intervals [0-255%]
20	Busload alarm	1bit	alarm (DTP = 1.005)	CRT	Alarm	When the measured value is above the threshold a telegram with value 0 or 1 is sent. When the measurement values return to the normal range (less than the hysteresis) a telegram with value 0 or 1 is sent.
21	The number of overload times	2bytes	Pulses (DPT = 7.001)	CRT	Analysis	The device sends the number counted value of overload at regular intervals.
22	Overload duration	4bytes	Pulses (DPT = 7.001)	CRT	Analysis	The device sends the total duration time in overload in second
23	The number of short circuits times	2bytes	Pulses (DPT = 7.001)	CRT	Analysis	The device sends the number counted value of short circuit at regular intervals.
24	Time load detached	4bytes	time lag(s) (DPT=13.100)	CRT	Analysis	On activation the device sends the time counter value of load detachments
25	Alarm 1	1bit	Alarm (DTP = 1.005)	CRT	Group Alarm	When the measured value is above/below the threshold a telegram with value 0 or 1 is sent. When the measurement values return to the normal range (less/higher than the hysteresis) a telegram with value 0 or 1 is sent.
26	Count 1	2bytes	Pulses (DPT = 7.001)	CRT	Group Alarm	The device sends the number counted value of threshold events for output current, output voltage or device temperature.
27	Duration 1	4bytes	time lag(s) (DPT=13.100)	CRT	Group Alarm	The device sends the total duration time (in second) for output current, output voltage or device temperature.
28	Alarm 2					

31	Alarm 3					

34	Alarm 4					

3.Reference ETS-Parameter

3.1 General function

General Settings contains some useful functions, such as heartbeat, sending a power supply presence message, and remote-reset by using a telegram.



The chart shows the dynamic range for this parameter:

ETS -text	Dynamic range [default value]	Comment
Heartbeat Time	10 - 36,000S **[60s]**	Heartbeat telegram is sent at regular intervals to indicate that the power supply is working normally
Reset Type	• With 0 • **With 1** • With 0 or With 1	Set types of telegram to trigger a remote reset to restart the KNX but. NOTE: The device resets itself automatically when it is in short circuit conditions for 10 secs
Delay Time to Send Object : Power supply on	No delay, 1min, 2min, 3min, 4min, 5min, 10min, 15min, 20min, 25min, 30min, 1hour, 2hours, 3hours, 4hours, 5hours, 6hours, 7hours, 8hours **[No delay]**	After returning to normal working condition, a telegram is sent after this time delay to notify the power supply is ready

The following chart shows the objects that belong to general setting:

Number	Name	Length	Usage
1	Heartbeat	1 bit	Send a telegram of “1” to the system at regular intervals when working normally
2	Power supply on	1 bit	After initial startup or reset, a telegram of “1” will be sent after a time delay you set via this object

3.2 Measurements

This menu contains three measurements, Output Voltage, Output Current and Device Temperature.

3.2.1 Output Voltage Measurement

This function can be used to monitor output voltage, sending values measured and rising alarm when the output is out of the working range, 28V - 31V.



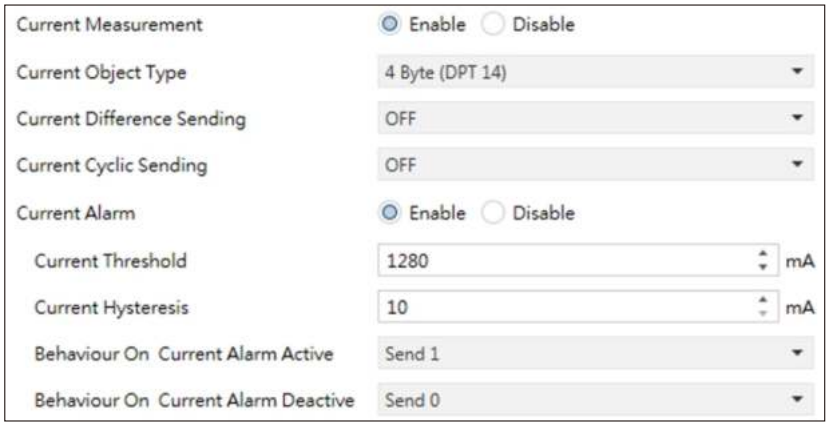
ETS-text	Dynamic range **[default value]**	Comment
Voltage Measurement	• **Disable** • Enable	Enable or disable voltage measurement
Voltage Object Type	• **4byte[DTP14]** • 2byte[DPT9]	Select data point type
Voltage Cyclic Sending	OFF, 1min, 2min, 3min, 4min, 5min, 10min, 15min, 20min, 25min, 30min, 1hour, 2hours, 3hours, 4hours, 5hours, 6hours, 7hours, 8hours **[OFF]**	Send the latest voltage value at intervals you desired
Voltage Alarm	• **Disable** • Enable	Enable or disable the alarm function
Behaviour On Voltage Alarm Active	• Nothing to do • Send 0 • **Send 1**	Select a reaction when there is abnormal voltage
Behaviour On Voltage Alarm Deactive	• Nothing to do • **Send 0** • Send 1	Select a reaction after abnormal voltage is removed

