

KNX POWER SUPPLY

PS-S.640.30.1

User Manual

Application Program: ver. 1.0

User Manual: ver. 1.0

module-electronic.ru

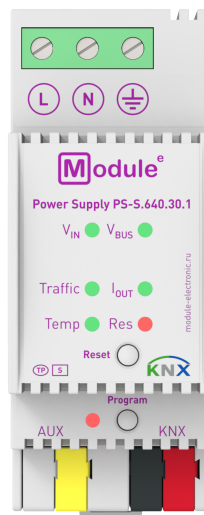
CONTENT

Content	2
1 Basic information	3
1.1 Specification	4
1.2 Appearance	5
1.3 Installation and connection	6
2 Operational description	7
2.1 Device/busline diagnostics application	7
2.2 Diagnosis	7
2.2.1 Measurement sources	7
2.2.2 Event counters	8
2.2.3 Event counter reset	8
2.3 Parameter structure for measurement sources	9
2.4 Programming	9
2.4.1 Programing button	9
2.4.2 Individual address assignment	10
2.5 KNX bus reset function	11
3 ETS database parameters	12
3.1 General	13
3.2 Measurements	14
3.3 Maximum tracking	17
3.4 Telegram traffic	18
3.5 Error counters	20
3.6 Operational counters	22
3.7 Alarm 1,2,3,4	24
4 Communication objects	26
5 State of delivery	30
5.1 Default factory setting	30

1 BASIC INFORMATION

Intelligent power supply for the KNX system with an additional auxiliary power output of 29V DC, with the function of diagnostics of voltage in the KNX bus and protective against short circuit and overload.

- Compact housing (2TE)
- Additional output 29V DC
- Diagnostic function
- LED status indication
- Output current 640mA
- Leakage < 5W
- Mains voltage 230V AC 50Hz
- Overload and short circuit protection
- Bus line reset via local push button or remote
- DIN rail 35mm mounting

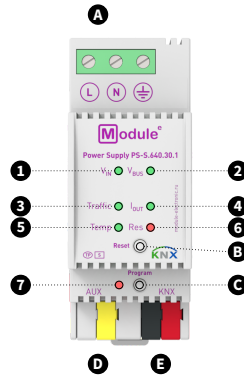


PS-S.640.30.1

1.1 SPECIFICATION

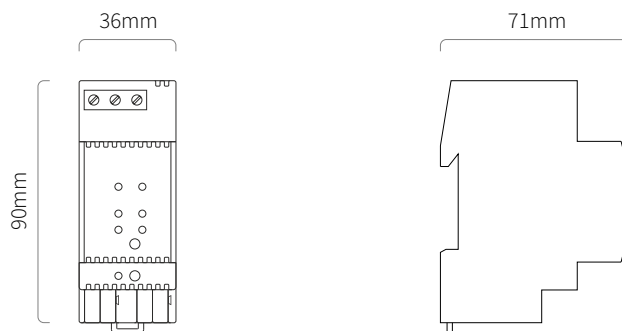
Device model	PS-S.640.30.1
Power input	
Mains voltage	230V AC ± 10% 50Hz
Power consumption normal / max. overload	23W / 42W
Mains failure bridging time	> 100ms
Mains voltage connection	screw terminals 0,3...2,5mm ²
Power output	
KNX, AUX output voltage	28...31V DC
Rated current / max. current (total output)	640mA / 1,2A
Efficiency at nominal load	82%
KNX interface	
Specification	TP-256
Available application software	ETS 4 and later
KNX connector	4-wire EIB connector (PUSH WIRE spring clips) for standard cable TP1 0,8mm Ø
KNX physical address by default	12.12.255
Operation temperature	-5°C ... + 45°C
Operation humidity	5 ... 95% (no condensation)
Degree of protection	IP 20, clean environment
Mounting type	DIN rail 35mm
Dimensions	36 x 90 x 71mm (2TE)
Weight	185 g

1.2 APPEARANCE



- A. Supply voltage terminals B. Reset button C. Programming button D. Aux output connector E. KNX TP connector
 1. LED input voltage V_{IN} 2. LED bus voltage V_{BUS} 3. LED telegram traffic 4. LED output current I_{OUT}
 5. LED internal temperature 6. LED KNX reset 7. Programming LED

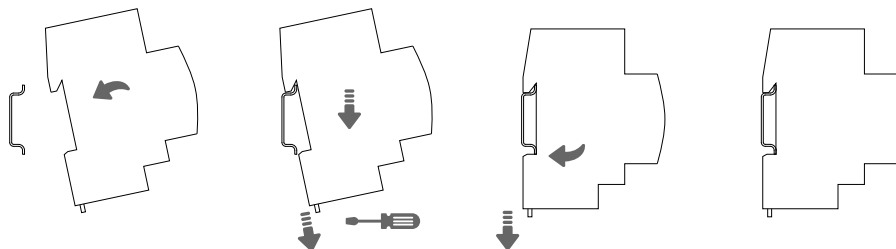
1. Input voltage V_{IN}	Green: Input voltage is 195...265V AC Red: Input voltage is out of this range
2. Bus voltage V_{BUS}	Green: KNX bus voltage 28...31V DC Red: KNX bus voltage is out of this range
3. Telegram traffic	Green (blinking): Telegram traffic < 80% Red: Telegram traffic > 80%
4. Output current I_{OUT}	Green: $I_{OUT} < 640\text{mA}$ Orange: $I_{OUT} 640...900\text{mA}$ Red: $I_{OUT} > 900\text{mA}$ (overload)
5. Internal temperature	Green: Temperature is 0...75°C Red: Temperature is out of this range
6. KNX reset	Red: Restart of the KNX bus line is running
7. Programming	Red: Programming mode active



