PULS YR2.DIODE 24V 20A Redundancy Module Instruction Manual

Contents

PULS YR2.DIODE 24V 20A Redundancy Module

Product Information

The YR2.DIODE is a redundancy module designed for building redundant power supply systems. It features two input channels and one output, with the inputs decoupled by diodes.

Intended Use
The YR2.DIODE is intended for use in hazardous locations, specifically Class I Division 2 Groups A, B, C, and D locations and Group II Category 3 (Zone 2) environments. It is also suitable for use in ATEX environments with the classification EPS 11 ATEX 1 312 X, II 3G Ex ec IIC T4 Gc.

Functional Description

The YR2.DIODE can supply various types of loads, including unlimited capacitive and inductive loads. However, it is important not to apply return voltages from the load to the output higher than 150Vdc.

Technical Data

- Input voltage: DC 12 – 48V

Installation Instructions for Hazardous Location Areas
When installing the YR2.DIODE in hazardous location areas, please follow these instructions:

1. Ensure that power is switched off or the area is known to be nonhazardous before disconnecting the device.
2. For Class I Division 2 Groups A, B, C, D locations, the device can be mounted up to an altitude of 2000m and in the standard mounting orientation.
3. A suitable enclosure must be provided for the end product, meeting a minimum protection rating of IP54 and fulfilling the requirements of EN 60079-0.

Warnings
When using the YR2.DIODE, observe the following warnings:

- Turn off power before working on the device to avoid the risk of electrical shock, fire, personal injury, or death. Take precautions to prevent inadvertent re-powering.
- Do not open, modify, or repair the device.
- Take caution to prevent foreign objects from entering the housing.
- Avoid using the device in wet locations or areas with expected moisture or condensation.
- Avoid touching the device during power-on and immediately after power-off as hot surfaces may cause burns.

Contact Information
For further assistance or inquiries, please contact PULS GmbH:

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Please note that the information provided in this document is believed to be accurate and reliable but may be subject to change without notice. For the most up-to-date information, refer to the official PULS website at www.pulspower.com.

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 the power off and send the 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 the 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 YR2.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.

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.

- 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 the correct input polarity. The device will not operate when the 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 the 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 the ventilation grid!

- The device is designed for altitudes up to 5000m. 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 sides. 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 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 non-hazardous.
- For Class I Division 2 Groups A, B, C, and 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 fulfills the requirements of EN 60079-0.

Functional Description
The device can supply any kind of load, including unlimited capacitive and inductive loads. Do not apply return voltages from the load to the output higher than 150Vdc.

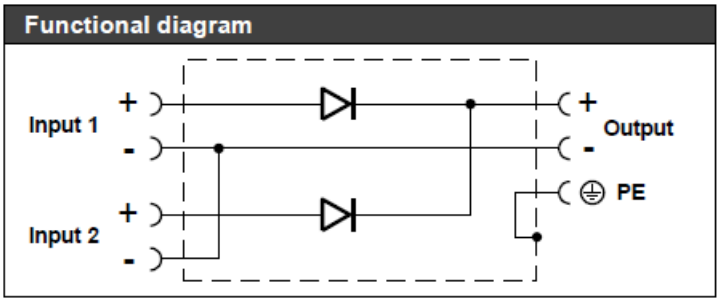
Technical data

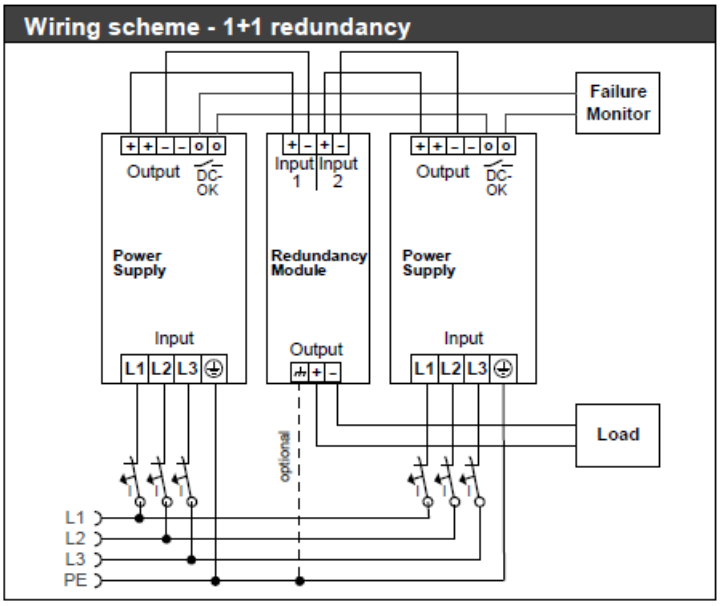
All values are typical figures specified at 24Vdc input voltage, 20A output current, 25°C ambient temperature, and after a 5 minutes run-in time unless otherwise noted.

- Input voltage DC 12 – 48V ±25%
- Input voltage range 9 – 60Vdc
- Input current 2x 10A Below +60°C ambient 2x 7.5A At +70°C ambient 2x 16A Up to 5 seconds
- Output current 20A Continuous, <+60°C
- 15A Continuous, at +70°C
- 32A Up to 5 seconds
- Maximum overload current 25A R.M.S. In any overload or short circuit condition
- Derate linearly between +60 and +70°C
- Input to output voltage loss 780mV At 2x 5A input 850mV At 2x 10A input
- Power losses 0W At no load 7.8W At 2x 5A input17W At 2x 10A input
- Temperature range -40°C to +70°C
- Max. wire size (litz wire) 4mm²
- Wire size AWG AWG 20-10
- Max. wire diameter 2.8mm

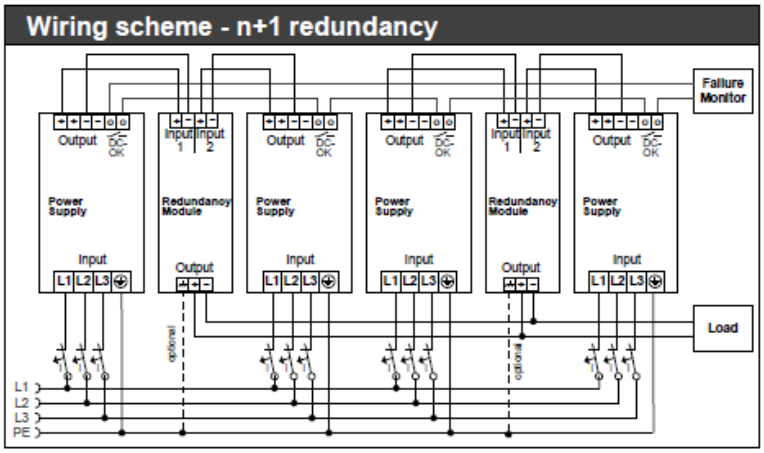
- Wire stripping length 10mm
- Size (WxHxD) 32x124x102mm Without DIN rail
- Weight 290g

Functional diagram





Wiring scheme – 1+1 redundancy



Documents / Resources

	**PULS YR2.DIODE 24V 20A Redundancy Module** [pdf] Instruction Manual 12-48 V, 20A, YR2.DIODE 24V 20A Redundancy Module, YR2.DIODE, 24V 20A Redundancy Module, 20A Redundancy Module, Redundancy Module, Module

References

- **PULS | No. 1 manufacturer of DIN rail power supplies**