electronics

2220

Switchmode power supply

No. 2220V102-UK
From ser. no. 970003001

DK ▶ PR electronics A/S tilbyder et bredt program af analoge og digitale signalbehandlingsmoduler til industriel automation. Programmet består af Isolatorer, Displays, Ex-barrierer, Temperaturtransmittere, Universaltransmittere mfl. Vi har modulerne, du kan stole på i selv barske miljøer med elektrisk støj, vibrationer og temperaturudsving, og alle produkter opfylder de strengeste internationale standarder. Vores motto »Signals the Best« er indbegrebet af denne filosofi – og din garanti for kvalitet.

UK ▶ PR electronics A/S offers a wide range of analog and digital signal conditioning devices for industrial automation. The product range includes Isolators, Displays, Ex Interfaces, Temperature Transmitters, and Multifunctional Devices. You can trust our products in the most extreme environments with electrical noise, vibrations and temperature fluctuations, and all products comply with the most exacting international standards. »Signals the Best« is the epitome of our philosophy – and your guarantee for quality.

FR ▶ PR electronics A/S offre une large gamme de produits pour le traitement des signaux analogiques et numériques dans tous les domaines industriels. La gamme de produits s'étend des transmetteurs de température aux afficheurs, des isolateurs aux interfaces SI, jusqu'aux modules universels. Vous pouvez compter sur nos produits même dans les conditions d'utilisation sévères, p.ex. bruit électrique, vibrations et fluctuations de température. Tous nos produits sont conformes aux normes internationales les plus strictes. Notre devise »SIGNALS the BEST« c'est notre ligne de conduite - et pour vous l'assurance de la meilleure qualité.

DE ▶ PR electronics A/S verfügt über ein breites Produktprogramm an analogen und digitalen Signalverarbeitungsgeräte für die industrielle Automatisierung. Dieses Programm umfasst Displays, Temperaturtransmitter, Ex- und galvanische Signaltrenner, und Universalgeräte. Sie können unsere Geräte auch unter extremen Einsatzbedingungen wie elektrisches Rauschen, Erschütterungen und Temperaturschwingungen vertrauen, und alle Produkte von PR electronics werden in Übereinstimmung mit den strengsten internationalen Normen produziert. »Signals the Best« ist Ihre Garantie für Qualität!

SWITCHMODE POWER SUPPLY

Type 2220

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GENERAL

WARNING

This device is designed for connection to hazardous electric voltages. Ignoring this warning can result in severe personal injury or mechanical damage.

To avoid the risk of electric shock and fire, the safety instructions of this manual must be observed and the guidelines followed. The electrical specifications must not be exceeded, and the device must only be applied as described in the following.

Prior to the commissioning of the device, this manual must be examined carefully.

Only qualified personnel (technicians) should install this device. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

HAZARDOUS VOLTAGE

WARNING

Until the device is fixed, do not connect hazardous voltages to the device. The following operations should only be carried out on a disconnected device and under ESD safe conditions:

- Dismantlement of the device for setting of DIP switches and jumpers.
- General mounting, connection and disconnection of wires.
- Troubleshooting the device.

Repair of the device and replacement of circuit breakers must be done by PR electronics A/S only.

INSTAL-LATION

WARNING

To keep the safety distances, devices with two built-in relays must not be connected to both hazardous and non-hazardous voltages on the same device's relay contacts.

SYSTEM 2200 must be mounted in socket type S3B Releco (order no 7023).

SYMBOL IDENTIFICATION

Triangle with an exclamation mark: Warning / demand. Potentially lethal situations.

The CE mark proves the compliance of the device with the requirements of the directives.

The double insulation symbol shows that the device is protected by double or reinforced insulation.

SAFETY INSTRUCTIONS

DEFINITIONS
Hazardous voltages have been defined as the ranges: 75 to 1500 Volt DC, and 50 to 1000 Volt AC.
Technicians are qualified persons educated or trained to mount, operate, and also troubleshoot technically correct and in accordance with safety regulations.
Operators, being familiar with the contents of this manual, adjust and operate the knobs or potentiometers during normal operation.

