

Introduction – Diode Modules for Redundancy

Redundancy, Load Sharing, Increased Power Delivery

Weidmüller's diode modules are designed to enhance the ConnectPower series of DC power supplies and provide a more reliable Power Delivery Solution. They are cost effective products that enable redundancy as well as load sharing between power supplies, thus extending the useful life of the power supply.

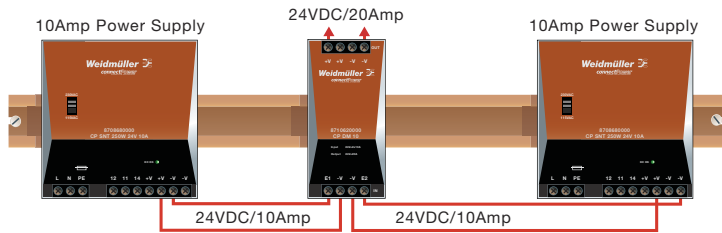
Diode modules can increase the reliability of a Power Delivery Solution by preventing current feedbacks between paralleled power supplies.

It is important to keep in mind that before paralleling power supplies, their output voltage must be calibrated to be within $\pm 50\text{mV}$ of each other, and the parallel connection must be positioned as close as possible to the load.



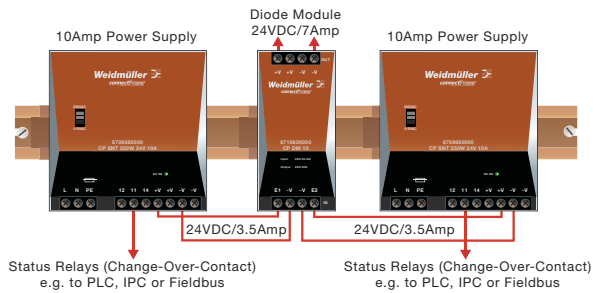
Introduction – Diode Modules for Redundancy

Parallel Connection for Increased Power Delivery



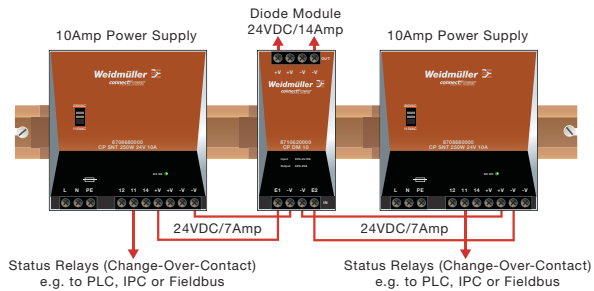
- The amount of power needed is provided by two power supplies combined in parallel

Provide Uninterrupted DC Power with Redundancy and Fault Indication (this example supplying 7A to load)



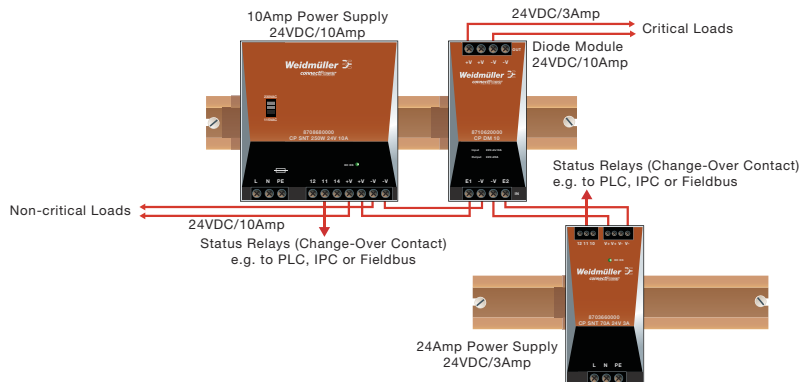
- Diode modules provide galvanic isolation between power supplies
- Use status relays for remote alarm indication

Increase DC Power Delivery to Control Systems (this example supplying 14A to load)



- The amount of power needed is provided by two power supplies combined in parallel
- Use status relays for remote alarm indication

Guarantee DC Power to Critical Loads (this example supplying 3A to critical load)



- Under normal operating conditions, the critical load is provided by both the 10A and 3A power supply
- If the larger power supply fails, the critical load will continue to be maintained by the 3A power supply
- This ensures uninterrupted power to the critical load

Note: Two power supplies in parallel must be calibrated to within ± 50 mV of each other.

