Power Supply Module 13.8V/2A
Type PS20-BRD
v3.2

CE

PRODUCT DESCRIPTION

The PS20-BRD module is a spare part for PS20 power supply however it can be also used as autonomic power supply module. If used autonomously PS20-BRD requires 18-22VAC and 40W of power and may deliver up to 2A DC current without any time limit. PS20-BRD utilizes DC/DC switched mode electronic circuit which offers high efficiency and small size. Also, it employs internal current limiting and short circuit protection which make it essentially indestructible. The reserve battery is connected to output terminals trough an ultra low-resistance MOS transistor, such a circuit architecture enables optimum performance during AC failure and during dynamic changes of load when excessive current consumption is required. PS20-BRD charges battery with *constant current-constant voltage* method, this method of charging guaranties relatively quick and safe charging process. The initial charging current is factory set to ~300mA, installer should be aware that with battery connected to PS20-BRD the total output current will be reduced to 1.7A. Depending on battery charging phase the output voltage of PS20-BRD may vary from approx. 11.5 up to 13.8V level. When battery voltage drops below ~10.0V level internal circuit disconnect it from load, battery is automatically reconnected when AC supply returns. Battery cut off circuit protect battery from deep discharge whereas the equipment connected to power supply from operation below 10.0V level which in many cases can lead to undefined system behavior. Battery is protected with 5A fuse which reduce maximum output current sourced from battery and protects electronic circuit against battery reverse connection. PS20-BRD offers two output ports (Z1 and Z2 terminals). The nominal output voltage is factory set to 13.8V and should not be changed by user. PS20-BRD is equipped with two LEDs, the first one (red) indicates that module has AC supply while the second one (green) indicates DC output voltage.

PSAM-1 ALARM MODULE

If required PS20-BRD can be equipped with optional PSAM-1 alarm module. The main purpose of PSAM-1 module is to detect and indicate an alarm situation of power supply to the external device or system. The PSAM-1 may operate in *autonomic* or *networked* mode and can indicate following conditions:

- low battery
- battery failure
- AC supply lost
- DC output overload (this state is indicated in networked mode only)
- DC output level (this state is indicated in networked mode only)

In autonomic mode alarm states are indicated on three transistor outputs: ACL, LB and BF and on internal buzzer. These outputs can be connected to external control panel, access controller or another control device which will warn authorized personnel. Normally, all outputs are in high resistance state, when triggered they switch to supply minus. The maximum current which can be sink by these output is internally limited to 20mA while the maximum applied voltage should not exceed 15V.
The ACL (Alternative Current Lost) output switches to active state when there is a lack of AC supply and it lasts for more then 4 minutes. Output returns to normal state immediately after AC supply returns. The LB (Low Battery) output is triggered when battery level drops below ~12.0V, it return whenever battery level rise above 12V. The BF (Battery Failure) output is triggered in case of any situation listed below:

- Battery fuse is off

- Battery is not connected
- Battery has high resistance which indicates that battery is damaged

When PSAM-1 operates in networked mode it must be connected to PRxx2 series access controller. In this mode PSAM-1 module transmits all warnings direct to the access controller.

