PULS YRM2.DIODE 24V 20A Redundancy Module Instruction Manual

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Contents

Read this first!

Before operating this device, please read this manual thoroughly and retain this manual for future reference! This device may only be installed and put into operation by qualified personnel. If damage or malfunction should occur during operation, immediately turn power off and send device to the factory for inspection. The device does not contain serviceable parts. The information presented in this document is believed to be accurate and reliable and may change without notice. For any clarifications the English translation will be used.

⚠ WARNING **Risk of electrical shock, fire, personal injury, or death:**

- Turn power off before working on the device. Protect against inadvertent re-powering.
- Do not open, modify or repair the device.
- Use caution to prevent any foreign objects from entering the housing.
- Do not use in wet locations or in areas where moisture or condensation can be expected.
- Do not touch during power-on and immediately after power-off. Hot surfaces may cause burns.

Product Description

The YRM2.DIODE is a redundancy module for building redundant power supply systems. It is equipped with two input channels and one output. The two inputs are decoupled by diodes. The device has a monitoring circuit included. Two LEDs and two relay contacts signal when one of the two DC-input voltages is not in range due to a non-functioning or disconnected power supply

Intended Use

This device is designed for installation in an enclosure and is intended for commercial use, such as in industrial control, process control, monitoring and measurement equipment or the like. Do not use this device in equipment where malfunction may cause severe personal injury or threaten human life. The redundancy module can be used with any type of power supply as long as the maximum output current ratings are not exceeded. It is suitable for power supplies with continuous overload current as well as any kind of intermittent (Hiccup) overload behavior.

Installation Instructions

Install the device in an enclosure providing protection against electrical, mechanical and fire hazards.
Do not ground or earth the positive output pole which could prevent redundancy in case of a ground failure.
Ground the negative output pole, when needed.
Use only power supplies with a negligible output ripple voltage in the low frequency range between 50Hz and 10kHz when used in marine applications according to the DNV regulations.
Install the device onto a DIN rail according to EN 60715 with the input terminals on the top of the device. Other mounting orientations require a reduction in output current.
Make sure that the wiring is correct by following all local and national codes. Use appropriate copper cables that are designed for a minimum operating temperature of +60°C for ambient temperatures up to +45°C, +75°C for ambient temperatures up to +60°C and +90°C for ambient temperatures up to +70°C. Ensure that all strands of a stranded wire enter the terminal connection.
Unused screw terminals should be securely tightened.
The device is designed for pollution degree 2 areas in controlled environments. No condensation or frost is allowed.
The enclosure of the device provides a degree of protection of IP20.
The input must be powered from a PELV or SELV source or an “Isolated Secondary Circuit” in order to maintain a SELV or PELV output.
Check correct input polarity. The device will not operate when input voltage is reversed.
The device is designed as “Class of Protection III” equipment according to IEC 61140.
A PE (ground) connection is not required. However, connecting the chassis ground terminal to ground can be beneficial to gain a high EMI immunity.
The device is designed for convection cooling and does not require an external fan. Do not obstruct airflow and do not cover ventilation grid!
The device is designed for altitudes up to 6000m. See additional requirements in the product datasheet for use above 2000m.
Keep the following minimum installation clearances: 40mm on top, 20mm on the bottom, 5mm left and right side. Increase the 5mm to 15mm in case the adjacent device is a heat source. When the device is permanently loaded with less than 50%, the 5mm can be reduced to zero.

The maximum surrounding air temperature is +70°C. The operational temperature is the same as the ambient or surrounding air temperature and is defined 2cm below the device.
The device is designed to operate in areas between 5% and 95% relative humidity

Installation Instructions for Hazardous Location Areas

The device is suitable for use in Class I Division 2 Groups A, B, C, D locations and for use in Group II Category 3 (Zone 2) environments.
Hazardous Location classification: ATEX: EPS 11 ATEX 1 312 X, II 3G Ex ec nC IIC T4 Gc

WARNING EXPLOSION HAZARDS!

Substitution of components may impair suitability for this environment.
Do not disconnect the device unless power has been switched off or the area is known to be nonhazardous.
For Class I Division 2 Groups A, B, C, D locations only an altitude up to 2000m and the standard mounting orientation is allowed.
A suitable enclosure must be provided for the end product which has a minimum protection of IP54 and fulfils the requirements of the EN 60079-0.

