

Features

Universal AC input: 100–277V AC
 Built-in active PFC
 Efficiency up to 91.5%
 Adjustable output voltage
 Remote on/off control
 Remote sense, up to 0.3V compensation
 -30°C to +70°C operating temperature
 3 years warranty
 Built-in fan with fan on/off control
 OLP, SCP, OVP, OTP

56YEP500-xx Series

500W Enclosed AC/DC Power Supply (PSU)



Image for illustration purposes only.



Description

The 56YEP500-xx series is a 500W enclosed AC/DC power supply range in a low-profile housing, with eight single-output models from 5V to 60V. A universal AC input and built-in active PFC suit it to industrial mains supplies. Remote on/off control and remote sense share one 4-pin connector, and Class I construction means the unit needs a protective earth connection.

Certified to UKCA, CE, RoHS and REACH, and built to EN IEC 62368-1 and BS EN IEC 62368-1, with EMC to BS EN/EN 55032 Class B, EN 55035, BS EN/EN 61000-3-2, BS EN/EN 61000-3-3 and the BS EN/EN 61000-4 immunity series. The unit meets RoHS requirements. These are primarily used in industrial automation and control systems, and customised solutions are available upon request.

Part Number Breakdown

56YEP	500	xx
Series Name	Output Power	Output Voltage

Models

Part Number	Output Voltage (V)	Rated Current (A)	Rated Power (W)	Voltage Adj. Range (V)	Average Efficiency (%)	Max. Capacitive Load (μF)
56YEP500-5	5.0	90.00	450.0	4.50–5.50	84.0	45,000
56YEP500-12	12.0	41.70	500.4	10.0–13.2	88.0	40,000
56YEP500-15	15.0	33.40	501.0	13.5–18.0	88.0	10,000
56YEP500-24	24.0	21.00	504.0	20.0–26.4	89.0	6,000
56YEP500-27	27.0	18.60	502.2	26.0–30.0	89.5	6,000
56YEP500-36	36.0	13.90	500.4	34.2–39.6	90.0	3,000
56YEP500-48	48.0	10.50	504.0	43.2–52.8	90.5	1,800
56YEP500-60	60.0	8.34	500.4	56.0–64.0	91.5	1,800

Input Specifications

Parameter	Specification
Input Voltage Range	100–277V AC
Input Frequency Range	47–63Hz
Power Factor (Typ.)	PF >0.95 @ 230V AC, full load PF >0.98 @ 115V AC, full load
AC Current (Typ.)	5.3A @ 115V AC 2.65A @ 230V AC
Inrush Current (Typ.)	20A @ 115V AC 40A @ 230V AC
Leakage Current	<2mA @ 240V AC

Output Specifications

Parameter	Specification							
Ripple & Noise (max.)	5V, 12V, 15V, 24V, 27V: 150mVp-p, 36V: 180mVp-p, 48V: 240mVp-p, 60V: 300mVp-p Measured at 20MHz bandwidth using a 12" twisted pair wire terminated with 0.1μF and 47μF parallel capacitors							
Voltage Tolerance	5V: ±2.0%	12V: ±1.0%	15V: ±1.0%	24V: ±1.0%	27V: ±1.0%	36V: ±1.0%	48V: ±1.0%	60V: ±1.0%
Line Regulation	5V: ±0.5%	12V: ±0.3%	15V: ±0.3%	24V: ±0.2%	27V: ±0.2%	36V: ±0.2%	48V: ±0.2%	60V: ±0.2%
Load Regulation	5V: ±1.0%	12V: ±0.5%	15V: ±0.5%	24V: ±0.5%	27V: ±0.5%	36V: ±0.5%	48V: ±0.5%	60V: ±0.5%
Temperature Coefficient	±0.03%/°C (0–50°C)							
Setup, Rise Time	1500mS, 80mS @ 230V AC, full load 3000mS, 80mS @ 115V AC, full load							
Hold Up Time (Typ.)	18mS @ 230V AC, full load 14mS @ 115V AC, full load							

Protection

Parameter	Specification							
Short Circuit Protection	Hiccup mode, automatic recovery after the fault condition is removed							
Overload Protection	105–130% rated output power Constant current limiting, automatic recovery after the fault condition is removed							
Overvoltage Protection (V)	5V:	12V:	15V:	24V:	27V:	36V:	48V:	60V:
	5.75–6.75	13.8–16.2	18.8–21.8	27.6–32.4	32.9–38.3	41.4–48.6	55.2–64.8	65.2–76.8
	Output shuts down; re-power on to recover							
Overtemperature Protection	Output shuts down; automatic recovery after the temperature goes down							