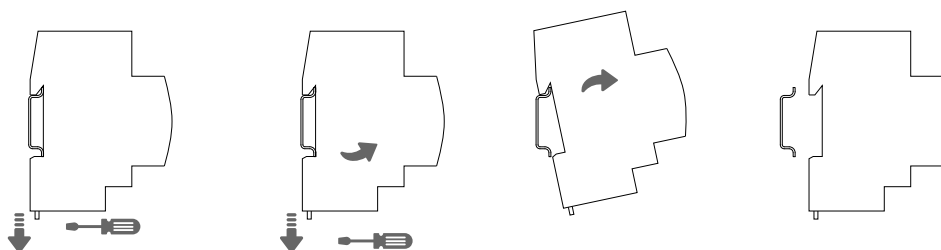
1.3 INSTALLATION AND CONNECTION

INSTALLATION

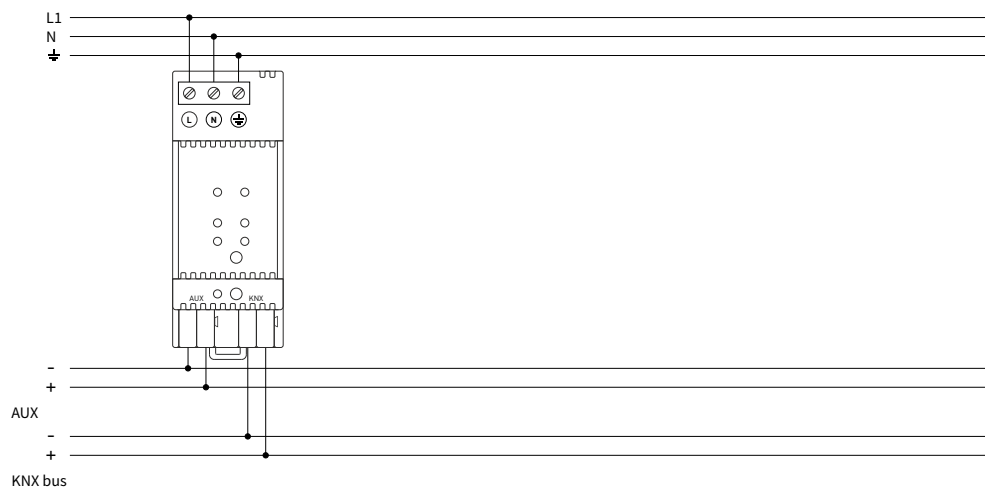
Attaching to DIN rail



Removing from DIN rail



WIRING DIAGRAMS



ATTENTION! Installation and connection of the device to the mains must only be carried out by qualified personnel! There is a risk of electric shock! Be sure to turn off the power before installing or removing the device! Even when the device is turned off, the output terminals can be live! Do not connect to the outputs a load that exceeds the recommended values! The design of the device meets the requirements of electrical safety according to GOST 12.2.007.0-75.

2 OPERATIONAL DESCRIPTION

In network installations, PS-S.640.30.1 supplies one KNX TP line and monitors all relevant data. With its default settings the PS-S.640.30.1 operates as is supposed to.

2.1 DEVICE/BUSLINE DIAGNOSTICS APPLICATION

Communication objects are used to request device status and measurement values. The measured values can be sent after request, after a certain change (measured value, device status) and periodically. Here, a certain change of the measured value means the difference between actual value and last sent value. Number and duration of overloads are stored. The same applies for the number of short circuits, device startups, KNX bus resets and for the duration of load detachments. The total operating time of the device and its operating time since last device startup are stored, too. Threshold values can be set for the bus voltage (only in the additional alarms), total current, telegram traffic and internal device temperature. Regarding maximum current values and maximum device temperature values, a tracking period can be set. At the end of every tracking period the maximum measured value can be sent on the bus or just be set as value of the appropriate object. Four different Alarm tabs (see chapter 3.7) can be used to send an info telegram (containing «0» or «1») about over/under threshold events and to switch other devices. After assignment of the measurement source («Output current», «Device temperature», «Output Voltage») each alarm can be configured individually.

2.2 DIAGNOSIS

The diagnostic measurement sources and event counters can be activated and deactivated. When activated, the device monitors the relevant values.

2.2.1 MEASUREMENT SOURCES

The bus voltage, bus current and internal device temperature are measured constantly. The telegram traffic extent is determined additionally. For each of these measurement sources a threshold value can be set. After setting the threshold value the threshold type can be selected (limit undercut/limit exceeded) and the behaviour on alarm activation/deactivation can be configured. A maximum value tracking feature with pre-settable tracking period can also be activated.

2.2.2 EVENT COUNTERS

For diagnosis purpose, event counters provide number and duration of overloads. When there is a short circuit on the bus, the load will be disconnected from the output automatically. Number of short circuits and duration of load detachment are available details. The same applies for the number of KNX bus resets and of device startups, and for operating times. Additional alarms also provide the number of a value being in the threshold range and the duration of such event.

Event	Number Counter	Duration Counter
Overload	X	X
Short Circuit	X	
Load Detached		X
KNX Bus Reset	X	
Threshold Range	X	X
Operating Time (total/since last startup)		X
Device Startup	X	

Table 1. Available event counters

2.2.3 EVENT COUNTER RESET

Counters for total operating time and device startups cannot be reset. Other counters for events can be reset by communication object. These counters (number and duration) are set to zero by writing a «1» to the communication object no.33 «Counter reset».

The event counter of each individual alarm (1,2,3,4) is set to zero by writing a «0» to the related communication object «Duration X» (objects no. 21, 24, 27, 30). Both number and duration counters then will be reset.

