MWOCP67-CONC

ACAN-156 Connector Interface Card Application Note

OVERVIEW

MWOCP67-CONC (Murata P/N 8407046) is a connector interface card that provides a convenient way to connect, configure and evaluate a single **MWOCP67-5500-B-RM** series 5500W front end power supply module. In addition providing robust load connection studs, for both outputs, signals are broken out into simple headers. Signal pullups and on-board 3V3 supply add further convenience. The provision for a PMBus™ header compatible with Murata's MW-PMBob I^2C USB adapter (available separately) make this interface connector card very flexible, covering many applications.

This Connector Interface Card can also be used for continuous operation as an interposer or backplane within a host/system and up to four (4) slots can connected, supporting redundant, fault tolerant applications.

This application note includes the basic operation and layout detail and should be viewed together with the product datasheet and other related referenced documents for a complete package of detail.

COMPATIBLE POWER SUPPLY MODULES

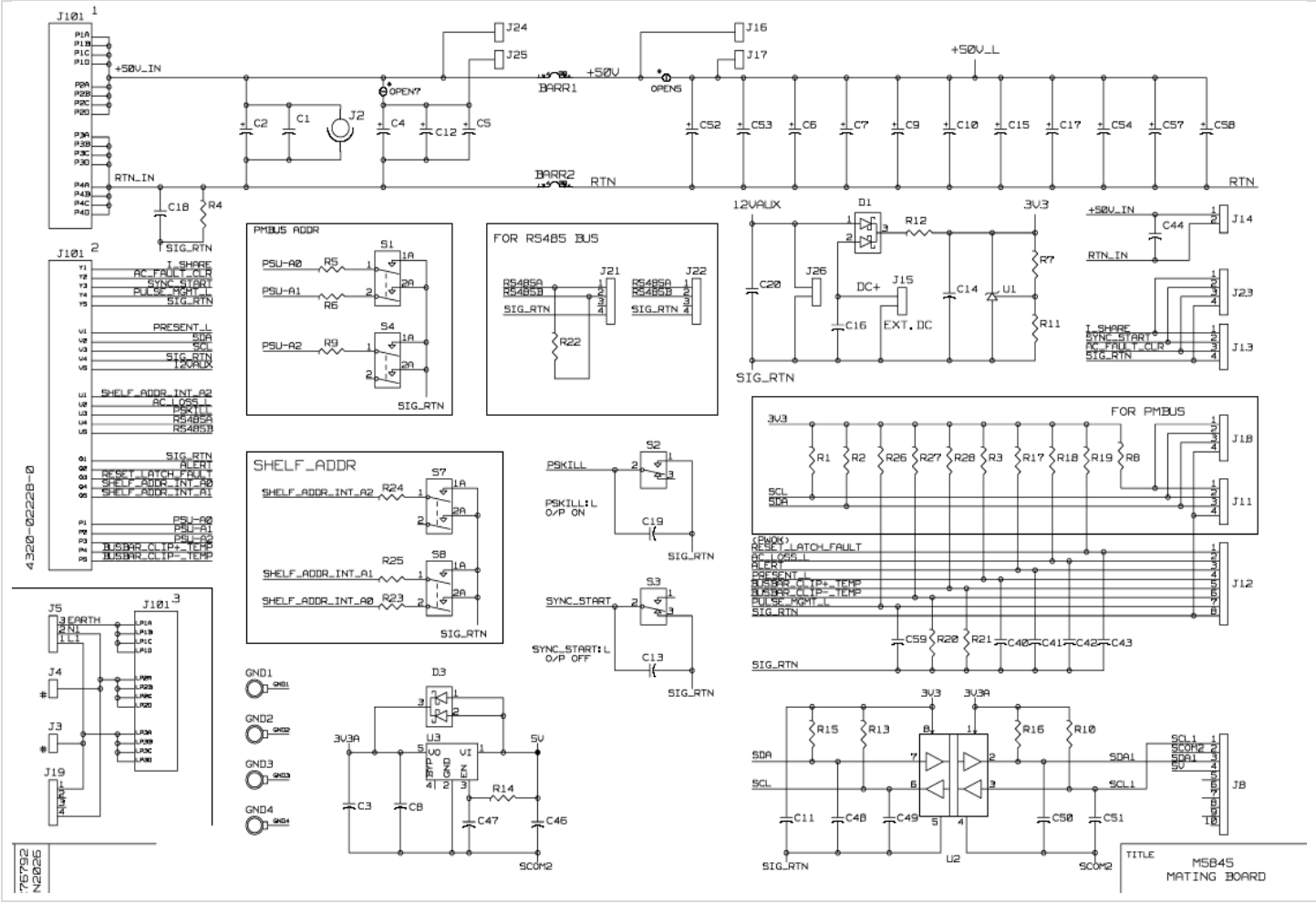
Model Number	Output power @ highline (180-305Vac & HVDC 192-400Vdc)	Main Output (Nominal)	Standby Output (Nominal)	Airflow Direction
MWOCP67-5500-B-RM	5500W	50.0Vdc	N/A	Front → Back

