

Power Supplies



IsoPower A 20900

24 V DC power supply with broad-range power supply unit.

The Task

Transmitters and isolation amplifiers which are not loop-powered require a stable and safe supply voltage. Power can be supplied to the series A 20XXX P0 and P 32XXX P0 devices through DIN rail bus connectors. Power supply shall be fed into the DIN rail bus as comfortably as these devices are supplied with power by being snapped onto the DIN rail.

The Problem

In many regions of the world, the stability of the public power grid is not always sufficiently ensured. The nominal voltages of the power grids vary from country to country and sometimes even within a country. Therefore, broad-range power supplies are ideal in order to meet all requirements with one device.

The Solution

The IsoPower A 20900 power supply provides a 24 V DC output voltage via two terminal pairs. Additional DIN rail bus connector contacts are located on the rear. When the IsoPower power supply is snapped onto the DIN rail, the DIN rail bus is automatically supplied with 24 V. The IsoPower A 20900 is equipped with a broad-range power supply. A floating signal contact signalizes a drop in the output voltage of more than 10 %.

The Advantages

The IsoPower A 20900 power supply is designed for a broad range of input voltages from 100 to 240 V AC (-15 % +10 %) which makes it suitable for all typical mains voltages. It ensures a high level of operational reliability in industrial networks that are influenced by large inductive loads as well as in countries with unstable power grids. DIN rail bus connectors can be used to configure a supply network for transmitters and isolators of the 6-mm class. The devices can be installed much faster and they can be replaced very easily. The IsoPower A 20900 is equipped with pluggable screw terminals for easy installation and replaceability.



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Isolation Amplifiers
Transmitters

Indicators

Process Analytics

Portable Meters

Laboratory Meters

Sensors

Fittings

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The Facts

- **Slim design**
35 mm
- **Worldwide usability**
Broad-range power supply
100 ... 240 V AC
- **High availability**
even in fluctuating mains supply
systems
- **Cost-effective, fast supply of
multiple loads**
supply up to twenty 6-mm modules
easily via the DIN rail bus connector
- **Floating relay output**
for monitoring the output voltage
- **Pluggable screw terminals**
Simple and fast assembly and
prewiring of enclosures
- **2-year warranty**



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Product Line

Devices	Input	Output	Order No.
IsoPower A 20900	100 ... 240 V AC	24 V DC, 1 A	A 20900 H4

Power supply

100 ... 240 V AC

Accessories

		Order No.
ZU 0678 DIN-rail bus connector	Tapping of supply voltage, routing to DIN rail bus connector ZU 0628, required number: supply towards left = 1, supply towards right = 2	ZU 0678
ZU 0628 DIN-rail bus connector	Power supply bridging for two isolators, resp., A 20XXX P0 or P 32XXX P0	ZU 0628

Specifications

Input data

Nominal input voltage	100 ... 240 V AC (broad-range input)
Input voltage range	85 ... 264 V AC
Frequency	45 ... 65 Hz
Current consumption	Approx. 0.5 A (at 120 V AC) Approx. 0.3 A (at 230 V AC)
Peak inrush current / I ² t (at 25 °C)	< 15 A / < 0.6 A ² s
Turn-on time after applying the mains voltage	< 0.5 s

Output data

Nominal output voltage	24 V DC, ±1 %
Output current	1 A
Current limitation at short-circuits	7 A
Startup of capacitive loads	Unlimited
Typ. deviation	With static load change 10 ... 90 %: < 1 % With dynamic load change 10 ... 90 %: < 3 % With input voltage change ±10 %: < 0.1 %
Power loss	No-load 2.5 W Nominal load 8 W

Specifications (continued)

Efficiency	> 84 % (at 230 V AC and nominal values)
Rise time V_{out} (10 ... 90 %)	< 2 ms
Residual ripple	< 100 mV _{pp} (at nominal values)
Surge voltage protection against internal surge voltages	Yes, limited to approx. 30 V DC
Resistance to reverse feed	30 V DC
DC OK output, floating, max.: 30 V AC/DC, 1 A	$V_{out} > 21.5$ V DC Closed contact $V_{out} \leq 21.5$ V DC Open contact

Display

Green LED	Signaling of output voltage: $V_{out} > 21.5$ V DC LED on $V_{out} \leq 21.5$ V DC LED off
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Isolation

Test voltage	3 kV AC input against output
Protection against electric shock	Protective separation according to EN 50178 by reinforced insulation. Rated isolation voltage 300 V AC at overvoltage category III and pollution degree 2 between input and output, and between input and DC ok output.
Rated isolation voltage (basic insulation)	Up to 150 V AC/DC at overvoltage category II and pollution degree 2 between output and DC ok output.

