

ARTESYN™ EVERGREEN™ VENTO™ FCM30K

30,000 W Bulk Front End



Advanced Energy's Artesyn FCM30K series provides for a very wide range of AC-DC embedded power requirement. Featuring high build quality with robust screw terminals, long life, and typical full-load efficiency of greater than 90%, these units are ideal for use in industrial and medical applications. They are backed by a comprehensive set of industrial and medical safety approvals and certificates. Variable-speed "smart fans" draw on software controls developed by Advanced Energy to match fan speed to the unit's cooling requirement and load current. Slowing the fan not only saves power but also reduces wear, thus extending its life.

SPECIAL FEATURES

- 30,000 W output power
- 85.2 mm H x 448 mm W x 595 mm L
- -40 to +50°C
- 5 V at 2 A housekeeping
- High efficiency: > 95% typical
- Supports NFC Tag Application
- Semi F47 compliance
- Five-year warranty

COMPLIANCE

- EMI Class A, with 6 db margin
- EN61000 Immunity

SAFETY

- UL/IEC/TUV 62368-1
- CE LVD (EN62368-1 + RoHS)
- CB Report Demko for IEC60950-1

AT A GLANCE

Total Power

30,000 W

Input Voltage

184 to 528 VDC, 3 Phase 3 Wire + PE

Number of Outputs

Single



FCM30K

ELECTRICAL SPECIFICATIONS

Input	
Input Range	184 to 528 VAC, 3 phase input, 3 wire + PE 480 VAC (nominal)
Frequency	47 to 63 Hz, nominal 50/60 Hz
Input Fusing	None
Inrush Current	≤ 180 A peak at 480 VAC
Power Factor	0.95 typical, meets EN61000-3-2
Harmonics	Meets IEC61000-3-2 requirements
Input Current	45 A RMS max input current at 480 VAC
Hold Up Time	> 12 ms min for at 30,000 W load > 20 ms min for at 18,000 W load
Efficiency	> 95% typical at full load, 480 VAC nominal
Leakage Current	> 7 mA
Power Line Transient Protection	Suitable MOV after input fuse
Isolation Voltage	Meets UL62368

Output		
Output Voltage	Main output: 54.5 VDC Standby output: 5 VDC	
Output Trimming Range	48 to 60 VDC	
Output Current	Main output at 550 A max Standby at 1 A available for system side (the other 1 A used by internal PSM)	
Output Constant Current Operation	5 to 100% of rated current adjustable	Available only on wide trim variant
Minimum Load	Main output at 0 A Standby at 0 A	
Output Ripple / Noise (PARD)	Main output: 500 mV Standby: 100 mV	Measured with 0.1 μF ceramic and 10 μF tantalum Capacitor on any output, 20 MHz
Output Voltage Overshoot	< 5% of voltage setting	
Transient Response	±5% of nominal output voltage	Load transient change of ±25%
Current Sharing	TBD for accuracy	Main output: support shelf to shelf current sharing Standby: none
Max Number of Unit in Parallel	3 shelves	
Protections	UV/OV, OCP, OVP, OTP, ACUV, ACOV, etc.	
Output Isolation	Main output is isolated from PSU chassis and meets functional isolation requirements. Designs have suitable provision to connect output return to chassis.	

ELECTRICAL SPECIFICATIONS

Output Power Derating vs Input Line Voltage	
480 VAC	30,000 W
380 VAC	26,300 W
346 VAC	24,000 W
240 VAC	16,600 W
208 VAC	14,400 W

ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	-20 to +50°C; Start at -40°C requires a 5 minute operating warm-up at -20°C
Storage Temperature	-40 to +85°C
Humidity	10% to 90% non-condensing, operating
Acoustic Noise	< TBD dBA, 60% load at 30°C
Altitude	3000 m for 100% load 5000 m with derated power (TBD)
Shock (Operating)	MIL-STD-810G
Vibration (Operating)	MIL-STD-810G

SAFETY & EMC

Conducted/Radiated Emission	EN55022/CISPR22 Class A, 6 dB Margin
Surge	1 kV DM, 2 kV CM
Voltage Dips and Interruptions	EN61000-4-43 SEMI F47
ESD	8 kV contact/15 kV air 6 kV contact/8 kV air
Safety	UL/IEC/TUV 62368-1
Compliance Reports	CE LVD, CB Report Demko for IEC60950-1, TUV SUD, IEC62368, ROHS3

