



America

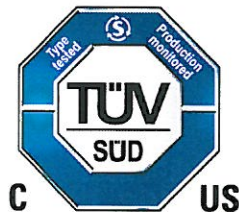
CERTIFICATE

No. U8V 17 08 34962 284

Holder of Certificate: **SynQor Inc.**
155 Swanson Road
Boxborough MA 01719-1316
USA

Production Facility(ies): 34962

Certification Mark:



Product: DC converter
DC to DC Converter

Model(s): InQor, RailQor and MILCOT series
IQ1B120QTC12NRSG
(see certificate attachment for model nomenclature,
rating information and license conditions)

Parameters:

Rated Input Voltage:	66-160 V DC
Rated Output Voltage:	12 V DC max
Rated Output Current:	12.0 A
Rated Output Wattage:	150 Watts max

Tested according to: CAN/CSA C22.2 No.60950-1:2007/A2:2014
UL 60950-1:2007/A2:2014
EN 60950-1:2006/A2:2013

The product was voluntarily tested according to the relevant safety requirements noted above. It can be marked with the certification mark above. The mark must not be altered in any way. This product certification system operated by TÜV SÜD America Inc. most closely resembles system 3 as defined in ISO/IEC 17067. Certification is based on the TÜV SÜD "Testing and Certification Regulations". TÜV SÜD America Inc. is an OSHA recognized NRTL and a Standards Council of Canada accredited certification body.

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Part Number Nomenclature Full Brick

<u>IQ</u> I	<u>4H</u> II	<u>120</u> III	<u>F</u> IV	<u>T</u> V	<u>C</u> VI	<u>50</u> VII	<u>NRS</u> VIII	<u>G</u> IX
I	<u>Product</u>							
II	<u>Input Voltage</u>							
III	<u>Output Voltage</u>							
IV	<u>Package Size</u>							
V	<u>Performance level</u>							
VI	<u>Thermal design</u>							
VII	<u>Output Current</u>							
VIII	<u>Options</u>							
XI	<u>6/6 RoHS</u>							

Custom Part #

CQ0140100 270-330 Vin, 32 Vout, 600W

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MILCOTs 270 Full Brick Part Nomenclature

<u>MCOTS-C - 270 - 12 - F</u>	<u>T - N - M - xxx</u>
<u>I II III IV</u>	<u>V VI VII VIII</u>
I Product	MCOTS-C – MILCOTs Converters
II Input Voltage	270 = 155-425 Vdc, Output 600 Watts 80 Amps max 270H = 240-425 Vdc, Output 800 Watts max 270HL = 180-425 Vdc, Output 600 Watts 80 Amps max
III Output Voltage	2 Characters denoting output voltage in volts Input voltage 270 and 270HL 05 = 05 Vdc minimum 48 = 48 Vdc maximum Input Voltage 270H 05 = 05 Vdc minimum 36 = 36 Vdc maximum
IV Package Size	F = Full Brick
V Performance level	K = Kilo M = Mega G = Giga T = Tera P = Pera
VI Thermal design	Examples but not limited to: F = Flanged N = Normal
VII Screening Level	Burn-in duration, etc (Non safety)
VIII Options	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.

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Part Number Nomenclature Quarter Brick