Standards and approvals

EMC	In conformance with EMC directive 89/336/EEC and low voltage directive 73/23/EEC
Electrical equipment of machines	EN 60 204 (overvoltage category III)
Safety transformers for switched-mode power supplies	EN 61 558-2-17
Electrical safety	EN 69 950
Electronic equipment for use in electric power plants	EN 50 178
Safety extra-low voltage	PELV (EN 60 204) SELV (EN 60 950)
Limitation of mains harmonic currents	according to EN 61000-3-2
Approvals	UL/C-UL Recognized UL 60 950 UL/C-UL Listed UL 508

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Specifications *(continued)*

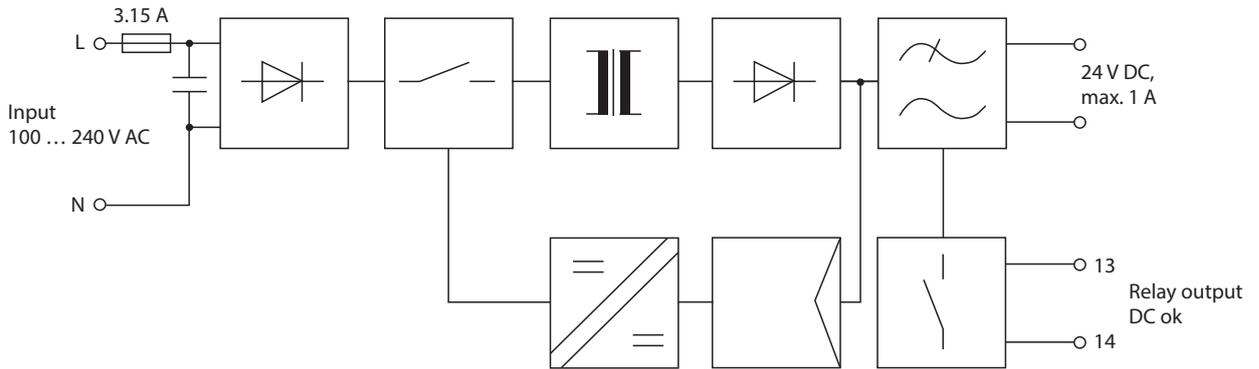
Further data	
MTBF ¹⁾	Approx. 57 years
Ambient temperature	Operation: -25 ... +70 °C Transport and storage: -40 ... +85 °C
Humidity	up to 95 % at +25 °C, no condensation
Climatic class	3K3 according to EN 60 721
Design	Modular housing, 35 mm wide, screw terminals, polyamide PA See dimension drawings for other measurements
Ingress protection	IP 20
Mounting	Metal interlock to attach to 35-mm mounting rail according to EN 50022. See dimension drawing for conductor cross-section
Weight	Approx. 250 g

1) Mean Time Between Failures – MTBF – according to EN 61709 (SN 29500)

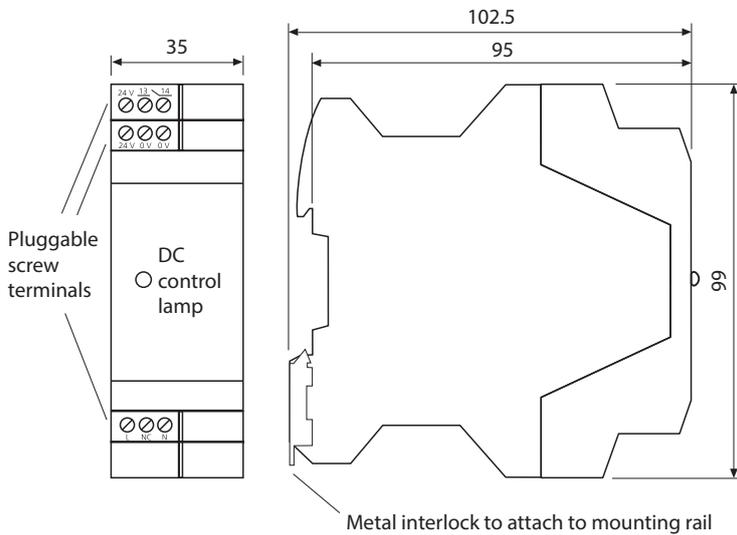
Conditions: stationary operation in well-kept rooms, average ambient temperature 40 °C, no ventilation, continuous operation

Block Diagrams

AC/DC Transmitter with Current Input



Dimension Drawings and Terminal Assignments



All dimensions in mm

Terminal assignments

- L Input L-conductor (single-phase AC networks)
Input L1-conductor (three-phase networks)
- NC Not connected
- N Input (PE)N-conductor (single-phase AC networks)
Input L2-conductor (three-phase networks)
- 24 V Outputs 24 V DC
- 0 V Outputs 0 V
- 13 Floating relay output
- 14