

General Purpose Solutions—Single Phase Input Supplies

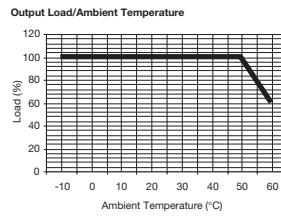


CP SNT 70W 3A

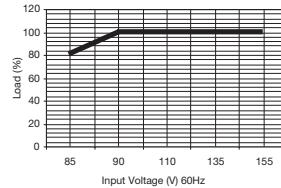


Approvals:  

Derating Curves



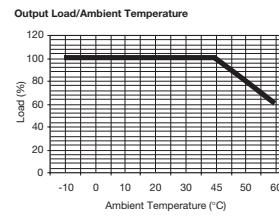
Output Load/Input Voltage



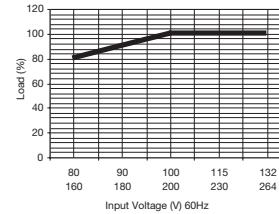
CP SNT 120W 24V 5A



Derating Curves



Output Load/Input Voltage



Ordering Data	Type	Part No.	Type	Part No.
Technical Data				
Input voltage	CP SNT 70W 3A	8708660000	CP SNT 120W 24V 5A	8708670000
Input current	<u>85...264 Vac 47...63 Hz</u>		<u>88...132 / 176...264 Vac selectable; 47...63 Hz</u>	
Inrush current	<u>120...370 Vdc</u>		254...370 Vdc	
Output voltage	<u>2.0 A @ 115 V 1.2 A @ 230 V</u>		<u>2.8 A @ 115 V 1.7 A @ 230 V</u>	
Ripple and noise	<u>30 A @ 115 V 60 A @ 230 V</u>		<u>30 A @ 115 V 60 A @ 230 V</u>	
Output current	<u>24 Vdc (24...28 Vdc)</u>		<u>24 Vdc (24...28 Vdc)</u>	
Efficiency	<u>150 mV_{p-p}</u>		<u>80 mV_{p-p}</u>	
Overload protection	<u>3 A</u>		5 A	
Overvoltage protection	<u>80%</u>		<u>84%</u>	
Short circuit protection	<u>105...150% output constant current limiting</u>		<u>105...150% output constant current limiting</u>	
Hold time	<u>yes</u>		<u>yes</u>	
Operation in parallel	<u>yes</u>		<u>yes</u>	
Indication LED	<u>30 ms @ 115 Vac</u>		<u>30 ms @ 230 Vac</u>	
Housing	<u>30 ms @ 230 Vac</u>		<u>yes, with diode module</u>	
Temperature	<u>LED green</u>		<u>LED green</u>	
	<u>metal</u>		<u>metal</u>	
	<u>-20°C...+85°C (-4°F...+185°F)</u>		<u>-20°C...+85°C (-4°F...+185°F)</u>	
	<u>0°C...+50°C (+32°F...+122°F) @ 100%</u>		<u>0°C...+45°C (+32°F...+113°F) @ 100%</u>	
	<u>-10°C (+14°F) @ 80% 60°C (140°F) @ 60%</u>		<u>-10°C (+14°F) @ 80% 50°C (122°F) @ 80%</u>	
Dimensions (W x L x H)	<u>55.5 x 125.2 x 100 mm</u>		<u>65.5 x 125.2 x 100 mm</u>	
	<u>(2.18 x 4.93 x 3.94 in.)</u>		<u>(2.58 x 4.93 x 3.94 in.)</u>	
Weight	<u>0.55 kg (1.21 lbs.)</u>		<u>0.65 kg (1.43 lbs.)</u>	
Mounting	<u>TS 35 DIN rail</u>		<u>TS 35 DIN rail</u>	
Type of connection	<u>Screw</u>		<u>Screw</u>	
Power Factor Correction	<u>yes</u>		<u>yes</u>	
Connection	<u>≤ 4.0 mm² (12 AWG)</u>		<u>≤ 4.0 mm² (12 AWG)</u>	
Load regulation	<u>± 1%</u>		<u>± 1%</u>	
Line regulation	<u>± 0.5%</u>		<u>± 0.5%</u>	
Standards - EMC	<u>EN55022 class B</u>		<u>EN55022 class B</u>	
	<u>EN61000-3-2, 3</u>		<u>EN61000-3-2, 3</u>	
	<u>EN61000-4-2, 3, 4, 5, 6, 8, 11</u>		<u>EN61000-4-2, 3, 4, 5, 6, 8, 11</u>	
	<u>ENV50204</u>		<u>ENV50204</u>	
Standards - Safety	<u>TUV EN60950</u>		<u>TUV EN60950</u>	
Approvals/Certifications	cULus 508 Listed, CE, EN60950		cULus 508 Listed, CE, EN60950	

