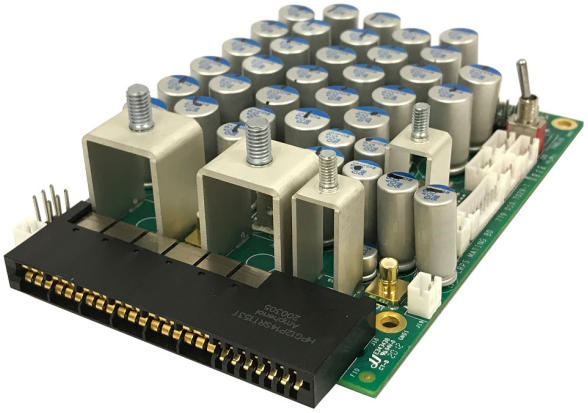
D1U74T-12-CONC2.7K

ACAN-123 Interface Connector Card Application Note



PRODUCT OVERVIEW

D1U74T-12-CONC2.7K is an interface connector card that provides a convenient method to connect a Murata D1U74T-x-2700-12-HxxC-xx power supply module. Access points are provided for hardware and digital signals as well as DC power load connections, simplifying operation

The robust circuit board design makes this Interface Connector Card suitable for continuous operation as an interposer or mid-plane function in a system. PMBus™ communications is supported with Murata PMBob™ USB to I2C Interface.

INTRODUCTION

The Top View and Feature Map is provides location details for the headers, switches, jumpers, threaded studs provided to connect system loads and access/configure the power supply module.

- Threaded Studs are provided for the DC output power connections:
  - +12Vdc main output
  - Standby Output (Vsb.)
- Header / jumpers / switches are provided for these signals and configuration settings:

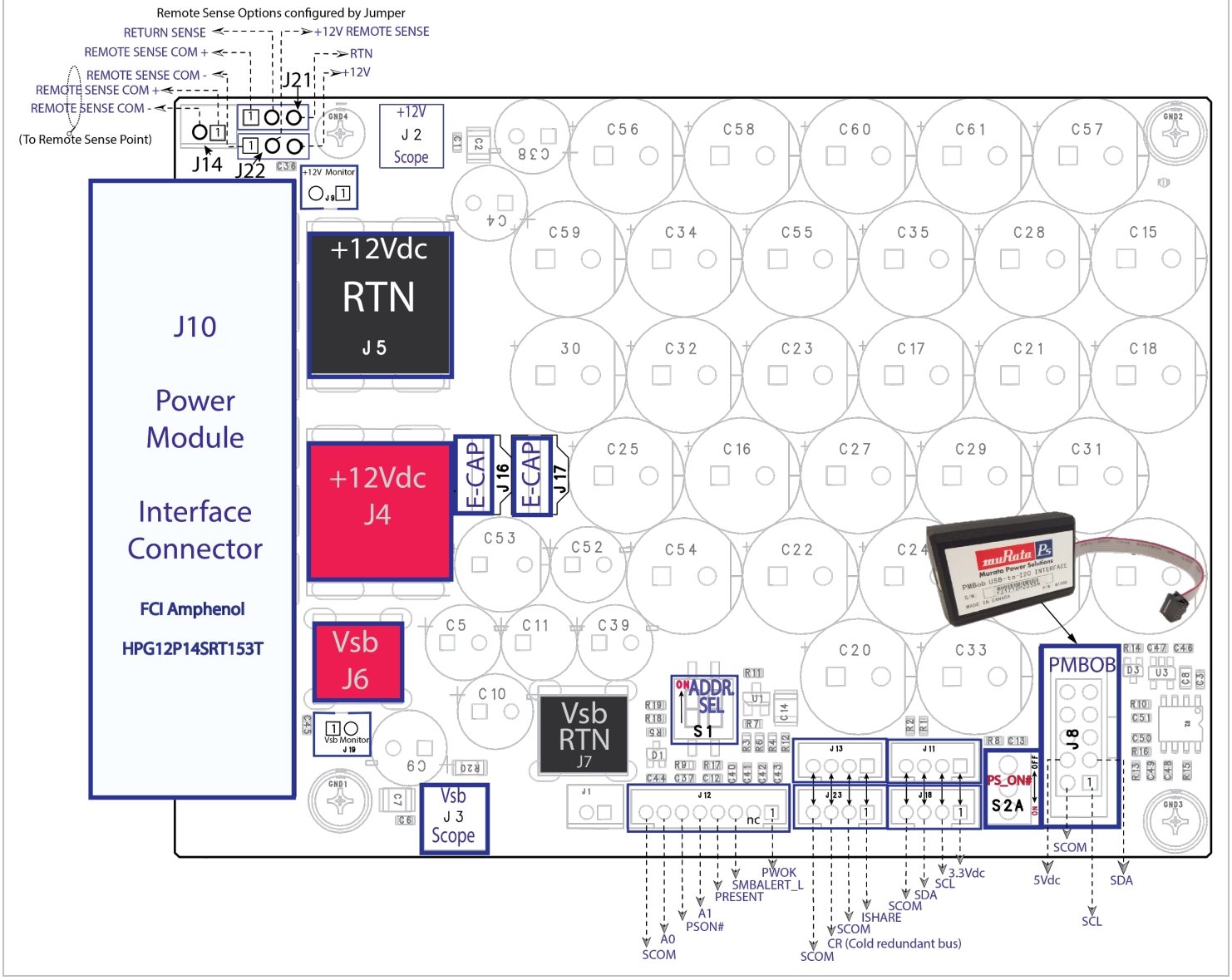
✓ REMOTE SENSE	✓ PRESENT	✓ CR	✓ SCL
✓ PWOK	✓ A0, A1	✓ ISHARE	✓ SDA
✓ SMBALERT_L	✓ PSON#	✓ PRESENT_L	✓

