EN

Operation and installation manual

KNX PowerSupply DGS 366

(Art. # 5207)

640 mA power supply for KNX bus with integrated bus choke, KNX node, diagnostic and logic functions

Picture 1: Photo of the device

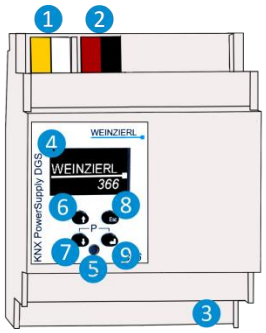
Application

The KNX PowerSupply 366 is a 640 mA power supply with high efficiency and a small footprint of only 4 units (72 mm). The device has a bus choke and additionally provides an output for auxiliary power.

The integrated KNX node monitors output current, bus voltage and the temperature in the enclosure. Various logic functions complete the feature set of this device. The configuration is done with the ETS. An easy to read OLED display on the front panel enables you to display the operating parameters locally on the device.

Installation and Connection

The KNX PS 366 DGS is designed for installation on DIN rail with a width of 4 units (72 mm). It features the following controls (6 7 8 9) and displays (4 5):



1 Aux. *Power Out 30 V DC*
2 *KNX Bus Out*
3 *Power In 230 V AC*
4 *OLED Display*
5 *LED for Programming Mode*
6 *Up Button*
7 *Down Button*
8 *Escape Button*
9 *Enter Button*

Access of settings

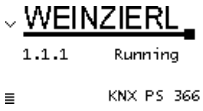
The settings of the device can be accessed via

1. Direct setting on the device (partly)
2. ETS (Version 4.2 or higher)

1. Direct setting on the device

Programming mode: The KNX programming mode is activated / deactivated by pressing the buttons 7+9 simultaneously.

A. Startup and idle display



During startup of the device, the physical address and the status of the application is displayed.
The device name 'KNX PS 366' can be changed within ETS parameter settings.

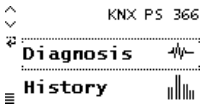
The status can be one of the following values:

- *Running:* Application is loaded and running
- *Stopped:* The application is stopped
- *Unloaded:* The application is not loaded
- *Loading:* The application is currently loading
- *Overload:* The output current is above the rated current

The power supply functionality (KNX and auxiliary voltage) is not dependent whether the application is running or not.

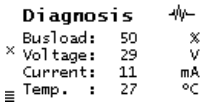
After 10 minutes of inactivity the display will turn into screensaver mode (blank screen with a bouncing dot) to safe display life time. Press any key to turn the display on again. The activation of the display can be synchronized between all devices of this device line of Weinzierl via a group object. See parameter section for details.

B. Main menu



By pressing 7 (arrow down) you enter the **main menu** of the device. By pressing 9 (enter) you enter the **submenus**. Within the menus you can use 6 (arrow up) and 7 (arrow down) for **navigation**; 9 (enter) is for **confirmation** and 8 (escape) is to cancel / **go back** / one level higher.

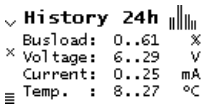
C. Submenu Diagnosis



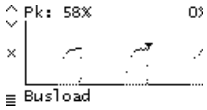
This submenu shows actual values of **busload** (%), **voltage** (V), **current** (mA), and **temperature** (°C).
The busload is an indication of number of telegrams in a time span.

A value of 100 % busload is achieved by about 50 telegrams per second (Group Value Write, 1 Byte data). Voltage is the bus voltage, current the sum of bus and auxiliary current. The temperature is measured within the device and can reach up to 100°C.

D. Submenu History



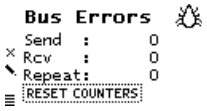
History displays the value range (min and max) for busload, voltage, current, and temperature **over the last 24 hours.**



By pressing the 7 (arrow down) several times a **graphical visualization** for each value is displayed: for busload, voltage, current, and temperature. To go back to the main menu, press 8 (escape).

The time span of each graph is approximately 2 minutes.

E. Submenu Bus Errors

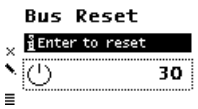


In this submenu, you can display **bus errors** and **reset the bus error counters** by pressing 9 (enter).

The following errors are counted:

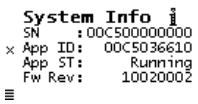
- *Send errors:* Send failed after final repetition due to missing ACK, NACK or BUSY.
- *Receive errors:* Misformed telegrams or telegram fragments received.
- *Repetitions:* Number of received repeated telegrams. Also own repetitions are counted.