RECEIPT AND UNPACKING
Unpack the device without damaging it. The packing should always follow the device until this has been permanently mounted. Check at the receipt of the device whether the type corresponds to the one ordered.

ENVIRONMENT
Avoid direct sunlight, dust, high temperatures, mechanical vibrations and shock, as well as rain and heavy moisture. If necessary, heating in excess of the stated limits for ambient temperatures should be avoided by way of ventilation.
All devices fall under Installation Category II, Pollution Degree 1, and Insulation Class II.

MOUNTING
Only technicians who are familiar with the technical terms, warnings, and instructions in the manual and who are able to follow these should connect the device.
Should there be any doubt as to the correct handling of the device, please contact your local distributor or, alternatively,

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Mounting and connection of the device should comply with national legislation for mounting of electric materials, i.a. wire cross section, protective fuse, and location. Descriptions of Input / Output and supply connections are shown in the block diagram and side label.

The following apply to fixed hazardous voltages-connected devices:
The max. size of the protective fuse is 10 A and, together with a power switch, it should be easily accessible and close to the device.
The power switch should be marked with a label telling it will switch off the voltage to the device.

CALIBRATION AND ADJUSTMENT
During calibration and adjustment, the measuring and connection of external voltages must be carried out according to the specifications of this manual.
The technician must use tools and instruments that are safe to use.

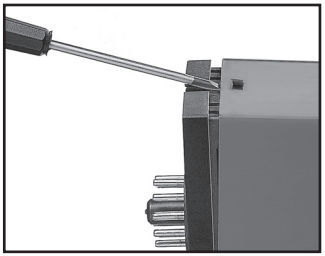
NORMAL OPERATION
Operators are only allowed to adjust and operate devices that are safely fixed in panels, etc., thus avoiding the danger of personal injury and damage. This means there is no electrical shock hazard, and the device is easily accessible.

CLEANING
When disconnected, the device may be cleaned with a cloth moistened with distilled water.

LIABILITY
To the extent the instructions in this manual are not strictly observed, the customer cannot advance a demand against PR electronics A/S that would otherwise exist according to the concluded sales agreement.

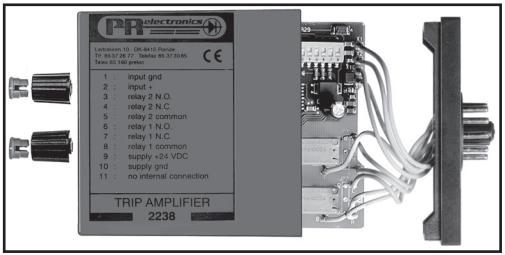
HOW TO DISMANTLE SYSTEM 2200

The back panel of the device is detached from the housing by way of a screw-driver as shown in picture 1.
On a device with knobs, these may have to be removed before the PCB can be taken out as shown in picture 2.
After this, the back panel can be pulled out together with the PCB, but please notice the position of the PCB as there is a number of different positions in the house. Do not pull the wires unnecessarily, instead pull the PCB, see picture 3.
Switches and jumpers can now be moved.
When assembling the back plate and housing, please make sure no wires are stuck.



Picture 1: Dismantlement of back plate and housing.

Picture 2: Removal of knobs.



Picture 3: Removal of PCBs for adjustment of DIP switches and replacement of jumpers.

SWITCHMODE POWER SUPPLY
2220

- *Mains voltage input*
- *Isolation 3.75 kVAC*
- *Adjustable output 5...24 VDC, max. 7 W*
- *Short-circuit protection*
- *Thermal overload protection*
- *Standard 11-pole relay socket*

Applications
General power supply for smaller measurement systems requiring fixed stabilized 24 VDC, or supply for any other sensors, transmitters or as a general variable power supply 5 to 24 VDC.
Two units may be connected in series for plus / minus or higher output voltage.

Technical characteristics
The unit is based on secondary switchmode technology enabling an adjustable output with a minimum loss of power. Isolation test voltage between input and output is 3.75 kVAC. This makes the unit suitable for PELV/SELV applications. The double-isolated safety transformer includes a 100°C thermal fuse which switches off the input before the transformer is overheated. When the temperature returns below 100°C the thermal fuse will automatically switch on the power supply.