Diode Modules for Redundancy



CP DM 10
10A per Input Diode Module

CP DM 20
20A per Input Diode Module

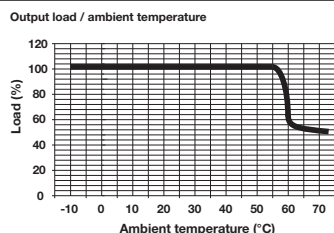


Approvals:

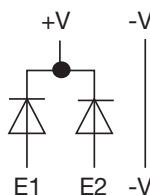


Derating Curve

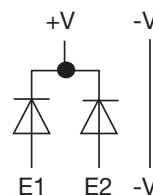
3/5/10/20A



Schematic



Schematic



Ordering Data

Type	Qty.	Order No.
CP DM 10	1	8710620000

Type	Qty.	Order No.
CP DM 20	1	8768650000

Technical Data

Input	Input voltage
	Input current
Output	Output voltage
	Output current

40 VDC max.
10 A per input max.
$V_{in} - 0.5$ typ.
20 A max.

40 VDC max.
20 A per input max.
$V_{in} - 0.5$ typ.
40 A max.

General Specifications

Temperature	Operating
	Storage
Efficiency under max. load	
Mount onto mounting rail	
Mounting position	
Mounting	
Weight	
Dimensions (L x W x H)	
Type of Connection	
Clamping area input (nominal / min. / max.)	
Clamping area output (nominal / min. / max.)	
Indication signals	Voltage

-10°C...+55°C (+14°F...+131°F)
-20°C...+85°C (-4°F...+185°F)
approx. 95.5% at 24 VDC
Mounting rail TS35 to DIN 50022
Horizontal
Clearance: side ≥ 4 cm; above/below ≥ 10 cm
approx. 0.15 kg (0.33 lbs.)
125.0 x 55.5 mm x 110.0 (4.92 x 2.19 x 4.33 in.)
Screw
4 / 0.13 / 6 mm ² (12 / 26 / 10 AWG)
4 / 0.13 / 6 mm ² (12 / 26 / 10 AWG)
None

-10°C...+55°C (+14°F...+131°F)
-20°C...+85°C (-4°F...+185°F)
approx. 95% at 24 VDC
Mounting rail TS35 to DIN 50022
Horizontal
Clearance: side ≥ 4 cm; above/below ≥ 10 cm
approx. 0.5 kg (1.1 lbs.)
125.0 x 55.5 mm x 110.0 (4.92 x 2.19 x 4.33 in.)
Screw
4 / 0.13 / 6 mm ² (12 / 26 / 10 AWG)
10.0 / 0.32 / 16.0 mm ² (8 / 22 / 6 AWG)
None

	Alarm
Fault Relay	Voltage
	Current
	Configuration
	Set point
Other	Voltage drop input-output
	Fan

None
None
None
None
None
0.5 V typ.
None

None
None
None
None
None
0.5 V typ.
None

Terminations	Input/output
	Alarm contact

N/A
N/A

N/A
N/A

Approvals/Certifications

cULus 508 Listed, CE

cULus 508 Listed, CE

Diode Modules for Redundancy



CP DM 30 (SP-RS-RED./PARR.30A)
15A per Input Diode Module



RSD-40A
20A per Input or 40A Input per Unit
Diode Module with Status Indication



Ordering Data

Technical Data

Input	Input voltage	14-24 VDC
	Input current	15 A per input max.
Output	Output voltage	24 VDC
	Output current	30A Maximum

General Specifications

Temperature	Operating	0°C...+50°C (32°F...+122°F) (40°C rise (104°F) above ambient at 30 A)
	Storage	-20°C...+85°C (-4°F...+185°F)

Efficiency under max. load	95%
Mount onto mounting rail	TS32 or TS35 mm DIN rails
Mounting position	Horizontal
Mounting	Clearance: side \geq 4 cm; above/below \geq 10 cm
Weight	226.8 g (0.5 lbs.)
Dimensions (L x W x H)	70 x 110 x 90 mm (2.75 x 4.33 x 3.5 in.)
Type of Connection	Screw
Clamping area input (nominal / min. / max.)	4 / 0.32 / 16 mm ² (12 / 22 / 6 AWG)
Clamping area output (nominal / min. / max.)	4 / 0.32 / 16 mm ² (12 / 22 / 6 AWG)
Indication signals	Voltage

Alarm	None
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Fault Relay	Voltage	125 VAC Maximum
	Current	6 A Maximum
	Configuration	1 Form C / SPDT
	Set point	14-24 VDC, \pm 5% typ.
Other	Voltage drop input-output	0.38 V typ.
	Fan	None

Terminations	Input/output	2.5 mm ² (26...14 AWG)
	Alarm contact	26...12 AWG

Approvals/Certifications

Type Order No.