The following chart shows the objects that belong to general setting:

Number	Name	Length	Usage
11	Output voltage measured	2bytes 4bytes	The device sends the measured output voltage value in V or mV at regular intervals.
12	Output voltage alarm	1 bit	When the measured value is out of the normal working range a telegram with value 0 or 1 is sent. When the measurement values return to the normal range a telegram with value 0 or 1 is sent.

3.2.2 Output Current Measurement

This function can be used to monitor load conditions, sending current measured and rising alarm when values are higher than the threshold.



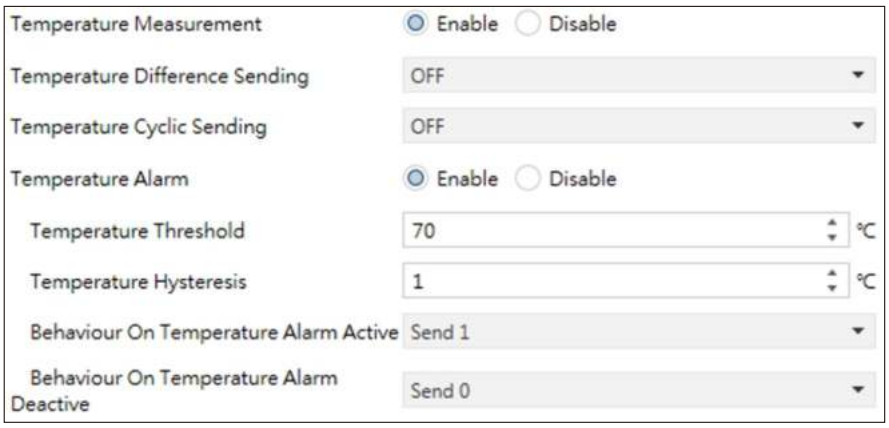
ETS-text	Dynamic range **[default value]**	Comment
Current Measurement	• **Disable** • Enable	Enable or disable current measurement
Current Object Type	• **4byte[DTP14]** • 2byte[DPT9]	Select data point type
Current Difference Sending	OFF, 10mA, 15mA, 20mA, 25mA, 30mA, 40mA, 50mA, 60mA, 70mA, 80mA, 90mA, 100mA **[OFF]**	Difference between actual and last sent value which triggers the sending
Current Cyclic Sending	OFF, 1min, 2min, 3min, 4min, 5min, 10min, 15min, 20min, 25min, 30min, 1hour, 2hours, 3hours, 4hours, 5hours, 6hours, 7hours, 8hours **[OFF]**	Send the latest current value at intervals you desired
Current Alarm	• **Disable** • Enable	Enable or disable the alarm function
Current Threshold	10-1600mA **[1280mA]**	Select a threshold value to perform the "Behaviour on Current alarm Active"
Current Hysteresis	10-1280mA **[10mA]**	Select a hysteresis value to perform the "Behaviour on Current alarm Deactive"
Behaviour On Current Alarm Active	• Nothing to do • Send 0 • **Send 1**	Select a reaction when current is higher than Current Threshold
Behaviour On Current Alarm Deactive	• Nothing to do • **Send 0** • Send 1	Select a reaction when current is lower than a value of "Current Threshold" -" Current Hysteresis", e.g. 1280mA - 10mA = 1270mA

The following chart shows the objects that belong to general setting:

Number	**Name**	**Length**	**Usage**
13	Output current measured	2bytes 4bytes	The device sends the measured output voltage value in A or mA in regular intervals.
14	Output current alarm	1 bit	When the measured value is above the threshold a telegram with value 0 or 1 is sent. When the measurement values return to the normal range (less than the hysteresis) a telegram with value 0 or 1 is sent.

