Features

- 20W rated power
- 85–305V AC / 100–430V DC input
- 4000V AC isolation
- Typical efficiency 81–87%
- Standby power 0.1W typ.
- -40°C to +85°C operating temperature
- EN 55032 Class B with no external components
- Optional chassis (CT) or DIN rail (CR) mounting
- OVP, OCP, SCP
- 3 years warranty

36PMR20H-xy

20W Encapsulated PCB Mount AC/DC Power Supply

Image for illustration purposes only.

Description

The 36PMR20H-xy is a 20W encapsulated PCB mount AC/DC power supply with a single regulated output. The potted construction protects the converter from dust and moisture, and it meets EN 55032 Class B emissions with no external components, which keeps the host PCB simple. The same module is also offered in a screw-terminal chassis for panel mounting (CT) or DIN rail mounting (CR), so one electrical design covers board-level and cabinet-level installations.

Certified to UKCA, CE, cURus, FCC and CB, and built to UL/EN/IEC 62368-1, EN 60335-1 and EN 61558-1, with EMC to CISPR 32 and EN 55032. The unit meets RoHS and REACH requirements. These are primarily used in industrial and critical commercial applications, and customised solutions are available upon request.

Part Number Breakdown

36PMR20H	-xy	CT / CR
Series Name	Output Voltage	Chassis Option Blank: PCB Mount CT: Chassis Mount CR: DIN Rail Mount

Models

Part Number	Input Voltage (V AC / V DC)	Output Voltage (V DC)	Output Current (mA max.)	Efficiency (% typ.)	Capacitive Load (µF max.)
36PMR20H-033 (CT)(CR)	85–305V AC 100–430V DC	3.3	4500	81.0	8000
36PMR20H-050 (CT)(CR)		5.0	4000	85.0	8000
36PMR20H-090 (CT)(CR)		9.0	2200	85.0	3500
36PMR20H-120 (CT)(CR)		12.0	1670	86.0	2500
36PMR20H-150 (CT)(CR)		15.0	1330	87.0	2200
36PMR20H-240 (CT)(CR)		24.0	830	87.0	820

Notes:
1. Only typical models are listed. Other models may be available upon request.
2. Efficiency is tested at 230V AC.
3. The CT and CR chassis options reduce efficiency by 2%.

Input Specifications

Parameter	Specification
Nominal Input Voltage	100–277V AC
Input Frequency	47–63Hz
Input Current	115V AC: 0.5A max. 230V AC: 0.3A max.
Inrush Current (Cold Start)	115V AC: 20A typ. 230V AC: 45A typ.
Leakage Current	0.1mA RMS max. @ 277V AC, 50Hz
Standby Power Consumption	0.1W typ.
Built-In Fuse	2A, 300V, slow blow

Output Specifications

Parameter	Specification
Output Voltage Accuracy	±3%
Line Regulation	±0.5% typ. (Full Load)
Load Regulation	±1.0% typ. (0–100% Rated Load)
Ripple & Noise	100mVp-p typ., 150mVp-p max. measured at 20MHz bandwidth using a 12" twisted pair wire terminated with a 0.1µF and 47µF parallel capacitor
Temperature Coefficient	±0.02%/°C typ.
Hold-Up Time (Full Load)	115V AC: 10mS typ. 230V AC: 50mS typ.
Minimum Load	No minimum load is required

Protection

Parameter	Specification					
Overvoltage Protection (V DC max.)	**3.3V** 7.5	**5V** 7.5	**9V** 15	**12V** 20	**15V** 20	**24V** 30
	Hiccup or clamping by Zener Diode					
Overcurrent Protection	≥110% IOUT, automatic recovery					
Short Circuit Protection	Hiccup mode, automatic recovery					

Environmental Characteristics

Parameter	Specification
Operating Temperature	-40°C to +85°C (see derating curves)
Storage Temperature	-40°C to +105°C
Storage Humidity	10–95% RH
Maximum Case Temperature	+95°C max.
Operating Altitude	5000m max. (see derating curves)
Cooling Method	Natural convection
Vibration	10–55Hz, 5G, 30 minutes along X, Y and Z axes
Soldering Temperature	260°C typ. (5 seconds)