CP DM 30 with voltage sensing and fault relay	9987390000
CP DM 30 without voltage sensing	9987860000

Efficiency under max. load	95%
Mount onto mounting rail	TS32 or TS35 mm DIN rails
Mounting position	Horizontal
Mounting	Clearance: side \geq 4 cm; above/below \geq 10 cm
Weight	226.8 g (0.5 lbs.)
Dimensions (L x W x H)	70 x 110 x 90 mm (2.75 x 4.33 x 3.5 in.)
Type of Connection	Screw
Clamping area input (nominal / min. / max.)	4 / 0.32 / 16 mm ² (12 / 22 / 6 AWG)
Clamping area output (nominal / min. / max.)	4 / 0.32 / 16 mm ² (12 / 22 / 6 AWG)
Indication signals	None for 998786 Actual voltage for 998739

Alarm	None
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Fault Relay	Voltage	125 VAC Maximum
	Current	6 A Maximum
	Configuration	1 Form C / SPDT
	Set point	14-24 VDC, \pm 5% typ.
Other	Voltage drop input-output	0.38 V typ.
	Fan	None

Terminations	Input/output	2.5 mm ² (26...14 AWG)
	Alarm contact	26...12 AWG

UL recognized,

Type Order No.

RSD-40A (20 A per input max.) (2 x 20)	7940005219
RSD-40A (40 A input per unit max., 2 units required) (1 x 40)	7940005218

Input	Input voltage	24 VDC nominal
	Input current	20 A per input max. / 40 A (7940005218)
Output	Output voltage	24 VDC
	Output current	40 A Maximum

Temperature	Operating	0°C...+40°C (32°F...+104°F) ambient
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Efficiency under max. load	95%
Mount onto mounting rail	TS32 or TS35 mm DIN rails
Mounting position	Horizontal
Mounting	Clearance: side \geq 4 cm; above/below \geq 10 cm
Weight	317.5 g (0.7 lbs.)
Dimensions (L x W x H)	109.2 x 109.2 x 99 mm (4.3 x 4.3 x 3.9 in.)
Type of Connection	Screw

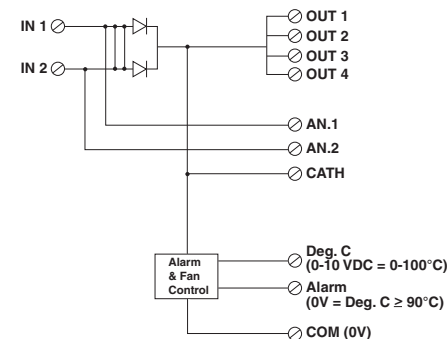
Clamping area input (nominal / min. / max.)	1.5 / 0.32 / 16 mm ² (14 / 22 / 6 AWG)
Clamping area output (nominal / min. / max.)	1.5 / 0.32 / 16 mm ² (14 / 22 / 6 AWG)
Indication signals	"AN.1" = input 1 (2 x 20 A version) "AN.2" = input 2 (2 x 20 A version) "AN.1" = "AN.2" = input voltage (1 x 40 A version) "CATH" = output voltage 0-10 VDC = 0°C...+100°C (32°F...+212°F) 15 VDC Max. output (150°C [302°F]) 24 VDC under normal operating conditions 0 VDC if heatsink temperature exceeds 90°C (194°F)
Alarm	N/A
Fault Relay	N/A
Configuration	N/A
Set point	N/A
Other	0.40 V typ. Turns on when heatsink temperature exceeds 60°C (140°F) Proportional control (fan speed increases as heatsink temperature increases—fully on at 80°C [176°F]) 13 mm ² (22...6 AWG) 26...14 AWG

Terminations	Input/output	2.5 mm ² (26...14 AWG)
	Alarm contact	26...14 AWG

cULus Listed

RSD-40A Schematics

7940005218



7940005219