INTRODUCTORY SAFETY PRECAUTION

This Connector Interface Card is a component intended to be installed within a safety enclosure in accordance with all country and local safety requirements by an authorized, qualified person before operating this equipment. It is incumbent upon the end-user to provide all necessary safeguards to protect against exposure to the hazardous AC mains voltage (180-305Vac or 192-400Vdc) that is present when connected and powered by an input source.
Refer to the safety section of this application note as well as the power module datasheet for additional details.

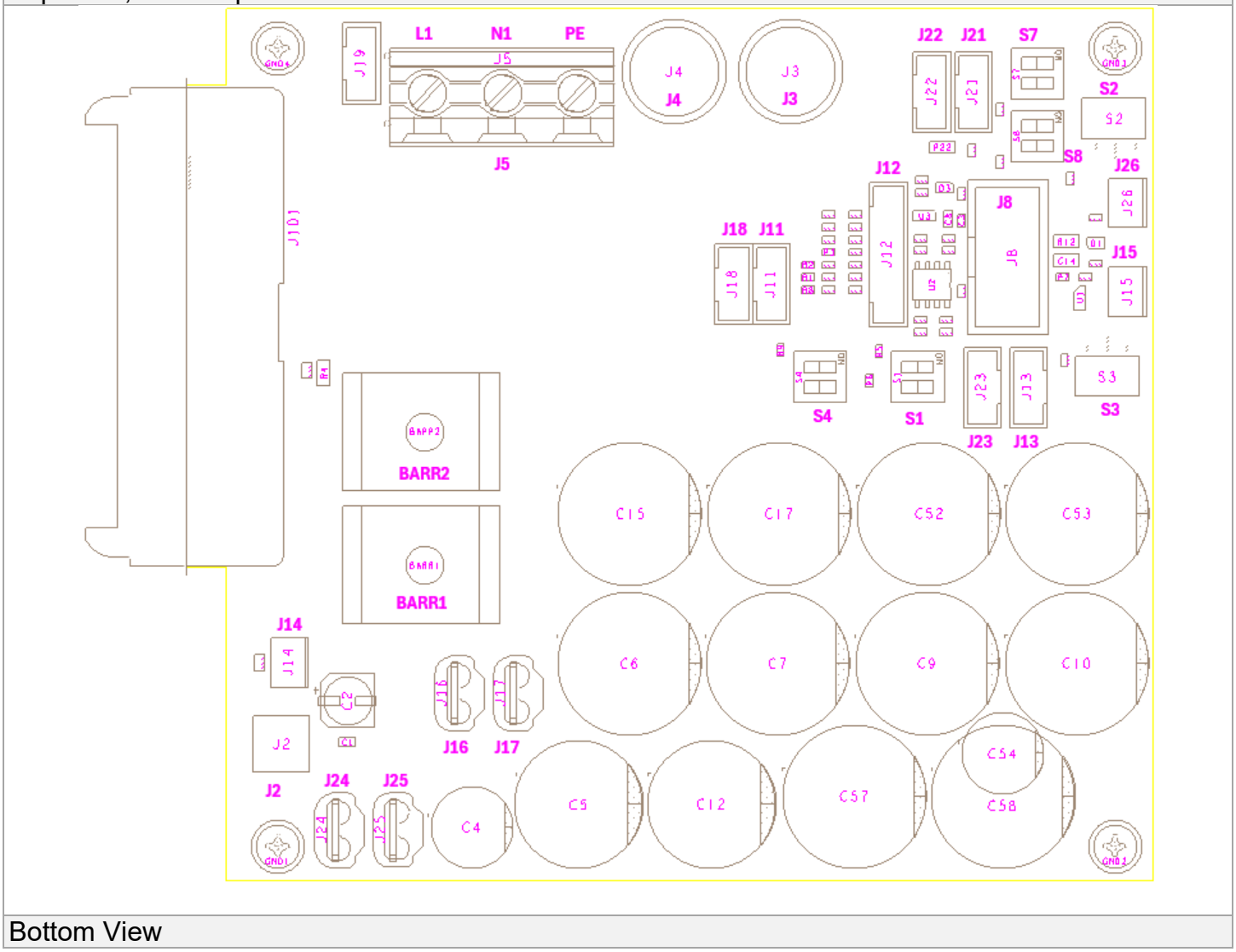
PRODUCT IMAGE

SCHEMATIC

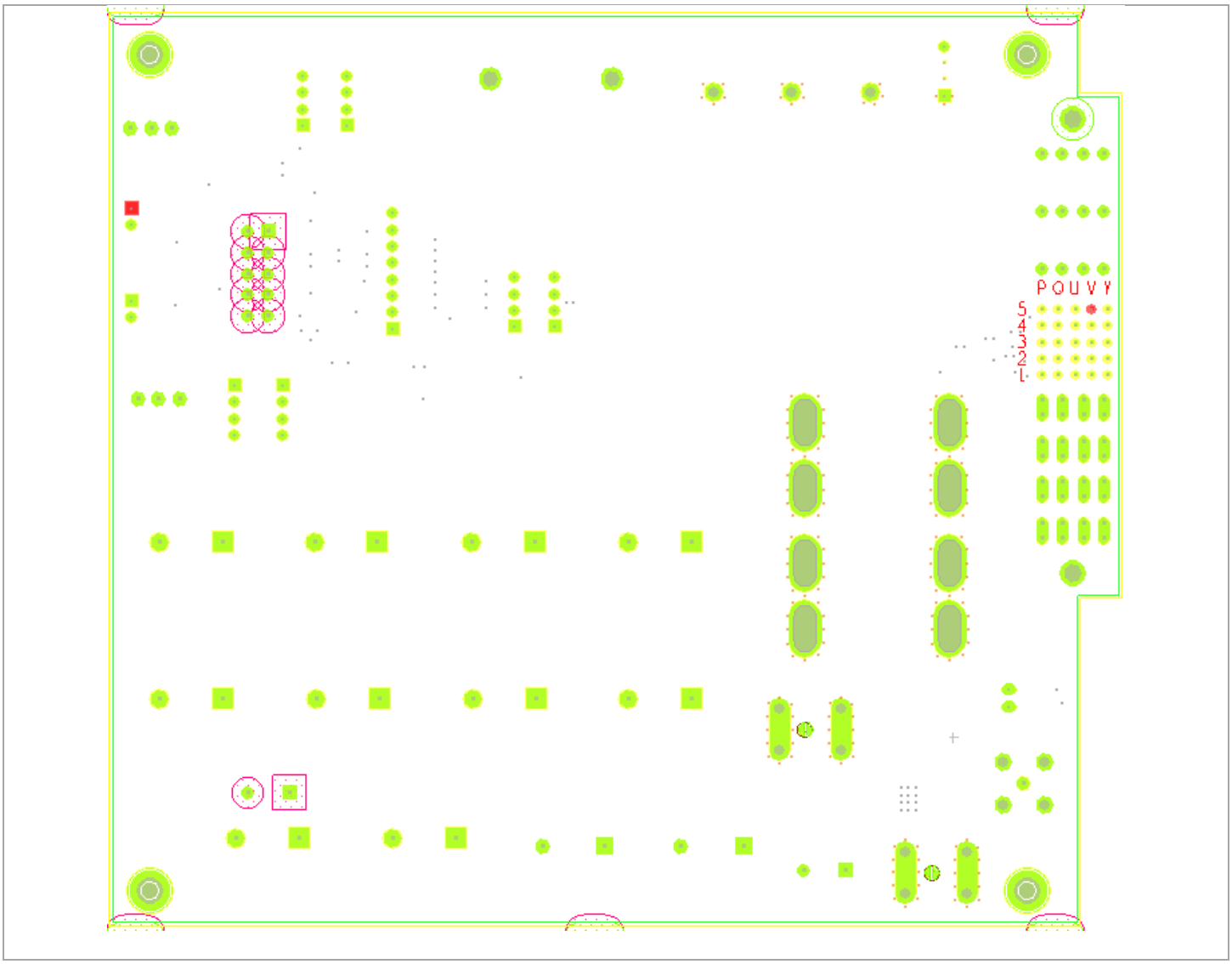


FEATURE LOCATION LAYOUT

Top-View; shown “panelized”



