



Advancing The Power Curve®



Interface Adaptor Boards

Application Note

Summary

SynQor has developed Interface Adaptor Boards as an alternative for customers that prefer to connect our DC-DC converters and filter modules with wire instead of mounting directly to a printed circuit board. These adaptor boards are soldered to the converter and can be connected to the system via terminal lugs for power and screw terminals for external signals. SMT and thru-hole footprints are included for input/output capacitors and trim resistors.

Introduction

SynQor has developed an alternative connection method for customers who don't want to mount the converter to a printed circuit board (PCB). This eases the design effort for mounting converters to cold-plates, sides of enclosures, custom mechanical designs as well as making the converters more easily field replaceable.

Interface Adaptor Board

SynQor's converters and filters are designed with Input/Output (I/O) pins which normally mount directly into and then soldered to an application PCB, connecting to the relevant circuitry through copper traces and planes within the PCB. The Interface Adaptors allow discrete wires to be connected to all of the I/O pins and enable alternative location and physical mounting of the converters to suit the end user's needs.

The Interface Adaptor Board is soldered to the SynQor unit. M4 posts are provided at both the input and the output of the unit to handle the associated input and output currents. Screw terminals provide connection to the signal level pins (Enable, Trim, Sense, etc.). The unit is intended to be mounted by securing its baseplate to a structural element that provides adequate heat removal for the required line and load operating conditions along with the required structural integrity. Consult the relevant product datasheet for temperature limitations and dissipated power level.

Input and output wires should be secured to the adaptor's terminal posts using the M4 nuts, washers and lock washers provided. The user must determine the appropriate wire gauge to suit their application. Input and output power wires should be terminated with M4 or #8 ring terminals, attached to the wire per the manufacturer's recommended procedures, to provide simple and reliable attachment to the terminal posts. The screw terminals for the signal connections can range from AWG16 to AWG30. Lighter wire gauges are appropriate given that these wires will carry low current. SynQor recommends that the signal wires be finished with solder or crimped ferrules for a secure and reliable connection to the screw terminals, and that appropriate levels of torque be applied to lock the wires down. Consult Molex datasheets for the Series 39880 screw terminals for details.

SynQor's datasheets provide details of the environmental specifications that each unit has been tested to. The user should note that actual results (e.g. Shock and Vibration) for a unit mounted to an Interface Adaptor may differ from that stated for the unit by itself and therefore give due consideration to the mounting method and structure to which the converter is located. Furthermore, the Interface Adaptor boards also have locations for mounting components to assist in filtering, isolation and control of the SynQor unit. Through hole connections are provided for soldering the components to the Interface Adaptors.

SynQor has developed several versions of the Interface Adaptor for each module type and module size. DC-DC modules will have a different design than filter modules of the same size. Due to the thickness of the Interface Adaptor PCB it is recommended that pin lengths 0.250" (Y) and 0.180" (R) are selected when ordering converters and filters. Pin lengths 0.145" (N) and 0.110" (K) are not recommended for mounting to an Interface Adaptor.

We are not offering interface adaptor boards for the MilQor Hi-REL product line at this time.

Choosing the Correct Interface Adaptor Assembly

Description	Applicable Models	Part #	Page(s)
Sixteenth Brick DC-DC Converter	Baseplated and Encased DC-DC Converters Sixteenth Bricks <i>*When used with SynQor -T Transient Filter's ON/OFF pass-through feature.</i>	SBI-00 SBI-04*	3, 4, 5
Quarter / Eighth Brick DC-DC Converter Assembly	Baseplated and Encased DC-DC Converters Bus Converters and High-Voltage Non-Isolated Quarter/Eighth Bricks. <i>*When used with SynQor -T Transient Filter's ON/OFF pass-through feature.</i> <i>**No electrical components installed.</i>	QBI-00 QBI-04* QBI-05**	6, 7, 8
Quarter Brick DC Filter Assembly	DC Passive Filter Quarter Bricks	QBI-02	9
Quarter Brick PFC Module	Single-Phase, Non-Isolated PFC Module Quarter Brick	QBI-03	10
Quarter Brick AC Filter Module	Single-Phase AC Filter Quarter/Eighth Brick	QBI-06	11, 12
Half Brick DC-DC Converter	Baseplated and Encased DC-DC Converters, Bus Converters and High-Voltage Non-Isolated Half Bricks. <i>*When used with SynQor -T Transient Filter's ON/OFF pass-through feature.</i> <i>**No electrical components installed.</i>	HBI-00 HBI-06* HBI-07**	13, 14, 15
Half Brick DC Filter Module	DC Passive Filter Half Bricks	HBI-02	16
Half Brick Transient Filter	DC Transient Filter Half Bricks	HBI-03	17
Half Brick AC Filter Module	Single-Phase AC Filter Half Bricks	HBI-04	18
Half Brick Non-Isolated PFC Module	Single-Phase, Non-Isolated PFC Module Half Brick	HBI-05	19
Half Brick Isolated PFC Module	Single-Phase, Isolated PFC Module Half Brick <i>**No electrical components installed.</i>	HBI-08 HBI-09**	20, 21
Half Brick Isolated PFC Module	Only used with MCOTS-C-270-xx-HE Half Bricks <i>***Configured as always ON.</i>	HBI-10 HBI-11***	22, 23
Full Brick DC-DC Converter	Only used with MCOTS-C-270H-xx-FP, MCOTS-C-270-xx-FT, and IQ4HxxxFT Full Bricks	FBI-00	24, 25
Full Brick DC-DC Converter	Only used with MCOTS-C-270-xx-FE Full Bricks	FBI-02	26, 27, 28
Full Brick DC-DC Converter	Only used with MCOTS-C-28-270-FZ Full Bricks	FBI-03	29, 30
Full Brick Isolated PFC Module	Single-Phase, Isolated PFC Module Full Bricks <i>**No electrical components installed.</i>	FBI-04** FBI-05	31, 32
Demi Brick Single DC-DC Converter	Single Output Demi Brick DC-DC Converter	DBI-00 DBI-03	33
Demi Brick DC Filter Module	Demi Brick Filter Module	DBI-02	35
Demi Brick Dual DC-DC Converter	Dual Output Demi Brick DC-DC Converter	DBI-03	36
Appendix A	Mechanical Drawings		37
Appendix B	Ordering Information		45

Note: Please contact the factory for assistance choosing the correct Interface Adaptor for your product. The Interface Adaptor, when used with a DC-DC converter, can be populated with input, output and Y-capacitors, as well as enable and trim resistors.

Details related to the function and use of the various component options on the Interface Adaptor are described in this application note. We strongly recommend that the user consult the datasheet for the particular product(s) being used to determine appropriate values for these components.

Sixteenth Brick DC-DC Converter Assembly SBI-00 and SBI-04

C20, C21 – Input Electrolytic: this PCB through-hole insert can accommodate either C20 - 12.5 mm diameter / 5 mm spacing radial or C21 - 9.5 mm x 20 mm axial. Please refer to the appropriate SynQor datasheet's *Input Characteristics* section for recommended input capacitor value and ensure the capacitor is rated to handle the ripple current.

C30, C31 – Output Electrolytic: this PCB through-hole insert can accommodate either C30 - 12.5 mm diameter / 5 mm spacing radial or C31 - 9.5mm x 20mm axial. Please refer to the appropriate SynQor datasheet's *Output Characteristics* section for recommended output capacitor value and ensure the capacitor is rated to handle the ripple current.

C1, C2 – Common-Mode (Y) Capacitors: these capacitors are used for filtering common mode noise; C1 is coupled across the negative bus, while C2 is coupled on the positive. SMT 2220 package size pads are available for use of this application.

C10 – Input Ceramic Capacitor: accommodates an SMT 1812 package

C11 – Output Ceramic Capacitor: accommodates an SMT 1812 package

R11 – Trim-Up Resistor: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. An SMT 1206 package size pad is available for use of this application. Leave this unpopulated for the converter's nameplate output voltage

R10 – Trim-Down Resistor: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. An SMT 1206 package size pad is available for use of this application. Leave this unpopulated for the converter's nameplate output voltage

R1 – Enable Resistor: this resistor is located between the enable terminal and the negative input terminal. For converters that are enabled by negative logic (low), this resistor should be 0Ω for a permanent enable. Please refer to the converter's corresponding datasheet for reference. An SMT 1206 package size pad is available for use of this application.

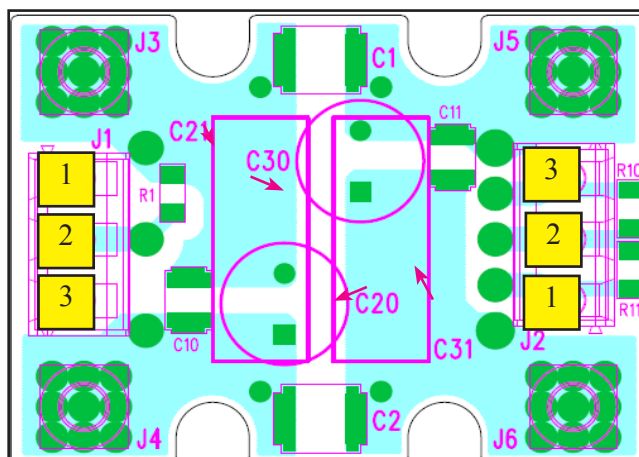
J1 – Input Signal Terminal Block

J2 – Output Signal Terminal Block

J3, J4 – Input Power Lugs: these lugs are used for the input source connection, and are ideal for carrying high amounts of current. J4 is the positive bus terminal, while J3 is the negative bus.

J5, J6 – Output Power Lugs: these lugs are used for the output load connection, and are ideal for carrying high amounts of current. J6 is the positive bus terminal, while J5 is the negative bus.

Sixteenth Brick DC-DC Converter Assembly SBI-00



Power Lug Description

Power Lug	Description
J3	VIN-
J4	VIN+

Power Lug	Description
J5	VOUT-
J6	VOUT+

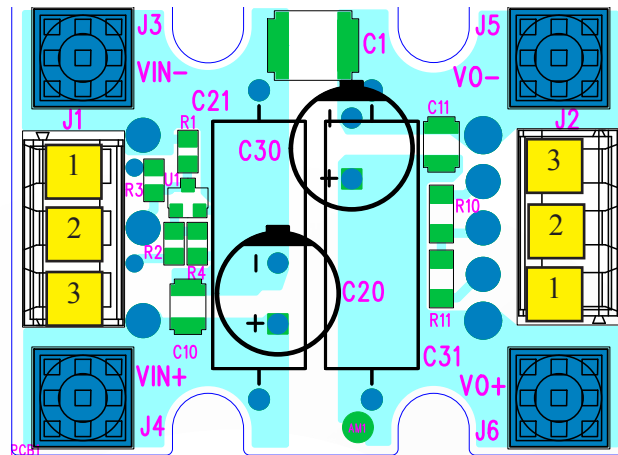
Input / Output Terminal Description

Terminal # of J1	Description
1	Not Connected
2	ON/OFF
3	Not Connected

Terminal # of J2	Description
1	OUTPUT SENSE +
2	Voltage Trim
3	OUTPUT SENSE -

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Sixteenth Brick DC-DC Converter Assembly SBI-04



Power Lug Description

Power Lug	Description
J3	VIN-
J4	VIN+

Power Lug	Description
J5	VOUT-
J6	VOUT+

Input / Output Terminal Description

Terminal # of J1	Description
1	Not Connected
2	ON/OFF*
3	Not Connected

Terminal # of J2	Description
1	OUTPUT SENSE +
2	Voltage Trim
3	OUTPUT SENSE -

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

R3 – Remote Enable Resistor: This SMT, 0805, 0 ohm, resistor is located between the ENABLE terminal and J1-2. When using an external “low” true ENABLE signal, install R3 and verify R1, R2, and U1 are not populated.

R2, U1 – Remote Enable Inverted Resistor and MOSFET: This SMT, SOT-23, NTR4003, MOSFET and corresponding SMT, 0805, 1 K ohm gate resistor are located between the ENABLE terminal and J1-2. When using an external “high” true ENABLE signal, install R2 and U1 and verify that R1 and R3 are not populated. (Required for interfacing to SynQor -T transient filter’s ON/OFF pass-through feature.)

R4 – Gate Grounding Resistor: This SMT, 0805, 0 ohm, resistor is located between the VIN- and the gate of the SOT-23, NTR4003, MOSFET (if populated). When using this resistor, it allows for other ENA configurations to be used without removing the MOSFET. This resistor prevents the gate of the MOSFET to be left floating.

*ON/OFF logic is dependent on the component options above

Quarter Brick / Eighth Brick DC-DC Converter Assembly QBI-00, QBI-04 and QBI-05

Note: The Quarter Brick and Eighth Brick modules have a common pinout.

- C21** – Input Electrolytic: this PCB through-hole insert can accommodate 16 mm radial
- C20** – Input Electrolytic: this PCB through-hole insert can accommodate 12.5 mm radial
- C22** – Input Electrolytic: this PCB through-hole insert can accommodate 9.5 mm x 20 mm axial
- C10** – Input Ceramic Capacitor: accommodates an SMT 1812 package

Please refer to the appropriate SynQor datasheet's *Input Characteristics* section for the recommended input capacitor value and ensure the capacitor is rated to handle the ripple current.

- C31** – Output Electrolytic: this PCB through-hole insert can accommodate 16 mm radial
- C30** – Output Electrolytic: this PCB through-hole insert can accommodate 12.5 mm radial
- C32** – Output Electrolytic: this PCB through-hole insert can accommodate 9.5 mm x 20 mm axial
- C11** – Output Ceramic Capacitor: accommodates an SMT 1812 package

Please refer to the appropriate SynQor datasheet's *Output Characteristics* section for recommended output capacitor value and ensure the capacitor is rated to handle the ripple current.

C1, C2 – Common-Mode (Y) Capacitors: these capacitors are used for filtering common mode noise; C1 is coupled across the negative bus, while C2 is coupled on the positive, both can accommodate an SMT 2220 package size.

R10, R11 – Trim-Down Resistors: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. Two SMT 0805 package size pads in parallel are available for use of this application. Leave these unpopulated for the converter's nameplate output voltage. Not applicable to High Voltage NiQor Feature Set "C" and MCOTS-N series converters.

R12, R13 – Trim-Up Resistors: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. Two SMT 0805 package size pads in parallel are available for use of this application. Leave these unpopulated for the converter's nameplate output voltage. Not applicable to High Voltage NiQor and MCOTS-N series converters.

R1 – Enable Resistor: this resistor is located between the enable terminal and the negative input terminal. For converters that are enabled by negative logic (low), this resistor should be 0 Ω for a permanent enable. Please refer to the converter's corresponding datasheet for reference. This feature accommodates an SMT 1206 package size.

J1 – Input Signal Terminal Block

J2 – Output Signal Terminal Block

J3, J4 – Input Power Lugs: these lugs are used for the input source connection, and are ideal for carrying high amounts of current. J4 is the positive bus terminal, while J3 is the negative bus.

J5, J6 – Output Power Lugs: these lugs are used for the output load connection, and are ideal for carrying high amounts of current. J6 is the positive bus terminal, while J5 is the negative bus.

Quarter Brick / Eighth Brick DC-DC Converter Assembly QBI-00, QBI-04 and QBI-05

R3 – Remote Enable Resistor: This SMT, 0805, 0 ohm, resistor is located between the ENABLE terminal and J1-2. When using an external “low” true ENABLE signal (Pin2 of J2), verify R1, R2, and U1 are not populated.

R2, U1 – Remote Enable Inverted Resistor and MOSFET: This SMT, SOT-23, NTR4003, MOSFET and corresponding SMT, 0805, 1 K ohm gate resistor are located between the ENABLE terminal and J1-2. When using an external “high” true ENABLE signal, install R2 and U1 and verify that R1 and R3 are not populated. (Required for interfacing to SynQor -T transient filter’s ON/OFF pass-through feature.)

MCOTS-N ONLY:

R24, R25 – Output Current Trim Resistors: Connects ITRIM to Vsense-, please refer to the current trim equations in the *Applications Section: Control Features* section of the converter’s respective datasheet. Two SMT 0805 package size pads in parallel are available for use of this application. Leave these unpopulated for the converter’s full output current.

R20, R21 – Output Voltage Trim Resistors: Connects VTRIM to Vsense-, please refer to the Voltage Trim equations in the *Applications Section: Control Features* section of the converter’s respective datasheet. Two SMT 0805 package size pads in parallel are available for use of this application. The converter will output ZERO voltage if a trim resistor is not populated.

