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America

CERTIFICATE

No. U8V 16 03 34962 259

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

Production Facility(ies): 34962

Certification Mark:

Product: **DC converter**

Model(s): **PQ60wwwHxyzz**
(see certificate attachment for additional model and rating information)

Parameters:

Rated Input Voltage:	35-75 V DC
Rated Output Voltage:	28 V DC
Rated Output Current:	28 A max
Rated Output Power:	728 W

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.: 72115163-000

Date, 2016-03-30

684698

TÜV®

Attachment to Certificate U8V 16 03 34962 259
SynQor Inc.
155 Swanson Road
Boxborough, MA 01719-1316 USA

America

Full Bricks

PQ	60	www	F	T	y	zz	N	-G	
I	II	III		IV	V	VI	VII	VIII	IX

I Product — PQ = PowerQor Series; WQ = WirelessQor

II Input Voltage — 24 = 18-36 Vdc, Output 602 W, 21.5 A max; 60 = 35-75 Vdc, Output 728 W, 28 A max

III Output Voltage — www = Three digits specifying output voltage in tenths of volts; 280 = 28.0 Vdc maximum

IV Package Size — F = Full Brick

V Performance level — T = Tera

VI Thermal design — Examples of but not limited to: y = One character specifying packaging; A = Open Frame; B = Baseplate; F = Non-threaded Baseplate

VII Output Current — zz = Two digits specifying output current in amperes; 22 = 21.5 Amps; 26 = 26.0 Amps Maximum

VIII Options — Three characters that denote non safety critical options such as, but not limited to, pin length, enable polarity, etc

XI 6/6 RoHS — G = 6/6 RoHS Compliance

Typical Full Brick Model Numbers

Example Model Number	Vin VDC	Iin A	Maximum Output Vdc	Amp	Watt
PQ24280FTB22	18-36	37.5	28	21.5	602
PQ60280FTB26	35-75	22	28	26	728

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PEABODY TÜV SÜD PRODUCT SERVICE

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SynQor Inc.
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Half Bricks

PQ	60	www	H	x	y	zz	N	-G
I	II	III	IV	V	VI	VII	VIII	IX

I Product — BQ = BusQor Series; SQ = semi-regulated BusQor; PQ = PowerQor Series

II Input Voltage
48 = 35-75 Vdc, Output 165 W, 60 A max (PQ only)
50 = 42-52 Vdc, Output 660 W, 60 A max (PQ only)
55 = 38-55 Vdc, Output 600 W, 52 A max (PQ only)
60 = 35-75 Vdc, Output 360 W, 30 A max (BQ only)
60 = 35-75 Vdc, Output 600 W, 100A max (PQ only)
60 = 35-75 Vdc, Output 600 W, 50 A max (SQ only)

III Output Voltage — www = Three digits specifying output voltage in tenths of volts
012 = 1.2 Vdc minimum; 540 = 54.0 Vdc maximum

IV Package Size — H = Half Brick

V Performance level — x = One character specifying performance
Z = Zeta; G = Giga; E = Exa; M = Mega; P = Peta; K - Kilo; T = Tera

VI Thermal design
Examples of but not limited to:
y = One character specifying packaging
A = Open Frame; B = Baseplate; C = Encased; F = Non-threaded Baseplate; L = Low Profile; M = Standard Baseplate

VII Output Current — zz = Two digits specifying output current in amperes, A=10
04 = 4 Amps; A0 = 100 Amps maximum

VIII Options — Three characters that denote non safety critical options such as, but not limited to, pin length, enable polarity, etc

XI 6/6 RoHS — G = 6/6 RoHS Compliance

Typical Half Brick Model Numbers

Example Model Number	Vin VDC	Iin A	Maximum Output Vdc	Amp	Watt
PQ48150HGA10	35-75	6.0	15	40	150
PQ48033HTA50	35-75	6.0	15	60	168
PQ50120HZB55	44-52	16.2	18	60	660
PQ55070HZB52	38-55	19.0	55.6	52	600
PQ60120HZB50	35-75	20.0	52.5	100	600
SQ60120HZB50	35-75	20.0	52.5	100	600