2.3 PARAMETER STRUCTURE FOR MEASUREMENT SOURCES

On enabling a measurement source in the ETS tab «Measurements», the following parameter structure is available (exception: counters). An actual value can be sent over the bus after a certain value change («Sending difference») or after a pre-set time period has elapsed («Cyclic sending»). A value reaching the excess threshold range can be used to send telegrams containing «1» or «0» («Behaviour on alarm activation»). Leaving this excess threshold range activates the «Behaviour on alarm deactivation». The additional alarms have an extended adjustment.

ETS Parameter	Explanation
Object type	Selection of the datapoint type
Sending difference	The actual value is sent when the difference between last sent value and actual value reaches the pre-set difference
Cyclic sending	The actual value is periodically sent
Threshold alarm	Enables/disables the threshold functionality and following options
Threshold	Crossing this limiting value executes the «Behaviour on alarm activation» function
Hysteresis	Passing the «Threshold» - «Hysteresis» value executes the «Behaviour on alarm deactivation» function
Behaviour on alarm activation	Set action on activation: Send a telegram or set the internal object value
Behaviour on alarm deactivation	Set action on deactivation: Send a telegram or set the internal object value

Table 2. General menu structure

2.4 PROGRAMMING

2.4.1 PROGRAMMING BUTTON

To download the desired Individual Address or an ETS setting the Programming Button must be pressed first. Successive pressing the Programming Button will turn on and off the Programming Mode. LED 7 lighting in red colour indicates Programming Mode is active. When Programming Mode is active, ETS recognizes the device of interest for downloading.

2.4.2 INDIVIDUAL ADDRESS ASSIGNMENT

To configure the device an interface connection (IP, USB) to the KNX bus system is required. The device is supplied with the Individual Address 12.12.255. The KNX product database entry (available for ETS4 and higher) can be downloaded from the website and from the KNX Online Catalog.

With the ETS the Individual Address can be assigned to the device by setting the desired address in the properties window of the ETS. After starting the ETS download and then pressing the Programming Button the device restarts itself.

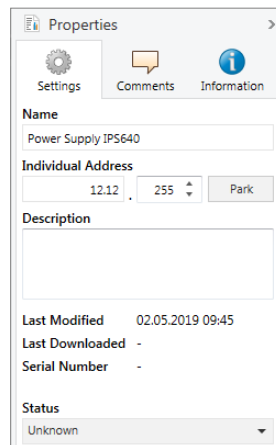


Figure 1. ETS properties window

2.5 KNX BUS RESET FUNCTION

During a bus reset, the device disconnects the entire bus line from the supplying output and induces a short circuit for 20 seconds. LED 6 (KNX Bus Reset) lights up red and goes off after the reset process is accomplished. Other LEDs are off. The devices connected to the bus line restart during the reset process.

Bus Reset and Device Startup:

- **Reset by push-button:**
The Reset Button activates the KNX Bus Reset function. Press the Reset Button on top of the device to reset the KNX bus line.
- **Reset by object:**
A remote reset can be triggered by communication object no. 16.
- **Reset by disconnection:**
Removing the KNX bus terminals disconnects the entire bus line.
- **ETS programming:**
When there was a mains power outage or after an ETS download, the PS-640.30.1 counts a device startup.

A «KNX Bus Reset» is triggered after a reset by button press and after a reset by communication object. A «Device Startup» takes place when there was a mains power outage or after programming the device. The number of «Short circuits» is counted only by the counter that can be read out with communication object no.36 «Power supply is on».

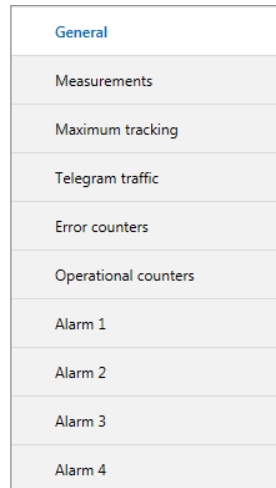
CO Counter Readout	KNX BUS Reset	Device Startups	Short Circuit
CO no.36 «Power supply on»	X	X	X
CO no.17 «Number of restarts»	X		
CO no.20 «Number of startups»		X	
	Reset by button press Reset by object	Mains power outage ETS programming	Short circuits

Table 1. Event counter readout by communication objects

The total number KNX Bus Resets, Device Startups and Short Circuits of can be read out by CO no.36. The counters for KNX Bus Resets and Device Startups can be read out by COs no.17 and no.20. For example: When there was no reset or startup and CO no.36 sends an info telegram on the bus to report an event, this event was a short circuit.

3 ETS DATABASE PARAMETERS

All screen shots are related to the PS-S.640.30.1 database file R1-1b in ETS5.



General
Measurements
Maximum tracking
Telegram traffic
Error counters
Operational counters
Alarm 1
Alarm 2
Alarm 3
Alarm 4

Figure 2. Parameter tabs

In the «General» tab the heartbeat period, the remote reset type (reset with «0» or with «1») and the delay of messages after startup can be configured. All data sources included in the remaining tabs can either be set to <disable> or to <enable>.

In the «Measurements» tab the output measurement and the temperature measurement can be activated.

The «Maximum tracking» tab contains the parameters for maximum current value and maximum temperature value detection within a «Tracking Period».