High-Voltage NiQor ONLY:

High Voltage NiQor (S-Version)									
	Resistor Configuration						J2		
	R10	R11	R20	R21	R24	R25	Pin1 to	Pin2 to	Pin3 to
Remote Sense, Vset	RV1	RV2	OPEN	OPEN	OPEN	OPEN	Vout+ Sense Point	OPEN	Vout- Sense Point
Local Sense, Vset	RV1	RV2	OPEN	OPEN	0 ohm	0 ohm	Vout+ Sense at J6	OPEN	OPEN

High Voltage NiQor (C-Version)									
	Resistor Configuration						J2		
	R10	R11	R20	R21	R24	R25	Pin1	Pin2 to	Pin3 to
Vset, Iset	OPEN	OPEN	RV1	RV2	RI1	RI2	I _{mon} Voltage	OPEN	OPEN

Note:

Leaving RV1 and RV2 open will result in Vout=0V

Leaving RI1 and RI2 open will result in max rated current limit

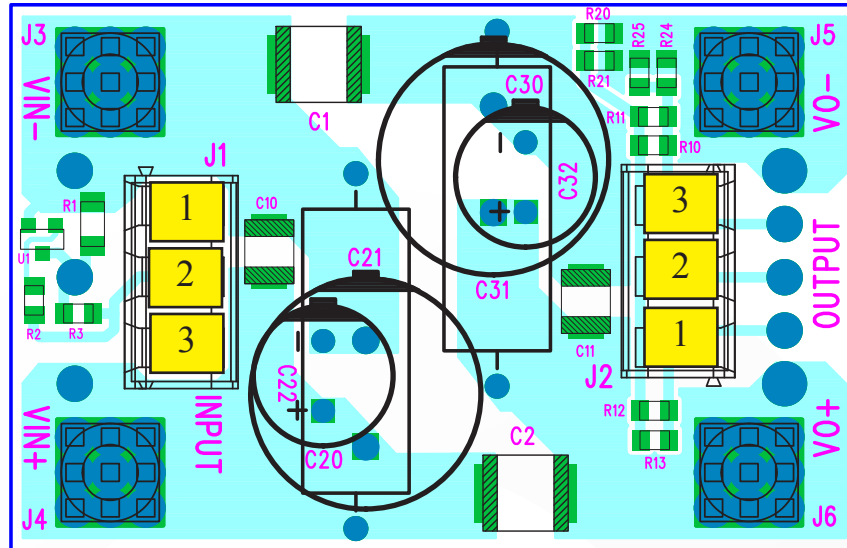
The differences among the QBI-00, QBI-04, and QBI-05 Adaptor Boards are the SynQor population of the converter enable components:

* QBI-00 has a zero ohm, 1206, resistor populated at location R1 and R3 to provide continuous enable when the input voltage is within the converter’s specified operational input range. Components R2 and U1 are not populated. If a remote enable signal is desired at J1, pin 2 then remove R1.

* QBI-04 has components R2 and U1 populated to provide compatibility with an upstream SynQor transient filter which provides a HIGH = TRUE remote enable signal at J1, pin2, once soft start is complete. R1 and R3 are not populated with this option.

* QBI-05 has no electrical components populated. Customer can select the components for desired external interface.

Quarter Brick / Eighth Brick DC-DC Converter Assembly QBI-00, QBI-04 and QBI-05



Power Lug Description

Power Lug	Description	Power Lug	Description
J3	VIN-	J5	VOUT-
J4	VIN+	J6	VOUT+

Input / Output Terminal Description

PowerQor, InQor, Mil-COTS, RailQor, and High Voltage NiQor (Standard Feature)

Terminal # of J1	Description	Terminal # of J2	Description
1	Not Connected	1	OUTPUT SENSE +
2	ON/OFF	2	Voltage Trim
3	Not Connected	3	OUTPUT SENSE -

BusQor (Un-Regulated/Semi-Regulated)

Terminal # of J1	Description	Terminal # of J2	Description
1	Not Connected	1	Not Connected
2	ON/OFF	2	Not Connected
3	Not Connected	3	Not Connected

Fully-Regulated BusQor (PQ60120QZB33/PQ60120QEA25/PQ60120QEA17)

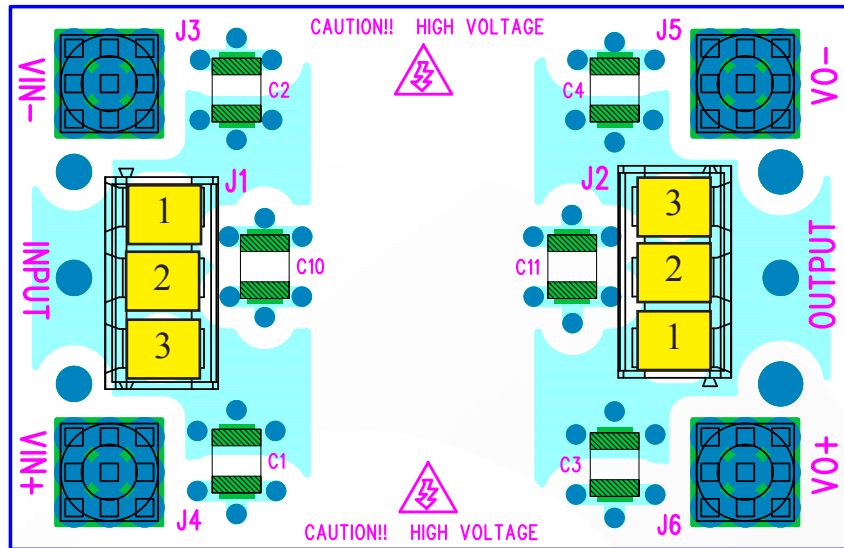
Terminal # of J1	Description	Terminal # of J2	Description
1	Not Connected	1	OUTPUT SENSE +
2	ON/OFF	2	Voltage Trim
3	Not Connected	3	OUTPUT SENSE -

Mil-COTS Non-Isolated and High Voltage NiQor (C-Version)

Terminal # of J1	Description	Terminal # of J2	Description
1	Not Connected	1	I _{mon}
2	ON/OFF *	2	Voltage Trim
3	Not Connected	3	I _{trim}

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Quarter Brick DC Filter Assembly QBI-02



All capacitors are SMT 1812

Power Lug Description

Power Lug	Description
J3	VIN-
J4	VIN+

Power Lug	Description
J5	VOUT-
J6	VOUT+

Input / Output Terminal Description

Terminal # of J1	Description
1	Not Connected
2	COM IN
3	Not Connected

Terminal # of J2	Description
1	Not Connected
2	COM OUT
3	Not Connected

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

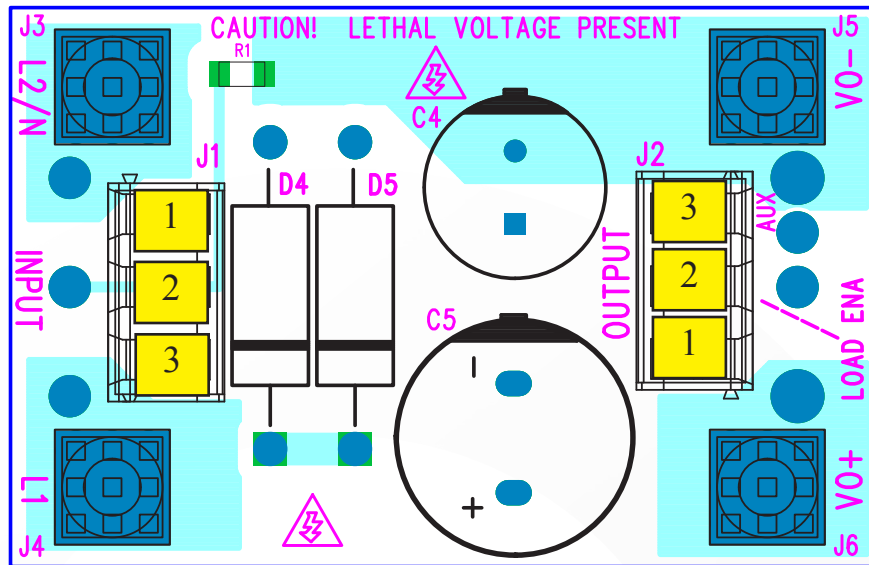
Capacitor Description

Pad #	Description
C1	VIN+ to COM IN
C2	VIN- to COM IN
C10	VIN+ to VIN-

Pad #	Description
C3	VOUT+ to COM OUT
C4	VOUT- to COM OUT
C11	VOUT+ to VOUT-

Note: These capacitors are not populated on the standard filter interface adaptor boards

Quarter Brick Non-Isolated PFC Assembly QBI-03



Power Lug Description

Power Lug	Description
J3	L2/N
J4	L1

Power Lug	Description
J5	VOUT-
J6	VOUT+

Input / Output Terminal Description

Terminal	Quarter Brick PFC
J1-1	Not Connected
J1-2	PFC ENA
J1-3	Not Connected

Terminal	Quarter Brick PFC
J2-1	Not Connected
J2-2	LOAD ENABLE
J2-3	AUX

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Component Description

Component	Quarter Brick PFC
R1	Connects PFC ENA to VOUT-
D4/D5	Accommodates two Vishay 1.5KE200CA devices connected in series
C4/C5	Accommodates Hold-Up Capacitors in Parallel C4 (12.5 mm Radial) and C5 (16 mm Radial)

Quarter Brick/Eighth Brick AC Filter Assembly QBI-06

C1, C11 – Common-Mode (Y) Capacitors: these capacitors are used for filtering common mode noise; C1 and C11 are coupled across the output L1 and output L2/N to Chassis terminal (J3 and J4), both can accommodate an SMT 2220 package size.

C2, C3 – Common-Mode (Y) Capacitors: these capacitors are used for filtering common mode noise; C2 and C3 are coupled across the input L1 and input L2/N to Chassis terminal (J3 and J4), both can accommodate an SMT 2220 package size.

C13 – Input Ceramic Capacitor: accommodates an SMT 2020 package.

C4 – Output Ceramic Capacitor: accommodates an SMT 2020 package.

Z1 – Input TVS: 300V, 60J; EPCOS/TDK B72210S2301K101, 10mm disc Metal Oxide Varistor.

J1 – Input Power Terminal Block: the terminals are used for connecting the input power source. See next page.

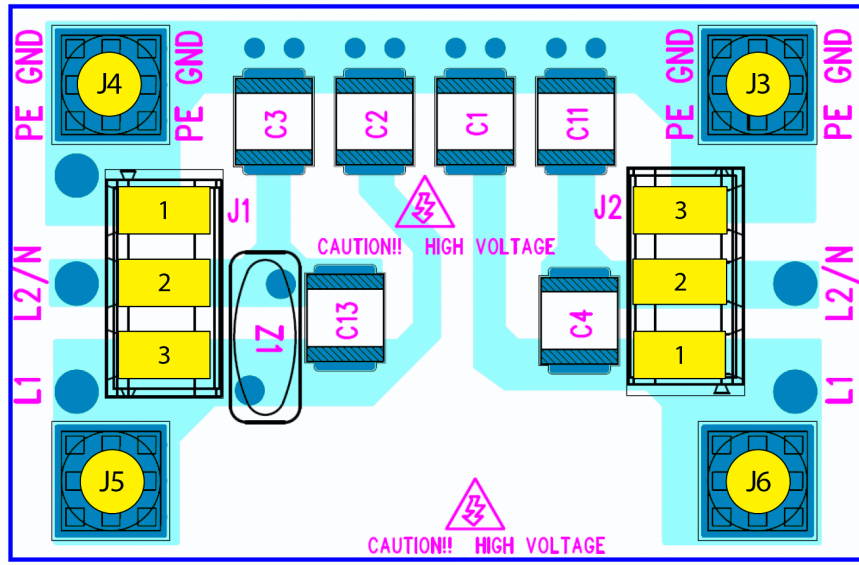
J2 – Output Signal Terminal Block: the terminals are used to connect the load. See next page.

J3, J4 – Input Power Lugs: these lugs are connected to the filter ground pin J1-1. The power lugs can be used connect the chassis to the filter ground pin through a low impedance path.

J5 – L1 Input Power Lug: this lug is used for the input source connection J1-3, and is ideal for carrying high amounts of current.

J6 – L1 Output Power Lug: this lug is used for the load connection, and is ideal for carrying high amounts of current. The power lug is connected to J2-1.

Quarter Brick / Eighth Brick AC Filter Assembly QBI-06



Power Lug Description

Power Lug	Description
J3	PE GND
J4	PE GND

Power Lug	Description
J5	INPUT L1
J6	OUTPUT L1

Input / Output Terminal Description

Terminal # of J1	Description
1	PE GND
2	INPUT L2/N
3	INPUT L1

Terminal # of J2	Description
1	OUTPUT L1
2	OUTPUT L2/N
3	PE GND

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Half Brick DC-DC Converter Assembly HBI-00, HBI-06 and HBI-07

- C21** – Input Electrolytic: this PCB through-hole insert can accommodate 16 mm radial
- C20** – Input Electrolytic: this PCB through-hole insert can accommodate 12.5 mm radial
- C22** – Input Electrolytic: this PCB through-hole insert can accommodate 9.5 mm x 20 mm axial
- C10** – Input Ceramic Capacitor: accommodates an SMT 1812 package

Please refer to the appropriate SynQor datasheet's *Input Characteristics* section for the recommended input capacitor value and ensure the capacitor is rated to handle the ripple current.

- C31** – Output Electrolytic: this PCB through-hole insert can accommodate 16 mm radial
- C30** – Output Electrolytic: this PCB through-hole insert can accommodate 12.5 mm radial
- C32** – Output Electrolytic: this PCB through-hole insert can accommodate 9.5 mm x 20 mm axial
- C11** – Output Ceramic Capacitor: accommodates an SMT 1812 package

Please refer to the appropriate SynQor datasheet's *Output Characteristics* section for recommended output capacitor value and ensure the capacitor is rated to handle the ripple current.

C1, C2 – Common-Mode (Y) Capacitors: these capacitors are used for filtering common mode noise; C1 is coupled across the negative bus, while C2 is coupled on the positive, both can accommodate an SMT 2220 package size.

R12, R13 – Trim-Up Resistors: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. Two SMT 0805 package size pads in parallel are available for use of this application. Leave these unpopulated for the converter's nameplate output voltage

R10, R11 – Trim-Down Resistors: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. Two SMT 0805 package size pads in parallel are available for use of this application. Leave these unpopulated for the converter's nameplate output voltage

R1 – Enable Resistor: this resistor is located between the enable terminal and the negative input terminal. For converters that are enabled by negative logic (low), this resistor should be 0Ω for a permanent enable. Please refer to the converter's corresponding datasheet for reference. This feature accommodates an SMT 1206 package size.

J1 – Input Signal Terminal Block

J2 – Output Signal Terminal Block

J3, J4 – Input Power Lugs: these lugs are used for the input source connection, and are ideal for carrying high amounts of current. J4 is the positive bus terminal, while J3 is the negative bus.

J5, J6 – Output Power Lugs: these lugs are used for the output load connection, and are ideal for carrying high amounts of current. J6 is the positive bus terminal, while J5 is the negative bus.

R3 – Remote Enable Resistor: This SMT, 0805, 0 ohm, resistor is located between the ENABLE terminal and J1-4. When using an external "low" true ENABLE signal, verify R1, R2, and U1 are not populated.

R2, U1 – Remote Enable Inverted Resistor and MOSFET: This SMT, SOT-23, NTR4003, MOSFET and corresponding SMT, 0805, 1 K ohm gate resistor are located between the ENABLE terminal and J1-4. When using an external "high" true ENABLE signal, install R2 and U1 and verify that R1 and R3 are not populated. (Required for interfacing to SynQor -T transient filter's ON/OFF pass-through feature.)

Half Brick DC-DC Converter Assembly HBI-00, HBI-06 and HBI-07

High-Voltage NiQor and Mil-COTS-N Half Bricks - HBI-06 Only

R4 – Iset Resistor for the High-Voltage Non-Isolated Half Brick. Please refer to the current trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. An SMT 0805 package size pad is available for use of this application. Leave the unpopulated for the converter's full output current.

R10, R11 – Vset Resistors for the High-Voltage Non-Isolated Half Brick: please refer to the current trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. Two SMT 0805 package size pads in parallel are available for use of this application. The output voltage will be zero if the Vset resistors are not populated.

