

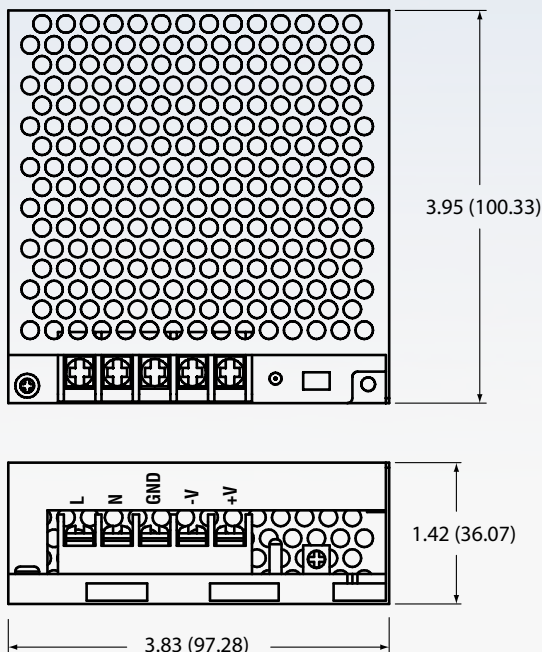
PS50A24 Power Supply



Features

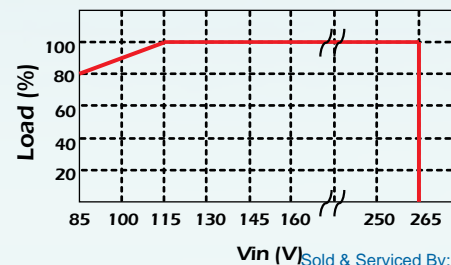
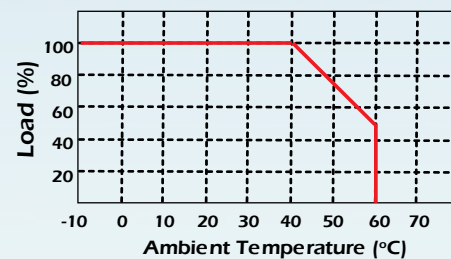
1. Universal input voltage range (90-265VAC)
2. Pending for safety approvals: CE , CCC , UL/CSA/EN60950
3. EMI : Conform to EN55011-B, EN55022-B, VCCI-B
4. EMS: Conform to EN61000-4-2,3,4,5,6,8,11
5. LED power indicator
6. 24V output, manually adjustable output voltage
7. 100% full load burn-in test, high performance, high reliability
8. Protection - Short Circuit / Over Load / Over Voltage.
9. RoHS compliance

Dimensions



Performance

Output Derating Curve



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Specifications

SPECIFICATION		VALUE
NOMINAL OUTPUT VOLTAGE	V	24
MAXIMUM OUTPUT CURRENT	A	2.1
MAXIMUM OUTPUT POWER	W	50.4
EFFICIENCY (TYP)	(115/230VAC) (* 1)%	85 / 86
INPUT VOLTAGE RANGE		90 ~ 265VAC (47-63Hz) or 120 ~ 370VDC
INPUT CURRENT (TYP)	(115/230VAC) (* 1)A	1.3 / 0.8
INRUSH CURRENT (TYP)	(115/230VAC)	18 / 36 , Ta=25 °C ~ Cold Start
OUTPUT VOLTAGE RANGE	V	21.6-26.4
RIPPLE AND NOISE	(115/230VAC) (* 1, 2) mV	150
LINE REGULATION	(* 2) %	+/-0.3
LOAD REGULATION	(* 2) %	+/-0.3
TEMPERATURE COEFFICIENT		Less than 0.03%/°C (0 ~ 50°C)
OVER CURRENT PROTECTION	(* 3) %	105~150
OVER VOLTAGE PROTECTION	(* 3) V	27.6~32.4
HOLD-UP TIME (TYP)	(115/230VAC) (* 1) mS	15 / 80
LEAKAGE CURRENT	(115/230VAC) mA	0.5/1.0
OPERATING TEMPERATURE	(* 4)	- 10 ~ + 60 °C (Refer to Output De-rating Curve)
OPERATING HUMIDITY		20 ~ 90 %RH (Non condensing)
STORAGE TEMPERATURE		- 30 ~ +85°C
STORAGE HUMIDITY		10 ~ 95%RH (Non condensing)
COOLING METHOD		Convection cooling
WITHSTAND VOLTAGE		Input - Output : 3.0kVAC (20mA), Input - FG : 2.0kVAC (20mA) Output - FG : 500VAC (100mA) for 1min.
ISOLATION RESISTANCE		More than 100MΩ at Ta=25°C and 70%RH, Output - FG : 500VDC
VIBRATION		At no operating, 10 - 55Hz, 10min. 1cycle , 2G Constant, X, Y, Z 1hour each
SAFETY		Pending, UL60950-1, CSA60950-1, EN60950-1
EMI		Compliance to FCC-Class B, EN55011/EN55022-B, VCCI-B
EMS IMMUNITY		Compliance to EN61000-4-2,-3,-4,-5,-6,-8,-11
WEIGHT (TYP)	Lb (g)	0.88 (400)
DIMENSION	inch (mm)	3.89 x 3.81 x 1.41 (99 x 97 x 36) (Refer to next page)

1. At maximum output power, nominal input voltage, Ta = 25 °C.
2. Ripple & noise are measured at bandwidth of 20MHz by using a 12" twisted pair-wire terminated with a 0.1uF&47uF parallel capacitor.
3. Shutdown output voltage, manual reset. Re-power on to recover.
4. Refer to Output de-rating Curve (next page) for details.

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PS150A24 Power Supply

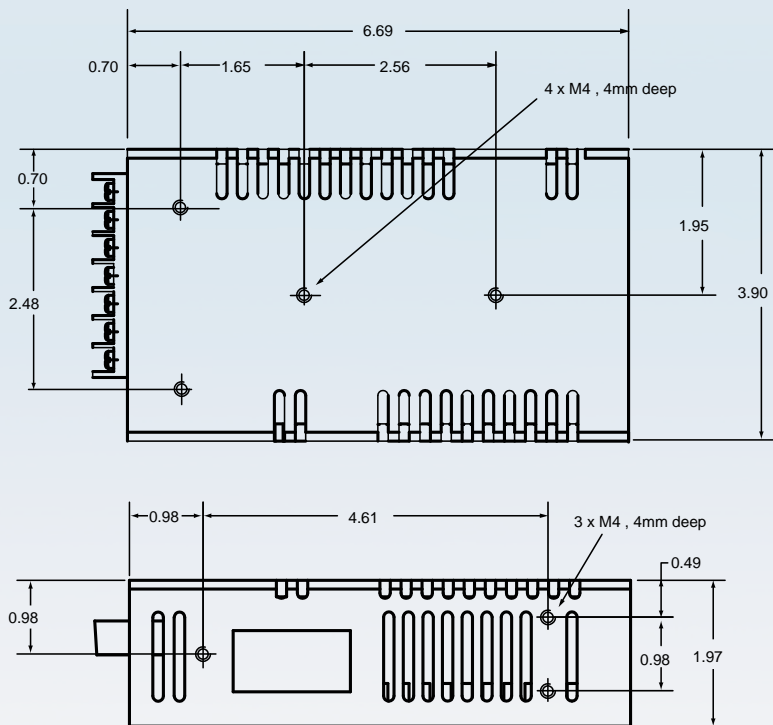
150W/24V with PFC Function



Features

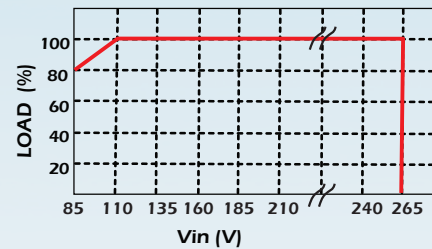
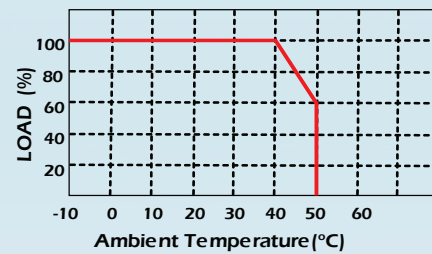
- Universal input voltage range (85-265VAC)
- Built-in active PFC filter, PF>0.95, conforms to EN61000-3-2
- Safety approvals: UL, TUV, CB, CE
- EMI: Conforms to EN55011-B, EN55022-B, FCC-B, CISPR22-B
- EMS: Conforms to EN61000-4-2,3,4,5,6,8,11
- LED power indicator
- 24V output, manually adjustable output voltage (+/-10%)
- Peak current for motor application
- 100% full load burn-in tested, high performance, high reliability
- Compact size, 15% smaller than conventional products
- RoHS compliant
- Protections: Short circuit, overload, over voltage

Dimensions

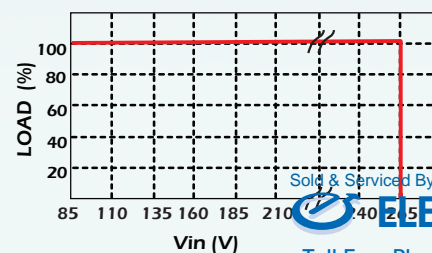
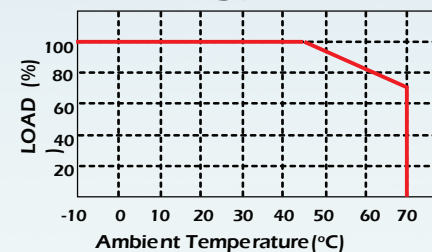


Performance

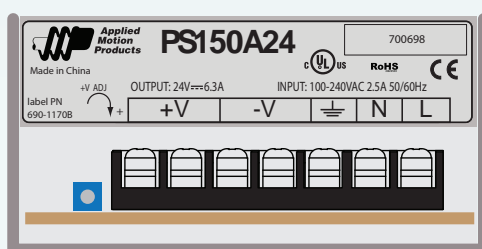
Output Derating Curves Convection Cooling



Forced Air Cooling (ventilation : 18CFM)



Connections



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Specifications

SPECIFICATION		VALUE
NOMINAL OUTPUT VOLTAGE	V	24
MAXIMUM OUTPUT CURRENT	A	6.3
PEAK OUTPUT CURRENT	A	9.5
MAXIMUM OUTPUT POWER	W	151.2
EFFICIENCY (TYP)	(115/230VAC) (* 1)%	81/84
INPUT VOLTAGE RANGE		85 ~ 265VAC (47-63Hz) or 120 ~ 370VDC
INPUT CURRENT (TYP)	(115/230VAC) (* 1) A	1.8 / 0.9
INRUSH CURRENT (TYP)		20A at 115VAC, 40A at 230VAC, Ta=25 °C, Cold Start
HARMONIC CURRENT		Compliant to EN61000-3-2
POWER FACTOR (TYP)	(115/230VAC) (* 1)	0.99 / 0.95
OUTPUT VOLTAGE RANGE	V	21.6~26.4
RIPPLE AND NOISE	(115/230VAC) (* 1, 2) mV	150
LINE REGULATION	(* 2) mV	96
LOAD REGULATION	(* 2) mV	120
TEMPERATURE COEFFICIENT		Less than 0.02%/°C
OVER CURRENT PROTECTION	(* 3) A	6.6 ~ 9.7
OVER VOLTAGE PROTECTION	(* 4) V	27.6~32.4
HOLD-UP TIME (TYP)	(115/230VAC) (* 1)	20ms
LEAKAGE CURRENT		0.75mA Max, 0.25mA(Typ) at 115VAC / 0.5mA(Typ) at 230VAC
SERIES OPERATION		Yes
OPERATING TEMPERATURE	(* 5)	-10 ~ +50/+70 °C (Refer to Output Derating Curves)
OPERATING HUMIDITY		20 ~ 90 %RH (Non Condensing)
STORAGE TEMPERATURE		-30 ~ +85 °C
STORAGE HUMIDITY		10 ~ 95%RH (No Condensation)
COOLING METHOD		Convection cooling or Forced air cooling
WITHSTAND VOLTAGE		Input - Output : 3.0kVAC (20mA), Input - FG : 2.0kVAC (20mA) Output - FG : 500VAC (20mA) for 1min.
ISOLATION RESISTANCE		More than 100 MΩ at Ta=25 °C and 70%RH, Output - FG : 500VDC
VIBRATION		At Non Operation, 10 - 55Hz, 10min. 1 Cycle , 19.6m/s ² Constant, X, Y, Z 1 Hour each
SAFETY		Pending, UL60950-1, CSA60950-1, EN60950-1
EMI		Compliant to FCC-Class B, EN55011/EN55022-B, CISPR22 Class B
EMS IMMUNITY		Compliant to EN61000-4-2,-3,-4,-5,-6,-8,-11
WEIGHT (TYP)	Lb (g)	1.366 (620)
DIMENSION	inch (mm)	1.97" x 3.89" x 6.7" (50 x 99 x 170)

- * 1. At maximum output power, nominal input voltage, Ta = 25 °C.
- * 2. Ripple & noise are measured at bandwidth of 20MHz by using a 12" twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
- * 3. Constant current limit with automatic recovery. Avoid operating at overload or with dead short for more than 60 seconds.
- * 4. Shuts down output voltage. Requires manual reset of AC power.
- * 5. Refer to output derating curves (page 1) for details.

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PS320A48 Power Supply

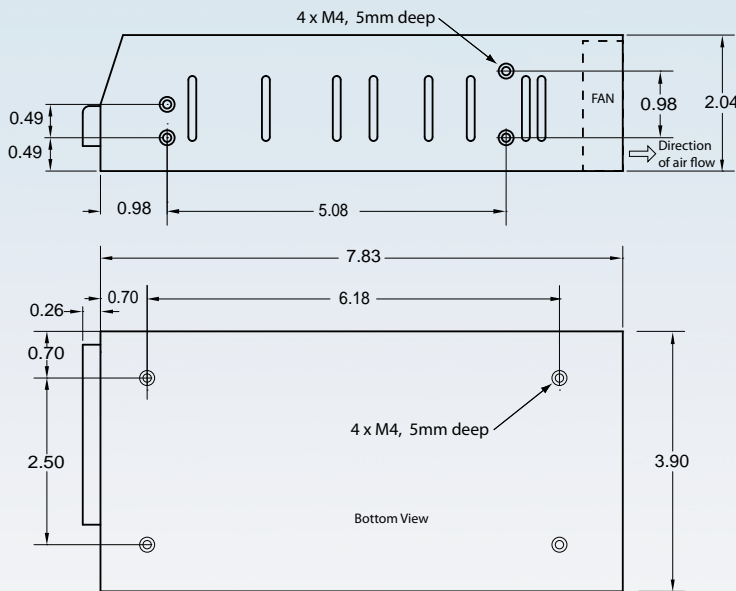
320W/48V with PFC Function



Features

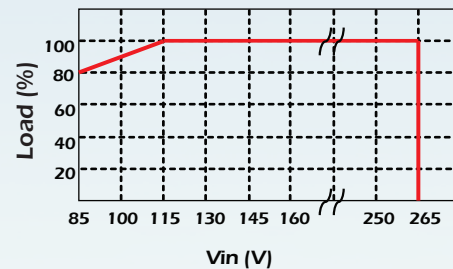
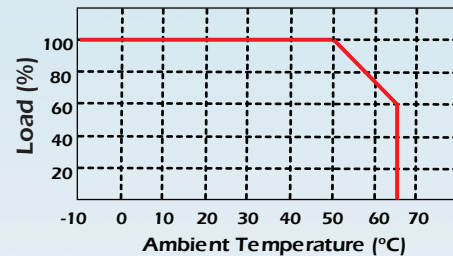
- Universal input voltage range (85-265VAC)
- Built-in active PFC filter, PF>0.95, conforms to EN61000-3-2
- Safety Approvals: UL, TUV, CB, CE
- EMI: Conforms to EN55011-B, EN55022-B, FCC-B, CISPR-22-B
- EMS: Conforms to EN61000-4-2,3,4,5,6,8,11
- LED power indicator
- 48V output, manually adjustable output voltage +/-10%
- Peak current for motor application
- 100% full load burn-in tested, high performance, high reliability
- Compact size, 15% smaller than conventional products
- RoHS compliant
- Protection: Short circuit, overload, over voltage
- Built-in fan

Dimensions

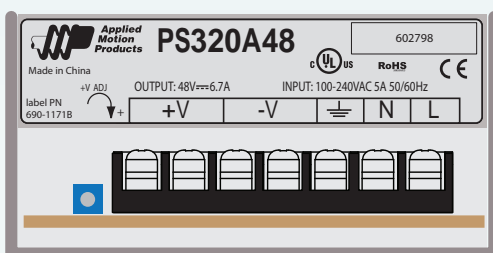


Performance

Output Derating Curve



Connections



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Specifications

SPECIFICATION		VALUE
NOMINAL OUTPUT VOLTAGE	V	48
MAXIMUM OUTPUT CURRENT	A	6.7
PEAK OUTPUT CURRENT	A	8.7
RATED OUTPUT POWER	W	321.6
EFFICIENCY (TYP)	(115/230VAC) (* 1)%	84 / 88
INPUT VOLTAGE RANGE		85 ~ 265VAC (47-63Hz) or 120 ~ 370VDC
INPUT CURRENT (TYP)	(115/230VAC) (* 1)A	3.6 / 1.8
INRUSH CURRENT (TYP)		40A at 115VAC, 80A at 230VAC, Ta=25 °C, Cold Start
HARMONIC CURRENT		Compliant to EN61000-3-2
POWER FACTOR (TYP)	(115/230VAC) (* 1)	0.99 / 0.95
OUTPUT VOLTAGE RANGE	V	43.2~52.8
RIPPLE AND NOISE	(115/230VAC) (* 1, 2) mV	240
LINE REGULATION	(* 2) mV	96
LOAD REGULATION	(* 2) mV	240
TEMPERATURE COEFFICIENT		Less than 0.02%/°C
OVER CURRENT PROTECTION	(* 3) A	7.0 ~ 10
OVER VOLTAGE PROTECTION	(* 4) V	55.2~64.8
OVER TEMPERATURE PROTECTION	(* 4)	Yes
HOLD-UP TIME (TYP)	(115/230VAC) (* 1)	20ms
LEAKAGE CURRENT		0.75mA Max, 0.25mA(Typ) at 115VAC / 0.5mA(Typ) at 230VAC
SERIES OPERATION		Yes
OPERATING TEMPERATURE	(* 5)	- 10 ~ + 65 °C (Refer to Output Derating Curve)
OPERATING HUMIDITY		20 ~ 90 %RH (Non Condensing)
STORAGE TEMPERATURE		- 30 ~ +85°C
STORAGE HUMIDITY		10 ~ 95%RH (Non Condensing)
COOLING METHOD		Forced Air Cooling by Fan - On Demand
WITHSTAND VOLTAGE		Input - Output : 3.0kVAC (10mA), Input - FG : 2.0kVAC (10mA) Output - FG : 500VAC (10mA) for 1min.
ISOLATION RESISTANCE		More than 100MΩ at Ta=25°C and 70%RH, Output - FG : 500VDC
VIBRATION		At Non Operation, 10 - 55Hz, 10min. 1 Cycle , 19.6m/s ² Constant, X, Y, Z 1 Hour each
SAFETY		Pending, UL60950-1, CSA60950-1, EN60950-1
EMI		Compliant to FCC-Class B, EN55011/EN55022-B,CISPR22 Class B
EMS IMMUNITY		Compliant to EN61000-4-2,-3,-4,-5,-6,-8,-11
WEIGHT (TYP)	Lb (g)	2.0 (900)
DIMENSION	inch (mm)	2.04 x 3.9 x 7.83 (50 x 99 x 199) (Refer to Page 1)

- * 1. At maximum output power, nominal input voltage, Ta = 25 °C.
- * 2. Ripple & noise are measured at a bandwidth of 20MHz by using a 12'' twisted pair-wire terminated with a 0.1uF & 47uF parallel capacitor.
- * 3. Constant current limit with automatic recovery. Avoid operating at overload or dead short for more than 60 seconds.
- * 4. Shuts down output voltage. Requires manual reset of AC power.
- * 5. Refer to output derating curve (next page) for details.

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POWER SUPPLIES

PS1050 Power Supply

PS1050

Power Supply
10 amps, 50 VDC

Features

- Input Voltage: 108–264 VAC
- Output Voltage: 50 VDC nominal
- Typical Output Voltage:
 - 56.6V no load
 - 52.8V at 5 amps
 - 48.8V at 10 amps
- Output Current: 10 amps max, continuous
- Input Frequency: 47–63 Hz
- Max Ambient Temp: 55°C
- Filter Capacitor: computer grade (long life)
- Rectifier Bridge: 50 amp, 200 volt
- Output Voltage Ripple: 3% rms max at nominal AC line voltage
- Weight: 19 pounds
- Made in USA

Description

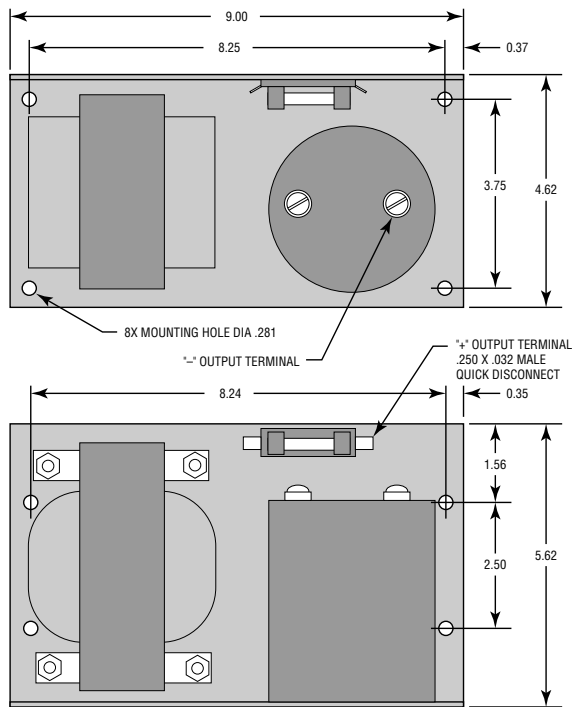
The PS1050 is a heavy duty linear, unregulated power supply. It is an ideal power source for Applied Motion’s 5560, 7080 and 7080i series step motor drives, combining over 500 watts of output power and outstanding reliability.

The PS1050 provides isolation from the AC line and is fused for safety.

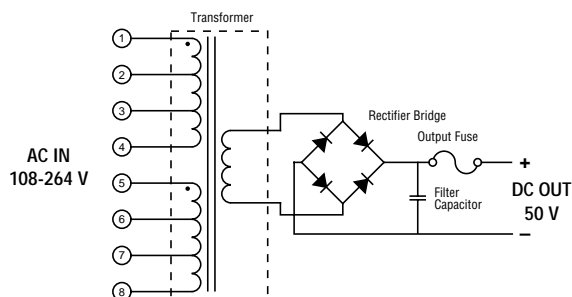
The PS1050 is constructed on an open frame aluminum chassis.



MECHANICAL OUTLINE



BLOCK DIAGRAM





PS1070 Power Supply

PS1070

Power Supply
10 amps, 70 VDC

Features:

- Provides up to 10 Amperes of DC power for open frame step and servo motor drives and indexers.
- Operates from 108-132 VAC or 216-264 VAC, 50/60 Hz
- Sturdy metal frame design
- Unregulated fused output
- Provides power for 2 7080 drives, set at 7.0 Amps per phase, and 2 5042-022 motors, windings connected in parallel, full or microstepping.
- Designed to meet European safety standards.

Description:

The PS1070 is a 670 watt open frame power supply designed to operate multiple DC input stepping or servo motor drives such as the Applied Motion's 7080/7080i Stepper drives and BL7080X/BL7080i Servo drives.

Applied Motion's PS1070 has a single 70 VDC nominal output and may be operated from either 110 or 220 AC, 50/60 Hz source. Input voltage is selected via jumpers on the power supply terminal strip.



Input

- 115/230 volts 50/60 Hz to be fused by user.
- 8/4 amp (755 watts).
- Suggested fuse 10/5 amps slo-blo.
- Voltage selected by terminal strip jumpers.
- Low Line: 108/216 Volts AC.
- High Line: 132/264 Volts AC.
- Connections: Barrier strip with screw terminals.
- Open frame construction.
- Size: 5.75" X 12" X 4.57" High.
- Mounting: 4 each .28" Dia. Holes on 4.37" X 11.0" Centers.
- Weight: 23.8 lbs.

Environmental

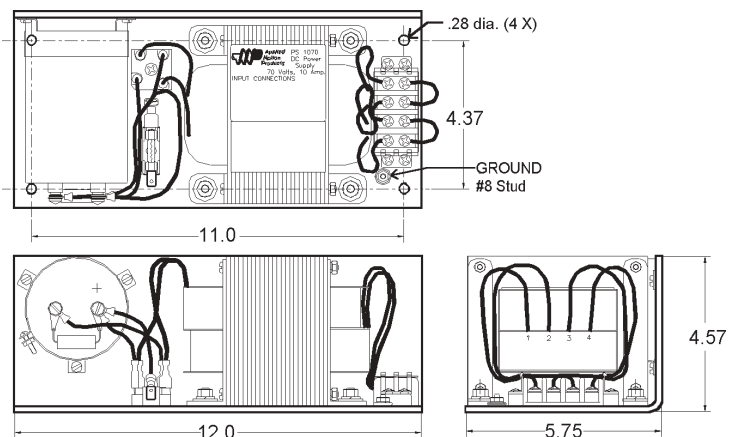
- Maximum Operating Ambient Temperature: 50°C.
- Power Supply Derating: 0.2A/°C above 35°C ambient.

PS1070 Specifications:

Output

- 67 VDC with 120 VAC line and 10 Amp. Full Load: 670 watts.
- Minimum Voltage: 50.5 at Low Line and Full Load.
- Maximum Voltage: 86 at High Line and No Load.
- Maximum Ripple: 2.0V peak-to-peak at Full Load.
- Connections:
 Positive Voltage – .25" faston on fuse holder.
 Negative Voltage – .25" faston on filter capacitor.

MECHANICAL OUTLINE





PS430 Power Supply

PS430

Power Supply
4 amps, 30 VDC

Features

- 30 VDC 4 amp unregulated motor supply
- 5 VDC $\pm 5\%$ 500 mA regulated logic power supply
- fuse protected outputs
- screw terminal AC input connector
- 120 or 240 VAC, 50-60 Hz
- power on LEDs
- screw terminal connectors
- made in USA
- ideal for use with A.M.P. step motor drives: 1335, 2035, 2035 O, 3535, 3535 O, 3540 M, 3540 MO
- includes mounting holes for 057A oscillator/interface and one 2035, 2035 O, 3535, 3535 O, 3540 M or 3540 MO drive on side panel

Description

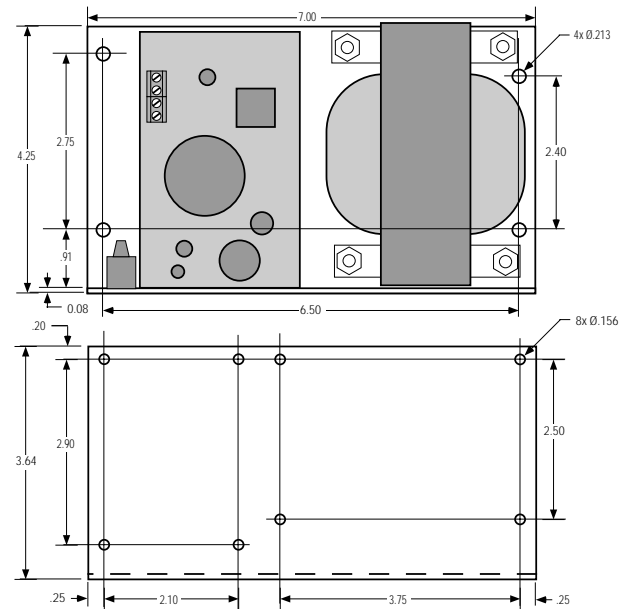
The PS430 is a linear, unregulated DC power supply designed for use with Applied Motion's step motor chopper drives model numbers 2035, 2035 O, 3535, 3535 O, 3540 M and 3540 MO. The PS430 can also be used with the 5560, 7080 or 7080i drive in applications not requiring maximum power.

The PS430 provides the user with a precise, well-regulated 5 VDC power source for logic circuitry.

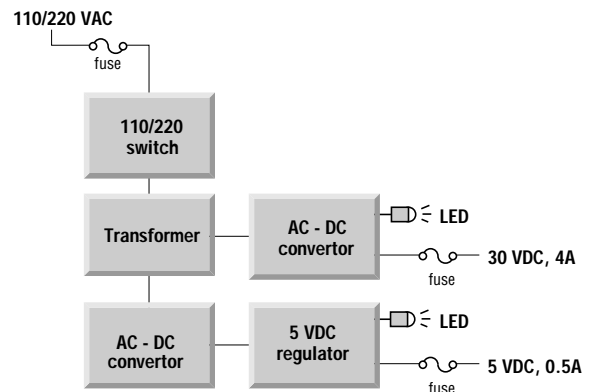
This power supply is available as a PC board and transformer mounted on an aluminum angle chassis.



MECHANICAL OUTLINE



BLOCK DIAGRAM



Description

The PS16 unregulated power supplies have been designed to complement **ADVANCED Motion Controls'** servo drives. Model PS16 is mounted on a base plate for multi-axis applications (mounting space provided on base plate for up to 6 drives). Model PS16-L is mounted on an "L"-shaped bracket for single-axis applications. These unregulated DC power sources are an excellent solution for most applications as **ADVANCED Motion Controls'** servo drives compensate for power supply output variations and AC ripple components.

PS16 Series power supplies are designed to provide the best cost-per-watt value. They have multiple windings for either 120 VAC (PS16L) or 240 VAC (PS16H) 50/60 Hz operation. These power supplies incorporate either a 30V, 36V or a 40V output transformer. The 30V and 40V transformers have four identical secondary windings and the 36V transformers have two identical secondary windings. These windings can be connected in series or in parallel for different output voltages and currents.

Ordering Note: For the L-Bracket option, add a "-L" to the end of each part number (e.g. PS16L40-L)

Power Supplies



PS16x30,36,40,60,72,80



PS16x30,36,40,60,72,80-L



PS16x120,160



PS16x120,160-L



PS16L170



PS16L170-L

Note: AC Power Cord included only with 120 VAC input models

Features

- ▲ Multiple Primary Windings: Either 120 VAC or 240 VAC, 50/60 Hz Operation
- ▲ Isolation Transformer on All Power Supply Models Except the PS16L170 and PS16L170-L
- ▲ 30 VDC, 36 VDC or 40 VDC Secondary Output Winding Taps
- ▲ Small Size, Low Cost, Ease of Use

Agency Approvals



Compliant with European CE for both the Class A EMC Directive 2004/108/EC on Electromagnetic Compatibility (specifically EN 61000-6-4:2007 and EN 61000-6-2:2005) and LVD requirements of directive 2006/95/EC (specifically EN 60204-1:2006), a low voltage directive to protect users from electrical shock.



RoHS (Reduction of Hazardous Substances) is intended to prevent hazardous substances such as lead from being manufactured in electrical and electronic equipment.