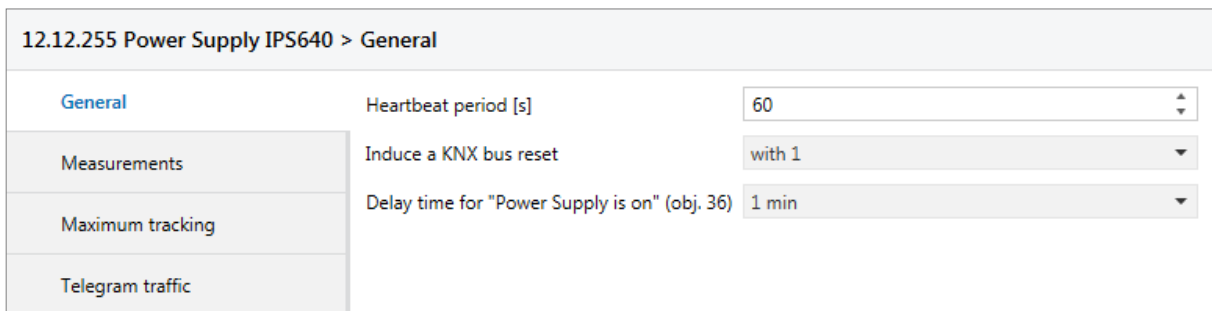
In the «Telegram traffic» tab the measurement of the telegram traffic extent can be activated.

In the tabs «Error counters» and «Operational counters» the event counters and time counters can be activated.

With the «Alarm 1» to «Alarm 4» tabs the tracking of the power supply output and of the device temperature can be configured. Tracking includes both event counters, for number and duration.

3.1 GENERAL

The «General» tab contains the parameters related to the presence message sending and the KNX bus reset that can be initialized by communication object no.16. With use of the communication object no.37 «Heartbeat» the device periodically sends out a telegram with «1». With use of the communication object no.36 «Power supply is on» the device sends out a telegram with «1» after a KNX bus reset, a device startup and a short circuit. After returning to normal working condition during the time delay no telegrams are sent. Then, the «Power supply is on» telegram is the first one that is sent.



12.12.255 Power Supply IPS640 > General		
General	Heartbeat period [s]	60
Measurements	Induce a KNX bus reset	with 1
Maximum tracking	Delay time for "Power Supply is on" (obj. 36)	1 min
Telegram traffic		

Figure 3. General tab parameters

ETS Parameter	Setting {Factory Default}	Comment
Heartbeat period [s]	10...32,000[s] {60}	Info telegram (with «1») is regularly sent after this time period
Induce a KNX bus reset	with 0; with 1; with 0 and 1 {with 1}	Set type of telegram to trigger (remotely) a KNX bus reset
Delay time for «Power supply on» (obj. 36)	disabled; 1min; 2min...5min; 10min; 15min...30min; 1h; 2h...8h {1min}	When returning to normal operation, after this time delay, the info telegram (containing «1») is sent by CO no.36

Table 4. General tab parameter settings

3.2 MEASUREMENTS

The «Measurements» tab contains the menus «Output voltage», «Output current» and «Device temperature». The excess threshold range of the «Output voltage» is fixed and located outside the working range (28-31V). For example, with no «Output voltage» hysteresis the «Behaviour on alarm deactivation» function is executed on just entering the working range. The «Output current» and the «Device temperature» excess threshold ranges both are located above the working range.




12.12.255 Power Supply IPS640 > Measurements		
General	Output voltage	
Measurements	Output voltage [V]	<input type="radio"/> disable <input checked="" type="radio"/> enable
Maximum tracking	Object type	<input type="radio"/> 2-byte (DPT9) <input checked="" type="radio"/> 4-byte (DPT14)
Telegram traffic	Cyclic sending	disabled
Error counters	Behaviour on alarm activation	send value 1
Operational counters	Threshold alarm	<input type="radio"/> disable <input checked="" type="radio"/> enable
Alarm 1	Behaviour on alarm deactivation	send value 0
Alarm 2	Output current	
Alarm 3	Output current [mA]	<input type="radio"/> disable <input checked="" type="radio"/> enable
Alarm 4	Object type	4-byte (DPT14)
	Sending difference	disabled
	Cyclic sending	disabled
	Threshold alarm	<input type="radio"/> disable <input checked="" type="radio"/> enable
	Threshold	640
	Hysteresis	1
	Behaviour on alarm activation	send value 1
	Behaviour on alarm deactivation	send value 0
	Device temperature	
	Device temperature [°C]	<input type="radio"/> disable <input checked="" type="radio"/> enable
	Sending difference	2 °C
	Cyclic sending	disabled
	Threshold alarm	<input type="radio"/> disable <input checked="" type="radio"/> enable
	Threshold	70
	Hysteresis	1
	Behaviour on alarm activation	send value 1
	Behaviour on alarm deactivation	send value 0

Figure 4. Measurements tab parameters

ETS Parameter	Setting {Factory Default}	Comment
Output voltage		
Output voltage [V]	disable; enable {disable}	Enable/disable group associations, measurement and following settings
Object type	2-byte (DPT9); 4-byte (DPT14) {4-byte (DPT14)}	Select datapoint type
Cyclic sending	disabled; 1min; 2min...5min; 10min; 15min...30min; 1h; 2h...8h {disabled}	Info telegram is sent regularly
Threshold alarm	disable; enable {disable}	Enable/disable the alarm function
Behaviour on alarm activation	disabled; send value 0; send value 1; set value to 0; set value to 1 {send value 1}	Leaving the working range
Behaviour on alarm deactivation	disabled; send value 0; send value 1; set value to 0; set value to 1 {send value 0}	Entering the working range
Output current		
Output current [mA]	disable; enable {disable}	Enable/disable group associations, measurement and following settings
Object type	2-byte (DPT7, integer); 2-byte (DPT9, float), 4-byte (DPT14) {4-byte (DPT14)}	Select datapoint type
Sending difference	disabled; 5mA;10mA, ...25mA; 50mA {disabled}	Difference between actual and last sent value which triggers the sending
Cyclic sending	disabled; 1min; 2min...5min; 10min; 15min...30min; 1h; 2h...8h {disabled}	Info telegram is sent regularly
Threshold alarm	disable; enable {disable}	Enable/disable the alarm function
Threshold	0...800[mA] {640}	Select threshold value to execute the «Behaviour on alarm activation»
Hysteresis	0...640[mA] {1}	Select hysteresis interval value to execute the «Behaviour on alarm deactivation»