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PEABODY TÜV SÜD PRODUCT SERVICE

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SynQor Inc.
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Quarter Bricks

PQ	60	www	Q	x	y	zz	N	-G	
I	II	III		IV	V	VI	VII	VIII	IX

I Product
BQ = BusQor Series
PQ = PowerQor Series
SQ = Semi-regulated BusQor
WQ = WirelessQor

II Input Voltage
24 = 18-36 Vdc, Output 300 W, 40 A max (PQ only)
30 = 18-60 Vdc, Output 100 W, 30 A max (PQ only)
40 = 18-75 Vdc, Output 100 W, 30 A max (PQ only)
48 = 35-75 Vdc, Output 100 W, 25 A max (PQ only)
50 = 42-53 Vdc, Output 331 W, 25 A max (BQ only)
50 = 44-52 Vdc, Output 100 W, 11 A max (PQ only)
51 = 42-55 Vdc, Output 473 W, 43 A max (BQ only)
55 = 35-55 Vdc, Output 867 W, 84 A max (BQ only)
57 = 40-65 Vdc, Output 630 W, 60 A max (BQ only)
60 = 35-75 Vdc, Output 396 W, 60 A max (PQ only)
60 = 36-75 Vdc, Output 450 W, 60 A max (SQ only)
60 = 36-75 Vdc, Output 420 W, 35 A max (WQ only)
65 = 40-75 Vdc, Output 100 W, 5.6 A max (PQ only)

III Output Voltage
www = Three digits specifying output voltage in tenths of volts
010 = 1.0 Vdc minimum
500 = 50.0 Vdc maximum

IV Package Size
Q = Quarter Brick

V Performance level
x = One character specifying performance
E = Exa
G = Giga
P = Peta
M = Mega
T = Tera
Z = Zeta

VI Thermal design
Examples of but not limited to:
y = One character specifying packaging
A = Open Frame
B = Baseplate
C = Encased
D = 0.080" Thick Baseplate
L = Low Profile
M = Standard Baseplate

VII Output Current
zz = Two digits specifying output current in amperes
03 = 3 Amps
84 = 84 Amps maximum

VIII Options
Three characters that denote non safety critical options such as, but not limited to, pin length, enable polarity, etc

XI 6/6 RoHS
G = 6/6 RoHS Compliance

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Quarter Bricks (cont)

Typical Quarter Brick Model Numbers

Example Model Number	Vin VDC	Iin A	Maximum Output		
			Vdc	Amp	Watt
PQ24150QGA07	18-36	8.0	15	25	100
PQ30033QGA30	18-60	6.0	3.3	30	100
PQ40120QGB08	18-75	7.5	15	25	100
PQ48150QGA07	35-75	5.0	15	25	100
BQ50120QTC25	42-53	6.1	13.2	25	331
PQ50090QGB11	44-52	2.5	9	11	99
BQ51090QPA40	42-55	9.5	11	43	473
BQ55120QEA50	36-55	12.5	13.7	60	575
PQ60120QZB33	35-75	12.3	12	33	396
SQ60120QPA28	36-75	12.0	12	55	336
WQ60120QPA35	36-75	13.1	12	35	420
PQ65180QGB06	40-75	4.0	18	5.6	100
PQ24120QEx25	18-36	18	12	25	300

Additional Approved Quarter Brick model Numbers					
Model Number	V_{in} VDC	I_{in} A	V_{out} Vdc	I_{out} A	P_{out} Watt
BQ57090QZB84xxH	40-57	16	9	84	897
BQ57120QZB67xxH	40-57	16	12	67	898

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SynQor Inc.
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Eighth Bricks