IQ	1B	120	Q	T	C	12	NRS	G
I	II	III	IV	V	VI	VII	VIII	IX

I	Product	IQ – InQor Series						
II	Input Voltage	64 = 18-135 Vdc, Output 100 Watts max 68 = 12-150 Vdc, Output 26.5 Watts max 70 = 34-135 Vdc, Output 150 Watts max 72 = 42-110 Vdc, Output 150 Watts max 90 = 34-160 Vdc, Output 120 Watts max 1B = 66-160 Vdc, Output 150 Watts max 4H = 180-425 Vdc, Output 150 Watts max 2H = 90-210 Vdc, Output 150 Watts max						
III	Output Voltage	3 Numbers denoting output voltage in tenths of a volt 018 = 1.8 Vdc minimum 480 = 48.0 Vdc maximum						
IV	Package Size	Q = Quarter Brick						
V	Performance level	T = Tera G = Giga M = Mega K = Kilo						
VI	Thermal design	Options include but are not limited to: C = Encased D = Non-Threaded Inserts V = Flanged Baseplate						
VII	Output Current	X = 0 – 4 (40 Amps max) Y = 0 – 9 or A – J (A = .0, B = .1 ... J = .9) Example: 24 = 24 Amps, 03 = 3 Amps, 2F = 2.5 Amps						
VIII	Options	Suffix letters and/or numbers denoting non-safety critical functions such as, but not limited to, positive or negative logic, pin length, etc.						
XI	6/6 RoHS	G = 6/6 RoHS Compliance						

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MILCOTs 270 Quarter Brick Part Nomenclature

MCOTS-C - 270 - 12 - Q	T - N - M - xxx
I II III IV	V VI VII VIII
I Product	MCOTS-C – MILCOTs Converters
II Input Voltage	150 = 90-210 Vdc, Output 150 Watts max 270 = 155-425 Vdc, Output 150 Watts max
III Output Voltage	3 Characters denoting output voltage in volts R = Decimal point 1R8 = 1.8 Vdc minimum 9R9 = 9.9 Vdc maximum
IV Package Size	Q = Quarter Brick (40 Amps max)
V Performance level	K = Kilo M = Mega G = Giga T = Tera
VI Thermal design	Options include but not limited to: F = Flanged N = Normal
VII Screening Level	Burn-in duration, etc (Non safety)
VIII Options	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.

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MILCOTs 270 Quarter Brick Part Nomenclature

MCOTS-C - 270 - 12 - Q T - N - M - xxx
 I II III IV V VI VII VIII

I	Product	MCOTS-C – MILCOTs Converters
II	Input Voltage	150= 90-210 Vdc, Output 150 Watts max 270 = 155-425 Vdc, Output 150 Watts max
III	Output Voltage	2 Characters denoting output voltage in volts 05 = 5 Vdc minimum 48 = 48 Vdc maximum
IV	Package Size	Q = Quarter Brick (30 Amps max)
V	Performance level	K = Kilo M = Mega G = Giga T = Tera
VI	Thermal design	Options include but not limited to: F = Flanged N = Normal
VII	Screening Level	Burn-in duration, etc (Non safety)
VIII	Options	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.

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Part Number Nomenclature Quarter Brick

<u>RQ</u>	<u>1B</u>	<u>240</u>	<u>Q</u>	<u>M</u>	<u>C</u>	<u>02</u>	<u>NRS</u>	<u>G</u>
I	II	III	IV	V	VI	VII	VIII	IX
I	<u>Product</u>			RQ – RailQor Series				
II	<u>Input Voltage</u>	68 = 12-155 Vdc, Output 26 Watts max 72 = 42-110 Vdc, Output 150 Watts max 1B = 66-160 Vdc, Output 150 Watts max 90 = 34-160 Vdc, Output 120 Watts max						
III	<u>Output Voltage</u>	3 Numbers denoting output voltage in tenths of a volt 018 = 1.8 Vdc minimum 480 = 48.0 Vdc maximum						
IV	<u>Package Size</u>	Q = Quarter Brick						
V	<u>Performance level</u>	T = Tera G = Giga M = Mega K = Kilo						
VI	<u>Thermal design</u>	Options include but are not limited to: C = Encased V = Flanged Baseplate						
VII	<u>Output Current</u>	2 Numbers denoting output current in Amps 25 = 25 Amps maximum						
VIII	<u>Options</u>	Suffix letters and/or numbers denoting non-safety critical functions such as, but not limited to, positive or negative logic, pin length, etc.						
XI	<u>6/6 RoHS</u>	G = 6/6 RoHS Compliance						