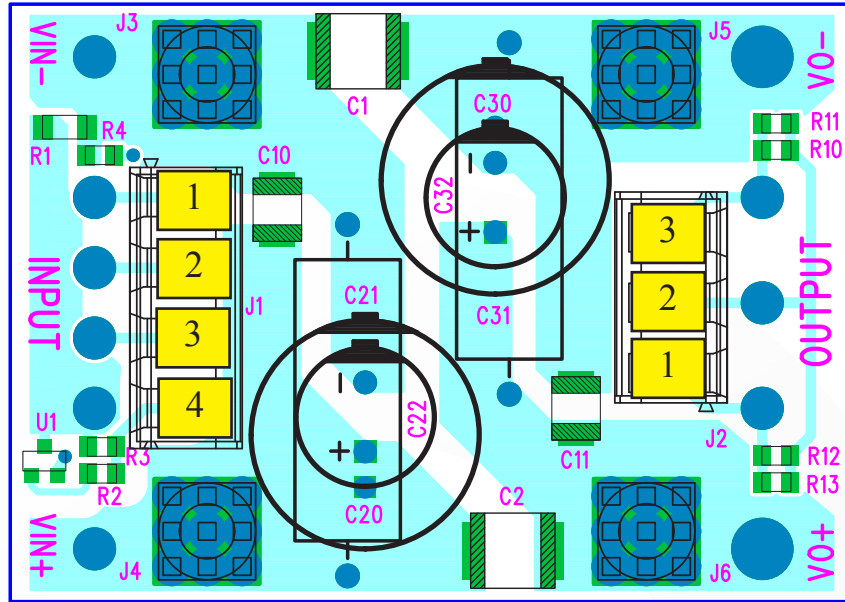
The differences among the HBI-00, HBI-06 and HBI-07 Adaptor Boards are the SynQor population of the converter enable components:

* HBI-00 has a zero ohm, 1206, resistor populated at location R1 and R3 to provide continuous enable when the input voltage is within the converter's specified operational input range. Components R2 and U1 are not populated. If a remote enable signal is desired at J1, pin 4 then remove R1.

* HBI-06 has components R2 and U1 populated to provide compatibility with an upstream SynQor transient filter which provides a HIGH = TRUE remote enable signal at J1, pin 4, once soft start is complete. R1 and R3 are not populated with this option.

* HBI-07 has no electrical components populated. Customer can select the components for desired external interface.

Half Brick DC-DC Converter Assembly HBI-00, HBI-06 and HBI-07



Power Lug Description

Power Lug	Description
J3	VIN-
J4	VIN+

Power Lug	Description
J5	VOUT-
J6	VOUT+

Input / Output Terminal Description

DC-DC Converters

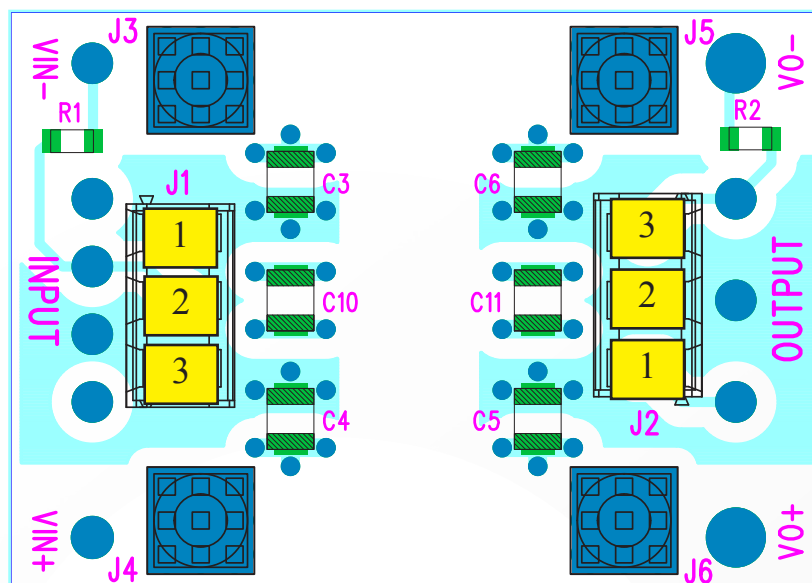
Terminal	Standard Half Brick	Full Feature Half Brick	Full Feature Zeta Series	High Voltage NiQor Half Brick
J1-1	Not Connected	CURRENT SHARE	CURRENT SHARE -	CURRENT SHARE
J1-2	Not Connected	START SYNC	CURRENT SHARE +	CURRENT TRIM
J1-3	Not Connected	CLOCK SYNC	Not Connected	SYNC IN
J1-4	ON/OFF	ON/OFF	ON/OFF	ON/OFF
J2-1	OUTPUT SENSE +	OUTPUT SENSE +	OUTPUT SENSE +	OUTPUT SENSE +
J2-2	Voltage Trim	Voltage Trim	Voltage Trim	Voltage Trim
J2-3	OUTPUT SENSE -	OUTPUT SENSE -	OUTPUT SENSE -	OUTPUT SENSE -

Bus Converters

Terminal	Semi-Regulated SQ	Fully-Regulated PQ	Fully-Regulated BQ	MCOTS-B-xxx-31
J1-1	Not Connected	Not Connected	Not Connected	Not Connected
J1-2	Not Connected	SHARE (-)	Not Connected	Not Connected
J1-3	Not Connected	SHARE (+)	Not Connected	CLOCK SYNC
J1-4	ON/OFF *	ON/OFF *	ON/OFF *	ON/OFF *
J2-1	Not Connected	SENSE (+)	SENSE (+)	Not Connected
J2-2	Not Connected	TRIM	TRIM	Not Connected
J2-3	Not Connected	SENSE (-)	SENSE (-)	Not Connected

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Half Brick DC Passive Filter Assembly HBI-02



All capacitors are SMT, 1812. All resistors are SMT, 1206

Power Lug Description

Power Lug	Description
J3	VIN-
J4	VIN+

Power Lug	Description
J5	VOUT-
J6	VOUT+

Input / Output Terminal Description

Terminal	Passive Filter MCOTS-F-270-P-HT
J1-1	Not Connected
J1-2	Not Connected
J1-3	COM IN

Terminal	Passive Filter MCOTS-F-270-P-HT
J2-1	Not Connected
J2-2	COM OUT
J2-3	Not Connected

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Capacitor Description SMT 1812

Pad #	Description
C4	VIN+ to COM IN
C3	VIN- to COM IN
C10	VIN+ to VIN-

Pad #	Description
C5	VOUT+ to COM OUT
C6	VOUT- to COM OUT
C11	VOUT+ to VOUT-

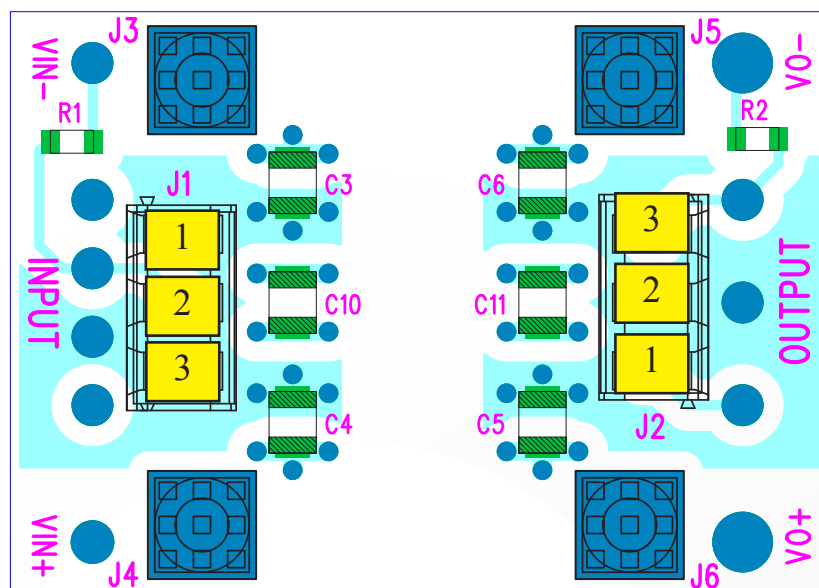
Note: These capacitors are not populated on the standard filter interface adaptor boards

Resistor Description SMT 1206

Pad #	Description
R1	Not Used
R2	Not Used

Note: The standard passive filter interface adaptor board comes with R1 and R2 unpopulated.

Half Brick Transient Filter Assembly HBI-03



All capacitors are SMT, 1812. All resistors are SMT, 1206

Power Lug Description

Power Lug	Description
J3	VIN-
J4	VIN+

Power Lug	Description
J5	VOUT-
J6	VOUT+

Input / Output Terminal Description

Terminal	Transient Filter MCOTS-F-28-T-HT
J1-1	Not Connected
J1-2	ON/OFF IN
J1-3	COM IN

Terminal	Transient Filter MCOTS-F-28-T-HT
J2-1	ON/OFF OUT
J2-2	COM OUT
J2-3	STDBY

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Capacitor Description SMT 1812

Pad #	Description
C4	VIN+ to COM IN
C3	VIN- to COM IN
C10	VIN+ to VIN-

Pad #	Description
C5	VOUT+ to COM OUT
C6	VOUT- to COM OUT
C11	VOUT+ to VOUT-

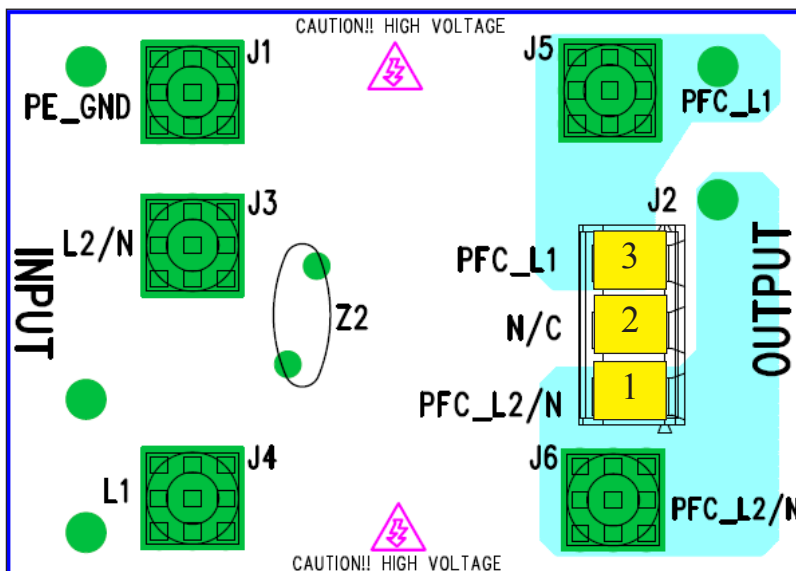
Note: These capacitors are not populated on the standard filter interface adaptor boards

Resistor Description SMT 1206

Pad #	Description	Enable
R1	Connects ON/OFF IN to VIN-	Open to enable downstream converters*
R2	Connects STANDBY to VOUT-	Close (0 ohm) to enable filter

Note: The standard transient filter interface adaptor board comes with R1 open and R2 populated with a 0 ohm resistor.

Half Brick Single-Phase AC Filter Assembly HBI-04



Power Lug Description

Power Lug	Description
J1	PE_GND
J3	L2/N
J4	L1

Power Lug	Description
J5	PFC_L1
J6	PFC_L2/N

Input / Output Terminal Description

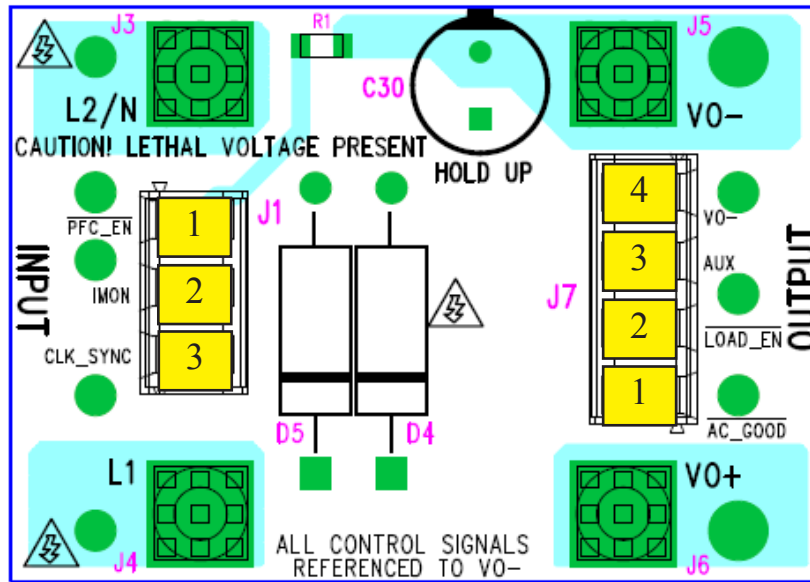
Terminal	Half Brick AC Filter
J2-1	PFC_L2/N
J2-2	Not Connected
J2-3	PFC_L1

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Component Description

Component	Half Brick PFC
Z2	Accommodates a 10mm disc Metal Oxide Varistor

Half Brick Single-Phase, Non-Isolated PFC Assembly HBI-05



Power Lug Description

Power Lug	Description
J3	L2/N
J4	L1

Power Lug	Description
J5	VOUT-
J6	VOUT+

Input / Output Terminal Description

Terminal	Half Brick PFC
J1-1	PFC_ENABLE
J1-2	IMON
J1-3	CLK_SYNC

Terminal	Half Brick PFC
J7-1	AC_GOOD
J7-2	LOAD_ENABLE
J7-3	AUX
J7-4	VOUT-

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Component Description

Component	Half Brick PFC
R1	Connects PFC_ENABLE to VOUT-
D4/D5	Accommodates two Vishay 1.5KE200CA devices connected in series
C30	Holdup Electrolytic: this PCB through-hole insert can accommodate 10mm diameter radial with 5mm lead spacing

Half Brick Single-Phase, Isolated PFC Assembly HBI-08 and HBI-09

C12 – L1 to L2/N Ceramic Capacitors: accommodates an SMT 2220 package

C13, C14, C15, C16 – Output Ceramic Capacitors: 2.2 μ F, 100V SMT 1210 package

C11 – Output Electrolytic: 100 μ F, 100V PCB through-hole 12.5 mm radial

C4 – Output Electrolytic: this PCB through-hole insert can accommodate 16 mm radial

C3, C10 – Hold Up Electrolytic: this PCB through-hole insert can accommodate 12.5 mm radial

C9 – Hold Up Electrolytic: 150 μ F, 450V PCB through-hole 18 mm radial

C1, C8, C17, C18 – Common-Mode (Y) Capacitor, Vout- to HU-: 10nF, 250VAC SMT 2220 package

C19, C20 – Common-Mode (Y) Capacitor, Vout- to HU-: accommodates an SMT 2220 package

C2 – Common-Mode (Y) Capacitor, Vout- to Chassis Ground: 10nF, 250VAC SMT 2220 package

C6 – Common-Mode (Y) Capacitor, L2/N to Chassis Ground: accommodates an SMT 2220 package

C7 – Common-Mode (Y) Capacitor, L1 to Chassis Ground: accommodates an SMT 2220 package

C25 – Common-Mode (Y) Capacitor, HU- to Chassis Ground: accommodates an SMT 2220 package

Please refer to the appropriate SynQor datasheet's sections for the recommended capacitors values and ensure the capacitor is rated to handle the voltage and ripple current.

D4, D5 – Input TVS: Two Bi-directional TVSs are connected in series, 200V radial DO-201 package size.

LED2 – Neon bulb across the Hold Up Capacitor: Bulb lights up when Hold Up capacitor is charged. Package size, radial T2.

R1 – Enable Resistor: this resistor is located between the enable terminal and the HU- terminal. For converters that are enabled by negative logic (low), this resistor should be 0 Ω for a permanent enable. Please refer to the converter's corresponding datasheet for reference. This feature accommodates an SMT 1206 package size.

R7, R20, R21 – Three series connected resistors to limit current through LED2: 49.9K Ω SMT 0805 package.

J1 – Signal 5 Terminal Block

J2 – Input Power 3 Terminal Block

J3, J4 – Hold Up Capacitor Lugs: these lugs are used for connecting an external Hold Up capacitor, in parallel with C3, C9 and C10. J3 is the positive bus terminal, while J4 is the negative bus.

