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Technical Manual

Power Supply

Power Supply

PS-M-64.1.1 (6201/640.1)

Power and productivity
for a better world™

1 Notes on the instruction manual

Please read this manual through carefully and adhere to the information contained therein. This will assist you in preventing damage to persons and property and ensure reliable operation and long service life of the device.

Please keep this manual in a safe place.

If you pass the device on, also include this manual.

If you require additional information or have questions about the device, please contact ABB STOTZ-KONTAKT GmbH or visit our Internet site at:

www.abb.com/freeathome

2 Safety

The device has been constructed according to the latest valid regulations governing technology and is operationally reliable. It has been tested and left the factory in a technically safe and reliable state.

However, residual hazards remain. Read and adhere to the safety instructions to prevent such hazards.

ABB STOTZ-KONTAKT GmbH accepts no liability for failure to observe the safety instructions.

2.1 Used symbols

The following symbols point to particular dangers involved in the use of the device and provide practical instructions.

Notice
A notice indicates information or references to additional useful topics. This is not a signal word for a dangerous situation.

Examples
Examples for application, installation and programming

Important
This safety notice is used as soon as there is the danger of malfunction without the risk of damage to property or risk of injury.

Caution
This safety notice is used as soon as there is the danger of malfunction without the risk of damage to property or risk of injury.

 **Danger**
This safety notice is used as soon as there is a threat to life and limb due to improper handling.

 **Danger**
This safety notice is used as soon as there is a serious threat to life due to improper handling.

2.2 Intended use

The device must only be operated within the specified technical data.

The free@home power supply is a rail mounting device for installing in the distributor. The power supply creates and monitors the free@home system voltage. An integrated choke disconnects the bus line from the power supply.

Note
The device must only be installed in flush-mounted boxes in dry indoor rooms. The currently valid regulations must be adhered to.

2.3 Improper use

The device is dangerous if used improperly. Any non-intended use is deemed improper use. The manufacturer is not liable for damages resulting from such improper use. The associated risk is borne exclusively by the user/operator.

The device must never be used outdoors or in bathroom areas. Do not push objects through the openings in the device. Only the available options for connection are to be used in accordance with the technical data.

2.4 Target group / qualification of personnel

Installation, commissioning and maintenance of the product must only be carried out by trained and properly qualified electrical installers. The electrical installer must have read and understood the manual and follow the instructions provided. The operator must adhere to the valid national regulations in his country governing the installation, functional test, repair and maintenance of electrical products.

2.5 Liability and warranty

Improper use, non-observance of this manual, the use of inadequately qualified personnel, as well as unauthorized modification excludes the liability of the manufacturer for the damages caused. It voids the warranty of the manufacturer.

3 Environment

Always dispose of the packaging material and electric devices and their components via the authorized collecting depots and disposal companies.

The products meet the legal requirements, in particular the laws governing electronic and electrical devices and the REACH ordinance.

(EU Directive 2006/96/EC, 2004/108/EC and 2011/65/EC RoHS)

(EU REACH ordinance and law for the implementation of the ordinance (EC) No.1907/2006)

4 Product description

The free@home power supply makes available the system voltage (SELV) for free@home components. The choked output voltage makes possible the energy supply and the communication of the individual free@home participants.

Advantages:

» Wide band of the power supply input 85 to 265 V AC 50/60 Hz
» Choked bus voltage 21 to 30 V DC
» Two-colour LED to indicate the mains voltage as well as overload and short-circuit
» Output is short-circuit-proof and overload-protected

The power supply provides the free@home bus system with the necessary system voltage.

Note
Special free@home components may require an additional auxiliary voltage. For example, to couple the free@homeTouch 7 indoor video station with the 17.8 cm (7“) touch display and Welcome connection, a separate power supply is required.

Note
Basic information about system integration is contained in the system manual. It is available for downloading at www.abb.com/freeathome.

4.1 Scope of supply

The scope of supply contains the power supply including bus terminal for coupling to the free@home bus.

4.2 Overview of types

Type	Product name	Device
PS-M-64.1.1	Power Supply, 640 mA	

Table 1: Overview of types

4.3 Description of functions

The free@home power supply creates and monitors the free@home system voltage (SELV). The integrated choke disconnects the bus line from the power supply.

The voltage output is short-circuit-proof and overload-protected.

