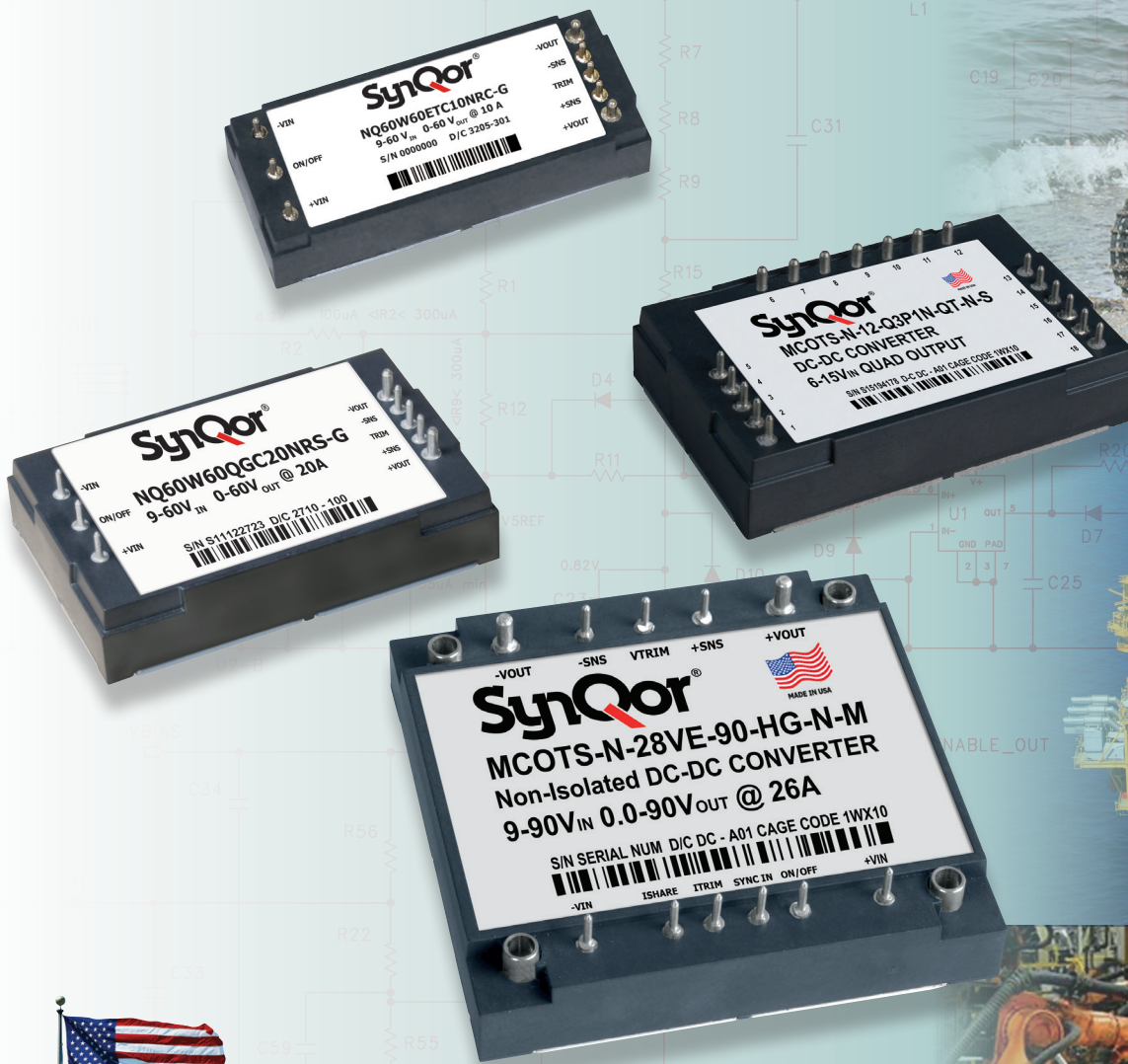


NiQor[®]



Made in USA

Non-Isolated DC-DC Converters

SynQor[®]

Rev D 006-0006713 - 03-11-2026

HIGH VOLTAGE, NON-ISOLATED DC-DC CONVERTERS FOR INDUSTRIAL & MILITARY APPLICATIONS

The high input voltage NiQor family of DC-DC converters offers unique solutions for converting high-powered, variable voltages to a wide range of output voltages. The converter is a non-isolated buck-boost regulator, which employs synchronous rectification to achieve extremely high conversion efficiency. They can ‘buck’ the input voltage down or ‘boost’ the input voltage up. These products are suitable to provide a regulated non-isolated output voltage from a variable voltage source such as a battery.