General Purpose Solutions—Single Phase Input Supplies

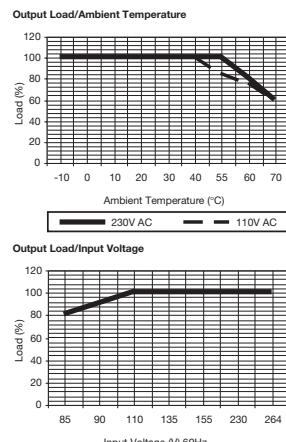


Approvals:

CP SNT 250W 24V 10A



Derating Curves

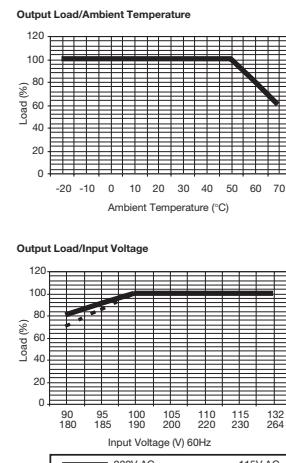


CP SNT 500W 24V 20A

Single-Phase Input
with selectable input voltage range



Derating Curves



Ordering Data

Technical Data

Input voltage

Type

CP SNT 250W 24V 10A

Part No.

8708680000

Input current

85...264 Vac 47...63 Hz

Type

CP SNT 500W 24V 20A

Part No.

8778870000

Inrush current

120...370 Vdc

Part No.

88...132 Vac / 176...264 Vac selectable; 254...50/60 Hz

Output voltage

3.5 A @ 115 Vac 1.8 A @ 230 Vac

Part No.

370 Vdc

Ripple and noise

30 A @ 115 Vac 60 A @ 230 Vac

2.8 A @ 115 Vac 1.4 A @ 230 Vac

Output current

24 Vdc (24...28 Vdc)

120 mV p-p

30 A @ 115 Vac 50 A @ 230 Vac

24...28 Vdc adjustable

Efficiency

10 A

120 mV p-p

20 A

Overload protection

84%

86%

Overvoltage protection

105...150% output constant, current limiting

lout: 105...150% lconst. for 3s.; lout > 150% off

Short circuit protection

yes

yes

Hold time

20 ms @ 115 Vac

20 ms @ 115 Vac

Operation in parallel

20 ms @ 230 Vac

20 ms @ 230 Vac

Indication LED

yes, with diode module

yes, with diode module

Housing

LED green

LED green

Temperature

metal

metal

Storage

-20°C...+85°C (-4°F...+185°F)

-20°C...+85°C (-4°F...+185°F)

Dimensions (W x L x H)

-10°C...+55°C (+14°F...+131°F) @ 100%

-10°C...+70°C

Weight

70°C (158°F) @ 70%

(+14°F...+158°F) see derating curve

Mounting

125.5 x 125.2 x 100 mm

227.5 x 125.2 x 100 mm

Type of connection

(4.94 x 4.93 x 3.94 in.)

(8.96 x 4.93 x 3.94 in.)

Power Factor Correction

1.1 kg (2.42 lbs.)

2 kg (4.4 lbs.)