3.2.3 Device Temperature Measurement

This function can be used to monitor internal temperature of the device, sending values measured and rising alarm when values are higher than the threshold.



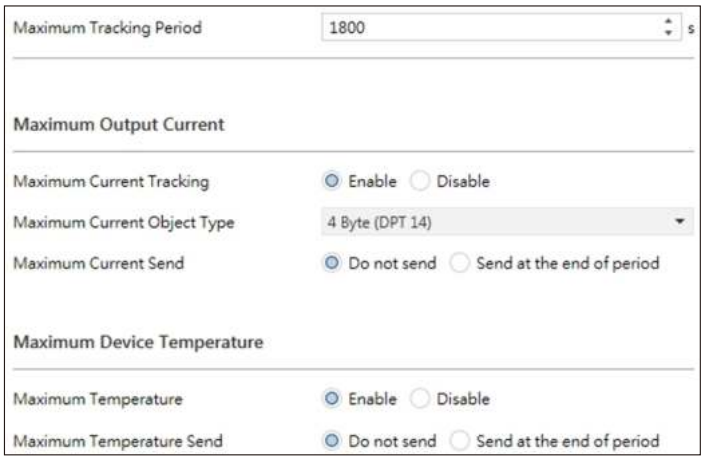
ETS-text	Dynamic range **[default value]**	Comment
Temperature Measurement	• **Disable** • Enable	Enable or disable temperature measurement
Temperature Difference Sending	OFF, 2°C, 3°C, 4°C, 5°C, 6°C, 7°C, 8°C, 9°C, 10°C **[OFF]**	Difference between actual and last sent value which triggers the sending
Temperature Cyclic Sending	OFF, 1min, 2min, 3min, 4min, 5min, 10min, 15min, 20min, 25min, 30min, 1hour, 2hours, 3hours, 4hours, 5hours, 6hours, 7hours, 8hours **[OFF]**	Send the latest voltage value at intervals you desired
Temperature e Alarm	• **Disable** • Enable	Enable or disable the alarm function
Temperature Threshold	0-100°C **[70°C]**	Select a threshold value to perform the "Behaviour on Temperature alarm Active"
Temperature Hysteresis	0-40°C **[1°C]**	Select a hysteresis value to perform the "Behaviour on Temperature alarm Deactive"
Behaviour On Temperature Alarm Active	• Nothing to do • Send 0 • **Send 1**	Select a reaction when temperature is higher than Temperature Threshold
Behaviour On Temperature Alarm Deactive	• Nothing to do • **Send 0** • Send 1	Select a reaction when temperature is lower than a value of "Temperature Threshold" - "Temperature Hysteresis", e.g. 70°C -1°C = 69°C

The following chart shows the objects that belong to general setting:

Number	Name	Length	Usage
15	Device temperature measured	2bytes	The device sends the measured output voltage value in °C regular intervals.
16	Device temperature alarm	1 bit	When the measured value is above the threshold a telegram with value 0 or 1 is sent. When the measurement values return to the normal range (less than the hysteresis) a telegram with value 0 or 1 is sent.

3.3 Maximum Tracking

Maximum tacking is available for the measurement sources "Output Current" and "Maximum Device Temperature" and is used to find the maximum observed value over a certain period of time. At the end of each period, a measured value can be sent over the bus.