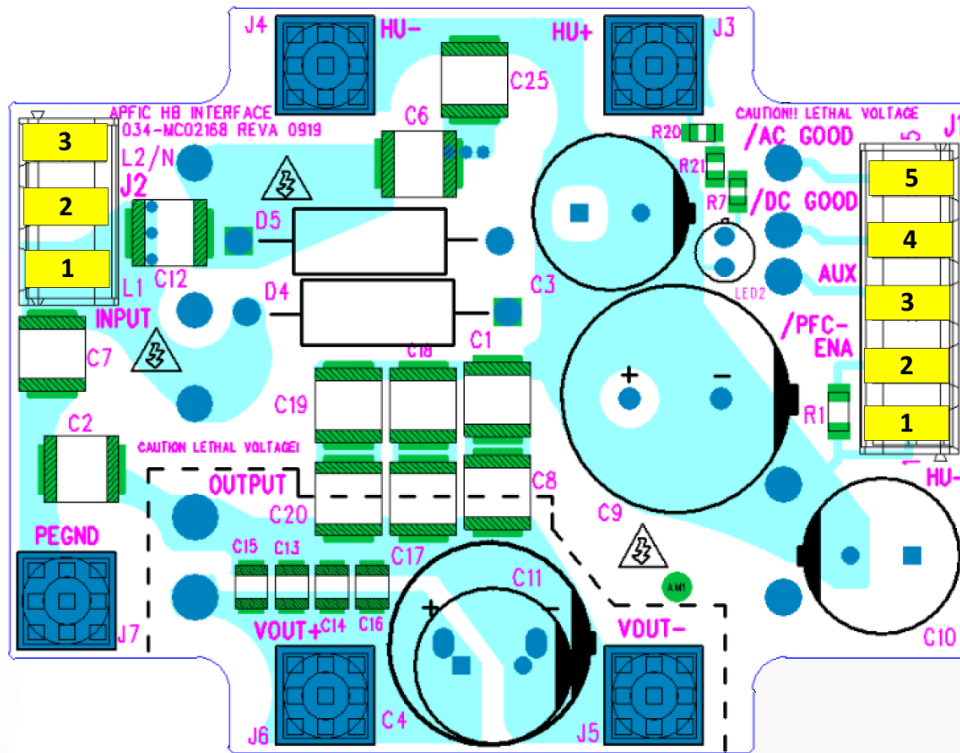
J5, J6, J7 – Output Power Lugs: these lugs are used for the output load connection, and are ideal for carrying high amounts of current. J6 is the positive bus terminal, J5 is the negative bus and J7 is the Protective Earth Ground.

The difference between the HBI-08 and HBI-09 Adaptor Boards is the SynQor population of the converter enable components:

* HBI-08 has a zero ohm, 1206, resistor populated at location R1 to provide continuous enable when the input voltage is within the converter's specified operational input range.

* HBI-09 has no electrical components populated, except for the Neon bulb and three series resistors across HU+ and HU-. Customer can select the remaining components for desired external interface.

Half Brick Single-Phase, Isolated PFC Assembly HBI-08 and HBI-09



Power Lug Description

Power Lug	Description
J3	HU+
J4	HU-

Power Lug	Description
J5	VOUT-
J6	VOUT+
J7	PEGND

Input / Output Terminal Description

Terminal	Half Brick PFC
J1-1	HU-
J1-2	PFC_ENA
J1-3	AUX
J1-4	DC_GOOD
J1-5	AC_GOOD

Terminal	Half Brick PFC
J2-1	L1
J2-2	Not Connected
J2-3	L2/N

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Half Brick (HE Series) DC-DC Converter Assembly HBI-10 and HBI-11

C32 – Input Electrolytic: this PCB through-hole insert can accommodate 8mm x 20mm axial.

C31 – Input Electrolytic: this PCB through-hole insert can accommodate 16mm radial.

C30 – Input Electrolytic: this PCB through-hole insert can accommodate 10mm radial.

C10 – Input Ceramic Capacitor: accommodates an SMT 1812 package.

Please refer to the appropriate SynQor datasheet's *Input Characteristics* section for the recommended input capacitor value and ensure the capacitor is rated to handle the ripple current.

C42 – Output Electrolytic: this PCB through-hole insert can accommodate 8mm x 20mm axial.

C41 – Output Electrolytic: this PCB through-hole insert can accommodate 16mm radial.

C40, C50 – Output Electrolytic: this PCB through-hole insert can accommodate 10mm radial.

C12, C13 – Output Ceramic Capacitor: accommodates an SMT 1812 package.

Please refer to the appropriate SynQor datasheet's *Output Characteristics* section for recommended output capacitor value and ensure the capacitor is rated to handle the ripple current.

C1, C2 – Common-Mode (Y) Capacitors: these capacitors are used for filtering common mode noise; C1 is connected across VIN- and VOUT-, while C2 is connected across VIN+ and VOUT+ terminals, both can accommodate SMT 2220 package size.

R10 – Enable Resistor: this resistor is located between J1-2 and ON/OFF terminal, it is 0 ohm SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

R11 – Enable Resistor: this resistor is located between J1-1 and VIN- terminal, it is 0 ohm SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

R19 – Enable Resistor: this resistor is located between ON/OFF and VIN- terminals, it can accommodate SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference. This feature accommodates an SMT 1206 package size (populated for HBI-10)

R13, R14 – Vset Resistor: please refer to the Vset equations in the *Applications Section: Control Features* section of the converter's respective datasheet, both can accommodate SMT 1206 package size. Leaving this unpopulated will result in no output voltage.

R15, R16 – Iset Resistor: please refer to the Iset equations in the *Applications Section: Control Features* section of the converter's respective datasheet, both can accommodate SMT 1206 package size. Leave this unpopulated for the converter's nominal current limit value.

R17 – Local output SENSE(+) Resistor: this resistor is located between J2-1 and VOUT+ terminal, it can accommodate SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

R18 – Local output SENSE(-) Resistor: this resistor is located between J2-6 and VOUT- terminal, it can accommodate SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

J1 – Primary Referenced Input/Output Signal Terminal Block: See next page for pin assignments.

J2 – Secondary Referenced Input/Output Signal Terminal Block: See next page for pin assignments.

J3, J4 – Input Power Lugs: these lugs are used for the input source connection, and are ideal for carrying high amounts of current. J4 is the positive bus terminal (VIN+), while J3 is the negative bus (VIN-).

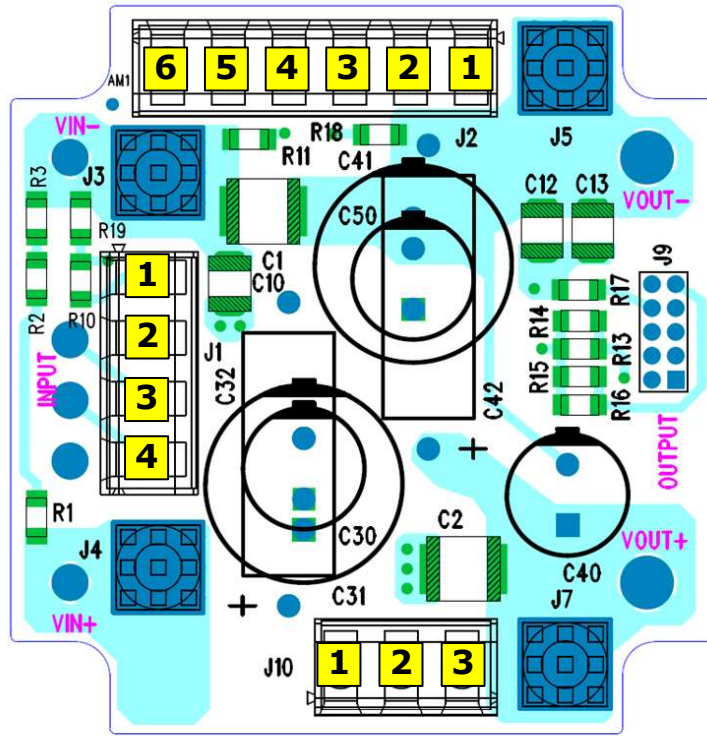
J5, J7 – Output Power Lugs: these lugs are used for the output load connection, and are ideal for carrying high amounts of current. J7 is the positive bus terminal (VOUT+), while J5 is the negative bus (VOUT-).

The difference between the HBI-10 and HBI-11 Adaptor Boards are described below.

* HBI-10 has no electrical components populated, except for the 3 input bleed resistors and resistors for ON/OFF control. Customer can select the remaining components for desired external interface. The other populated components are identified above in component description.

* HBI-11 has all HBI-10 components populated with an additional zero ohm, 1206, resistor populated at location R19 to provide continuous enable when the input voltage is within the converter's specified operational input range. The other populated components are identified above in component description.

Half Brick (HE Series) DC-DC Converter Assembly HBI-10 and HBI-11



Power Lug Description

Power Lug	Description	Power Lug	Description
J3	VIN-	J5	VOUT-
J4	VIN+	J7	VOUT+

Input / Output Terminal Description

Terminal J1	Description
1	ON/OFF(-)
2	ON/OFF(+)
3	SYNCOUT
4	SYNCIN

Terminal J2	Description
1	SENSE(+)
2	I SHARE
3	BATTLE SHORT
4	VSET
5	ISET
6	SENSE(-)

Terminal J10	Description
1	SERIAL(-)
2	SERIAL (+)
3	SENSE(-)

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Full Brick DC-DC Converter Assembly

FBI-00

C22, C32 – Input Electrolytic: this PCB through-hole insert can accommodate 9.5mm x 20mm axial.

C21, C31 – Input Electrolytic: this PCB through-hole insert can accommodate 16mm radial.

C20, C30 – Input Electrolytic: this PCB through-hole insert can accommodate 12.5mm radial.

C10, C11 – Input Ceramic Capacitor: accommodates an SMT 1812 package.

Please refer to the appropriate SynQor datasheet's *Input Characteristics* section for the recommended input capacitor value and ensure the capacitor is rated to handle the ripple current.

C42, C52 – Output Electrolytic: this PCB through-hole insert can accommodate 9.5mm x 20mm axial.

C41, C51 – Output Electrolytic: this PCB through-hole insert can accommodate 16mm radial.

C40, C50 – Output Electrolytic: this PCB through-hole insert can accommodate 12.5mm radial.

C12, C13 – Output Ceramic Capacitor: accommodates an SMT 1812 package.

Please refer to the appropriate SynQor datasheet's *Output Characteristics* section for recommended output capacitor value and ensure the capacitor is rated to handle the ripple current.

C1, C2 – Common-Mode (Y) Capacitors: these capacitors are used for filtering common mode noise; C1 is coupled across the negative bus, while C2 is coupled on the positive, both can accommodate an SMT 2220 package size.

R10 – Trim-Up Resistor: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. An SMT 1206 package size pad is available for use of this application. Leave this unpopulated for the converter's nameplate output voltage.

R11 – Trim-Down Resistor: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. An SMT 1206 package size pad is available for use of this application. Leave this unpopulated for the converter's nameplate output voltage.

R1 – Enable Resistor: this resistor is located between the ON/OFF- and the negative input terminal. Please refer to the converter's corresponding datasheet for reference. This feature accommodates an SMT 1206 package size.

R2 – Enable Resistor: this resistor is located between the ON/OFF+ and the positive input terminal. Please refer to the converter's corresponding datasheet for reference. This feature accommodates an SMT 1206 package size.

J1 - Primary referenced Input/Output Signal Terminal Block: See next page.

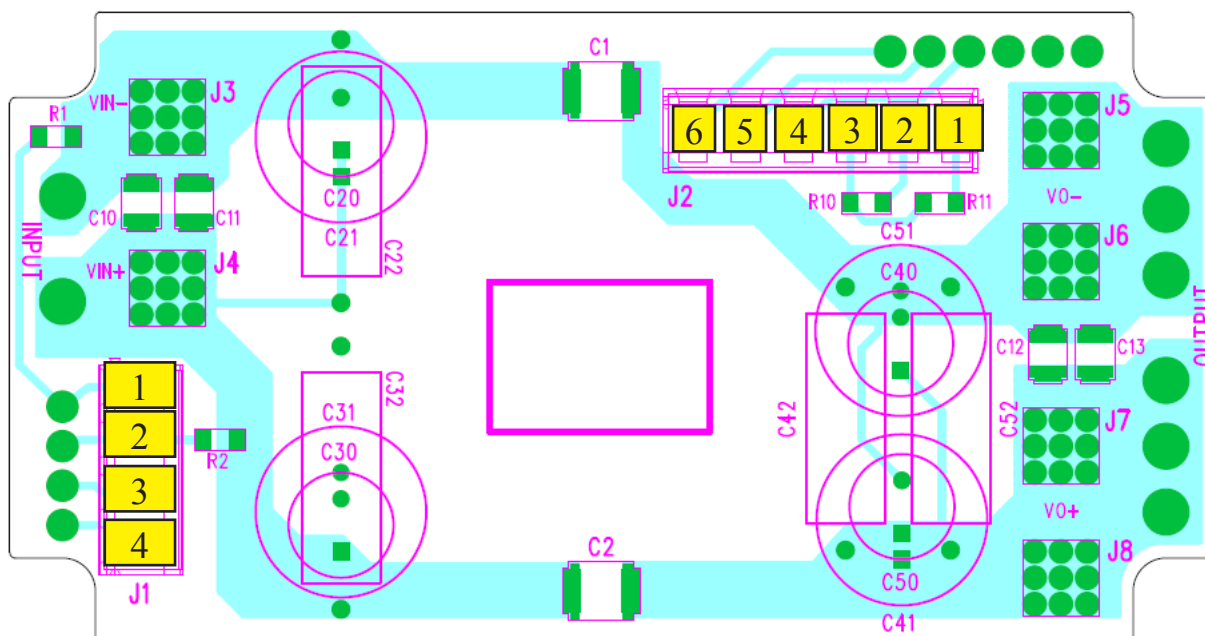
J2 - Secondary referenced Input/Output Signal Terminal Block: See next page.

J3, J4 – Input Power Lugs: these lugs are used for the input source connection, and are ideal for carrying high amounts of current. J4 is the positive bus terminal, while J3 is the negative bus.

J5, J6 – Vout(-) Output Power Lugs: these lugs are used for the output load connection, and are ideal for carrying high amounts of current.

J7, J8 – Vout(+) Output Power Lugs: these lugs are used for the output load connection, and are ideal for carrying high amounts of current.

Full Brick DC-DC Converter Assembly FBI-00



Power Lug Description

Power Lug	Description	Power Lug	Description	Power Lug	Description
J3	VIN-	J5	VOUT-	J7	VOUT+
J4	VIN+	J6	VOUT-	J8	VOUT+

Input / Output Terminal Description

Terminal J1	Description
1	ON/OFF(-)
2	ON/OFF(+)
3	SYNCOUT
4	SYNCIN

Terminal J2	Description
1	SENSE(-)
2	SENSE(+)
3	TRIM
4	I SHARE
5	START SYNC
6	VAUX

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Full Brick (FE Series) DC-DC Converter Assembly

FBI-02

C22, C32 – Input Electrolytic: this PCB through-hole insert can accommodate 9.5mm x 20mm axial.

C21, C31 – Input Electrolytic: this PCB through-hole insert can accommodate 16mm radial.

C20, C30 – Input Electrolytic: this PCB through-hole insert can accommodate 12.5mm radial.

C10, C11 – Input Ceramic Capacitor: accommodates an SMT 1812 package.

Please refer to the appropriate SynQor datasheet's *Input Characteristics* section for the recommended input capacitor value and ensure the capacitor is rated to handle the ripple current.

C42, C52 – Output Electrolytic: this PCB through-hole insert can accommodate 9.5mm x 20mm axial.

C41, C51 – Output Electrolytic: this PCB through-hole insert can accommodate 16mm radial.

C40, C50 – Output Electrolytic: this PCB through-hole insert can accommodate 12.5mm radial.

C12, C13 – Output Ceramic Capacitor: accommodates an SMT 1812 package.

Please refer to the appropriate SynQor datasheet's *Output Characteristics* section for recommended output capacitor value and ensure the capacitor is rated to handle the ripple current.

C1, C2 – Common-Mode (Y) Capacitors: these capacitors are used for filtering common mode noise; C1 is connected across VIN- and VOUT-, while C2 is connected across VIN+ and VOUT+ terminals, both can accommodate SMT 2220 package size.

C3 – Enable Capacitor: this capacitor is across the ON/OFF(+) and ON/OFF(-) pins for noise filtering; it can accommodate SMT 1812 package size. These resistors help bleed charge from the input capacitors when the input power is removed.

R1-R3 – Bleeding Resistors: 357 kohms each, are located between the input terminals VIN+ and VIN-, these resistors are SMT 1206 package size. These resistors help bleed charge from the input capacitors when the input power is removed.

R4-R9 – Enable Pull-up Resistors: these resistors are located between the ON/OFF(+) and VIN+ terminals, both can accommodate SMT 2220 package size. Please refer to the converter's corresponding datasheet for reference.

R10 – Enable Resistor: this resistor is located between J1-2 and ON/OFF(+) terminal, it is 0 ohm SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

R11 – Enable Resistor: this resistor is located between J1-1 and ON/OFF(-) terminal, it is 0 ohm SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

R12 – Enable Resistor: this resistor is located between ON/OFF(-) and VIN- terminals, it can accommodate SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

R13, R14 – Vset Resistor: please refer to the Vset equations in the *Applications Section: Control Features* section of the converter's respective datasheet, both can accommodate SMT 1206 package size. Leaving this unpopulated will result in no output voltage.