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Part Number Nomenclature Half Brick

<u>IQ</u>	<u>1B</u>	<u>120</u>	<u>H</u>	<u>P</u>	<u>C</u>	<u>21</u>	<u>NRS</u>	<u>G</u>	
I	II	III	IV	V	VI	VII	VIII	IX	
I	Product			IQ – InQor Series					
II	Input Voltage			64 = 18-135 Vdc, Output 200 Watts max 68 = 12-150 Vdc, output 53 Watts max 70 = 34-135 Vdc, Output 240 Watts max 72 = 42-110 Vdc, Output 255 Watts max 90 = 34-160 Vdc, Output 228 Watts max 1B = 66-160 Vdc, output 255 Watts max 4H = 180-425 Vdc, Output 300 Watts max					
III	Output Voltage			3 Numbers denoting output voltage in tenths of a volt 018 = 1.8 Vdc minimum 480 = 48.0 Vdc maximum					
IV	Package Size			H = Half Brick					
V	Performance level			P = Peta T = Tera G = Giga M = Mega K = Kilo					
VI	Thermal design			Options include but are not limited to: C = Encased D = Non-Threaded Inserts V = Flanged Baseplate					
VII	Output Current			X = 0 – 6 (70 Amps max) Y = 0 – 9 or A – J (A = .0, B = .1 ... J = .9)					
VIII	Options			Example: 24 = 24 Amps, 03 = 3 Amps, 2F = 2.5 Amps Suffix letters and/or numbers denoting non-safety critical functions such as, but not limited to, positive or negative logic, pin length, etc.					
XI	6/6 RoHS			G = 6/6 RoHS Compliance					

Custom Special:

Model Number	Input voltage	Output voltage	Output Current	Output Power	Airflow
IQ24600HZx08	20-32 Vdc	60 Vdc	8.4 Amax	504 Wmax	1250LFM
IQ241C0HZx04	20-32 Vdc	120 Vdc	4.2 Amax	504 Wmax	1050 LFM

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MILCOTs 270 Half Brick Part Nomenclature

<u>MCOTS-C - 270 - 12 - H</u>	<u>T</u>	<u>N</u>	<u>M</u>	<u>- xxx</u>			
I	II	III	IV	V	VI	VII	VIII
I	Product	MCOTS-C – MILCOTs Converters					
II	Input Voltage	270 = 155-425 Vdc, Output 300 Watts max 270N = 240-280 Vdc, Output 400 watts max					
III	Output Voltage	3 Characters denoting output voltage in volts R = Decimal point 1R8 = 1.8 Vdc minimum 9R9 = 9.9 Vdc maximum					
IV	Package Size	H = Half Brick (70 Amps max)					
V	Performance level	K = Kilo M = Mega G = Giga T = Tera					
VI	Thermal design	Options include but not limited to: F = Flanged N = Normal					
VII	Screening Level	Burn-in duration, etc (Non safety)					
VIII	Options	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.					

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MILCOTs 270 Half Brick Part Nomenclature

MCOTS-C - 270 - 12 - H T - N - M - xxx
 I II III IV V VI VII VIII

I	Product	MCOTS-C – MILCOTs Converters
II	Input Voltage	270 = 155-425 Vdc, Output 300 Watts max 270N = 240-280 Vdc, Output 400 Watts max 270M = 220-310 Vdc, Output 396 Watts max
III	Output Voltage	2 Characters denoting output voltage in volts 05 = 5 Vdc minimum 48 = 48 Vdc maximum
IV	Package Size	H = Half Brick (50 Amps max)
V	Performance level	K = Kilo M = Mega G = Giga T = Tera
VI	Thermal design	Options include but not limited to: F = Flanged N = Normal
VII	Screening Level	Burn-in duration, etc (Non safety)
VIII	Options	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.

