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SynQor

SynQor® is a leading supplier of power conversion solutions to the military, industrial, transportation, telecom/ datacom and medical markets. SynQor's innovative products are designed to exceed the demanding performance, quality, and reliability requirements of today's power electronic engineers and system integrators who develop leading-edge infrastructure hardware.

We offer all of the power conversion modules needed to build a power system, and we also manufacture complete, cutting edge power systems. Our capabilities include both standard and custom solutions, and we deliver them with industry leading service and support. SynQor's total commitment to quality, customer satisfaction and continuous improvement drives our business processes.

● Specification Compliance

MCOTS series converters (with an MCOTS filter) are designed to meet:

- ◆ Temperature cycling per MIL-STD-883, Method 1010,
- ◆ MIL-HDBK-704 (A-F) Condition B, 10 cycles
- ◆ RTCA/DO-160E Section 16
- ◆ MIL-STD-1275 (B,D)
- ◆ DEF-STAN 61-5 (Part 6)/(5 or 6)
- ◆ MIL-STD-461 (C, D, E, F)
- ◆ Burn-In at 100 °C baseplate temperature
- ◆ Available with S-Grade or M-Grade screening.



FAMILY	PRODUCT	INPUT VOLTAGE RANGE (TRANSIENT)	MAX POWER	EFFICIENCY
MCOTS-28	ISOLATED DC-DC CONVERTER	16-40 VDC (50 VDC)	510 W	Up to %95
MCOTS-28E	ISOLATED DC-DC CONVERTER	16-70 VDC (100 VDC)	400 W	Up to %95
MCOTS-28V	ISOLATED DC-DC CONVERTER	9-40 VDC (55 VDC)	250 W	Up to %91
MCOTS-28VE	ISOLATED DC-DC CONVERTER	9-70VDC (100VDC)	250 W	Up to %92
MCOTS-48	ISOLATED DC-DC CONVERTER	34-75VDC (100 VDC)	600 W	Up to %95
MCOTS-150	ISOLATED DC-DC CONVERTER	90-210VDC (250 VDC)	150 W	Up to %90
MCOTS-270	ISOLATED DC-DC CONVERTER	155-425VDC (475VDC)	600 W	Up to %91
MCOTS-270H	ISOLATED DC-DC CONVERTER	240-425VDC (475VDC)	800 W	Up to %92
MCOTS-270N	ISOLATED DC-DC CONVERTER	240-280 VDC (350VDC)	400 W	Up to %89
MCOTS-28V	NON-ISOLATED DC-DC CONVERTER	9-60 VDC	2000 W	Up to %96
MCOTS-28VE	NON-ISOLATED DC-DC CONVERTER	9-90 VDC	2000 W	Up to %97

INDUSTRIAL SOLUTIONS

Operational Features

- ◆ High efficiency up to 95%
- ◆ Input voltage ranges from 9 V to 425 V
- ◆ Output power up to 600 W
- ◆ Fixed frequency switching, low output noise
- ◆ No minimum load requirement
- ◆ Full Feature option on some models
- ◆ Industry standard pin-out configurations and standard footprints
- ◆ Operating Temperature -40°C to +100°C
- ◆ Output Voltage Set Point $\pm 1.0\%$
- ◆ Output Voltage Ripple <1% of Vout (typ.) pk-pk
- ◆ Isolation Voltage Up to 4250 Vdc