Connection

TS 35 DIN rail

Horizontal on rail

Load regulation

Screw

Screw

Line regulation

yes, 0.98 @ 115 Vac; 0.95 @ 230 Vac

yes, 0.70 @ 230 Vac

Standards - EMC

≤ 4.0 mm² (12 AWG)

± 1%

Standards - Safety

± 0.5%

± 0.5%

Approvals/Certifications

EN55022 class B

EN 60950

Approvals/Certifications

EN61000-3-2, 3

EN 55011

Approvals/Certifications

EN61000-4-2, 3, 4, 5, 6, 8, 11

EN 55022

Approvals/Certifications

ENV50204

EN 55024

Approvals/Certifications

TUV EN60950

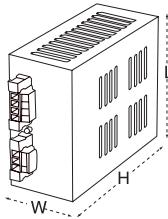
EN 61000-6-2, 3

Approvals/Certifications

cULus 508 Listed, CE, EN60950

cULus 508 Listed, CE, EN60950

Advanced Features Products—Single Phase Input Supplies



CP SNT 12W 0.5A



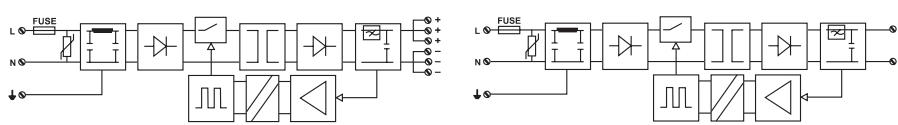
CP SNT 24W



Approvals:



Diagram/Schematic Circuit Diagram



– secondary through plug-in jumpers ZQV cross-connectable to other WAVE-modules

Ordering Data

Output voltage/maximum current	Type	Part No.
24 Vdc / 0.5 A	CP SNT 12W 0.5A	9918840024
24 Vdc / 1 A		
28 Vdc / 1 A		
15 Vdc / 1.5 A		
12 Vdc / 1.5 A		
5 Vdc / 2 A		

Type	Part No.
CP SNT 24W	
24 Vdc / 1 A	9928890024
28 Vdc / 1 A	9928890028
15 Vdc / 1.5 A	9928890015
12 Vdc / 1.5 A	9928890012
5 Vdc / 2 A	9928890005

Technical Data

Input voltage	Minimum	Typical
85 Vac, 120 Vdc		
115-230 Vac ± 10%, 50/60 Hz		
Input current	Maximum	
at 115 Vac	265 Vac, 300 Vdc	
(Average values for reference only)	260 mA RMS ± 20%	
at 230 Vac	180 mA RMS ± 20%	
at 125 Vdc	125 mA ± 20%	
at 250 Vdc	65 mA ± 20%	
Input protection	Fuse	
Inrush current		2 A slow fuse (internal, not user serviceable)
Overvoltage protection		Thermistor
Switching frequency		Varistor
Efficiency at maximum load		100 kHz PWM
Maximum ripple		80%
Regulation	Load (10-100% load)	0.1% RMS
	at input voltage	0.2%
Overload protection		0.2% 85 Vac - 265 Vac In
Maximum capacity at output		Overcurrent shutdown with automatic restart plus thermal shutdown/short cct
Hold time	at 115 Vac	8000 µF
(Maximum output current following input loss)	at 230 Vac	30 ms
Temperature	Storage	80 ms
	Operating	-40°C...+85°C (-40°F...+185°F)
Humidity	Operating temperature	-40°C...+50°C (-4°F...+122°F) full rated load
	Storage temperature	Derating: 33% at 60°C (140°F)
Galvanic isolation	Input-output	20...85% RH non-condensing
	Input/output to mounting rail	20...90% RH
	Input to ground	3 kV RMS
	Output to ground	4 kV RMS
Wire size		1.5 kV RMS
Dimensions (L x W x H)		500 V RMS
Weight		26...12 AWG (0.1...4.0 mm²)
Mounts on mounting rail		90 x 18 x 112.5 mm (3.54 x 0.71 x 4.43 in.)

