

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



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 |

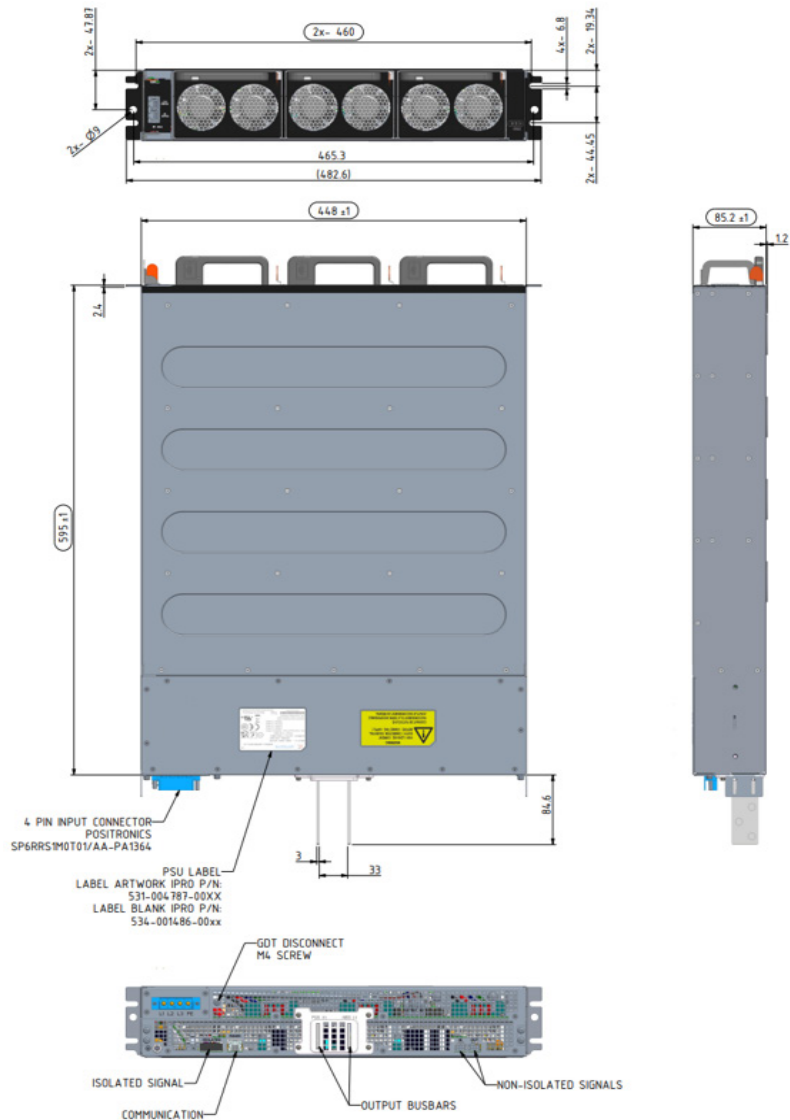
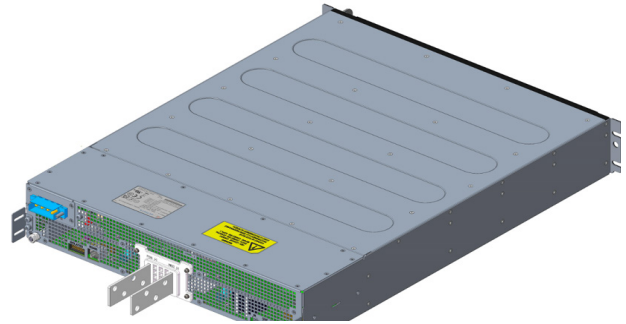
ORDERING INFORMATION

| 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% |

MECHANICAL DRAWINGS

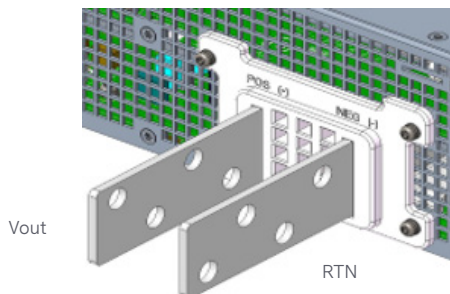
Front View

Rear View



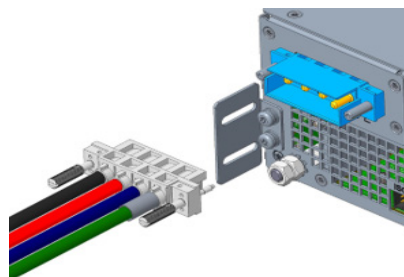
MECHANICAL DRAWINGS

DC Output Busbar



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

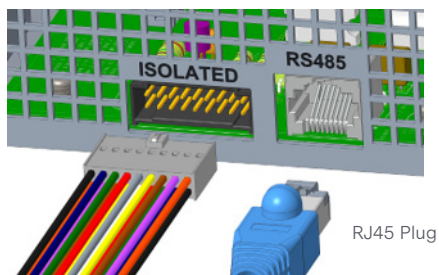
AC Input Connectors



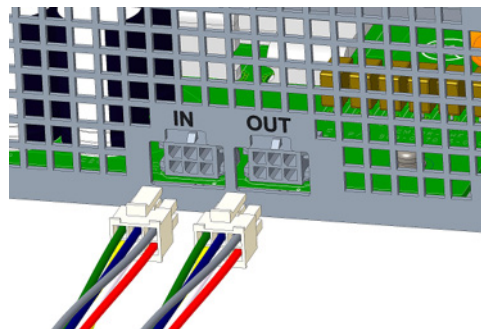
Four Pin Input Connector Positronics
 Vendor P/N: SP6RRS1M0T01/AA-PA1362
 Mating Connector Positronics
 Vendor P/N: SP6RRS1F0E01/AA-2566

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

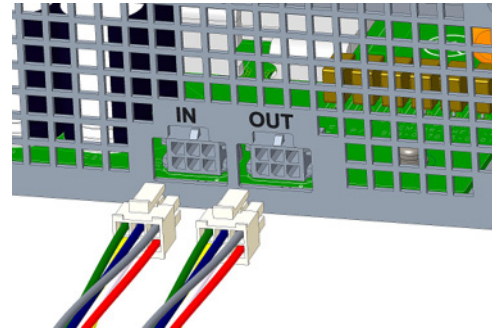
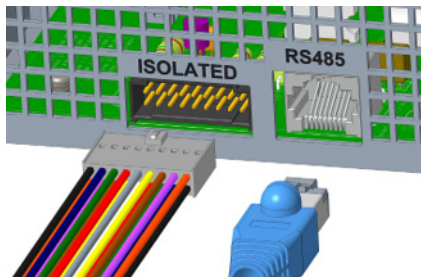


AE P/N: 451-005482-0018
 Landwin Mfg P/N: 2580S1803



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

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 |

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.



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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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