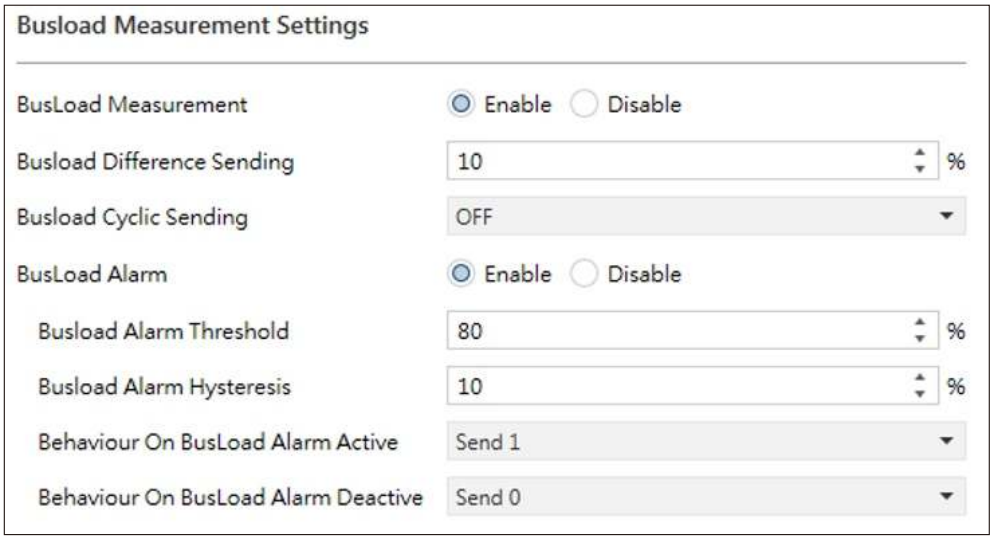
ETS -text	Dynamic range [default value]	Comment
Maximum Tracking Period	10 - 36,000S **[1800s]**	Determine the time period for tracking
Maximum Current Tacking	• **Disable** • Enable	Enable or disable maximum current tracking
Maximum Current Objet Type	• 2byte[DTP7,integer] • **4byte[DTP14]** • 2byte[DPT9,float]	Select data point type
Maximum Current Send	• **Do not send** • Send at the end of period	A telegram containing the maximum measured output current value is sent after an expired tracking period, when Send at the end of period is selected
Maximum Temperature	• **Disable** • Enable	Enable or disable Maximum temperature tracking
Maximum Temperature Send	• **Do not send** • Send at the end of period	A telegram containing the maximum measured temperature value of the device is sent after an expired tracking period, when Send at the end of period is selected

The following chart shows the objects that belong to general setting:

Number	Name	Length	Usage
17	Maximum output current during tracking period	2bytes 4bytes	The device sends the measured output current value in A or mA at the end of each period.
18	Maximum device temperature during tracking period	2bytes	The device sends the measured device temperature value in °C at the end of each period.

3.4 Busload

The Busload measurement is to monitor load conditions. If the output exceeds the threshold you set, an alarm telegram is sent.