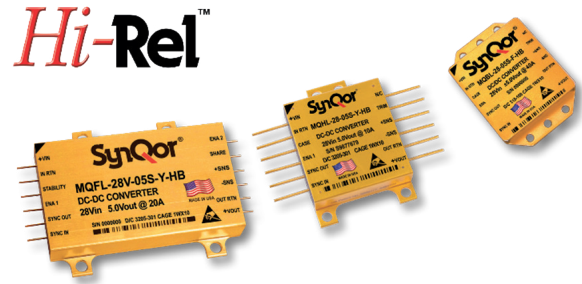
Industrial

FAMILY	PRODUCT	INPUT VOLTAGE RANGE (TRANSIENT)	MAX POWER	EFFICIENCY
IQ12	ISOLATED DC-DC CONVERTER	9-22VDC (25VDC)	185 W	Up to %92
IQ18	ISOLATED DC-DC CONVERTER	9-36VDC (40VDC)	182 W	Up to %92
IQ24	ISOLATED DC-DC CONVERTER	18-36VDC (50VDC)	510 W	Up to %95
IQ32	ISOLATED DC-DC CONVERTER	9-75VDC (100VDC)	255 W	Up to %92
IQ36	ISOLATED DC-DC CONVERTER	18-75VDC (VDC)	220 W	Up to %93
IQ48	ISOLATED DC-DC CONVERTER	34-75 VDC (100 VDC)	602W	Up to %95
IQ64	ISOLATED DC-DC CONVERTER	18-135VDC (-VDC)	200 W	Up to %91
IQ68	ISOLATED DC-DC CONVERTER	12-150VDC (170 VDC)	53 W	Up to %90
IQ70	ISOLATED DC-DC CONVERTER	34-135VDC (-VDC)	240 W	Up to %93
IQ72	ISOLATED DC-DC CONVERTER	42-110VDC (-VDC)	255 W	Up to %93
IQ90	ISOLATED DC-DC CONVERTER	34-160VDC (-VDC)	228 W	Up to %94
IQ1B	ISOLATED DC-DC CONVERTER	66-160VDC (170 VDC)	255 W	Up to %93
IQ2H	ISOLATED DC-DC CONVERTER	90-210VDC (250VDC)	150 W	Up to %90
IQ4H	ISOLATED DC-DC CONVERTER	180-425 VDC (475VDC)	600 W	Up to %92
NQ20	NON-ISOLATED DC-DC CONVERTER	9-20 VDC	800 W	Up to %94
NQ40	NON-ISOLATED DC-DC CONVERTER	9-40 VDC	800 W	Up to %94
NQ60	NON-ISOLATED DC-DC CONVERTER	9-60 VDC	2000 W	Up to %95
NQ90	NON-ISOLATED DC-DC CONVERTER	9-90 VDC	2000 W	Up to %96

SYNQOR HI-REL SOLUTIONS

Specification Compliance

- ◆ Hi-Rel series converters (with Hi-Rel filter) are designed to meet:
- ◆ MIL-HDBK-704
- ◆ RTCA/DO-160 Section 16, 17, 18
- ◆ MIL-STD-1275
- ◆ DEF-STAN 61-5 (Part 6)/(5, 6)
- ◆ MIL-STD-461
- ◆ RTCA/DO-160 Section 22
- ◆ 55°C to +125°C Operating Temperature