R15, R16 – Iset Resistor: please refer to the Iset equations in the *Applications Section: Control Features* section of the converter's respective datasheet, both can accommodate SMT 1206 package size. Leave this unpopulated for the converter's nominal current limit value.

R17 – Local output SENSE(+) Resistor: this resistor is located between J2-1 and VOUT+ terminal, it can accommodate SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

R18 – Local output SENSE(-) Resistor: this resistor is located between J2-6 and VOUT- terminal, it can accommodate SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

D1 – Enable Zener Diode: when the enable circuit is powered from the input rails, this diode limits the input voltage across the ON/OFF(+) and ON/OFF(-) pins to a value below rated voltage, it can accommodate SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

Full Brick (FE Series) DC-DC Converter Assembly (continued)

FBI-02

J1 – Primary Referenced Input/Output Signal Terminal Block: See next page for pin assignments.

J2 – Secondary Referenced Input/Output Signal Terminal Block: See next page for pin assignments.

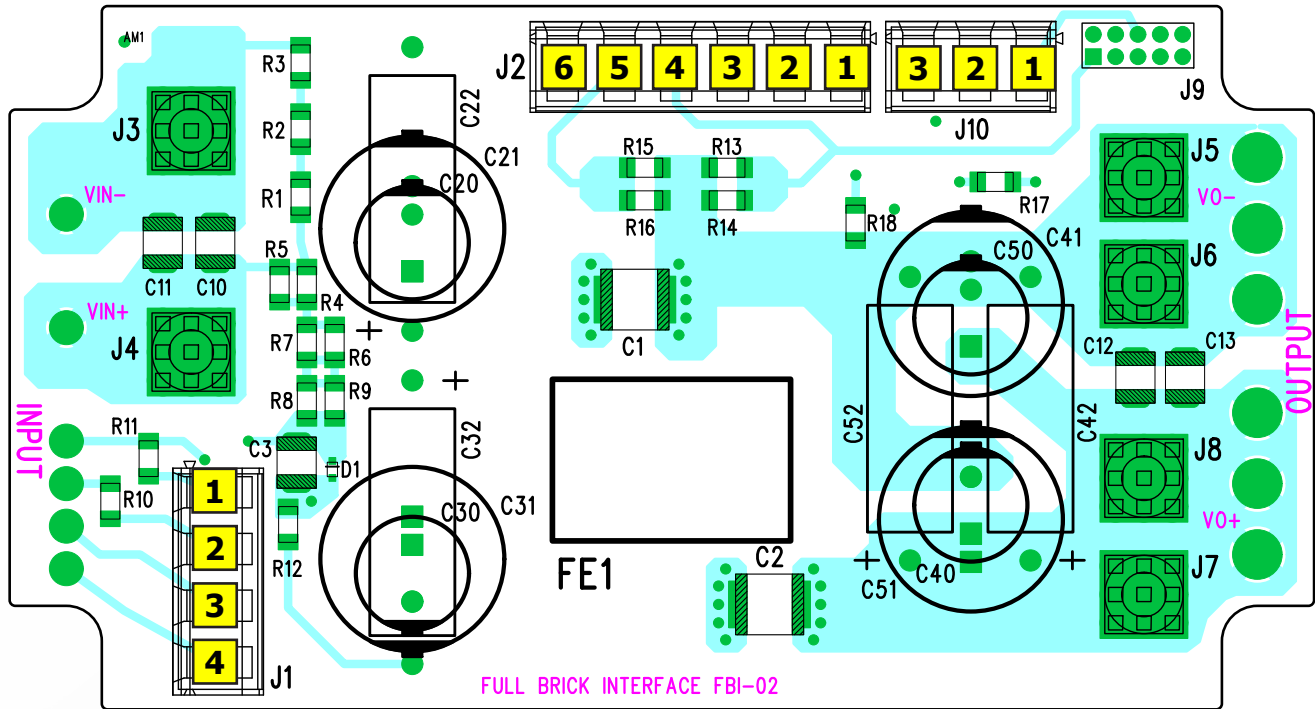
J3, J4 – Input Power Lugs: these lugs are used for the input source connection, and are ideal for carrying high amounts of current. J4 is the positive bus terminal (VIN+), while J3 is the negative bus (VIN-).

J5, J6 – Output Power Lugs (VOUT-): these lugs are used for the output load connection, and are ideal for carrying high amounts of current.

J7, J8 – Output Power Lugs (VOUT+): these lugs are used for the output load connection, and are ideal for carrying high amounts of current.

J10 – Secondary Referenced Serial communication Terminal Block: See next page for pin assignments.

Full Brick (FE Series) DC-DC Converter Assembly FBI-02



FULL BRICK INTERFACE FBI-02

Power Lug Description

Power Lug	Description	Power Lug	Description	Power Lug	Description
J3	VIN-	J5	VOUT-	J7	VOUT+
J4	VIN+	J6	VOUT-	J8	VOUT+

Input / Output Terminal Description

Terminal J1	Description
1	ON/OFF(-)
2	ON/OFF(+)
3	SYNCOUT
4	SYNCIN

Terminal J2	Description
1	SENSE(+)
2	I SHARE
3	BATTLE SHORT
4	VSET
5	ISET
6	SENSE(-)

Terminal J10	Description
1	SERIAL(-)
2	SERIAL (+)
3	SENSE(-)

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Full Brick MCOTS-C-28-270-FZ Assembly

FBI-03

C22, C32 – Input Electrolytic: this PCB through-hole insert can accommodate 9.5mm x 20mm axial.

C21, C31 – Input Electrolytic: this PCB through-hole insert can accommodate 16mm radial.

C20, C30 – Input Electrolytic: this PCB through-hole insert can accommodate 12.5mm radial.

C10, C11 – Input Ceramic Capacitor: accommodates an SMT 1812 package.

Please refer to the appropriate SynQor datasheet's *Input Characteristics* section for the recommended input capacitor value and ensure the capacitor is rated to handle the ripple current.

C42, C52 – Output Electrolytic: this PCB through-hole insert can accommodate 9.5mm x 20mm axial.

C41, C51 – Output Electrolytic: this PCB through-hole insert can accommodate 16mm radial.

C40, C50 – Output Electrolytic: this PCB through-hole insert can accommodate 12.5mm radial.

C12, C13 – Output Ceramic Capacitor: accommodates an SMT 1812 package.

Please refer to the appropriate SynQor datasheet's *Output Characteristics* section for recommended output capacitor value and ensure the capacitor is rated to handle the ripple current.

C1, C2 – Common-Mode (Y) Capacitors: these capacitors are used for filtering common mode noise; C1 is connected across VIN- and VOUT-, while C2 is connected across VIN+ and VOUT+ terminals, both can accommodate SMT 2220 package size.

C3 – Enable Capacitor: this capacitor is across the ON/OFF(+) and ON/OFF(-) pins for noise filtering; it can accommodate SMT 1812 package size.

R5-R7 – Bleeding Resistors: 357 kohms each, are located between the output terminals VOUT+ and VOUT-, these resistors are SMT 1206 package size. These resistors help bleed charge from the output capacitors when the converter shuts down.

R1 – Enable Pull-up Resistor: this resistor is located between the ON/OFF(+) and VIN+ terminals, it can accommodate SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

R2 – Enable Resistor: this resistor is located between J5-3 and the ON/OFF(+) terminal, it is 0 ohm SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

R3 – Enable Resistor: this resistor is located between J5-4 and the ON/OFF(-) terminal, it is 0 ohm SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference. This feature accommodates an SMT 1206 package size.

R4 – Enable Resistor: this resistor is located between ON/OFF(-) and VIN- terminals, it can accommodate SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

D1 – Enable Zener Diode: when the enable circuit is powered from the input rails, this diode limits the input voltage across the ON/OFF(+) and ON/OFF(-) pins to a value below rated voltage, it can accommodate SMT 1206 package size. Please refer to the converter's corresponding datasheet for reference.

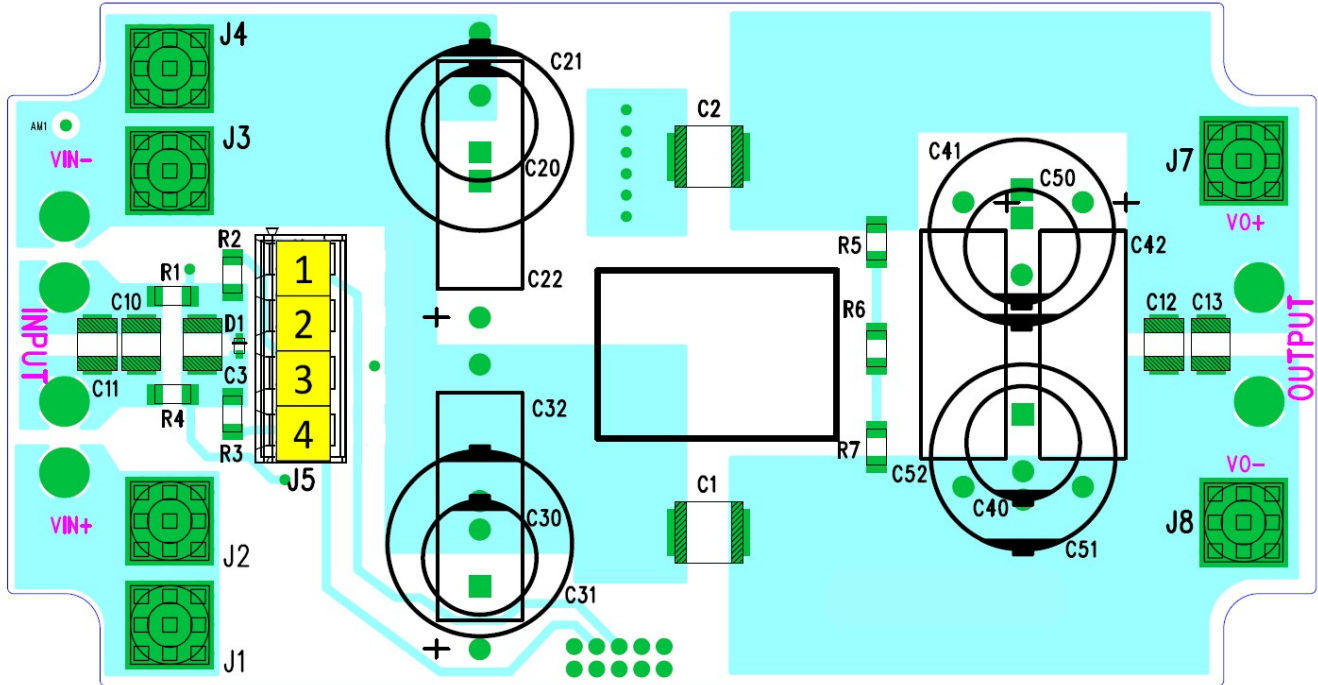
J1, J2 – Input Power Lugs (VIN+): these lugs are used for the input source connection, and are ideal for carrying high amounts of current.

J3, J4 – Input Power Lugs (VIN-): these lugs are used for the input source connection, and are ideal for carrying high amounts of current.

J7, J8 – Output Power Lugs: these lugs are used for the output load connection, and are ideal for carrying high amounts of current. J7 is the positive bus terminal (VOUT+), while J8 is the negative bus (VOUT-).

J5 - Primary referenced Input/Output Signal Terminal Block: See next page for pin assignments.

**Full Brick MCOTS-C-28-270-FZ Assembly
FBI-03**



Power Lug Description

Power Lug	Description	Power Lug	Description	Power Lug	Description
J1	VIN+	J3	VIN-	J7	VOUT+
J2	VIN+	J4	VIN-	J8	VOUT-

Input / Output Terminal Description

Terminal J1	Description
1	SHARE (+)
2	SHARE (-)
3	ON/OFF (+)
4	ON/OFF (-)

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Full Brick Single-Phase, Isolated PFC Assembly FBI-04 and FBI-05

C12 – L1 to L2/N Ceramic Capacitors: accommodates an SMT 2220 package

C13, C14, C15, C16 – Output Ceramic Capacitors: 2.2 μ F, 100V SMT 1210 package (populated for FBI-05)

C11 – Output Electrolytic: 100 μ F, 100V PCB through-hole 12.5 mm radial (populated for FBI-05)

C4 – Output Electrolytic: this PCB through-hole insert can accommodate 16 mm radial (populated for FBI-05)

C3, C10 – Hold Up Electrolytic: this PCB through-hole insert can accommodate 12.5 mm radial

C9 – Hold Up Electrolytic: 150 μ F, 450V PCB through-hole 18 mm radial (populated for FBI-05)

C5 – Hold Up Electrolytic: 220 μ F, 450V PCB through-hole 18 mm radial (populated for FBI-05)

C1, C8, C18, C20 – Common-Mode (Y) Capacitor, Vout- to HU-: 10nF, 250VAC SMT 2220 package (populated for FBI-05)

C17, C19 – Common-Mode (Y) Capacitor, Vout- to HU-: accommodates an SMT 2220 package

C2 – Common-Mode (Y) Capacitor, Vout- to Chassis Ground: 10nF, 250VAC SMT 2220 package (populated for FBI-05)

C6 – Common-Mode (Y) Capacitor, L2/N to Chassis Ground: accommodates an SMT 2220 package

C7 – Common-Mode (Y) Capacitor, L1 to Chassis Ground: accommodates an SMT 2220 package

C25 – Common-Mode (Y) Capacitor, HU- to Chassis Ground: accommodates an SMT 2220 package

Please refer to the appropriate SynQor datasheet's sections for the recommended capacitors values and ensure the capacitor is rated to handle the voltage and ripple current.

D4, D5 – Input TVS: Two Bi-directional TVSs are connected in series, 200V radial DO-201 package size (populated for FBI-05)

LED2 – Neon bulb across the Hold Up Capacitor: Bulb lights up when Hold Up capacitor is charged. Package size, radial T2 (populated for FBI-04 and FBI-05)

R1 – Enable Resistor: this resistor is located between the enable terminal and the CTL RETURN. For converters that are enabled by negative logic (low), this resistor should be 0 Ω for a permanent enable. Please refer to the converter's corresponding datasheet for reference. This feature accommodates an SMT 1206 package size (populated for FBI-05)

R7, R20, R21 – Three series connected resistors to limit current through LED2: 49.9K Ω SMT 0805 package. (populated for FBI-04 and FBI-05)

J1, J8, J9 – Signals, 4 Terminal Blocks

J2 – Input Power, 3 Terminal Block

J3, J4 – Hold Up Capacitor Lugs: these lugs are used for connecting an external Hold Up capacitor, in parallel with C3, C5, C9 and C10. J3 is the positive bus terminal, while J4 is the negative bus.

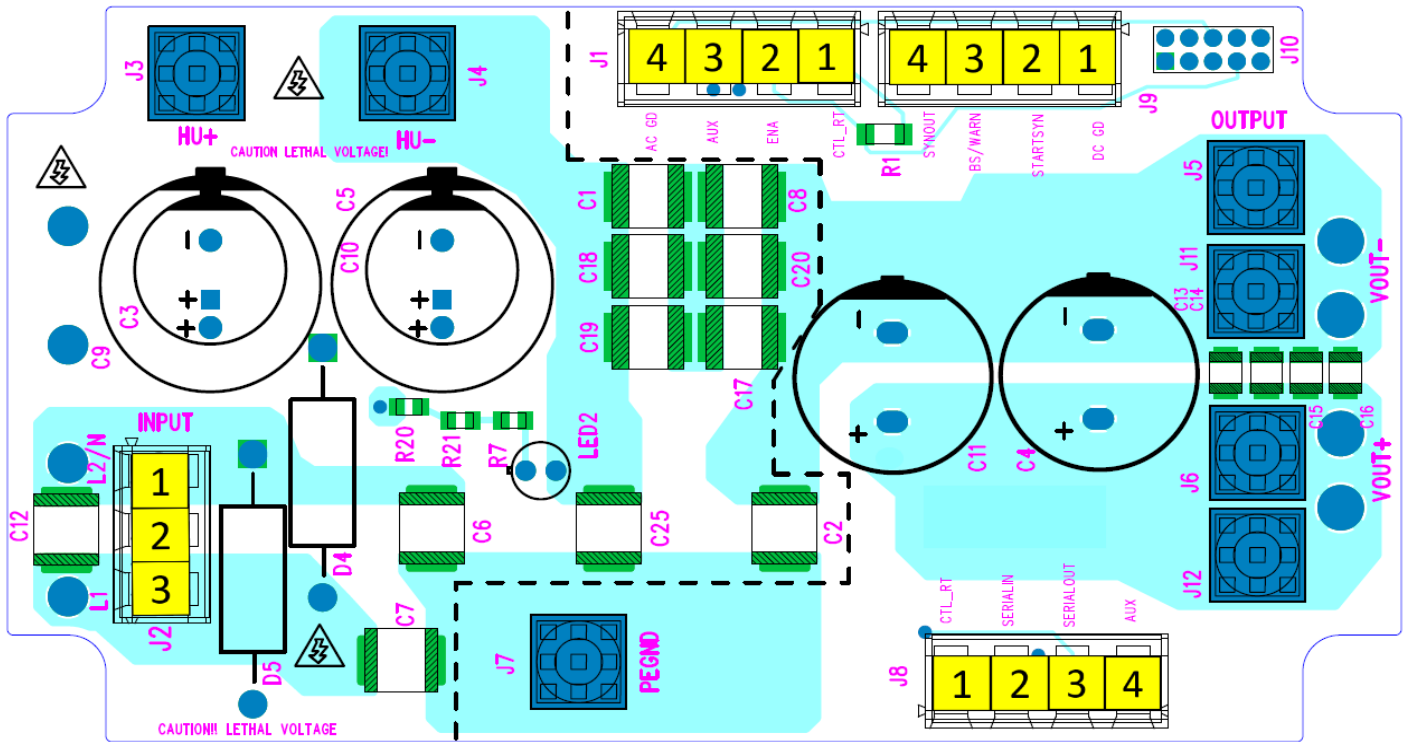
J5, J6, J7, J11, J12 – Output Power Lugs: these lugs are used for the output load connection, and are ideal for carrying high amounts of current. J6 and J12 are the positive bus terminals, J5 and J11 are the negative bus terminals and J7 is the Protective Earth Ground.