Power Supplies

Model Number	DC Output Voltage	Output Current	Output Power	Isolation
PS16L30	30 VDC	27 A	800 W	YES
PS16L36	36 VDC	22 A	800 W	YES
PS16L40	40 VDC	20 A	800 W	YES
PS16L60	60 VDC	13 A	800 W	YES
PS16L72	72 VDC	11 A	800 W	YES
PS16L80	80 VDC	10 A	800 W	YES
PS16L120	120 VDC	7 A	800 W	YES
PS16L160	160 VDC	5 A	800 W	YES
PS16L170	170 VDC	15 A	2550 W	NO
PS16H30	30 VDC	27 A	800 W	YES
PS16H36	36 VDC	22 A	800 W	YES
PS16H40	40 VDC	20 A	800 W	YES
PS16H60	60 VDC	13 A	800 W	YES
PS16H72	72 VDC	11 A	800 W	YES
PS16H80	80 VDC	10 A	800 W	YES
PS16H120	120 VDC	7 A	800 W	YES
PS16H160	160 VDC	5 A	800 W	YES

**120 VAC
Single
Phase Input**

**240 VAC
Single
Phase Input**

SPECIFICATIONS

Power Specifications (120 VAC Single Phase Power Supplies)										
Description	Units	PS16L30	PS16L36	PS16L40	PS16L60	PS16L72	PS16L80	PS16L120	PS16L160	PS16L170
AC Supply Voltage Input	VAC	120								
AC Supply Input Frequency	Hz	50-60 Hz								
AC Supply Input Phases	-	Single Phase								
Output Voltage	VDC	30	36	40	60	72	80	120	160	170
Current Output	A	27	22	20	13	11	10	7	5	15

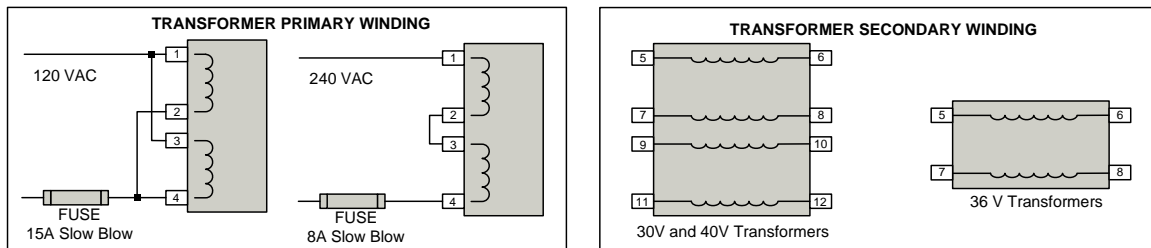
Power Specifications (240 VAC Single Phase Power Supplies)										
Description	Units	PS16H30	PS16H36	PS16H40	PS16H60	PS16H72	PS16H80	PS16H120	PS16H160	PS16H160
AC Supply Voltage Input	VAC	240								
AC Supply Input Frequency	Hz	50-60 Hz								
AC Supply Input Phases	-	Single Phase								
Output Voltage	VDC	30	36	40	60	72	80	120	160	160
Current Output	A	27	22	20	13	11	10	7	5	5

Mechanical Specifications			
Description	Units	PS16	PS16-L
AC Input Connector ¹	-	AC Cord Supplied	
DC Output Connector	-	Screw Terminals	Flying Leads
Size (H x W x D) ²	mm (in)	330.2 x 266.7 x 152.4 (13.00 x 10.50 x 6.00)	
Weight	kg (lbs)	11.3 (25)	
			9.5 (21)

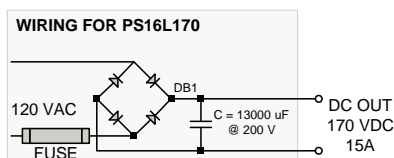
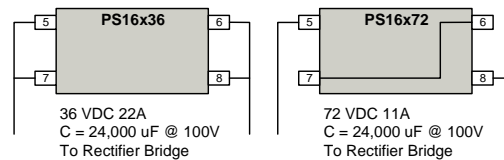
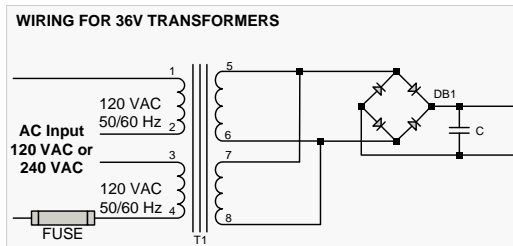
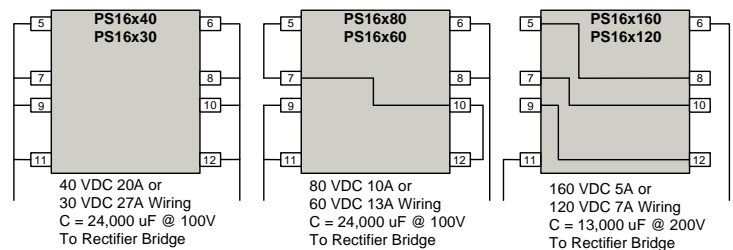
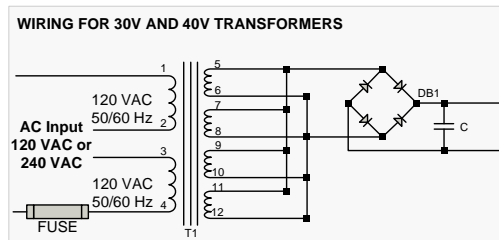
Notes

1. AC Cord included with 120 VAC input models only.
2. Worst case depth dimension. Depth varies with model number. See mounting dimensions for additional details.

BLOCK DIAGRAMS

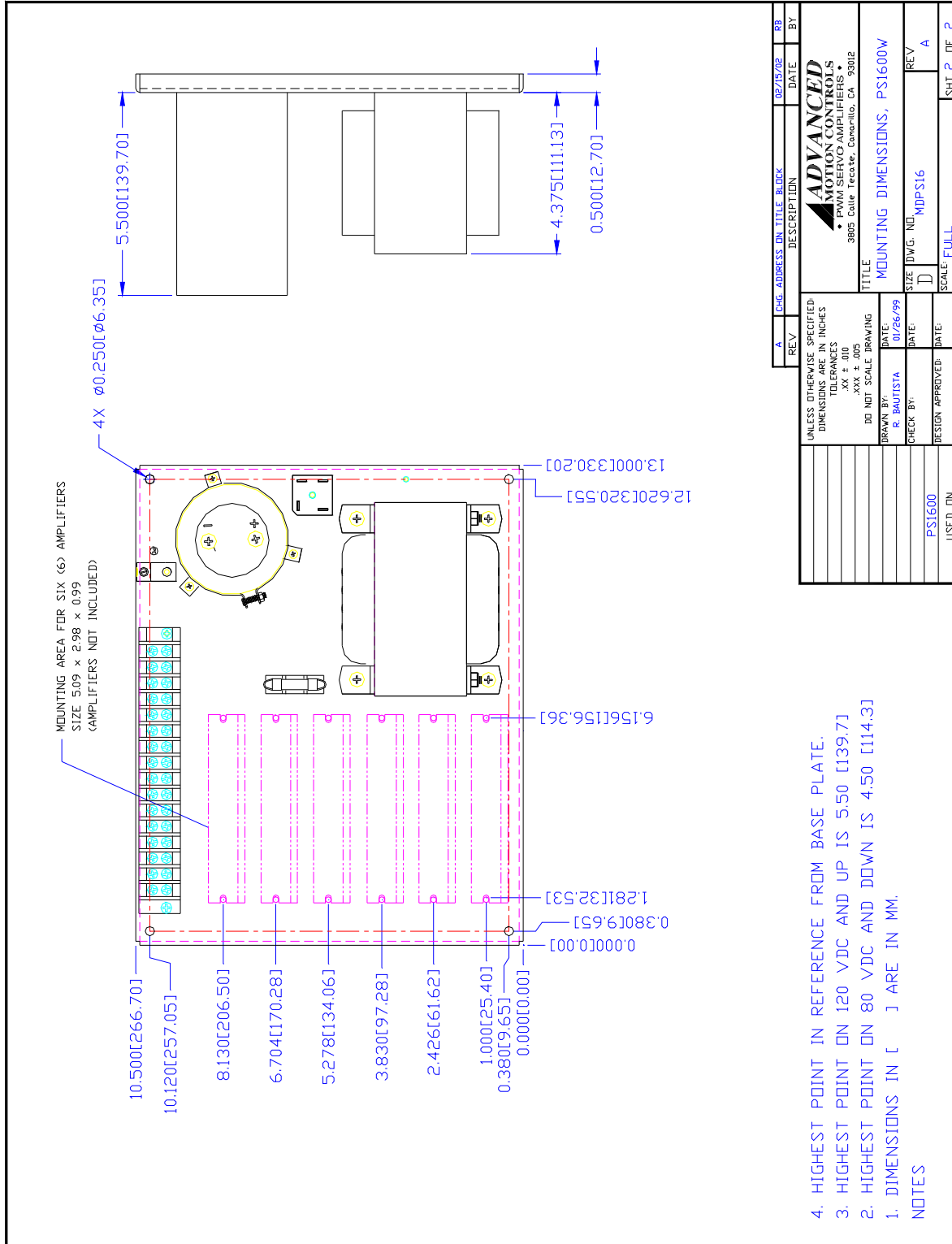


*Contact factory prior to rewiring transformer primary or secondary



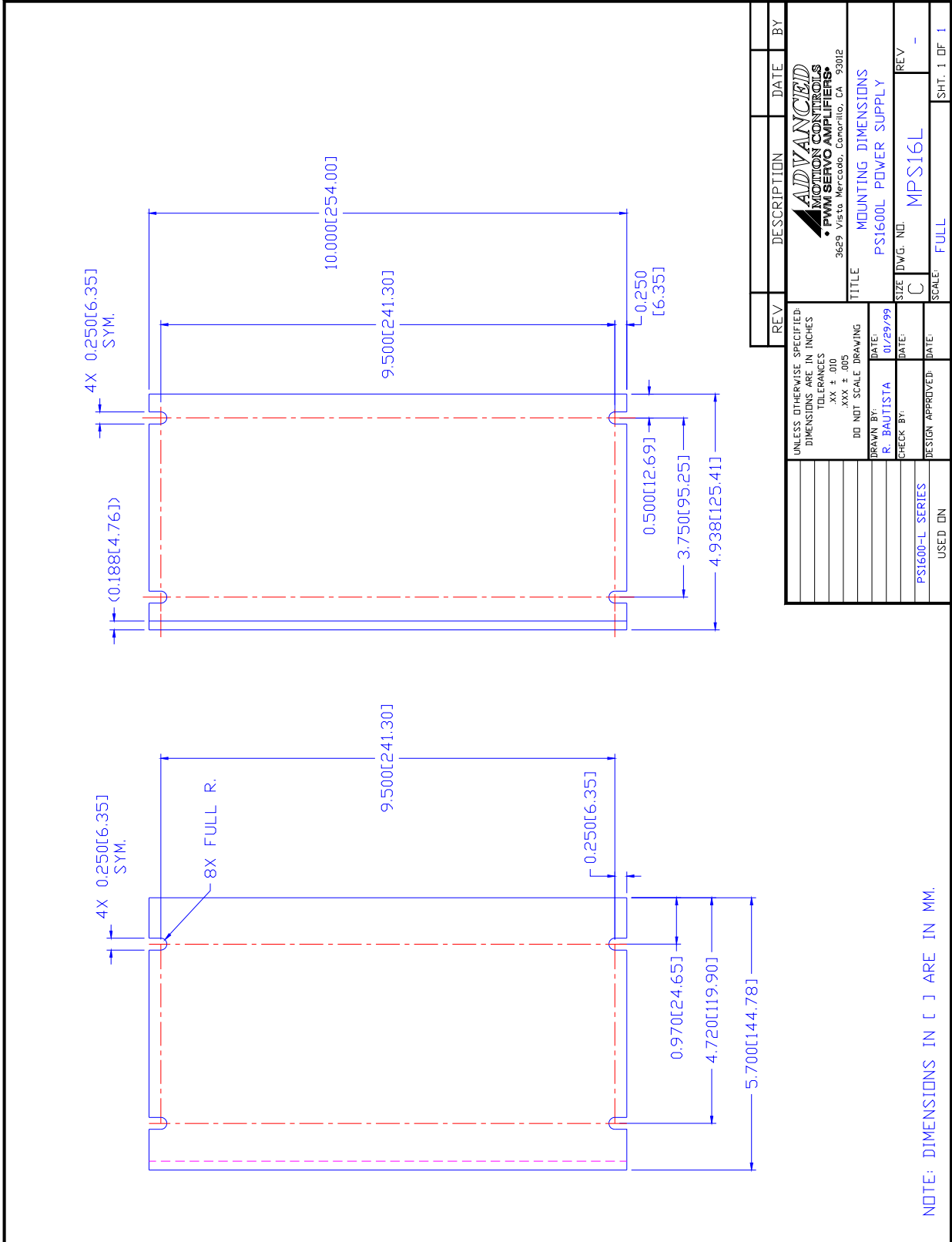
MOUNTING DIMENSIONS

Mounting Dimensions for PS16



- NOTES**
1. DIMENSIONS IN [] ARE IN MM.
 2. HIGHEST POINT ON 80 VDC AND DOWN IS 4.50 [114.3]
 3. HIGHEST POINT ON 120 VDC AND UP IS 5.50 [139.7]
 4. HIGHEST POINT IN REFERENCE FROM BASE PLATE.

Mounting Dimensions for PS16-L



NOTE: DIMENSIONS IN [] ARE IN MM.

REV	DESCRIPTION	DATE	BY
<p>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES XXX ± .005 DO NOT SCALE DRAWING</p>			
DRAWN BY:		DATE:	
R. BAUTISTA		01/29/99	
CHECK BY:		DATE:	
DESIGN APPROVED:		DATE:	
PS1600-L SERIES			
USED ON			
<p>ADVANCED MOTION CONTROLS • PWM SERVO AMPLIFIERS 3629 Vista Mercedo, Camarillo, CA 93012</p>			
TITLE: MOUNTING DIMENSIONS			
PS1600L POWER SUPPLY			
SIZE:	DWG. NO.:	REV:	
C	MPS16L	-	
SCALE:	FULL		SHT. 1 OF 1

CUSTOMIZATION INFORMATION

ADVANCED Motion Controls' products are available in many configurations. All models listed in the selection tables of the website are readily available, standard product offerings.

ADVANCED Motion Controls also has the capability to promptly develop and deliver specified products for OEMs with volume requests. Our Applications and Engineering Departments will work closely with your design team through all stages of development in order to provide the best servo drive solution for your system. Equipped with on-site manufacturing for quick-turn customs capabilities, *ADVANCED* Motion Controls utilizes our years of engineering and manufacturing expertise to decrease your costs and time-to-market while increasing system quality and reliability. Feel free to contact Applications Engineering for further information and details.

Examples of Customized Products

- | | |
|--------------------------------|-----------------------------------|
| ▲ Optimized Footprint | ▲ Tailored Project File |
| ▲ Private Label Software | ▲ Silkscreen Branding |
| ▲ OEM Specified Connectors | ▲ Optimized Base Plate |
| ▲ No Outer Case | ▲ Increased Current Limits |
| ▲ Increased Current Resolution | ▲ Increased Voltage Range |
| ▲ Increased Temperature Range | ▲ Conformal Coating |
| ▲ Custom Control Interface | ▲ Multi-Axis Configurations |
| ▲ Integrated System I/O | ▲ Reduced Profile Size and Weight |

Available Accessories

ADVANCED Motion Controls offers a variety of accessories designed to facilitate drive integration into a servo system. Visit www.a-m-c.com to see which accessories will assist with your application design and implementation.



Description

The PS30A non-isolated unregulated power supplies are designed to complement **ADVANCED Motion Controls'** high voltage servo drives. These power supplies contain a rectifier bridge and filter capacitors to generate the DC bus internally from the AC input power. These DC power supplies are an excellent solution for multi-axis applications since **ADVANCED** Motion Controls' servo drives compensate for power supply output variations and AC ripple components.

- ▲ Surface-Mount Technology
- ▲ Accepts Three Phase or Single Phase AC Supply
- ▲ Built-In Shunt Regulator with Bicolor LED Indicator
- ▲ External Shunt Resistor Provisions
- ▲ Compact Design

Power Ratings

Model Number	AC Input Supply	DC Output Voltage	Output Current	Output Power
PS30A	240 VAC	340 VDC	30 A	10 kW
PS30A-LV	120 VAC	170 VDC	30 A	5.1 kW



PS30A Series Power Supply

Operation

The DC bus voltage is 1.4 times AC voltage (RMS), e.g. 340 VDC from 240 VAC for the PS30A and 170 VDC from 120 VAC for the PS30A-LV. During braking much of the stored mechanical energy is fed back into the power supply and charges the bus capacitor to a higher voltage. If this voltage reaches the drive's over-voltage shutdown point, output current and braking will cease. To ensure smooth braking of large inertial loads, a built-in shunt regulator is provided.

The shunt regulator will switch on the internal power resistor when the bus voltage reaches the shunt switch-on voltage. This allows the bus capacitor to discharge and thus lower the bus voltage. During regeneration, the regeneration LED will blink (solid green is non-regeneration mode). An external shunt resistor can be added parallel to the internal resistor (between C2-3 and C2-4). Removing the jumper between C2-4 and C2-5 will disable the internal shunt resistor.

Agency Approvals



US and Canadian safety compliance with UL 508c, the industrial standard for power conversion electronics. UL registered under file number E140173. Note that machine components compliant with UL are considered UL registered as opposed to UL listed, as would be the case for commercial products.



Compliant with European CE for both the Class A EMC Directive 2004/108/EC on Electromagnetic Compatibility (specifically EN 61000-6-4:2007 and EN 61000-6-2:2005) and LVD requirements of directive 2006/95/EC (specifically EN 60204-1:2006), a low voltage directive to protect users from electrical shock.



RoHS (Reduction of Hazardous Substances) is intended to prevent hazardous substances such as lead from being manufactured in electrical and electronic equipment.

SPECIFICATIONS

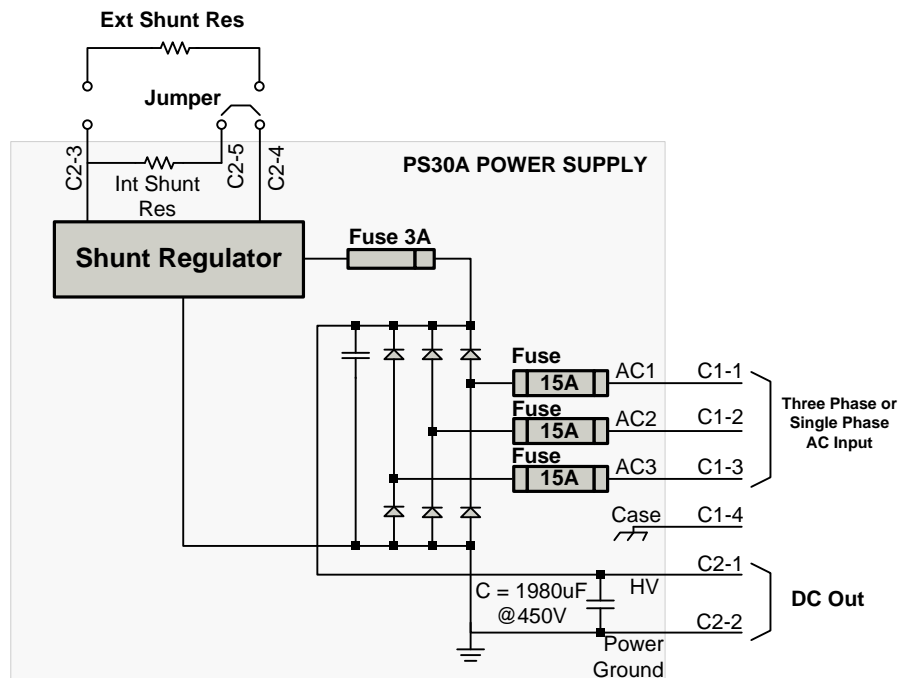
Power Specifications			
Description	Units	PS30A	PS30A-LV
AC Supply Voltage Input	VAC	240	120
AC Supply Input Frequency	Hz	50-60	
AC Supply Input Phases	-	1 or 3	
Continuous DC Current Output	A	15	
Peak DC Current Output ¹	A	30	
Internal Shunt Resistor	Ω	90	
Internal Shunt Resistor Power Rating	W	150	
Shunt Regulator Circuit Continuous Current Rating	A	3	
Shunt Regulator Switch-On Voltage	VDC	390	190
Bus Capacitance (@450V)	μF	1980	4000
Shunt Fuse (motor delay rated @250 VAC)	A	3	
AC Line Fuses (slow blow rated @250 VAC)	A	15	

Mechanical Specifications			
Description	Units	PS30A	PS30A-LV
AC Connector C1	-	Screw Terminals	
DC Out and External Shunt Connector: C2	-	Screw Terminals	
Size (H x W x D)	mm (in)	203.20 x 140.88 x 77.64 (8.00 x 5.55 x 3.06)	
Weight	kg (lbs)	1.88 (4.14)	
Shunt Fuse (Diameter/ Length)	mm (in)	6.35 / 31.75 (0.25 / 1.25)	
AC Line Fuses Size (Diameter / Length)	mm (in)	6.35 / 31.75 (0.25 / 1.25)	

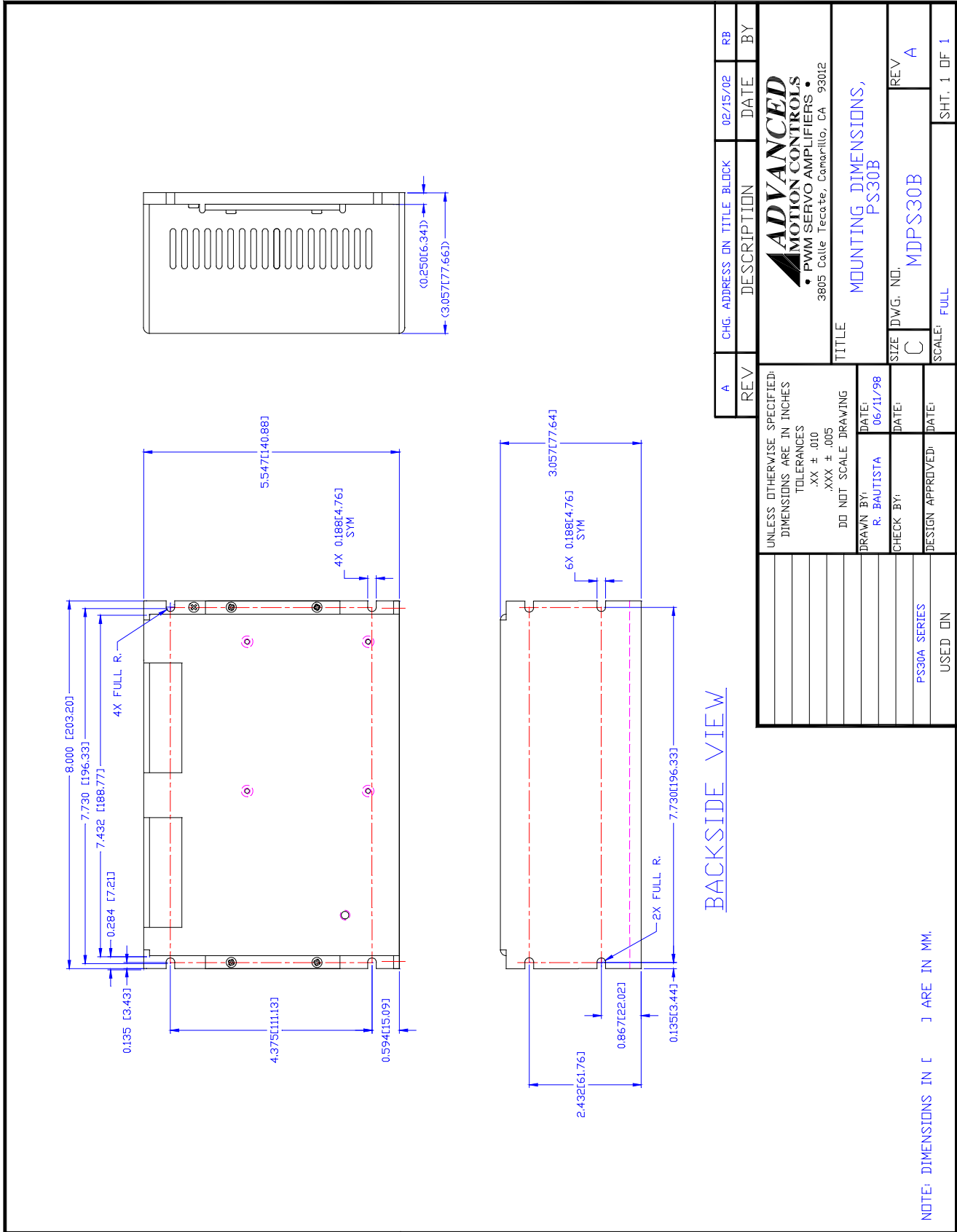
Notes

- Maximum peak current is ~2 seconds.

BLOCK DIAGRAM



MOUNTING DIMENSIONS



BACKSIDE VIEW

REV	CHG. ADDRESS IN TITLE BLOCK	DATE	BY
A		02/15/02	RB

<p>ADVANCED MOTION CONTROLS • PWM SERVO AMPLIFIERS • 3805 Calle Tecate, Comarillo, CA 93012</p>	
<p>TITLE: MOUNTING DIMENSIONS, PS30B</p>	
SIZE: C	REV: A
IDWG: MDPS30B	SCALE: FULL
SHT. 1 OF 1	

NOTE: DIMENSIONS IN [] ARE IN MM.

CUSTOMIZATION INFORMATION

ADVANCED Motion Controls' products are available in many configurations. All models listed in the selection tables of the website are readily available, standard product offerings.

ADVANCED Motion Controls also has the capability to promptly develop and deliver specified products for OEMs with volume requests. Our Applications and Engineering Departments will work closely with your design team through all stages of development in order to provide the best servo drive solution for your system. Equipped with on-site manufacturing for quick-turn customs capabilities, ADVANCED Motion Controls utilizes our years of engineering and manufacturing expertise to decrease your costs and time-to-market while increasing system quality and reliability. Feel free to contact Applications Engineering for further information and details.

Examples of Customized Products

- ▲ Optimized Footprint
- ▲ Private Label Software
- ▲ OEM Specified Connectors
- ▲ No Outer Case
- ▲ Increased Current Resolution
- ▲ Increased Temperature Range
- ▲ Custom Control Interface
- ▲ Integrated System I/O
- ▲ Tailored Project File
- ▲ Silkscreen Branding
- ▲ Optimized Base Plate
- ▲ Increased Current Limits
- ▲ Increased Voltage Range
- ▲ Conformal Coating
- ▲ Multi-Axis Configurations
- ▲ Reduced Profile Size and Weight

Available Accessories

ADVANCED Motion Controls offers a variety of accessories designed to facilitate drive integration into a servo system. Visit www.a-m-c.com to see which accessories will assist with your application design and implementation.



Description

The PS50A non-isolated unregulated power supplies are designed to complement **ADVANCED Motion Controls'** high voltage servo drives. These power supplies contain a rectifier bridge and filter capacitors to generate the DC bus internally from the AC input power. These DC power supplies are an excellent solution for multi-axis applications since **ADVANCED** Motion Controls' servo drives compensate for power supply output variations and AC ripple components.

- ▲ Surface-Mount Technology
- ▲ Accepts Three Phase or Single Phase AC Supply
- ▲ Built-In Shunt Regulator with Bicolor LED Indicator
- ▲ External Shunt Resistor Provisions
- ▲ Compact Design

Power Ratings

Model Number	AC Input Supply	DC Output Voltage	Output Current	Output Power
PS50A	240 VAC	340 VDC	50 A	17 kW
PS50A-LV	120 VAC	170 VDC	50 A	8.5 kW



PS50A Series Power Supply

Operation

The DC bus voltage is 1.4 times AC voltage (RMS), e.g. 340 VDC from 240 VAC for the PS50A and 170 VDC from 120 VAC for the PS50A-LV. During braking much of the stored mechanical energy is fed back into the power supply and charges the bus capacitor to a higher voltage. If this voltage reaches the drive's over-voltage shutdown point, output current and braking will cease. To ensure smooth braking of large inertial loads, a built-in shunt regulator is provided.

The shunt regulator will switch on the internal power resistor when the bus voltage reaches the shunt switch-on voltage. This allows the bus capacitor to discharge and thus lower the bus voltage. During regeneration, the regeneration LED will blink (solid green is non-regeneration mode). An external shunt resistor can be added parallel to the internal resistor (between shunt terminals 1 and 2). Removing the jumper between shunt terminals 2 and 3 will disable the internal shunt resistor.

Agency Approvals



US and Canadian safety compliance with UL 508c, the industrial standard for power conversion electronics. UL registered under file number E140173. Note that machine components compliant with UL are considered UL registered as opposed to UL listed, as would be the case for commercial products.



Compliant with European CE for both the Class A EMC Directive 2004/108/EC on Electromagnetic Compatibility (specifically EN 61000-6-4:2007 and EN 61000-6-2:2005) and LVD requirements of directive 2006/95/EC (specifically EN 60204-1:2006), a low voltage directive to protect users from electrical shock.



RoHS (Reduction of Hazardous Substances) is intended to prevent hazardous substances such as lead from being manufactured in electrical and electronic equipment.