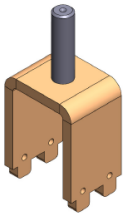
Bottom View

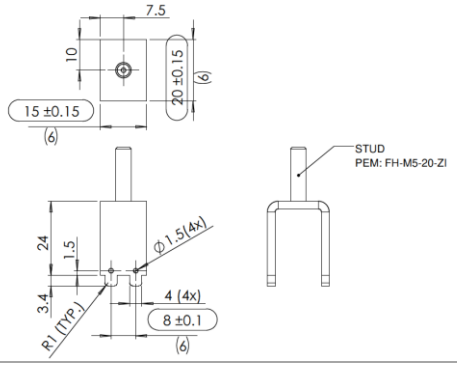


POWER CONNECTIONS:

Main 50.0Vdc Output Load Connections

M5x20 studs are provided for load connection
BARR 1: 50.0Vdc MAIN_OUTPUT load connection
BARR 2: 50.0Vdc MAIN_RETURN load connection





Mains AC input Connections

J5: Mains Vac / DC connector — PHOENIX CONTACT: 1714984
- Pin1: Line / (DC Pos)
- Pin2: Neutral / (DC Neg)
- Pin3: EARTH

J4: Mains Vac Neutral (DC Neg) socket (Tentatively provided)
J3: Mains Vac Line (DC Pos) socket (Tentatively provided)

J5 is intended to connect the incoming AC source that ranges from 180VAC to 305VAC (phase to line voltage) or 192 to 400VDC. As such these voltage levels are considered hazardous and safety precautions must be observed. Each cable should be rated to withstand at least 600VAC and at least 10AWG (5.26mm^2). Consult appropriate region of deployment local electrical codes and safety regulations.
J3, J4 are for monitoring measurement purpose. Do not connect incoming AC through these 2 location.

SAFETY WARNING

IT IS THE RESPONSIBILITY OF THE END USER OF THE MWOCP67-CONC (AND THE ASSOCIATED MWOCP67-5500-B-RM POWER SUPPLY MODULES) TO OBSERVE LOCAL AND NATIONAL SAFETY PRACTICES WHEN DEPLOYING THESE PRODUCTS

The MWOCP67-CONC when interfaced with incoming mains AC or HVDC and the MWOCP67-5500-B-RM power supply module contains hazardous single phase voltage between 180VAC – 305VAC 50/60Hz | 192Vdc to 400 HVDC.

