APS-3-480-24 Datasheet

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480W DIN-Rail Switching Power Supply

APS-3-480-24

APS-3-480-24 is Avcomm AC-DC three-phase DIN-rail switching power supply. It features cost-effective, high efficiency and high reliability. With 150% power reserve, enough to support starting DC motor or capacitive load and other heavy load. These converters offer excellent EMC performance and with good EMC performance and meet IEC/EN/UL62368, UL/EN61010-1, UL508, UL/EN61010-2-201 standards and they are widely used in areas of industrial control equipment, factory automation and mechanical and electrical equipment and other industrial control fields.

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CE EN62368-1

CB Report

RoHS

Features & Benefits

- Three-phare: 320-600VAC
- Active PFC
- Operating ambient temperature range: -30 ℃ to +70 ℃
- Standard DIN-rail mounting
- High efficiency, high reliability
- LED indicator for output status
- Fault alarm function
- Double-sided conformal coating, salt-spray proof
- Output short circuit, over-current, over-voltage, over-temperature protection
- Safety according to IEC/EN/UL/BS EN 62368, UL/EN 61010-1, UL508, UL/EN 61010-2-201

Ordering Information

Part No.	Output power (W)	Nominal Output Voltage & Current (Vo/Io)	Output Voltage Adjustable Range ADJ(V)	Efficiency at 230VAC (%) Typ.	Max. Capacitive Load
APS-3-480-24	480	24 V/20 A	24 V-28 V	95	20000 μF

Specifications

Input Specifications						
Item	**Operating condition**		**Min.**	**Typ.**	**Max.**	**Unit**
Input Voltage Range	AC input		320	–	600	VAC
	DC input		450	–	800	VDC
Input Voltage Frequency	–		47	–	63	Hz
Input Current	400VAC		–	–	1.0	A
	480VAC		–	–	0.8	
Input Current	400VAC	Cold start	–	3	10	
	480VAC		–	3	10	
Power Factor	400VAC	Normal temperature, rated load	PF≥0.92			
	480VAV		PF≥0.92			
Leakage Current	480VAC		<2mA			
Hot Plug	–		Unavailable			

Output Specifications					
Item	**Operating condition**	**Min.**	**Typ.**	**Max.**	**Unit**
Output Voltage Accuracy	Full load range	–	±1	–	%
Line Regulation	Rated load	–	±0.5	–	
Load Regulation	0% - 100% load	–	±0.5	–	
Ripple & Noise*	20MHz bandwidth (peak-to-peak value)	–	100	–	mV
Temperature Coefficient	--	–	±0.03	–	%/℃
Minimum Load	--	–	0	–	%
Dynamic Minimum Load	--	10	–	–	%
Standby Power	400VAC	–	8.2	12	W
	480VAC	–	10	15	
Hold-up Time	400VAC	18	22	–	ms
	480VAC	18	22	–	
Short Circuit Protection	–	Continuous, self-recover			
Over-current Protection	120%-150% Io	120%-150% Io，enter constant current mode after 4.5s of normal output, automatic recover after fault condition is removed			
	≥150% Io	≥150% Io，enter constant current mode, automatic recover after fault condition is removed			
Over-voltage Protection	24V	≤ 35VDC (Hiccup, self-recovery)			
	36	≤ 53VDC (Hiccup, self-recovery)			
	48	≤ 60VDC (Hiccup, self-recovery)			
Over-temperature Protection	Over-temperature Protection start	--	--	68	℃
	Over-temperature Protection release	66	--	--	

Note: *The Tip and barrel method is used for Ripple and Noise，output parallel 47μF electrolytic capacitor and 0.1μFceramic capacitor

General Specifications

Item		Operating condition		Min.	Typ.	Max.	Unit
Isolation	Input - ⏚	Test for 1min., leakage current <5 mA		2500	--	--	VAC
	Input - output			4000	--	--	
	Output - ⏚	Test for 1min., leakage current<10mA		500	--	--	
	Output - DC OK	Test for 1min., leakage current<1mA		500	--	--	
Insulation Resistance	Input - ⏚	Environment temperature:25±℃ Relative humidity:<95%, Non-condensing Test voltage： 500VDC		50	--	--	MΩ
	Input - output			50	--	--	
	Output - ⏚			50	--	--	
Operating Temperature		--		-30	--	70	℃
Storage Temperature		--		-40	--	85	
Operating Humidity		Non-condensing		20	--	90	%RH
Storage Humidity				10	--	95	
Switching Frequency		RFC		40	--	300	KHz
Power Derating		DC-DC		60	--	150	
		Operating temperature derating	+60℃to +70℃	2.5	--	--	%/℃
Safety Standard		Input voltage derating	320VAC – 350VAC	0.667	--	--	%/VAC
Safety Class		--		Design refer to IEC/EN/UL/BS EN 62368-1, UL/EN 61010-1, UL508, UL/EN 61010-2-201			
Switching Frequency		--		CLASS I			
MTBF		MIL-HDBK-217F@25℃		> 250,000 h			

Note： *The power supply has two converters with two different Switching Frequencies

Mechanical Specifications

Case Material	Metal (AL5052, SPCC)
Dimensions	80.0 x 124.0 x 127.0 mm
Weight	1250g (Typ.)
Cooling method	Free air convection

Electromagnetic Compatibility (EMC)

EMI	CE	CISPR32/EN55032	CLASS B
	RE	CISPR32/EN55032	CLASS B
	Harmonic current	IEC/EN61000-3-2	CLASS A
	Voltage flicker	IEC/EN61000-3-3	Fulfilled