SPECIFICATIONS

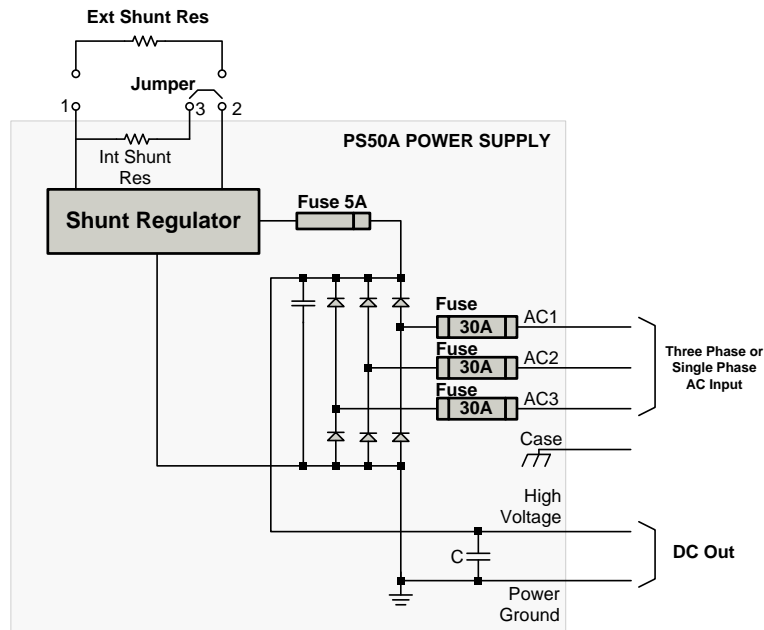
Power Specifications			
Description	Units	PS50A	PS50A-LV
AC Supply Voltage Input	VAC	240	120
AC Supply Input Frequency	Hz	50-60	
AC Supply Input Phases	-	1 or 3	
Continuous DC Current Output	A	30	
Peak DC Current Output ¹	A	50	
Internal Shunt Resistor	Ω	20	
Internal Shunt Resistor Power Rating	W	180	
Shunt Regulator Switch-On Voltage	VDC	390	190
Bus Capacitance (@450V)	μF	2310	7500
Shunt Fuse (motor delay rated @500 VAC)	A	5	
AC Line Fuses (slow blow rated @250 VAC)	A	30	

Mechanical Specifications			
Description	Units	PS50A	PS50A-LV
AC Connector C1	-	Screw Terminals	
DC Out and External Shunt Connector: C2	-	Screw Terminals	
Size (H x W x D)	mm (in)	234.92 x 195.71 x 79.68 (9.25 x 7.71 x 3.14)	
Weight	kg (lbs)	2.61 (5.74)	
Shunt Fuse (Diameter / Length)	mm (in)	10.32 / 38.10 (0.41 / 1.50)	
AC Line Fuses Size (Diameter / Length)	mm (in)	10.32 / 38.10 (0.41 / 1.50)	

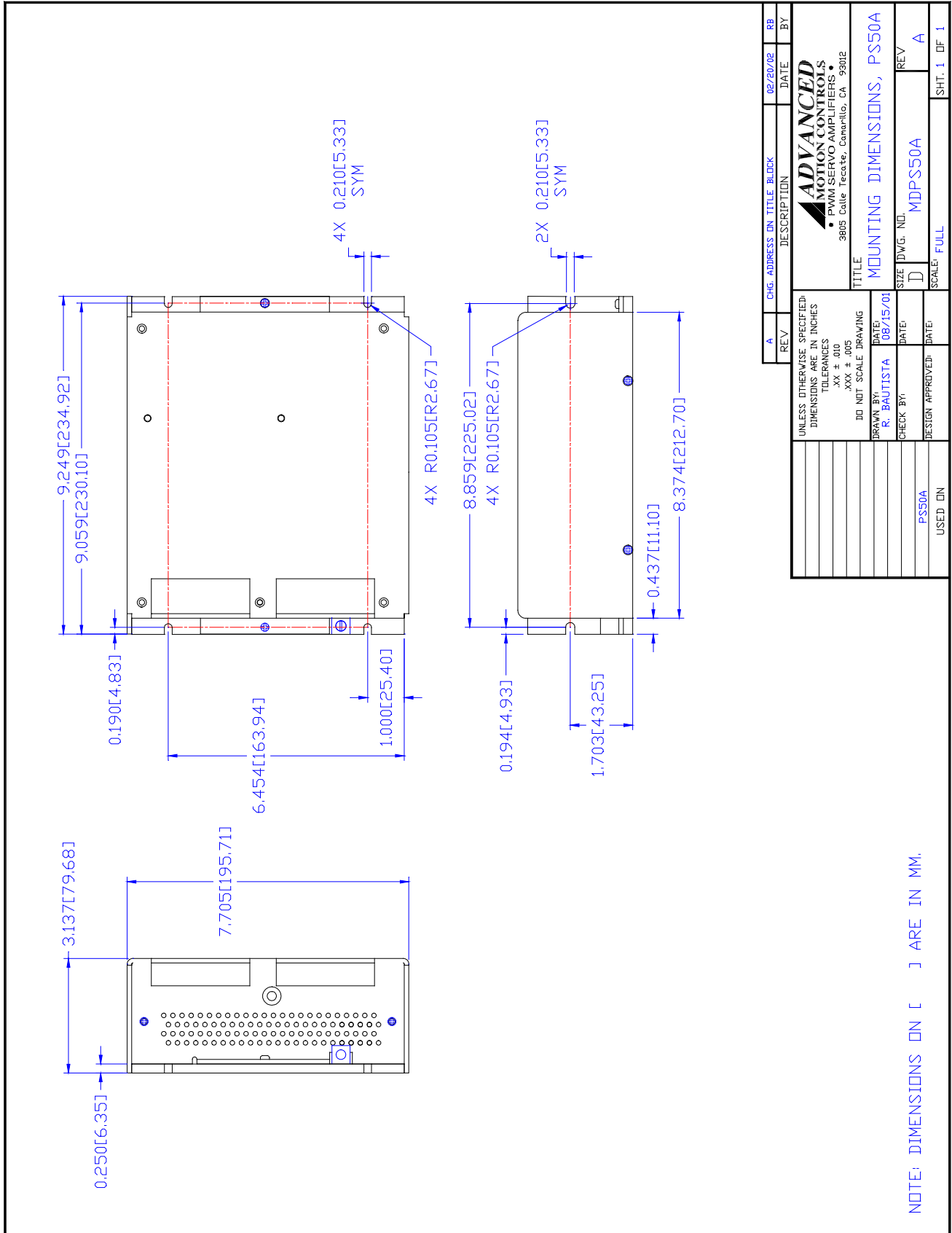
Notes

- Maximum peak current is ~2 seconds.

BLOCK DIAGRAM



MOUNTING DIMENSIONS



CUSTOMIZATION INFORMATION

ADVANCED Motion Controls' products are available in many configurations. All models listed in the selection tables of the website are readily available, standard product offerings.

ADVANCED Motion Controls also has the capability to promptly develop and deliver specified products for OEMs with volume requests. Our Applications and Engineering Departments will work closely with your design team through all stages of development in order to provide the best servo drive solution for your system. Equipped with on-site manufacturing for quick-turn customs capabilities, ADVANCED Motion Controls utilizes our years of engineering and manufacturing expertise to decrease your costs and time-to-market while increasing system quality and reliability. Feel free to contact Applications Engineering for further information and details.

Examples of Customized Products

- | | |
|--------------------------------|-----------------------------------|
| ▲ Optimized Footprint | ▲ Tailored Project File |
| ▲ Private Label Software | ▲ Silkscreen Branding |
| ▲ OEM Specified Connectors | ▲ Optimized Base Plate |
| ▲ No Outer Case | ▲ Increased Current Limits |
| ▲ Increased Current Resolution | ▲ Increased Voltage Range |
| ▲ Increased Temperature Range | ▲ Conformal Coating |
| ▲ Custom Control Interface | ▲ Multi-Axis Configurations |
| ▲ Integrated System I/O | ▲ Reduced Profile Size and Weight |

Available Accessories

ADVANCED Motion Controls offers a variety of accessories designed to facilitate drive integration into a servo system. Visit www.a-m-c.com to see which accessories will assist with your application design and implementation.



Power Supplies

	Model Number	DC Output Voltage	Output Current	Output Power	Isolation
120 VAC Single Phase Input	PS300W24	24 VDC	12 A	300 W	YES
	PS300W48	48 VDC	6 A	300 W	YES
	PS300W72	72 VDC	3 A	220 W	YES
	PS300W96	96 VDC	3 A	300 W	YES
240 VAC Single Phase Input	PS300W170	170 VDC	15 A	2550 W	NO
	PS300H24	24 VDC	12 A	300 W	YES
	PS300H48	48 VDC	6 A	300 W	YES
	PS300H72	72 VDC	3 A	220 W	YES
	PS300H96	96 VDC	3 A	300 W	YES



PS300x24,48,72,96



PS300W170

Note: AC Power cord included with 120 VAC input models only

Description

The PS300 unregulated power supplies have been designed to complement **ADVANCED Motion Controls'** servo drives and to provide the user with a complete solution to single and multi-axis DC drive applications. These unregulated DC power sources are an excellent solution for most applications as **ADVANCED Motion Controls'** servo drives compensate for power supply output variations and AC ripple components.

PS300 Series power supplies are designed to provide the best cost-per-watt value. They have multiple primary windings for either 120 VAC (PS300W) or 240 VAC (PS300H) 50/60 Hz operation. These power supplies feature four identical secondary windings that can be connected in series or in parallel for different output voltages and currents.

Features

- ▲ Multiple Primary Windings: Either 120 VAC or 240 VAC, 50/60 Hz Operation
- ▲ 24 VDC Secondary Output Winding Taps
- ▲ Small Size, Low Cost, Ease of Use
- ▲ Isolation Transformer on All Power Supply Models Except PS300W170
- ▲ Slow Blow Fuse on AC Input

Approvals and Compliances



Compliant with European CE for both the Class A EMC Directive 2004/108/EC on Electromagnetic Compatibility (specifically EN 61000-6-4:2007 and EN 61000-6-2:2005) and LVD requirements of directive 2006/95/EC (specifically EN 60204-1:2006), a low voltage directive to protect users from electrical shock.



RoHS (Reduction of Hazardous Substances) is intended to prevent hazardous substances such as lead from being manufactured in electrical and electronic equipment.

SPECIFICATIONS

Power Specifications (120 VAC Single Phase Power Supplies)						
Description	Units	PS300W24	PS300W48	PS300W72	PS300W96	PS300W170
AC Supply Voltage Input	VAC	120				
AC Supply Input Frequency	Hz	50-60 Hz				
AC Supply Input Phases	-	Single Phase				
Output Voltage	VDC	24	48	72	96	170
Current Output	A	12	6	3	3	15

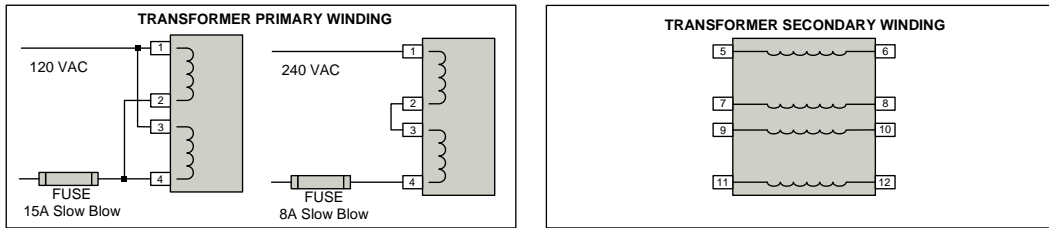
Power Specifications (240 VAC Single Phase Power Supplies)					
Description	Units	PS300H24	PS300H48	PS300H72	PS300H96
AC Supply Voltage Input	VAC	240			
AC Supply Input Frequency	Hz	50-60 Hz			
AC Supply Input Phases	-	Single Phase			
Output Voltage	VDC	24	48	72	96
Current Output	A	12	6	3	3

Mechanical Specifications		
Description	Units	PS300 Series
AC Input Connector ¹	-	AC Power Cord
DC Output Connector	-	Flying Leads
Size (H x W x D) ²	mm (in)	218.44 x 102.87 x 139.70 (8.60 x 4.05 x 5.50)
Weight	kg (lbs)	4.53 (10)

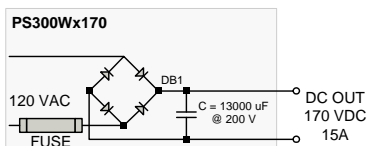
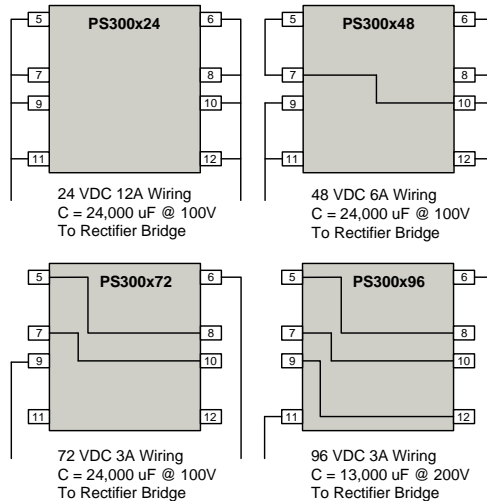
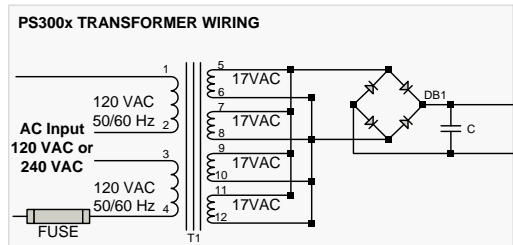
Notes

1. Power cord not included with 240 VAC input models.
2. Worst case depth dimension. Height varies with model number. See mounting dimensions for additional details.

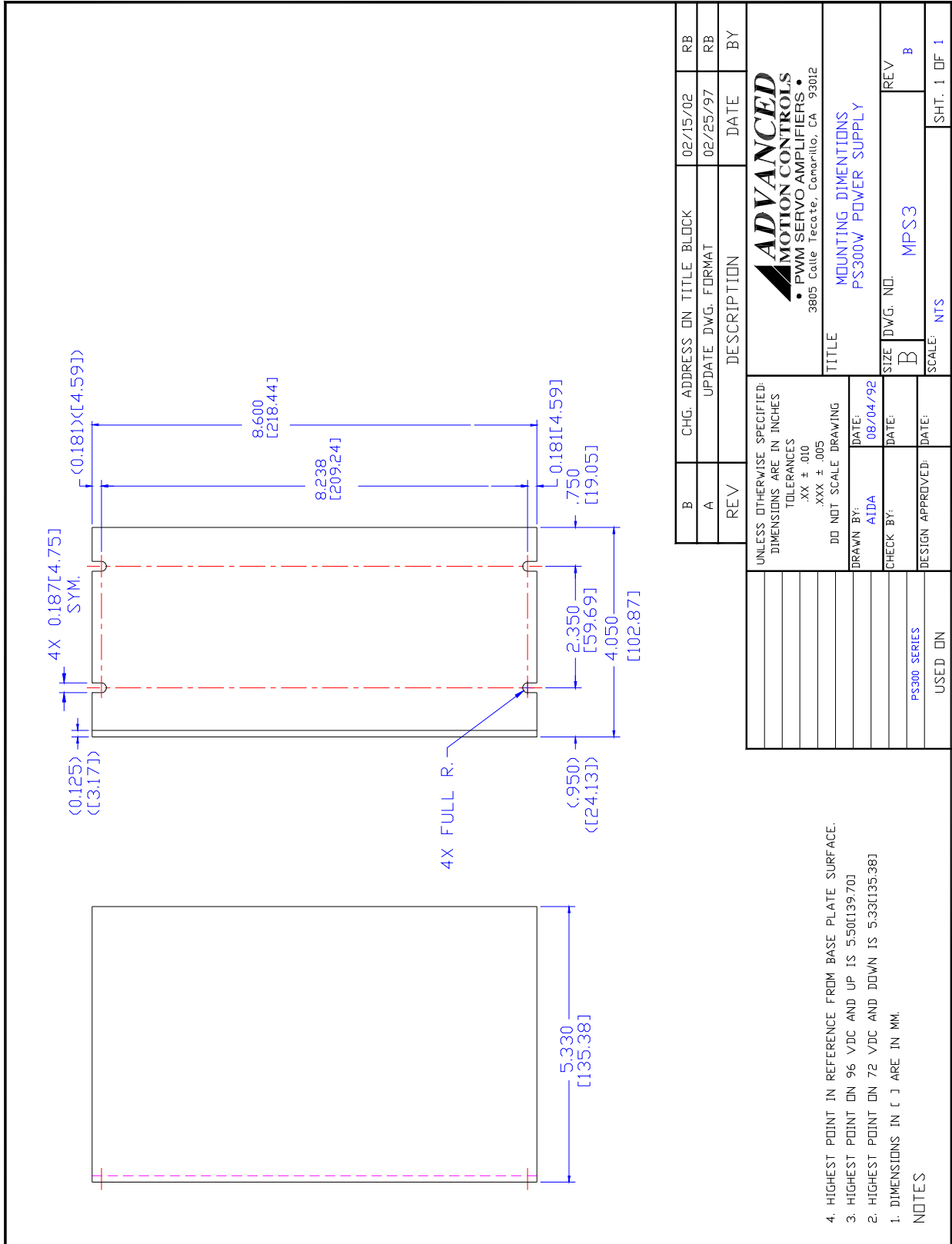
BLOCK DIAGRAMS



*Contact factory prior to rewiring transformer primary or secondary



MOUNTING DIMENSIONS



CUSTOMIZATION INFORMATION

ADVANCED Motion Controls' products are available in many configurations. All models listed in the selection tables of the website are readily available, standard product offerings.

ADVANCED Motion Controls also has the capability to promptly develop and deliver specified products for OEMs with volume requests. Our Applications and Engineering Departments will work closely with your design team through all stages of development in order to provide the best servo drive solution for your system. Equipped with on-site manufacturing for quick-turn customs capabilities, ADVANCED Motion Controls utilizes our years of engineering and manufacturing expertise to decrease your costs and time-to-market while increasing system quality and reliability. Feel free to contact Applications Engineering for further information and details.

Examples of Customized Products

- ▲ Optimized Footprint
- ▲ Private Label Software
- ▲ OEM Specified Connectors
- ▲ No Outer Case
- ▲ Increased Current Resolution
- ▲ Increased Temperature Range
- ▲ Custom Control Interface
- ▲ Integrated System I/O
- ▲ Tailored Project File
- ▲ Silkscreen Branding
- ▲ Optimized Base Plate
- ▲ Increased Current Limits
- ▲ Increased Voltage Range
- ▲ Conformal Coating
- ▲ Multi-Axis Configurations
- ▲ Reduced Profile Size and Weight

Available Accessories

ADVANCED Motion Controls offers a variety of accessories designed to facilitate drive integration into a servo system. Visit www.a-m-c.com to see which accessories will assist with your application design and implementation.



Power Supplies

	Model Number	DC Output Voltage	Output Current	Output Power	Isolation	Drives Accomodated
120 VAC Single Phase Input	PS2X3W24	24 VDC	12 A	300 W	YES	2
	PS4X3W24	24 VDC	12 A	300 W	YES	4
	PS2X3W48	48 VDC	6 A	300 W	YES	2
	PS4X3W48	48 VDC	6 A	300 W	YES	4
	PS2X3W72	72 VDC	3 A	220 W	YES	2
	PS2X3W96	96 VDC	3 A	300 W	YES	2
240 VAC Single Phase Input	PS2X3H24	24 VDC	12 A	300 W	YES	2
	PS2X3H48	48 VDC	6 A	300 W	YES	2
	PS4X3H48	48 VDC	6 A	300 W	YES	4
	PS2X3H72	72 VDC	3 A	220 W	YES	2
	PS2X3H96	96 VDC	3 A	300 W	YES	2



PS2X3x24,48,72,96



PS4X3x24,48

Description

The PS2X3 and PS4X3 unregulated power supplies have been designed to complement **ADVANCED Motion Controls'** servo drives and to provide the user with a complete solution to single and multi-axis DC drive applications. These unregulated DC power sources are an excellent solution for most applications as **ADVANCED Motion Controls'** servo drives compensate for power supply output variations and AC ripple components.

PS2X3 Series power supplies are designed to provide the best cost-per-watt value while mechanically hosting two servo drives. The **PS4X3** power supplies are identical to the PS2X3 power supplies except they have an extended mounting plate to accommodate two additional drives. Both series have multiple primary windings for either 120 VAC (PS2X3W) or 240 VAC (PS2X3H) 50/60 Hz operation. These power supplies feature four identical secondary windings that can be connected in series or in parallel for different output voltages and currents.

Features

- ▲ Multiple Primary Windings: Either 120 VAC or 240 VAC, 50/60 Hz Operation
- ▲ 24 VDC Secondary Output Winding Taps
- ▲ Small Size, Low Cost, Ease of Use
- ▲ Isolation Transformer on All PS2X300W and PS4X300W Models
- ▲ Slow Blow Fuse on AC Input

Approvals and Compliances

	US and Canadian safety compliance with UL 508c, the industrial standard for power conversion electronics. UL registered under file number E140173. Note that machine components compliant with UL are considered UL registered as opposed to UL listed, as would be the case for commercial products.
	Compliant with European CE for both the Class A EMC Directive 2004/108/EC on Electromagnetic Compatibility (specifically EN 61000-6-4:2007 and EN 61000-6-2:2005) and LVD requirements of directive 2006/95/EC (specifically EN 60204-1:2006), a low voltage directive to protect users from electrical shock.
	RoHS (Reduction of Hazardous Substances) is intended to prevent hazardous substances such as lead from being manufactured in electrical and electronic equipment.

SPECIFICATIONS

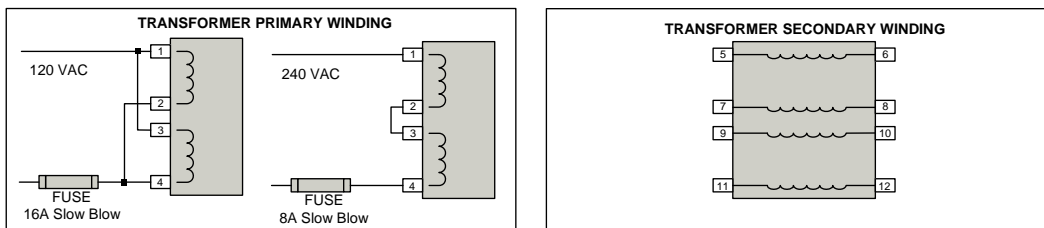
Power Specifications (120 VAC Single Phase Power Supplies)					
Description	Units	PS2X3W24 / PS4X3W24	PS2X3W48 / PS4X3W48	PS2X3W72	PS2X3W96
AC Supply Voltage Input	VAC	30 - 125			
AC Supply Input Frequency	Hz	50-60 Hz			
AC Supply Input Phases	-	Single Phase			
Output Voltage	VDC	24	48	72	96
Current Output	A	12	6	3	3
Power Specifications (240 VAC Single Phase Power Supplies)					
Description	Units	PS2X3H24	PS2X3H48 / PS4X3H48	PS2X3H72	PS2X3H96
AC Supply Voltage Input	VAC	45 - 240			
AC Supply Input Frequency	Hz	50-60 Hz			
AC Supply Input Phases	-	Single Phase			
Output Voltage	VDC	24	48	72	96
Current Output	A	12	6	3	3

Notes

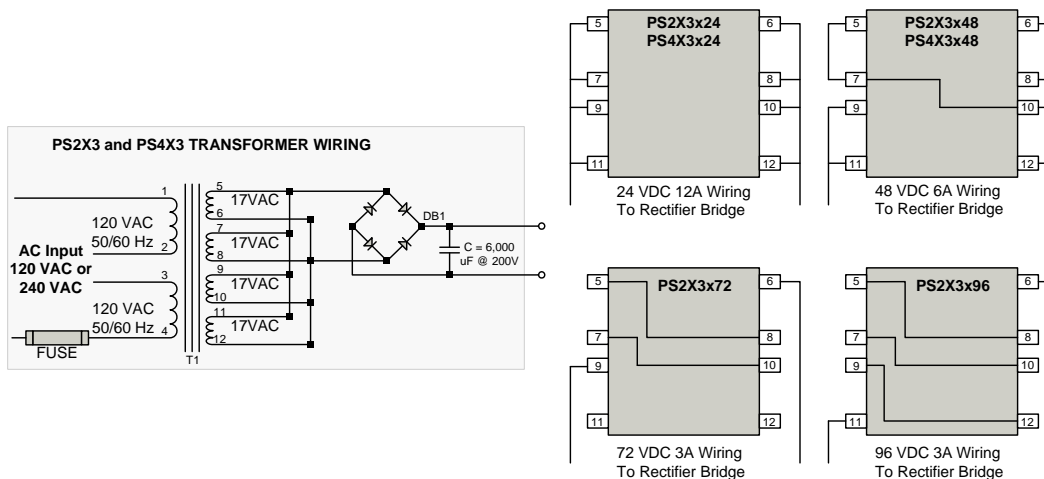
- Power ratings are identical for PS2X300W and PS4X300W series.

Mechanical Specifications					
Description	Units	PS2X3	PS2X3	PS4X3	PS4X3
AC Input Connector	-	AC Cord (not included with power supply)			
DC Output Connector	-	Flying Leads			
Size (H x W x D)	mm (in)	228.6 x 146.1 x 88.1 (9.00 x 5.75 x 3.47)		286.4 x 146.1 x 88.1 (11.28 x 5.75 x 3.47)	
Weight	kg (lbs)	4.1 (9)		4.4 (9.6)	

BLOCK DIAGRAMS

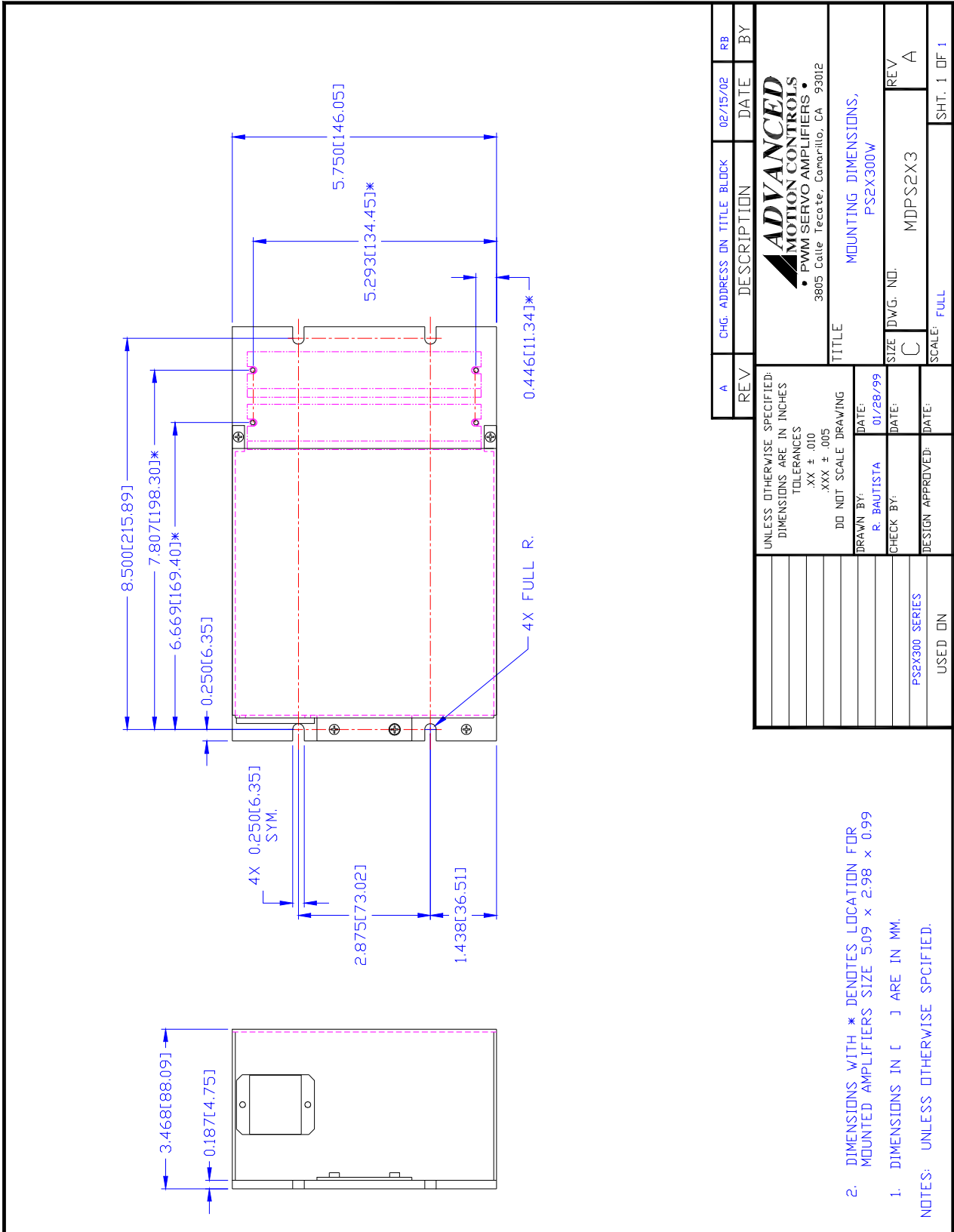


*Contact factory prior to rewiring transformer primary or secondary

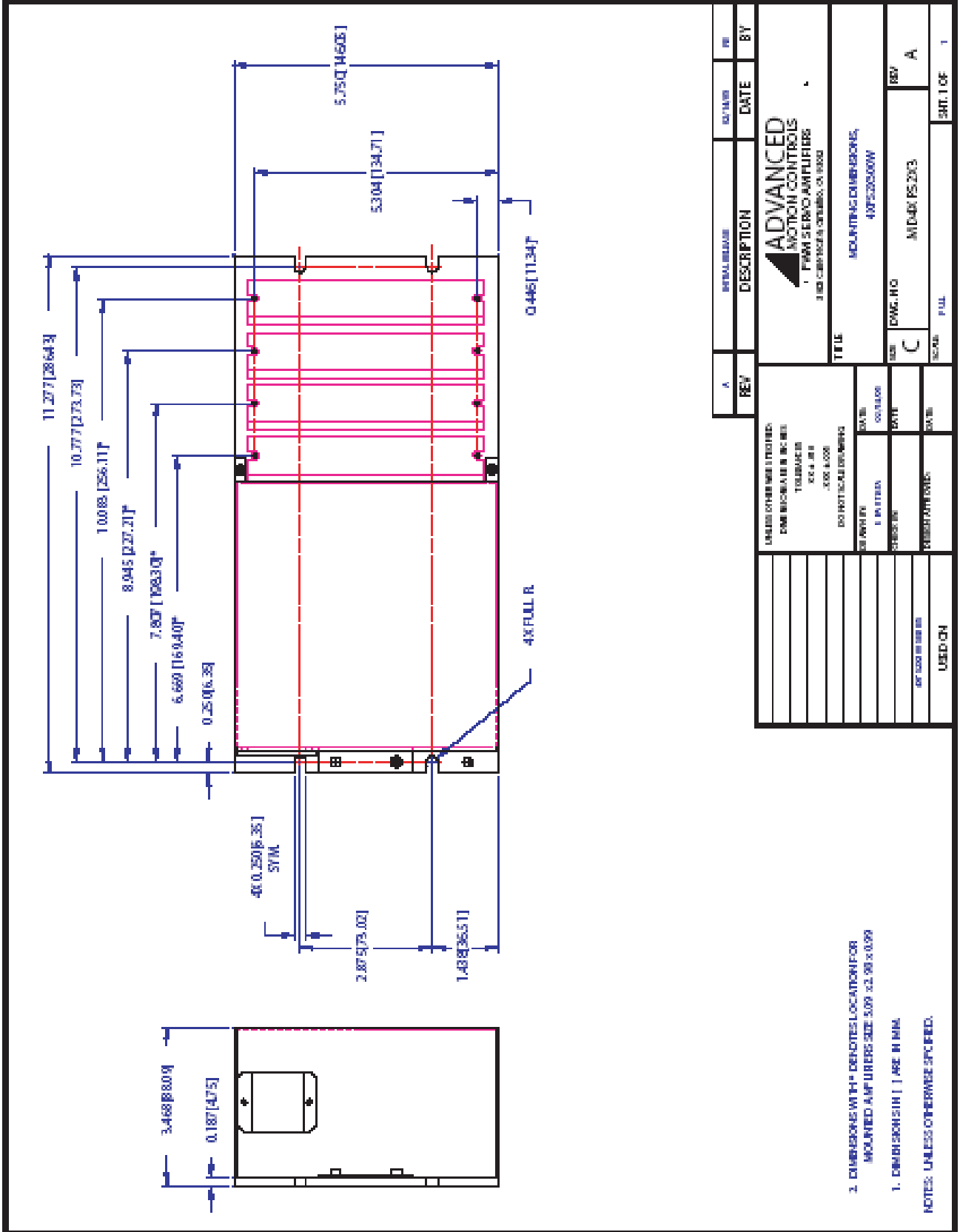


MOUNTING DIMENSIONS

Mounting Dimensions for PS2X3 Models



Mounting Dimensions for PS4X3 Models



CUSTOMIZATION INFORMATION

ADVANCED Motion Controls' products are available in many configurations. All models listed in the selection tables of the website are readily available, standard product offerings.

ADVANCED Motion Controls also has the capability to promptly develop and deliver specified products for OEMs with volume requests. Our Applications and Engineering Departments will work closely with your design team through all stages of development in order to provide the best servo drive solution for your system. Equipped with on-site manufacturing for quick-turn customs capabilities, ADVANCED Motion Controls utilizes our years of engineering and manufacturing expertise to decrease your costs and time-to-market while increasing system quality and reliability. Feel free to contact Applications Engineering for further information and details.

Examples of Customized Products

- ▲ Optimized Footprint
- ▲ Private Label Software
- ▲ OEM Specified Connectors
- ▲ No Outer Case
- ▲ Increased Current Resolution
- ▲ Increased Temperature Range
- ▲ Custom Control Interface
- ▲ Integrated System I/O
- ▲ Tailored Project File
- ▲ Silkscreen Branding
- ▲ Optimized Base Plate
- ▲ Increased Current Limits
- ▲ Increased Voltage Range
- ▲ Conformal Coating
- ▲ Multi-Axis Configurations
- ▲ Reduced Profile Size and Weight

Available Accessories

ADVANCED Motion Controls offers a variety of accessories designed to facilitate drive integration into a servo system. Visit www.a-m-c.com to see which accessories will assist with your application design and implementation.