Environmental Characteristics

Parameter	Specification
Operating Temperature	-30°C to +70°C (refer to the derating curve)
Operating Humidity	20–90%RH non-condensing
Storage Temperature	-40°C to +85°C
Storage Humidity	10–95%RH non-condensing
Vibration	10–500Hz, 2G 10min./1 cycle, 60min. each along X, Y, Z axes
Altitude	Up to 2000m (6500ft) Above 2000m, derate the ambient temperature by 5°C/1000m
Cooling Method	Built-in fan with fan on/off control

Safety Standards

Parameter	Specification
Safety Standards	EN IEC 62368-1, BS EN IEC 62368-1
Certifications	UKCA, CE, RoHS, REACH
Dielectric Strength (Hi-pot)	I/P-O/P: 3kV AC I/P-FG: 2kV AC O/P-FG: 0.5kV AC
Insulation Resistance	I/P-O/P, I/P-FG, O/P-FG: 100MΩ @ 500V DC, 25°C, 70% RH
Overvoltage Category	III, according to EN 62368-1
Safety Protection	Class I

Electromagnetic Compatibility (EMC)

Parameter	Specification
EMC Emission	BS EN 55032, EN 55032 (CISPR 32) Class B, EN 55035 BS EN 61000-3-2, EN 61000-3-2 Class A BS EN 61000-3-3, EN 61000-3-3
EMC Immunity	BS EN 61000-4-11, EN 61000-4-11: Criteria B BS EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-8 and EN 61000-4-2, 4-3, 4-4, 4-5, 4-6, 4-8: Criteria A

Reliability

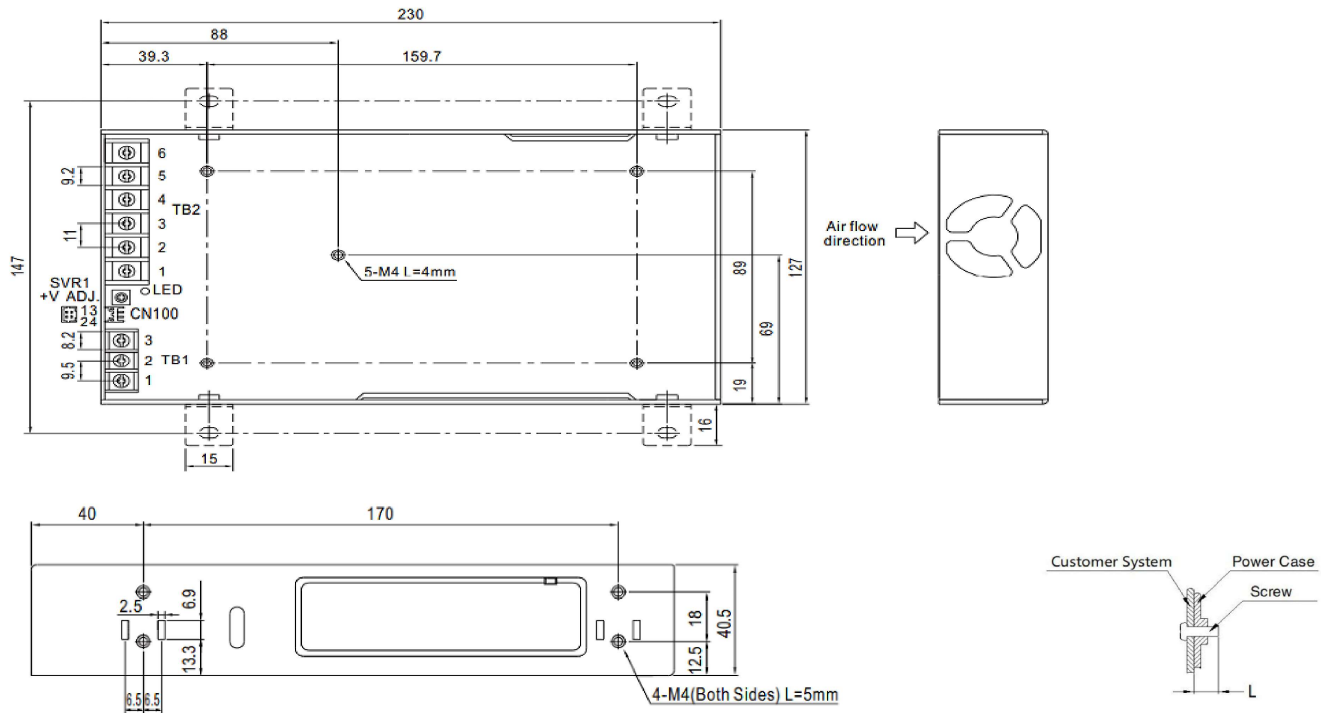
Parameter	Specification
MTBF	180,000 hours min. @ 25°C (MIL-HDBK-217F)