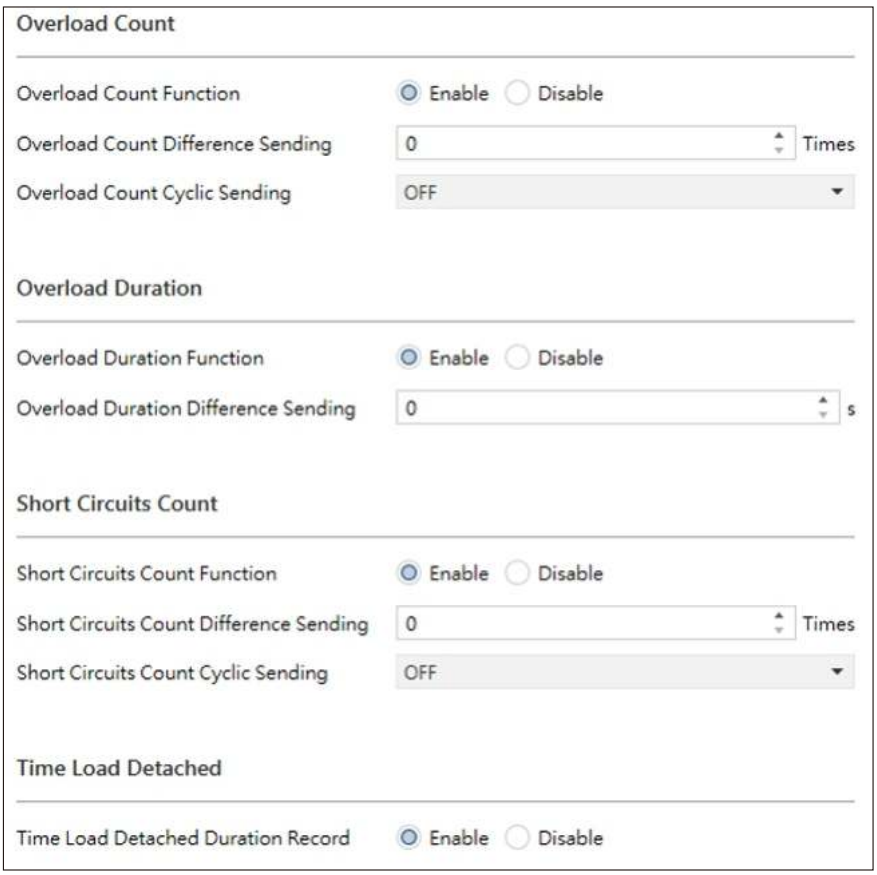
ETS -text	Dynamic range [default value]	Comment
BusLoad Measurement	• **Disable** • Enable	Enable or disable Busload measurement
Busload Difference Sending	1 - 100% **[10%]**	Difference between actual and last sent value which triggers the sending
Busload Cyclic Sending	OFF, 1min, 2min, 3min, 4min, 5min, 10min, 15min, 20min, 25min, 30min, 1hour, 2hours, 3hours, 4hours, 5hours, 6hours, 7hours, 8hours **[OFF]**	Send the latest busload value at intervals you desired
BusLoad Alarm	• **Disable** • Enable	Enable or disable Busload alram
Busload Alarm Threshold	1 - 100% **[80%]**	Select a threshold value to perform the "Behaviour On BusLoad Alarm Active"
Busload Alarm Hysteresis	1 - 70% **[10%]**	Select a hysteresis value to perform the "Behaviour On BusLoad Alarm Deactive"
Behaviour On BusLoad Alarm Active	• Nothing to do • Send 0 • **Send 1**	Select a reaction when busload is higher than the Threshold
Behaviour On BusLoad Alarm Deactive	• Nothing to do • Send 0 • **Send 1**	Select a reaction when busload is lower than a value of "Busload Alarm Threshold" - "Busload Alarm Hysteresis", e.g. 80% - 10% = 70%

The following chart shows the objects that belong to general setting:

Number	Name	Length	Usage
19	Busload measured	1bytes	The device sends the measured Busload value in % at regular intervals [0-255%]
20	Busload alarm	1bit	When the measured value is above the threshold a telegram with value 0 or 1 is sent. When the measurement values return to the normal range (less than the hysteresis) a telegram with value 0 or 1 is sent.

3.5 Faulty

There are "Over Count", "Overload Duration", "Short Circuits Count" and "Time Load Detached" in the Faulty menu. Please refer to tables below for detailed information.



ETS -text	Dynamic range [default value]	Comment
Overload Count Function	• **Disable** • Enable	Enable or disable Overload count function
Overload Count Difference Sending	1 - 1000 **[0]**	Telegram is sent when there is a count difference between current counting and the previous value sent. This count difference can be a range of 0-1000, 0=OFF. The counter counts once when load is larger than 1.6A.
Overload Count Cyclic Sending	OFF, 1min, 2min, 3min, 4min, 5min, 10min, 15min, 20min, 25min, 30min, 1hour, 2hours, 3hours, 4hours, 5hours, 6hours, 7hours, 8hours **[OFF]**	Send the latest busload value at intervals you desired
Overload Duration Function	• **Disable** • Enable	Enable or disable Overload duration function