CliQ Din Rail Power Supply

24V 120W 1 Phase

DRP024V120W1AA



DRP024V120W1AA

120Watts

Total Power: 120Watts
Input Voltage: 85-264Vac
of Output: Single

Model number DRP024V120W1AA

Reference no. EOE12010002

OUTPUT (DC)

Output power 120W

Output voltage range 22 - 28V

Output current 5A

Residual ripple/peak switching (20MHz) < 50mV / < 240mVpp
 (@ nominal values)

Mains buffering at nominal load (typ.) > 35ms @ 115Vac, > 70ms @ 230Vac

Line regulation < 0.5% typ. (@ 85 - 264Vac input, 100% load)

Load regulation < 1% typ. (with rated input, 0 - 100% load)

INPUT (AC)

Input voltage range 85 - 264Vac (DC input range 120 - 375Vdc)

Input frequency 47 - 63Hz

Nominal current 1.4A @ 115Vac, 0.8A @ 230Vac

Efficiency > 84% typ.

Power factor Conform to EN61000-3-2 STD

Inrush current limitation I²t (+25°C) typ. < 80A @ 115Vac

Leakage current < 1mA

MECHANICAL DESIGN

Case cover Aluminium (Al5052)

Dimensions (L x W x H) 121mm x 50mm x 118.2mm

Unit weight / box 0.540kg

MTBF > 800,000 hrs

Noise Sound pressure level (SPL) < 40dBA

Cooling Convection

Input terminal M4 x 3

Output terminal M4 x 2 (2 pcs.)

Mounting rail Standard TS35 mounting rail

Shock proof IEC60068-2-27

Vibration IEC60068-2-6

Protection structure EN60950 meet IPX0

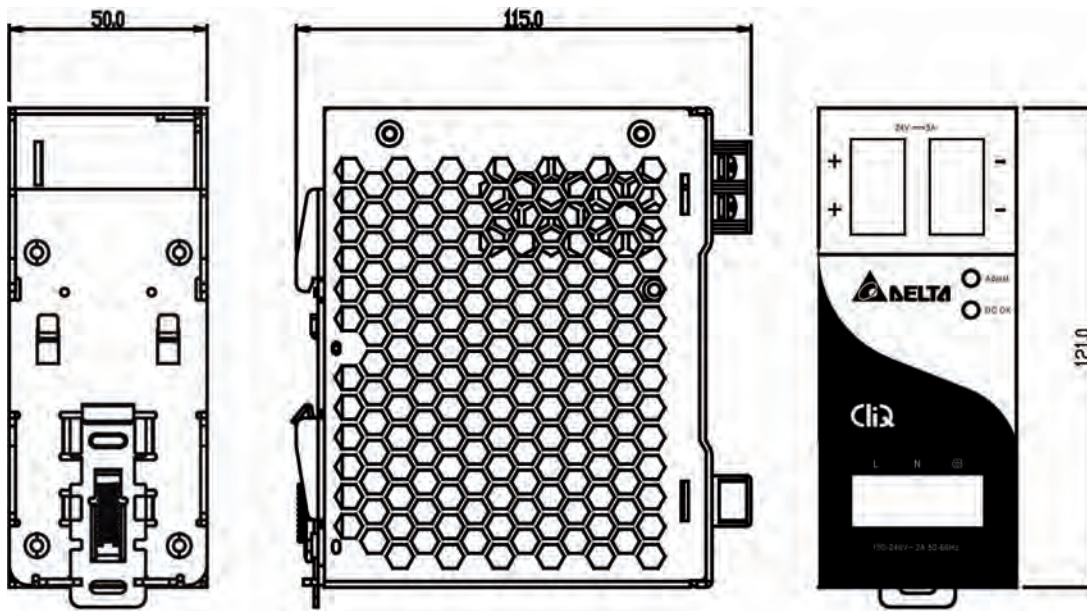
Special Features

- Ease of wire connection to terminals
- Compact design for easy handling
- Overload protection
- Overvoltage protection
- Thermal protection
- Power boost 150% for 3 seconds
- Expected life time : 10 years
- Shock proof IEC60068-2-27
- Vibration IEC60068-2-6
- Cooling : Convection
- Operating Humidity : < 95%
- Redundancy : Yes (with external ORing diode)
- RoHS compliant



CliQ Din Rail Power Supply 24V 120W 1 Phase DRP024V120W1AA

MECHANICAL DRAWING



Delta Electronics (Thailand)
 Public Company Limited
 909 Moo 4, E.P.Z.,
 Bangpoo Industrial Estate,
 Tambon Prakasa, Amphur
 Muang Samutprakarn,
 Samutprakarn 10280, Thailand
 Tel: +662 709 2800
 Fax: +662 709 2827
 E-mail: VL@delta.co.th
 www.deltaenergysystems.com

SAFETY / ENVIRONMENTAL

EMC / Emissions	Class B / EN55022, CISPR22, Class B; FCC Tiltle 47; EN61204-3 (Class B on AC & Class A on DC side), EN55022:2006 Class B, EN61000-3-2:2006, EN61000-3-3:1995/ A1:2001/A2:2005
Immunity	EN55024:1998/A1:2001/A2:2003
Safety standard	UL508, CSA C22.2 No.107.1-01,UL60950-1, CSA C22.2 No.60950-1, IEC60950-1, EN60950-1, EN50178, IEC62103 and IEC60204-1
Voltage dips	Conform to EN61000-4-11
Galvanic isolation	Input to output: 4KVac Input to ground: 1.5KVac Output to ground: 1.5KVac
Operating ambient temperature	-20°C ~ 75°C *
Storage temperature	-25°C ~ 85°C
Operating humidity	< 95%
Note (*)	* Operating amb. > 50°C derate power by 2.5% / °C

CliQ Din Rail Power Supply

24V 480W 1 Phase

DRP024V480W1AA



DRP024V480W1AA

480Watts

Total Power: 480Watts
Input Voltage: 85-264Vac
of Output: Single

Model number DRP024V480W1AA

Reference no. EOE13010007

OUTPUT (DC)

Output power 480W

Output voltage range 22 - 28V

Output current 20A

Residual ripple/peak switching (20MHz) < 50mV / < 240mVpp
 (@ nominal values)

Mains buffering at nominal load (typ.) > 20ms @ 115Vac & 230Vac

Line regulation < 0.5% typ. (@ 85 - 264Vac input, 100% load)

Load regulation < 1% typ. (with rated input, 0 - 100% load)

INPUT (AC)

Input voltage range 85 - 264Vac (DC input range 120 - 375Vdc)

Input frequency 47 - 63Hz

Nominal current 5.7A @ 115Vac, 2.8A @ 230Vac

Efficiency > 86% typ.

Power factor Conform to EN61000-3-2 STD

Inrush current limitation I²t (+25°C) typ. No damage at I²t ratings for all I/P devices shall not exceed their rating

Leakage current < 1mA

MECHANICAL DESIGN

Case cover Aluminium (Al5052)

Dimensions (L x W x H) 121mm x 160mm x 118.5mm

Unit weight / box 1.800kg

MTBF > 300,000 hrs

Noise Sound pressure level (SPL) < 40dBA

Cooling Convection

Input terminal M4 x 3

Output terminal M4 x 2 (2 pcs.)

Mounting rail Standard TS35 mounting rail

Shock proof IEC60068-2-27

Vibration IEC60068-2-6

Protection structure EN60950 meet IPX0

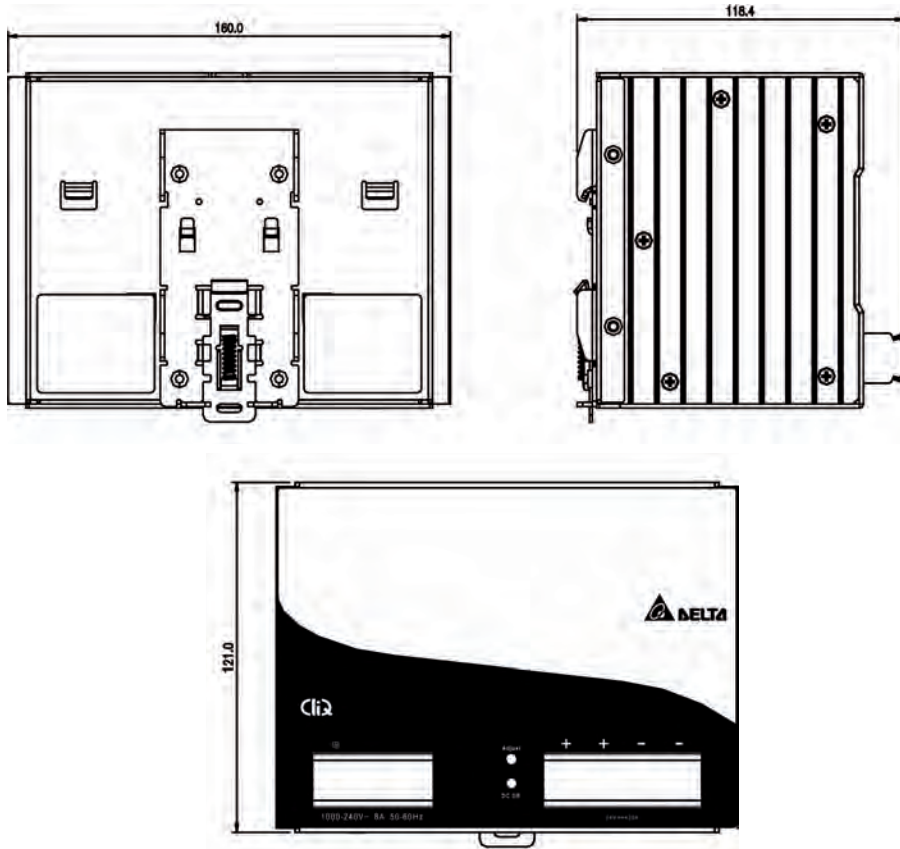
Special Features

- Ease of wire connection to terminals
- Compact design for easy handling
- Overload protection
- Overvoltage protection
- Thermal protection
- Power boost 150% for 3 seconds
- Expected life time : 10 years
- Shock proof IEC60068-2-27
- Vibration IEC60068-2-6
- Cooling : Convection
- Operating Humidity : < 95%
- Redundancy : Yes (with external ORing diode)
- RoHS compliant



CliQ Din Rail Power Supply 24V 480W 1 Phase DRP024V480W1AA

MECHANICAL DRAWING



Delta Electronics (Thailand)
 Public Company Limited
 909 Moo 4, E.P.Z.,
 Bangpoo Industrial Estate,
 Tambon Prakasa, Amphur
 Muang Samutprakarn,
 Samutprakarn 10280, Thailand
 Tel: +662 709 2800
 Fax: +662 709 2827
 E-mail: VL@delta.co.th
 www.deltaenergysystems.com

SAFETY / ENVIRONMENTAL

EMC / Emissions	Class B / EN55022, CISPR22, Class B; FCC Tilte 47; EN61204-3 (Class B on AC & Class A on DC side), EN55022:2006 Class B, EN61000-3-2:2006, EN61000-3-3:1995/ A1:2001/A2:2005
Immunity	EN55024:1998/A1:2001/A2:2003
Safety standard	UL508, CSA C22.2 No.107.1-01,UL60950-1, CSA C22.2 No.60950-1, IEC60950-1, EN60950-1, EN50178, IEC62103 and IEC60204-1
Voltage dips	Conform to EN61000-4-11
Galvanic isolation	Input to output: 4KVac Input to ground: 1.5KVac Output to ground: 1.5KVac
Operating ambient temperature	-20°C ~ 75°C *
Storage temperature	-25°C ~ 85°C
Operating humidity	< 95%
Note (*)	* Operating amb. > 50°C derate power by 2.5% / °C

CliQ DIN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA



Highlights & Features

- Reliable design, with expected life of 10 years
- Compact, rugged design for ease of handling and installation
- Multiple connections to terminals allowed
- Designed for Class I Div. 2 Hazardous Locations environments
- Meets worldwide safety requirements
- RoHS Directive 2011/65/EU Compliant
- Worldwide AC input range without power de-rating
- Overvoltage / Overcurrent / Over Temperature Protections
- 150% Power Boost (steady state peak load) for 3 seconds

Safety Standards



CB Certified for worldwide use

Model Number: DRP024V240W1AA
Unit Weight: 1.04 kg
Dimensions (L x W x D): 121 x 85 x 118.5 mm

General Description

The DRP024V240W1AA is part of the CliQ series of DIN Rail power supplies from one of the world's largest power supply manufacturers and solution providers - Delta. This product provides an adjustable output capable of operating from input voltages at 85-264Vac, and a wide temperature range of -20°C to 75°C. With a rugged, compact plastic case design that meets shock and vibration requirements (in accordance to IEC60068-2-27 and IEC60068-2-6 respectively), and conformal-coated PCB assembly, this state of the art design is well suited to a broad variety of industrial applications worldwide.

Model Information

CliQ DIN Rail Power Supply

Model Number	Input Voltage Range	Output Voltage	Output Current
DRP024V240W1AA	85-264Vac (120-375Vdc)	24Vdc	10A

Model Numbering

DRP	P	024V	240W	1	A	A
DIN Rail	Power Supply	Output Voltage	Output Power	Single Phase	CliQ Series	Metal Case

CIQ DiN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA

Specifications

Input Ratings / Characteristics

Nominal Input Voltage	100-240Vac
Input Voltage Range	85-264Vac
Nominal Input Frequency	50-60Hz
Input Frequency Range	47-63Hz
Nominal DC Input Voltage	125-250Vdc
DC Input Voltage Range	120-375Vdc
Input Current	< 2.90A @ 115Vac, < 1.50A @ 230Vac
Efficiency	> 89.0% @ 115Vac, > 91.0% @ 230Vac
Max Inrush Current	No Damage & I2t rating at all I/P device shall not exceed their rating
Power Factor	> 0.96 @ 115Vac, > 0.90 @ 230Vac
Leakage Current	< 1mA @ 240Vac

Output Ratings / Characteristics

Nominal Output Voltage	24Vdc
Output Voltage Tolerance	± 2% (initial set point tolerance)
Output Voltage Adjustment Range	22-28Vdc
Output Current	10A
Output Power	240W
Line Regulation	< 0.5% typ. (@ 85-264Vac input, 100% input)
Load Regulation	< 1% typ. (@ 85-264Vac input, 0-100% input)
Residual Ripple / PARD (20MHz)	< 50mVpp / 240mVpp @ 25°C
Rise Time	< 100ms @ nominal input (100% load, 25°C)
Start-up Time	< 1000ms @ nominal input (100% load, 25°C)
Hold-up Time	> 20ms @ 115Vac & 230Vac (100% load, 25°C)
Dynamic Response (Overshoot & Undershoot O/P Voltage)	± 5% @ 10-100% load
Start-up with Capacitive Loads	10,000µF Max

Mechanical

Case Cover	Aluminium
Dimensions (L x W x D)	121 x 85 x 118.5 mm
Unit Weight	1.04 kg
Indicator	Green LED (DC OK)
Cooling System	Convection
Terminal	Input: M4 x 3 Pins (Rated 300V/20A) Output: M4 x 2 Pins (Rated 300V/20A)
Wire	Input: AWG 22-14 Output: AWG 22-14
Mounting Rail	Standard TS35 DIN Rail in accordance with EN60715

CLIQ DiN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA

Environment

Surrounding Air Temperature	Operating	-20°C to +75°C
	Storage	-25°C to +85°C
Power De-rating		> 50°C de-rate power by 2.5% / °C > 70°C de-rate power by 4% / °C
Operating Humidity		< 95% RH (Non-Condensing)
Operating Altitude		2,000 Meters
Shock Test (Non-Operating)		IEC60068-2-27, 30G (300m/S ²) for a duration of 18ms
Vibration (Non-Operating)		IEC60068-2-6, 10Hz to 150Hz @ 50m/S ² (5G peak); 90 min per axis for all X, Y, Z direction
Bump		IEC60068-2-29; 11ms / 10gn
Pollution Degree		2

Protections

Overvoltage	32V \pm 10%, SELV Output, Hicc-up Mode, Non-Latching (Auto-Recovery)
Overload / Overcurrent	> 150% of rated load current, Hicc-up Mode, Non-Latching (Auto-Recovery)
Over Temperature	< 80°C Surrounding Air Temperature @ 100% load, Non-Latching (Auto-Recovery)
Short Circuit	Hicc-up Mode, Non-Latching (Auto-Recovery when the fault is removed)
Degree of Protection	IPX0
Protection Against Shock	Class I without PE* connection

*PE: Primary Earth



Reliability Data

MTBF	> 300,000 hrs. as per Telcordia SR-332
Expected Cap Life Time	10 years (115Vac & 230Vac, 50% load @ 40°C)

CLIQ DiN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA

Safety Standards / Directives

Electronic Equipment in Power Installations	EN50718 / IEC62103
Electrical Safety	SIQ to EN60950-1, UL/cUL recognized to UL60950-1, CSA C22.2 No. 60950-1, CB scheme to IEC60950-1, CSA to UL60950-1 and CSA C22.2 No. 60950-1 (File No. 181564)
Industrial Control Equipment	UL/cUL listed to UL508 and CSA C22.2 No. 107.1-01, CSA to CSA C22.2 No. 107.1-01 (File No. 181564)
Hazardous Location / ATEX	CSA to CSA C22.2 No. 213-M1987, ANSI / ISA 12.12.01:2007 (Class I, Division 2, Group A, B, C, D, T4) EN60079-0:2009, EN60079-15:2010 ( II 3G Ex nA IIc T4 Gc)
 II 3G ATEX 94/9/EC; IECEX Test Report	Certificate No. ESP 09 ATEX 1 215 X; For IEC60079-0, IEC60079-15
CE	In conformance with EMC Directive 2004/108/EC and Low Voltage Directive 2006/95/EC
Material and Parts	RoHS Directive 2011/65/EU Compliant
Galvanic Isolation	Input to Output 4.0KVac Input to Ground 1.5KVac Output to Ground 1.5KVac

EMC

EMC / Emissions	CISPR22, EN55022, EN55011, FCC Title 47: Class B
Immunity to	
Electrostatic Discharge	EN61000-4-2 Level 4 Criteria A ¹⁾ Air Discharge: 15kV Contact Discharge: 8kV
Radiated Field	EN61000-4-3 Level 3 Criteria A ¹⁾ 80MHz-1GHz, 10V/M with 1kHz tone / 80% modulation
Electrical Fast Transient / Burst	EN61000-4-4 Level 3 Criteria A ¹⁾ 2kV
Surge	IEC6100-4-5 Level 3 Criteria A ¹⁾ Common Mode ²⁾ : 2kV Differential Mode ³⁾ : 1kV
Conducted	EN61000-4-6 Level 3 Criteria A ¹⁾ 150kHz-80MHz, 10Vrms
Power Frequency Magnetic Fields	EN61000-4-8 Level 3 Criteria A ¹⁾ 10A/Meter
Voltage Dips	EN61000-4-11 Level 3 Criteria A ¹⁾ 100% dip; 1 cycle (20ms); Self Recoverable
Low Energy Pulse Test (Ring Wave)	IEC61000-4-12 Level 3 Criteria A ¹⁾ Common Mode ²⁾ : 2kV Differential Mode ³⁾ : 1kV

1) Criteria A: Normal performance within the specification limits

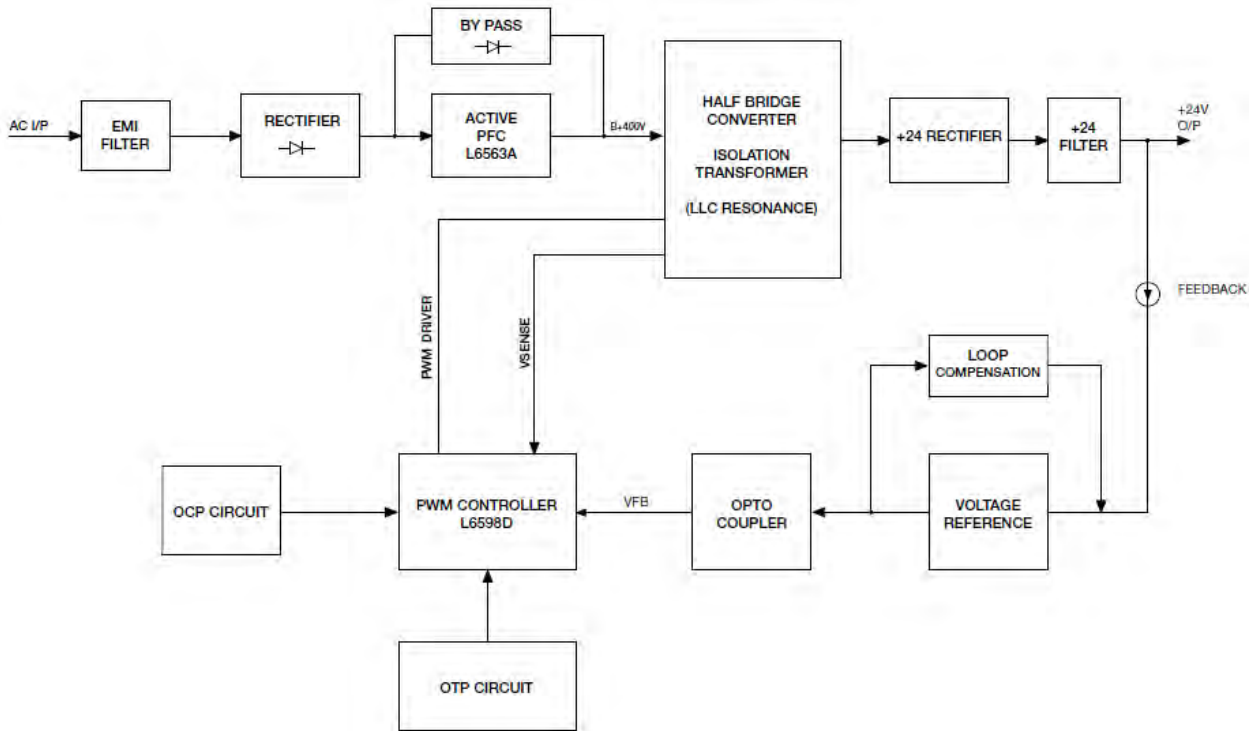
2) Asymmetrical: Common mode (Line to earth)

3) Symmetrical: Differential mode (Line to line)

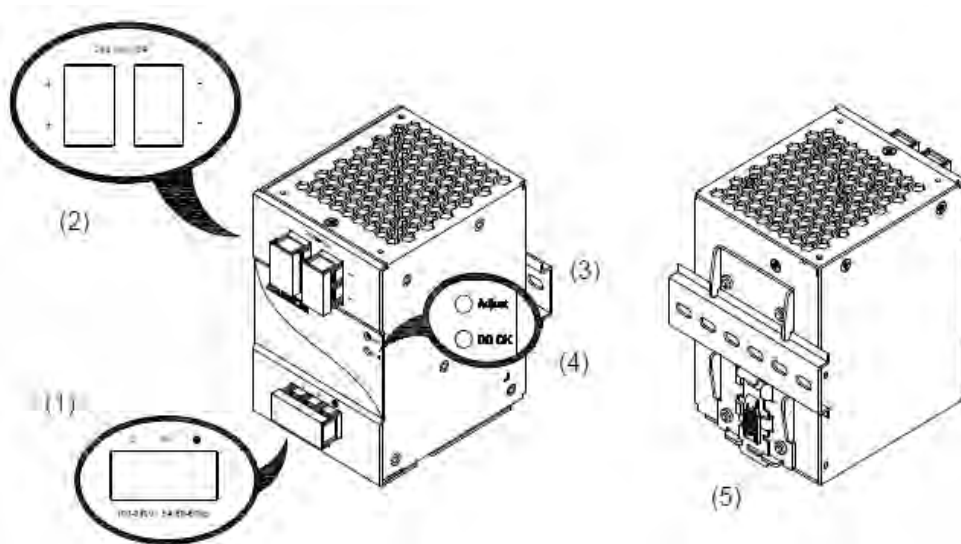
CLIQ DiN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA

Block Diagram



Device Description



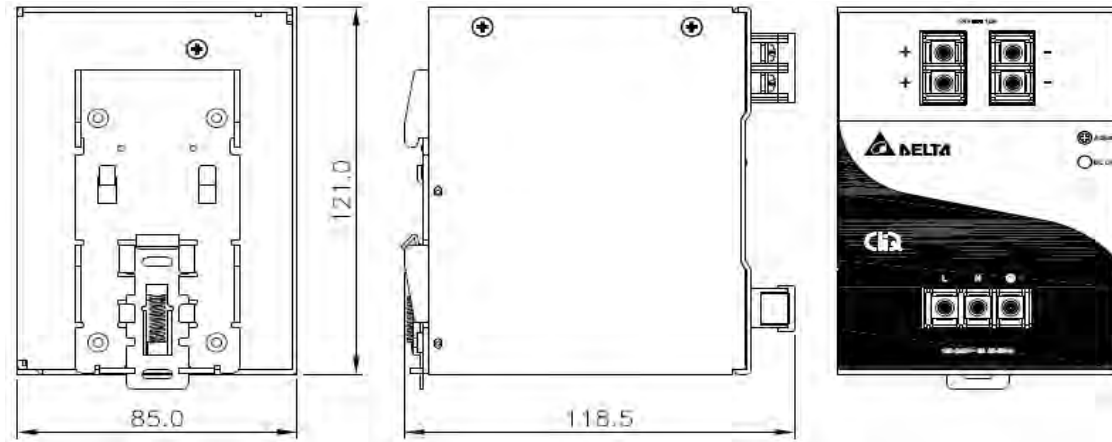
- 1) Input terminal block connector
- 2) Output terminal block connector
- 3) DC voltage adjustment potentiometer
- 4) DC OK control LED (Green)
- 5) Universal mounting rail system

CIQ DiN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA

Dimensions

L x W x D: 121 x 85 x 118.5 mm



Engineering Data

De-rating

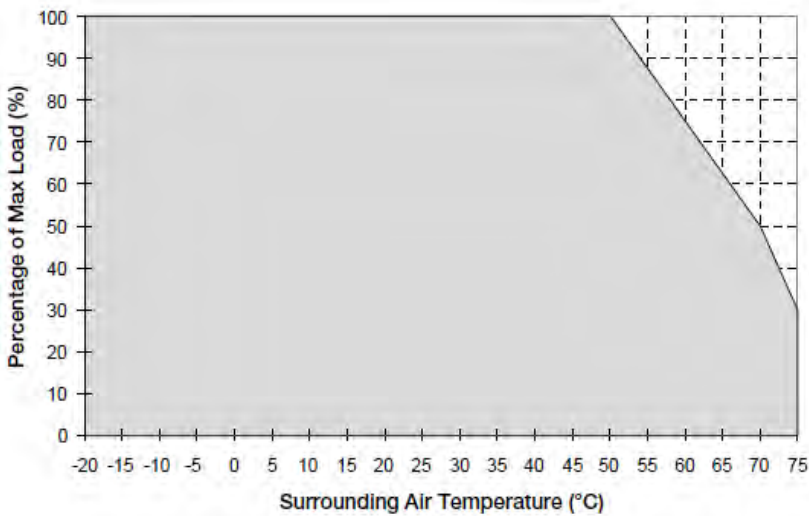


Fig. 1.1 De-rating for Vertical Mounting Orientation
 > 50°C de-rate power by 2.5% / °C, > 70°C de-rate power by 4% / °C

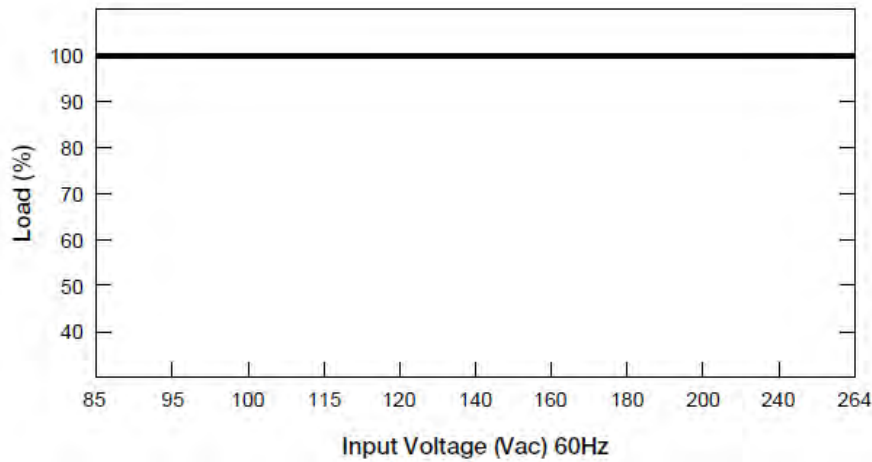
Note

1. Power supply components may degrade, or be damaged, when the power supply is continuously used outside the shaded region, refer to the graph shown in Fig. 1.1.
2. If the output capacity is not reduced when the surrounding air temperature >50°C, the device will run into Over Temperature Protection. When activated, the output voltage will go into bouncing mode and will recover when the surrounding air temperature is lowered or the load is reduced as far as necessary to keep the device in working condition.
3. If the device has to be mounted in any other orientation, please do not hesitate to contact info@deltapsu.com for more details.
4. In order for the device to function in the manner intended, it is also necessary to keep a safety distance of 20mm with adjacent units while the device is in operation.
5. Depending on the surrounding air temperature and output load delivered by the power supply, the device housing can be very hot!

CLIQ DiN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA

Output De-rating VS. Input Voltage



■ No output power de-rating across the entire input voltage range

Assembly & Installation

The power supply unit (PSU) can be mounted on 35mm DIN rails in accordance with EN60715. The device should be installed with input terminal blocks at the bottom.

Each device is delivered ready to install.

Mounting

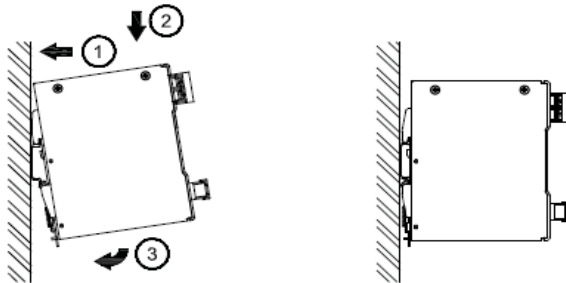


Fig. 2.1 Mounting

Snap on the DIN rail as shown in Fig. 2.1:

1. Tilt the unit upwards and insert it onto the DIN rail.
2. Push downwards until stopped.
3. Press against the bottom front side for locking.
4. Shake the unit slightly to ensure that it is secured.