ORDERING INFORMATION

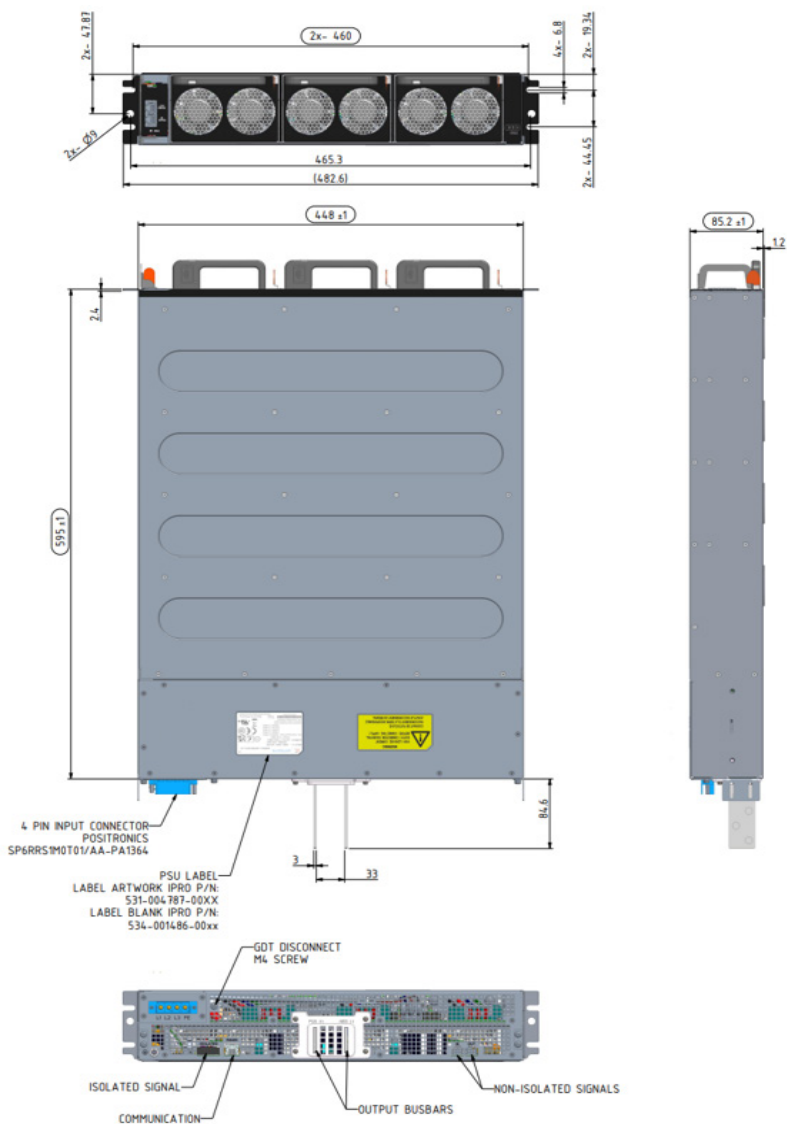
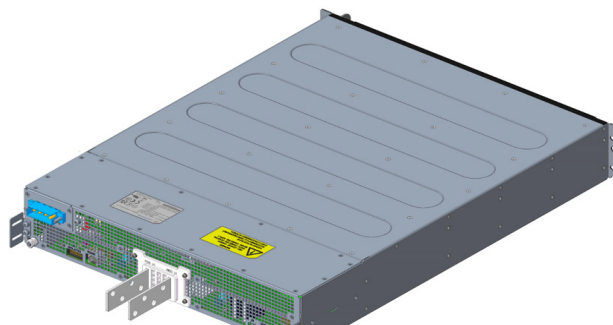
Standard	Nominal Output Voltage	Trim Range	Max Current	Standby Output	Efficiency
FCM30K	54.5 VDC	48 to 60 VDC	550 A	5 V at 2 A	95%

FCM30K

MECHANICAL DRAWINGS

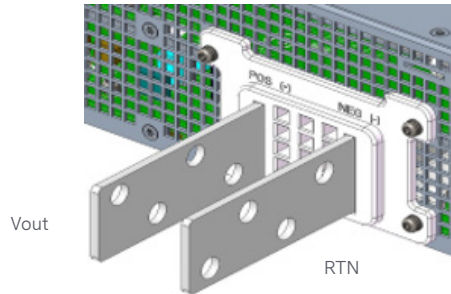
Front View

Rear View



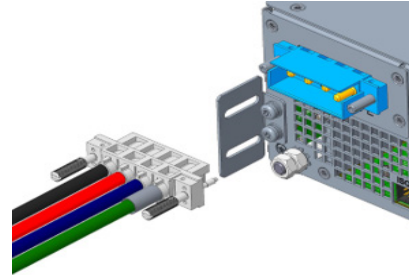
MECHANICAL DRAWINGS

DC Output Busbar



Material: 3.0 mm COPPER PLATE
Tin-Nickel Plated
Fit with Ring Terminal, M10 Stud
Vendor P/N: CT50-10 (RS)

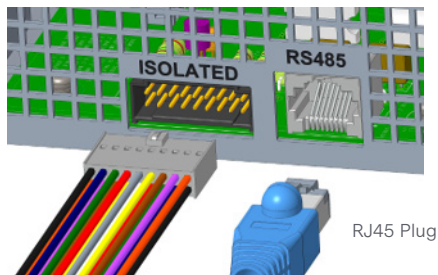
AC Input Connectors



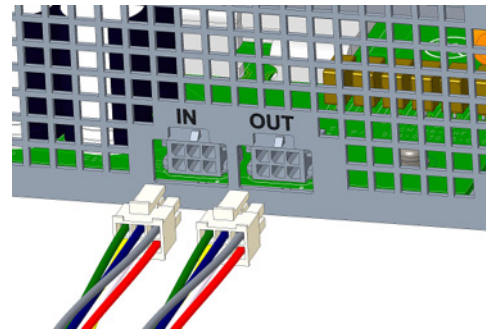
Four Pin Input Connector Positronics
Vendor P/N: SP6RRS1M0T01/AA-PA1362
Mating Connector Positronics
Vendor P/N: SP6RRS1F0E01/AA-2566