F. Submenu Bus Reset



This submenu allows you to **reset the KNX Bus line**. Press 9 (enter) to switch off the KNX voltage. The default reset time is 30 seconds. To stop the countdown, press 8 (escape)

G. Submenu System Info



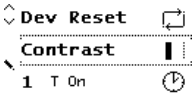
This submenu displays **information about the device**: serial number (SN), App ID, App status (App ST), and Firmware Revision (Fw Rev).

H. Submenu Device Reset

This submenu allows you to **restart** the device or to **reset to factory settings** (master reset). Select one option and keep 9 pressed until the small animation is finished and the option is executed.

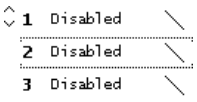
Master reset will make a new ETS application download necessary.

I. Submenu Contrast

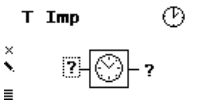


To set the **contrast** of the display, select this entry in the menu. By pressing 9 (enter) several times you can set the contrast to different levels.

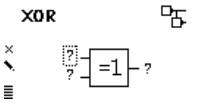
J. Submenu Timer and Logic functions



The device supports **up to 16 Timer** and **Logic functions**. These functions have to be defined within ETS parameter settings. After application download, the freely selectable function label will be shown in each function menu entry as well as within the function submenu as headline.



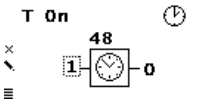
All logical inputs and outputs correspond with a group object. The current values are shown in the graphical representation. A question mark ('?') is shown if the value is not yet valid because it was not yet received from bus or is not yet sent to the bus.



A logical gate sends output values only if all input values are valid.

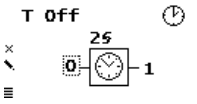
Within the function submenus, each input of the function can be set / reset by pressing the 9 (enter) button for testing purpose. The associated group telegram of the output will then be sent on the bus. Use 6 (arrow up) and 7 (arrow down) to navigate between the inputs.

K. Timer Switch-on delay



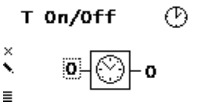
Timer that **switches ON** after defined duration (in seconds, set via the ETS). After pressing 9 (enter) countdown will start. To stop countdown, press 9 (enter) again during countdown.

L. Timer Switch-off delay



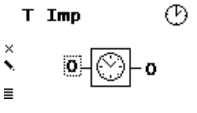
Timer that **switches OFF** after defined duration (in seconds, set via the ETS). After pressing 9 (enter) countdown will start. To stop countdown, press 9 (enter) again during countdown.

M. Timer Switch-on and –off delay



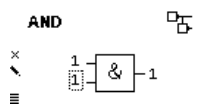
Timer that **switches ON & OFF** after defined duration (in seconds, set via the ETS). After pressing 9 (enter) countdown will start and the timer will **turn on**. After first countdown is finished, press 9 (enter) again to start countdown to **turn off**. To stop countdown, press 9 (enter) again during countdown.

N. Timer Impulse (Staircase function)



Timer with impulse that – after being switched **ON** – **automatically switches OFF** after a defined duration (in seconds, set via the ETS). Press 9 (enter) to start impulse timer. To stop a countdown, press 9 (enter) again during countdown.

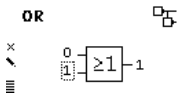
O. Logic AND gate



The output is triggered **on** (‘1’) if **both** inputs are switched **on** (‘1’).

Input A	Input B	Output
0	0	0
0	1	0
1	0	0
1	1	1

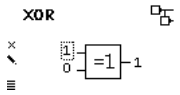
P. Logic OR gate



The output is triggered **on** (‘1’) if **one or both** inputs are switched **on** (‘1’).

Input A	Input B	Output
0	0	0
0	1	1
1	0	1
1	1	1

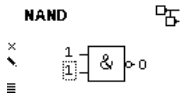
Q. Logic XOR gate



The output is triggered **on** (‘1’), if the two inputs are **not equal**.

Input A	Input B	Output
0	0	0
0	1	1
1	0	1
1	1	0

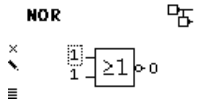
R. Logic NAND gate



The output is triggered **on** (‘1’) if **one or both** inputs are switched **off** (‘0’).