Safety Standards

Parameter	Specification	
Certifications	UKCA, CE, cURus, FCC, CB, RoHS, REACH	
Certifications (CT / CR Chassis Options)	RoHS, REACH	
Safety Standards	UL 62368-1, EN 62368-1, IEC 62368-1, EN 60335-1, EN 61558-1	
Overvoltage Category	OVC III	
Safety Class	Class II	
Isolation Voltage	Input to output: 4000V AC min.	Tested for 1 minute
Isolation Resistance	Input to output: 100MΩ min.	500V DC, 25°C, 70% RH

Electromagnetic Compatibility (EMC)

Parameter	Specification	
EMI Standards	CISPR 32, EN 55032 Class B with no external circuit	
ESD	IEC/EN 61000-4-2:	Contact ±6kV, air ±8kV, Criteria B
Radiated Immunity	IEC/EN 61000-4-3:	10V/m, Criteria A
EFT / Burst	IEC/EN 61000-4-4:	±2kV, Criteria B ±4kV, Criteria B (with EMC enhancement circuit)
Surge	IEC/EN 61000-4-5:	Line to line ±1kV, Criteria B Line to line ±2kV, Criteria B (with EMC enhancement circuit)
Conducted Immunity	IEC/EN 61000-4-6:	10V RMS, Criteria A
Voltage Dips & Interruptions	IEC/EN 61000-4-11:	0%, 70%, Criteria B

Reliability

Parameter	Specification
MTBF	>1,500,000 hours @ 25°C (MIL-HDBK-217F)

General Specifications

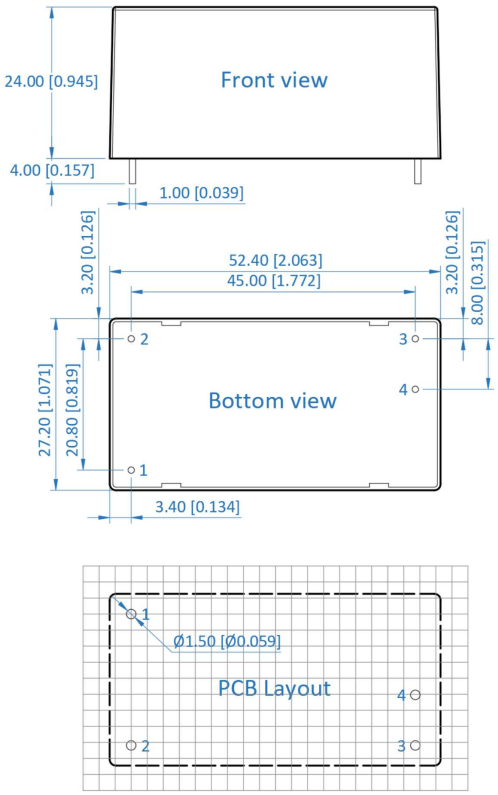
Parameter	Specification	
Switching Frequency	65kHz typ.	
Case Material	Black plastic, UL94 V-0	
Input / Output Connection	**Default** PCB pins	**CT / CR** Screw terminal block

Weight & Dimensions

Parameter	Specification		
Dimensions (L x W x H)	**Default** 52.4 x 27.2 x 24mm	**CT Suffix** 76.0 x 31.5 x 32.8mm	**CR Suffix** 76.0 x 31.5 x 37.4mm
Weight	**Default** 55g typ.		