ETS Parameter	Setting {Factory Default}	Comment
Behaviour on alarm activation	disabled; send value 0; send value 1; set value to 0; set value to 1 {send value 1}	Select action on entering the threshold range
Behaviour on alarm deactivation	disabled; send value 0; send value 1; set value to 0; set value to 1 {send value 0}	Select action on leaving the threshold (+hysteresis) range
Device temperature		
Device temperature [°C]	disable; enable {disable}	Enable/disable group associations, measurement and following settings
Sending difference	2°C; 3°C; ...10°C {2°C}	Difference between actual and last sent value which triggers the sending
Cyclic sending	disabled; 1min; 2min...5min; 10min; 15min...30min; 1h; 2h...8h {disabled}	Info telegram is sent regularly
Alarm settings	disable; enable {disable}	Enable/disable the alarm function
Threshold	0...110[°C] {70}	Select threshold value to execute the «Behaviour on alarm activation»
Hysteresis	1...40[°C] {1}	Select hysteresis interval value to execute the «Behaviour on alarm deactivation»
Behaviour on alarm activation	disabled; send value 0; send value 1; set value to 0; set value to 1 {send value 1}	Select action on entering the threshold range
Behaviour on alarm deactivation	disabled; send value 0; send value 1; set value to 0; set value to 1 {send value 0}	Select action on leaving the threshold (+hysteresis) range

Table 5. Measurements tab parameter settings

-  Using the «Sending difference» function with the «Output voltage» is possible only within the «Alarm 1,2,3,4" tabs like described in chapter 3.7 .
-  The «Output voltage» value is valid only if most of the loads is on the KNX bus output
-  If the «Output current» value is < 10 mA, for calculations, the input voltage is assumed to be at 230 V AC

3.3 MAXIMUM TRACKING

With setting the «Tracking period» a certain period of time is tracked in order to find the maximum observed value contained. After each expired period this value can be sent over the bus. The maximum tracking function is available for the measurement sources «Output current» and «Device Temperature».

12.12.255 Power Supply IPS640 > Maximum tracking		
General	Tracking period [s]	1800
Measurements	Maximum value of Output current	
Maximum tracking	Output current maximum [mA]	<input type="radio"/> disable <input checked="" type="radio"/> enable
Telegram traffic	Object type	4-byte (DPT14)
Error counters	Automatic sending	<input checked="" type="radio"/> do not send <input type="radio"/> send at end of period
Operational counters	Maximum value of Device temperature	
Alarm 1	Device temperature maximum [°C]	<input type="radio"/> disable <input checked="" type="radio"/> enable
Alarm 2	Automatic sending	<input checked="" type="radio"/> do not send <input type="radio"/> send at end of period

Figure 5. Maximum tracking tab parameters

ETS Parameter	Setting {Factory Default}	Comment
Tracking period [s]	10...32,000[s] {1,800}	Determination of the time period for maximum value tracking
Maximum value of Output current		
Output current maximum [mA]	disable; enable {disable}	Enable/disable group associations, measurement and following settings
Object type	2-byte(DPT7, integer); 2-byte (DPT9, float), 4-byte(DPT14) {4-byte(DPT14)}	Select datapoint type
Automatic sending	do not send; send at end of period {do not send}	Info telegram containing the maximum measured output current value is sent after an expired tracking period
Maximum value of Device temperature		
Device temperature maximum [°C]	disable; enable {disable}	Enable/disable group associations, measurement and following setting
Automatic sending	do not send; send at end of period {do not send}	Info telegram containing the maximum measured device temperature value is sent after an expired tracking period

Table 6. Maximum tracking tab parameter settings

3.4 TELEGRAM TRAFFIC

The «Telegram traffic» measurement source is similar to the measurement sources in the ETS tab «Measurements». The excess threshold range of the «Telegram traffic» is located only above its working range.

12.12.255 Power Supply IPS640 > Telegram traffic

General	Telegram traffic	
Measurements	Telegram traffic [%]	<input type="radio"/> disable <input checked="" type="radio"/> enable
Maximum tracking	Sending difference	<input style="width: 80%;" type="text" value="10"/>
Telegram traffic	Cyclic sending	<input style="width: 80%;" type="text" value="disabled"/>
Error counters	Threshold	<input style="width: 80%;" type="text" value="80"/>
Operational counters	Threshold alarm	<input type="radio"/> disable <input checked="" type="radio"/> enable
Alarm 1	Hysteresis	<input style="width: 80%;" type="text" value="10"/>
Alarm 2	Behaviour on alarm activation	<input style="width: 80%;" type="text" value="send value 1"/>
	Behaviour on alarm deactivation	<input style="width: 80%;" type="text" value="send value 0"/>

Figure 6. Telegram traffic tab parameters

ETS Parameter	Setting {Factory Default}	Comment
Telegram traffic		
Telegram traffic [%]	disable; enable {disable}	Enable/disable group associations, measurement and following settings
Sending difference	0...100[%] {10}	Difference between actual and last sent value which triggers the sending
Cyclic sending	disabled; 1min; 2min...5min; 10min; 15min...30min; 1h; 2h...8h {disabled}	Info telegram is sent regularly
Alarm settings	disable; enable {disable}	Enable/disable the alarm function
Threshold	0...100[%] {80}	Select threshold value to execute the “Behaviour on alarm activation”
Hysteresis	0...70[%] {10}	Select hysteresis interval value to execute the “Behaviour on alarm deactivation”
Behaviour on alarm activation	disabled; send value 0; send value 1; set value to 0; set value to 1 {send value 1}	Select action on entering the threshold range

ETS Parameter	Setting {Factory Default}	Comment
Behaviour on alarm deactivation	disabled; send value 0; send value 1; set value to 0; set value to 1 [send value 0]	Select action on leaving the threshold (+hysteresis) range

Table 7. Telegram traffic tab parameter settings

3.5 ERROR COUNTERS

The «Error Counters» tab contains the menus «Overload number counter», «Overload time counter», «Short circuits number counter» and «Load detached time counter». Activation of the parameters also activates the related communication objects. Info telegrams containing actual values can be sent regularly or according to a pre-set value difference. Error counters can be set to zero by writing a «1» to the communication object no.33 «Counter reset» .