Functional Description

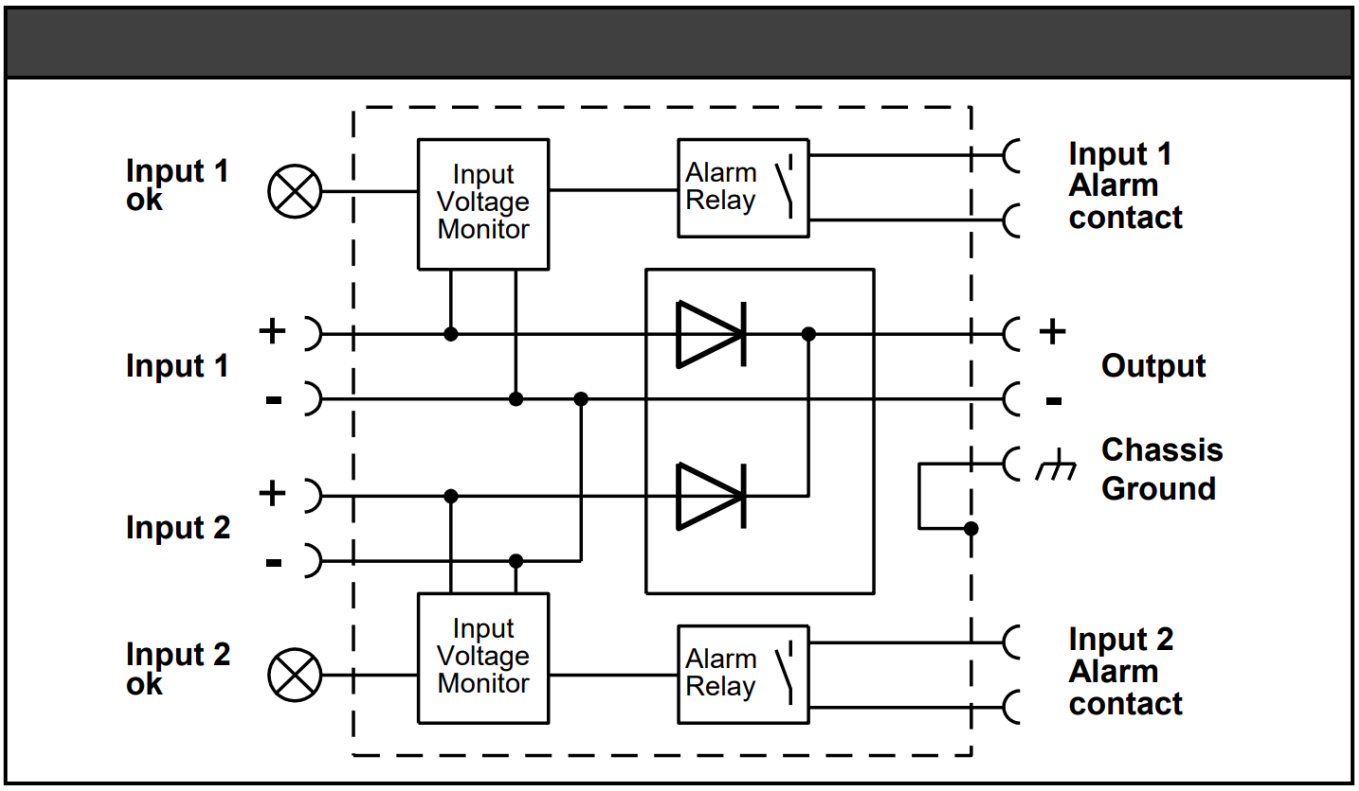
The device can supply any kind of loads, including unlimited capacitive and inductive loads.
Do not apply return voltages from the load to the output higher than 60Vdc.
Both input voltages are monitored individually. The green Input-OK LEDs report an input voltage above 21.5V for the corresponding input channel.
The Input-OK relays monitor the input voltages. The contact is closed, when the Input-OK LED is on. Contact ratings: 60Vdc 0.3A, 30Vdc 1A, 30Vac 0.5A for resistive loads.