NQ20		
Series	0-20V	
9-20Vdc Input Range		
Quarter	QG	40A
Eighth	ET	20A
	EG	10A

NQ40		
Series	0-40V	
9-40Vdc Input Range		
Half	HG	55 A
Quarter	QT	35A
	QG	30A
Eighth	EP	20A
	ET	15A
	EG	8A

NQ60		
Series	0-60V	
9-60Vdc Input Range		
Half	HG	40A
Quarter	QT	25A
	QG	20A
Eighth	EP	15A
	ET	10A
	EG	5A

NQ90		
Series	0-90V	
9-90Vdc Input Range		
Half	HG	26A
Quarter	QT	18A
Eighth	EP	10A

OPERATIONAL FEATURES

- Ultra-high efficiency up to 95%
- Wide input voltage ranges:
9-20V (NQ20); 9-40V (NQ40); 9-60V (NQ60); 9-90V (NQ90)
- Buck or Buck/Boost topologies available
- Maximum input/output currents up to 55A
- Suitable for use in Intermediate Bus Architecture
- On-board input and output filtering
- No minimum load requirement
- -40 °C to +100 °C Operating Temperature
- Remote sense and wide output voltage trim

PROTECTION/CONTROL FEATURES

- Input under-voltage lockout (UVLO)
- Output current limit (OCP) and short circuit protection
- Output over-voltage protection (OVP)
- Thermal shutdown (OTP)
- Output voltage trim

Industrial Hi-Voltage Non-Isolated Part Numbering

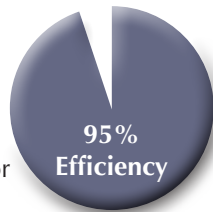
Family	Input Voltage	Topology	Output Voltage	Package Size	Performance Series	Thermal Design	Max Current	Options Description:		
								Enable Logic	Pin Length	Feature Set
NQ	20: 9-20V 40: 9-40V 60: 9-60V 90: 9-90V	T: Buck Only (1/8 and 1/4) W: Buck/Boost	20: 0-20V 40: 0-40V 60: 0-60V 90: 0-90V	E: Eighth Brick Q: Quarter Brick H: Half Brick	G: Giga P: Peta T: Tera	C: Encased D: Encased Non-threaded Baseplate V: Encased Flanged Baseplate	05: 50A 08: 80A 10: 10A 15: 15A 20: 20A 26: 26A 30: 30A 40: 40A 55: 55A	N: Neg.	K: 0.110" N: 0.145" R: 0.180" Y: 0.250"	S: Standard (1/8 and 1/4 only) C: Current monitor output/ trimmable current limit (1/8 and 1/4 only) F: Current share/ trimmable current limit (half brick only)

Part Numbering Example: NQ20W20ETC20NRS

MCOTS Hi-Voltage Non-Isolated Part Numbering

Family	Product	Input Voltage	Output Voltage	Package	Heatsink Option	Screening
MCOTS	N: Non-Isolated	28V: 9-60V 28VE: 9-90V	60: 0-60V 90: 0-90V	EP: Eighth Brick Peta QT: Quarter Brick Tera HG: Half Brick Giga	N: Normal Threaded F: Flanged	S: S-Grade M: M-Grade

Part Numbering Example: MCOTS-N-28V-60-HG-F-M



BATTERY CHARGING

- Provides the power conversion platform for battery charging
- Output current limit is externally controlled for constant-current charging
- Current can be set with an external resistor or an active circuit
- Current analog signal provided for instrumentation and control functions
- Ideal diode output stage with zero back-drive currents prevents discharge of battery when not charging
- Output voltage set-point is independently controlled through trim pin
- Unit will smoothly transition between current and voltage modes as charging cycle needs charge

QUAD OUTPUT, NON-ISOLATED DC-DC CONVERTERS

The MCOTS-N QUAD Output non-isolated dc-dc converter employs synchronous rectification to achieve extremely high conversion efficiency in a quarter brick package. The module generates three positive output voltages, and one negative output voltage. The MCOTS QUAD Output Brick converter can be used in traditional DPA (distributed power architecture) systems that require a more rugged design. All four outputs have a wide output trim range, creating a high degree of flexibility for the user.



OPERATIONAL FEATURES

- Input voltage range: 6.0V ~ 15.0V, 12V nominal
- Four non-isolated outputs including three high current positive outputs, up to 30A each; one auxiliary negative output, up to 1A
- Positive outputs range: 0.8V to 5.0V
- Negative output range: -3.0V to -13.5V
- Common Input and Output Grounds
- High efficiency, up to 93% at full rated load current

PROTECTION/CONTROL FEATURES

- Over-current shutdown (All outputs)
- Thermal shutdown (All outputs)
- Over-voltage shutdown (Positive outputs only)
- Input under-voltage lockout (Positive outputs only)

CONTROL FEATURES

- On/Off control for each output
- Output voltage trim for each permits custom voltages
- Remote Sense (Positive outputs only)

OUTPUT VOLTAGE FEATURES

The TRIM input permits the user to adjust the output voltage according to the trim range specifications by using an external resistor connected between the TRIM pin and the Ground pin.