These voltage levels are considered as hazardous and life threatening. Therefore extreme care should be exercised to prevent direct (or accidental) contact with energized “live” connections.
In addition to voltage hazards there is a potentially associated “arc hazards” due to the potential presence of high energy 50.0VDC output voltage bus even after the input source has been de-energized or the power supply module is disengaged from the MWOCP67-CONC or when attempting to “disengage” an energized MWOCP67-5500-B-RM from the MWOCP67-CONC.
In North America (US & Canada) & Europe the following codes apply:

Arc Flash Warning

USA; NFPA 70E (National Fire Prevention Association; Standard for Electrical Safety in the Workplace); details electrical safety requirements for employees.
Canada; CSA Z462 (Workplace Electrical Safety Standard); details electrical safety requirements for employees.
Europe; EU Directive 2006/95/EC Annex I Points 2 & 3
Appropriate Personal Protective Equipment (PPE) should be worn. (Link back to front page)

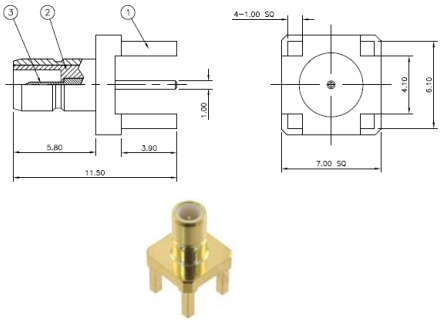
SIGNAL AND CONFIGURATION DETAILS

Output Capacitance configuration

J24, J25, J16, J17 (Main 50.0Vdc output) are 0.25” (6.35mm) standard quick connect male tabs that can be connected together (i.e. relay, switch, Jumper, etc.) to apply the maximum output capacitance across the corresponding output or left open to disconnect the output capacitance.

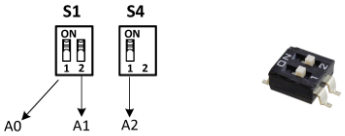
Ripple/Noise measurement point

J2 are 50 OHM PTH Coax jacks, TE Connectivity P/N 1-1337482-0 and provide a measurement point suitable for ripple/noise; main output (J2), This measurement node is filtered with a parallel connected conductive polymer,10uF and 0.1uF ceramic capacicitors (across tip to ground). For accurate measurement, a short 50ohm coaxial cable connnection should be provided between the relevant measurement connector and the input to the measuring 'scope (the 'scope bandwidth shall be limited to 20MHz)



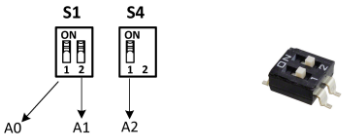
PMBus™ Address Set Switches

S1, S4 are provided to select the addressing of the slave devices operating on the PMBus™ . Refer to ACAN-157 for more details. Set in the "ON" position applies a logic "low" to the corresponding address line A0, A1, or A2



SHELF_Address Set Switches

S7, S8 are provided to select the addressing of the shelf. Set in the "ON" position applies a logic "low" to the corresponding address line SHELF_ADDR_INT_A0, SHELF_ADDR_INT_A1, or SHELF_ADDR_INT_A2



PSKILL Signal

S2 is a SPDT toggle switch that opperates the PSKILL function. Must be set to "ON" to enable the main output. Set to off disables the main output. PSKILL is used for internal power supply module power processing during hotswap to ensure glitch free operation

SWITCH FUNCTION		
POS. 1	POS. 2	POS. 3
ON	NONE	ON
2-3	OPEN	2-1

CIRCUIT: SPDT

SYNC_START Signal

S3 is a SPDT toggle switch that opperates the SYNC_START function.