General Specifications

Parameter	Specification
Remote Control	Power ON: open or 0–0.8V DC between RC+ (pin 4) and RC- (pin 3) on CN100 Power OFF: 4–10V DC between RC+ (pin 4) and RC- (pin 3) on CN100 Control current: 6–20mA
Remote Sense	Compensates voltage drop on the load wiring up to 0.3V; sense lines should be twisted in pairs
Output Voltage Adjustment	SVR1 (+V ADJ.)
Switching Frequency	70kHz
Warranty	3 years

Weight & Dimensions

Parameter	Specification
Dimensions (L x W x H)	230 x 127 x 40.5mm (9.06 x 5.00 x 1.59in)
Weight	1.3kg

Mechanical Drawing


Input (TB1) and output (TB2) terminals: wire range #22–12 AWG, connector tightening torque M3.5, 0.8N·m.

Mounting screws: M4, L (max.) 4mm, torque (max.) 0.4N·m.

CN100 mating housing: HRS DF11-4DS or equivalent; terminal: HRS DF11-**SC or equivalent.

Dimensions in millimetres, general tolerance of $\pm 1.00\text{mm}$ [$\pm 0.039\text{in}$].

TB1 Pin	Definition	TB2 Pin	Definition	CN100 Pin	Definition
1	AC/L	1–3	-V	1	-S
2	AC/N	4–6	+V	2	+S
3	FG			3	RC-
				4	RC+

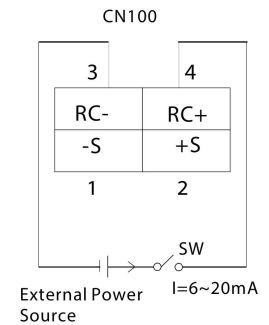
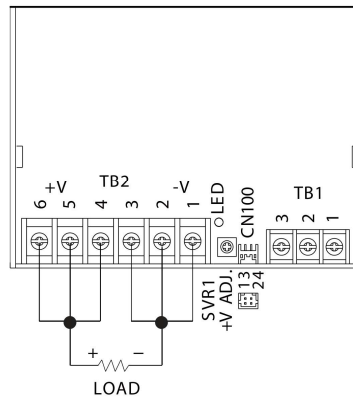
Terminal Functions & Connections

Pin No	Function	Description
1	-S	Negative sensing. The -S signal should be connected to the negative terminal of the load. The -S and +S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.3V.
2	+S	Positive sensing. The +S signal should be connected to the positive terminal of the load. The +S and -S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.3V.
3	RC-	Return for RC+ signal input.
4	RC+	Turns the output on and off by electrical or dry contact between pin 4 (RC+) and pin 3 (RC-). 0~0.8VDC or open: Power ON, 4~10VDC: Power OFF.

1. Remote Control

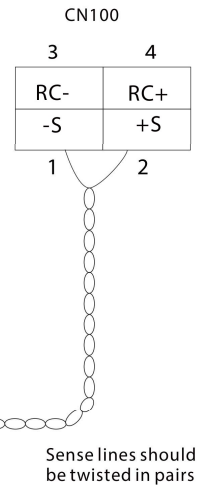
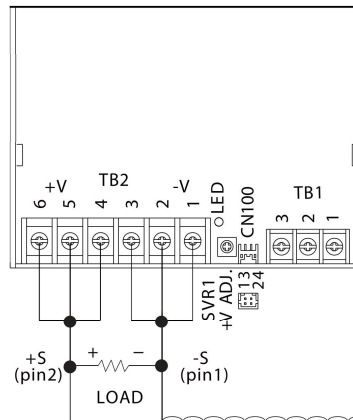
The PSU can be turned ON/OFF by using the "Remote Control" function.

