

Serializer and SOA/D Sio SubModule

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The *Sio SubModule board* is for the *PMB CPU-1A1 68HC11F microcontroller* used in the EVE data system “SOAD” a/d converter and the “Serializer” board used to sample and append analog data to sonic anemometer messages. The submodule provides regulated +5v from +12 input source and communications interfacing to the ‘outside world.’

0.1 Operation:

The board can operate in either RS485 or RS232 mode. It can also be wired to broadcast in both modes but should not be jumpered to receive in both modes. Power for the board is derived from ‘raw battery’ +12VDC on pin 9 of the DE-9, connector. This allows the barometer and the PMB to be used on the PAM sbus along with the TRH and RMY anemometer. The on-board temperature sensor U5 is intended to allow calibration profiling of the A/D system used with the PMB.

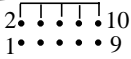
- 1) RS485 Use: jumper pins 1-2 on both Header 2 and 3.
Cable for connector-1 pins 6=485+, 8=485-
Termination: R1 / C9 are NOT needed for short cable runs and placed in middle of bus, they are NEEDED at the end of a long cable.
- 2) RS232 Use: jumper pins 2-3 on both Header 2 and 3.
Cable for connector-1 pin 2=Tx to logger, pin 3=Rx (Tx from logger)
- 3) Power: Cable for connector-1 pin 9=+12VDC, pin 5=gn

0.2 Analog and PMB A/D SubModule Wiring:

SO A/D Module
Connector J3, AD in

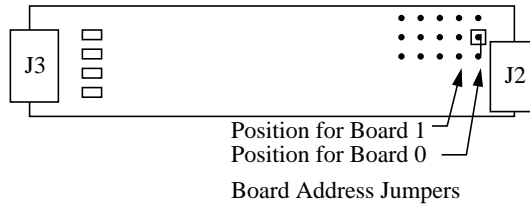
- 1 +5VDC
- 2 Gnd
- 3 Ch1+
- 4 Ch1-
- 5 Ch2+
- 6 Ch2-
- 7 Ch3+
- 8 Ch3-
- 9 Ch4+
- 10 Ch4-

Looking at J3,
2x5 Conn.



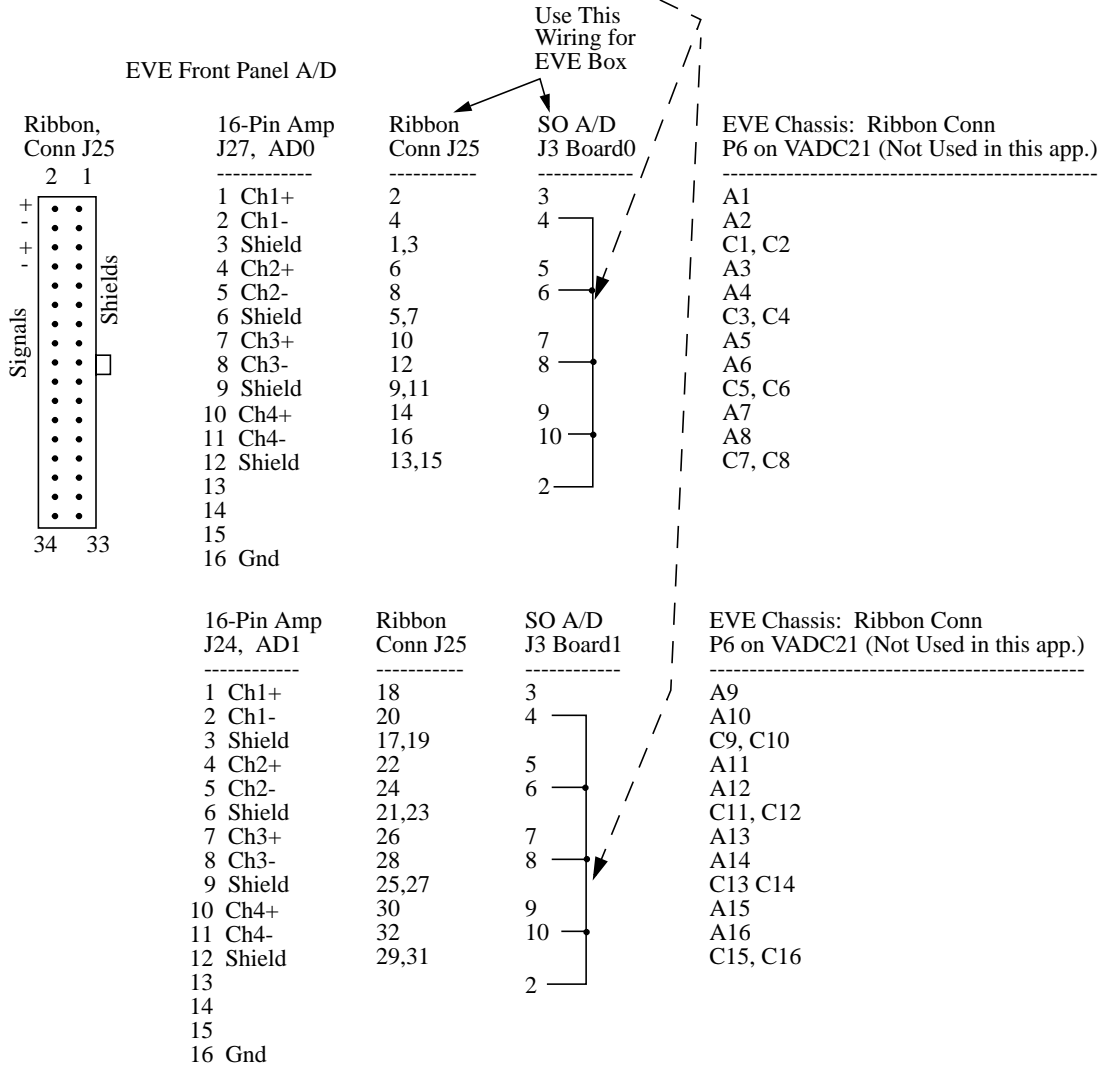
Note for single-ended pins 2-10 must be shunted OR Ribbon Cable must be shunted on '-'.