Input A	Input B	Output
0	0	1
0	1	1
1	0	1
1	1	0

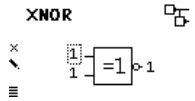
S. Logic NOR gate



The output is triggered **on** (‘1’) if **both** inputs are switched **off** (‘0’).

Input A	Input B	Output
0	0	1
0	1	0
1	0	0
1	1	0

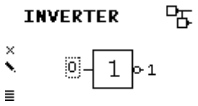
T. Logic XNOR gate



The output is triggered **on** (‘1’) if both inputs are **equal**.

Input A	Input B	Output
0	0	1
0	1	0
1	0	0
1	1	1

U. Logic INVERTER



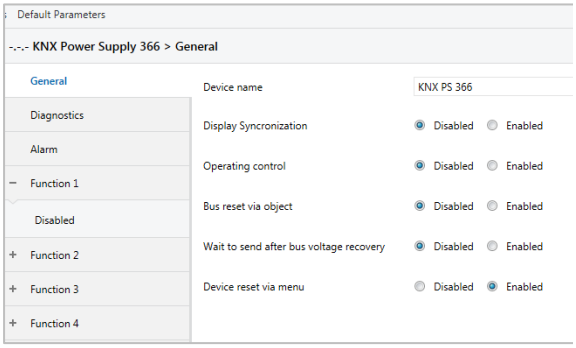
Input **on** (‘1’) is converted into output **off** (‘0’). Input **off** (‘0’) is converted into output **on** (‘1’).

Input	Output
0	1
1	0

2. ETS Setup

The ETS database entry (ETS 4.2 and ETS 5) can be downloaded on the KNX PowerSupply 366 product website (www.weinzierl.de).

A. General



This parameter allows setting of general functions of the device:

Device name (free text input)

The device name can be chosen freely. The maximum length of the name is 30 characters. After the ETS application download the name will be shown within the devices startup and idle display.

Display synchronization (Enabled / Disabled)

If enabled, a communication object
‘Display synchronization – Trigger’ appears.
Each Weinzierl device with a display of this product range provides this parameter. As soon as the device wakes up, the associated group telegram will be sent to the KNX bus which wakes up every other device whose display synchronization group object is associated to the same group address.

Group Object	Type KNX	Size	Direction
1: Display synchronization – Trigger	1.017	1 Bit	From / To KNX

Operating control (Enabled / Disabled)

If enabled, a parameter ‘Cycle time’ (10 s – 24 h) and a group object ‘Operating control – Monitor’ appears. This group object allows to implement a ‘heart beat’. If associated with a group address, the group telegram will be sent to the KNX bus according to the set ‘Cycle time’.
The telegram can then be used to detect whether the device is still connected and working.

Group Object	Type KNX	Size	Direction
2: Operating control – Monitor	1.017	1 Bit	To KNX

Bus reset via object (Enabled / Disabled)

If enabled, the parameter provides the group object 'Bus reset – Trigger'. If associated with a group address a bus reset can be forced by sending a group telegram.

Group Object	Type KNX	Size	Direction
3: Bus reset – Trigger	1.017	1 Bit	To KNX

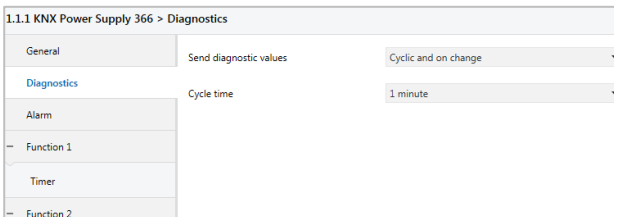
Wait to send after bus voltage recovery (Enabled / Disabled)

If enabled, the parameter 'Waiting time' (10 s – 120 s) appears. The set value determines the waiting time, until diagnostic telegrams will be sent after bus voltage recovery. The telegrams of the following group objects will be restrained:
- Diagnostics – Voltage [V] – Value
- Diagnostics – Current [A] – Value
- Diagnostics – Current max. – Value
- Diagnostics – Temperature [°C] – Value
- Diagnostics – Temperature max. – Value
- Diagnostics – Busload [%] – Value

Device reset via menu (Enabled / Disabled)

By disabling this option, the function for resetting the device by its local menu is deactivated.

B. Diagnostics



This parameter sets basic diagnostic functions.