- For positive outputs:
 $R_{trim} = 1200 / (V_{out} - 0.8) - 100 \text{ } (\Omega)$
 e.g. $V_{out} = 5V$ $R_{trim} = 185.7\Omega$
 $V_{out} = 0.8V$ $R_{trim} = \text{OPEN}$
- For negative outputs:
 $R_{trim} = (-100V_{out} - 122.5) / (V_{out} + 13.475) \text{ (k}\Omega)$
 e.g. $V_{out} = -12V$ $R_{trim} = 730.5k\Omega$
 $V_{out} = -13.475V$ $R_{trim} = \text{OPEN}$

MCOTS Quad Output Non-Isolated Part Numbering

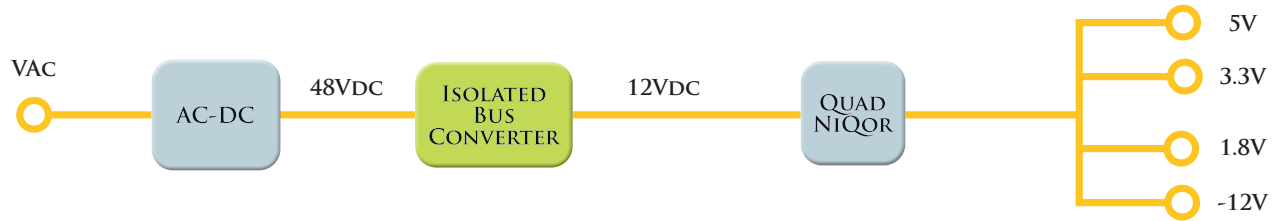
Family	Product	Input Voltage	Output Voltage	Package	Heatsink Option	Screening
MCOTS	N: Non-Isolated	12: 6-15V	Q3P1N: Quad Output 3 Positive, 1 Negative	QT: Quarter Brick Tera	N: Normal Threaded F: Flanged	S: S-Grade M: M-Grade

Part Numbering Example: MCOTS-N-12-Q3P1N-QT-N-M

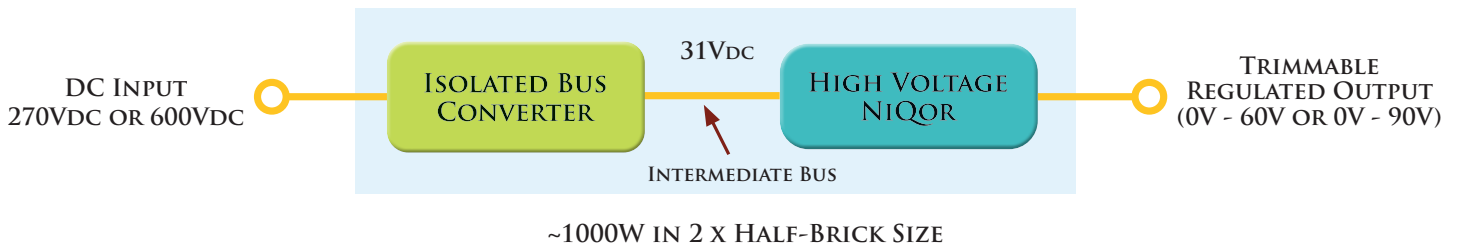
Model Number	Package Size	Input Voltage	Output Voltage
MCOTS-N-12-Q3P1N-QT	Quarter-brick	6-15 V	30 A Positive Outputs, 1 A Negative Output

NiQor[®] APPLICATIONS

INTERMEDIATE BUS ARCHITECTURE



HIGH INPUT VOLTAGE / HIGH POWER / ADJUSTABLE OUTPUT



BATTERY CHARGING



- Constant Current Charging (Trimmable)
- Trimmable Float Voltage
- Zero Back-drive Current Prevents Energizing a Disconnected Input Bus
- Applicable to All Batteries and Fuel Cells



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Advancing The Power Curve[®]

Headquartered in Salem, NH, at the location of its manufacturing operations, SynQor is a privately owned U.S. AS9100 and ISO9001 company. SynQor's converters feature a patented two-stage power topology that greatly improves efficiency and optimizes the power dissipated by the converter. With a design center in Plano, Texas, and sales/marketing offices throughout the World, SynQor is the technology, quality and service leader for power conversion modules and systems.

SynQor's rugged DC-DC converters, AC-DC converters, filters and systems are designed for a wide range of industrial and military applications including those required to withstand harsh environments: railway and transportation systems, industrial motion control, information displays, factory automation, critical military and power generation systems.