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Part Number Nomenclature Half Brick

<u>RQ</u>	<u>1B</u>	<u>240</u>	<u>H</u>	<u>P</u>	<u>C</u>	<u>10</u>	<u>NRS</u>	<u>G</u>
I	II	III	IV	V	VI	VII	VIII	IX

- I Product RQ – RailQor Series
- II Input Voltage
68 = 12-155 Vdc, Output 100 Watts max
72 = 42-110 Vdc, Output 255 Watts max
1B = 66-160 Vdc, Output 255 Watts max
- III Output Voltage
3 Numbers denoting output voltage in tenths of a volt
018 = 1.8 Vdc minimum
480 = 48.0 Vdc maximum
- IV Package Size H= Half Brick
- V Performance level
P = Peta
T = Tera
G = Giga
M = Mega
K = Kilo
E = Exa
- VI Thermal design Options include but are not limited to:
C = Encased
V = Flanged Baseplate
- VII Output Current
2 Numbers denoting output current in Amps
48 = 48 Amps maximum
- VIII Options
Suffix letters and/or numbers denoting non-safety critical functions such as, but not limited to, positive or negative logic, pin length, etc.
- XI 6/6 RoHS G = 6/6 RoHS Compliance

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Part Number Nomenclature Half Brick

<u>MCOTS-B</u>	<u>270</u>	<u>31</u>	<u>H</u>	<u>T</u>	<u>N</u>	<u>M</u>	<u>xxx</u>	
I	II	III	IV	V	VI	VII	VIII	
I	Product		MCOTS-B – MiLCOTs BusQor Series					
II	Input Voltage		270 = 230-400Vdc, Output 1000 Watts max					
III	Output Voltage		31 = 31Vdc					
IV	Package Size		H = Half Brick					
V	Performance level		T = Tera G = Giga M = Mega K = Kilo					
VI	Thermal design		Options include but are not limited to: D = Normal Non-Threaded F = Flanged N = Normal Threaded					
VII	Screening		Burn-in duration, etc (Non safety)					
VIII	Options		Suffix letters and/or numbers denoting non-safety critical functions such as, but not limited to, positive or negative logic, pin length, etc.					

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License conditions:

1. The abnormal testing was performed with the following external fuse value for Quarter Brick:
 - 20 A ABC (fast) for 64 V input voltage units
 - 10 A AGC (fast) for 70 V and 90 V input voltage units.
 - 7 A AGC (fast) for 72 V input voltage units.
 - 5 A AGC (Fast) for 110 V input voltage units.
 - 3 A KLM (Fast) for the 425 V input voltage units
 If higher value fuses are used additional testing may be required.
2. The input circuit is separated from the output circuit by reinforced insulation. The input circuit is separated from the base plate by basic insulation for a 425 Vdc working voltage.
3. The input circuits are separated for the output circuit by reinforced insulation based on 425 V working voltage and input circuits are separated from the base plate by basic insulation based on 425 V for the IQ4H.
4. The abnormal testing was performed with the following external fuse value for Half Brick:
 - 20 A AGC (fast) for 64 V input voltage units.
 - 15 A AGC (fast) for 70 V and 72 V input voltage units.
 - 10 A AGC (fast) for 90 V input voltage units.
 - 8 A AGC (fast) for 160 V input voltage units.
 - 5 A KLM (Fast) for the 425 V input voltage units.
 If higher value fuses are used additional testing may be required.
5. The reinforced parts will be finished goods rev C or higher. (The basic insulated parts are currently at rev A or B)
 - The rev on the sample label is at the end of the serial number line, A01 where A is the rev and 01 is the manufacturing location, i.e. Boxborough
6. The reinforced parts for the IQ4H quarter brick only will be finished goods rev A or higher.
7. Model # IQ4H480QTCxx and IQ4H480HTCxx output is considered to be at a hazardous voltage level and not considered to be SELV.
8. The abnormal testing was performed with the following external fuse value for Full Brick:
 - 5 A KLM (Fast) for the 425 V input voltage units.
 If higher value fuses are used additional testing may be required

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