Mounting
The 2220 is for standard 11-pole socket mounting in all positions. To achieve maximum cooling, vertical position and a small distance (10 mm) between neighbouring units are recommended.

Input
Standard supply voltages in accordance to the specifications. Galvanic isolation is ensured by the double-isolated safety transformer.

Output

The output is adjustable from front potentiometer in the range 5...24 VDC. A green LED indicates active output. Short-circuit protection limits the current to typ. 2.2 Amp. Output is isolated by 3.75 kVAC from input.

Electrical specifications

Specifications range:

-20°C to +60°C

Common specifications:

Internal consumption max.	4 W
Isolation test / operation	3.75 kVAC / 250 VAC
Transformer	EN 60742
Temperature coefficient	0.05% / °C
Mains effect (±10%)	< ±30 mV
Transient stability (10%-max. load)	< 250 mV
EMC immunity influence	< ±0.5%
Relative air humidity	< 95% RH (non-cond.)
Dimensions (HxWxD)	80.5 x 35.5 x 84.5 mm
Protection degree	IP50
Weight	425 g

Input:

Input voltage	21.6...26.4 VAC
	99...121 VAC
	108...132 VAC
	207...253 VAC
Frequency	50...60 Hz

Output:

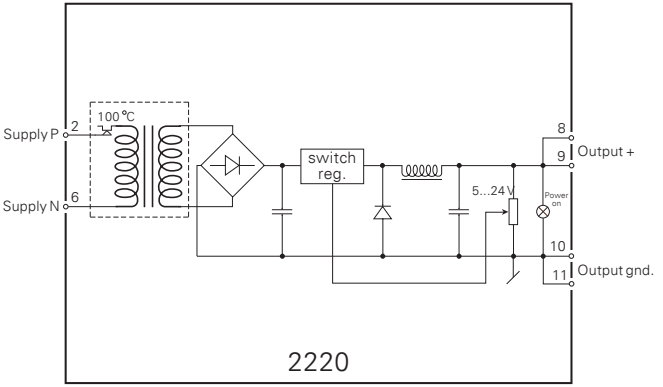
Output voltage	4.75...25.2 VDC
Output power	Max. 7 W
Output current	1 A / 5 VDC
	0.55 A / 12 VDC
	0.45 A / 15 VDC
	0.3 A / 24 VDC
Load effect, (10%-max. load)	< 1.5% / A
Current limit (short circuit)	Typ. 2.2 A
Output ripple	< 20 mVRMS

Observed authority requirements:	Standard:
EMC 2004/108/EC	EN 61326-1
LVD 2006/95/EC	EN 61010-1
PELV/SELV	IEC 364-4-41 and EN 60742
EAC TR-CU 020/2011	EN 61326-1

Order: 2220

Type	Version		Output	
2220	110 VAC	: A	Special (5...24 V)	: 0
	230 VAC	: B	24 VDC	: 1
	24 VAC	: D	15 VDC	: 2
	120 VAC	: F	12 VDC	: 3
			5 VDC	: 4

BLOCK DIAGRAM



Displays Programmable displays with a wide selection of inputs and outputs for display of temperature, volume and weight, etc. Feature linearization, scaling, and difference measurement functions for programming via PReset software.

Ex interfaces Interfaces for analog and digital signals as well as HART signals between sensors / I/P converters / frequency signals and control systems in Ex zone 0, 1 & 2 and for some devices in zone 20, 21 & 22.

Isolation Galvanic isolators for analog and digital signals as well as HART signals. A wide product range with both loop-powered and universal isolators featuring linearization, inversion, and scaling of output signals.

Temperature A wide selection of transmitters for DIN form B mounting and DIN rail devices with analog and digital bus communication ranging from application-specific to universal transmitters.

Universal PC or front programmable devices with universal options for input, output and supply. This range offers a number of advanced features such as process calibration, linearization and auto-diagnosis.

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