Technical data

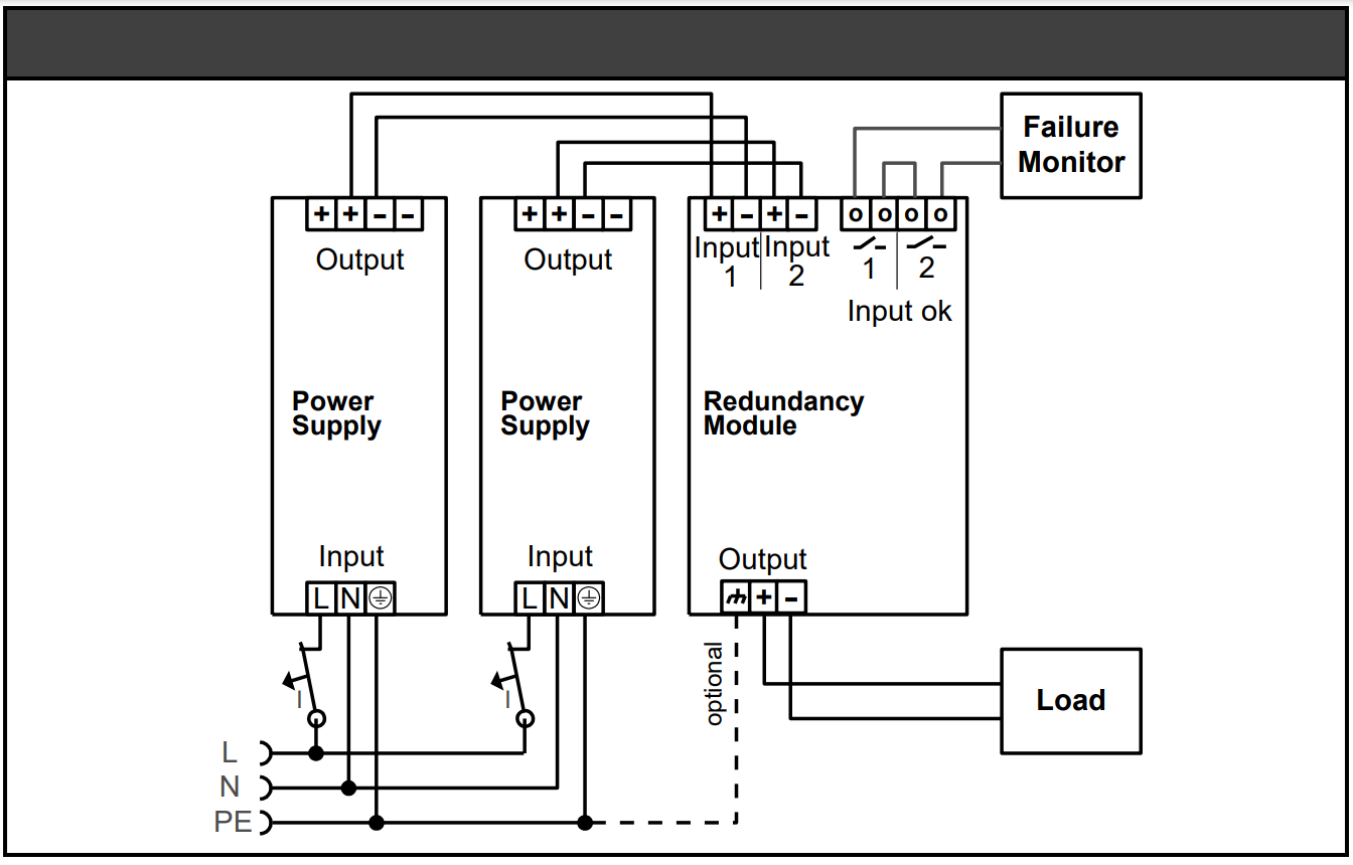
All values are typical figures specified at 24Vdc input voltage, 20A output current, 25°C ambient temperature and after a 5 minutes run-in time unless otherwise noted.

Input voltage Input voltage range Input current	DC 24 – 48V 18 – 60Vdc 2x 10A 2x 7.5A 2x 16A	±25% Below +60°C ambient At +70°C ambient Up to 5 seconds
Output current Maximum overload current	20A 15A 32A 25A R.M.S.	Continuous, <+60°C Continuous, at +70°C Short term, up to 5s In any overload or short circuit condition Derate linearly between +60 and +70°C
Input to output voltage loss	780mV 850mV	At 2x 5A input At 2x 10A input
Power losses	0W 8.8W 18W	At no load At 2x 5A input At 2x 10A input
Temperature range	-40°C to +70°C	
Max. wire size (litz wire) Wire size AWG Max. wire diameter Wire stripping length Tightening torque	4mm² AWG 20-10 2.8mm 7mm 1Nm	Power terminals Power terminals Power terminals Power terminals Power terminals
Max. wire size (litz wire) Wire size AWG Max. wire diameter Wire stripping length Tightening torque	1.5mm² AWG 22-14 1.5mm 6mm 0.4Nm	Signal terminals Signal terminals Signal terminals Signal terminals Signal terminals
Size (wxhxd) Weight	32x124x117mm 350g	Without DIN rail