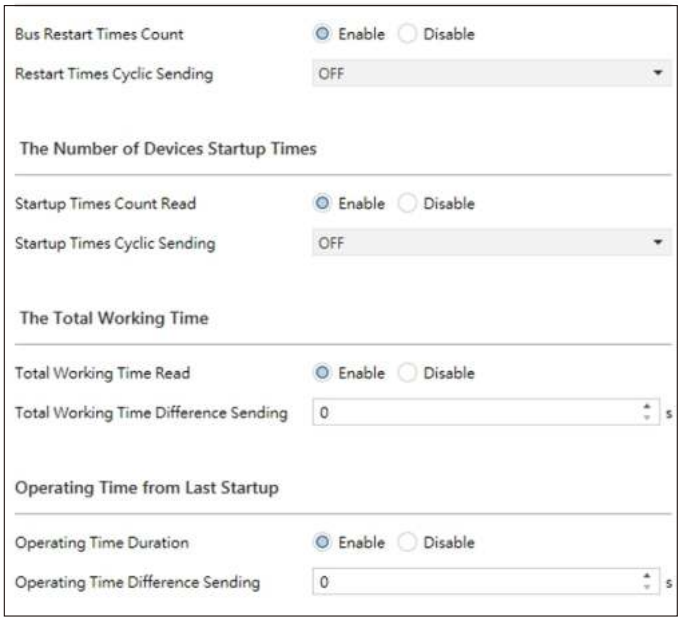
ETS -text	Dynamic range [default value]	Comment
Overload Duration Difference Sending	0-36,000 **[0]**	Telegram is sent when there is a duration difference between current counting and the previous value sent. This duration difference can be a range of 0 - 36000 sec, 0 = OFF. The counter starts counting when the device is in an overload condition.
Short Circuits Count Function	• **Disable** • Enable	Enable or disable Short circuits count function
Short Circuits Count Difference Sending	0-500 **[0]**	Telegram is sent when there is a count difference between current counting and the previous value sent.This count difference can be a range of 0 - 500, 0 = OFF. The counter counts once when there is short circuit at output.
Short Circuits Count Cyclic Sending	OFF, 1min, 2min, 3min, 4min, 5min, 10min, 15min, 20min, 25min, 30min, 1hour, 2hours, 3hours, 4hours, 5hours, 6hours, 7hours, 8hours **[OFF]**	Send the latest short circuits count value at intervals you desired
Time Load Detached Duration Record	• **Disable** • Enable	Enable or disable Time load detached duration record. This function is used to count how long the loads are detached in conditions, such as device startup, KNX bus reset or short circuit.

The following chart shows the objects that belong to general setting:

Number	Name	Length	Usage
21	The number of overload times	2bytes	The device sends the number counted value of overload at regular intervals.
22	Overload duration	4bytes	The device sends the total duration time in overload in second
23	The number of short circuits times	2bytes	The device sends the number counted value of short circuit at regular intervals.
24	Time load detached	4bytes	On activation the device sends the time counter value of load detachments

3.6 Counters

There are "The Number of KNX Bus Restart Times", "The Number of Devices Startup Time", "The Total Working Time" and “Operating Time from Last Startup" in the counters menu. Please refer to tables below for detailed information.



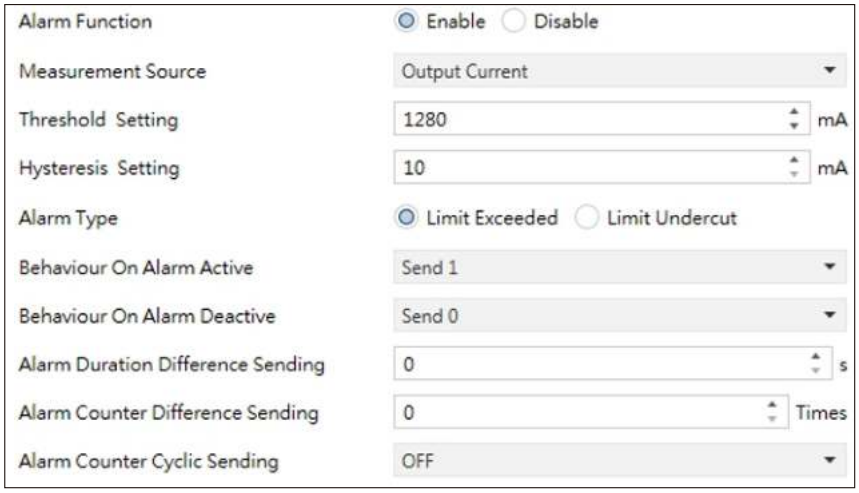
ETS -text	Dynamic range [default value]	Comment
Bus Restart Times Count	• **Disable** • Enable	Enable or disable Bus restart times count.
Restart Times Cyclic Sending	OFF, 1min, 2min, 3min, 4min, 5min, 10min, 15min, 20min, 25min, 30min, 1hour, 2hours, 3hours, 4hours, 5hours, 6hours, 7hours, 8hours **[OFF]**	Send the latest value at intervals you desired
Startup Times Count Read	• **Disable** • Enable	Enable or disable Startup times count read-out
Startup Times Cyclic Sending	OFF, 1min, 2min, 3min, 4min, 5min, 10min, 15min, 20min, 25min, 30min, 1hour, 2hours, 3hours, 4hours, 5hours, 6hours, 7hours, 8hours **[OFF]**	Send the latest value at intervals you desired
Total Working Time Read	• **Disable** • Enable	Enable or disable total working time read-out
Total Working Time Difference Sending	0 - 28,000,000 **[0]**	Difference between actual and last sent value which triggers the sending
Operating Time Duration	• **Disable** • Enable	Enable or disable operating time duration
Operating Time Difference Sending	0 - 28,000,000 **[0]**	Difference between actual and last sent value which triggers the sending

