



America

CERTIFICATE

No. U8V 16 02 34962 257

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 Series
MILCOT Series
(See certificate attachment for model nomenclature.)

Parameters:

Rated Input Voltage:	18-36 V DC
Rated Output Voltage:	15 V DC max
Rated Output Current:	3.0 A
Rated Output Wattage:	50 Watts max

(See attachment for additional ratings and license conditions.)

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 anyway. This product certification system operated by TÜV SÜD America Inc. most closely resembles system 3 as defined in ISO/IEC Guide 67. 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.

Test report no.: DI1403648-300

Date, 2016-03-02

Page 1 of 15





America

Attachment to Certificate No: U8V 16 02 34962 257

IQ/WQ Series Nomenclature Sixteenth Brick

<u>IQ</u> I	<u>24</u> II	<u>050</u> III	<u>S</u> IV	<u>M</u> V	<u>C</u> VI	<u>XY</u> VII	<u>N</u> VIII	<u>-G</u> IX
I	<u>Product</u>	IQ-InQor Series WQ – WirelessQor						
II	<u>Input Voltage</u>	12 = 9-22 Vdc, Output 50 Watts max, 300 LFM 18 = 9-36 Vdc, Output 50 Watts max, 300 LFM 24 = 18-36 Vdc, Output 50 Watts max, 300 LFM 28 = 16-40 Vdc, Output 50 Watts max, 300 LFM 36 = 18-75 Vdc, Output 50 Watts max, 300 LFM 48 = 34-75 Vdc, Output 50 Watts max, 300 LFM						
III	<u>Output Voltage</u>	3 Numbers denoting output voltage in tenths of a volt 012 = 1.2 Vdc minimum 150 = 15.0 Vdc maximum						
IV	<u>Package Size</u>	S = Sixteenth Brick						
V	<u>Performance level</u>	M = Mega K = Kilo						
VI	<u>Thermal design</u>	Examples but not limited to: A = Open Frame C = Encased						
VII	<u>Output Current</u>	X = 0 – 2 (25 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	<u>Options</u>	Non safety options						
IX	<u>6/6 RoHS</u>	G = 6/6 RoHS Compliance						

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

IQ/WQ Series Nomenclature Quarter Brick

	<u>IQ</u> I	<u>48</u> II	<u>120</u> III	<u>Q</u> IV	<u>T</u> V	<u>A</u> VI	<u>xv</u> VII	<u>N</u> VIII	<u>-G</u> IX
I	<u>Product</u>		IQ – InQor Series WQ - WirelessQor						
II	<u>Input voltage</u>		12 = 9-22 Vdc, Output 105 Watts max, 300 LFM 18 = 9-36 Vdc, Output 105 Watts max 300 LFM 24 = 18-36 Vdc, Output 120 Watts max, 300 LFM 28 = 16-40 Vdc, Output 120 Watts max, 300 LFM 32 = 9-75 Vdc, Output 86 Watts max, 600 LFM 36 = 18-75 Vdc, Output 120 Watts max, 300 LFM 48 = 34-75 Vdc, Output 150 Watts max, 300 LFM						
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> Examples but not limited to:		A = Open frame B = Baseplated C - Encased						
VII	<u>Output Current</u>		x = 0 - 4 (40 Amps max) y = 0 - 9 or A - J (A = .0, B = .1, J = .9) Ex: 24 = 24 Amps, 03 = 3 Amps, 2F = 2.5 Amps						
VIII	<u>Options</u>		Suffix letters and/or numbers denoting non-safety-critical options such as, but not limited to, positive or negative logic, pin configuration, etc.						
IX	<u>6/6 RoHS</u>		G = 6/6 RoHS compliance						

Customer Special

Model Number	Input voltage	Input Current	Output Voltage	Output Current	Output Power	Cooling
IQ24120QEx25	18-36 Vdc	18 A	12 V dc	25 A	300 W	600 LFM