The difference between the FBI-04 and FBI-05 Adaptor Boards are described below.

* FBI-05 has a zero ohm, 1206, resistor populated at location R1 to provide continuous enable when the input voltage is within the converter's specified operational input range. The other populated components are identified above in component description.

* FBI-04 has no electrical components populated, except for the Neon bulb and three series resistors across HU+ and HU-. Customer can select the remaining components for desired external interface.

Full Brick Single-Phase, Isolated PFC Assembly FBI-04 and FBI-05



Power Lug Description

Power Lug	Description	Power Lug	Description	Power Lug	Description
J3	HU+	J5, J11	VOUT-	J7	PEGND
J4	HU-	J6, J12	VOUT+		

Input / Output Terminal Description

Terminal	Description
J1-1	CTL RETURN
J1-2	PFC ENA
J1-3	3.3V AUX
J1-4	AC GOOD

Terminal	Description
J2-1	L2/N
J2-2	Not Connected
J2-3	L1

Terminal	Description
J8-1	CTL RETURN
J8-2	SERIAL IN
J8-3	SERIAL OUT
J8-4	3.3V AUX

Terminal	Description
J9-1	DC GOOD
J9-2	START SYNC
J9-3	BATTLE SHORT
J9-4	SYNC OUT

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Demi Brick DC-DC Converter Assembly

DBI-00; DBI-03

C1, C2 – Common-Mode (Y) Capacitors: these capacitors are used for filtering common mode noise; C1 is coupled across the negative bus, while C2 is coupled on the positive, both can accommodate an SMT 2220 package size.

C20/C22 – Input Electrolytic: this PCB through-hole insert can accommodate 10mm radial.

C21 – Input Electrolytic: this PCB through-hole insert can accommodate 9.5mm x 20mm axial.

C10 – Input Ceramic Capacitor: accommodates an SMT 1812 package

C30/32 – Output Electrolytic: this PCB through-hole insert can accommodate 10mm radial.

C31 – Output Electrolytic: this PCB through-hole insert can accommodate 9.5mm x 20mm axial,

C11 – Output Ceramic Capacitor: accommodates an SMT 1812 package.

Please refer to the appropriate SynQor datasheet's *Output Characteristics* section for recommended output capacitor value and ensure the capacitor is rated to handle the ripple current.

J1 - Primary referenced Input/Output Signal Terminal Block.

J2 - Secondary referenced Input/Output Signal Terminal Block.

Single Output DBI-00

R11 – Trim-Up Resistor: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. An SMT 1206 package size pad is available for use of this application. Leave this unpopulated for the converter's nameplate output voltage.

R10 – Trim-Down Resistor: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. An SMT 1206 package size pad is available for use of this application. Leave this unpopulated for the converter's nameplate output voltage

R1/R4 – Sense Resistors: these resistors are located between the sense pins and the output signal connector J2. These resistors should be populated with 0Ω to connect the sense circuits to the output connect for single output modules only. Please refer to the converter's corresponding datasheet for reference. This feature accommodates an SMT 1206 package size.

J3, J4 – Input Power Lugs: these lugs are used for the input source connection, and are ideal for carrying high amounts of current. J4 is the positive bus terminal, while J3 is the output return.

J5, J6 – Output Power Lugs: these lugs are used for the output load connection, and are ideal for carrying high amounts of current. J6 is the positive bus terminal, while J5 is the output return.

Dual Output Only DBI-03

C40/42 – Output Electrolytic: this PCB through-hole insert can accommodate 10mm radial.

C41 – Output Electrolytic: this PCB through-hole insert can accommodate 9.5mm x 20mm axial.

C3 – Output Ceramic Capacitor: accommodates an SMT 1812 package.

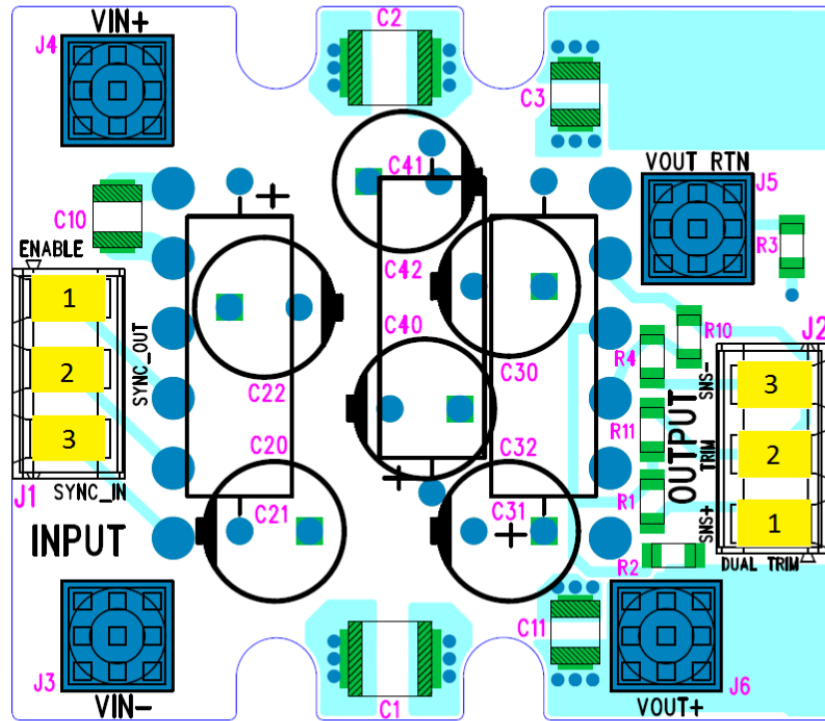
Please refer to the appropriate SynQor datasheet's *Output Characteristics* section for recommended output capacitor value and ensure the capacitor is rated to handle the ripple current.

R3 – Trim-Up Resistor: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. An SMT 1206 package size pad is available for use of this application. Leave this unpopulated for the converter's nameplate output voltage.

R2 – Trim-Down Resistor: please refer to the trim equations in the *Applications Section: Control Features* section of the converter's respective datasheet. An SMT 1206 package size pad is available for use of this application. Leave this unpopulated for the converter's nameplate output voltage

J7 – Output Power Lug: this lug is used for the negative output voltage load connection, and is ideal for carrying high amounts of current. This is available on the dual output version of the interface adaptor DBI-03.

Demi Brick Single Output Assembly DBI-00



Power Lug Description

Power Lug	Description
J3	VIN-
J4	VIN+

Power Lug	Description
J5	VOUT RETURN
J6	VOUT+

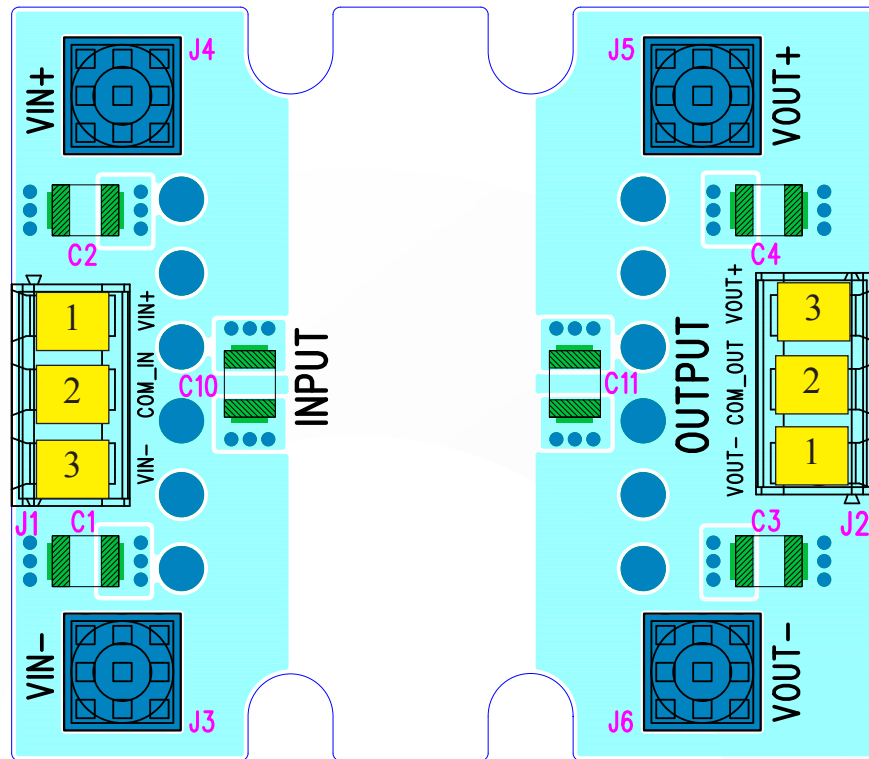
Input / Output Terminal Description

Terminal J1	Description
1	ENABLE
2	SYNC_OUT
3	SYNC_IN

Terminal J2	Description
1	SENSE(+)
2	TRIM
3	SENSE(-)

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Demi Filter Module Assembly DBI-02



All capacitors are SMT, 1812

Power Lug Description

Power Lug	Description
J3	VIN-
J4	VIN+

Power Lug	Description
J5	VOUT+
J6	VOUT-

Input / Output Terminal Description

Terminal J1	Description
1	VIN+
2	COM IN
3	VIN-

Terminal J2	Description
1	VOUT-
2	COM OUT
3	VOUT+

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

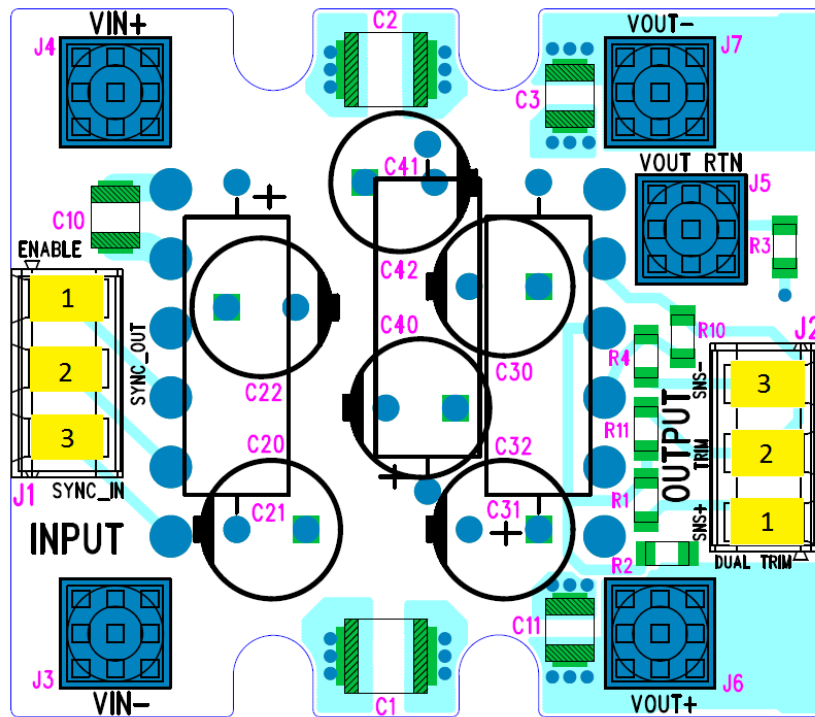
Capacitor Description SMT 1812

Pad #	Description
C1	VIN- to COM IN
C2	VIN+ to COM IN
C10	VIN+ TO VIN-

Pad #	Description
C3	VOUT- to COM OUT
C4	VOUT+ to COM OUT
C11	VOUT+ TO VOUT-

Note: These capacitors are not populated on the standard filter interface adaptor boards

Demi Brick Dual Output Assembly DBI-03



Power Lug Description

Power Lug	Description
J3	VIN-
J4	VIN+

Power Lug	Description
J5	VOUT RETURN
J6	VOUT+

Power Lug	Description
J7	VOUT -

Input / Output Terminal Description

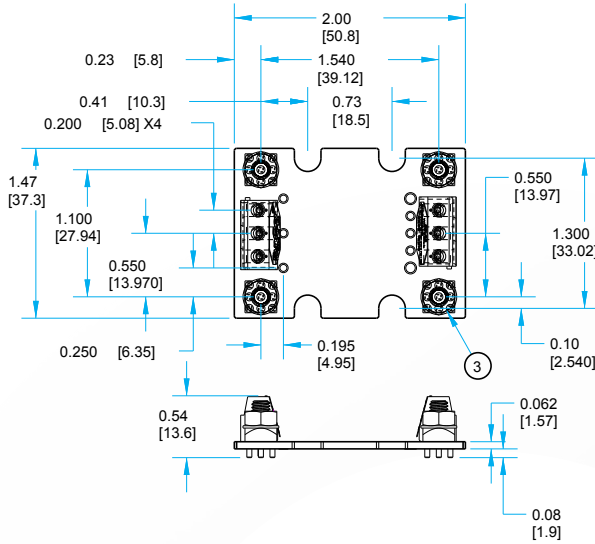
Terminal J1	Description
1	ENABLE
2	SYNC_OUT
3	SYNC_IN

Terminal J2	Description
1	SENSE(+)
2	TRIM
3	SENSE(-)

Note: Please refer to the appropriate SynQor datasheet for descriptions of these features

Appendix A - Mechanical Drawings

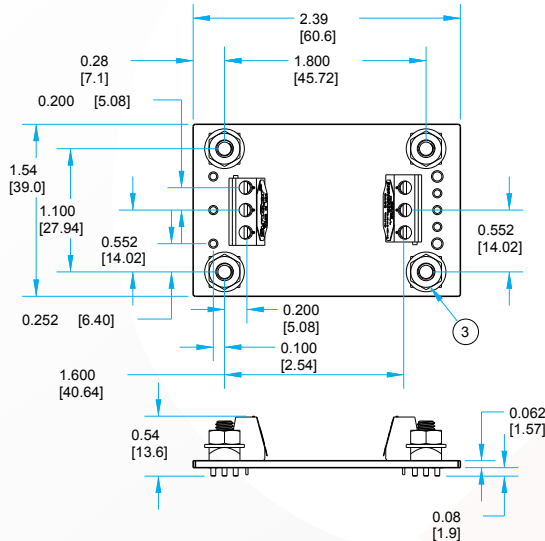
Sixteenth Brick Converter Interface Board (SBI-00, SBI-04)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
 X.XXX±.010 IN. (X.XX ±.25mm)
3. Vin/Vout M4 SCREW POST. MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS BOTH NORMAL AND FLANGED SIXTEENTH BRICKS 6. ADAPTOR WEIGHT: 0.95 oz (27 G) TYP.