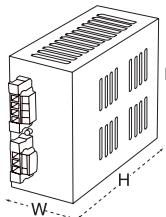
Type	Part No.
85 Vac, 120 Vdc	
115-230 Vac ± 10 %, 50/60 Hz	
265 Vac, 300 Vdc	
480 mA RMS ± 20%	
270 mA RMS ± 20%	
280 mA ± 20%	
140 mA ± 20%	
2 A slow fuse (internal, not user serviceable)	
Thermistor	
Varistor	
100 kHz PWM	
78%	
0.3% RMS	
2% (12, 15 and 5 V) 0.5% (24 and 28 V)	
0.2%	
Overcurrent shutdown with automatic restart plus thermal shutdown/short cct	
8000 µF	
35 ms	
160 ms	
-40°C...+85°C (-40°F...+185°F)	
-20°C...+50°C (-4°F...+122°F) full rated load	
Derating: 33% at 60°C (140°F)	
20...85% RH non-condensing	
20...90% RH	
3 kV RMS	
4 kV RMS	
1.5 kV RMS	
500 V RMS	
26...12 AWG (0.1...4.0 mm²)	
90.5 x 52 x 62.5 mm (3.56 x 2.05 x 2.46 in.)	
160 g (0.35 lbs.)	
TS 35 DIN rail	

Approvals/Certifications

CSA, UL 508 Listed, CE
CSA Class 1 Div. 2 and Zone 2 for 9928890012 and 9928890024
UL 1310 (Class 2) for 9928890024

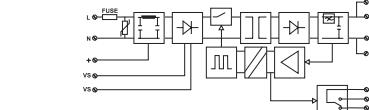
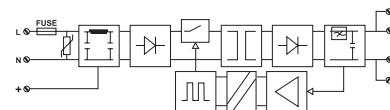
CSA, UL 508 Listed, CE
CSA Class 1 Div. 2 and Zone 2 for 9928890012 and 9928890024
UL 1310 (Class 2) for 9928890024

Advanced Features Products—Single Phase Input Supplies


Approvals:

CP SNT 55W

CP SNT 160W

Diagram/Schematic Circuit Diagram

Ordering Data
Output voltage/maximum current

Type	Part No.
CP SNT 55W	
24 Vdc-28 Vdc / 2.3 A	9927480024
48 Vdc / 1.04 A	9927480048
12 Vdc - 15 Vdc / 3 A	9927480012
5 Vdc / 3 A	9927480005

Technical Data
Input voltage

Minimum	
115-230 Vac ± 10 %, 50/60 Hz	

Maximum	
265 Vac, 300 Vdc	

Input current

at 115 Vac	
(Average values for reference only)	

at 230 Vac	
at 125 Vdc	

at 250 Vdc	
315 mA ± 20%	

Input protection

Fuse	
Inrush Current	

Overvoltage	
Thermistor	

Switching frequency

Efficiency at maximum load	
80%	

Maximum ripple	
0.1% RMS	

Regulation	load (10-100% load)
	at Input voltage

Overload protection	
	Overcurrent shutdown with automatic restart plus thermal shutdown/short cct

Maximum capacity at output	
	10,000 µF

Parallel connection for load sharing	
	up to 3 devices (passive current division)

Hold time	at 115 Vac
(Maximum output current following input loss)	at 230 Vac

Temperature	Storage
	Operating

Humidity	Operating temperature
	Storage temperature

Galvanic isolation	Input-output
	Input/output to mounting rail

	Input to ground
	Output to ground

Wire size	
	26...12 AWG (0.1...4.0 mm²)

Dimensions (L x W x H)	
	98 x 57 x 131 mm (3.86 x 2.24 x 5.16 in.)

Weight	
	478 g (1.05 lbs.)