INSTALLATION

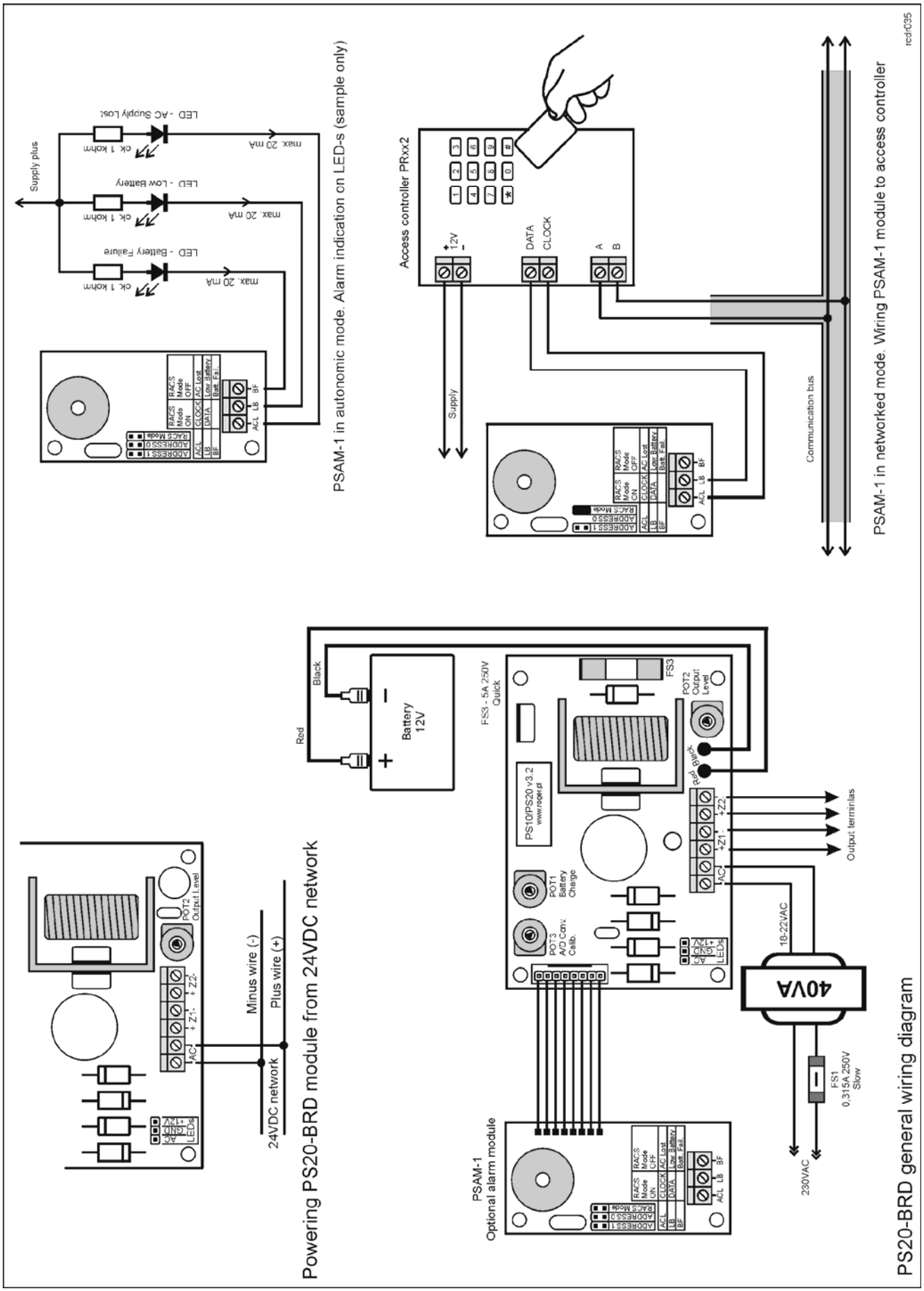
PS20-BRD should be installed on the flat surface using 4 nylon distances (delivered with the unit), far enough from heat and moisture sources. All electrical connection should be carried out without supply. PS20-BRD will not start operation on reserve battery, to start operation it requires AC supply.

Warning
Do not adjust potentiometers located on PS20-BRD electronic board, these components are factory set and should not be changed.

TECHNICAL SPECIFICATION

Parameter	Value	Comments
AC supply	18-22 VAC	Alternatively, PS20-BRD might be supplied from 24VDC
AC frequency	50..60 Hz	
Power	40W	Full load
Nominal Output voltage	13.8 VDC	Output voltage may vary from app. 11.5 up to 13.8V depending on actual battery charging phase.
Max. output current (without battery)	2A	Maximum output current is guaranteed for unlimited time and for entire temp. range. During battery charging process output current will be reduced to 1.7A
Ambient temperature	5-40 °C	
Max. momentary output current with battery	6A	2.0A delivered by electronic circuit and 4.0A delivered by battery
Initial battery charging current	0.3A	
Battery cut off voltage	10.0V	
Battery compartment	6.5Ah/12V	or 7Ah/12V
Dimensions	100x70x45	
Weight	~95g	Without battery

The symbol of a crossed-through waste bin on wheels means that the product must be disposed of at a separate collection point. This also applies to the product and all accessories marked with this symbol. Products labeled as such must not be disposed of with normal household waste, but should be taken to a collection point for recycling electrical and electronic equipment. Recycling helps to reduce the consumption of raw materials, thus protecting the environment.


PS20-BRD general wiring diagram
PSAM-1 in networked mode. Wiring PSAM-1 module to access controller
Access controller PRxx2
Communication bus
Supply
PSAM-1 in autonomic mode. Alarm indication on LED-s (sample only)
LED - AC Supply Lost
LED - Low Battery
LED - Battery Failure
Supply plus
max. 20 mA
ok. 1 kohm
Powering PS20-BRD module from 24VDC network
Minus wire (-)
Plus wire (+)
24VDC network
Battery 12V
Red
Black
PS10/PS20 v3.2
www.roger.pl
FS3 - 5A 250V Quick
POT1 Battery Charge
POT2 Output Level
POT3 A/D Conv. Calib.
Output terminlas
18-22VAC
40VA
230VAC
FS1 0.315A 250V Slow
PSAM-1 Optional alarm module