Group Object	Type KNX	Size	Direction
11: Diagnostics – Request values - Trigger	1.017	1 Bit	From KNX
12: Diagnostics – Reset max. values - Trigger	1.017	1 Bit	From KNX
13: Diagnostics – Voltage [V] - Value	14.027	4 Byte	To KNX
14: Diagnostics – Current [A] - Value	14.019	4 Byte	To KNX
15: Diagnostics – Current max. [A] - Value	14.019	4 Byte	To KNX
16: Diagnostics – Temperature [°C] - Value	9.001	2 Byte	To KNX
17: Diagnostics – Temperature max. [°C] - Value	9.001	2 Byte	To KNX
18: Diagnostics – Busload [%] - Value	5.001	8 Bit	To KNX

Send diagnostic values (Disabled)

No group objects for diagnostic values are available.

Send diagnostic values (Cyclic)

The group object for diagnostic values are available.
The associated group telegrams will be sent in dependence of the set cycle time.

Send diagnostic values (On change)

The group objects for diagnostic values are available.
The group telegrams will only be sent if the value changes.

Send diagnostic values (Cyclic and on change)

The group objects for diagnostic values are available.
The group telegrams will be sent in dependence of the set cycle time as well as when the value changes.

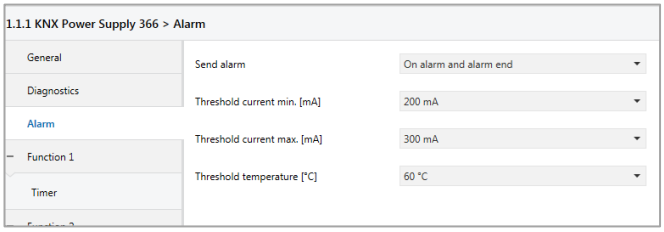
Send diagnostic values (On request only)

The group objects for diagnostic values are available.
The telegrams will only be sent if triggered by a telegram to group object
- Diagnostics – Request values – Trigger.

If the diagnostic values are activated, the group objects
- Diagnostics – Request values – Trigger
- Diagnostics – Reset max. values – Trigger

are always available.
If a group telegram is sent to 'request values trigger' all diagnostics values will be sent to the bus.
If 'Reset max. values' is triggered, all maximum values will be set to 0.

C. Alarm



This parameter sets basic alarm functions.

Group Object	Type KNX	Size	Direction
20: Alarm – Current min. - State	1.005	1 Bit	To KNX
21: Alarm – Current max. - State	1.005	1 Bit	To KNX
22: Alarm – Temperature – State	1.005	1 Bit	To KNX

Send alarm (Disabled)

No group object for alarm states are available.

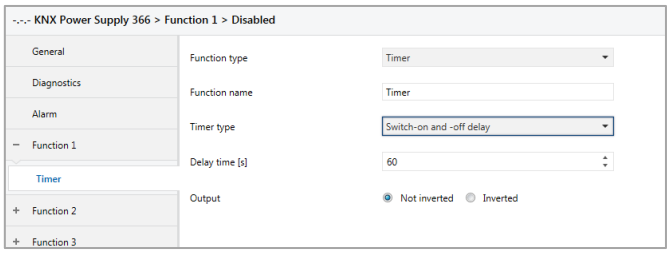
Send alarm (On alarm / On alarm and alarm end)

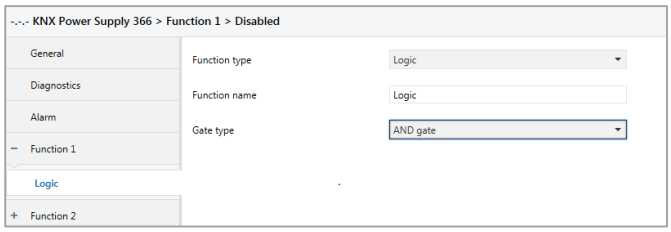
If activated the alarm state group objects as well as the threshold options appear.
'Threshold current min. [mA]' option declares the minimum amount of current. If the actual current falls below the chosen threshold, the message associated to group object 'Alarm – Current min. – State' will be sent.
'Threshold current max. [mA]' option declares the maximum amount of current. If the actual current rises above the chosen threshold, the message associated to group object 'Alarm – Current max. – State' will be sent.
'Threshold temperature [°C]' determines the maximum of allowed temperature. If the actual temperature within the housing rises above the chosen threshold, the message associated to group object 'Alarm - Temperature – State' will be sent.

If the actual values return into the 'no alarm zone' only a message will be sent if option 'On alarm and alarm end' is chosen.

The measured current is the combined value of bus and auxiliary output.

