

# ZS20

## 1- Phase Power Supplies (24Vdc)



### Application

The power supplies ZS20 Series can be used in areas from extreme industrial environment, and complies with the latest technical standard. Before working with the unit, read these instructions carefully and completely. All these power supplies are single output, IP20, have Mounting DIN Rail IEC 60715/TH35. Class 2 isolation for ZS20-1A and Class 1 for rest ZS20 models (With Earth terminal) devices are suitable for SELV and PELV solutions.

### Safety and warning notes



**WARNING** – Explosion Hazard Do not disconnect Equipment unless power has been switched off or the area is known to be non-hazardous.

**WARNING** – Explosion Hazard. Substitution of components may impair suitability for class I, Division 2.

**WARNING** – Switch off the system before connecting the module. Never work on the machine when it is live. The device must be installed according with UL508. The device must have a suitable isolating facility outside the power supply unit, via which can be switched to idle.

**DANGER** of fatal injury !!

### Connection:

**Cable Connection:** The following cable cross-sections may be used:

	Solid (mm <sup>2</sup> )	Stranded (mm <sup>2</sup> )	AWG	Torque (Nm)	Stripping Length
<b>Input:</b>	0.2 – 2.5	0.2 – 2.5	24 – 14	0.5 – 0.6	7 mm
<b>Output:</b>	0.2 – 2.5	0.2 – 2.5	24 – 14	0.5 – 0.6	7 mm
<b>Signal:</b>	0.2 – 2.5	0.2 – 2.5	24 – 14	0.5 – 0.6	7 mm

The connection is made by the screw type 2.5 mm terminal block. Use only copper cables that are designed for operating temperatures of > 75 °C. Wiring terminal shall be marked to indicate the proper connection for the power supply.

### Input - Output power connection:

Input:		
	1 Phase Switching Power Supplies	L, N
	1 Phase Switching Power Supplies	L, N, PE ⊕
Output:	24 Vdc is made via the	(+), (-).

1 Phase L N PE

1 Phase L N PE

### Signalling:

Red led (Dc ok) status:	Indicates
Lights up permanently	DC Output OK
Switch off	Overload or short circuit
Blink	Overload

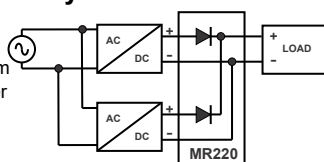
### Parallel connection Redundancy:

Power supplies can be paralleled for 1+1 redundancy to obtain a higher system availability. In Redundant system In case any power supply fails, the other one is automatically able to support the load without any interruption.

This can be done by utilizing decoupling diodes which are included in the Redundancy Module ZS20 MR220.

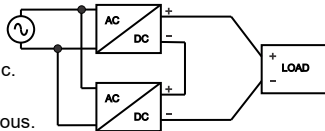
Recommendations for building redundant power systems:

- Use separate input fuses for each power supply.
- Monitor the individual power supply units. A DC-Red led and Power Good Contact are already included on ZS20 power supplies. This feature reports a faulty unit; see power Good Section for any technical detail.
- When possible, connect each power supply to different phases or circuits.



### Serial connection:

- It is possible to connect as many units in series as needed, providing the sum of the output voltage does not exceed 150 Vdc.
- Voltages with a potential above 60Vdc are not SELV any more and can be dangerous. Such voltages must be installed with protection against touching.
- For serial operation use power supplies of the same type.
- Earthing of the output is required when the sum of the output voltage is above 60Vdc.

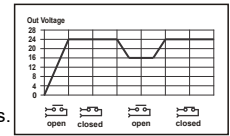


e) Keep an installation clearance of 15mm (left / right) between two power supplies on top of each other.

**Note** : Avoid return voltage (e.g. from a decelerating motor or battery) which is applied to the output terminals.

### Power Good Output Function: (Not for Plastic Housing power supplies)

**PWR Good** Output is used for preventive function monitoring of the power supply. An electrically isolated signal contact is available. The signal contact closes when output power is OK and Opens when output voltage falls below 20Vdc ± 5%. This feature is particularly useful in redundant applications.