The two-colour LED indicates the status of the device.

4.4 Device overview of power supply PS-M-64.1.1

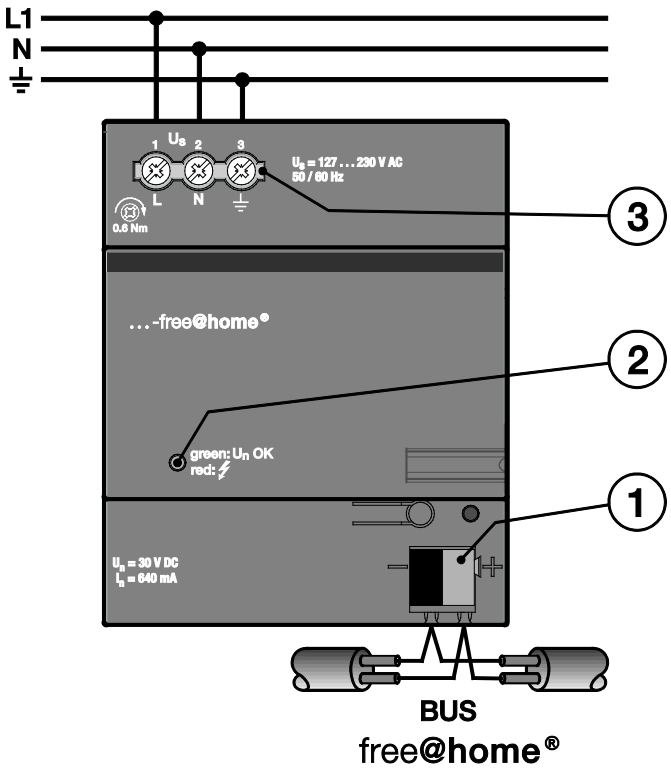


Fig. 1: Device overview of power supply, 640 mA, MDRC

[1] Bus connection terminal
[2] Status LED
[3] Connecting terminals

5 Technical data

5.1 Overview of PS-M-64.1.1

Parameters	Value	
Power supply	Operating voltage U_S	85 to 265 V AC, 50/60 Hz
	Nominal values	127 V AC, 230 V AC, 50/60 Hz
	Power consumption - Nominal operation - Maximum	 24 W 55 W
	Power loss - Nominal operation - Maximum	 4 W 9 W
Outputs	Voltage output - Rated voltage U_N - Range - Minimum distance between 2 PS-M	 30 V DC, SELV 21 to 31 V DC 200 m (bus line)
	Current - Rated current I_N - Overload current $I_{ÜL}$ - Short-circuit current I_K	 640 mA 0.9 A 1.4 A
	Mains-failure bridging time	200 ms
Control and display elements	LED status (two-colour green/red)	Green: I < $I_{ÜL}$ Red: overload Flashing red: short-circuit
Connecting terminals	Combi-head screw-type terminal (PZ 1)	Connection cross section: 0.2 - 4.0 mm² fine-wire, 2 x 0.2…2.5 mm² 0.2 - 6.0 mm² single-wire, 2 x 0.2…4.0 mm²
	Tightening torque	0.6 Nm
Ambient temperature	Operation	-5°C to +45°C
	Storage	-25°C to +55°C
	Transport	-25°C to +70°C
Ambient conditions	Maximum humidity	93%, no dew permissible
Protection type	IP20	Acc. to DIN EN 60 529
Protection class	II	Acc. to DIN EN 61 140
Insulation category	Over voltage category	III acc. to DIN EN 60 664-1
	Degree of contamination	2 acc. to DIN EN 60 664-1
Mounting	On 35 mm mounting rail	Acc. to DIN EN 60 715
Built-in position	Any	

Design	Rail mounting device (MDRC)	Modular installation device, Pro *M*
	Installation width	4 modules à 18 mm
	Installation depth	64.5 mm
	Housing, colour	Plastic, basalt grey (RAL 7012)
Dimensions	72 x 90 x 64.5 mm (W x H x D)	
Weight	0.26 kg	
CE marking	According to EMC and low-voltage guidelines	

Table 2: Technical data PS-M-64.1.1

Caution

If the device overheats due to overload (> 100°C inside the housing), it will shut down automatically. The LED is off. Reactivation is possible only after the interior of the device has cooled down to operating temperature and has been isolated from the mains voltage for at least 60 seconds.