Figure 9. Error counter tab parameters

ETS Parameter	Setting {Factory Default}	Comment
Overload number counter		
Number of overloads	disable; enable {disable}	Enable/disable group associations, number counter and following settings
Sending difference	0...1,000 {0} (= disabled)	Info telegram is sent regularly after this number of overloads
Cyclic sending	disabled; 1min; 2min...5min; 10min; 15min...30min; 1h; 2h...8h {disabled}	Info telegram is sent regularly

ETS Parameter	Setting {Factory Default}	Comment
Overload time counter		
Duration of overloads [s]	disable; enable {disable}	Enable/disable group associations, time counter and following setting
Sending difference	0...32,000[s] {0} (= disabled)	Difference between actual and last sent value which triggers the sending
Short circuit number counter		
Number of short circuits	disable; enable {disable}	Enable/disable group associations, number counter and following setting
Sending difference	0...500 {0} (= disabled)	Difference between actual and last sent value which triggers the sending
Cyclic sending	disabled; 1min; 2min...5min; 10min; 15min...30min; 1h; 2h...8h {disabled}	Info telegram is sent regularly
Load detached time counter		
Duration of load detached [s]	disable; enable {disable}	Enable/disable group associations and time counter

Table 8. Error counter tab parameter settings

3.6 OPERATIONAL COUNTERS

The «Operational counters» tab contains the menus «KNX bus reset number counter», «Device startup number counter», «Total operating time» and «Operating time since last device startup». Activation of the parameters also activates the related communication objects. Info telegrams containing the actual number counter value can be sent regularly. Info telegrams containing the actual time counter value can be sent according to the pre-set value difference. The operational counters can be set to zero by writing a «1» to the communication object no.33 «Counter reset».

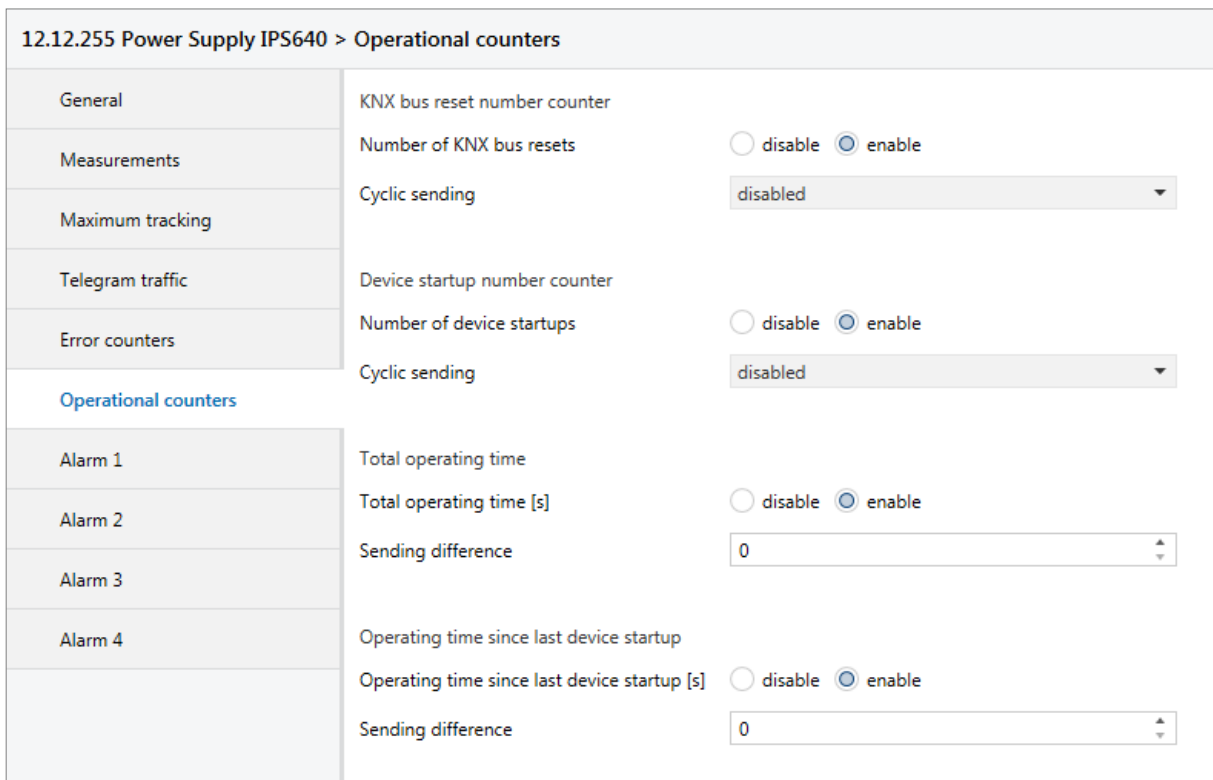


Figure 10. Operational counters tab parameters

ETS Parameter	Setting {Factory Default}	Comment
KNX bus reset number counter		
Number of KNX bus resets	disable; enable {disable}	Enable/disable group associations, measurement and following setting
Cyclic sending	disabled; 1min; 2min...5min; 10min; 15min...30min; 1h; 2h...8h {disabled}	Info telegram is sent regularly