Full Size (MQFL)	SINGLE OUTPUT											DUAL OUTPUT		
	1.5V 1R5S	1.8V 1R8S	2.5V 2R5S	3.3V 3R3S	5V 05S	6V 06S	7.5V 7R5S	9V 09S	12V 12S	15V 15S	28V 28S	±5V 05D	±12V 12D	±15V 15D
MQFL-28 (120W) 16-40Vin Cont. 16-50Vin 1s Trans. Absolute Max Vin = 60V	40A 60W	40A 72W	40A 100W	30A 99W	24A 120W	20A 120W	16A 120W	13A 117W	10A 120W	8A 120W	4A 112W	24A 120W Total	10A 120W Total	8A 120W Total
MQFL-28E (120W) 16-40Vin Cont. 16-80Vin 1s Trans. Absolute Max Vin =100V	40A 60W	40A 72W	40A 100W	30A 99W	24A 120W	20A 120W	16A 120W	13A 117W	10A 120W	8A 120W	4A 112W	24A 120W Total	10A 120W Total	8A 120W Total
MQFL-28V (100W) 16-40Vin Cont. 5.5-50Vin 1s Trans. Absolute Max Vin = 60V	40A 60W	40A 72W	40A 100W	30A 99W	20A 100W	17A 102W	13A 98W	11A 99W	8A 96W	6.5A 98W	3.3A 92W			
MQFL-28VE (100W) 16-70Vin Cont. 5.5-80Vin 1s Trans. Absolute Max Vin = 100V	40A 60W	40A 72W	40A 100W	30A 99W	20A 100W	17A 102W	13A 98W	11A 99W	8A 96W	6.5A 98W	3.3A 92W			
MQFL-270 (120W) 155-400Vin Cont. 155-475Vin 1s Trans. Absolute Max Vin = 550V	40A 60W	40A 72W	40A 100W	30A 99W	20A 100W	20A 120W	16A 120W	13A 117W	10A 120W	8A 120W	4A 112W	24A 120W Total	10A 120W Total	8A 120W Total
MQFL-270L (75W) 65-350Vin Cont. 65-475Vin 1s Trans. Absolute Max Vin = 550V	40A 60W	40A 72W	30A 75W	22A 72.6W	15A 75W	12A 72W	10A 75W	8A 72W	6A 72W	5A 75W	2.7A 75W	15A 75W Total	6A 72W Total	5A 75W Total
Half Size (MQHL)	1.5V 1R5S	1.8V 1R8S	2.5V 2R5S	3.3V 3R3S	5V 05S	6V 06S	7.5V 7R5S	9V 09S	12V 12S	15V 15S	28V 28S	±5V 05D	±12V 12D	±15V 15D
MQHL-28 (50W) 16-40Vin Cont. 16-50Vin 1s Trans. Absolute Max Vin = 60V	20A 30W	20A 36W	20A 50W	15A 50W	10A 50W	8A 48W	6.6A 50W	5.5A 50W	4A 48W	3.3A 50W	1.8A 50W	10A 50W Total	4A 48W Total	3.3A 50W Total
MQHL-28E (50W) 16-70Vin Cont. 16-80Vin 1s Trans. Absolute Max Vin =100V	20A 30W	20A 36W	20A 50W	15A 50W	10A 50W	8A 48W	6.6A 50W	5.5A 50W	4A 48W	3.3A 50W	1.8A 50W	10A 50W Total	4A 48W Total	3.3A 50W Total
Half Size (MQHR)	1.5V 1R5S	1.8V 1R8S	2.5V 2R5S	3.3V 3R3S	5V 05S	6V 06S	7.5V 7R5S	9V 09S	12V 12S	15V 15S	28V 28S	±5V 05D	±12V 12D	±15V 15D
MQHR-28 (25W) 16-40Vin Cont. 16-50Vin 1s Trans. Absolute Max Vin = 60V 10A	10A 15W	10A 18W	10A 25W	7.5A 25W	5A 25W	4A 24W	3.3A 25W	2.75A 25W	2A 24W	1.65A 25W	0.9A 25W	5A 25W Total	2A 24W Total	1.65A 25W Total
MQHR-28E (25W) 16-70Vin Cont. 16-80Vin 1s Trans. Absolute Max Vin =100V	10A 15W	10A 18W	10A 25W	7.5A 25W	5A 25W	4A 24W	3.3A 25W	2.75A 25W	2A 24W	1.65A 25W	0.9A 25W	5A 25W Total	2A 24W Total	1.65A 25W Total
Bottom Pin (MQBL)	1.5V 1R5S	1.8V 1R8S	2.5V 2R5S	3.3V 3R3S	5V 05S	6V 06S	7.5V 7R5S	9V 09S	12V 12S	15V 15S	28V 28S	±5V 05D	±12V 12D	±15V 15D
MQBL-28 (20W) 16-40Vin Cont. 16-50Vin 1s Trans. Absolute Max Vin = 60V	8A 12W	8A 14.4W	8A 20W	6A 19.8W	4A 20W	3.3A 19.8W	2.6A 19.5W	2.2A 19.8W	1.6A 19.2W	1.3A 19.5W	0.72A 20.2W	4A 20W Total	1.6A 19.2W Total	1.3A 19.5W Total
MQBL-28E (20W) 16-70Vin Cont. 16-80Vin 1s Trans. Absolute Max Vin =100V	8A 12W	8A 14.4W	8A 20W	6A 19.8W	4A 20W	3.3A 19.8W	2.6A 19.5W	2.2A 19.8W	1.6A 19.2W	1.3A 19.5W	0.72A 20.2W	4A 20W Total	1.6A 19.2W Total	1.3A 19.5W Total

SYNQOR AC-DC SOLUTIONS



Filter Solutions

PRODUCT	PACKAGE	INPUT VOLTAGE RANGE (TRANSIENT)	OUTPUT
MCOTS			
MACF-115-3PH-UNV-HT-N-S	Half brick	3 phase 85-40VAC @ 45-800Hz	3 x 6A / 2,0kW (LN)
MACF-115-3PH-UNVD-QT-N-S	Quarter brick	3 phase 85-140VAC @ 45-800Hz	3 x 6A / 2,0kW (LN)
MACF-115-3PH-UNV-QG-N-S	Quarter brick	3 phase 85-140VAC @ 45-800Hz	3 x 3A / 1,0kW (LN)
MACF-440-3PH-UNV-MP-D-S	MP	3 phase 320-528VAC @ 45-800Hz	3 x 10A
MACF-xx0-230-HT-N-S	Half brick	85-264VAC, 9A 50/60Hz, 400Hz	9A / 2kW @230VAC 1kW @115VAC
MACF-U-230-ET-N-S	Eighth brick	1 phase 85-264VAC @ 45-800Hz	5A / 1kW @230VAC 500W @115VAC
InQor			
ACLF-060HTC230RS-G	Half brick	1 phase 85-264VAC @ 45-65Hz	9A / 2kW @230VAC 1kW @115VAC
ACLFUNVETC230RS-G	Eighth brick	1 phase 85-264VAC @ 45-800Hz	5A / 1kW @230VAC 500W @115VAC
AeroQor			
ACF-U-230-QM-C-G	Quarter brick	1 faz 85-264VAC @ 45-800Hz	2A / 460W @230VAC 230W @115VAC
ACF-U-230-QT-C-G	Quarter brick	1 faz 85-264VAC @ 45-800Hz	5A / 1,1kW @230VAC 575W @115VAC
ACF-U-115-3PH-QG-C-G	Quarter brick	3 faz 85-140VAC @ 45-800Hz	3A / 1kW @115VAC