Between RC- (pin3) and RC+ (pin4) on CN100	PSU Status
SW OFF (0 ~ 0.8VDC) or open	ON
SW ON (4 ~ 10V)	OFF



2. Remote Sense

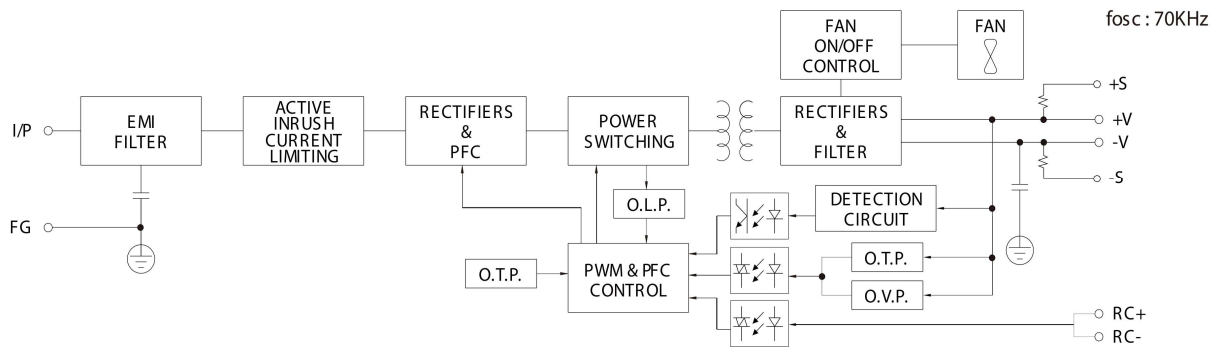
The remote sensing compensates voltage drop on the load wiring up to 0.3V



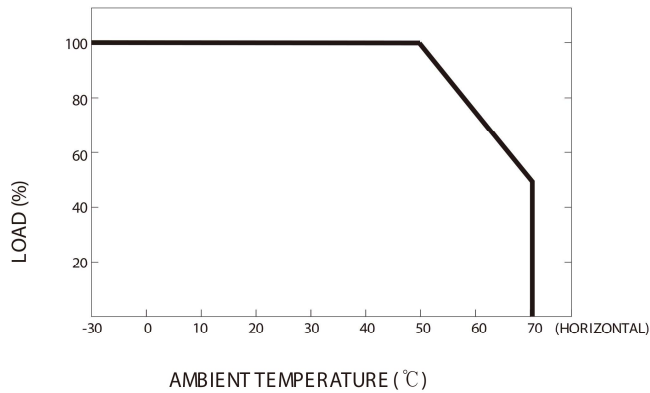
Packaging

Parameter	Specification
Carton Size	54 x 30 x 24cm (21.26 x 11.81 x 9.45in)
Quantity per Carton	9pcs

Block Diagram

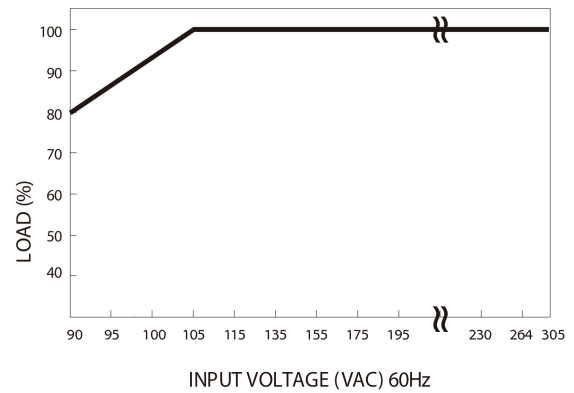


Performance Graphs



Left: Derating curve, load against ambient temperature (horizontal mounting).

Right: Static characteristics, load against input voltage at 60Hz.



Notes

1. All parameters not specially mentioned are measured at 115/230V AC input, rated load and 25°C ambient temperature.
2. The power supply is considered a component which will be installed into final equipment. The final equipment must be re-confirmed that it still meets EMC directives. For guidance on how to perform these EMC tests, refer to "EMI testing of component power supplies".
3. Derating may be needed under low input voltages; refer to the static characteristics curve in Performance Graphs.