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

IQ/WQ Series Nomenclature Half Brick

$\frac{IQ}{I}$	$\frac{36}{II}$	$\frac{120}{III}$	$\frac{H}{IV}$	$\frac{P}{V}$	$\frac{C}{VI}$	$\frac{xy}{VII}$	$\frac{N}{VIII}$	$\frac{-G}{IX}$
I	<u>Product</u>	IQ – InQor Series WQ – WirelessQor						
II	<u>Input voltage</u>	12 = 9-22 Vdc, Output 182 Watts max, 400 LFM 18 = 9-36 Vdc, Output 182 Watts max, 400 LFM (Exa, Zeta) 18 = 9-36 Vdc, Output 255 Watts max, 1700 LFM (Exa, Zeta) 24 = 18-36 Vdc, Output 225 Watts max, 400 LFM (Exa, Zeta) 24 = 18-36 Vdc, Output 500 Watts max, 800 LFM 28 = 16-40 Vdc, Output 200 Watts max, 700 LFM 32 = 9-75 Vdc, Output 165 Watts max, 700 LFM (Exa, Zeta) 32 = 9-75 Vdc, Output 255 Watts max, 1700 LFM 36 = 18-75 Vdc, Output 220 Watts max, 700 LFM (Exa, Zeta) 48 = 34-75 Vdc, Output 255 Watts max, 700 LFM 48 = 34-75 Vdc, Output 602 Watts max, 1300 LFM						
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 Except: 500 = 50.0 Vdc (Exa, Zeta only)						
IV	<u>Package size</u>	H = Half Brick						
V	<u>Performance level</u>	P = Peta G = Giga E = Exa M = Mega Z = Zeta K = Kilo T = Tera						
VI	<u>Thermal design</u>	Examples but not limited to: A = Open frame C = Encased						
VII	<u>Output Current</u>	x = 0 – 6 (60 Amps max) y = 0 – 9 or A – J (A = .0, B = .1 .. J = .9) Ex: 24 = 24 Amps, 03 = 3 Amps, 2F = 2.5 Amps						
VIII	<u>Options</u>	Suffix letters and/or numbers denoting non-safety critical options such as, but not limited to, positive or negative logic, pin configuration, etc.						
IX	<u>6/6 RoHS</u>	G = 6/6 RoHS compliance						

Test Report No: DI1403648-300

Date, 2016-03-02
 U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

MCOTS-C Series Nomenclature Quarter Brick

MCOTS-C - 28 - 12 - Q I - N - M -xxx
I II III IV V VI VII VIII

<u>I</u>	<u>Product</u>	MCOTS-C – MILCOTs Converters
<u>II</u>	<u>Input Voltage</u>	28 = 16-40 Vdc, Output 120 Watts max, 300 LFM 28V = 9-40 Vdc, Output 86 Watts max, 900 LFM 28VE = 9-70 Vdc, Output 86 Watts max, 600 LFM 48 = 34-75 Vdc, Output 150 Watts max, 300 LFM
<u>III</u>	<u>Output Voltage</u>	3 Characters denoting output voltage in volts R = Decimal point 1R8 = 1.8 Vdc minimum 9R9 = 9.9 Vdc maximum
<u>IV</u>	<u>Package Size</u>	Q = Quarter Brick (40 Amps max)
<u>V</u>	<u>Performance level</u>	K = Kilo M = Mega G = Giga T = Tera
<u>VI</u>	<u>Thermal design</u> Examples but not limited to:	F = Flanged N = Normal
<u>VII</u>	<u>Screening Level</u>	Burn-in duration, etc (Non safety)
<u>VIII</u>	<u>Options</u>	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

MCOTS-C Series Nomenclature Quarter Brick

MCOTS-C - 28 - 12 - Q T - N - M - xxx
 I II III IV V VI VII VIII

I	<u>Product</u>	MCOTS-C – MILCOTs Converters
II	<u>Input Voltage</u>	28 = 16-40 Vdc, Output 300 Watts Max 28V = 9-40 Vdc, Output 86 Watts max, 900 LFM 28VE = 9-70 Vdc, Output 86 Watts max, 600 LFM 48 = 34-75 Vdc, Output 150 Watts max, 300 LFM
III	<u>Output Voltage</u>	2 Characters denoting output voltage in volts 05 = 5 Vdc minimum 50 = 50 Vdc maximum
IV	<u>Package Size</u>	Q = Quarter Brick (40 Amps max)
V	<u>Performance level</u>	K = Kilo M = Mega G = Giga T = Tera P = Peta E = Exa
VI	<u>Thermal design</u> Examples but not limited to:	F = Flanged N = Normal
VII	<u>Screening Level</u>	Burn-in duration, etc (Non safety)
VIII	<u>Options</u>	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

MCOTS-C Series Nomenclature Half Brick

MCOTS-C - 28 - 12 - H P - N - M - xxx
 I II III IV V VI VII VIII

I	<u>Product</u>	MCOTS-C – MILCOTs Converters
II	<u>Input Voltage</u>	28 = 16-55 Vdc, Output 500 Watts max, 700 LFM 28E = 16-70 Vdc, 180 Watts max, 1500 LFM 28V = 9-40Vdc, Output 182 Watts max, 400 LFM 28VE = 9-70 Vdc, Output 165 Watts max, 700LFM 48 = 34-75 Vdc, Output 255 Watts max, 700 LFM
III	<u>Output Voltage</u>	3 Characters denoting output voltage in volts R = Decimal point 1R8 = 1.8 Vdc minimum 9R9 = 9.9 Vdc maximum 10R2 = 10.2 Vdc maximum
IV	<u>Package Size</u>	H = Half Brick (60 Amps max)
V	<u>Performance level</u>	K = Kilo M = Mega G = Giga T = Tera P = Peta E = Exa Z = Zeta
VI	<u>Thermal design</u> Examples but not limited to:	F = Flanged N = Normal
VII	<u>Screening Level</u>	Burn-in duration, etc (Non safety)
VIII	<u>Options</u>	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