PFC Solutions

PRODUCT	PACKAGE	INPUT VOLTAGE RANGE (TRANSIENT)	OUTPUT	EFFICIENCY
MCOTS				
MPFC-115-3P-270-FP-N-S	Full brick	85-140VAC @ 45-800Hz	270VDC / 5,8A / 1500W	~%94,1
MPFC-115-3P-270P-FP-N-S	Full brick	85-140VAC @ 45-800Hz	270VDC / 5,8A / 1500W	~%94,1
MPFC-440-3PH-400-LE-D-S	LE	360-528VAC L-L @ 47-800Hz	400VDC / 5kW	~%97
MPFC-U-390-HP-N-S	Half brick	85-264VAC @ 45-63 / 360-800Hz	390VDC / 1,8A / 700W	~%94
MPFC-115-270-HP-N-S	Half brick	85-180VAC @ 45-63 / 360-800Hz	270VDC / 2,7A / 700W	~%95
MPFC-U-390-QP-N-S	Quarter brick	85-264VAC @ 45-63 / 360-800Hz	390VDC / 0,9A / 350W	~%94
MPFC-115-270-QP-N-S	Quarter brick	85-180VAC @ 45-63 / 360-800Hz	270VDC / 1,3A / 350W	~%94
InQor				
PFCU390HPC075RS-G	Half brick	85-264Vrms 45-65Hz / 360-800Hz	390V / 1,8A / 700W	~%94
PFCU390QPC04SRS-G	Quarter brick	85-180VAC @ 45-63 / 360-800Hz	390VDC / 0,9A / 350W	~%94

PFIC Solutions

PRODUCT	PACKAGE	INPUT VOLTAGE RANGE (TRANSIENT)	OUTPUT	ISOLATION	EFFICIENCY
MPFIC-U-12-FT-N-S-D	Full brick	85-264Vrms 45-65Hz / 360-800Hz	12VDC / 66,7A / 800W	4250VDC / 2500VDC	~%87
MPFIC-U-24-FT-N-S-D	Full brick	85-264Vrms 45-65Hz / 360-800Hz	24VDC / 33,3A / 800W	4250VDC / 2500VDC	~%91
MPFIC-U-28-FT-N-S-D	Full brick	85-264Vrms 45-65Hz / 360-800Hz	28VDC / 28,6A / 800W	4250VDC / 2500VDC	~%91
MPFIC-U-48-FT-N-S-D	Full brick	85-264Vrms 45-65Hz / 360-800Hz	48VDC / 16,7A / 800W	4250VDC / 2500VDC	~%91
MPFIC-U-12-HT-N-S-D	Half brick	85-264Vrms 45-65Hz / 360-800Hz	12VDC / 27A / 325W	4250VDC / 2500VDC	~%91
MPFIC-U-24-HT-N-S-D	Half brick	85-264Vrms 45-65Hz / 360-800Hz	24VDC / 13,5A / 325W	4250VDC / 2500VDC	~%91
MPFIC-U-28-HT-N-S-D	Half brick	85-264Vrms 45-65Hz / 360-800Hz	28VDC / 11,5A / 325W	4250VDC / 2500VDC	~%91
MPFIC-U-48-HT-N-S-D	Half brick	85-264Vrms 45-65Hz / 360-800Hz	48VDC / 6,8A / 325W	4250VDC / 2500VDC	~%91
MPFIC-115-3PH-12R/D-FT-N-S	Full brick	100-140VrmsL-N 47-800Hz	12VDC / 60A / 720W	2150VDC	~%92
MPFIC-115-3PH-24R/D-FT-N-S	Full brick	100-140VrmsL-N 47-800Hz	24VDC / 31A / 750W	2150VDC	~%92,5
MPFIC-115-3PH-28R/D-FT-N-S	Full brick	100-140VrmsL-N 47-800Hz	28VDC / 26,8A / 750W	2150VDC	~%92,5
MPFIC-115-3PH-48R/D-FT-N-S	Full brick	100-140VrmsL-N 47-800Hz	48VDC / 15A / 720W	2150VDC	~%91,5
MPFIC-115-3PH-54R/D-FT-N-S	Full brick	100-140VrmsL-N 47-800Hz	54VDC / 14A / 750W	2150VDC	~%91,5
InQor					
PFICU12HTC27NRD-G	Half brick	85-264Vrms 45-65Hz / 360-800Hz	12VDC / 27A / 325W	4250VDC / 2500VDC	~%91
PFICU24HTC14NRD-G	Half brick	85-264Vrms 45-65Hz / 360-800Hz	24VDC / 13,5A / 325W	4250VDC / 2500VDC	~%91
PFICU28HTC12NRD-G	Half brick	85-264Vrms 45-65Hz / 360-800Hz	28VDC / 11,5A / 325W	4250VDC / 2500VDC	~%91
PFICU48HTC07NRD-G	Half brick	85-264Vrms 45-65Hz / 360-800Hz	48VDC / 6,8A / 325W	4250VDC / 2500VDC	~%91