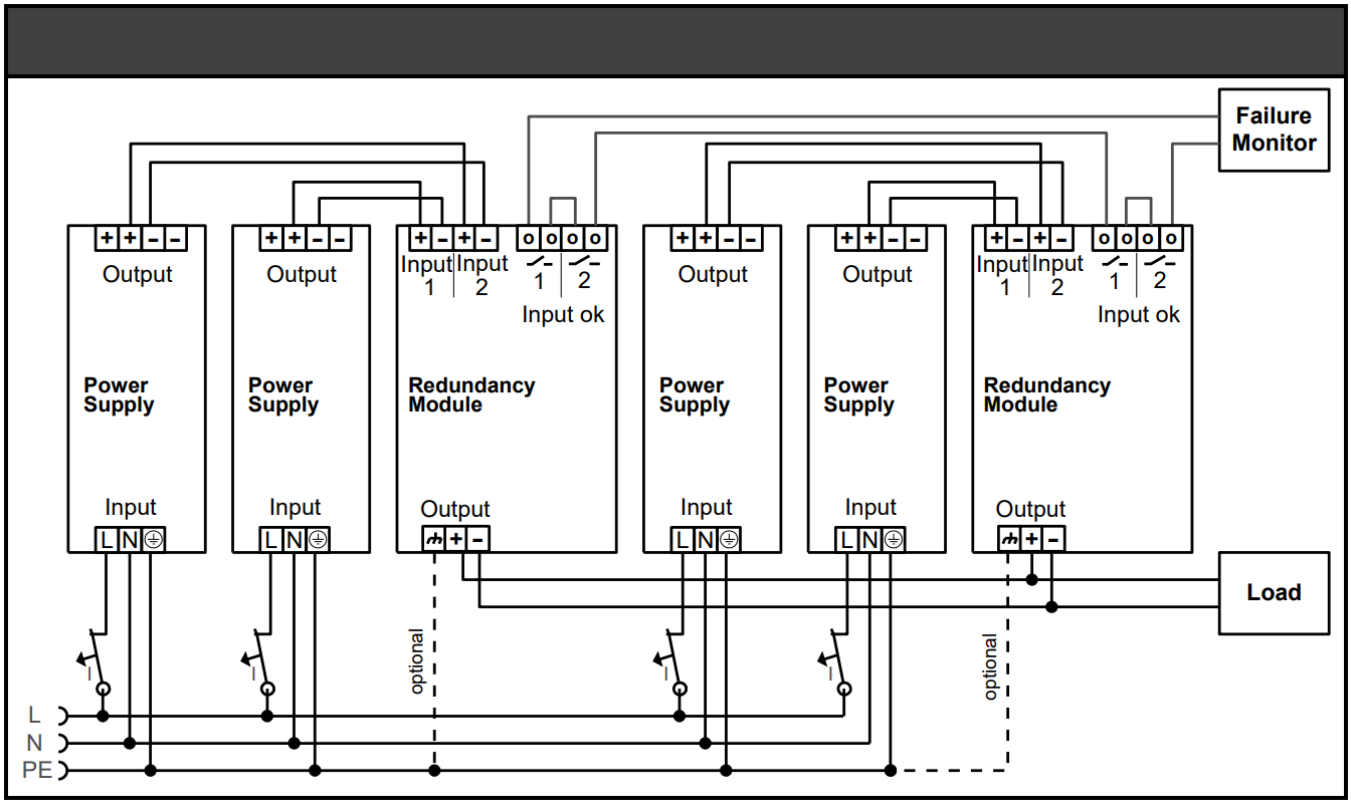
Functional diagram



Wiring scheme – 1+1 redundancy



Wiring scheme – n+1 redundancy



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Documents / Resources

	PULS YRM2.DIODE 24V 20A Redundancy Module [pdf] Instruction Manual 24-48V, 20A, YRM2.DIODE, 24V 20A Redundancy Module, YRM2.DIODE 24V 20A Redundancy Module, 20A Redundancy Module, Redundancy Module, Module