D. Function 1 – 16 (Timer / Logic)





These parameters set the additional functions such as timer and logic. The logic gate truth tables can be found in the device menu section.

Function type (Disabled)

If set to 'Disabled', no timer specific parameter and group object is available.

Function type (Timer)

The timer specific parameters and group objects are available.

Function name (free text input)

The function name can be chosen freely. The maximum length of the name is 10 characters.
The name will be shown in the group object entry within the ETS software. After the ETS application download the name will be shown within the devices function menu entry as well as in the function submenu as a headline.

Timer type (Switch-on delay)

A timer that **switches ON** after duration defined in 'Delay time [s]' parameter.
The output value can be inverted by parameter 'Output' (Not inverted / Inverted).

Input -------1----------0----------
Output -------|-T-1----------0----------

Group Object	Type KNX	Size	Direction
Timer – Switch-on delayed - Input	1.002	1 Bit	From KNX
Timer – Switch-on delayed - Output	1.002	1 Bit	To KNX

Timer type (Switch-off delay)

A timer that **switches OFF** after duration defined in 'Delay time [s]' parameter.
The output value can be inverted by parameter 'Output'. (Not inverted / Inverted)

Input -------1----------0----------
Output -------1----------|-T-0------

Group Object	Type KNX	Size	Direction
Timer – Switch-off delayed - Input	1.002	1 Bit	From KNX
Timer – Switch-off delayed - Output	1.002	1 Bit	To KNX

Timer type (Switch-on and -off delay)

A timer that **switches ON and OFF** after duration defined in 'Delay time [s]' parameter.
The output value can be inverted by parameter 'Output'. (Not inverted / Inverted)

Input -------1----------0----------
Output -------|-T-1----------|-T-0------

Group Object	Type KNX	Size	Direction
Timer – Switch-on/off delayed - Input	1.002	1 Bit	From KNX
Timer – Switch-on/off delayed - Output	1.002	1 Bit	To KNX

Timer type (Impulse (Staircase))

Timer with impulse that – after being switched **ON** – **automatically switches OFF** after a defined duration defined in 'Delay time [s]' parameter.
The output value can be inverted by parameter 'Output'. (Not inverted / Inverted)

Input -------1----------0----------
Output -------1-T-0----------

Group Object	Type KNX	Size	Direction
Timer – Switch-impulse (staircase) - Input	1.002	1 Bit	From KNX
Timer – Switch-impulse (staircase) - Output	1.002	1 Bit	To KNX

Each timer can be stopped by sending the opposite value to its input group object. For example:
An already started switch on timer can be stopped by sending OFF (0) to its input group object.

Function type (Logic)

The logic specific parameters and group objects are available.

Group Object	Type KNX	Size	Direction
Logic – Gate input A - Input	1.002	1 Bit	From KNX
Logic – Gate input B - Input	1.002	1 Bit	From KNX
Logic – Gate output – Output	1.002	1 Bit	To KNX

Function name (free text input)

The function name can be chosen freely. The maximum length of the name is 10 characters.
The name will be shown in the group object entry within the ETS software. After the ETS application download the name will be shown within the devices function menu entry as well as in the function submenu as a headline.

Gate type (AND gate)

The output is triggered **on** ('1'), if **both** inputs are switched **on** ('1').

Gate type (OR gate)

The output is triggered **on** ('1'), if **one or both** inputs are switched **on** ('1').

Gate type (XOR gate)

The output is triggered **on** ('1'), if the two inputs are **not equal**.

Gate type (NAND gate)

The output is triggered **on** ('1'), if **one or both** inputs are switched **off** ('0').

Gate type (NOR gate)

The output is triggered **on** ('1'), if **both** inputs are switched **off** ('0').

Gate type (XNOR gate)

The output is triggered **on** ('1'), if **both** inputs are **equal**.

Gate type (INVERTER)

Input **on** (‘1’) is converted into output **off** (‘0’). Input **off** (‘0’) is converted into output **on** (‘1’).

Group Object	Type KNX	Size	Direction
Logic – Gate input - Input	1.002	1 Bit	From KNX
Logic – Gate output – Output	1.002	1 Bit	To KNX

WARNING

- The device may be built into distribution boards (230/400V).
- The device must be mounted and commissioned by an authorized electrician.
- The prevailing safety rules must be heeded.
- The device must not be opened.
- For planning and construction of electric installations, the relevant guidelines, regulations and standards of the respective country are to be considered.

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