SYNQOR SYSTEM SOLUTIONS

Products	Phase	Voltage	Frequency	Input	Voltage	Power	DC-1 (4)	DC2 (5)	Battery	Süresi (6)(dak)	Phase	Voltage
UPS-3000-S-2U	1F-N	85-65VAC	47-800 Hz	(22-33V)	115/230VAC	2500W	(2x500W)	(2250W)	1x200W	10 / 13 / 21	2U, 22,2"	65Lbs
UPS-1500-S-1U	1F-N	85-265VAC	47-65Hz	(22-33V)	115/230VAC	1250W	(1x500W)	(1250W)	1x200W	10 / 13 / 21	1U, 21,6"	32Lbs
UPS-1500-E-2U	1F-N	85-265VAC	47-65Hz	(22-33V)	115/230VAC	1250W	(1x500W)	(1250W)	1x500W	24 / 31 / 50	2U, 21,6"	50Lbs
UPS-1500-S-2S	1F-N	85-265VAC	47-65Hz	(22-33V)	115/230VAC	1250W	(1x500W)	(1250W)	1x200W	10 / 13 / 21	1U, 13,8"	33Lbs
UPS-1500-S-1U-T	3F Δ	85-140 L-N	47-800Hz	(22-33V)	115/230VAC	1250W	(1x500W)	(1250W)	1x200W	10 / 13 / 21	1U, 22,5"	32Lbs
UPS-1500-E-2U-T	3F Δ	147-242 L-L	47-800Hz	(22-33V)	115/230VAC	1250W	(1x500W)	(1250W)	1x500W	24 / 31 / 50	2U, 22,5"	32Lbs
UPS-MS-1500-S-2U	1F-N	85-265VAC	47-65Hz	None	115/230VAC	1250W	None	None	1x200W	10 / 13 / 21	2U, 21,3"	42Lbs

● UPS Product Features Specification Compliance

- ◆ Sealed, weather-proof, shock-proof construction
- ◆ Military Tough, Die-Cast Aluminum Chassis

● UPS units are designed to meet:

- ◆ MIL-STD-704F - Aircraft Electrical Power Characteristics
- ◆ MIL-STD-1399-300B - Interface Std for Shipboard Systems
- ◆ MIL-STD-1275D - Vehicle Electrical Power Characteristics
- ◆ MIL-STD-461F - Electromagnetic Interference
- ◆ MIL-STD-810G - Environmental Engineering Considerations



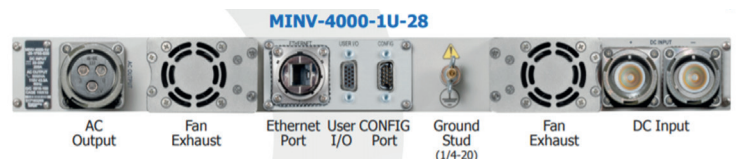
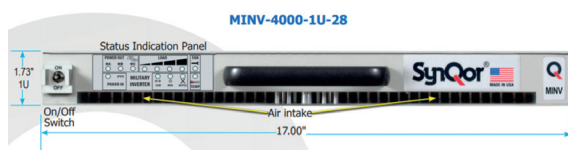
Power Systems