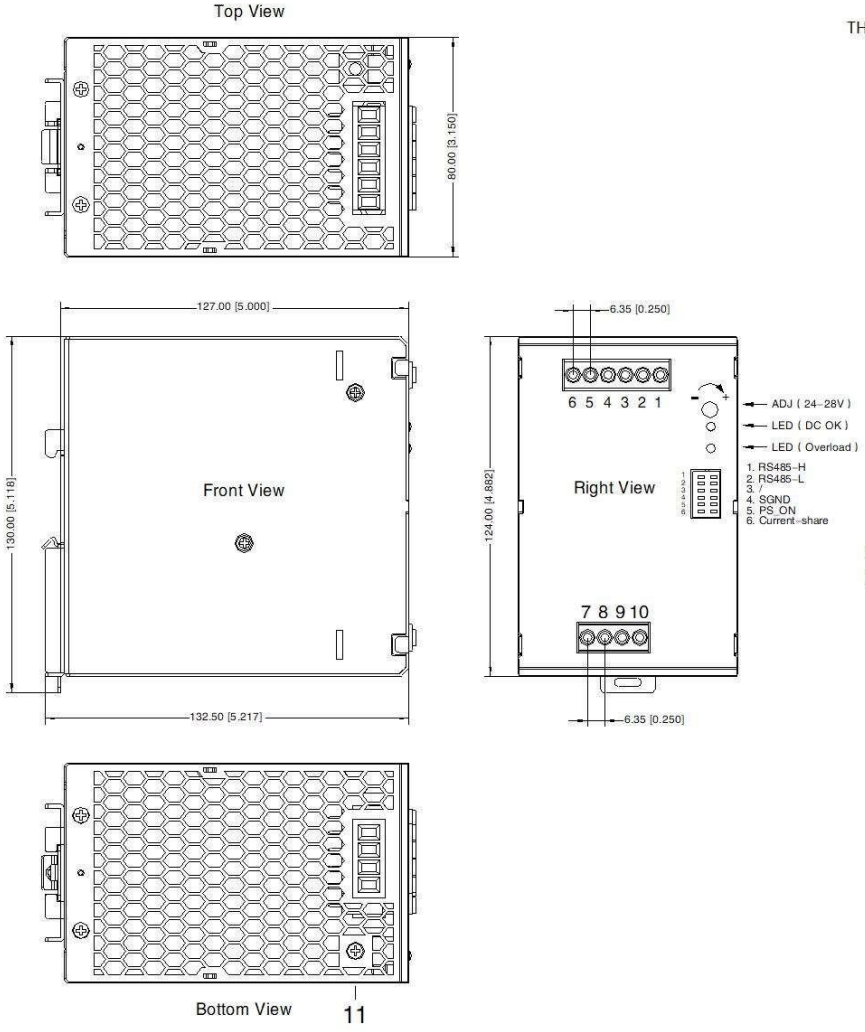
Immunity	ESD	IEC/EN61000-4-2	Contact ±8KV/ Air ±15KV	Perf. Criteria A
	RS	IEC/EN61000-4-3	20V/m	perf. Criteria A
	EFT (input)	IEC/EN61000-4-4	±4KV	perf. Criteria A
	EFT (output)	IEC/EN61000-4-4	±2KV	perf. Criteria A
	EFT (DC_OK)	IEC/EN61000-4-4	±2KV	perf. Criteria A
	Surge (input)	IEC/EN61000-4-5	line to line ±2KV/line to PE ±4KV	perf. Criteria A
	Surge (output)	IEC/EN61000-4-5	Vo+ to Vo- ±500V/Vo+/Vo- to PE ,±1KV	perf. Criteria A
	Surge (DC_OK)	IEC/EN61000-4-5	DC_OK to PE ,±1KV	perf. Criteria A
	CS	IEC/EN61000-4-6	20Vr.m.s	perf. Criteria A
	Voltage dips, short interruptions and voltage variations immunity	IEC/EN61000-4-11	0%, 70%	perf. Criteria A
	Intercom interference test	MS-SOP-DQC-007		perf. Criteria A

Functional Specifications

Item	Operating condition		Min.	Typ.	Max.	Unit
Remote Control Switch	0-0.8VDC power turn on		0	--	0.8	VDC
	4-20VDC power turn off		4	--	20	
DC_OK Signal	Full input voltage range, full load range	DC-OK power on	0.95Vo-Vo			
		DC-OK power off	<0.90Vo			
Oring*	--		Support direct parallel, achieve 2+1 parallel redundancy			
Current Sharing Accuracy*	When multiple are connected in parallel, the sub-module shunts a single machine above 50% of the rated load		--	±5	--	%
LED Signal	Main output status indication	Normal output > 95%	Green On			
		Load>110%lo or over-temperature protection	Red On			
		Power off (AC without input) or PSon off	Turn-off			
RS-485H,RS485-L	--		RS485 communication			

Note: *When multiple prototypes work with current sharing, the output voltage deviation each prototype alone shall not exceed 100mV

Installation dimensions



THIRD ANGLE PROJECTION

Pin-Out	
Pin	Mark
1	DC OK
2	
3	-Vo
4	-Vo
5	+Vo
6	+Vo
7	L1
8	L2
9	L3
10	⏚

10、11 any position must be connected to the earth(⏚)

Note:
Unit: mm[inch]
ADJ: Output adjustable resistor
Wire range: Input: 28-10 AWG
Output: 28-10 AWG
Input Tightening torque: Max 0.5 N•m
Output Tightening torque: Max 0.5 N•m
Mounting rail: TS35, rail needs to connect safety ground
General tolerances: ± 1.00[± 0.039]