Mounts on mounting rail	
	TS 35 DIN rail, Chassis

Fault relay	
	Changeover contact, 30 Vdc / 125 Vac @ 1 A max. / Passive PFC

Approvals/Certifications	
	CSA, UL 508 Listed, CE

	CSA Class 1 Div. 2 and Zone 2 for 9927480012 and 9927480024

	UL 1310 (Class 2) for 9927480024

Accessories	
Chassis Mounting Kit	7920560000

L Bracket Mounting Kit—Panelmount	
	7940000543

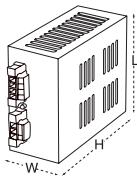
Side mount Bracket—DIN rail	
	7940000542

	Part No.
	7920560000

	Part No.
	7940000543

	Part No.
	7940000542

Advanced Features Products—Single Phase Input Supplies



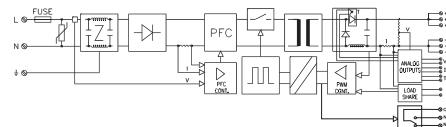
Approvals:



CP SNT 300W



Diagram/Schematic Circuit Diagram



Ordering Data

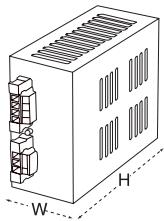
Type	Part No.
CP SNT 300W	9916250024

Technical Data

Input voltage	Minimal	
	Typical	
	Maximum	
Input current at 300 W	at 115 Vac	
	at 230 Vac	
	at 100 Vdc	
	at 200 Vdc	
Input power factor		0.99 (under all load conditions)
Input current		Sinusoidal (active power factor corrected)
Topology		Boost PFC / forward PWM
Input protection	Fuse	5 A slow blow 5x20 mm
	Inrush current	Thermistor
	Oversupply	Varistor
Switching frequency		100 kHz ± 5%
Efficiency	at max.load	80% typical
Output ripple		at 100 kHz: 2 mV p-p
Regulation	Load (10-100%)	1%
	Line (86-265 Vac RMS)	0.2%
Protection	Oversupply	$V_{out} > 30 \text{ Vdc}$
	Undervoltage	$V_{out} < 14 \text{ Vdc}$
	Overload	at $V_{out} = 22 \text{ Vdc}, I_{out} > 13.8 \text{ A}$
	Thermal	Heat sink temperature > 100°C (212°F)
Adjustable output voltage		at $V_{out} = 22 \text{ Vdc}, I_{out} > 13.5 \text{ A}$
Rated output current		at $V_{out} = 28 \text{ Vdc}, I_{out} > 11.6 \text{ A}$
LED indicator		Current limiting: LED yellow Fault: LED red On: LED green
Shut down		Power supply goes to fault mode oversupply, undervoltage or over temperature for more than 2 sec. fault relay drops out/short cct
The 300 W power supply offers		- universal input voltage with PFC (active power factor corrections)
the following additional functions		- analog monitoring function of the output voltage 0...30 V corresponds to 0...10 V ± 3%
		of the output current 0...15 A corresponds to 0...10 V ± 3%
		of the internal temperature 0°C...+100°C (+32°F...+212°F) corresponds to 0...10 V ± 3%
Monitoring output impedance		- Fault relay, 1 changeover, closed-circuit current principle
Load share		10 kΩ min. or 5 mA max.
Maximum capacity at output		Current increase up to 60 A by wiring up to 5 300 W power supplies in parallel (active current division)
Hold time	at 115 Vac	10,000 µF
	at 230 Vac	40 ms
Temperature	Storage	40 ms
	Operating	-40°C...+85°C (-40°F...+185°F)
	Derating	-20°C...+50°C (-4°F...+122°F) Testing done to -10°C
Galvanic isolation	Input-output	Output current derating of approx. 20 % at 60°C (140°F)
	Input/output to mounting rail	3 kV RMS
	Input to ground	TS: 3 kV RMS
	Output to ground	1.5 kV RMS
Dimensions (L x W x H)		500 V RMS
Weight		104 x 240 x 155 mm (4.10 x 9.45 x 6.10 in.)
Mounting		1180 g (2.60 lbs.)
Approvals/Certifications		TS 35 DIN rail, chassis
Accessories		CSA, UL 508 Listed, CE
Chassis Mounting Kit		Part No. 7920560000 ¹⁾

¹⁾ Order 2 mounting kits for power supply shown above.