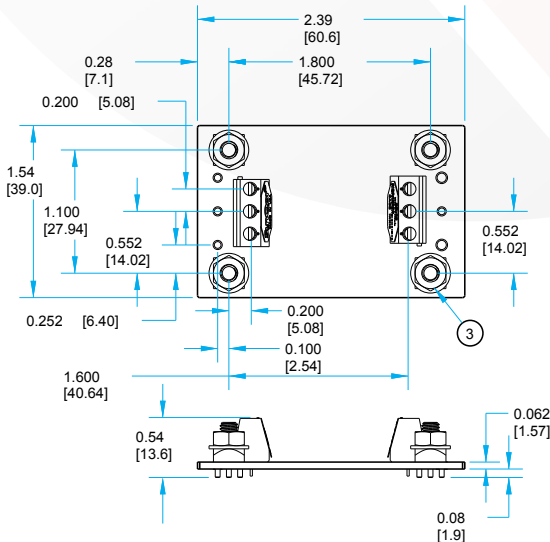
Quarter Brick and Eighth Brick Converter Interface Board (QBI-00, QBI-04 and QBI-05)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
 X.XXX±.010 IN. (X.XX ±.25mm)
3. TERMINALS 1. 3. 4. 8: M4 SCREW POST.
MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS NORMAL. NON-THREADED AND FLANGED HALF BRICKS
6. ADAPTOR WEIGHT: 1.02 oz (29 g)

Quarter Brick DC Filter Interface Board (QBI-02)

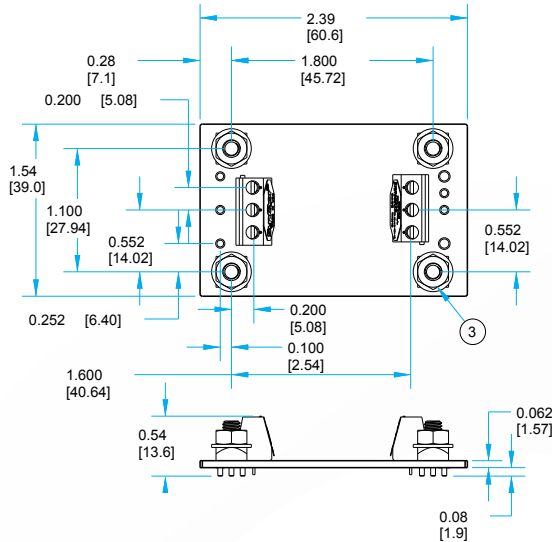


NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
 X.XXX±.010 IN. (X.XX ±.25mm)
3. TERMINALS 1. 3. 4. 8: M4 SCREW POST.
MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS NORMAL. NON-THREADED AND FLANGED HALF BRICKS
6. ADAPTOR WEIGHT: 1.02 oz (29 g)

Appendix A - Mechanical Drawings

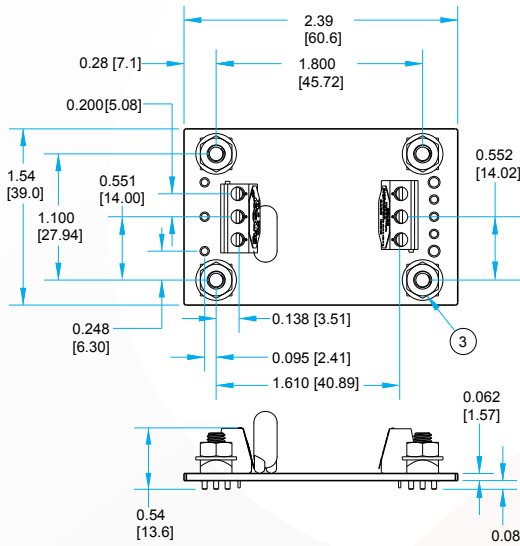
Quarter Brick PFC Interface Board (QBI-03)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
 X.XXX±.010 IN. (X.XX ±.25mm)
3. TERMINALS 1. 3. 4. 8: M4 SCREW POST.
MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS NORMAL. NON-THREADED AND FLANGED HALF BRICKS
6. ADAPTOR WEIGHT: 1.02 oz (29 g)

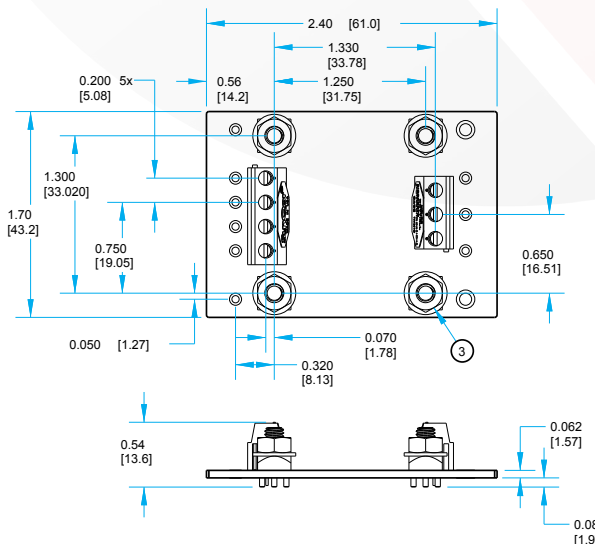
Quarter Brick/Eighth Brick AC Filter Interface Through Hole Mounting Board (QBI-06)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
 X.XXX±.010 IN. (X.XX ±.25mm)
3. TERMINALS 1. 3. 4. 8: M4 SCREW POST.
MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS BOTH NORMAL AND FLANGED QUARTER BRICKS
6. ADAPTOR WEIGHT: 1.02 oz (29 g)

Half Brick Converter Interface Board (HBI-00, HBI-06 and HBI-07)

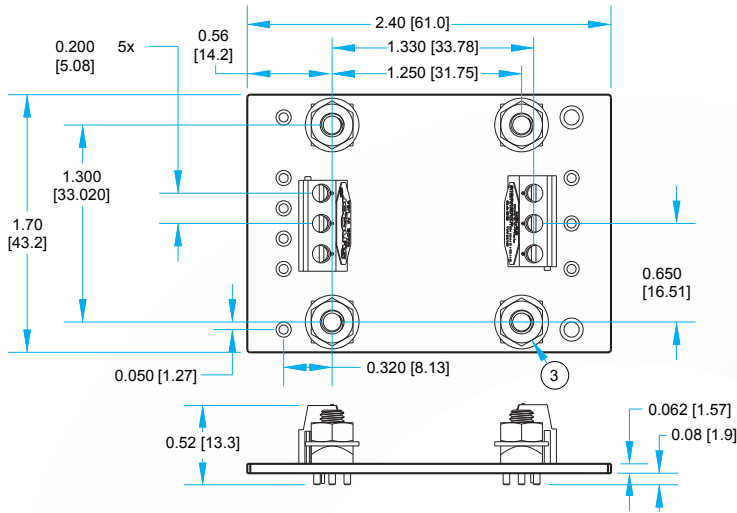


NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
 X.XXX±.010 IN. (X.XX ±.25mm)
3. TERMINALS 1. 3. 4. 8: M4 SCREW POST.
MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS NORMAL. NON-THREADED AND FLANGED HALF BRICKS
6. ADAPTOR WEIGHT: 1.06 oz (30 g)

Appendix A - Mechanical Drawings

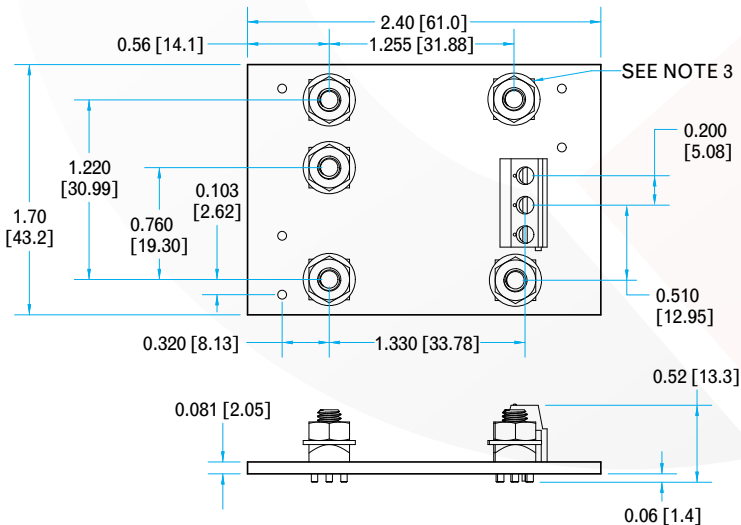
Half Brick DC Filters Interface Board (HBI-02, HBI-03)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
X.XXX±.010 IN. (X.XX ±.25mm)
3. TERMINALS 1. 3. 4. 8: M4 SCREW POST.
MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS NORMAL. NON-THREADED AND FLANGED HALF BRICKS
6. ADAPTOR WEIGHT: 1.06 oz (30 g)

Half Brick AC Filter Interface Board (HBI-04)

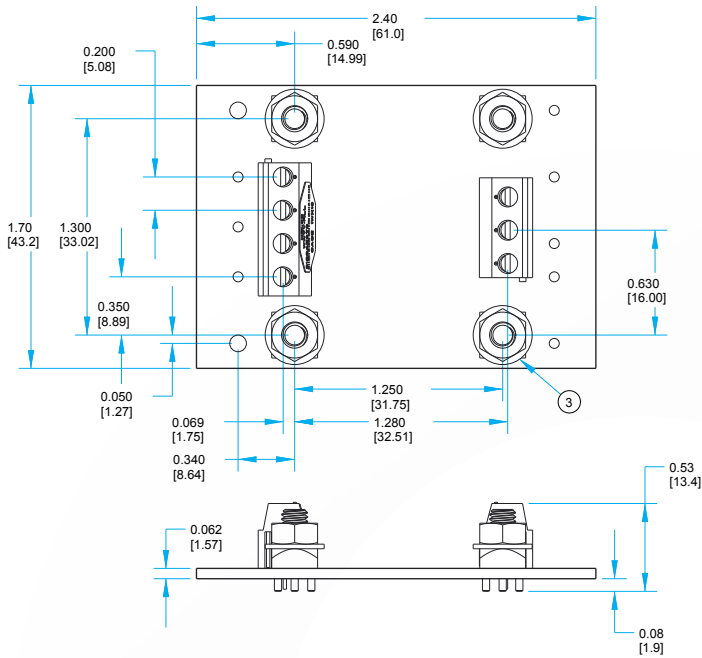


NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
X.XXX±.010 IN. (X.XX ±.25mm)
3. TERMINALS TBA: M4 SCREW POST,
MAX TORQUE 6 IN-LB (.7Nm).
4. TERMINAL BLOCK: WIRE SIZE 16-30 AWG, 13.5A MAX CURRENT PER TERMINAL, MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS NORMAL, NON-THREADED AND FLANGED HALF BRICKS
6. ADAPTER WEIGHT: TBA

Appendix A - Mechanical Drawings

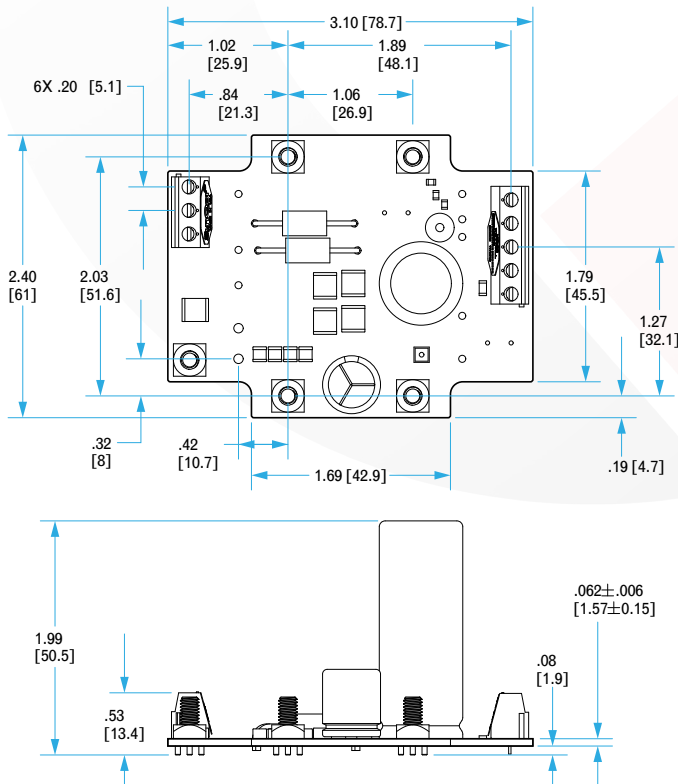
Half Brick Non-Isolated PFC Interface Board (HBI-05)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
X.XXX±.010 IN. (X.XX ±.25mm)
3. INPUT/OUTPUT POWER TERMINALS: M4 SCREW POST.
MAX TORQUE 6 IN-LB (.7Nm).
4. TERMINAL BLOCK: WIRE SIZE 16-30 AWG. 3.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS NORMAL. NON-THREADED AND FLANGED HALF BRICKS
6. ADAPTER WEIGHT: TBA

Half Brick Isolated PFC Interface Board (HBI-08, HBI-09)



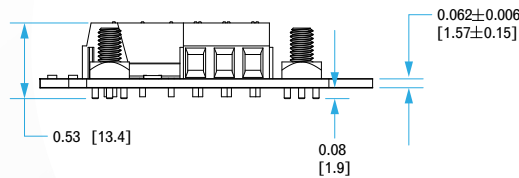
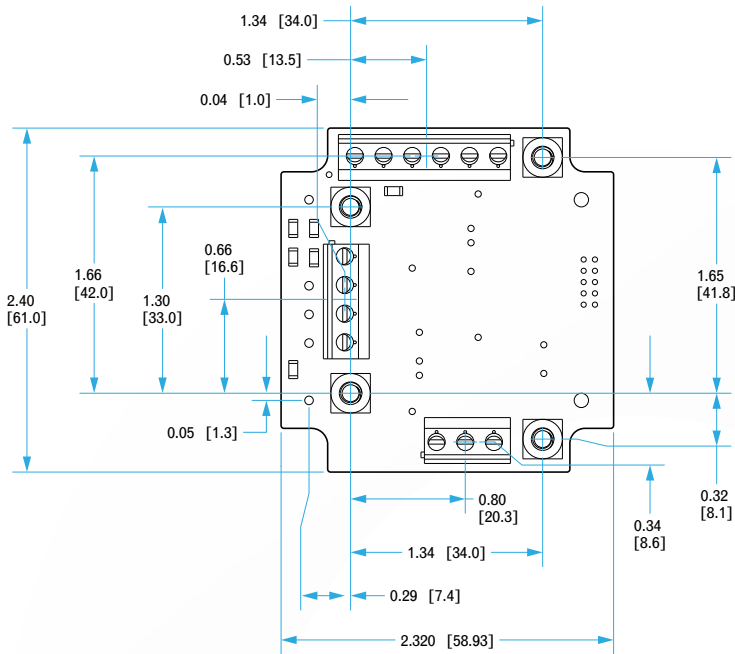
NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS / WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX ±.02 IN. (X.X ±.5mm)
X.XXX .010 IN. (X.XX ±.25mm)
3. TERMINALS 3, 4, 5, 6, 7: M4 SCREW POST,
MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG, 13.5A MAX CURRENT PER TERMINAL, MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS NORMAL, NON-THREADED AND FLANGED HALF BRICKS
6. ADAPTER WEIGHT: 1.06 oz (30 g)
7. ROHS COMPLIANT

Note: HBI-09 has only the neon bulb (LED2) and three series resistors (R7, R20 and R21) populated.

Appendix A - Mechanical Drawings

Half Brick (HE Series) DC-DC Converter Interface Board (HBI-10, HBI-11)



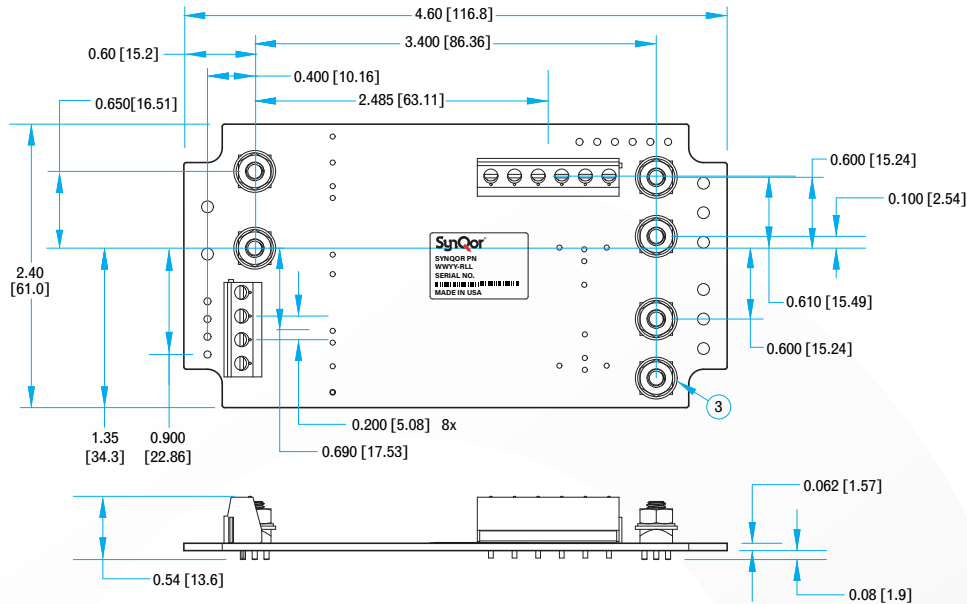
NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS / WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (mm)
TOLERANCES: X.XX± 0.02 IN. (X.X ± 0.5mm)
X.XXX± 0.010 IN. (X.XX ± 0.25mm)
3. TERMINALS 3, 4, 5, 7: M4 SCREW POST, MAX TORQUE 6 IN-LB (0.7 Nm). MAX TORQUE 6 IN-LB (.7Nm).
4. TERMINAL BLOCK: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (0.5 Nm)
5. FITS NORMAL. NON-THREADED AND FLANGED MCOTS-C-270-XX-HE HALF BRICKS
6. ADAPTER WEIGHT: 1.06 oz (30 g)
7. ROHS COMPLIANT

Note: HBI-11 has an additional resistor, (R19) populated.