PQ	60	www	E	x	y	zz	N	-G	
I	II	III		IV	V	VI	VII	VIII	IX

I	Product	BQ = BusQor Series PQ = PowerQor Series SQ = Semi-regulated BusQor
II	Input Voltage	30 = 18-60 Vdc, Output 66 W, 20 A max (PQ only) 55 = 35-55 Vdc, Output 501 W, 48 A max (BQ only) 60 = 35-75 Vdc, Output 100 W, 45 A max (PQ only) 60 = 35-75 Vdc, Output 300 W, 25 A max (SQ only)
III	Output Voltage	www = Three digits specifying output voltage in tenths of volts 010 = 1.0 Vdc minimum 240 = 24.0 Vdc maximum
IV	Package Size	E = Eighth Brick
V	Performance level	x = One character specifying performance T = Tera, Z = Zeta G = Giga, E = Exa M = Mega, P = Peta K = Kilo
VI	Thermal design Examples of but not limited to:	y = One character specifying packaging A = Open Frame, L = Low Profile B = Baseplate, M = Low Profile Baseplate C = Encased
VII	Output Current	zz = Two digits specifying output current in amperes 03 = 3 Amps, 48 = 48 Amps maximum
VIII	Options	Three characters that denote non safety critical options such as, but not limited to, pin length, enable polarity, etc
XI	6/6 RoHS	G = 6/6 RoHS Compliance

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Eighth Bricks (cont.)

Typical Eighth Brick Model Numbers

Example Model Number	Vin VDC	Iin A	Maximum Output Vdc	Amp	Watt
PQ30033ETB20	18-60	4.5	3.3	20	66
BQ55120ETA20	35-55	5.8	13.75	27	297
PQ60033ETL30	35-75	3.2	24	45	99
SQ60120ETA17	36-75	6.0	12	17	204
SQ60120ETA20	35-75	6.0	12	20	240

Additional Approved Eighth Brick model Numbers					
Model Number	V_{in} VDC	I_{in} A	V_{out} Vdc	I_{out} A	P_{out} Watt
BQ57090EZB48	40-57	9.0	9.0	48	518
BQ57120EZB38	40-57	9.0	12.0	38	512

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SynQor Inc.
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Sixteenth Bricks

PQ	60	www	S	x	y	zz	N	-G	
I	II	III		IV	V	VI	VII	VIII	IX

I	Product	PQ = PowerQor Series
II	Input Voltage	60 = 35-75 Vdc, Output 66 W, 25 A max
III	Output Voltage	www = Three digits specifying output voltage in tenths of volts 012 = 1.2 Vdc minimum 150 = 15.0 Vdc maximum
IV	Package Size	S = Sixteenth Brick
V	Performance level	x = One character specifying performance G = Giga M = Mega K = Kilo
VI	Thermal design Examples of but not limited to:	y = One character specifying packaging A = Open Frame L = Low Profile C = Encased
VII	Output Current	zz = Two digits specifying output current in amperes 03 = 3 Amps 25 = 25 Amps maximum
VIII	Options	Three characters that denote non safety critical options such as, but not limited to, pin length, enable polarity, etc
XI	6/6 RoHS	G = 6/6 RoHS Compliance

Typical Sixteenth Brick Model Numbers

Example Model Number	Vin VDC	Iin A	Maximum Output Vdc	Amp	Watt
PQ60050SGL12	35-75	2.1	5	25	66

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Dual Output Quarter Bricks

DQ	6	wwww	Q	x	y	zz	N	-G
I	II	III	IV	V	VI	VII	VIII	IX

I Product — DQ = PowerQor Series

II Input Voltage — 6 = 35-75 Vdc, Output 100 W, 18 A max

III Output Voltage — wwww = Four digits specifying the two output voltages

2412 = 2.4 Vdc and 1.2 Vdc
3312 = 3.3 Vdc and 1.2 Vdc
3315 = 3.3 Vdc and 1.5 Vdc
3318 = 3.3 Vdc and 1.8 Vdc
3325 = 3.3 Vdc and 2.5 Vdc
5033 = 5.0 Vdc and 3.3 Vdc
1212 = +/- 12.0 Vdc maximum

IV Package Size — Q = Quarter Brick

V Performance level — x = One character specifying performance

G = Giga
K = Kilo
M = Mega

VI Thermal design
Examples of but not limited to:

y = One character specifying packaging
A = Open Frame
L = Low Profile
B = Baseplate

VII Output Power — zz = Two digits specifying output power in tens of watts

02 = 20 Watts
10 = 100 Watts maximum

VIII Options — Three characters that denote non safety critical options such as, but not limited to, pin length, enable polarity, etc

XI 6/6 RoHS — G = 6/6 RoHS Compliance

Typical Dual Output Quarter Brick Model Number

Example	Vin	Iin	Maximum Output		
Model Number	VDC	A	Vdc	Amp	Watt
DQ65033QGL10	35-75	3.2	12	16.0	100

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Dual Output Quarter Bricks (cont.)