- PMBus serial communications access header readily accommodates Murata's PMBob I2C to USB adapter, available separately
- PMBus Slave Device slave device address: DIP Switches are provided to set the address
- Output on/off control: A toggle switch is provided for PSON# main output on/off control

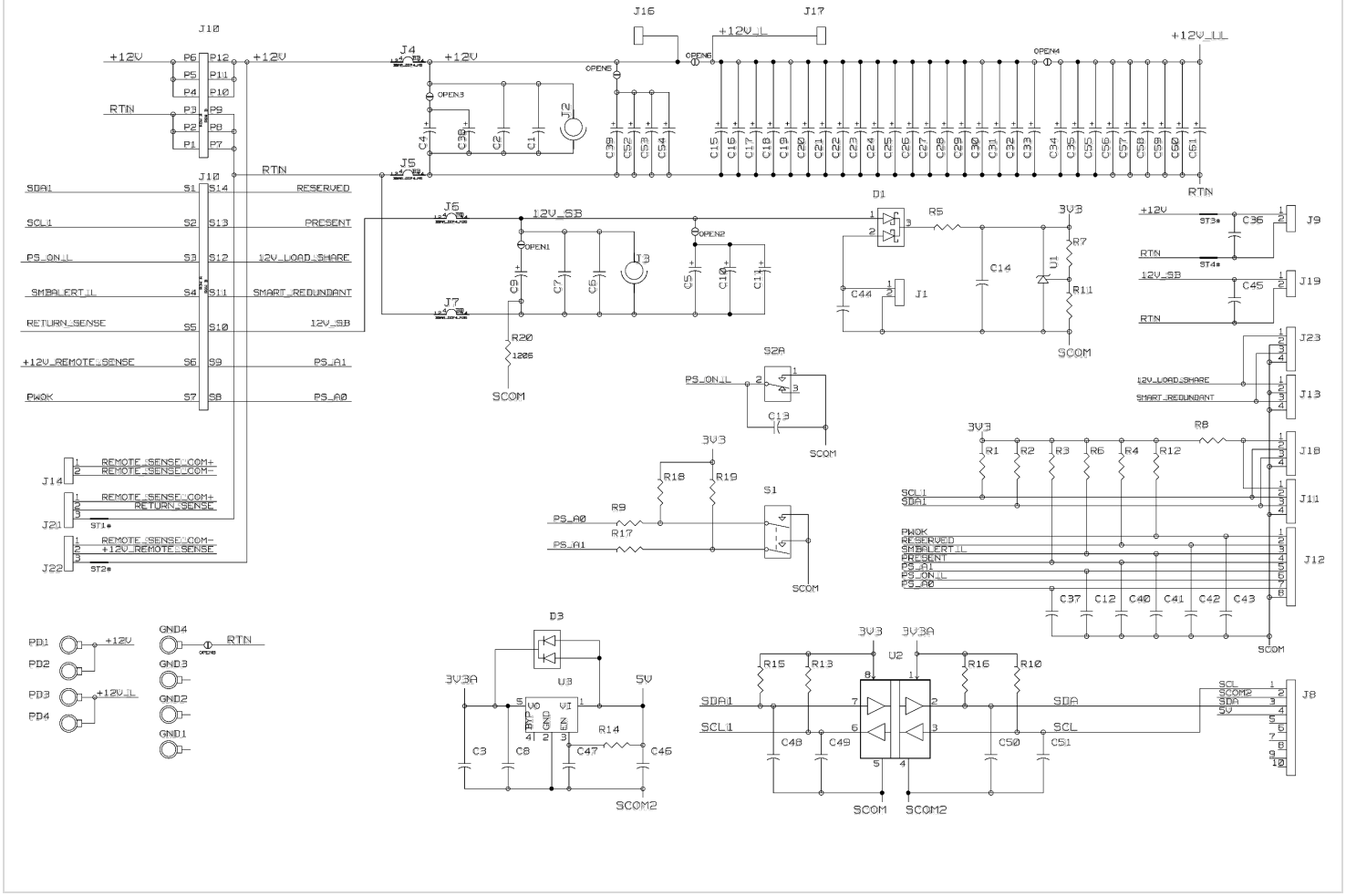
SAFETY PRECAUTION

⚠ The D1U74T-12-CONC2.7K interface connector card and power supply module are components intended to be built into a safety enclosure (system/host). The installation of the interface connector card and power supply module must be verified and approved in the end system safety certification.