Advanced Features Products – Three-Phase Input Supplies



**CP SNT 55W 2.3A
3 Phase Input**



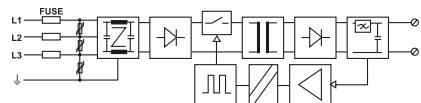
**CP SNT 160W 6.5A
3 Phase Input**



Approvals:



Diagram/Schematic Circuit Diagram



Ordering Data

Output voltage/maximum current

Type

Type

CP SNT 55W 2.3A 3 Phase

CP SNT 160W 6.5A 3 Phase

24 Vdc / 2.3 A

9917790324

9925340324

Input voltage

Part No.

Minimum

CP SNT 55W 2.3A 3 Phase

Typical

24 Vdc / 2.3 A

Maximum

9917790324

Input current

24 Vdc / 2.3 A

at 360 Vac

24 Vdc / 2.3 A

(Average values for reference only)

9917790324

Input protection

9917790324

Fuse

9917790324

Inrush Current

9917790324

Overvoltage

9917790324

Switching frequency

9917790324

Efficiency at maximum load

9917790324

Maximum ripple

9917790324

Regulation

9917790324

Load (10-100% load)

9917790324

at Input voltage

9917790324

Overload protection

9917790324

Maximum capacity at output

9917790324

Parallel connection for load sharing

9917790324

Hold time

9917790324

at 360 Vac

9917790324

(Maximum output current following input loss)

9917790324

Temperature

9917790324

Storage

9917790324

Operating

9917790324

Humidity

9917790324

Operating temperature

9917790324

Storage temperature

9917790324

Galvanic isolation

9917790324

Input-output

9917790324

Input/output to mounting rail

9917790324

Input to ground

9917790324

Output to ground

9917790324

Wire size

9917790324

Dimensions (L x W x H)

9917790324

Weight

9917790324

Mounts on mounting rail

9917790324

Fault relay

9917790324

Output surge

9917790324

Approvals/Certifications

CSA, cULus 508 Listed, CE

cULus 508 Listed, CE

Accessories

Chassis Mounting Kit

Part No.

Part No.

7920560000

L Bracket Mounting Kit—Panelmount

7940000543

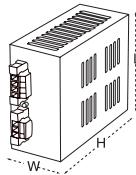
7940000543

Side mount Bracket—DIN rail

7940000542

7940000542

Advanced Features Products—Three-Phase Input Supplies


Approvals:


**CP SNT 300W 12.5A
3 Phase Input**



**CP SNT 600W 25A
3 Phase Input**


Ordering Data
Output voltage/maximum current
Technical Data
Input voltage
Minimum
Typical
Maximum
Input current
Min Vin

(Average values for reference only)

Typ Vin
Max Vin
Input protection
External Input Breaker
Inrush Current
Overvoltage
Switching frequency
Output
Voltage Nominal
Voltage Adj. Range
Current Nominal
Current Surge
Current Surge Time
Surge Cycle Time
Efficiency at maximum load
Regulation
Load (10-100% load)
Line
Protection
Overload
Short Circuit
Overvoltage
Undervoltage
Over Temperature
Over Current
Max. load capacitance
Overload
Hold time
@380 V
Hold time
@480 V
Temperature
Storage
Humidity
Operating
Galvanic isolation
Input-output
Input to ground
Output to ground
Wire size
Input
Wire size
Output
I/O
Dimensions (L x W x H)
Cooling
Weight
Load Sharing
Mounts on mounting rail
Redundancy
Special features
Fault relay
Weight
Vout
Mounts on mounting rail
Tout
Miscellaneous
Iout
Approvals/Certifications
Indicator

1) This allows for horizontal or vertical mounting without derating.

2) The output voltages of each power supply should be adjusted to within 100mV. Use similar sizes and length of cables to connect the output of each power supply to the load. Consult factory for increased current capacity.