The following chart shows the objects that belong to general setting:

Number	Name	Length	Usage
7	Total working time	4bytes	The device sends the time counted value of the total working time in s. Note: No matter Startup Times Count Read is enabled or not, this value is saved automatically and cannot be cleared.
8	Time from last start up	4bytes	The device sends the time counted value of the time elapsed since last device startup in s.
9	The number of bus restart times	2bytes	The device sends the number counted value of KNX bus restarts.
10	The number of devices startup times	2bytes	The device sends the number counted value of device startups. Note: No matter Startup Times Count Read is enabled or not, this value is saved automatically and cannot be cleared.

3.7 Customized Alarm 1-4

"Customized Alarm" provides alterable measurements for users. With these adjustable measurement sources, users can easily build their preference settings for purposes.



ETS -text	Dynamic range [default value]	Comment
Alarm Function	• **Disable** • Enable	Enable or disable Alarm Function
Measurement Source	• **Output Current** • Device Temperature • Output Voltage	Selection of the measurement source
Threshold Setting	10-1600mA **[1280mA]**	Select a threshold value to perform the "Behavior On Alarm Active"
	40-95°C **[70°C]**	
	28-32V **[31V]**	
Hysteresis Setting	10-1280mA **[10mA]**	Select a hysteresis value to perform the "Behavior On Alarm Deactive"
	5-90°C **[5°C]**	
	1-6V **[5V]**	
Alarm Type	• Limit Undercut • **Limit Exceeded**	Select threshold region either to lie above (limit exceeded) or to lie below (limit undercut) the threshold value
Behavior On Alarm Active	• Nothing to do • Send 0 • **Send 1**	Select a reaction when detected value is higher/ lower than the Threshold
Behavior On Alarm Deactive	• Nothing to do • Send 0 • **Send 1**	Select a reaction when detected value is lower/ higher than a value of "Threshold Setting" - "Hysteresis Setting", e.g. 1280mA - 10mA = 1270mA

ETS -text	Dynamic range [default value]	Comment
Alarm Duration Difference Sending	0-2,800,000 **[0]**	Telegram is sent when there is a duration difference between current counting and the previous value sent. This duration difference can be a range of 0 - 2800000 sec, the device is recording but will not send out any telegram when the difference is set at “0”.
Alarm Counter Difference Sending	0-500 **[0]**	Telegram is sent when there is a count difference between current counting and the previous value sent. This count difference can be a range of 0 - 500, the device is recording but will not send out any telegram when the difference is set at “0”.
Alarm Counter Cyclic Sending	OFF, 1min, 2min, 3min, 4min, 5min, 10min, 15min, 20min, 25min, 30min, 1hour, 2hours, 3hours, 4hours, 5hours, 6hours, 7hours, 8hours **[OFF]**	Send telegram at intervals you desired

The following chart shows the objects that belong to general setting:

Number	Name	Length	Usage
25, 28, 31, 34	Alarm 1, 2, 3, 4	1bit	When the measured value is above/below the threshold a telegram with value 0 or 1 is sent. When the measurement values return to the normal range(less/ higher than the hysteresis) a telegram with value 0 or 1 is sent.
26, 29, 32, 35	Count 1, 2, 3, 4	2bytes	The device sends the number counted value of threshold events for output current, output voltage or device temperature.
27, 30, 33, 36	Duration 1, 2, 3, 4	4bytes	The device sends the total duration time (in second) for output current, output voltage or device temperature.

4.Environmental declaration information

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