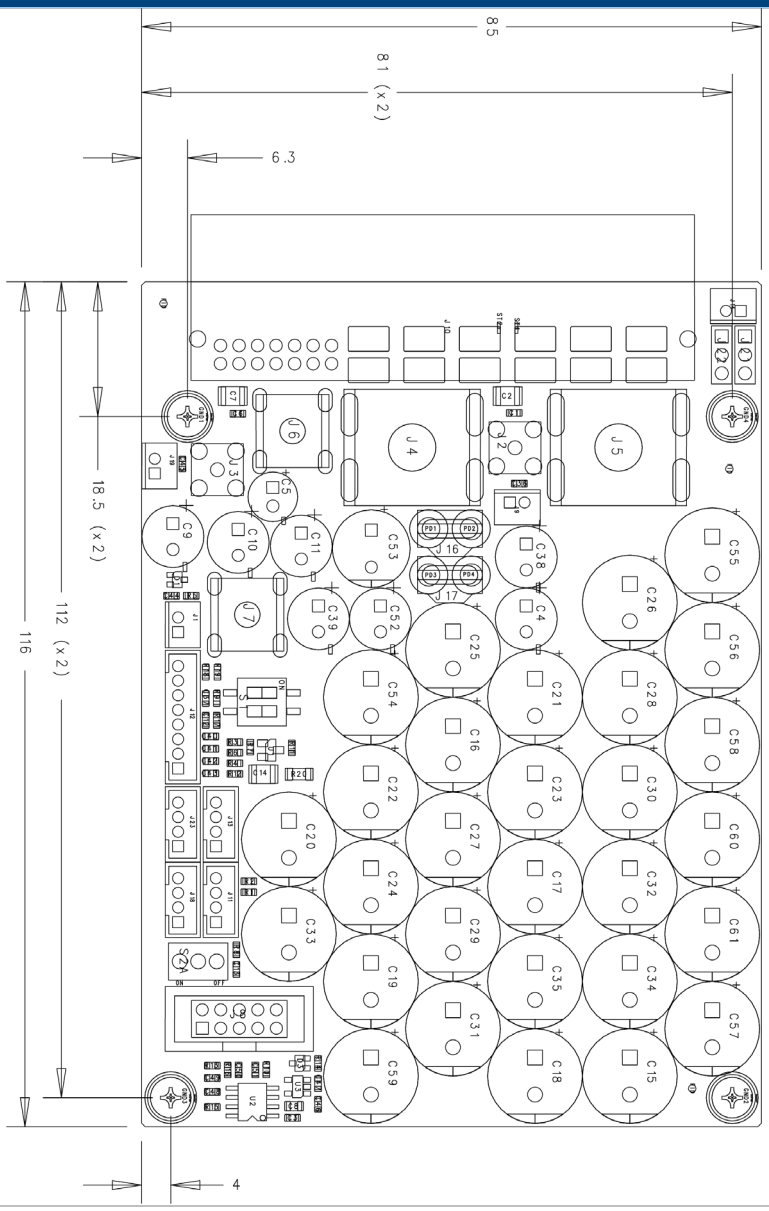
TOP VIEW & FEATURE MAP



SCHEMATIC


J10
+12V
RTN
SDA1
SCL1
PS_ON_L
SMBALERT_L
RETURN_SENSE
+12V_REMOTE_SENSE
PWOK
RESERVED
PRESENT
12V_LOAD_SHARE
SMART_REDUNDANT
12V_SB
PS_A1
PS_A0
J16
J17
+12V_L
+12V_LL
J4
J5
J6
J7
12V_SB
J1
J2
J3
J9
J19
J23
J13
J18
J11
J12
J14
J21
J22
REMOTE_SENSE_COM+
REMOTE_SENSE_COM-
RETURN_SENSE
+12V_REMOTE_SENSE
D1
D3
R5
R7
R11
R20
R8
R1
R2
R3
R6
R4
R12
R18
R19
R9
R17
S1
S2A
C13
C14
C44
C36
C45
C37
C12
C40
C41
C42
C43
U1
U2
U3
3V3
3V3A
5V
SCOM
SCOM2
PD1
PD2
PD3
PD4
GND4
GND3
GND2
GND1
R15
R13
R16
R10
C48
C49
C50
C51
R14
C3
C8
C47
C45
J8
SDA
SCL

MECHANICAL OUTLINE



Mechanical Outline Notes:

1. This drawing is a graphical representation of the product and may not show all fine details.
2. Textures, screw head patterns, molded parts may appear different from this illustration. Please contact Murata for 3D model for details
3. Dimensions in mm
4. Subject to change. Contact Murata for latest version

POWER SUPPLY MODULE CONNECTOR CARD INTERFACE OVERVIEW:

D1U74T-x-2700-12-HxxC-xx power supply module uses a card edge ("PCB Gold Fingers") and is compatible with FCI/Amphenol HPG12P14SRT153T receptacle, provided on the interface connector board, "J10".

DC OUTPUT POWER CONNECTIONS

Location	Function	Details	Image
J4	+12Vdc output connection	M5x10 stud with nut provided	 qty 2
J5	+12Vdc RTN output connection[1]	M5x10 stud and nut provided	
J6	+VSB output connection	STUD M3.5x8 and nut provided	 qty 2
J7	VSB RTN output connection[1]	STUD M3.5x8 and nut provided	

[1]Both outputs share a common return "RTN"

SWITCHES

Location	Function	Function	Image
S2A	PSON#	Main output "+12Vdc" on/off control; Output on when set to "ON" position	
S1	PMBus Slave Address Device select	See table below	