The following part numbers are electrically and mechanically equivalent:

Custom Part #	SynQor Part #
CQ0026200	PQ50033QPB60
BQ50120RHP20	BQ50120QTA20
DQ65033FHP06	DQ65033QMA06
PQ480157HP30	PQ48015HMA30
PQ480158HP20	PQ48015HKA20
PQ48015BHP25	PQ40015QGA25
PQ480184HP60	PQ40018HTA60
PQ480186HP25	PQ40018QGA25
PQ48018AHP40	PQ40018HGA30
PQ48018DHP40	PQ48018HGA40
PQ480333HP50	PQ48033HTA50
PQ480339HP30	PQ48033HMA30
PQ48033HHP25	PQ48033QGA25
PQ480501HP30	PQ48050HGA30
PQ481205HP08	PQ48120QGA08
PQ48120GHP14	PQ48120HTA14
PQ60015NHP20	PQ60015EGL20
PQ60015QHP40	PQ60015QTA40
PQ60018PHP15	PQ60018EML15
PQ60120SHP08	PQ60120QGA08

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License Conditions –

When installed in the end product, consideration shall be given to the following:

1. The units should be installed per the manufacturer's specification.

2. Maximum output power is specified over ambient temperatures and 100 LFM to 1200 LFM airflow.

3. Abnormal and Component Failure Tests for Sixteenth Bricks were conducted with the power supply input protected by a 3AG 20 A, 250 V fuse. If a fuse rated greater than 3AG 20 A is used, additional testing may be required.

4. Abnormal and Component Failure Tests for Eighth Bricks(Except SQ60120ETA used 15 A fuse) were conducted with the power supply input protected by a 3AG 20 A, 250 V fuse. If a fuse rated greater than 3AG 20 A is used, additional testing may be required.

5. Abnormal and Component Failure Tests for Quarter Bricks(Except SQ60120PA28 used 15 A fuse) were conducted with the power supply input protected by a 3AG 20 A, 250 V fuse. If a fuse rated greater than 3AG 20 A is used, additional testing may be required.

6. Abnormal and Component Failure Tests for Half Bricks(Except Half Bricks greater than 400 W used 30 A fuse) were conducted with the power supply input protected by a 3AG 20 A, 250 V fuse. If a fuse rated greater than 3AG 20 A is used, additional testing may be required.

7. Abnormal and Component Failure Tests for Full Brick were conducted with the power supply input protected by an AGC 30 A, 250 V fuse for input voltages of 35-75 V. If a fuse rated greater than AGC 30 A is used, additional testing may be required.

8. Abnormal and Component Failure Tests for Full Brick were conducted with the power supply input protected by a JJN-50 50 A, 160 V fuse for input voltages of 18-36 V. If a fuse rated greater than JJN-50 50 A is used, additional testing may be required.

9. If the input meets all of the requirements for SELV ($V \leq 60$), the outputs may be considered SELV. Output voltages remain within SELV limits.

10. For base plate or heat sink units, the maximum operating base plate or heat sink temperature is 100°C.

11. All models are intended to be supplied from an isolated secondary circuit and have been evaluated for basic insulation between the input and output circuits.

12. These units are intended to be supplied from an isolated source of supply, such as a battery, or a source which meets the requirements for basic (ELV) or reinforced (SELV) insulation from primary (mains) circuitry, depending on output type desired.

13. The Output circuit of model PQ60525HTA meets all the requirements for ELV ($V \leq 60$), the output may be considered ELV. Output voltages remain within ELV limits under normal operating conditions.

14. If the input meets all the requirements for TNV-2, the outputs may be considered SELV achieved by basic insulation.

This report was replaces report number DI1302100-301. The report was updated to test and add model SQ60120EPx25

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