MCOTS-C Series Nomenclature Half Brick

MCOTS-C - 28 - 12 - H P - N - M - xxx
 I II III IV V VI VII VIII

I	<u>Product</u>	MCOTS-C – MILCOTs Converters
II	<u>Input Voltage</u>	28 = 16-40 Vdc, Output 200 Watts max, 700 LFM (Exa, Zeta) 28 = 16-40 Vdc, Output 504 Watts max, 800 LFM (Exa, Zeta) 28V = 9-40Vdc, Output 182 Watts max, 400LFM (Exa, Zeta) 28V = 9-40Vdc, Output 255 Watts max, 900LFM (Exa, Zeta) 28VE = 9-70 Vdc, Output 165 Watts max, 700LFM (Exa, Zeta) 28VE = 9-70 Vdc, Output 255 Watts max, 1700 LFM (Exa, Zeta) 28E = 16-70 Vdc, Output 182 Watts max, 1500 LFM (Exa, Zeta) 28E = 16-70 Vdc, Output 400 Watts max, 1500 LFM (Exa, Zeta) 48 = 34-75 Vdc, Output 255 Watts max, 700 LFM (Exa, Zeta) 48 = 34-75 Vdc, Output 602 Watts max, 1300LFM
III	<u>Output Voltage</u>	2 Characters denoting output voltage in volts 05 = 5 Vdc minimum 50 = 50 Vdc maximum
IV	<u>Package Size</u>	H = Half Brick (60 Amps max)
V	<u>Performance level</u>	K = Kilo M = Mega G = Giga T = Tera P = Peta E = Exa Z = Zeta
VI	<u>Thermal design</u>	Examples but not limited to: F = Flanged N = Normal
VII	<u>Screening Level</u>	Burn-in duration, etc (Non safety)
VIII	<u>Options</u>	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

MCOTS-C Series Nomenclature Sixteenth Brick

MCOTS-C - 28 - 12 - S M - N - M = xxx
 I II III IV V VI VII VIII

I	<u>Product</u>	MCOTS-C – MILCOTs Converters
II	<u>Input Voltage</u>	28 = 16-40 Vdc, Output 50 Watts max 48 = 34-75 Vdc, Output 50 Watts max
III	<u>Output Voltage</u>	3 Characters denoting output voltage in volts R = Decimal point 1R8 = 1.8 Vdc minimum 9R9 = 9.9 Vdc maximum
IV	<u>Package Size</u>	S = Sixteenth Brick (25 Amps max)
V	<u>Performance level</u>	K = Kilo M = Mega
VI	<u>Thermal design</u> Examples but not limited to:	F = Flanged N = Normal
VII	<u>Screening Level</u>	Burn-in duration, etc (Non safety)
VIII	<u>Options</u>	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

MCOTS-C Series Nomenclature Sixteenth Brick

$$\frac{\text{MCOTS-C}}{\text{I}} - \frac{28}{\text{II}} - \frac{12}{\text{III}} - \frac{\text{S}}{\text{IV}} - \frac{\text{M}}{\text{V}} - \frac{\text{N}}{\text{VI}} - \frac{\text{M}}{\text{VII}} = \frac{\text{xxx}}{\text{VIII}}$$

I	<u>Product</u>	MCOTS-C – MILCOTs Converters
II	<u>Input Voltage</u>	28 = 16-40 Vdc, Output 50 Watts max 48 = 34-75 Vdc, Output 50 Watts max
III	<u>Output Voltage</u>	2 Characters denoting output voltage in volts 05 = 5 Vdc minimum 48 = 48 Vdc maximum
IV	<u>Package Size</u>	S = Sixteenth Brick (10 Amps max)
V	<u>Performance level</u>	K = Kilo M = Mega
VI	<u>Thermal design</u>	Examples but not limited to: F = Flanged N = Normal
VII	<u>Screening Level</u>	Burn-in duration, etc (Non safety)
VIII	<u>Options</u>	Blank to 3 characters denoting non-safety options such as, but not limited to, positive or negative logic, pin configuration, etc.