Slave Address (hex) PSU µP / EEPROM	A1 Switch state (Pos 1)	A0 Switch state (Pos 2)
0xB0	ON	ON
0xB2	ON	OFF
0xB4	OFF	ON
0xB6	OFF	OFF

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SIGNAL ACCESS HEADERS AND CONFIGURATION JUMPERS

Remote Sense ("12VRS + & -"):

J21 & J22 are jumper headers provided to configure the remote sense signals of the power supply to either sense locally or remotely.

Local Sense:

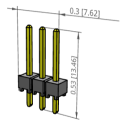
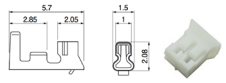
Use this configuration when voltage drop compensation is not desired. This would be the default configuration of many applications and places the sense point very near the main power module interface connector point.

Place a jumper between pin 2 and 3 of **J21**
Place a jumper between pin 2 and 3 of **J22**

Remote Sense:

Use this configuration to compensate for voltage drop due to load connection wiring.

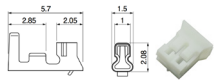
Place jumper between pin 1 and 2 of **J21**
Place jumper between pin 1 and 2 of **J22**
Connect J14 pin 1 to the external or "remote" +12Vdc load point and J14 pin 2 to the external or "remote" RTN load point
Connect the J14 pin 1 to the "+" remote[1] load connection and J14 pin 2 to the "-" remote[1] load connection

J21, J22 MFG P/N details	
Jumper Header: SAMTEC: HTSW-103-14-T-S (or equivalent)	
Jumper: TE Connectivity Pt# 390088-2 or equivalent	
J14 MFG P/N details	
Header, JST: B2B-PH-K-S(LF)(SN)	
Mating Contact: JST SPH-002T-P0.5L (for 24-28AWG) Housing: JST PHR-2	

[1] "Remote" refers to a load connection point that is located at the point of the actual load after the "interface connector card" to Load wire connection and would provide some degree of voltage compensation related to that connection / wiring voltage drop.