Dismounting

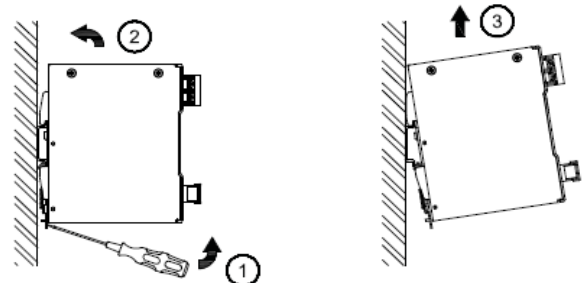


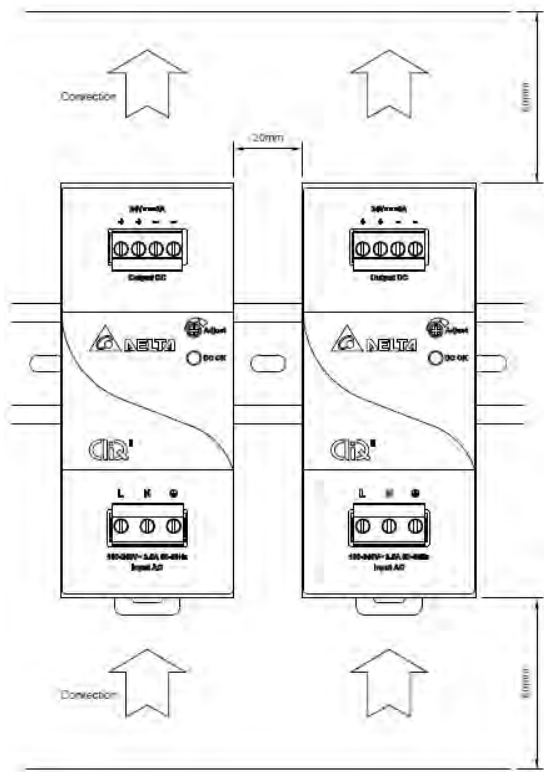
Fig. 2.2 Dismounting

To uninstall, pull or slide down the latch with screw driver as shown in Fig 2.2. Then slide the power supply unit (PSU) in the opposite direction, release the latch and pull out the power supply unit (PSU) from the rail.

CLIQ DiN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA

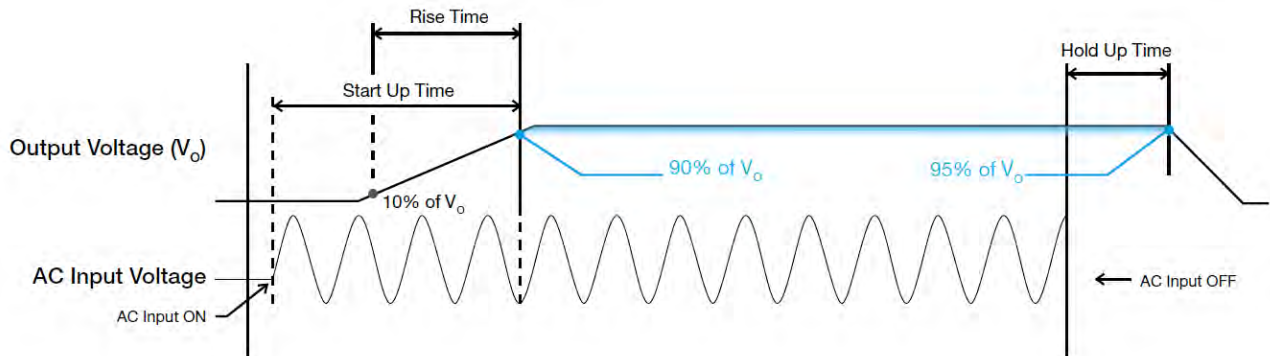
Safety Instructions



- ALWAYS switch mains of input power OFF before connecting and disconnecting the input voltage to the unit. If mains are not turned OFF, there is risk of explosion / severe damage.
- **To guarantee sufficient convection cooling, keep a distance of 50mm above and below the device as well as a lateral distance of 20mm to other units.**
- Note that the enclosure of the device can become very hot depending on the surrounding air temperature and load of the power supply. Risk of burns!
- Only plug in and unplug connectors when power is turned off!
- DO NOT insert any objects into the unit.
- Hazardous voltages may be present for up to 5 minutes after the input mains voltage is disconnected. Do not touch the unit during this time.
- The power supplies unit must be installed in an IP54 enclosure or cabinet in the final installation. The enclosure or cabinet must comply with EN60079-0 or EN60079-15.
- The power supplies are built in units and must be installed in a cabinet or room (condensation free environment and indoor location) that is relatively free of conductive contaminants.

Functions

■ Graph illustrating the Start-up Time, Rise Time, and Hold-up Time



Start-up Time

The time required for the output voltage to reach 90% of its set value, after the input voltage is applied.

Rise Time

The time required for the output voltage to change from 10% to 90% of its set value.

Hold-up Time

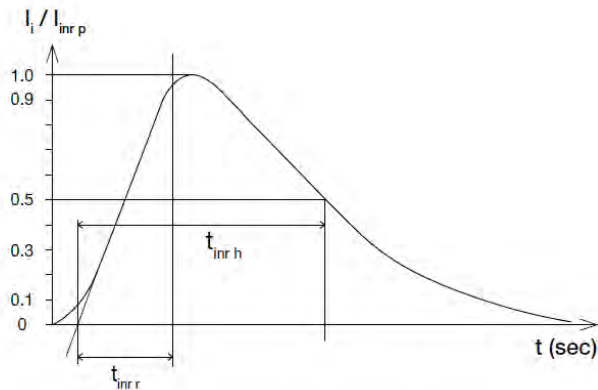
Hold up time is the time when the AC input collapses and output voltage retains regulation for a certain period of time. The time required for the output to reach 95% of its set value, after the input voltage is removed.

CLIQ DiN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA

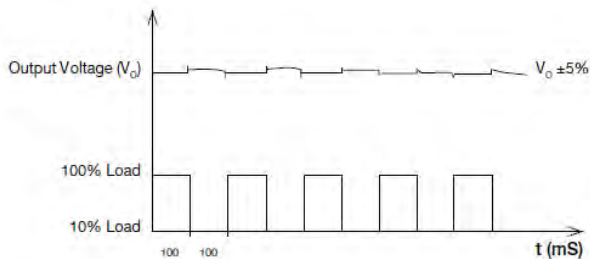
Inrush Current

Inrush current is the peak, instantaneous, input current measured and, occurs when the input voltage is first applied. For AC input voltages, the maximum peak value of inrush current will occur during the first half cycle of the applied AC voltage. This peak value decreases exponentially during subsequent cycles of AC voltage.



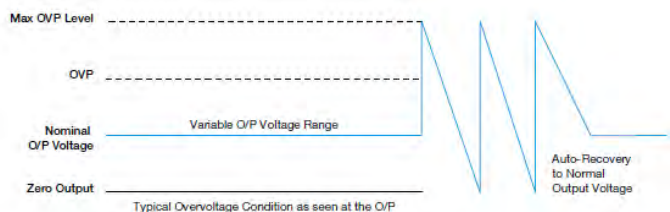
Step Load Response

The power supply output voltage will remain within $\pm 5\%$ of its steady state value, when subjected to a dynamic load from 10 to 100% of its rated current.



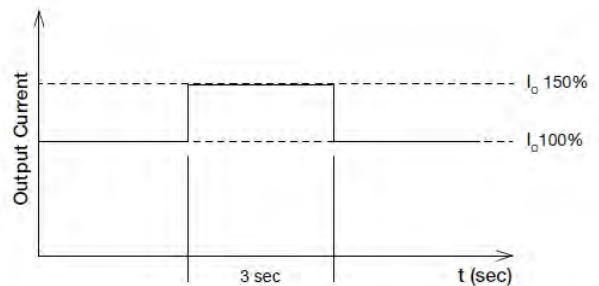
Overvoltage Protection

The power supply's overvoltage circuit will be activated when its internal feedback circuit fails. The output voltage shall not exceed its specifications defined on Page 3 under "Protections".



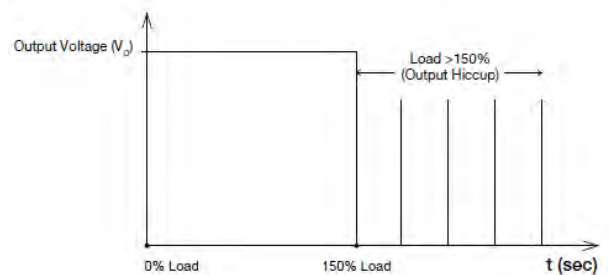
Surge Load

It is the reserve power available constantly that allows reliable startup of loads with high inrush current. After the output has reached its steady state set value, the power supply can support surge loads of up to 150% of maximum rated load (I_o Max), for a maximum duration of 3 seconds. The maximum allowed rate of load change is 0.1amps per microseconds, and the voltage can vary $\pm 5\%$ from the set value during the duration of the surge load.



Overload & Overcurrent Protections

The power supply's Overload (OLP) and Over current (OCP) Protections will be activated when output current exceeds 150% of I_o (Max load). In such occurrence, the V_o will start to droop and once the power supply has reached its maximum power limit, the protection is activated and the power supply will go into "Hiccup mode" (Auto-Recovery). The power supply will recover once the fault condition of the OLP and OCP is removed and I_o is back within the specifications.



Additionally, if the I_o is $<150\%$ but $>100\%$ for a prolonged period of time (depending on the load), the Over Temperature Protection (OTP) will be activated due to high temperature on critical components. The power supply will then go into "Hiccup mode" until the fault is removed.

CLIQ DiN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA

Over Temperature Protection

As mentioned above, the power supply also has Over Temperature Protection (OTP). This is activated when the overload condition persists for an extended duration and the output current is below the overload trigger point but >100% load. In the event of a higher operating condition at 100% load, the power supply will run into OTP when the surrounding air temperature is >80°C. When activated, the output voltage will go into bouncing mode until the operating surrounding air temperature drops to 50°C or output capacity is reduced as recommended in the derating graph.

Short Circuit Protection

The power supply's output OLP/OCF function also provides protection against short circuits. When a short circuit is applied, the output current will operate in "Hiccup mode", as shown in the illustration in the OLP/OCF section on this page. The power supply will return to normal operation after the short circuit is removed.

Operating Mode

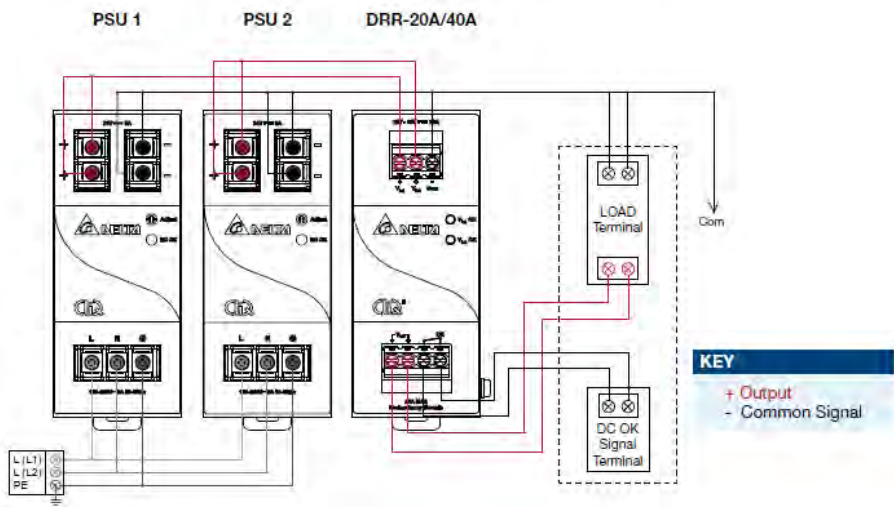


Fig. 3.1 Redundancy / Parallel Operation Connection Diagram

* V_{drop} will vary from 0.60V to 0.90V (Typical 0.65V) depending on the load current and surrounding air temperature.

Parallel Operation

These DRR modules can also be used for Parallel function in order to increase the output power by N+1 (e.g. 2.5A + 2.5A = 5A or 2.5A + 2.5A + 2.5A = 7.5A) or current sharing, and thus increasing the power supply and system reliability. Though the DRP024V240W1AA is not designed for current sharing, a good current sharing between two power supplies can be achieved by following simple steps as below (Refer to Fig. 3.1 for the Connection Diagram).

Step 1.
Set output load condition for both supplies at 50% and measure the output voltages.

Step 2.
Adjust output voltages to the same level or within $\pm 25mV$ difference.

* V_{drop} will vary from 0.60V to 0.90V (Typical 0.65V) depending on the load current and surrounding air temperature.

Redundancy Operation

In order to ensure proper redundancy operation for the power supply unit (PSU), ensure that the output voltage difference between the two units is kept at 0.45~0.50V for 24V supplies. Follow simple steps given below to verify:

Step 1.
Measure output voltage of PSU 1 and PSU 2. If PSU 1 is the master unit, then V_o of PSU 1 must be higher than PSU 2.

In order to set the output voltage, connect the power supply to 50% load and set the PSU 1 and PSU 2 output voltage.

Step 2.
Connect the right DRR module, 20A as per the system requirement to the power supply units PSU 1 and PSU 2 at $V_{in 1}$ & $V_{in 2}$ respectively.

Step 3.
Connect the system load from V_{out} . Please note that output voltage V_{out} from DRR module will be = V_o (output voltage of power supply) - V_{drop}^* (in DRR module).

Step 3.
Connect PSU 1 and PSU 2 with the DRR-20A module and measure at $V_{in 1}$ & $V_{in 2}$ to verify the voltage difference. Ensure the voltages are within $\pm 25mV$.

Step 4.
Output voltage from DRR module V_{out} will be = V_o (output voltage of power supply) - V_{drop}^* (in DRR module).

CLIQ DiN Rail Power Supply

24V 240W 1 Phase / DRP024V240W1AA

Others

Delta RoHS Compliant

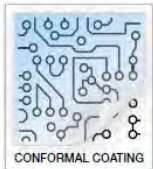


Restriction of the usage of hazardous substances

The European directive 2011/65/EC limits the maximum impurity level of homogeneous materials such as lead, mercury, cadmium, chrome, polybrominated flame retardants PBB and PBDE for the use in electrical and electronic equipment. RoHS is the abbreviation for "Restriction of the use of certain hazardous substances in electrical and electronic equipment".

This product conforms to this standard.

Conformal Coating



The Protective Coating Technology

Delta Electronics Group has designed the perfect dipping technique which penetrates everywhere including under device, and prevents leakage. The conformal coating dipping can be applied to PCBs or circuit board. The coating preserves the performance of precision electronic primarily by preventing ionizable contaminants such as salt from reaching circuit nodes, where the material slumps around sharp edges. This can be a problem especially in highly conversing atmosphere.

EPSITRON[®]

Advanced Power Supply System



WE INNOVATE!



WAGO[®]



PRO Power



CLASSIC Power



COMPACT Power



ECO Power

EPSITRON® POWER SUPPLIES



Electronic Circuit Breakers



UPS



Capacitive Buffer Modules



Redundancy Modules

EPSITRON® SYSTEM MODULES

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Clear, Quick Connections

CAGE CLAMP® Spring Pressure Connection Technology provides fast, vibration-proof and maintenance-free termination of solid, fine-stranded or ferruled conductors.

EPSITRON® POWER SUPPLIES

Selection Guide

Primary Switch Mode Power Supplies, 24 VDC Output

Output nominal current [ADC]	Input, 1-phase	Input, 2-/3-phase	Approvals						DC OK signal/ contact	RS-232 serial interface	TopBoost*	Efficiency, typ. [%]	Ambient operating temperature [°C] ****	Item Number	Page
			EN 60335	cURus 60950	cULus 508	GL	ANSI/ISA 12.12.1	ATEX / IEC Ex							
1.0	■		■	■	■	□					86.0	-25 ... +70	787-1602	16	
1.3	■		■	■	■	■					82.0	-25 ... +55	787-1002	27	
2.0	■			■	■	■	□						787-1014	27	
2.0	■		■	■	■	■	□				89.0	-25 ... +70	787-1606	16	
2.5	■		■	■	■	■		■			82.0	-10 ... +70	787-712	22	
2.5	■		■	■	■	■	■				88.0	-25 ... +55	787-1012	27	
3.0	■		■	■	■	■				■	87.8	-25 ... +70	787-818	10	
3.8	■		■	■	■	■	□				87.8	-25 ... +70	787-1616/0000-1000**	17	
4.0	■		■	■	■	■	□				89.0	-25 ... +70	787-1616	16	
4.0	■		■	■	■	■	■				88.0	-25 ... +55	787-1022	27	
5.0	■		■	■	■	■				■	87.8	-25 ... +70	787-822	11	
5.0	■		■	■	■	■	□			■	89.0	-25 ... +70	787-1622	17	
5.0	■		■	■	■	■	□		■	■	89.0	-25 ... +70	787-1675***	31	
5.0	■		■	■	■	■		■		■	82.0	-10 ... +60	787-722	22	
6.25		■		■	■	■					90.0	-25 ... +70	787-738	23	
10.0	■		■	■	■	■				■	91.8	-25 ... +70	787-832	11	
10.0	■		■	■	■	■	□			■	91.0	-25 ... +70	787-1632	17	
10.0	■		■	■	■	■		■			82.0	-10 ... +70	787-732	22	
10.0		■		■	■	■			■	■	91.7	-25 ... +70	787-850	13	
10.0		■		■	■	■				■	91.7	-25 ... +70	787-840	12	
10.0		■		■	■	■	□				89.0	-25 ... +70	787-740	23	
20.0	■		■	■	■	■				■	91.0	-25 ... +70	787-834	11	
20.0	■		■	■	■	■	□			■	92.0	-25 ... +70	787-1634	17	
20.0	■		■	■	■	■				■	90.0	-25 ... +70	787-734	22	
20.0		■		■	■	■			■	■	92.9	-25 ... +70	787-852	13	
20.0		■		■	■	■				■	92.9	-25 ... +70	787-842	12	
20.0		■		■	■	■	□				90.0	-25 ... +70	787-742	23	
40.0	■		■	■	■	■				■	90.0	-25 ... +70	787-736	23	
40.0		■		■	■	■			■	■	93.6	-25 ... +55	787-854	13	
40.0		■		■	■	■			■	■	93.6	-25 ... +55	787-844	12	

■ yes □ pending

*TopBoost enables magnetic tripping of power circuit breakers in the output circuit. For details, see glossary on page 17.

**Class 2 Power Unit per cURus 1310

***with uninterruptible power supply (UPS)

****Device starts at -40 °C, type-tested for 787-8xx, -10xx, -16xx

Primary Switch Mode Power Supplies, 5, 12, 18, 48 VDC Output

Output nominal current [ADC]	Input, 1-phase	Input, 2-/3-phase	Approvals						DC OK signal/ contact	RS-232 serial interface	TopBoost*	Efficiency, typ. [%]	Ambient operating temperature [°C]****	Item Number	Page
			EN 60335	cURus 60950	cULus 508	GL	ANSI/ISA 12.12.1	ATEX / IEC Ex							
5.5	■		■	■	■	□					75.0	-25 ... +55	Output: 5 VDC 787-1020	27	
2.0	■		■	■	■	□		■			82.0	-25 ... +70	Output: 12 VDC 787-1601	18	
2.0	■		■	■	■	■					80.0	-25 ... +55	787-1001	26	
4.0	■		■	■	■	□		■			86.0	-25 ... +70	787-1611	18	
4.0	■		■	■	■	■					86.0	-25 ... +55	787-1011	26	
6.0	■		■	■	■			■		■	83.0	-25 ... +70	787-819	10	
6.5	■		■	■	■	■					87.0	-25 ... +55	787-1021	26	
7.0	■		■	■	■	□		■			85.0	-25 ... +70	787-1621	18	
10.0	■		■	■	■			■		■	87.8	-25 ... +70	787-821	10	
15.0	■		■	■	■			■		■	87.8	-25 ... +70	787-831	10	
15.0	■		■	■	■	□		■		■	90.0	-25 ... +70	787-1631	19	
2.4	■		■	■	■	□					84.0	-25 ... +55	Output: 18 VDC 787-1017	26	
2.0	■		■	■	■	□		■			86.0	-25 ... +70	Output: 48 VDC 787-1623	19	
5.0	■		■	■	■			■		■	91.0	-25 ... +70	787-833	11	
5.0	■		■	■	■	□		■		■	92.0	-25 ... +70	787-1633	19	
10.0	■		■	■	■			■		■	91.0	-25 ... +70	787-835	11	
10.0	■		■	■	■	□		■		■	93.0	-25 ... +70	787-1635	19	
10.0		■	■	■	■			■		■	93.0	-25 ... +70	787-845	13	
20.0		■	■	■	■			■		■	94.4	-25 ... +70	787-847	13	

■ yes □ pending

*TopBoost enables magnetic tripping of power circuit breakers in the output circuit. For details, see glossary on page 17.

****Device starts at -40 °C, type-tested for 787-8xx, -10xx, -16xx

EPSITRON® SYSTEM MODULES

Selection Guide

Uninterruptible Power Supplies (UPS)

Input		Output		Approvals						Dimensions and Environmental Conditions				Item Number	Page
Nominal voltage [VAC]	Nominal voltage [VDC]	Nominal voltage [VDC]	Nominal current [ADC]	EN 60335	cURus 60950	cULus 508	GL	ANSI/ISA 12.12.1	ATEX / IEC Ex	Width [mm]	Height [mm]	Length [mm]	Ambient operating temperature [°C]		
-	24	24	10.0	●	■	■	○	○	○	40.0	163.0	163.0	-10 ... +60	787-870	30
-	24	24	20.0	●	■	■	○	○	○	57.0	163.0	171.0	-10 ... +60	787-875	30
100-240	110-370	24	5.0	●	■	■	□	○	○	60.0	135.5	127.0	-25 ... +70	787-1675	31

Battery Modules

Input		Output		Approvals						Dimensions and Environmental Conditions				Item Number	Page	
Nominal voltage [VDC]	Nominal voltage [VDC]	Nominal capacity [Ah]	Nominal capacity [Ah]	EN 60335	cURus 60950	cULus 508	GL	ANSI/ISA 12.12.1	ATEX / IEC Ex	Battery tested to VdS	Width [mm]	Height [mm]	Length [mm]	Ambient operating temperature [°C]		
24	24	1.2	1.2	●	○	■	○	○	○	■	55.0	126.5	153.0	-15 ... +40	787-876	30
24	24	3.2	3.2	●	○	■	○	○	○	■	76.2	175.5	168.0	-15 ... +40	787-871	31
24	24	7.0	7.0	●	○	■	○	○	○	■	86.0	217.5	236.0	-15 ... +40	787-872	31
24	24	12.0	12.0	●	○	■	○	○	○	■	120.5	217.5	236.0	-15 ... +40	787-873	30

Capacitive Buffer Modules

Input/Output, Buffer			Approvals						Dimensions and Environmental Conditions				Item Number	Page
Input/Output nominal voltage [VDC]	Output nominal current [ADC]	Buffer time [s]	EN 60335	cURus 60950	cULus 508	GL	ANSI/ISA 12.12.1	ATEX / IEC Ex	Width [mm]	Height [mm]	Length [mm]	Ambient operating temperature [°C]		
24	10.0	0.06-7.2	●	■	■	○	○	○	57.0	179.0	163.0	-10 ... +60	787-880	33
24	20.0	0.17-16.5	●	■	■	○	○	○	57.0	179.0	181.0	-10 ... +60	787-881	33

Redundancy Modules

Input		Output		Approvals						Dimensions and Environmental Conditions				Item Number	Page
Nominal voltage [VDC]		Nominal voltage [VDC]	Nominal current [ADC]	EN 60335	cURus 60950	cULus 508	GL	ANSI/ISA 12.12.1	ATEX / IEC Ex	Width [mm]	Height [mm]	Length [mm]	Ambient operating temperature [°C]		
24		24	12.5	●	●	●	●	●	●	50.0	92.0	130.0	-25 ... +70	787-783	35
24		24	20.0		■	■				40.0	163.0	181.0	-10 ... +60	787-885	34
24		24	40.0			■				83.0	150.0	130.0	-25 ... +70	787-785	35
48		48	20.0							40.0	163.0	181.0	-10 ... +40	787-886	35

Electronic Circuit Breakers

Input/Output				Approvals						Dimensions and Environmental Conditions				Item Number	Page
Input/Output nominal voltage [VAC]	Output channels	Output nominal current [ADC]	Active Current Limitation	EN 60335	UR 2367	cULus 508	GL	ANSI/ISA 12.12.1	ATEX / IEC Ex	Width [mm]	Height [mm]	Length [mm]	Ambient operating temperature [°C]		
24	2	0.5-6.0	■	●	■	■	■	■	■	45.0	115.5	90.0	-25 ... +70	787-1662/0006-1000	39
24	2	1.0-6.0			■	■	■	■	■	45.0	115.5	90.0	-25 ... +70	787-1662/0106-0000	39
24	2	2.0-10.0			■	■	■	■	■	45.0	115.5	90.0	-25 ... +70	787-1662	39
24	4	0.5-6.0	■	●	■	■	■	■	■	45.0	115.5	90.0	-25 ... +70	787-1664/0006-1000	40
24	4	1.0-6.0			■	■	■	■	■	40.0	163.0	171.0	-10 ... +60	787-860	38
24	4	1.0-6.0			■	■	■	■	■	45.0	115.5	90.0	-25 ... +70	787-1664/0106-0000	40
24	4	1.0-8.0	■		■	■	■	■	■	40.0	163.0	171.0	-10 ... +60	787-861	38
24	4	1.0-10.0			■	■	■	■	■	40.0	163.0	171.0	-10 ... +60	787-862	38
24	4	2.0-10.0			■	■	■	■	■	45.0	115.5	90.0	-25 ... +70	787-1664	40
24	8	0.5-6.0	■	●	■	■	■	■	■	42.0	142.5	127.0	-25 ... +70	787-1668/0006-1000	41
24	8	1.0-6.0			■	■	■	■	■	42.0	142.5	127.0	-25 ... +70	787-1668/0106-0000	41
24	8	2.0-10.0			■	■	■	■	■	42.0	142.5	127.0	-25 ... +70	787-1668	41

EPSITRON® PRO POWER



WAGO's EPSITRON® PRO Power Supply Unit powers the automation components in the control cabinet of a blow-molding machine.

Professional and Efficient Power Supplies with Extra Power

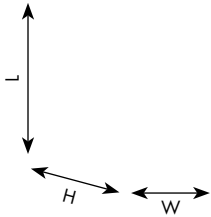
Applications with high-output requirements call for PRO Power Supplies that provide output voltages of 12, 24 or 48 VDC and nominal output currents ranging from 3 A to 40 A.



- TopBoost provides up to 60 A of additional output for 50 ms
- PowerBoost offers up to 200 % of output power for four seconds
- Features DC OK contact and stand-by input
- LineMonitor (select models) provides configuration and monitoring of signal inputs and outputs

EPSITRON® PRO POWER

Technical Data



Item Number	787-819	787-821	787-831	787-818
Nominal input voltage	1/2 x 100-240 VAC	1/2 x 100-240 VAC	1/2 x 110-240 VAC	1/2 x 100-240 VAC
Input voltage range (use of DC requires external protection)	85-264 VAC; 120-350 VDC	85-264 VAC; 120-350 VDC	85-264 VAC; 120-350 VDC	85-264 VAC; 120-350 VDC
Nominal output voltage, SELV	12 VDC	12 VDC	12 VDC	24 VDC
Output voltage range	11-18 VDC, adjustable	11-18 VDC, adjustable	11-18 VDC, adjustable	22-29.5 VDC, adjustable
Output current	6 A at 12 VDC	10 A at 12 VDC	15 A at 12 VDC	3 A at 24 VDC
PowerBoost	12 ADC (for 4 s) 9 ADC (for 8 s)	20 ADC (for 4 s) 15 ADC (for 8 s)	30 ADC (for 4 s) 22.5 ADC (for 8 s)	6 ADC (for 4 s) 4.5 ADC (for 8 s)
TopBoost	21 ADC (for 25 ms)	60 ADC (for 25 ms); 40 ADC at $V_N < 110$ VAC (for 25 ms)	55 ADC (for 25 ms)	14 ADC (for 25 ms)
Parallel-/Series-connections possible	yes	yes	yes	yes
Efficiency	83 % typ.	87.8 % typ.	87 % typ.	87.8 % typ.
Operation status indicator	Green LED (V_o), red LED (error)	Green LED (V_o), red LED (error)	Green LED (V_o), red LED (error)	Green LED (V_o), red LED (error)
LED indication	Green LED ($V_o > 0.85 \times 12$ V) Red LED ($V_o < 0.85 \times 12$ V) Relay contact DC OK (changeover contact)	Green LED ($V_o > 0.85 \times 12$ V) Red LED ($V_o < 0.85 \times 12$ V) Relay contact DC OK (changeover contact)	Green LED ($V_o > 0.85 \times 12$ V) Red LED ($V_o < 0.85 \times 12$ V) Relay contact DC OK (changeover contact)	Green LED ($V_o > 0.85 \times 24$ V) Red LED ($V_o < 0.85 \times 24$ V) Relay contact DC OK (changeover contact)
Stand-by input	Switches output off (stand-by operation)	Switches output off (stand-by operation)	Switches output off (stand-by operation)	Switches output off (stand-by operation)
Ambient operating temperature	-25 °C ... +70 °C Device starts at -40 °C, type-tested	-25 °C ... +70 °C Device starts at -40 °C, type-tested	-25 °C ... +70 °C Device starts at -40 °C, type-tested	-25 °C ... +70 °C Device starts at -40 °C, type-tested
Dimensions (mm) W x H x L Height from upper-edge of DIN-rail L = 127 mm, without pluggable female connectors	40 x 163 x 163	57 x 163 x 163	57 x 179 x 163	40 x 163 x 163



Slim Design and Versatile Mounting Options

- Save up to 50 % more cabinet space
- Units can be mounted on DIN-rail horizontally or vertically
- Wall mount adapter for screw mounting (option)

Clear and Easy to Connect

- CAGE CLAMP® connection technology – vibration-proof, fast, maintenance-free
- For solid, fine-stranded or ferruled conductors
- Colored and marked pluggable female connectors can be pre-assembled



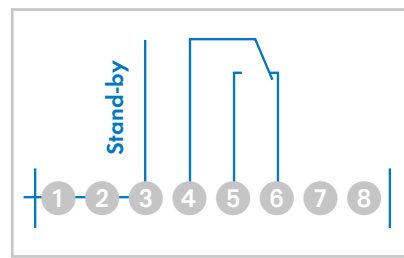
787-822	787-832	787-834	787-833	787-835
1/2 x 100-240 VAC	1/2 x 100-240 VAC	1/2 x 110-240 VAC	1/2 x 110-240 VAC	1/2 x 110-240 VAC
85-264 VAC; 120-350 VDC	85-264 VAC; 120-350 VDC	85-264 VAC; 120-350 VDC	85-264 VAC; 120-350 VDC	85-264 VAC; 120-350 VDC
24 VDC	24 VDC	24 VDC	48 VDC	48 VDC
22-29.5 VDC, adjustable	22-29.5 VDC, adjustable	22-29.5 VDC, adjustable	33-52 VDC, adjustable	33-52 VDC, adjustable
5 A at 24 VDC	10 A at 24 VDC	20 A at 24 VDC	5 A at 48 VDC	10 A at 48 VDC
10 ADC (for 4 s) 7.5 ADC (for 8 s)	20 ADC (for 4 s) 15 ADC (for 8 s)	30 ADC (for 4 s) 25 ADC (for 8 s)	10 ADC (for 4 s) 7.5 ADC (for 8 s)	17.5 ADC (for 4 s) 15 ADC (for 8 s)
21 ADC (for 25 ms)	60 ADC (for 25 ms)	80 ADC (for 25 ms)	30 ADC (for 25 ms)	60 ADC (for 25 ms)
yes	yes	yes	yes	yes
87.8 % typ.	90 % typ.	91 % typ.	91 % typ.	91 % typ.
Green LED (V _o), red LED (error)	Green LED (V _o), red LED (error)	Green LED (V _o), red LED (error)	Green LED (V _o), red LED (error)	Green LED (V _o), red LED (error)
Green LED (V _o > 0.85 x 24 V) Red LED (V _o < 0.85 x 24 V)	Green LED (V _o > 0.85 x 24 V) Red LED (V _o < 0.85 x 24 V)	Green LED (V _o > 0.85 x 24 V) Red LED (V _o < 0.85 x 24 V)	Green LED (V _o > 0.85 x 48 V) Red LED (V _o < 0.85 x 48 V)	Green LED (V _o > 0.85 x 48 V) Red LED (V _o < 0.85 x 48 V)
Relay contact DC OK (changeover contact)	Relay contact DC OK (changeover contact)	Relay contact DC OK (changeover contact)	Relay contact DC OK (changeover contact)	Relay contact DC OK (changeover contact)
Switches output off (stand-by operation)	Switches output off (stand-by operation)	Switches output off (stand-by operation)	Switches output off (stand-by operation)	Switches output off (stand-by operation)
-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C
Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested
57 x 163 x 163	57 x 179 x 163	97 x 187 x 171	57 x 163 x 163	97 x 187 x 171