Before reactivation for proper operation the cause of the overload must be rectified.

Caution

During commissioning it must be ensured that the nominal current is not exceeded permanently.

Caution

The devices are designed for continuous operation. Frequent activation and deactivation is not admissible.

5.2 Dimensions

Note
All dimensions are in mm.

Power supply of PS-M-64.1.1

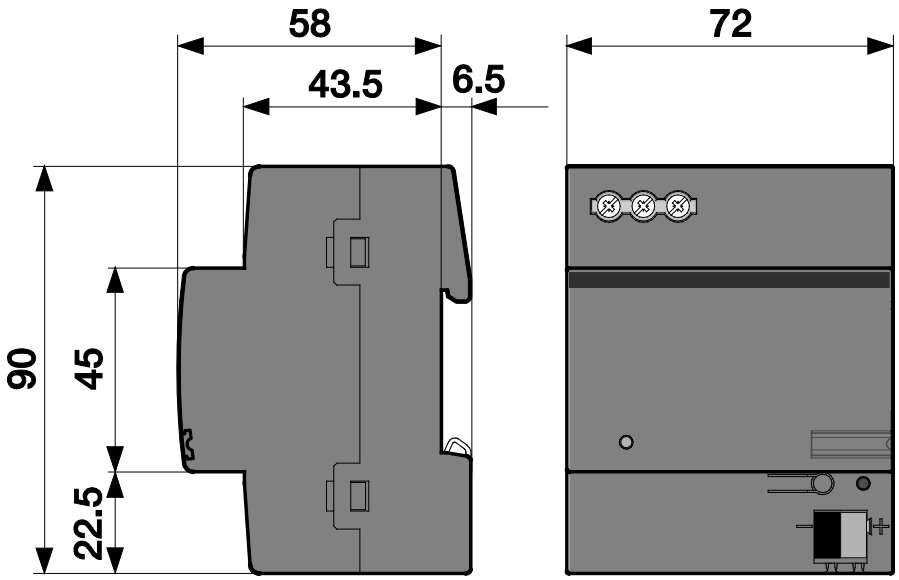


Fig. 2: Dimensions of PS-M-64.1.1

5.3 Connection diagram

Power supply of PS-M-64.1.1

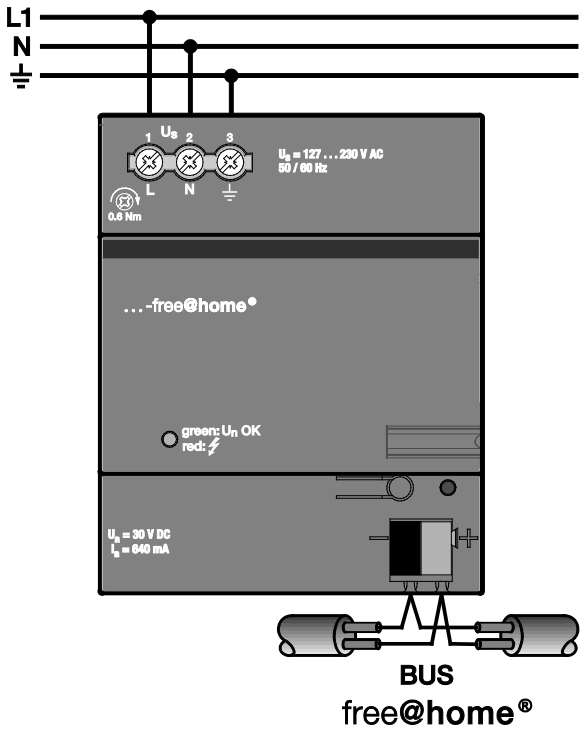


Fig. 3: Electrical connection of PS-M-64.1.1

5.4 Control and display elements

Display element	Description	Function	
LED status (green/red)  U_N OK	Two-colour LED to indicate the mains voltage as well as overload and short-circuit	Green:	Proper operation ($I < I_{ÜL}$ = 0.9 A)
		Red:	Overload ($I_{ÜL}$ = 0.9 A< I < I_K = 1.4 A)
		Flashing red:	Current limitation active ($I = I_K$ = 1.4 A) Output voltage limited (U = 0 to 30V)
		Off:	Mains voltage missing or self-actuated off state due to overload

Table 3: Control and display elements

6 Mounting

6.1 Safety instructions for mounting

Danger

Risk of death due to electrical voltage

Dangerous currents flow through the body when coming into direct or indirect contact with live components. This results in electric shock, burns or even death.