3) No limit to the number of units connected in parallel for redundancy.

4) Order 2 mounting kits for power supply shown above.

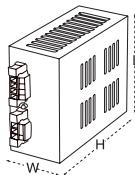
Part No.

7920560000⁴⁾

Part No.

7920560000

Advanced Features Products—Three-Phase Input Supplies



Approvals:



**CP SNT 1000W 40A
3 Phase Input**



Ordering Data		Type	Part No.
Technical Data		CP SNT 1000W 40A 3 Phase	7918960324
Input voltage	Minimum	342 Vac	
	Typical	480 Vac ± 10% 50/60 Hz, 3 phase	
	Maximum	528 Vac	
Input current		at $V_{min} = 1.9$ A RMS	at $V_{nom} = 1.4$ A RMS
Input protection	External Input Breaker	6A, 3 pole 480 Vac	at $V_{max} = 1.3$ A RMS
	External Input Fuse	6A, 480 Vac Slow Blow	
	Inrush Current	40A Maximum	
	Overvoltage	Varistor	
	Surge Immunity L-L	2 kV	
	L-G	4 kV	
Switching frequency		65 kHz	
Output	Voltage Nominal	24 Vdc	
	Voltage Adj. Range	23...28 Vdc	
	Current Nominal	40 A	
	Maximum Start-up Current	70 A	
	Current Surge	80 A	
	Current Surge Time	1 second	
	Surge Cycle Time	60 seconds	
	Maximum Load Capacitance	10,000 µF	
Efficiency	at Maximum load	90%	
Output ripple		< 20 mV RMS	
Regulation	Load (10-100%)	5%	
	Line	1%	
Protection	Short Circuit	Auto restart	
	Overvoltage	$V_{out} > 30.5$ Vdc	
	Undervoltage	$V_{out} < 20$ Vdc	
	Over Temperature	V_{out} heatsink temperature > 100°C (212°F)	
	Over Current	43 A typical @ 24 V for >1 second	
Hold time		at $V_{min} = 14$ ms	at $V_{nom} = 20$ ms
Temperature	Storage		at $V_{max} = 28$ ms
	Operating	-40°C...+85°C (-40°F...+185°F)	
Humidity	Storage Temperature	-10°C...+50°C (+14°F...+122°F) (Full Power)	
	Operating Temperature	5...95%	
Galvanic Isolation	Input to Output	20...85% non-condensing	
	Input to Ground	3k Vac	
	Output to Ground	1.5 kVac	
Wire Size	Input	500 Vac	
	Output	22...12 AWG (0.08...2.5 mm²)	
	I/O	22...6 AWG (0.5...16 mm²)	
Dimensions (L x W x H)		22...12 AWG (0.08...2.5 mm²)	
Weight		182 x 268 x 133 mm (7.2 x 10.6 x 5.3 in.)	
Mounting		3800 g (8.35 lbs.)	
Special Features	Cooling	TS 35 DIN rail, chassis (Recommended Clearance: Leave 4 in. (10 cm) free space on venting sides)	
	Load Sharing	Fan cooled ¹⁾	
	Redundancy	Maximum 2 units ²⁾	
	Fault Relay	No maximum ³⁾	
	V_{out}	Form C contacts (1A @ 30 Vdc or 30 Vac)	
	T_{out}	0...10 Vdc = 0...30 Vdc	
	I_{out}	0...10V = 0°C...+100°C (+32°F...+212°F) (internal temperature)	
Miscellaneous	Indicator	0...10V = 0...50A	
	Power Factor	Green LED (DC on)	
Approvals/Certifications		0.9 typical @ 380 Vac	0.87 typical @ 480 Vac
cULus 508 Listed, CE			

1) This allows for horizontal or vertical mounting without derating.

2) The output voltages of each power supply should be adjusted to within 100mV. Use similar sizes and length of cables to connect the output of each power supply to the load. Consult factory for increased current capacity.

3) No limit to the number of units connected in parallel for redundancy.