Three phase AC input using three wire and PE
Supports Star or Delta three phase
Corner ground Delta three phase not supported

Signal Mating Connectors



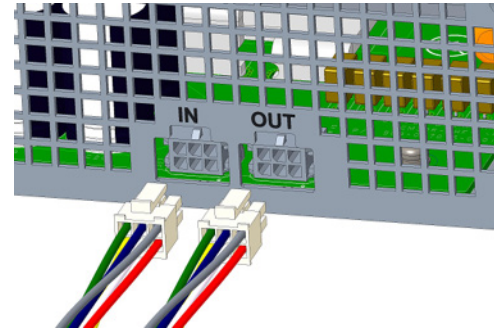
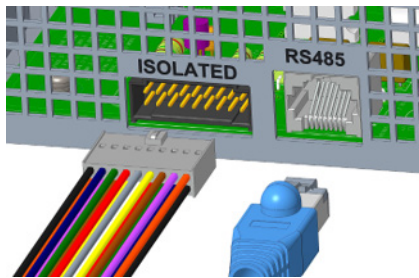
AE P/N: 451-005482-0018
Landwin Mfg P/N: 2580S1803



Signal Mating connector
AE P/N: 438-006959-0006
Molex Mfg P/N: 43025-0600

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PIN ASSIGNMENT



ISOLATED SIGNALS	PIN #
ACOK#	B1
PWR_OK#	C1
ALERT#	B4
PSON#	C3
V_PROG	B3
I_PROG	C2
CC/CV_MODE	C4
PSU_PRESENT	B8
GNDL	A8
5VSB	A1
5VSB_GND	B2
PSKLL_ISO	B5
ANALOG/DIGITAL_MODE	A3
MODBUS	RJ45 connector

NON-ISOLATED SIGNALS	PIN #
PSKLL	C11
ISHARE	C14
ISHARE_RETURE	C9
SYS_GND	C10
PSU_SYNC	C13
SHLF_DET	B12

SHOCK AND VIBRATION SPECIFICATION

Mechanical Test		
Vibration	Operating Vibration	IPC-9592B Class 1
Frequency	Frequency	47 to 63 Hz, Nominal 50/60 Hz
Input Fusing	Input Fusing	None
Inrush Current	Inrush Current	≤ 180 A peak at 480 VAC
Power Factor	Power Factor	0.95 typical, meets EN61000-3-2
Harmonics	Harmonics	Meets IEC61000-3-2 requirements
Input Current	Input Current	45 A RMS max input current, at 480 VAC
Hold Up Time	Hold Up Time	> 12 ms minimum for at 30,000 W load > 20 ms minimum for at 18,000 W load
Efficiency	Efficiency	> 95% typical at full load/480 VAC nominal
Leakage Current	Leakage Current	> 7 mA
Power Line Transient Protection	Power Line Transient Protection	Suitable MOV after input fuse
Isolation Voltage	Isolation Voltage	Meets UL62368

FCM30K

MISCELLANEOUS SPECIFICATIONS

BURN-IN

100% Burn-in at 45°C, at 80 to 90% load. Duration of burn-in determined by Quality Assurance Procedures.

MTBF

The power supply has a minimum MTBF of 200,000 hours using the Telcordia 2 Method, with specifications at 25°C, ambient, at full load. With the power supply installed in a system in a 35°C ambient environment and operating at full load, capacitor life shall be five (5) years, minimum for ALL electrolytic capacitors contained within this power supply. The power supply shall demonstrate an MTBF level of > 500,000 hours based on actual field population operational hours.

QUALITY ASSURANCE

Full QAV testing shall be conducted in accordance with Advanced Energy standards.

WARRANTY

Advanced Energy shall warrant the power supply to be free of defects in materials and workmanship for a minimum period of five (5) years from the date of shipment, when operated within specifications. The warranty shall be fully transferable to the end owner of the equipment powered by the supply.



For international contact information,
visit [advancedenergy.com](https://www.advancedenergy.com).

powersales@aei.com (Sales Support)
productsupport.ep@aei.com (Technical Support)
+1 888 412 7832

ABOUT ADVANCED ENERGY

Advanced Energy (AE) has devoted more than three decades to perfecting power for its global customers. AE designs and manufactures highly engineered, precision power conversion, measurement and control solutions for mission-critical applications and processes.

Our products enable customer innovation in complex applications for a wide range of industries including semiconductor equipment, industrial, manufacturing, telecommunications, data center computing, and medical. With deep applications know-how and responsive service and support across the globe, we build collaborative partnerships to meet rapid technological developments, propel growth for our customers, and innovate the future of power.

PRECISION | POWER | PERFORMANCE | TRUST

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