Mechanical Drawing

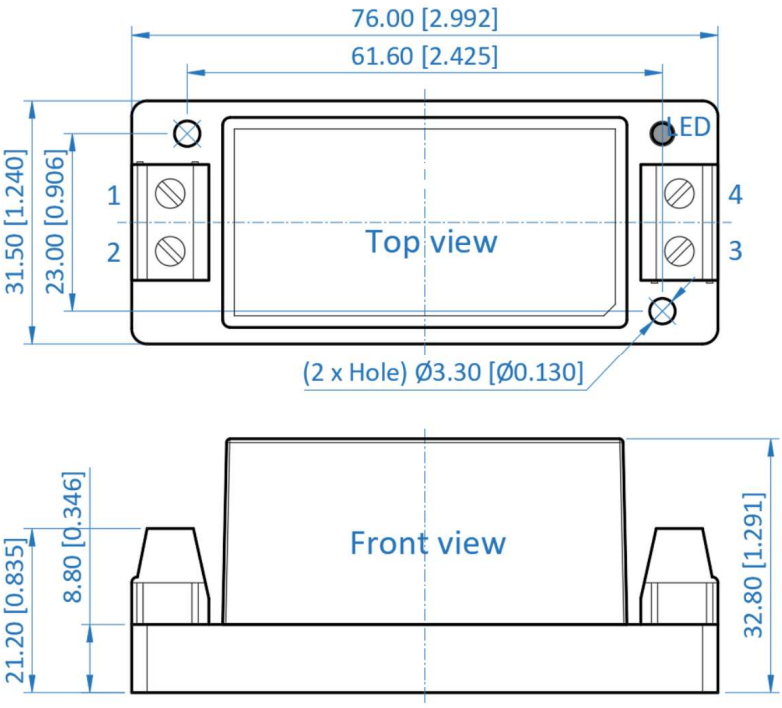
Default Package (PCB Mount)



Pin	Single Output
1	AC (L)
2	AC (N)
3	-Vout
4	+Vout

Pin thickness tolerance: ±0.15mm [±0.006in].
Pin pitch tolerance: ±0.50mm [±0.020in].
PCB layout footprint grid: 2.54 x 2.54mm.
Dimensions in millimetres [inches], tolerance of ±1.00mm [±0.040in].

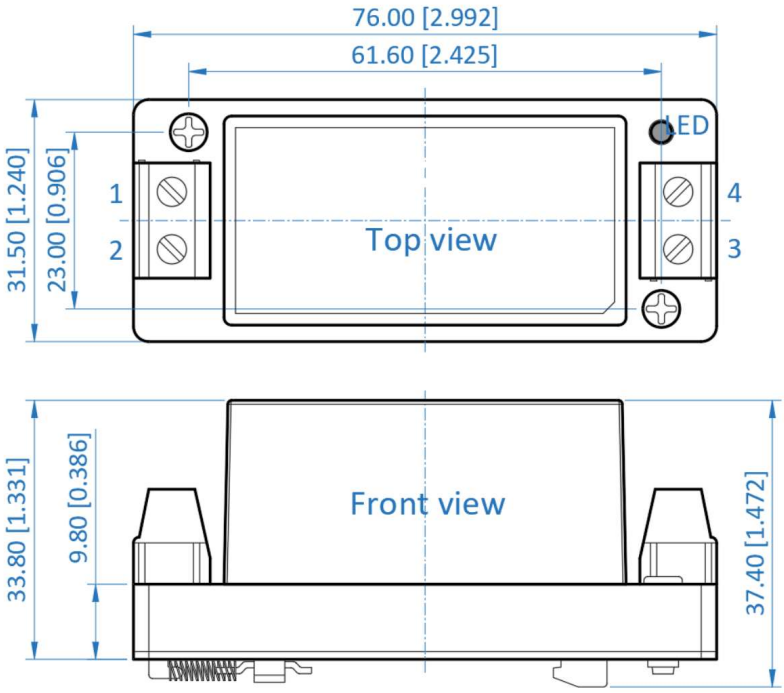
CT Suffix: Chassis Mount



Pin	Single Output
1	AC (L)
2	AC (N)
3	-Vout
4	+Vout

Tightening torque: 0.4Nm max.
Wire gauge to chassis: #12–24 AWG.
Dimensions in millimetres [inches], tolerance of ±1.00mm [±0.040in].

CR Suffix: DIN Rail Mount



Pin	Single Output
1	AC (L)
2	AC (N)
3	-Vout
4	+Vout

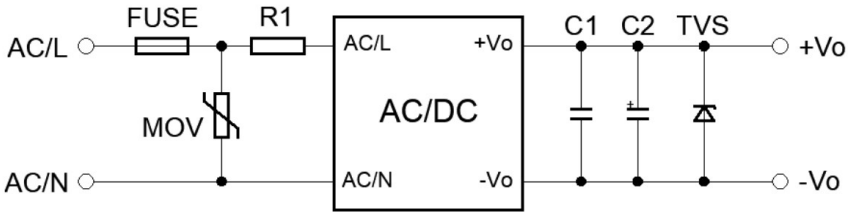
Tightening torque: 0.4Nm max.