Products	Phase	Voltage	Frequency	Input	Voltage	Power	DC-1	DC2	Dimensions	Weight
MPC-3000-2U	1F-N	85-65VAC	47-800 Hz	(22-33V)	115/230VAC	2500W	(2x500W)	(2250W)	2U, 22,2"	49 lbs
MPC-1500-1U	1F-N	85-265VAC	47-800Hz	(22-33V)	115/230VAC	1250W	(1x500W)	(1250W)	1U, 21,6"	24Lbs
MPC-1250DC	1F-N	85-265VAC	47-800Hz	(22-33V)	None	1250W	(1250W)	None	1U, 14.8"	22 lbs.



Product	Power	Battery Run-Time @ Full Power	Watt hours	Height	Weight	DC input	DC output	AC input	AC input Frequency	DC Output voltage	Output Power
EBM	1250 W	>45 min.	1000 W Hr	2U:3.40"	61 lbs.	(22-33V)	28 V	85-264 Vrms	47-800 Hz	28 V	3000W
-1000-2U	2500 W	>20 min.									

MODEL	OUTPUT POWER	PACKAGE SIZE	INPUT/OUTPUT DESCRIPTION	INPUT TYPE	OUTPUT FREQUENCY
MINV-4000-1U-28	4000 W	1U - 22.4 X 17 INCHES	20-33 VDC TO SINGLE PHASE 115 OR 230 VRMS	DC	50, 60, OR 400 HZ
MINV-4000-1U-270	4000 W	1U - 22.4 X 17 INCHES	160-330 VDC TO SINGLE PHASE 115 OR 230 VRMS	DC	50, 60, OR 400 HZ



● VPX Power Supplies

The VPX power supplies are compliant with VITA 62, MIL-STD-704, MIL-STD-461 and MIL-STD-810 for 28 Vdc, 270 Vdc and AC-DC systems. The VPX delivers up to 1000 W and up to 6 outputs with a typical high efficiency of 91%. These rugged power supplies are offered in 3U and 6U size packages with internal conduction cooling and high speed backplane connectors.

VPX
Power Supplies



MEMBER
VITA
Open Standards, Open Markets

● VPX Product Features

- ◆ VITA 62 and 47 Compliant
- ◆ Maximum Total Output Power: 1000 W
- ◆ Input EMI Filtering
- ◆ -40°C to 85°C Operating Temperature (at card edge)
- ◆ Active current share through backplane
- ◆ Over-current, over-voltage, over-temperature protection and Remote Sense
- ◆ Standard VITA 62 power supply controls
- ◆ Conformal Coating Option available
- ◆ Optional I2C Function
 - Supports IPMI/PMBus/VITA 46.11
 - Input Reverse Polarity Protection

Specification Compliance

VPX units are designed to meet:

- ◆ VITA 47
- ◆ VITA 62
- ◆ MIL-STD-461 - Electromagnetic Interference
- ◆ MIL-STD-704 - Aircraft Electrical Power
- ◆ MIL-STD-810 - Environmental Engineering
- ◆ MIL-STD-1275 - Vehicle Electrical Power – T version

TRANSPORTATION SOLUTIONS

SynQor's AeroQor® and RailQor® product lines of AC-DC and DC-DC isolated converters and filters are geared towards the Air, Rail and Ground transportation industries. These converters and filters have been specifically designed to meet the most stringent electrical and environmental Air and Rail specifications respectively. The AeroQor and RailQor products have a high level of field proven reliability which is perfect for the low maintenance, high performance demands of today's high-tech transportation industries.



● RailQor

- ◆ Product Family: RailQor
- ◆ High efficiency up to 93%
- ◆ Input voltage ranges: 9-36 V, 18-75 V, 34-160 V, 42-110 V, 12-150 V & 66-160 V
- ◆ Output power up to 325 W
- ◆ Fixed frequency switching, low output noise
- ◆ RailQor DC-DC EMI Filter Available

● AeroQor

- ◆ Product Family: AeroQor
- ◆ High efficiency up to 92%
- ◆ Input Voltage Ranges:
 - Single Phase Isolated PFC: 85-264 Vrms
 - 3-Phase Isolated PFC: 100-140 Vrms L-N
- ◆ Output power:
 - Single-Phase up to 325 W
 - 3-Phase up to 750 W
- ◆ AeroQor AC Line Filters available.