Appendix A - Mechanical Drawings

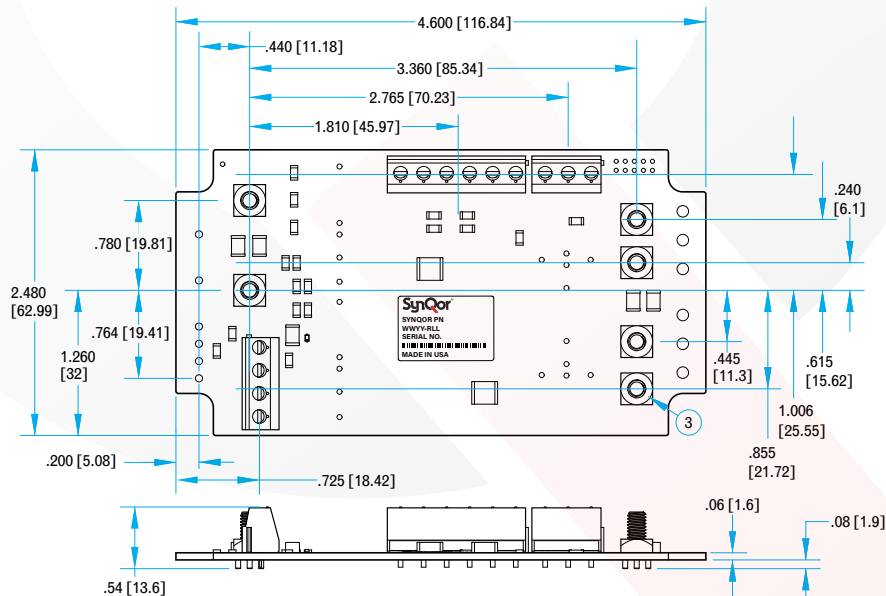
Full Brick DC-DC Converter Interface Board (FBI-00)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM) TOLERANCES: X.XX±.02 IN. (X.X ±.5mm) X.XXX±.010 IN. (X.XX ±.25mm)
3. INPUT/OUTPUT POWER TERMINALS: M4 SCREW POST. MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS NORMAL. NON-THREADED AND FLANGED FULL BRICKS
6. ADAPTOR WEIGHT: 1.7 oz (47 g) TYP.

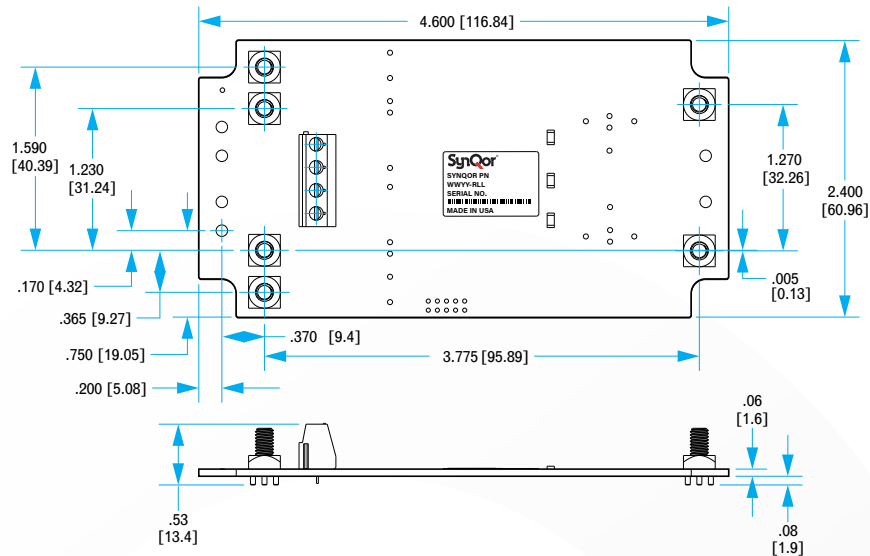
Full Brick (FE Series) DC-DC Converter Interface Board (FBI-02)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM) TOLERANCES: X.XX±.02 IN. (X.X ±.5mm) X.XXX±.010 IN. (X.XX ±.25mm)
3. TERMINALS 1, 3, 4, 8: M4 SCREW POST, MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS NORMAL. NON-THREADED AND FLANGED FULL BRICKS
6. ADAPTOR WEIGHT: 1.02 oz (29 g)
7. ROHS COMPLIANT

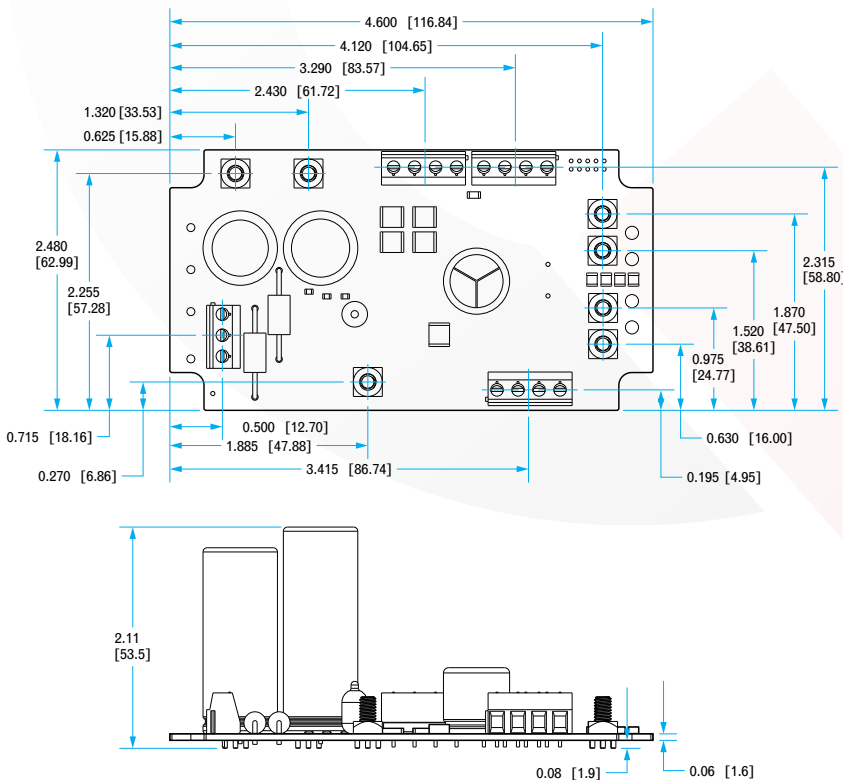
Full Brick MCOTS-28-270-FZ Interface Board (FBI-03)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM) TOLERANCES: X.XX±.02 IN. (X.X ±.5mm) X.XXX±.010 IN. (X.XX ±.25mm)
3. INPUT/OUTPUT POWER TERMINALS: M4 SCREW POST, MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS, THREADED, NON-THREADED AND FLANGED FULL BRICKS
6. ADAPTOR WEIGHT: 1.7 oz (47 g) TYP.
7. ROHS COMPLIANT
8. DRAWING AND ASSOCIATED 3D CAD MODELS REPRESENT STANDARD COMPONENT POPULATION.

Full Brick Isolated PFC Interface Board (FBI-04, FBI-05)



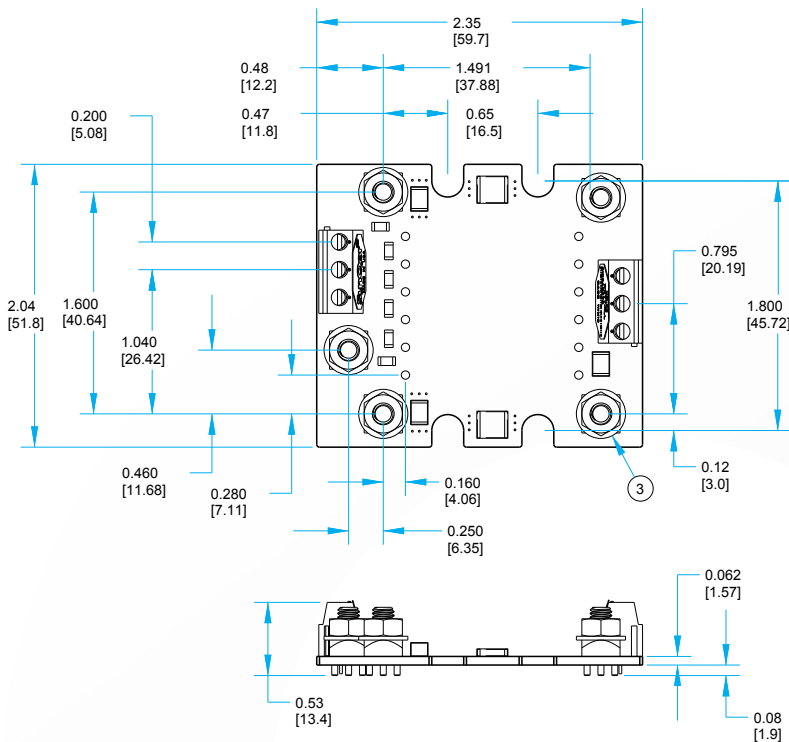
NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM) TOLERANCES: X.XX±.02 IN. (X.X ±.5mm) X.XXX±.010 IN. (X.XX ±.25mm)
3. INPUT/OUTPUT POWER TERMINALS: M4 SCREW POST, MAX TORQUE 6 IN-LB (.7 Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS, THREADED, NON-THREADED AND FLANGED FULL BRICKS
6. ADAPTOR WEIGHT: 1.7 oz (47 g) TYP.
7. ROHS COMPLIANT
8. DRAWING AND ASSOCIATED 3D CAD MODELS REPRESENT STANDARD COMPONENT POPULATION.

Note: FBI-04 has only the neon bulb (LED2) and three series resistors (R7, R20 and R21) populated.

Appendix A - Mechanical Drawings

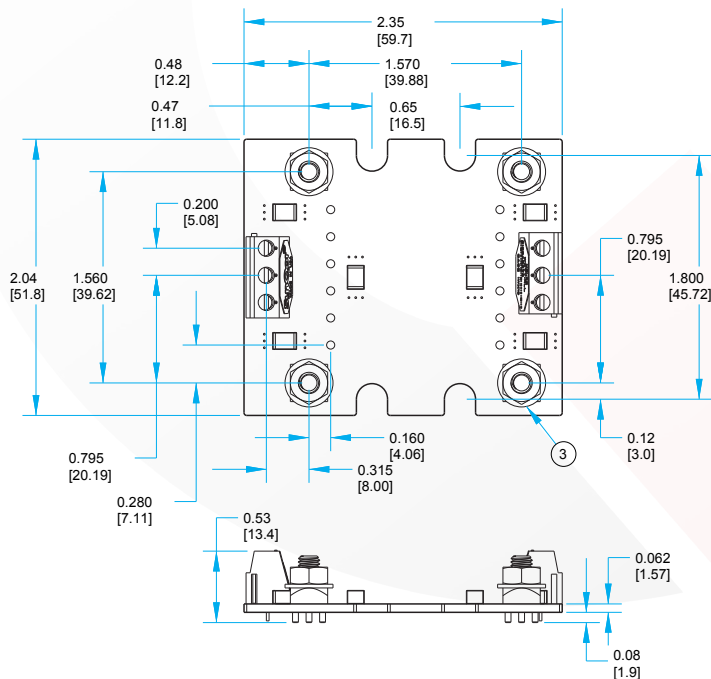
Demi Brick Converter Interface Board (DBI-00, DBI-03)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
X.XXX±.010 IN. (X.XX ±.25mm)
3. Vin/Vout M4 SCREW POST. MAX TORQUE 6 IN-LB (.7Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS BOTH NORMAL AND FLANGED DEMI BRICKS
6. ADAPTOR WEIGHT: 0.95 oz (27 G) TYP.

Demi Brick DC Filter Interface Board (DBI-02)



NOTES:

1. CONSULT DATASHEET OF THE UNIT THAT THE INTERFACE BOARD IS/WILL BE MOUNTED TO FOR I/O DEFINITIONS, MOUNTING DIMENSIONS AND OPERATING PARAMETERS.
2. ALL DIMENSIONS IN INCHES (MM)
TOLERANCES: X.XX±.02 IN. (X.X ±.5mm)
X.XXX±.010 IN. (X.XX ±.25mm)
3. Vin/Vout M4 SCREW POST. MAX TORQUE 6 IN-LB (.7Nm).
4. TERMINAL BLOCKS: WIRE SIZE 16-30 AWG. 13.5A MAX CURRENT PER TERMINAL. MAX TORQUE 4 IN-LB (.5 Nm)
5. FITS BOTH NORMAL AND FLANGED DEMI BRICKS
6. ADAPTOR WEIGHT: 0.95 oz (27 G) TYP.

Appendix B - Ordering Information

SynQor Part Number	Description
FBI-00	Full Brick Interface Adaptor for use with DC-DC Converters
FBI-02	Full Brick Interface Adaptor for use with MCOTS-C-270-xx-FE DC-DC Converters
FBI-03	Full Brick Interface Adaptor for use with MCOTS-C-28-270-FZ DC-DC Converters
FBI-04	Full Brick Interface Adaptor for use with Isolated PFC Module no electrical components populated except for the Neon Bulb circuit across MIDBUS terminals
FBI-05	Full Brick Interface Adaptor for use with Isolated PFC Module
HBI-00	Half Brick Interface Adaptor for use with DC-DC Converters
HBI-02	Half Brick Interface Adaptor for use with DC Passive Filter Modules
HBI-03	Half Brick Interface Adaptor for use with DC Transient Filter Modules
HBI-04	Half Brick Interface Adaptor for use with AC Filter Module
HBI-05	Half Brick Interface Adaptor for use with Non-Isolated PFC Module
HBI-06	Half Brick Interface Adaptor for use with DC-DC Converters Compatible with Transient Filter ON/OFF Circuitry
HBI-07	Half Brick Interface Adaptor for use with DC-DC Converters Compatible with no electrical components populated
HBI-08	Half Brick Interface Adaptor for use with Isolated PFC Module
HBI-09	Half Brick Interface Adaptor for use with Isolated PFC Module no electrical components populated except for the Neon Bulb circuit across MIDBUS terminals
HBI-10	Half Brick Interface Adaptor for use with MCOTS-C-270-xx-HE DC-DC Converters (User configurable ON/OFF control)
HBI-11	Half Brick Interface Adaptor for use with MCOTS-C-270-xx-HE DC-DC Converters (Configured as always ON)
QBI-00	Quarter Brick/Eighth Brick Interface Adaptor for use with DC-DC Converters
QBI-02	Quarter Brick Interface Adaptor for use with DC Filter Modules
QBI-03	Quarter Brick Interface Adaptor for use with Non-Isolated PFC Module
QBI-04	Quarter Brick/Eighth Brick Interface Adaptor for use with DC-DC Converters Compatible with Transient Filter ON/OFF Circuitry
QBI-05	Quarter Brick/Eighth Brick Interface Adaptor for use with DC-DC Converters with no electrical components populated
QBI-06	Quarter/Eighth Brick Interface Adaptor for use with AC Filter Modules
SBI-00	Sixteenth Brick Interface Adaptor for use with DC-DC Converters
SBI-04	Sixteenth Brick Interface Adaptor for use with DC-DC Converters Compatible with Transient Filter ON/OFF Circuitry
DBI-00	Demi Brick Interface Adaptor for use with single output DC-DC Converters
DBI-02	Demi Brick Interface Adaptor for use with DC Passive Filter Modules
DBI-03	Demi Brick Interface Adaptor for use with dual output DC-DC Converters

Consult factory for pre-assembled converters/adaptors or populated adaptor ordering information