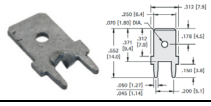
Output Voltage Monitor Points:

J9 & J19: Can be used to monitor the main +12Vdc and Vsb output voltage respectively.

J9, J19 MFG P/N details	
Header: JST B2B-PH-K-S(LF)(SN) Pin 1: "+" Vdc, Pin 2: "RTN"	
Mating Contact: JST SPH-002T-P0.5L (for 24-28AWG) Housing: JST PHR-2	

Maximum E-Cap connection Points

Jump J16 to J17 (Keystone 1287) to insert the Maximum output capacitance across the +12Vdc main output.

J16, J17 MFG P/N details	
0.25" Quick Connect tab: Keystone 1287	
Mating Contact: Any 0.25" Female Quick connect tab	

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(CONTINUED): SIGNAL ACCESS CONNECTORS AND CONFIGURATION JUMPERS

Signal Connector J12

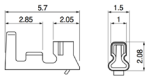
J12 8-position header provides access to the signals listed in table to right

Pin#	Pin Function
1	PWOK
2	No Connection (NC)
3	SMBALERT_L
4	PRESENT
5	A1
6	PSON#
7	A0
8	SCOM[1]

PIN Identification "J12"

Header:
JST P/N:B8B-PH-K-S(LF)(SN)

Contact:
JST P/N: SPH-002T-P0.5L (for 24-28AWG)



Housing:
JST P/N: PHR-8

[1]SCOM is connected to RTN within the Connector Interface Card

Signal Connector J13 & J23

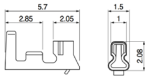
J13 & J23 4-position headers provide access to the signals listed in table to right. The pins of these two headers are connected together internally on the Connector Interface Card.

Pin#	Pin Function
1	ISHARE
2	SCOM[1]
3	CR
4	SCOM[1]

PIN Identification "J12"

Header:
B4B-PH-K-S(LF)(SN)

Contact:
JST P/N: SPH-002T-P0.5L (for 24-28AWG)



Housing:
JST P/N: PHR-4

[1]SCOM is connected to RTN within the Connector Interface Card

Signal Connector J11 & J18

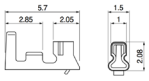
J11& J18 4-position headers provide access to the signals listed in table to right. The pins of these two headers are connected together internally on the Connector Interface Card.

Pin#	Pin Function
1	3.3Vdc
2	SCL
3	SDA
4	SCOM[1]

PIN Identification "J12"

Header:
B4B-PH-K-S(LF)(SN)

Contact:
JST P/N: SPH-002T-P0.5L (for 24-28AWG)



Housing:
JST P/N: PHR-4

[1]SCOM is connected to RTN within the Connector Interface Card

PMBob Connector

PMBob™ connector J8 interfaces with Murata PMBob™, a fully featured I2C bus master and USB to I2C Interface for a convenient method to communication via PMBus™ with the slave devices (PSU Secondary controller and FRU EEPROM). Murata's control panel GUI provides further convenience when status monitoring and specific PMBus read/write command tasks are required, contact Murata for further details for latest GUI.

Scope Connections

J2 & J3 are TE connectivity PN 1-1337482-0 male coaxial SMB type connectors for ripple & noise measurements and are intended for direct connection to an oscilloscope (Ensure the scope's 20Mhz bandwidth limit is enabled).
This measurement node is filtered with a parallel connected 10µF and 100nF ceramic capacitors, across tip to ground points as shown in schematic. **J2:** +12V **J3:** Vsb

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OPTIONAL ACCESSORIES

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

[2] Check with Murata for availability

REFERENCED DOCUMENT LINKS

Document Number	Description	Link to Document
D1U74T-W-2700-12-HB4C	Product Datasheet	URL Link to Datasheet

Murata Power Solutions, Inc.
129 Flanders Rd. Westborough,
Ma 01581, USA.
ISO 9001 REGISTERED