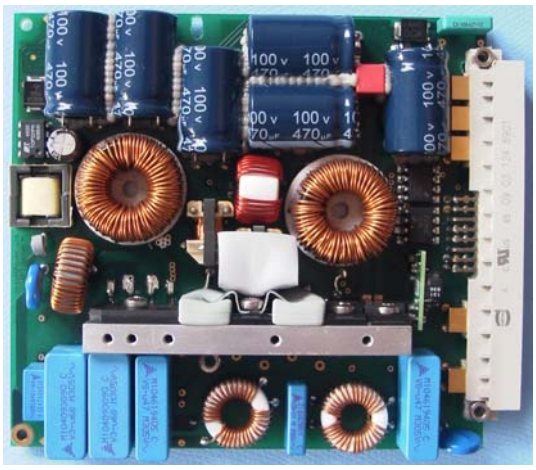
High performance, Single-stage AC-DC Power Supplies



Single-stage (non-isolated) AC to DC converter with active Power Factor Correction (PFC) and I^2C Bus Interface.

Wide range, Universal AC input voltage (85 – 280VAC RMS).

+60Vdc output, 220W rating per channel - across full input voltage range.

Extremely high performance: Efficiency up to 94% and Power Factor (PF) up to 0.98. Wide operating temperature range, -20°C to +85°C.

Ruggedised for harsh environments - Very High Reliability, MTBF > 10^6 hours at +30°C.

Single and Dual Channel variants available within same low profile enclosure (<30mm high) – can be connected in parallel for dual redundant systems, or used independently.

EMC and Safety compliant with IEC/EN61000, EN55022, EN60950 Standards.

INPUT		**OUTPUT**	
Input Voltage Range (normal)	90 to 255Vac rms	+60V	220W per channel. PSU available in single or dual channel variants
Input Voltage Range (extended)	85 to 280Vac rms	Initial Tolerance	+/-0.1% (Factory Set)
Input Frequency	45 - 65Hz	Line regulation	<+/- 1V
Inrush current	< 2 x steady state current	Load regulation	<2V
Power factor (90Vac - 180Vac)	20 - 40% load >0.85 40 - 60% load >0.93 60 - 100% load >0.95	Output Ripple and Noise	<6Vpk-pk at input supply frequency and harmonics Spikes and switching frequency harmonics: +/-2% max, 20MHz bandwidth
Power factor (180Vac - 255Vac)	20 - 40% load >0.75 40 - 60% load >0.85 60 - 100% load >0.90	Efficiency (110Vac - 255Vac)	40 - 60% load >92% 60 - 100% load >93%
Isolation	No electrical isolation input to output	Start up time	<500ms auto-start from application of input supply <4 seconds from release of external enable/disable control

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EMC	
Harmonics	IEC/EN 61000-3-2
Immunity - Harmonics	IEC/EN61000-4-13 Table 1,2 & 3 Class 2, Criteria A (continuous operation)
Immunity – Voltage Dips	IEC/EN61000-4-11, Table 1, 70%Ut for 1s, Criteria A
Immunity – Voltage Interruptions (measured at 100W load)	IEC/EN61000-4-11, Table 1, 0%Ut for 20ms, Criteria A
Immunity – Electrical Fast Transients	IEC/EN61000-4-4, Level 3, 2KV, 50ns, 5KHz on input, Criteria A
Immunity – Surges	IEC/EN61000-2-5, Disturbance degree 2. 0.5Vt 1ms surges, Criteria A
	IEC/EN61000-4-5, Level 3. 2kV 1.2/50µs, Criteria A
Immunity – ESD	IEC/EN61000-4-2, Level 2, 4KV contact discharge, Criteria B
Emissions – Input Conducted	EN55022, Class A
Emissions- Radiated	EN55022, Class A
GENERAL	
Dimensions	Aluminium enclosure 230 x 128 x 28.7mm
Input/Output Connector	Molex DIN41612, Type M, 24+8 Contacts Harting p/nos: 09031246901, 09030006104
Workmanship	IPC-A-610
RoHS-6 Compliant	In accordance with RoHS Directive 2002/95/EC
Safety	IEC/EN60950, Class 1 protective earthing

PROTECTION (Non-latching, Inhibit & re-try operation – unit automatically re-starts on resumption of normal conditions/removal of fault condition)	Input under-voltage shutdown: 70 – 80Vac rms Input over-voltage shutdown: 280 - 310Vac rms Input voltage: 320Vac rms maximum withstand Output over-voltage shutdown: <70Vdc Output over-current/power limit: <300W Output short circuit protection Over temperature protection: shutdown at >90°C case temperature
ENVIRONMENTAL	
Operating temperature range	-20°C to +85°C
Storage temperature range	-23°C to +100°C
Humidity	0 – 95% RH, non-condensing. Internal PCB and circuitry conformal coated
Vibration (sinusoidal)	ISO 13628-6 Level Q1 with x5 amplification
Vibration (random endurance)	ISO 13628-6 11.3.5.2 with x5 amplification
Thermal Cycles	ISO 13628-6 11.3.5.2, –20°C to +70°C, full load
PSU MONITORING & CONTROL	Each channel has independent remote ON/OFF control and monitoring I^2C serial bus
PSU performance characteristics	4 channel ADC via I^2C serial bus
I^2C Channel 1: Output current	0-4V for 0-8A +/- 4%
I^2C Channel 2: Output voltage	0-4V for 0-80V +/- 4%
I^2C Channel 3: Temperature	Internal PSU temperature $Vo \cong 1.8639 - 1.15x10^{-2}xT$
I^2C Channel 4: Internal Monitor supply	5V +/- 5%
Remote ON/OFF	Logic 1 disables PSU Logic 0 enables PSU

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