Intuitive Communication

- LEDs provide clear status indication
- Green (DC OK), yellow* (warning), red (fault, overload)

*for 787-85x only



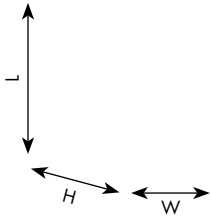
Potential-Free Contact/Stand-By Input

- Output voltage monitoring, message via potential-free changeover contact*
- Stand-by input* allows wear-free output deactivation via 10-28.8 VDC signal
- Energy-saving, stand-by mode (max. 0.8 W power dissipation) is ideal for a temporarily decentralized power supply

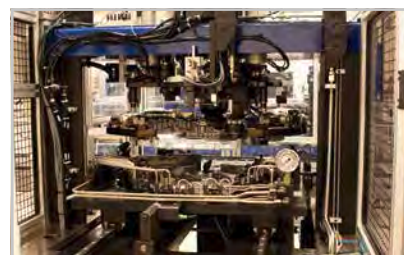
*not for 787-85x

EPSITRON® PRO POWER

Technical Data



Item Number	787-840	787-842	787-844
Nominal input voltage	2/3 x 400–500 VAC	2/3 x 400–500 VAC	2/3 x 400–500 VAC
Input voltage range (use of DC requires external protection)	340–550 VAC; 480–780 VDC	340–550 VAC; 480–780 VDC	340–550 VAC; 480–780 VDC
Nominal output voltage, SELV	24 VDC	24 VDC	24 VDC
Output voltage range	22.8–28.8 VDC, adjustable	22.8–28.8 VDC, adjustable	22.8–28.8 VDC, adjustable
Output current	10 A at 24 VDC	20 A at 24 VDC	40 A at 24 VDC
PowerBoost	20 ADC (for 4 s) 15 ADC (for 16 s)	40 ADC (for 4 s) 30 ADC (for 16 s)	60 ADC (for 4 s) 50 ADC (for 16 s)
TopBoost	70 ADC (for 50 ms)	80 ADC (for 50 ms)	100 ADC (for 50 ms)
Parallel-/Series-connections possible	yes	yes	yes
Efficiency	91.7 % typ.	92.9 % typ.	93.6 % typ.
Operation status indicator	Green LED (V _o), red LED (error)	Green LED (V _o), red LED (error)	Green LED (V _o), red LED (error)
LED indication	Green LED (V _o > 20.4 V) Red LED (V _o < 20.4 V) Relay contact DC OK (changeover contact)	Green LED (V _o > 20.4 V) Red LED (V _o < 20.4 V) Relay contact DC OK (changeover contact)	Green LED (V _o > 20.4 V) Red LED (V _o < 20.4 V) Relay contact DC OK (changeover contact)
LineMonitor, parameter setting and monitoring, active signal outputs, serial interface	–	–	–
Stand-by input	Switches output off (stand-by operation)	Switches output off (stand-by operation)	Switches output off (stand-by operation)
Ambient operating temperature	-25 °C ... +70 °C Device starts at -40 °C, type-tested	-25 °C ... +70 °C Device starts at -40 °C, type-tested	-25 °C ... +55 °C Device starts at -40 °C, type-tested
Dimensions (mm) W x H x L Height from upper-edge of DIN-rail L = 127 mm, without pluggable female connectors	57 x 179 x 163	77 x 179 x 171	128 x 205 x 171



TopBoost

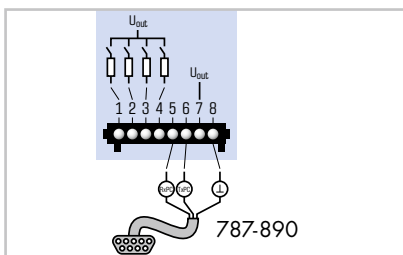
- Multiplies the nominal current for up to 50 ms
- Fast and reliable triggering of the secondary-side fusing via circuit breakers or fuses in the event of a short circuit or overload
- Fulfills EN 60204-1 grounding requirements in control circuits

PowerBoost

- Provides 200 % of output power for four seconds
- Provides 150 % of output power for up to 16 seconds
- Advantageous during start-up or switching of capacitive loads (e.g., valve clusters, motors)
- Power reserve eliminates expensive oversizing



787-845	787-847	787-850	787-852	787-854
2/3 x 400–500 VAC	2/3 x 400–500 VAC	2/3 x 400–500 VAC	2/3 x 400–500 VAC	2/3 x 400–500 VAC
340–550 VAC; 480–780 VDC	340–550 VAC; 480–780 VDC	340–550 VAC; 480–780 VDC	340–550 VAC; 480–780 VDC	340–550 VAC; 480–780 VDC
48 VDC	48 VDC	24 VDC	24 VDC	24 VDC
39–53 VDC, adjustable	39–53 VDC, adjustable	22.8–28.8 VDC, adjustable	22.8–28.8 VDC, adjustable	22.8–28.8 VDC, adjustable
10 A at 48 VDC	20 A at 48 VDC	10 A at 24 VDC	20 A at 24 VDC	40 A at 24 VDC
15 ADC (for 4 s) 12.5 ADC (for 16 s)	30 ADC (for 4 s) 25 ADC (for 16 s)	20 ADC (for 4 s) 15 ADC (for 16 s)	40 ADC (for 4 s) 30 ADC (for 16 s)	60 ADC (for 4 s) 50 ADC (for 16 s)
55 ADC (for 50 ms)	80 ADC (for 50 ms)	70 ADC (for 50 ms)	80 ADC (for 50 ms)	100 ADC (for 50 ms)
yes	yes	yes	yes	yes
93 % typ.	94.4 % typ.	91.7 % typ.	92.9 % typ.	93.6 % typ.
Green LED (V_o), red LED (error)	Green LED (V_o), red LED (error)	Green LED (V_o), red LED (error)	Green LED (V_o), red LED (error)	Green LED (V_o), red LED (error)
Green LED ($V_o > 36$ V) Red LED ($V_o < 36$ V) Relay contact DC OK (changeover contact)	Green LED ($V_o > 36$ V) Red LED ($V_o < 36$ V) Relay contact DC OK (changeover contact)	Green LED ($V_o > 20.4$ V) Yellow LED (warnings) Red LED (error)	Green LED ($V_o > 20.4$ V) Yellow LED (warnings) Red LED (error)	Green LED ($V_o > 20.4$ V) Yellow LED (warnings) Red LED (error)
–	–	yes	yes	yes
Switches output off (stand-by operation)	Switches output off (stand-by operation)	–	–	–
-25 °C ... +70 °C	-25 °C ... +55 °C	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +55 °C
Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested
77 x 179 x 171	128 x 205 x 171	57 x 179 x 163	77 x 179 x 171	128 x 205 x 171



Active Signal Contacts

- Four active signal outputs* for watchdog functions
- Each unit features a separate collective message for warning/fault
- Features two individually configurable signal outputs
- Free 759-850 Configuration Software can be downloaded at www.wago.com

*only for 787-85x

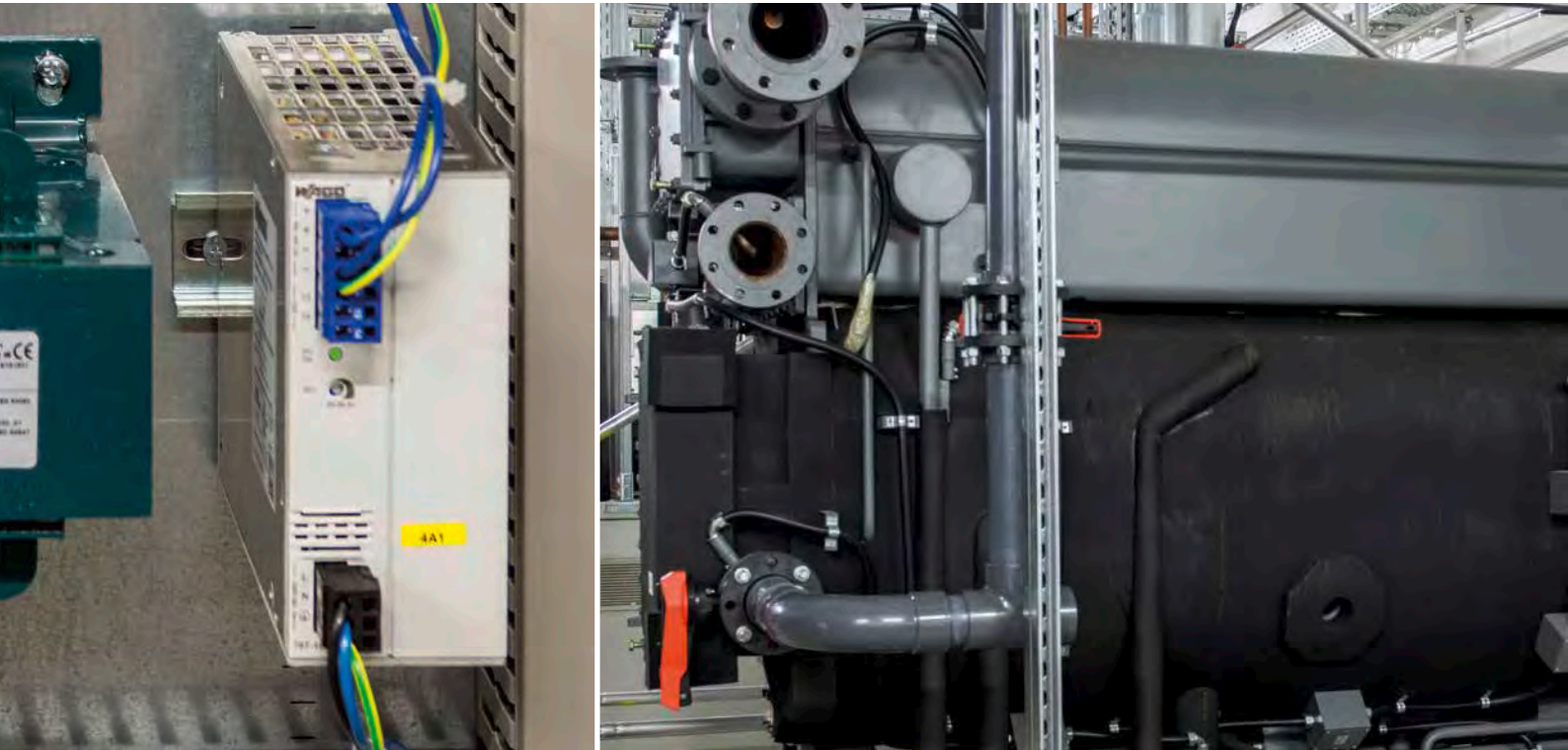
Innovative Communication

- LineMonitor* with display and function keys
- Variable monitoring, e.g., current, voltage, phase position, operating hours and more
- Output voltage and overload behavior can be parameterized
- Integrated fault memory

RS-232 Serial Interface

- Integrated, front-mount interface* communicates with a PC or PLC
- Free 759-850 Parameterization Software and 759-851 Visualization Software can be downloaded at www.wago.com
- Free function blocks are available for various PLC systems
- Serial 787-890 Communication Cable is available as an accessory

EPSITRON[®] CLASSIC POWER



WAGO's EPSITRON[®] CLASSIC Power Supply Unit powers the automation components in the control cabinet of an absorption refrigeration system.

The Robust Power Supply – With Integrated TopBoost (Optional)

For applications requiring voltages of 12, 24 or 48 VDC and nominal output currents ranging from 1 A to 20 A.

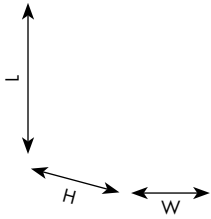


- Slim design
- Equipped with fool-proof, pluggable CAGE CLAMP® connectors
- DC OK signal/contact
- Device marking
- Integrated TopBoost (optional)

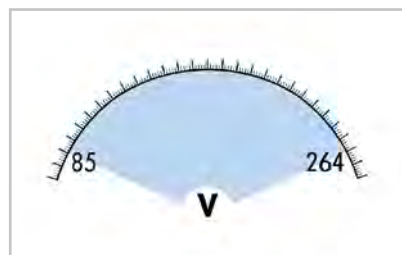


EPSITRON® CLASSIC POWER

Technical Data



Item Number	787-1602	787-1606	787-1616
Nominal input voltage	100-240 VAC	100-240 VAC	100-240 VAC
Input voltage range	85-264 VAC; 120-372 VDC	85-264 VAC; 120-372 VDC	85-264 VAC; 120-372 VDC
Nominal output voltage, SELV	24 VDC	24 VDC	24 VDC
Nominal output voltage range	23-28.5 VDC	23-28.5 VDC	23-28.5 VDC
Output current	1 A	2 A	4 A
Integrated TopBoost	No	No	No
Efficiency	86 %	89 %	89 %
LED indication	Green LED (DC OK); active DC OK signal	Green LED (DC OK); active DC OK signal	Green LED (DC OK); active DC OK signal
Ambient operating temperature	-25 °C ... +70 °C Device starts at -40 °C, type-tested	-25 °C ... +70 °C Device starts at -40 °C, type-tested	-25 °C ... +70 °C Device starts at -40 °C, type-tested
Dimensions (mm) W x H x L Height from upper-edge of DIN-rail	22.5 x 107.5 x 90	45 x 107.5 x 90	52 x 119 x 90



Slim Design

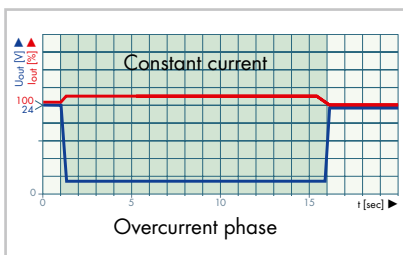
- Enclosure width has been reduced by up to 45 % compared to previous CLASSIC Power Supplies
- Save valuable cabinet space

Universal Supply

- Wide input voltage range: 85-264 VAC
- Can be connected worldwide to all standard single-phase power grids
- High operational reliability during power outages



787-1622	787-1632	787-1634	787-1616/0000-1000
100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC
85-264 VAC; 120-372 VDC	85-264 VAC; 120-372 VDC	85-264 VAC; 120-372 VDC	85-264 VAC; 120-372 VDC
24 VDC	24 VDC	24 VDC	24 VDC
23-28.5 VDC	23-28.5 VDC	23-28.5 VDC	23-28.5 VDC
5 A	10 A	20 A	3.8 A LPS / NEC Class 2
Yes	Yes	Yes	No
89 %	91 %	92 %	87 %
Green LED (DC OK); DC OK signal	Green LED (DC OK); DC OK signal	Green LED (DC OK); DC OK signal	Green LED (DC OK); DC OK signal
-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C
Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested
42 x 137.5 x 127	55 x 172 x 127	95 x 170 x 127	52 x 119 x 90



High Load-Carrying Capacity

- Constant current characteristic under overload conditions
- 110 % output current with lowered output voltage, even in the event of a short circuit
- Even high capacitive loads can be reliably started

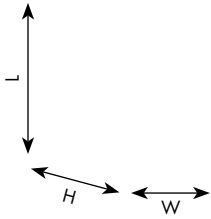


Clear and Easy to Connect

- CAGE CLAMP® connection technology – vibration-proof, fast, maintenance-free
- For solid, fine-stranded or ferruled conductors
- Colored and marked female connectors can be preassembled – 100 % protected against mismatching

EPSITRON® CLASSIC POWER

Technical Data



Item Number	787-1601	787-1611	787-1621
Nominal input voltage	100-240 VAC	100-240 VAC	100-240 VAC
Input voltage range	85-264 VAC; 120-372 VDC	85-264 VAC; 120-372 VDC	85-264 VAC; 120-372 VDC
Nominal output voltage, SELV	12 VDC	12 VDC	12 VDC
Nominal output voltage range	11.5-14.5 VDC	11.5-14.5 VDC	11.5-14.5 VDC
Output current	2 A	4 A	7 A
Integrated TopBoost	No	No	No
Efficiency	82 %	86 %	86 %
LED indication	Green LED (DC OK); active DC OK signal	Green LED (DC OK); active DC OK signal	Green LED (DC OK); active DC OK signal
Ambient operating temperature	-25 °C ... +70 °C Device starts at -40 °C, type-tested	-25 °C ... +70 °C Device starts at -40 °C, type-tested	-25 °C ... +70 °C Device starts at -40 °C, type-tested
Dimensions (mm) W x H x L Height from upper-edge of DIN-rail	22.5 x 107.5 x 90	45 x 107.5 x 90	52 x 119 x 90



Communicative

- Green LED indicates output voltage availability
- Remote monitoring via DC OK signal or isolated DC OK contact
- Easy commissioning and maintenance
- Provides fast information on system or machine status



Adjustable

- Front-panel adjustable output voltage
- Up to 20 % greater output voltage
- Easily compensate for voltage drops over long lines



787-1631	787-1623	787-1633	787-1635
100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC
85-264 VAC; 120-372 VDC	85-264 VAC; 120-372 VDC	85-264 VAC; 120-372 VDC	85-264 VAC; 120-372 VDC
12 VDC	48 VDC	48 VDC	48 VDC
11.5-15 VDC	40-56 VDC	40-56 VDC	40-56 VDC
15 A	2 A	5 A	10 A
Yes	No	Yes	Yes
90 %	86 %	92 %	93 %
Green LED (DC OK); DC OK signal	Green LED (DC OK); active DC OK signal	Green LED (DC OK); DC OK signal	Green LED (DC OK); DC OK signal
-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C
Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested	Device starts at -40 °C, type-tested
55 x 172 x 127	52 x 119 x 90	55 x 172 x 127	95 x 170 x 127



Device Marking

- Marking field for fast and securely attached device identification
- Supports WAGO WMB Multi Marking System, 5 mm pin spacing
- Supports 11 mm wide marking strips



Integrated TopBoost*

- Multiplies the nominal current
- Fast and reliable triggering of the secondary-side fusing via circuit breakers or fuses in the event of a short circuit or overload

*for 787-1622, -1631, -1632, -1633, -1634, -1635

EPSITRON[®] ECO POWER



WAGO's EPSITRON[®] ECO Power Supply powers a machine data collection system for production.

Economical Power Supply for Standard Applications

Single- and three-phase ECO Power Supplies for applications requiring 24 VDC and nominal output currents of 2.5 A to 40 A.



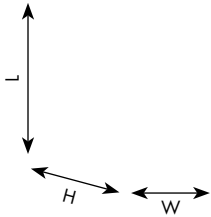
**ATEX
IEC Ex**

- Economically priced and robustly packaged in a metal housing
- Optional DC OK contact
- Available, tool-free CAGE CLAMP® connection technology
- Optional with ATEX/IEC Ex approval, Zone 2 and Class I Div. 2

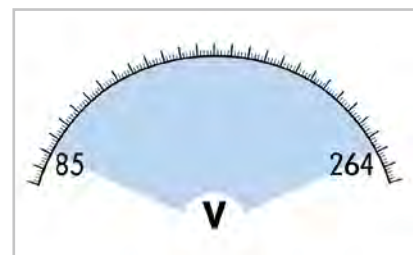
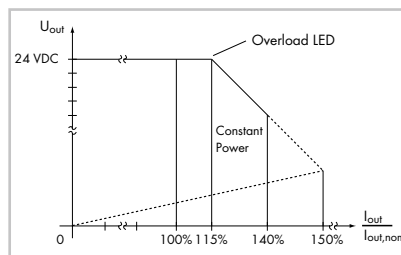


EPSITRON® ECO POWER

Technical Data



Item Number	787-712	787-722	787-732	787-734
Nominal input voltage	110–240 VAC	110–240 VAC	110–240 VAC	110–240 VAC
Input voltage range	85–264 VAC; 130–373 VDC	85–264 VAC; 130–373 VDC	85–264 VAC; 130–373 VDC	85–264 VAC; 130–373 VDC
Nominal output voltage, SELV	24 VDC	24 VDC	24 VDC	24 VDC
Output voltage range	22–28 VDC	22–28 VDC	22–28 VDC	22–28 VDC
Output current	2.5 A	5 A	10 A	20 A
Nominal output	60 W	120 W	240 W	480 W
Efficiency (230 VAC, nominal load)	86 % typ.	86 % typ.	86 % typ.	90 % typ.
LED indication	Green LED (DC OK) Red LED (overload)	Green LED (DC OK) Red LED (overload)	Green LED (DC OK) Red LED (overload)	Green LED (DC OK), red LED (overload), signal contact (DC OK, make contact)
Ambient operating temperature	-10 °C ... +70 °C	-10 °C ... +60 °C	-10 °C ... +70 °C	-25 °C ... +70 °C
Dimensions (mm) W x H x L Height from upper-edge of DIN-rail	50 x 92 x 130	75 x 92 x 130	110 x 92 x 130	115 x 144 x 136



Clear Indication

- Green LED indicates output voltage availability
- Red LED indicates an overcurrent or short circuit
- Easy commissioning and maintenance

High Load-Carrying Capacity

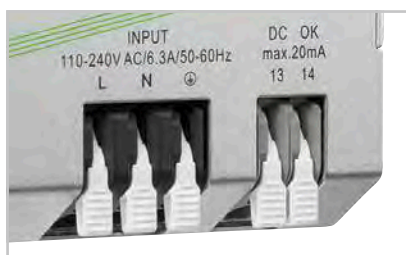
- Overload warning from 1.15 times the nominal output current
- Overload of up to 1.4 times the nominal current with lowered output voltage (constant power)
- Output shutdown in case of a low-resistance short circuit; also includes automatic restart

Universal Supply

- Wide input voltage range: 85–264 VAC (single-phase) or 325–575 VAC (two- and three-phase)
- Efficiently operates on different power grids – no need for additional conversion or adjustment
- High tolerance of voltage fluctuations within a power grid
- High level of operational reliability



787-736	787-738	787-740	787-742
110-240 VAC	3x (2x) 400-500 VAC	3x (2x) 400-500 VAC	3x (2x) 400-500 VAC
85-264 VAC; 130-373 VDC	325-575 VAC; 460-800 VDC	325-575 VAC; 460-800 VDC	325-575 VAC; 460-800 VDC
24 VDC	24 VDC	24 VDC	24 VDC
22-28 VDC	22-28 VDC	22-28 VDC	22-28 VDC
40 A	6.25 A	10 A	20 A
960 W	150 W	240 W	500 W
90 % typ.	87 % typ.	89 % typ.	90 % typ.
Green LED (DC OK), red LED (overload), signal contact (DC OK, make contact)	Green LED (DC OK), red LED (overload), signal contact (DC OK, make contact)	Green LED (DC OK), red LED (overload), signal contact (DC OK, make contact)	Green LED (DC OK), red LED (overload), signal contact (DC OK, make contact)
-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C
170 x 154 x 136	50 x 92 x 136	65 x 130 x 136	110 x 151 x 136



Fast Wiring

- PCB terminal strips with integrated operating levers (2706 or 2716 Series)*
- Convenient, tool-free wiring
- Integrated test slot simplifies testing by eliminating conductor removal



Status Monitoring

- Isolated make contact*
- Indicates whether an output voltage or an overload is present
- Ideal for remote monitoring



Easy Grounding

- Integrated third negative terminal strip on the output side*
- Direct connection to the reference ground, which is frequently used in mechanical engineering applications

*for 787-734 and 787-736 and three-phase power supplies

EPSITRON[®] COMPACT POWER



WAGO's EPSITRON[®] COMPACT Power Supply in a low-profile IP65 system housing powers a measurement and recording unit.

Compact, High-Performance Power Supply

Single-phase COMPACT Power Supplies in DIN-rail-mount housings that provide output voltages of 5, 12, 18 or 24 VDC and nominal output currents up to 6.5 A.

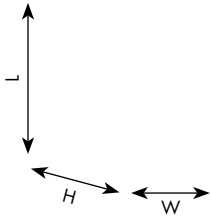


- Compact, low-profile design
- Ideal for decentralized applications
- Overhead mounting permitted
- GL marine approval



EPSITRON® COMPACT POWER

Technical Data

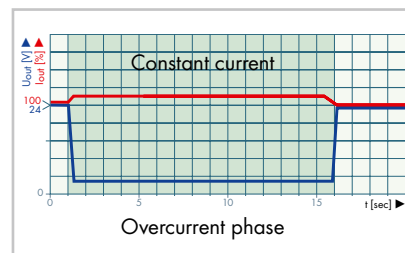


Item Number	787-1001	787-1011	787-1021	787-1017
Nominal input voltage	100-240 VAC	100-240 VAC	100-240 VAC	100-240 VAC
Input voltage range	85-264 VAC; 120-373 VDC	85-264 VAC; 120-373 VDC	85-264 VAC; 120-373 VDC	85-264 VAC; 120-373 VDC
Nominal output voltage, SELV	12 VDC	12 VDC	12 VDC	18 VDC
Output voltage range	10.8-18 VDC, adjustable	10.5-15.5 VDC, adjustable	10.5-15.5 VDC, adjustable	15-28 VDC, adjustable
Output current	2 A at 12 VDC / 0.75 A at 18 VDC	4 A at 12 VDC	6.5 A at 12 VDC	2.5 A at 18 VDC / 2.3 A at 24 VDC; max. 55 W
Output current for overhead mounting	max. 1.4 A at 12 VDC	max. 2.4 A	max. 4 A	max. 1.6 A
Default setting	12 VDC	12 VDC	12 VDC	18 VDC
Overload behavior	Constant current, 1.1 x Io typ.	Constant current, 1.1 x Io typ.	Constant current, 1.1 x Io typ.	Constant current, 1.1 x Io typ.
Operation status indicator	Green LED (Vo)	Green LED (Vo)	Green LED (Vo)	Green LED (Vo)
Efficiency	80 % typ.	85 % typ.	87 % typ.	83 % typ. at 18 VDC / 2.5 A 85 % typ. at 24 VDC / 2.3 A
Ambient operating temperature**	-25 °C ... +60 °C Device starts at -40 °C, type-tested	-25 °C ... +60 °C Device starts at -40 °C, type-tested	-25 °C ... +60 °C Device starts at -40 °C, type-tested	-25 °C ... +60 °C Device starts at -40 °C, type-tested
Dimensions (mm) W x H x L	54 x 55 x 89	72 x 55 x 89	90 x 55 x 89	90 x 55 x 89



Clear Indication

- Status indication via green LED
- Current operating status can be displayed quickly

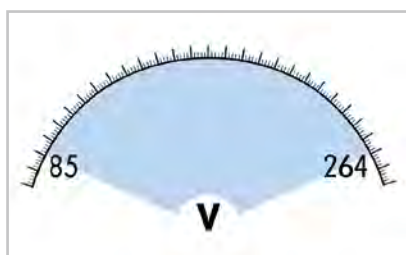


Minimum Size, Maximum Performance

- Constant current characteristic under overload conditions
- 110 % output current with lowered output voltage, even in the event of a short circuit
- High capacitive loads can be reliably started (e.g., distributed control units or HMI devices)



787-1002	787-1012	787-1022	787-1014	787-1020
100–240 VAC	100–240 VAC	100–240 VAC	110 VDC	100–240 VAC
85–264 VAC; 120–373 VDC	85–264 VAC; 120–373 VDC	85–264 VAC; 120–373 VDC	77–140 VDC	85–264 VAC; 120–373 VDC
24 VDC	24 VDC	24 VDC	24 VDC	5 VDC
22.8–26.4 VDC, adjustable	22.8–26.4 VDC, adjustable	22.8–26.4 VDC, adjustable		4.5–8.5 VDC, adjustable
1.3 A at 24 VDC	2.5 A at 24 VDC	4 A at 24 VDC	2.0 A at 24 VDC	5.5 A at 5 VDC
max. 0.9 A	max. 1.6 A	max. 2.4 A	max. 1.6 A	max. 3.5 A
24 VDC	24 VDC	24 VDC	24 VDC	5 VDC
Constant current, 1.1 x I _o typ.	Constant current, 1.1 x I _o typ.	Constant current, 1.1 x I _o typ.	Constant current	Constant current
Green LED (V _o)	Green LED (V _o)	Green LED (V _o)	Green LED (V _o)	Green LED (V _o)
82 % typ.	88 % typ.	88 % typ.	85 % typ.	75 % typ.
-25 °C ... +60 °C Device starts at -40 °C, type-tested	-25 °C ... +60 °C Device starts at -40 °C, type-tested	-25 °C ... +60 °C Device starts at -40 °C, type-tested	-40 °C ... +70 °C	-25 °C ... +60 °C Device starts at -40 °C, type-tested
54 x 55 x 89	72 x 55 x 89	90 x 55 x 89	72 x 55 x 89	72 x 55 x 89



Universal Supply

- Wide input voltage range: 85–264 VAC (single-phase)
- Efficiently operates on different power grids – no need for additional conversion or adjustment
- High tolerance of voltage fluctuations within a power grid, which ensures a high level of operational reliability



Overhead Mounting

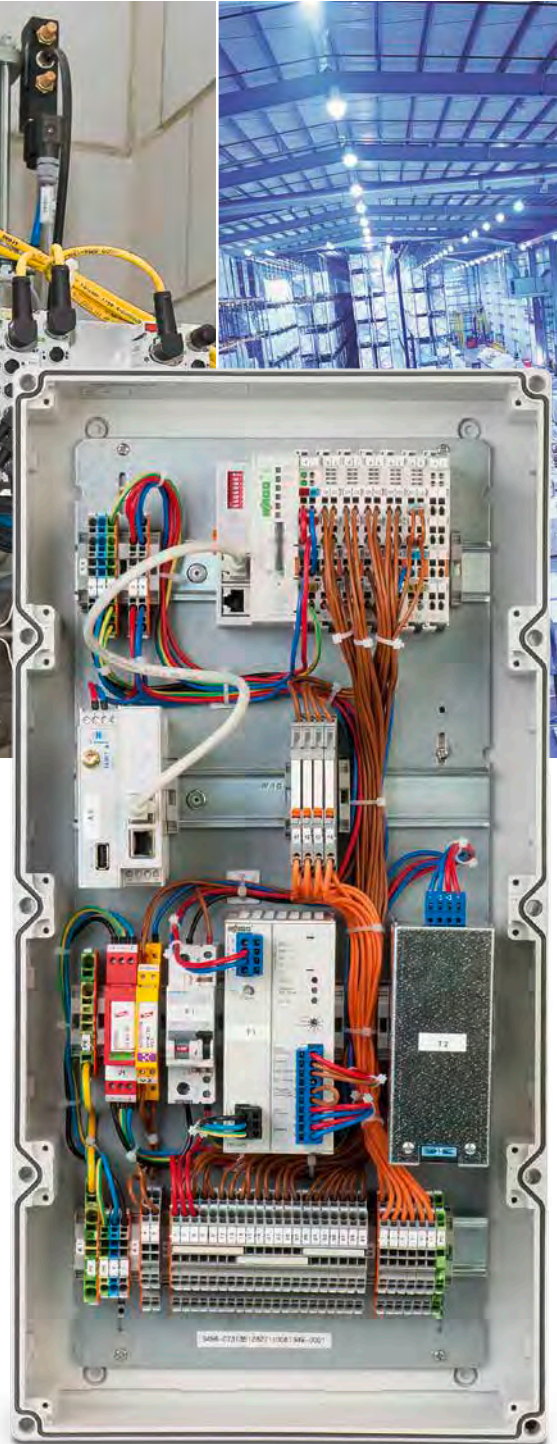
- Any type of mounting position is possible with reduced output power
- Units can even be mounted overhead (e.g., in system distribution boxes under the ceiling)

EPITRON® UNINTERRUPTIBLE POWER SU



Reliable Compensation — Even for Longer Power Outages

Consisting of a UPS charger and controller, as well as one or more connected batteries, WAGO's Uninterruptible Power Supply reliably powers an application for several hours.