Work improperly carried out on electrical systems is a hazard to one's own life and that of the user. Also fires and serious damage to property can result.

» Observe the relevant standards.

» Apply at least the "five safety rules" (DIN VDE 0105, EN 50 110):

1. Disconnect
2. Secure against being re-connected
3. Ensure there is no voltage
4. Connect to earth and short-circuit
5. Cover or barricade adjacent live parts

» Install the device only if you have the necessary electrical engineering knowledge and experience (see chapter 2.4).

» Use suitable personal protective clothing.

» Use suitable tools and measuring devices.

» Check the supply network type (TN system, IT system, TT system) to secure the following power supply conditions (classic connection to ground, protective earthing, necessary additional measures, etc.).

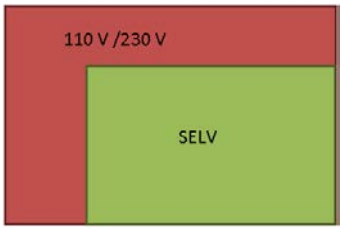
Danger

Risk of death due to short-circuit

Risk of death due to electrical voltage of 230 V during short-circuit in the low-voltage line.

» During mounting observe the spatial division (> 10 mm) of SELV electric circuits to other electric circuits.

» Observe the spatial division of SELV electric circuits and other electric circuits. Otherwise short-circuits can occur.



» If the minimum distance is insufficient, use electronic boxes or insulating tubes.

» Observe the correct polarity.

6.2 Installation/mounting

The device is a rail mounting device for installing in distributors for easy installation on 35 mm mounting rails according to DIN EN 60 715.

The device can be mounted in any position.

The bus connection is established by means of the enclosed bus connection terminal.

The device is ready for operation after the operating voltage has been applied.

The description of the terminals is found on the housing.

Access to the device must be guaranteed for operation, testing, inspection, maintenance and repairs according to DIN VDE 0100-520.

6.3 Electrical connection

» The electrical connection is made via screw terminals. The bus connection is established by means of the enclosed bus connection terminal. The terminal designation is located on the housing.

- The device is ready for operation after the operating voltage has been applied.

Mounting and commissioning must only be carried out by qualified electrical installers. When planning and setting up electrical systems and security-related systems for the detection of intrusion and of fires, the relevant standards, guidelines, rules and regulations of the respective country are to be observed.

» Protect the device against humidity, dirt and damage during transport, storage and operation!

» Operate the device only within the specified technical data!

» Operate the device only in a closed housing (distributor)!

» Prior to performing installation work the device is to be deactivated.

Danger

Danger to life

To prevent dangerous contact currents due to feedback from different external conductors, an all-pole deactivation is to be carried out when extending or changing the electric connection.

6.4 Dismantling

Dismantling is carried out in the reverse order.

7 Commissioning

After the power supply has been connected the device is fully functional without further commissioning.

8 Maintenance

The devices are maintenance-free. In case of damage (e.g., during transport or storage), do not perform repairs. Once the device is opened, the warranty is void!

Access to the device must be guaranteed for operation, testing, inspection, maintenance and repairs (according to DIN VDE 0100-520).

8.1 Cleaning

Dirty devices can be cleaned with a dry cloth. If this is not sufficient, a cloth slightly moistened with a soap solution can be used. Caustic cleaning agents or solvents must not be used.

9 Information on planning and application

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

Note
Basic information about planning, installation and application is contained in the system manual. It is available for downloading at www.abb.com/freeathome.

9.1 Reset

Pull off the bus connection terminal on the device for approximately 20 seconds.

This restarts the bus subscribers connected to this bus line.

9.2 Fault

Display for standard operation, short-circuit and overload:

U_N OK Green/red	Description	Recommendation
ON Green	Proper operation	
ON Red	Output overloaded	Rectify the overload or reduce the number of bus subscribers until the overload has been removed and only the green LED U_N lights up OK
Flashing Red	Current limitation active	Rectify the short-circuit or reduce the number of bus subscribers until only the green LED U_N lights up OK

Table. 4: Faults

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