Wire gauge to chassis: #12–24 AWG.

Dimensions in millimetres [inches], tolerance of ±1.00mm [±0.040in].

EMC Recommended Circuit

EMC Enhancement Circuit



Not required for general use. Use where higher EFT and surge ratings are needed.

EMC Enhancement Circuit: Recommended Components

Vout	Fuse	MOV	R1	C1	C2	TVS
3.3V, 5V	3.15A, 300V	S14K350	3Ω, 3W	1µF, 50V	10µF, 35V	SMBJ7.0A
9V	3.15A, 300V	S14K350	3Ω, 3W	1µF, 50V	10µF, 35V	SMBJ12A
12V, 15V	3.15A, 300V	S14K350	3Ω, 3W	1µF, 50V	10µF, 35V	SMBJ20A
24V	3.15A, 300V	S14K350	3Ω, 3W	1µF, 50V	10µF, 35V	SMBJ30A

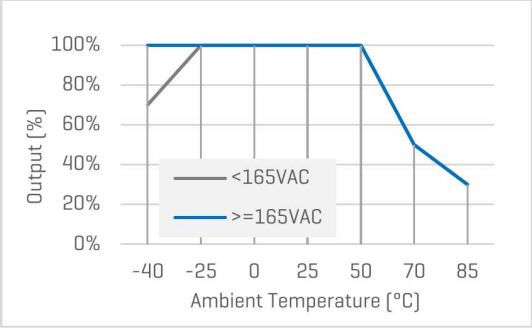
Packaging

Parameter	Specification
Packing Method	Blister tray, packed in cartons
Quantity per Blister Tray	**Default** 35 pcs
Quantity per Carton	**Default** 210 pcs
Carton Gross Weight	**Default** 13.8kg approx.
Carton Size	390 x 365 x 250mm

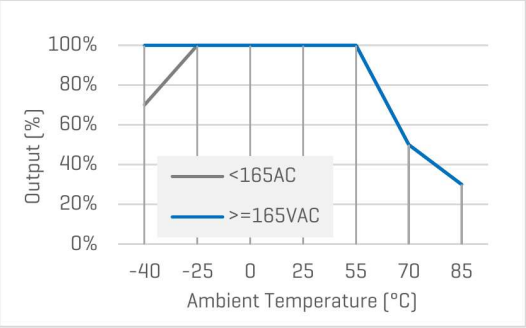
Performance Graphs

Derating: Output vs Ambient Temperature

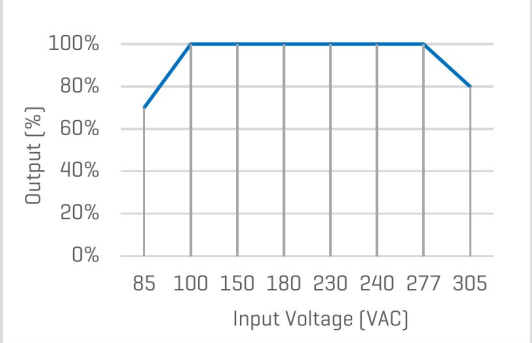
V_{OUT}=3.3 ... 9V



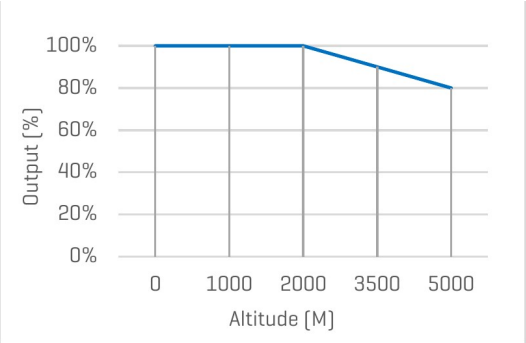
V_{OUT}=12 ... 24V



Output vs Input Voltage



Output vs Altitude



Notes

1. Unless otherwise stated, specifications are measured at TA = 25°C, humidity <75%, nominal input voltage and rated output load.

2. xy is the output voltage code: 033 = 3.3V, 050 = 5V, 090 = 9V, 120 = 12V, 150 = 15V, 240 = 24V. Add CT or CR after the code for the chassis options, for example 36PMR20H-120CR.