Compact and cost-effective, WAGO's 787-1675 EPITRON® CLASSIC Power Supply with an integrated UPS charger and controller powers and buffers applications with low energy demands.

PPLY (UPS)

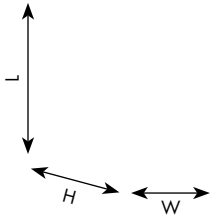


- Slim UPS charger and controller with convenient visualization and configuration
- Optional power supply with integrated UPS charger and controller (787-1675)
- Battery control technology for predictive maintenance that extends battery life



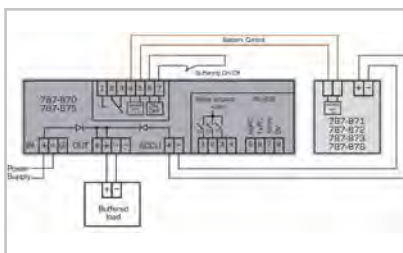
EPSITRON® UNINTERRUPTIBLE POWER SUPPLY

Technical Data



Item Number	787-870	787-875	787-876
Description	UPS Charger and Controller	UPS Charger and Controller	Lead-Acid AGM Battery Module
Nominal input voltage	24 VDC	24 VDC	24 VDC
Input current I_i	0.1 A (no-load running); 0.8 A (charging); 10.8 A (max.)	0.1 A (no-load running); 1.5 A (charging); 21.5 A (max.)	max. 0.3 A
Switch-on threshold (adjustable)	20–25.5 VDC	20–25.5 VDC	-
Output voltage range	$V_i - 1$ VDC (below switch-on threshold); Battery voltage - 1 VDC (buffer mode)	$V_i - 1$ VDC (below switch-on threshold); Battery voltage - 1 VDC (buffer mode)	24 VDC
Output current I_o	10 A	20 A	max. 7.5 A
Buffer time/capacity	10–600 s, IPC mode or constant (adjustable)	10–600 s, IPC mode or constant (adjustable)	1.2 Ah
End-of-charge voltage	26–29.5 VDC or temperature-controlled (adjustable)	26–29.5 VDC or temperature-controlled (adjustable)	27 VDC (at 25 °C)
LED indication	LED, LCD, 3 x signal output 24 VDC, 25 mA and 1 x isolated relay contact	LED, LCD, 3 x signal output 24 VDC, 25 mA and 1 x isolated relay contact	NTC K164 temperature sensor (4.7 kOhm), battery control
Interface	RS-232 (optional accessory: 787-890 Communication Cable)	RS-232 (optional accessory: 787-890 Communication Cable)	-
Remote input	Switches buffer mode off	Switches buffer mode off	-
Ambient operating temperature	-10 °C ... +60 °C	-10 °C ... +60 °C	-15 °C ... +40 °C
Dimensions (mm) W x H x L	40 x 163 x 163	57 x 163 x 171	55 x 126.5 x 153
Height from upper-edge of DIN-rail			

L = 127 mm, without pluggable female connectors (787-870 and 787-875 only)



EPSITRON® Battery Control Technology

- Allows continuous data exchange between intelligent battery modules (787-87x) and UPS charger/controller
- Automatic detection of a connected battery module (787-87x)
- Maximum battery life via temperature-controlled battery management
- Reliable, early warning of decreasing battery life
- Determines battery life expectancy based on the ambient operating temperature
- Displays current charging status on site (787-870 and 787-875)

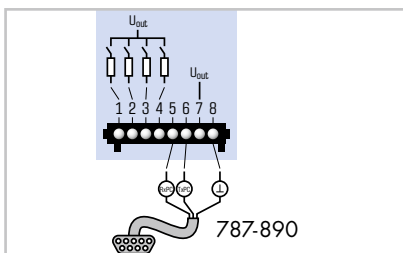
Diagnostics, Monitoring, Configuration

- LEDs display operating status, warnings and errors
- Signal outputs can be processed as a digital signal in a PLC
- Potential-free signal contacts
- Parameter setting via on-unit buttons or rotary switch
- Visualization or configuration via RS-232 serial interface

PLY (UPS)



787-871	787-872	787-873	787-1675
Lead-Acid AGM Battery Module	Lead-Acid AGM Battery Module	Lead-Acid AGM Battery Module	Power Supply, 1-Phase, with Integrated UPS Charger and Controller
24 VDC	24 VDC	24 VDC	100-240 VAC
max. 0.8 A	max. 1.8 A	max. 3 A	1.1 AAC at 230 VAC and 5 ADC
-	-	-	22 VDC (pre-configured), 20-25.5 VDC (configurable via software)
24 VDC	24 VDC	24 VDC	23.0-28.5 VDC (mains operation) 18.5-27.5 VDC (battery operation)
20 A	max. 40 A	max. 40 A	5 A
3.2 Ah	7 Ah	12 Ah	0.5 s to 20 min, IPC mode or constant (adjustable)
27 VDC (at 25 °C)	27 VDC (at 25 °C)	27 VDC (at 25 °C)	26-29.5 VDC temperature-controlled (fixed or adjustable)
NTC K164 temperature sensor (4.7 kOhm), battery control	NTC K164 temperature sensor (4.7 kOhm), battery control	NTC K164 temperature sensor (4.7 kOhm), battery control	3 x signal output 24 VDC, 25 mA
-	-	-	RS-232 (optional accessory: 787-892 Communication Cable)
-	-	-	Switches buffer mode off
-15 °C ... +40 °C	-15 °C ... +40 °C	-15 °C ... +40 °C	-25 °C ... +70 °C
76.2 x 175.5 x 168	86 x 217.5 x 236	120.5 x 217.5 x 236	60 x 135.5 x 127



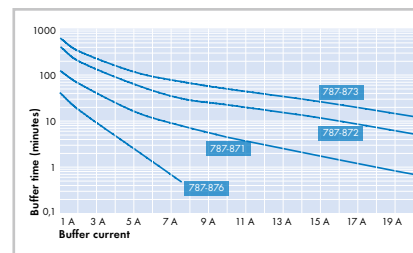
RS-232 Serial Interface

- Free download* of 759-870 Configuration and Visualization Software
 - Free download of function blocks for visualization on standard PLC systems
 - 787-890 or -892 Serial Communication Cable available as an accessory
- *www.wago.com/epsitron



Display with Charge Level Indication

- Indication of actual current and voltage values
- Bar graph displays the charge level of connected batteries
- Integrated fault memory



Buffer Time

- Based on battery capacity and discharge current
- Four battery modules are available with capacities from 1.2 Ah to 12 Ah
- Parallel connection of up to three battery modules of the same type increases buffer time

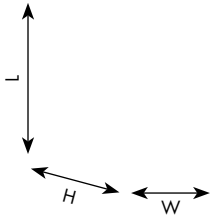
EPSITRON® CAPACITIVE BUFFER MODULES

Short-Term Power Reserve for Power Outage and Load Change

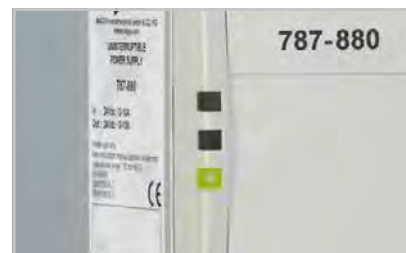
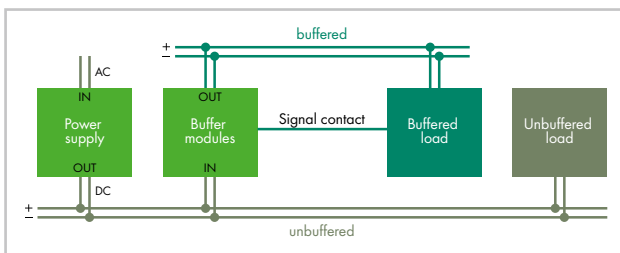


Capacitive buffer modules maintain power supply within the control cabinet, even during a temporary voltage drop when starting the motor of an impact crusher.

- Maintenance-free, high-energy gold caps
- Integrated diodes for decoupling buffered loads from unbuffered loads
- Parallel-connections possible
- Configurable switch-on threshold



Item Number	787-880	787-881
Description	Capacitive Buffer Module	Capacitive Buffer Module
Nominal input voltage V_i	24 VDC	24 VDC
Input current I_i	60 mA (no-load running); 1 A (charging); 11 A (max.)	60 mA (no-load running); 1 A (charging); 22 A (max.)
Charging time	typ. 5 minutes	typ. 5 minutes
Switch-on threshold (adjustable)	20-24 VDC	20-24 VDC
Output voltage range	$V_i - 1$ VDC (below switch-on threshold); 20.4-24 V (buffer mode)	$V_i - 1$ VDC (below switch-on threshold); 20.4-24 V (buffer mode)
Output current I_o	10 A	20 A
Buffer time	0.06-7.2 s (depends on load current and switch-on threshold)	0.17-16.5 s (depends on load current and switch-on threshold)
Parallel-connections possible	yes	yes
LED indication	LED; isolated relay contact	LED; isolated relay contact
Ambient operating temperature	-10 °C ... +50 °C	-10 °C ... +50 °C
Dimensions (mm) W x H x L H from upper-edge of DIN-rail L = 127 mm, without pluggable female connectors	57 x 179 x 163	57 x 179 x 181



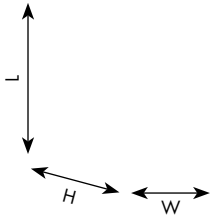
Decoupled Output

- Integrated diode
- Buffered and unbuffered loads can be decoupled
- Multiple buffer modules can be parallel-connected to increase buffer time or load current

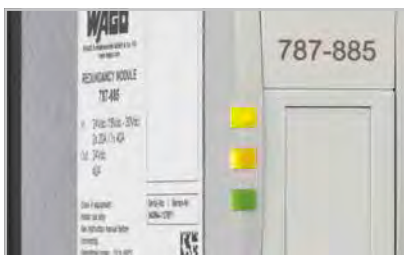
LED Indication

- Three LEDs (green/yellow/red) indicate the current operating status
- The isolated signal contact indicates the charge level

EPSITRON® REDUNDANCY MODULES



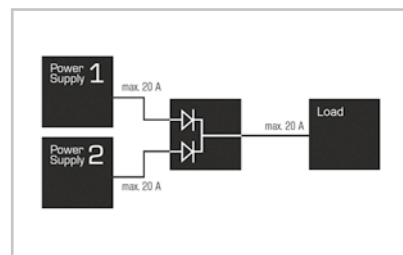
Item Number	787-885	787-886	787-783
Description	Redundancy Module	Redundancy Module	-
Nominal input voltage V_i	2 x 24 VDC	2 x 48 VDC	2 x 24 VDC (9-54 VDC)
Input current I_i	2 x 20 A, together max. 1 x 40 A	2 x 20 A, together max. 1 x 40 A	2 x max. 12.5 A
Nominal output voltage $V_{o, nom}$	24 VDC	48 VDC	2 x 9-54 VDC
Output current I_o	20 A, max. 40 A	20 A, max. 40 A	max. 12.5 A as redundancy module, max. 25 A in parallel operation
Efficiency	97 % typ.	96 % typ.	96 %
Power loss P_v	1.5 W (no load) / 14 W (nominal load 20 A) / 26 W (nominal load 40 A)	1.7 W (no load) / 20 W (nominal load 20 A) / 40 W (nominal load 40 A)	12.5 W at nominal load
LED indication	LED; isolated relay contact	LED; isolated relay contact	2 x green LED (input); 1 x green LED (output)
Ambient operating temperature	-10 °C ... +60 °C	-10 °C ... +60 °C	-25 °C ... +70 °C
Dimensions (mm) W x H x L	40 x 163 x 181	40 x 163 x 181	50 x 92 x 130



LED Indication

- Three LEDs indicate the presence of an input or output voltage
- Optional isolated signal contact* indicates a power outage at the input

*only for 787-885 and -886



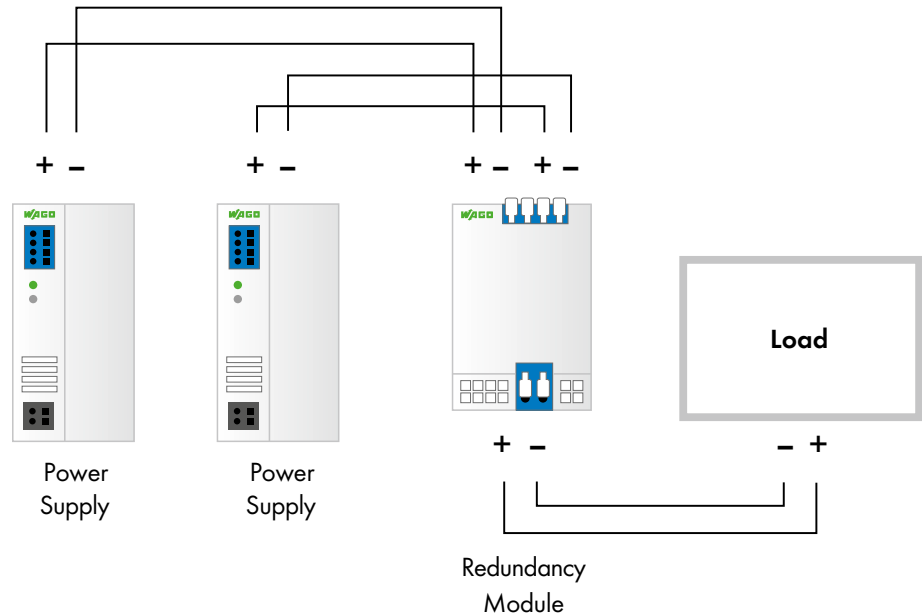
High Overload Capability

- Power diodes in each input path feature high overload capability and are also suitable for power supplies with TopBoost or PowerBoost
- Bridging the input paths permits output currents up to 76 A



787-785

-
- 2 x 24 VDC (9-54 VDC)
- 2 x max. 40 ADC
- 2 x 9-54 VDC
- max. 40 A as redundancy module,
max. 76 A in parallel operation
- 97 %
- 30 W at nominal load
- 2 x green LED (input);
1 x green LED (output)
- 25 °C ... +70 °C
- 83 x 150 x 130



Reliably Increasing Power Supply Availability

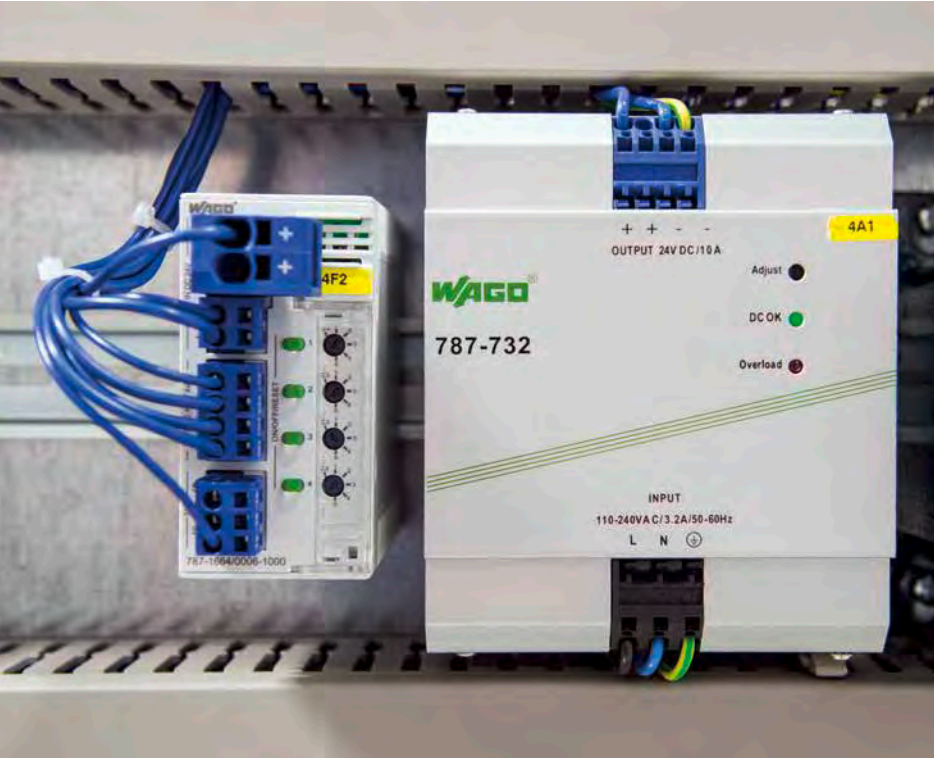
Redundancy modules decouple two parallel-connected power supplies and are ideal for applications where an electrical load must be reliably supplied – even in the event of a power supply failure.



- **Integrated power diodes with overload capability**
- **Solutions for 12/24/48 VDC supply, up to 76 A**
- **Parallel-connections possible, reverse voltage protection**
- **LED indication and optional signal contact**



EPSITRON® ELECTRONIC CIRCUIT BREAKER



WAGO's compact 787-1664 Electronic Circuit Breaker provides reliable and precise overcurrent protection on the output side.

Compact and Precise ECB for Direct Voltage Circuits

2-, 4- and 8-channel ECBs support 24 VDC applications with adjustable currents ranging from 0.5 A to 10 A.

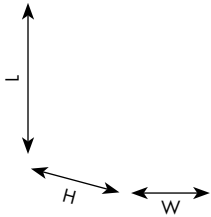
RS (ECBs)



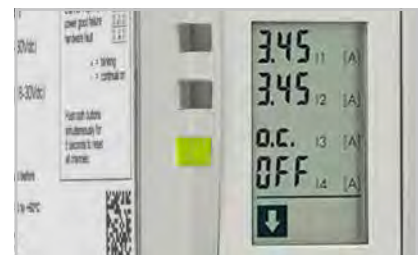
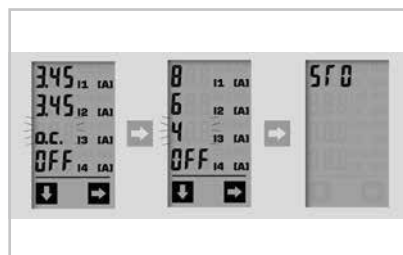
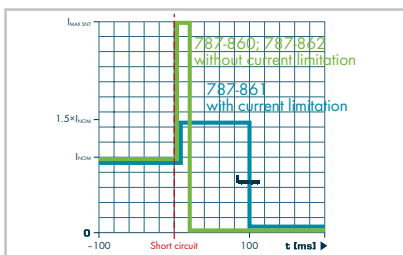
- Two, four or eight channels with a 6-stage adjustable nominal current
- Slim design, communication capability
- High switch-on capacity reduces false tripping
- Optional active current limitation



EPSITRON® ELECTRONIC CIRCUIT BREAKER



Item Number	787-860	787-862	787-861
Description	Electronic Circuit Breaker	Electronic Circuit Breaker	Electronic Circuit Breaker with Active Current Limitation
Nominal input voltage	24 VDC	24 VDC	24 VDC
Nominal output voltage	4 x 24 VDC	4 x 24 VDC	4 x 24 VDC
Nominal current	4 x 1-6 ADC (adjustable for each channel in 1 A steps)	4 x 1-10 ADC (adjustable for each channel in 1 A steps)	4 x 1-8 ADC (adjustable for each channel in 1 A steps)
Trip time	100 s (100 ms to 600 s; adjustable)	100 s (100 ms to 600 s; adjustable)	100 ms (100 ms to 1.5 s; adjustable, depending on nominal current)
Switch-on capacity	max. 20,000 µF per channel	max. 20,000 µF per channel	max. 20,000 µF per channel
Switch-on behavior	Time-delayed channel switching (250 ms each)	Time-delayed channel switching (250 ms each)	Time-delayed channel switching (250 ms each)
LED indication	LED, LCD, 4 x signal output 24 VDC, 25 mA and 1 x isolated relay contact 60 VDC, 3 A	LED, LCD, 4 x signal output 24 VDC, 25 mA and 1 x isolated relay contact 60 VDC, 3 A	LED, LC display, 4 x signal output 24 VDC, 25 mA
Remote control input	yes	yes	no
Short-circuit current limitation	-/-	-/-	1.5 x nominal current typ.
Ambient operating temperature	-10 °C ... +60 °C	-10 °C ... +60 °C	-10 °C ... +60 °C
Dimensions (mm) W x H x L	40 x 163 x 171	40 x 163 x 171	40 x 163 x 171



Trip Characteristics

- Reliable and precise disconnection in case of overcurrent and short circuit
- Nominal currents can be set separately for each channel in 1 A increments
- Tripping time can be configured in defined increments
- Optional, active short-circuit current limitation* to 1.5 times the nominal current prevents a voltage drop in other current paths

Switching and Acknowledging

- Activate tripped channels and switch channels with the click of a button
- Activate tripped channels via RS-232 interface
- Optional activation of all tripped channels via an impulse at the remote control input**

LED Indication

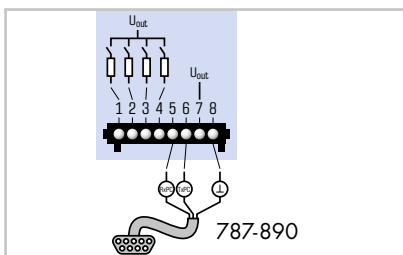
- Three LEDs (green/yellow/red) for easily monitoring various operating conditions
- Display shows actual current and voltage levels, as well as status messages in several views
- Integrated fault memory for quick diagnostics
- Four active signal outputs
- RS-232 serial interface permits fault diagnostics on a PC or PLC
- Potential-free contact**

*only for 787-861 **only for 787-860 and -862

RS (ECBs)



787-1662	787-1662/0106-0000	787-1662/0006-1000
Electronic Circuit Breaker	Electronic Circuit Breaker	Electronic Circuit Breaker with Active Current Limitation
24 VDC	24 VDC	24 VDC
2 x 24 VDC	2 x 24 VDC	2 x 24 VDC
2 x 2, 3, 4, 6, 8, 10 ADC (adjustable, channel-by-channel via rotary switch)	2 x 1, 2, 3, 4, 5, 6 ADC (adjustable, channel-by-channel via rotary switch)	2 x 0.5, 1, 2, 3, 4, 6 ADC (adjustable, channel-by-channel via rotary switch)
Load-dependent (16 ms to 100 s)	Load-dependent (16 ms to 100 s)	Load-dependent (16 ms to 100 s)
> 50,000 µF per channel	> 50,000 µF per channel	> 65,000 µF per channel
Time-delayed channel switching (load-dependent, 50 ms to 5 s)	Time-delayed channel switching (load-dependent, 50 ms to 5 s)	Time-delayed channel switching (load-dependent, 50 ms to 5 s)
2 x LED (green/red/orange), 2 x signal output	2 x LED (green/red/orange), 2 x signal output	2 x LED (green/red/orange), 2 x signal output
yes	yes	yes
-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C
45 x 115.5 x 90	45 x 115.5 x 90	45 x 115.5 x 90



Configuration

- Display and function keys for direct, on-site parameterization
- RS-232 serial interface permits advanced parameterization via PC; free 759-860 Configuration Software available at: www.wago.com/epsitron
- Free download of function blocks for visualization on standard PLC systems

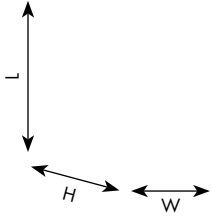
Pluggable CAGE CLAMP® Connection Technology

- Fast, vibration-proof, maintenance-free
- For solid, fine-stranded or ferruled conductors
- 100 % protected against mismatching
- Easy-to-see terminal marking

Marking

- Device identification via WMB markers or TOPJOB® S marking strips
- Label individual channels via marking strips that can be inserted into the covers of the rotary switches from the outside

EPSITRON® ELECTRONIC CIRCUIT BREAKER



Item Number	787-1664	787-1664/0106-0000	787-1664/0006-1000
Description	Electronic Circuit Breaker	Electronic Circuit Breaker	Electronic Circuit Breaker with Active Current Limitation
Nominal input voltage	24 VDC	24 VDC	24 VDC
Nominal output voltage	4 x 24 VDC	4 x 24 VDC	4 x 24 VDC
Nominal current	4 x 2, 3, 4, 6, 8, 10 ADC (adjustable, channel-by-channel via rotary switch)	4 x 1, 2, 3, 4, 5, 6 ADC (adjustable, channel-by-channel via rotary switch)	4 x 0.5, 1, 2, 3, 4, 6 ADC (adjustable, channel-by-channel via rotary switch)
Trip time	Load-dependent (16 ms to 100 s)	Load-dependent (16 ms to 100 s)	Load-dependent (16 ms to 100 s)
Switch-on capacity	> 50,000 µF per channel	> 50,000 µF per channel	> 65,000 µF per channel
Switch-on behavior	Time-delayed channel switching (load-dependent, 50 ms to 5 s)	Time-delayed channel switching (load-dependent, 50 ms to 5 s)	Time-delayed channel switching (load-dependent, 50 ms to 5 s)
LED indication	4 x LED (green/red/orange), 2 x signal output	4 x LED (green/red/orange), 2 x signal output	4 x LED (green/red/orange), 2 x signal output
Remote control input	yes	yes	yes
Ambient operating temperature	-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C
Dimensions (mm) W x H x L	45 x 115.5 x 90	45 x 115.5 x 90	45 x 115.5 x 90



Intuitive Communication

- Each output channel has backlit buttons for switching on/off, as well as acknowledging
- Integrated multi-color LEDs indicate the operating states of each channel

Rotary Switches

- Nominal current can be individually adjusted for each channel
- Setting is visible even when no voltage is applied
- Transparent cover can be sealed and marked

RS (ECBs)

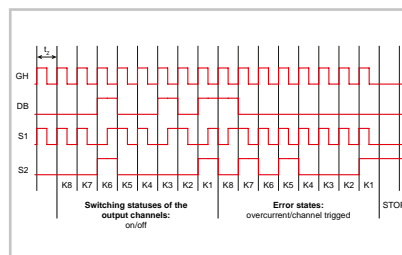


787-1668	787-1668/0106-0000	787-1668/0006-1000
Electronic Circuit Breaker	Electronic Circuit Breaker	Electronic Circuit Breaker with Active Current Limitation
24 VDC	24 VDC	24 VDC
8 x 24 VDC	8 x 24 VDC	8 x 24 VDC
8 x 2, 3, 4, 6, 8, 10 ADC (adjustable, channel-by-channel via rotary switch)	8 x 1, 2, 3, 4, 5, 6 ADC (adjustable, channel-by-channel via rotary switch)	8 x 0.5, 1, 2, 3, 4, 6 ADC (adjustable, channel-by-channel via rotary switch)
Load-dependent (16 ms to 100 s)	Load-dependent (16 ms to 100 s)	Load-dependent (16 ms to 100 s)
> 50,000 µF per channel	> 50,000 µF per channel	> 65,000 µF per channel
Time-delayed channel switching (load-dependent, 50 ms to 5 s)	Time-delayed channel switching (load-dependent, 50 ms to 5 s)	Time-delayed channel switching (load-dependent, 50 ms to 5 s)
8 x LED (green/red/orange), 2 x signal output	8 x LED (green/red/orange), 2 x signal output	8 x LED (green/red/orange), 2 x signal output
yes	yes	yes
-25 °C ... +70 °C	-25 °C ... +70 °C	-25 °C ... +70 °C
42 x 142.5 x 127	42 x 142.5 x 127	42 x 142.5 x 127



Communication 1.0

- Remote digital input S1 resets all tripped channels
- Digital output S3 transmits a simple group message, indicating if one of the channels was triggered by an overcurrent



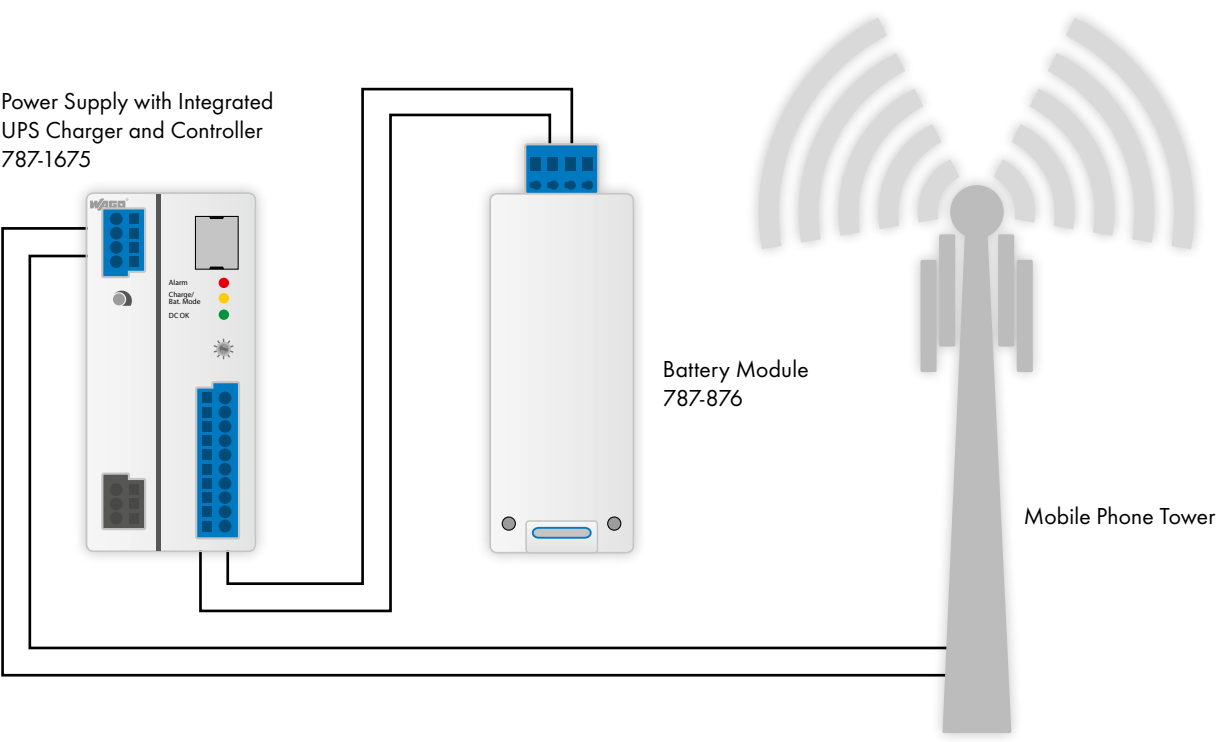
Communication 2.0

- Remote digital input S1 switches on and off certain channels via pulse sequence
- Digital output S2 transmits the current status (on/off/tripped/overcurrent) of each individual channel
- Optional transmission of input voltage and output/nominal current value for each channel