ETS Parameter	Setting {Factory Default}	Comment
Device startup number counter		
Number of device startups	disable; enable { disable }	Enable/disable group associations, measurement and following setting
Cyclic sending	disabled; 1min; 2min...5min; 10min; 15min...30min; 1h; 2h...8h { disabled }	Info telegram is sent regularly
Total operating time		
Total operating time [s]	disable; enable { disable }	Enable/disable group associations, measurement and following setting
Sending difference	0...2,600,000[s] { 0 } (= disabled) (1 month ≈ 2,600,000s) (1 day ≈ 86,000s)	Difference between actual and last sent value which triggers the sending
Operating time since last device startup		
Operating time since last device startup [s]	disable; enable { disable }	Enable/disable group associations, measurement and following setting
Sending difference	0...2,600,000[s] { 0 } (= disabled) (1 month ≈ 2,600,000s) (1 day ≈ 86,000s)	Difference between actual and last sent value which triggers the sending

Table 9. Operational counters tab parameter settings

3.7 ALARM 1,2,3,4

After enabling the alarm function the measurement source can be chosen. With the menu item «Alarmtype» the threshold range can be set. The alarm activation/deactivation can also be used to switch other devices. With the additional alarms 1-4, durations and numbers of threshold events can be sent on the bus. After changing the alarm’s measurement source, both number counter and time counter are reset to zero automatically. The counters can be set to zero by writing «1» to the communication object no.33 «Counter reset» or by writing «0» to one of the related communication objects «Duration 1», «Duration 2», «Duration 3», «Duration 4»(objects no. 21, 24, 27, 30).

12.12.255 Power Supply IPS640 > Alarm 1		
General	Alarm 1	<input type="radio"/> disable <input checked="" type="radio"/> enable
Measurements	Measurement source	Output current
Maximum tracking	Threshold	640
Telegram traffic	Hysteresis	5
Error counters	Alarmtype	<input type="radio"/> Threshold undercut <input checked="" type="radio"/> Threshold exceeded
Operational counters	Behaviour on alarm activation	send value 1
	Behaviour on alarm deactivation	send value 0
Alarm 1	Duration 1	
Alarm 2	Sending difference	0
Alarm 3	Counter 1	
Alarm 4	Sending difference	0
	Cyclic sending	disabled

Figure 11. Alarm 1 tab parameters (same applies to alarm 2, 3, 4)

ETS Parameter	Setting {Factory Default}	Comment
Alarm 1	disable; enable {disable}	Enable/disable group associations, measurement and following settings
Measurement source	Output current; Device temperature; Output voltage {Output current}	Selection of the measurement source
Threshold	10...800 {640} for Output current {70} for Dev. Temp. {31} for Output voltage	Select threshold value to execute the «Behaviour on alarm activation»
Hysteresis	5...500 {5}	Select hysteresis interval value
Alarmtype	Threshold undercut; Threshold exceeded {Threshold exceeded}	Select threshold region either to lie above (limit exceeded) or to lie below (limit undercut) the threshold value

ETS Parameter	Setting {Factory Default}	Comment
Behaviour on alarm activation	disabled; send value 0; send value 1; set value to 0; set value to 1 {send value 1}	Select action on entering the threshold region
Behaviour on alarm deactivation	disabled; send value 0; send value 1; set value to 0; set value to 1 {send value 0}	Select action on leaving the threshold (+hysteresis) range
Duration 1		
Sending difference	0...2,600,000[s] {0} (= disabled) (1 month ≈ 2,600,000s) (1 day ≈ 86,000s)	Info telegram is sent regularly when the time counter of threshold exceedance(s) reaches the pre-set value
Counter 1		
Sending difference	0...500 {0} (= disabled)	Info telegram is sent regularly when the number counter of threshold exceedance(s) reaches the pre-set value
Cyclic sending	disabled; 1min; 2min...5min; 10min; 15min...30min; 1h; 2h...8h {disabled}	Info telegram is sent regularly

Table 10. Alarm tab parameter settings (same applies to alarm 2,3,4)

4 COMMUNICATION OBJECTS

Nº	Name	Function	Description	Length	DPT	C	R	W	T	U
0	Output voltage	Send measured value	With «Cyclic sending» the device sends the measured output voltage value in V (or mV).	2 bytes 4 bytes	DPT9, DPT14	X	X		X	
1	Output voltage threshold	Send alarm status	With the measured value entering the threshold range a telegram with value 0 or 1 is sent. After returning to normal operating a telegram with value 0 or 1 is sent.	1 bit		X	X		X	
2	Output current	Send measured value	With «Sending difference» and «Cyclic sending» the device sends the measured output current value in A (or mA).	2 bytes 4 bytes	DPT7, DPT9, DPT14	X	X		X	
3	Output current threshold	Send alarm status	With the measured value entering the threshold range a telegram with value 0 or 1 is sent. After returning to normal operating and passing hysteresis a telegram with value 0 or 1 is sent.	1 bit		X	X		X	
4	Output current maximum	Send measured value	After the expired tracking period with «Automatic sending» the device sends the measured output current value in A (or mA).	2 bytes 4 bytes	DPT7, DPT9, DPT14	X	X		X	
5	Temperature	Send measured value	With «Sending difference» and «Cyclic sending» the device sends the measured temperature value in °C.	2 bytes		X	X		X	
6	Temperature threshold	Send alarm status	With the measured value entering the threshold range a telegram with value 0 or 1 is sent. After returning to normal operating and passing hysteresis a telegram with value 0 or 1 is sent.	1 bit		X	X		X	
7	Temperature maximum	Send measured value	After the expired tracking period with «Automatic sending» the device sends the measured temperature value in °C.	2 bytes		X	X		X	
10	Telegram traffic	Send measured value	With «Sending difference» and «Cyclic sending» the device sends the measured bus load value in %.	1 byte		X	X		X	