SWITCH FUNCTION		
POS. 1	POS. 2	POS. 3
ON	NONE	ON
2-3	OPEN	2-1

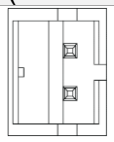
CIRCUIT: SPDT

Output Voltage Measurement Point

J14 (Main 50.0V output) is 2-posiiton, 2mm headers that provide a measurement point for the output voltage

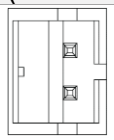
Pin #	Function J14	J14 (board header)	Mating Connector (Wired end)
1	+50.0V	Molex 89400 -0220	Mating Contacts: Molex 502128100
2	RTN		Housing: Molex 510650200

J26 (12VAUX output) is 2-posiiton, 2mm headers that provide a measurement point for the output voltage

Pin #	Function J26	J26 (board header)	Mating Connector (Wired end)
1	+12.0	 Molex 89400 -0220	Mating Contacts: Molex 502128100
2	RTN		Housing: Molex 510650200

External DC Input

J15 is 2-posiiton, 2mm headers that connect with an external 12V supply to provide the on board 3V3 pull up voltage

Pin #	Function J15	J15 (board header)	Mating Connector (Wired end)
1	+12.0V	 Molex 89400 -0220	Mating Contacts: Molex 502128100
2	RTN		Housing: Molex 510650200

I-SHARE and SYNC_START buses

J23 and J13 are parallel connected 4 position 2mm headers and provide access to the I-SHARE, SYNC_START, SYNC_STOP buses

Pin#	Function	J13 & J23 (Parallel, board headers)	Mating Connector (cable assembly[1])
1	I_SHARE	JST P/N B4B-PH-KS(LF)(SN)	Mating Contacts: JST SPH-002T-P0.5L
2	SYNC_START		
3	SYNC_STOP		Housing:
4	SIG_RTN		JST PHR- 4

PMBus™ buses

J18 and J11 are parallel connected 4 position 2mm headers and provide access to the I2C signals clock and data lines “SDA” and “SCL” as denoted in the schematic

Pin #	Function	J18 & J11 (Parallel, board header)	Mating Connector (cable assembly[1])
1	+3V3		Mating Contacts:

	2	SCL	JST P/N B4B-PH-KS(LF)(SN)	JST SPH-002T-P0.5L
	3	SDA		Housing: JST PHR- 4
	4	SIG_RTN		

RS485 buses

J21 and J22 are parallel connected 4 position 2mm headers and provide access to the RS485 signals “RS485_A” and “RS485_B” as denoted in the schematic

Pin #	Function	J21 & J22 (Parallel, board header)	Mating Connector (cable assembly[1])
1	RS485_A	JST P/N B4B-PH-KS(LF)(SN)	Mating Contacts: JST SPH-002T-P0.5L
2	RS485_B		
3	-------		Housing: JST PHR- 4
4	SIG_RTN		

Misc. Hardware Signals

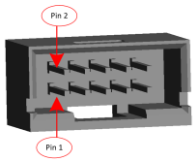
J12 is an 8-pos 2mm header that breaks out various signals (see table to the right)

Refer to datasheet for signal details

Pin #	Function	Board header	Mating Connector (cable assembly[1])
1	PWOK	Molex 89400-0820	Mating Contacts: Molex 502128100
2	AC_LOSS_L		
3	ALERT		Housing: Molex 510650800
4	PRESENT_L		
5	BUSBAR_CLIP+_TEMP		
6	BUSBAR_CLIP-_TEMP		
7	PULSE_MGMT_L		
8	SIG_RTN		