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

RQ Series Nomenclature Half Brick

<u>RQ</u> <u>I</u>	<u>18</u> <u>II</u>	<u>150</u> <u>III</u>	<u>H</u> <u>IV</u>	<u>P</u> <u>V</u>	<u>C</u> <u>VI</u>	<u>12</u> <u>VII</u>	<u>NRS</u> <u>VIII</u>	<u>G</u> <u>IX</u>
I	<u>Product</u>	RQ – RailQor Series						
II	<u>Input Voltage</u>	18 = 9-36 Vdc, Output 180 Watts max 24 = 18-45 Vdc Output 500 Watts max						
III	<u>Output Voltage</u>	3 Numbers denoting output voltage in tenths of a volt 050 = 5.0 Vdc minimum 480 = 48.0 Vdc maximum						
IV	<u>Package Size</u>	H = Half Brick						
V	<u>Performance level</u>	P = Peta T = Tera G = Giga M = Mega K = Kilo Z = Zeta						
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 36 = 36 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						

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

RQ Series Nomenclature Quarter Brick

RQ 18 240 Q M C 02 NRS G
I II III IV V VI VII VIII IX

<u>I</u>	<u>Product</u>	RQ – RailQor Series
<u>II</u>	<u>Input Voltage</u>	18 = 9-36 Vdc, Output 105 Watts max
<u>III</u>	<u>Output Voltage</u>	3 Numbers denoting output voltage in tenths of a volt 050 = 5.0 Vdc minimum 480 = 48.0 Vdc maximum
<u>IV</u>	<u>Package Size</u>	Q = Quarter Brick
<u>V</u>	<u>Performance level</u>	T = Tera G = Giga M = Mega K = Kilo
<u>VI</u>	<u>Thermal design</u>	Options include but are not limited to: C = Encased V = Flanged Baseplate
<u>VII</u>	<u>Output Current</u>	2 Numbers denoting output current in Amps 20 = 20 Amps maximum
<u>VIII</u>	<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.
<u>XI</u>	<u>6/6 RoHS</u>	G = 6/6 RoHS Compliance

Test Report No: DI1403648-300

Date, 2016-03-02
 U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

MCOTS-C Series Nomenclature Demi Brick

MCOTS-C I	28 II	05 III	S IV	D V	M VI	N VII	M VIII	xxx IX
I	Product		MCOTS-C – MILCOTs Converters					
II	Input Voltage		28 = 16-40 Vdc, Output 50 Watts					
III	Output Voltage		2 to 3 numbers denoting output voltage in volts 3R3 = 3.3 vdc minimum 28 = 28 Vdc maximum					
IV			D = Dual Output (+/-15Vdc maximum) S = Single Output (28Vdc maximum)					
V	Package Size		D = Demi Brick (15 Amps max)					
VI	Performance level		K - Kilo M = Mega					
VII	Thermal design Options include but are not limited to:		F = Flanged N = Normal Threaded					
VIII	Screening Level		Burn-in duration, etc (Non safety)					
IX	Options		Three characters that denote non safety critical options such as, but not limited to, pin length, enable polarity, etc					

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257



America

Attachment to Certificate No: U8V 16 02 34962 257

License conditions:

1. Input voltages greater than 60 Vdc are considered to be an unearthed hazardous voltage secondary circuit and the outputs are an ELV circuit.
2. Outputs voltage are considered to be SELV circuits if the input voltage is less than 60 Vdc and separated from primary circuits by reinforced insulation.
3. The abnormal testing was performed with the following external fuse value for Quarter Brick:
 - 30A AGC (fast) for 12 V and 18 V input voltage units.
 - 20 A AGC (fast) for 24 V, 28 V, and 36 V input voltage units.
 - 15 A AGC (fast) for 48 V input voltage units.
 If higher value fuses are used additional testing may be required.
4. The input circuits are separated for the output circuit and the basic plate by basic insulation based on 75 V working voltage.
5. The abnormal testing was performed with the following external fuse value for Half Brick:
 - 30A AGC (fast) for 12 V and 18 V input voltage units.
 - 40 A OT (Fast) for 24 V input voltage units for the 500 W half brick.
 - 25 A AGC (fast) for 32 V input voltage units.
 - 20 A AGC (fast) for 24 V, 28 V, 36 V and 48 V input voltage units.
 If higher value fuses are used additional testing may be required.
6. The abnormal testing was performed with the following external fuse value for eighth Brick and sixteenth bricks 20A AGC fast blow. If higher value fuses are used additional testing may be required

Test Report No: DI1403648-300

Date, 2016-03-02
U8V 16 02 34962 257