EPSITRON[®] SOLUTIONS

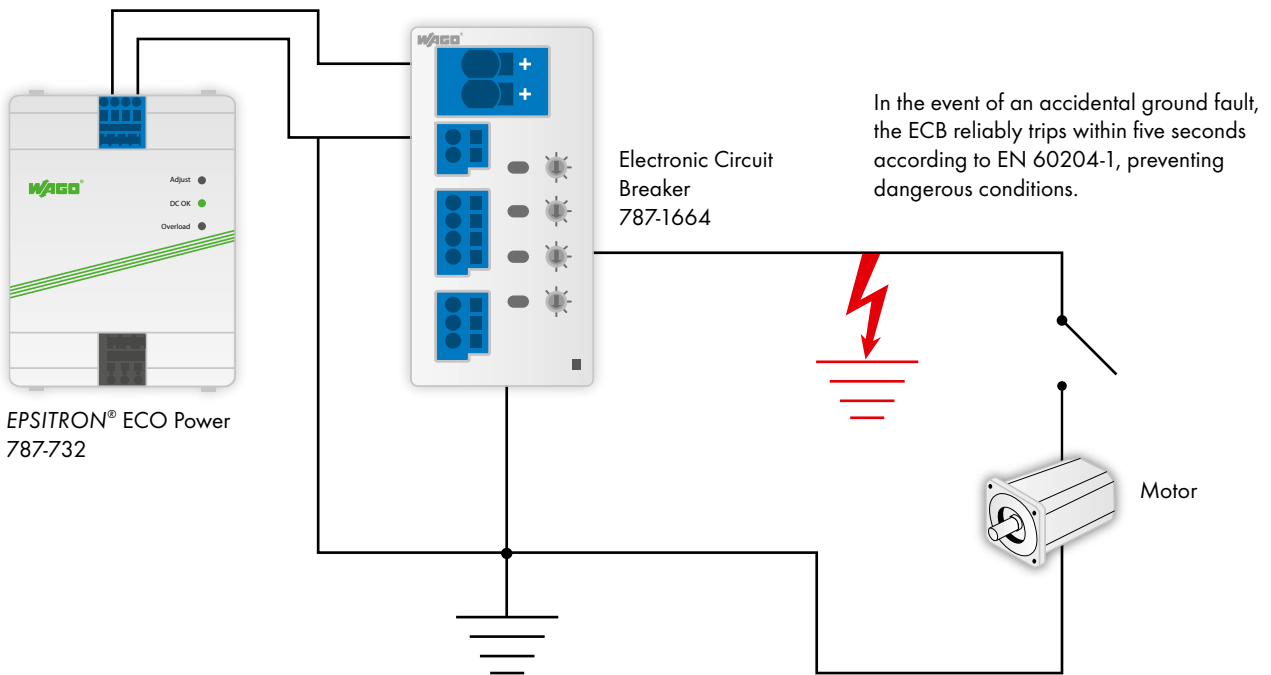


Power Supply for a Remotely Located Mobile Phone Tower





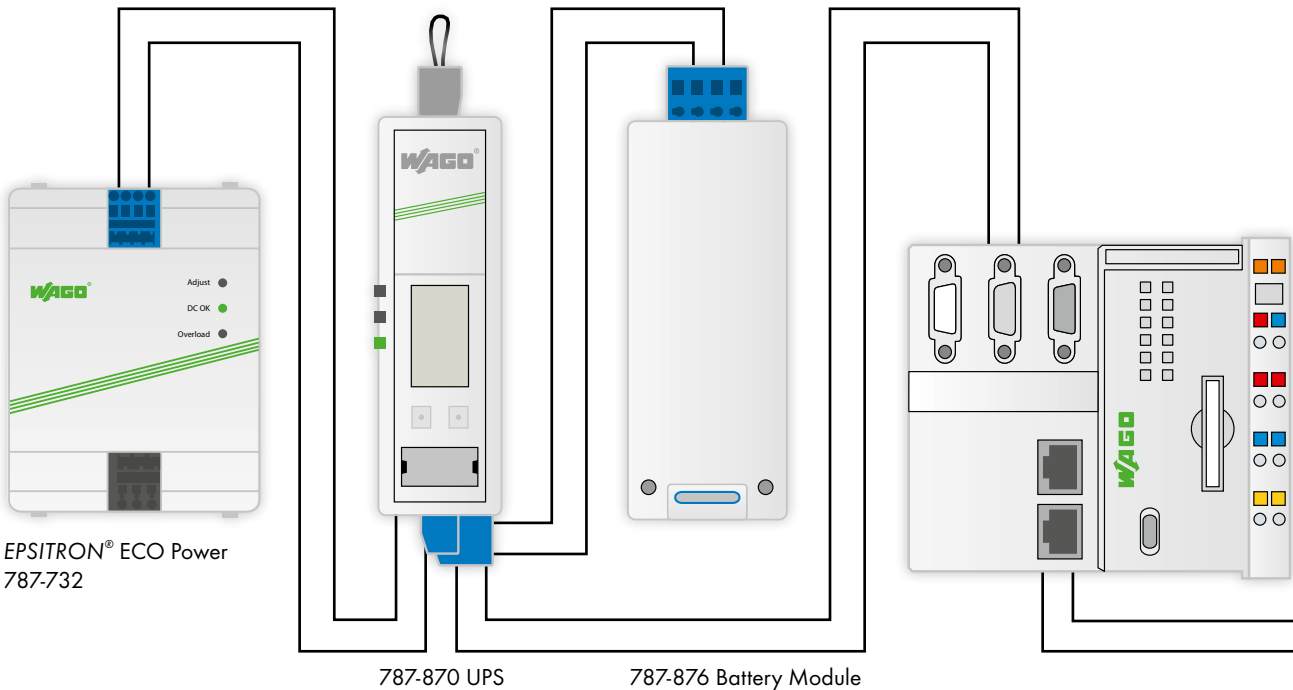
ECB Prevents Accidental Restart



EPSITRON® SOLUTIONS

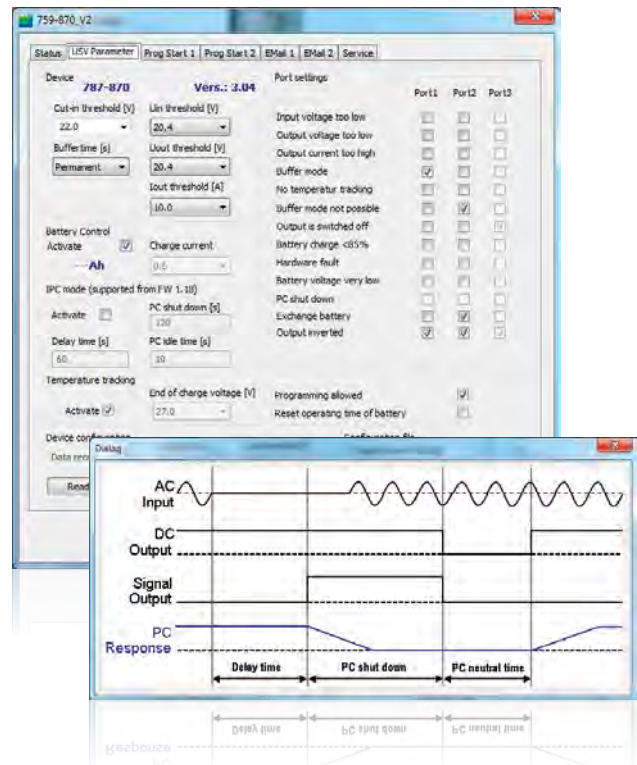
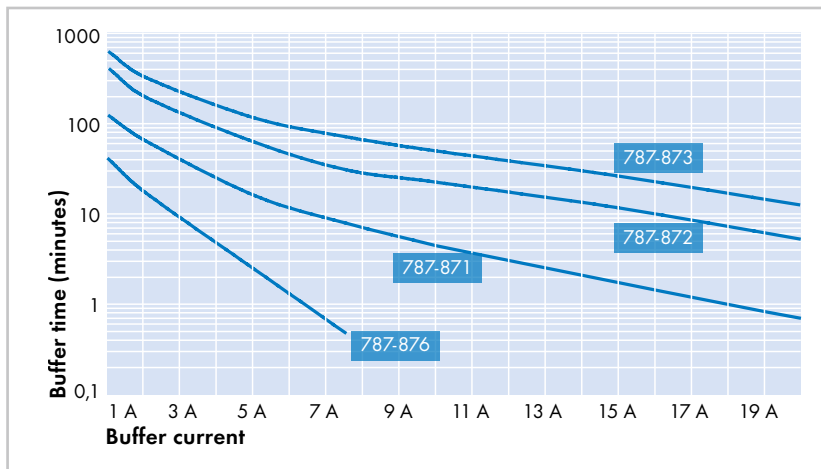


UPS Shutdown Function Permits Controlled System Shutdown



Buffer Time versus Load Current

Different buffer times/currents can be achieved depending on the battery module selected. The example below shows a 7 A load current provided for approximately 30 seconds by a 787-870 UPS Charger and Controller (10 A) and 787-876 Battery Module.



EPSITRON® COMMUNICATION

EPSITRON® PRO Power



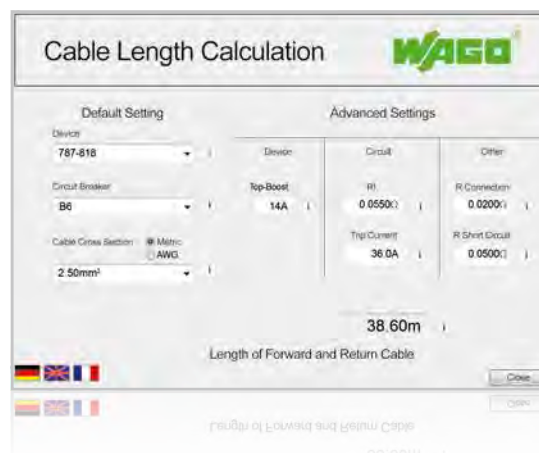
Easy Configuration and Monitoring of 787-85x PRO Power Supplies via RS-232 Interface and WAGO Software

Easily connect a notebook, PLC or WAGO-I/O-SYSTEM via RS-232 interface for quickly monitoring and configuring 787-85x PRO Power Supplies. Function blocks are available for multiple controller variants.

An integrated cable length calculator helps configure the system. It determines whether the PRO Power Supply can trip the required thermomagnetic circuit breaker at the required cable cross section and length.

```

FB78785XGETDATA
-----
xEnable : BOOL          sDeviceId : STRING(20)
bComPortNumber : BYTE  rVoltageIn1 : REAL
xReset : BOOL          rVoltageIn2 : REAL
                    rVoltageIn3 : REAL
                    iFrequencyIn : INT
                    rVoltageIn3PAverage : REAL
                    xAC3PRotateRight : BOOL
                    xAC3PRotateLeft : BOOL
                    rVoltageOutDC : REAL
                    rCurrentOutDC : REAL
                    rCurrentOutMaxDC : REAL
                    rCurrentOutMinDC : REAL
dwOperatingHours : DWORD
xHardwareFault : BOOL
xCommFault : BOOL
xPhase1Fault : BOOL
xPhase2Fault : BOOL
xPhase3Fault : BOOL
xLineOffAC : BOOL
xOverVoltageAC1 : BOOL
xOverVoltageAC2 : BOOL
xOverVoltageAC3 : BOOL
xUnderVoltageAC1 : BOOL
xUnderVoltageAC2 : BOOL
xUnderVoltageAC3 : BOOL
xOverFrequencyAC : BOOL
xUnderFrequencyAC : BOOL
xOverCurrentDC : BOOL
xUnderVoltageDC : BOOL
xDataValid : BOOL
xComPortOpen : BOOL
    
```





The configuration software allows you to set a maintenance timer that notifies the user when an operating hour limit has been reached.

Permissible voltage and current levels can also be set and monitored with the configuration software. This value-added benefit eliminates the need for additional equipment, such as an hour meter or phase monitoring device.

Both input and output of the EPSITRON® PRO Power Supply are monitored via 759-851 Visualization Software. In addition to monitoring, both input and output data recording and analysis are possible (see graphic).



EPSITRON® COMMUNICATION

Electronic Circuit Breakers (ECBs)



FB78786XGETDATA	
xEnable : BOOL	sDeviceId : STRING(20)
bComPortNumber : BYTE	rVoltageIn : REAL
xReset : BOOL	rCurrentOut1 : REAL
	rCurrentOut2 : REAL
	rCurrentOut3 : REAL
	rCurrentOut4 : REAL
	rVoltageInMin : REAL
	rCurrentOutMax1 : REAL
	rCurrentOutMax2 : REAL
	rCurrentOutMax3 : REAL
	rCurrentOutMax4 : REAL
	rRatedCurrent1 : REAL
	rRatedCurrent2 : REAL
	rRatedCurrent3 : REAL
	rRatedCurrent4 : REAL
	xHardwareFault : BOOL
	xUnderVoltageIn : BOOL
	xOverCurrent1 : BOOL
	xOverCurrent2 : BOOL
	xOverCurrent3 : BOOL
	xOverCurrent4 : BOOL
	xOpenCircuit1 : BOOL
	xOpenCircuit2 : BOOL
	xOpenCircuit3 : BOOL
	xOpenCircuit4 : BOOL
	xDataValid : BOOL
	xComPortOpen : BOOL

Function blocks for ECB monitoring that use the WAGO-I/O-SYSTEM, or different control systems, are available for free.

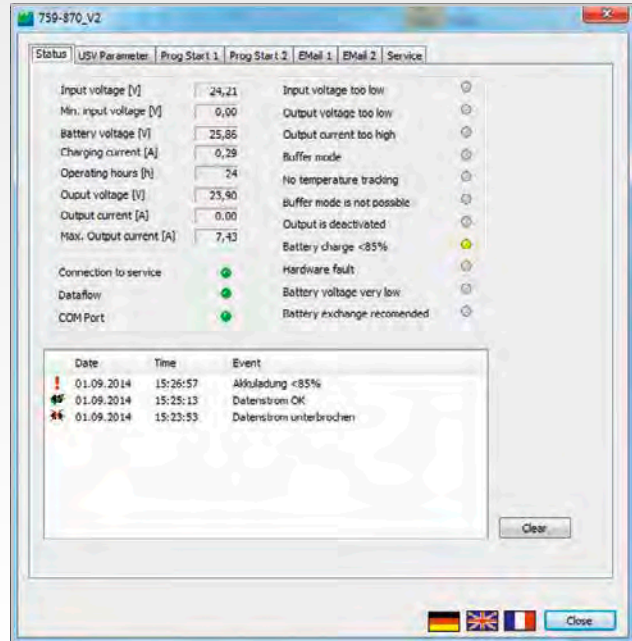
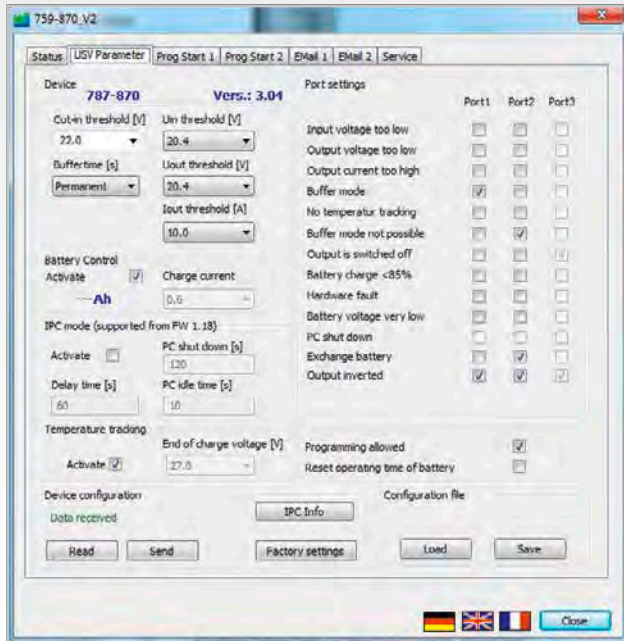
Select ECBs and UPS units from the EPSITRON® Series also feature an built-in display and an RS-232 interface for convenient configuration and monitoring.

Each of the four channels can be independently configured via 759-860 Configuration Software.

Visualize:

- Nominal current
- Actual output current
- Maximum output current per channel
- Input voltage
- Minimum input voltage
- Warnings and error condition

Uninterruptible Power Supply (UPS)



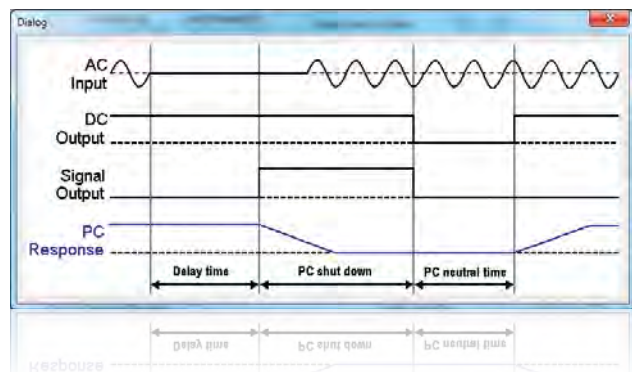
```

FB78787XGETDATA
-----
xEnable: BOOL
xCompPortNumber: BYTE
xReset: BOOL
sDeviceId: STRING(30)
rVoltageIn: REAL
rVoltageInMin: REAL
rVoltageBattery: REAL
rCurrentCharging: REAL
dwOperatingHours: DWORD
rVoltageOut: REAL
rCurrentOut: REAL
rCurrentOutMax: REAL
xVoltageInTooLow: BOOL
xVoltageOutTooLow: BOOL
xCurrentOutOverLimit: BOOL
xBatteryMode: BOOL
xNoBufferMode: BOOL
xNoTempTracking: BOOL
xOutputOff: BOOL
xBatteryChargeUnder: BOOL
xHardwareFault: BOOL
xVoltageChargeVeryLow: BOOL
xAccuChangeRecommended: BOOL
xDataValid: BOOL
xCompPortOpen: BOOL
    
```

The EPSITRON® UPS unit can be conveniently configured using the free 759-870 Software.

Values for the input voltage, battery data, output voltage and current, as well as error status are displayed in the software.

In addition to easily connecting to a notebook for monitoring via 759-870 Software, the UPS unit can be connected to the WAGO I/O-SYSTEM via RS-232 interface. The free WAGO function block allows easy monitoring of the UPS input and output data.



EPSITRON® ACCESSORIES



787-890 RS-232 Communication Cable, 1.8 m long

The communication cable is used for configuration and visualization via PC, notebook or PLC. It is suitable for all 787-8xx Series modules equipped with an RS-232 serial interface.

Connectors: 8-pole 733-108 Female Connector with strain relief (787-8xx module side), 9-pole D-sub Female Connector (PC/PLC side)

787-892 RS-232 Communication Cable, 1.8 m long (not pictured)

Similar to 787-890, but carries a 4-pole 734-104 Female Connector; compatible with 787-1675



761-9005 USB Adapter with 1 m connection cable

The USB adapter transmits RS-232 signals to the USB interface of a PC or notebook. The adapter is simply plugged into the 787-890 Communication Cable Connector.

Connectors: 9-pole D-sub male connector (RS-232), USB connector (type A)

Notice: No electrical isolation



787-895 Wall Mount Adapter secures 787-8xx devices on a mounting plate or wall without DIN-rail

The wall mount adapter replaces the rail support for a 787 8xx device. The adapter is secured to the 787-8xx device via provided screws.



787-896 Carrier Rail Adapter for mounting 787-8xx devices to DIN-rail

The 787-896 Carrier Rail Adapter supports both the vertical and horizontal mounting of 787-8xx devices. To mount the adapter to the device, slide both single parts into the cooling element's guide slots and then screw; this allows the position to be easily changed.



787-897 Carrier Rail Adapter made of zinc die-cast for mounting 787-8xx devices to DIN-rail

Mounting the adapter to the device is performed by pressing the adapter into the guide slots of the cooling element via operating tool. An extremely secure fit ensures reliable operation – even in environments subject to permanent vibrations.



Operating tools with partially insulated shafts, ideal for operating terminal blocks

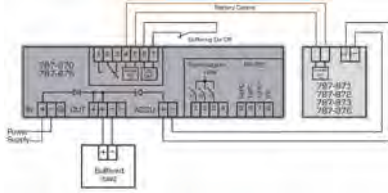
210-719: Operating tool with partially insulated shaft, type 1, (2.5 x 0.4) mm blade, suitable for 733 and 734 Series Female Connectors

210-720: Operating tool with partially insulated shaft, type 2, (3.5 x 0.5) mm blade, suitable for 231 and 721 Series Female Connectors

210-721: Operating tool with partially insulated shaft, type 3, (5.5 x 0.8) mm blade, suitable for 831 Series Female Connectors

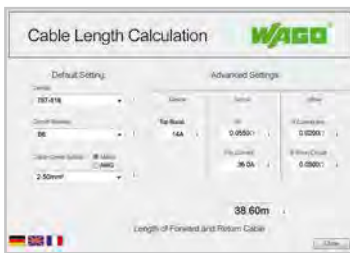
210-769: Phillips PH0 operating tool, type 1, PH0 blade; used for setting the voltage of 787-10xx Series EPSITRON® COMPACT Power Supplies

EPSITRON® GLOSSARY



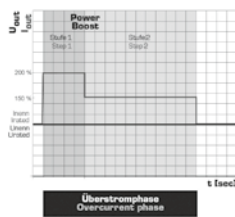
Battery Control

EPSITRON® battery control technology allows data exchange between intelligent battery modules and a UPS charger/controller. In addition to the temperature value, information on type and service life of the connected battery modules is also transmitted to the charger and controller.



TopBoost

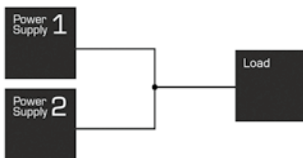
In order for high-speed magnetic miniature circuit breakers to trip, currents that are significantly higher than the rated current are required for 10–12 milliseconds. PRO Power Supplies deliver a multiple of their nominal current for a short time – the faulty circuit can be shut off within milliseconds during a short circuit. This increases uptime of the entire power supply while fulfilling EN 60204-1 requirements regarding grounding in control circuits. Using the free cable length calculator available from www.wago.com/epsitron, the designer or planner can check in advance the layout of the line protection based on cable lengths, cable cross section, characteristics of the protective device and type of power supply.



PowerBoost

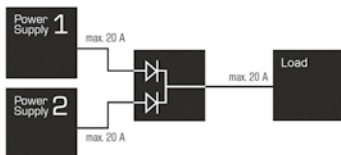
During start-up or the switching of capacitive loads (valve clusters, motors, etc.), there is an increased need for current. However, conventional switch mode power supplies usually require a much larger switch mode power supply to avoid switching to overload operation or short-circuit limitation.

In this case, PRO Power Supplies provide power reserves – up to 200 % of the nominal current at the output for up to four seconds, maximum 150 % in a second stage. The availability of twice the output power for a short time ensures reliable operation and eliminates the expensive oversizing of switch mode power supplies. This also saves space in the control cabinet and reduces power losses, while ensuring optimum efficiency.



Parallel Connection of Power Supplies – for Extra Power

Most power supplies from the EPSITRON® Series allow parallel connection of power supply units for extra power, except for 787-601 and 787-602 devices. To achieve a distribution of load that is as uniform as possible for parallel-connected devices, the output voltage without load must be set as precisely as possible to the same value. Star wiring using external rail-mounted terminal blocks is required to ensure the resistance levels for all power supplies are as equal as possible to the load. Do not perform parallel connection directly via the power supplies' female connectors. Using PRO Power Supplies, power supply units with differing output power levels may also be connected in parallel. Otherwise, only connect power supplies of the same type in parallel.



Parallel Connection of Power Supplies – for Increased Power Availability

Parallel connection using decoupling diodes in the respective current path reliably prevents reverse currents. In normal operation, both units supply the load. If a power supply fails, the intact power supply becomes responsible for complete supply of the load. This increases the power supply system's uptime. Of course, the nominal current of each power supply must be higher than the maximum arising load current.

The redundancy modules feature two powerful decoupling diodes, providing a permanent 40 A load current per current path.

WE! INNOVATE!

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Online: www.wago.com



320W Single Output with PFC Function

SP-320 series



■ Features :

- Universal AC input / Full range
- Built-in active PFC function, PF>0.95
- Protections: Short circuit / Overload / Over voltage / Over temperature
- Forced air cooling by built-in DC Fan
- Built-in fan speed control
- Fixed switching frequency at 100KHz
- 3 years warranty



SPECIFICATION

MODEL							SP-320-24			SP-320-48
OUTPUT	DC VOLTAGE						24V			48V
	RATED CURRENT						13A			6.7A
	CURRENT RANGE						0 ~ 13A			0 ~ 6.7A
	RATED POWER						312W			321.6W
	RIPPLE & NOISE (max.) Note.2						150mVp-p			240mVp-p
	VOLTAGE ADJ. RANGE						20 ~ 26.4V			41 ~ 56V
	VOLTAGE TOLERANCE Note.3						±1.0%			±1.0%
	LINE REGULATION						±0.2%			±0.2%
	LOAD REGULATION						±0.5%			±0.5%
	SETUP, RISE TIME	800ms, 50ms/230VAC		2500ms, 50ms/115VAC at full load						
HOLD UP TIME (Typ.)	16ms/230VAC		16ms/115VAC at full load							
INPUT	VOLTAGE RANGE Note.5	88 ~ 264VAC		124 ~ 370VDC						
	FREQUENCY RANGE	47 ~ 63Hz								
	POWER FACTOR (Typ.)	PF>0.95/230VAC		PF>0.98/115VAC at full load						
	EFFICIENCY (Typ.)						87%			89%
	AC CURRENT (Typ.)	115VAC		5A						
		230VAC		2.5A						
	INRUSH CURRENT (Typ.)	20A/115VAC		40A/230VAC						
LEAKAGE CURRENT	<1mA / 240VAC									
PROTECTION	OVERLOAD	105 ~ 135% rated output power		Protection type : Hiccup mode, recovers automatically after fault condition is removed						
	OVER VOLTAGE						27.6 ~ 32.4V			57.6 ~ 67.2V
	OVER TEMPERATURE	Shut down o/p voltage, re-power on to recover								
ENVIRONMENT	WORKING TEMP.	-20 ~ +65°C (Refer to "Derating Curve")								
	WORKING HUMIDITY	20 ~ 90% RH non-condensing								
	STORAGE TEMP., HUMIDITY	-40 ~ +85°C, 10 ~ 95% RH								
	TEMP. COEFFICIENT	±0.03%/°C (0 ~ 50°C)								
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes								
SAFETY & EMC (Note 4)	SAFETY STANDARDS	UL60950-1, TUV EN60950-1, CCC GB4943(except for 3.3V, 36V) approved								
	WITHSTAND VOLTAGE	I/P-O/P:3KVAC I/P-FG:2KVAC O/P-FG:0.5KVAC								
	ISOLATION RESISTANCE	I/P-O/P, I/P-FG, O/P-FG:100M Ohms / 500VDC / 25°C / 70% RH								
	EMC EMISSION	Compliance to EN55022 (CISPR22) Class B, EN61000-3-2,-3								
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN55024, light industry level, criteria A								
OTHERS	MTBF	207K hrs min. MIL-HDBK-217F (25°C)								
	DIMENSION	215*115*50mm (L*W*H)								
	PACKING	1.1Kg; 12pcs/14Kg/0.92CUFT								
NOTE	1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature. 2. Ripple & noise are measured at 20MHz of bandwidth by using a 12" twisted pair-wire terminated with a 0.1uf & 47uf parallel capacitor. 3. Tolerance : includes set up tolerance, line regulation and load regulation. 4. The power supply is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, please refer to "EMI testing of component power supplies." (as available on http://www.meanwell.com) 5. Derating may be needed under low input voltages. Please check the derating curve for more details.									

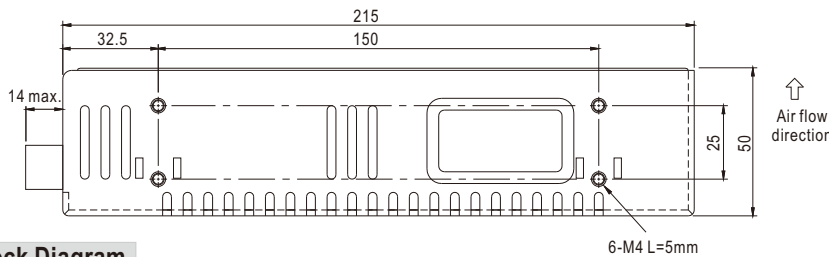
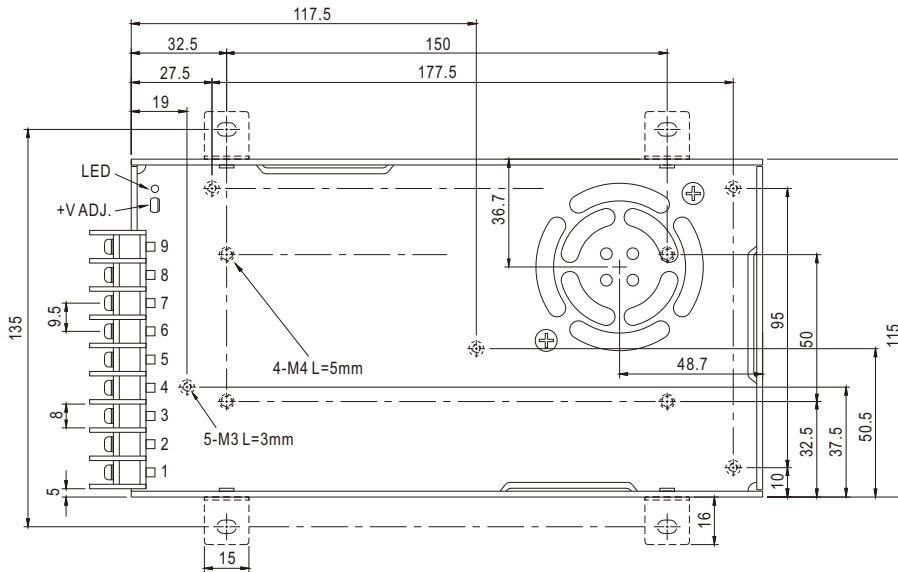


320W Single Output with PFC Function

SP-320 series

Mechanical Specification

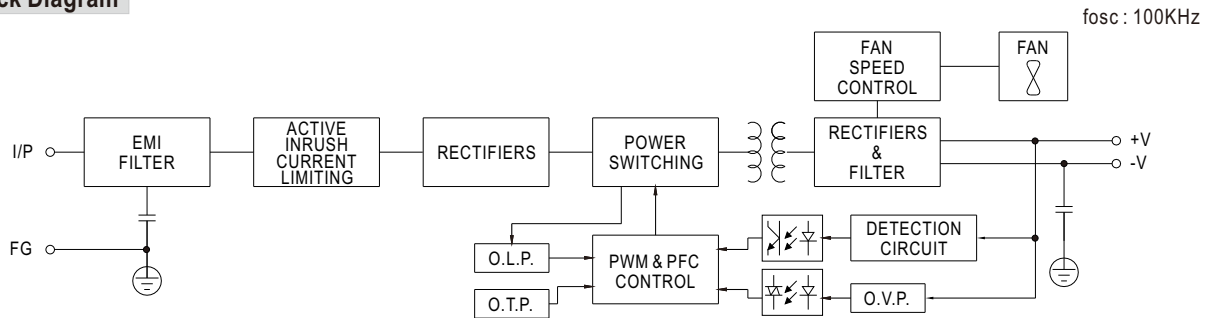
Case No. 912G Unit:mm



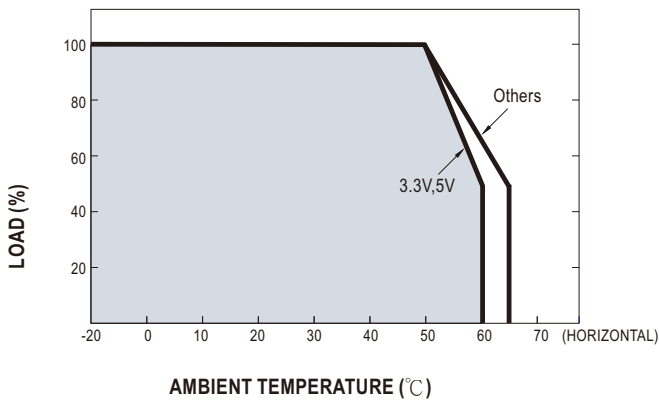
Terminal Pin No. Assignment :

Pin No.	Assignment	Pin No.	Assignment
1	AC/L	4~6	DC OUTPUT -V
2	AC/N	7~9	DC OUTPUT +V
3	FG \perp		

Block Diagram



Derating Curve



Static Characteristics