Power Good Contact rating:

Max. DC1: 30 Vdc 1 A;	Resistive load (EN 60947-4-1)
AC1: 60 Vac 1A	
Min.: 1mA at 5 Vdc	Min permissible load

### Protection:

**On the primary side:** the device is equipped with an internal fuse; follow the next page table. If the internal fuse is blown (fails opens), it is most probable that there is a fault in the device. If this failure occurs, the device must be checked in the factory.

**Caution:** in two phase Input models, Double pole / Neutral Fusing.

**On the secondary side:** the devices are electrically protected against:

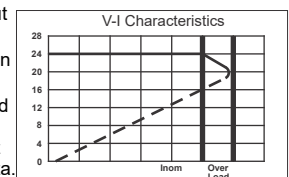
Over Load, Over Voltage Output (typ. 35Vdc), and Short circuit automatically.

### Short circuit and overload Protection :

In case of short-circuit or overloading, the output current is interrupted. The device tries again to re-establish output voltage and normal condition repeatedly till the problem is cleared.

The output of the device is electrically protected against overload and short circuit.

For the nominal voltage and nominal current at temperature condition, please see technical data. The device can supply at the nominal Current without switching off. As the overload increases, the output voltage is reduced until zero.



### Standards and Certification

#### Electrical Safety:

Assembling device: IEC/EN 60950 (VDE 0805) and EN 50178 (VDE 0160).

Installation according: IEC/EN 60950.

Input / Output separation: SELV EN 60950-1 and PELV EN 60204-1. Double or reinforced insulation.

#### EMC Standards Immunity: IEC 61326-1:2012, Table 2.

EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5.

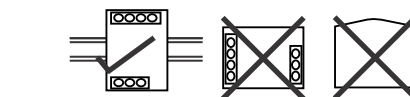
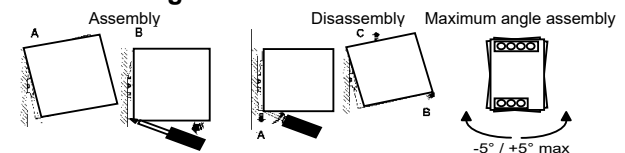
#### EMC Standards Emission:

EN 61000-6-4, EN 61000-3-2,

#### Standards Conformity:

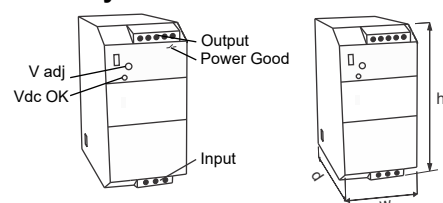
Safety of Electrical Equipment Machines: EN 60204-1.

### Rail Mounting:



**!** Other models / modules must have a minimum vertical and horizontal distance of 10 cm to this power supply in order to guarantee sufficient auto convection. Depending on the ambient temperature and load of the device, the temperature of the housing can become very high!

### Dimension and Lay-out:



### Power Supplies Selection Chart

Model	Size	Description
ZS20-1P	18x90x62 mm	I/P.-: Single-Phase: 115-230 VAC, O/P.-: 24VDC / 0.63A, 15W
ZS20-1K	54x90x62 mm	I/P.-: Single-Phase: 115-230 VAC, O/P.-: 24VDC / 1.5A, 36W
ZS20-1L	54x90x62 mm	I/P.-: Single-Phase: 115-230 VAC, O/P.-: 24VDC / 1.75A, 45W
ZS20-1A	54x90x62 mm	I/P.-: Single-Phase: 115-230 VAC, O/P.-: 24VDC / 2.50A, 60W
ZS20-1B	55x110x105 mm	I/P.-: Single-Phase: 115-230 VAC, O/P.-: 24VDC / 5.0A, 120W
ZS20-1C	55x110x105 mm	I/P.-: Single-Phase: 115-230 VAC, O/P.-: 24VDC / 7.5A, 180W