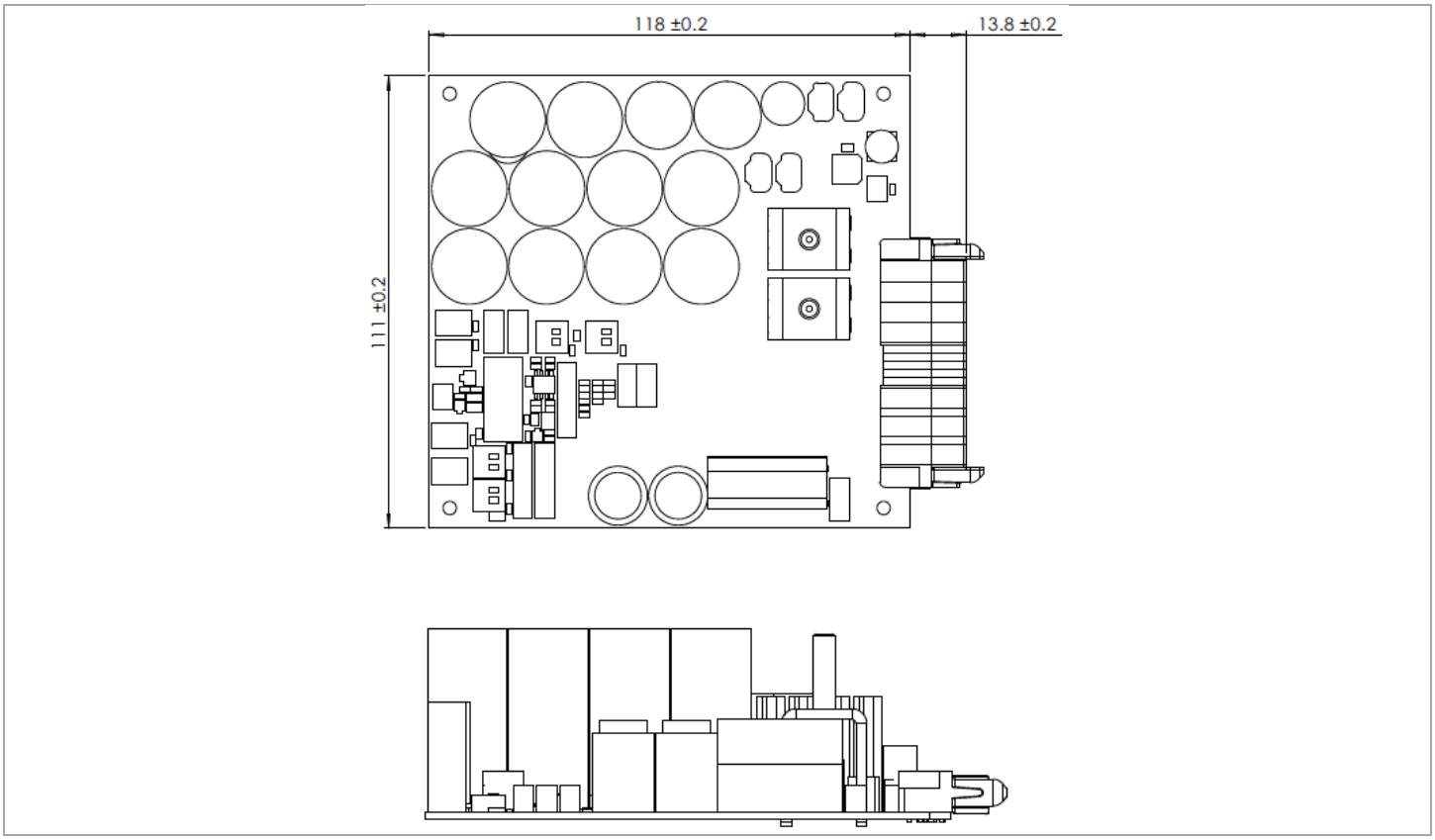
PMBus I²C to USB interface

J8 is provided to connect the Murata MW-PMBob[1] and is a 2.54MM 10PIN header

Pin #	Function	board header
1	SCL1	 Molex 5-102619-3
2	SCOM2	
3	SDA1	
4	5V	
5	-	
6	-	
7	-	
8	-	

[1]Not provided

MECHANICAL OUTLINE



OPTIONAL ACCESSORIES

Description	Part Number
PMBob™ USB to I²C interface[2]	MS-PMBob

[2] Check with Murata for availability Link Back to front page

REFERENCED DOCUMENT LINKS

Document Number	Description	Link to Document
MWOCP67-5500-B-RM	Product Datasheet	
MW-PMBob	PMBob I²C to USB adapter Datasheet	
ACAN-157	PMBus Protocol Application Note	

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ISO 9001 and 14001 REGISTERED

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https://www.murata-ps.com/requirements/

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