Nº	Name	Function	Description	Lenght	DPT	C	R	W	T	U
11	Telegram traffic threshold	Send alarm status	With the measured value entering the threshold range a telegram with value 0 or 1 is sent. After returning to normal operating and passing hysteresis a telegram with value 0 or 1 is sent.	1 bit		X	X		X	
12	Overload number	Send counter value	With «Sending difference» and «Cyclic sending» the device sends the number counter value of overloads.	2 bytes		X	X		X	
13	Overload duration	Send counter value	With «Sending difference» the device sends the time counter value of overloads in s.	4 bytes		X	X		X	
14	Short circuit number	Send counter value	With «Sending difference» and «Cyclic sending» the device sends the number counter value of short circuits.	2 bytes		X	X		X	
15	Load detached duration	Send counter value	When activated, the device sends the time counter value of load detachments (due to short circuit, device startup and KNX bus reset).	4 bytes		X	X		X	
16	KNX bus reset	Initialize	Triggered by a telegram with value 0 or 1, the device starts a reset process.	1 bit		X		X	X	X
17	KNX bus reset number	Send counter value	With «Cyclic sending» the device sends the number counter value of KNX bus resets.	2 bytes		X	X		X	
18	Total operating time	Send counter value	With «Sending difference» the device sends the time counter value of the total operating time in s.	4 bytes		X	X		X	
19	Operating time since startup	Send counter value	With «Sending difference» the device sends the time counter value of the time elapsed since last device startup in s.	4 bytes		X	X		X	
20	Startup number	Send counter value	With «Cyclic sending» the device sends the number counter value of device startups.	2 bytes		X	X		X	
21	Duration 1	Send counter value	With «Sending difference» the device sends the time counter value (in s) of a pre-selected variable (output current, output voltage, temperature) being in the threshold range.	4 bytes		X	X		X	

Nº	Name	Function	Description	Lenght	DPT	C	R	W	T	U
22	Counter 1	Send counter value	With «Sending difference» and «Cyclic sending» the device sends the number counter value (in s) indicating the number of threshold events (for output current, output voltage, temperature).	2 bytes		X	X		X	
23	Threshold 1	Send alarm status	With the measured value entering the threshold range a telegram with value 0 or 1 is sent. After returning to normal operating and passing hysteresis a telegram with value 0 or 1 is sent.	1 bit		X	X		X	
24	Duration 2	Send counter value	With «Sending difference» the device sends the time counter value (in s) of a pre-selected variable (output current, output voltage, temperature) being in the threshold range.	4 bytes		X	X		X	
25	Counter 2	Send counter value	With «Sending difference» and «Cyclic sending» the device sends the number counter value (in s) indicating the number of threshold events (for output current, output voltage, temperature).	2 bytes		X	X		X	
26	Threshold 2	Send alarm status	With the measured value entering the threshold range a telegram with value 0 or 1 is sent. After returning to normal operating and passing hysteresis a telegram with value 0 or 1 is sent.	1 bit		X	X		X	
27	Duration 3	Send counter value	With «Sending difference» the device sends the time counter value (in s) of a pre-selected variable (output current, output voltage, temperature) being in the threshold range.	4 bytes		X	X		X	
28	Counter 3	Send counter value	With «Sending difference» and «Cyclic sending» the device sends the number counter value (in s) indicating the number of threshold events (for output current, output voltage, temperature).	2 bytes		X	X		X	
29	Threshold 3	Send alarm status	With the measured value entering the threshold range a telegram with value 0 or 1 is sent. After returning to normal operating and passing hysteresis a telegram with value 0 or 1 is sent.	1 bit		X	X		X	

N°	Name	Function	Description	Length	DPT	C	R	W	T	U
30	Duration 4	Send counter value	With «Sending difference» the device sends the time counter value (in s) of a pre-selected variable (output current, output voltage, temperature) being in the threshold range.	4 bytes		X	X		X	
31	Counter 4	Send counter value	With «Sending difference» and «Cyclic sending» the device sends the number counter value (in s) indicating the number of threshold events (for output current, output voltage, temperature).	2 bytes		X	X		X	
32	Threshold 4	Send alarm status	With the measured value entering the threshold range a telegram with value 0 or 1 is sent. After returning to normal operating and passing hysteresis a telegram with value 0 or 1 is sent.	1 bit		X	X		X	
33	Counter reset	Reset all	All number counter values and duration counter values (except total operating time and device startup number) are set to zero by a telegram with «1».	1 bit		X		X	X	
34	Measured values	Send all	Measured values of output current, output voltage and temperature are sent as response to a «1» telegram.	1 bit		X		X	X	
35	Counter values	Send all	Event counter values (overload number, overload duration, load detached duration, total operating time, operating time since last device startup, Duration 1-4, Counter 1-4) are sent as response to a «1» telegram.	1 bit		X		X	X	
36	Counter values	Send info value 1	After device startup and after recovery from output failure, a «1» telegram to announce that the device is on the bus is sent (according to the pre-set delay).	1 bit		X	X		X	
37	Heartbeat	Send info value 1	According to the pre-set heartbeat period, an info telegram with value 1 is sent regularly on the bus indicating the power supply is on.							

Table 11. Communication objects

5 STATE OF DELIVERY

5.1 DEFAULT FACTORY SETTING

General	
Individual address	12.12.255
Heartbeat	60 s