NOTE: For highest accuracy and to avoid noise problems, USE DIFFERENTIAL mode.



SO A/D Module
Connector J2, Ctrl

- 1 +5VDC
- 2 Gnd
- 3 MISO
- 4 MOSI
- 5 SCK
- 6
- 7 PA3
- 8 PA2
- 9 PA1
- 10 PA0

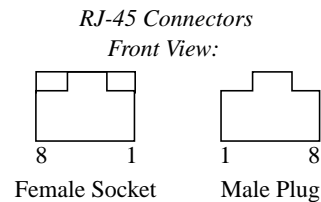


0.3 SOAD Wiring on EVE SBUS:

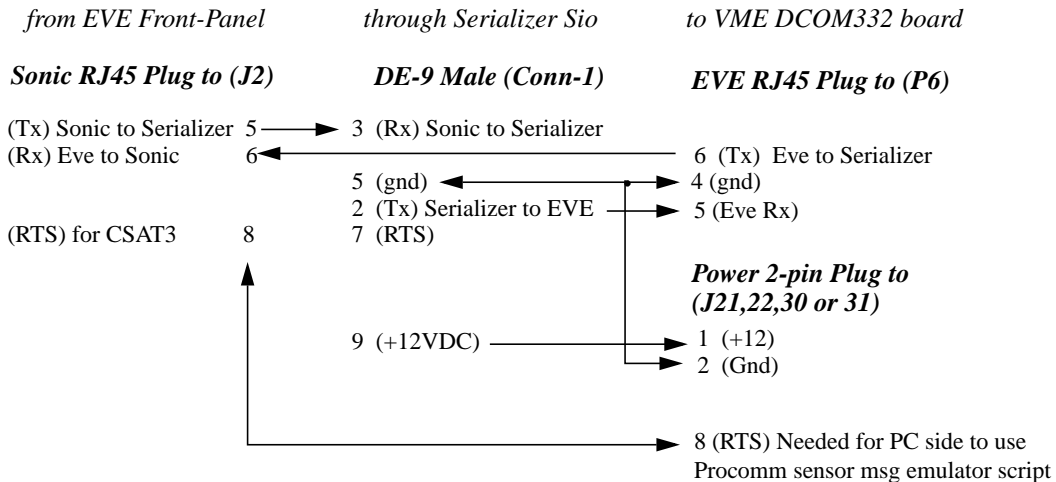
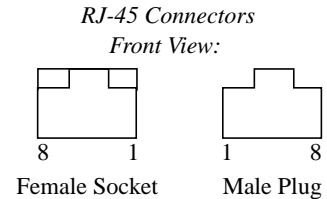
Standard DE-9 IBM - PC	SO A/D and PTB220 Sio	Front Panel / 232/485 Converter	Front Panel RJ45 to EVE	Front Panel Amp - 9	B&B Converter
DCD 1	1 nc		5	1	2 Rx (232 side)
PC Rx 2	2 Sio Tx	JP1 - 2	6	2	3 Tx (232 side)
PC Tx 3	3 Sio Rx	JP1 - 4			
DTR 4	4 nc				
Gnd 5	5 Gnd	J1 - 3	4 Gnd	7	4,6 Gnd
DSR 6	6 RS485-	JP1-11		9	2,8 RS485-
RTS 7	7 RTS (a/d only)	JP1-6	8 RTS		
CTS 8	8 RS485+	JP1-7		5	3,7 RS485+
RI 9	9 +12 VDC	J1 - 1		8	

Note on PTB220 Wiring:

PTB220 Power Gnd is on Pin-7, which is normally RS232 RTS. This is non-standard and wiring ground to pin-7 on the SOA/D Sio won't work. Instead, wire ground (pwr/232) to pin-5 (rs232 standard). The PTB220 connects pins 5-7 together internally.



0.4 Serializer Wiring inside EVE Electronics Box:



0.5 Serializer Wiring inside CSAT Sonic Housing:

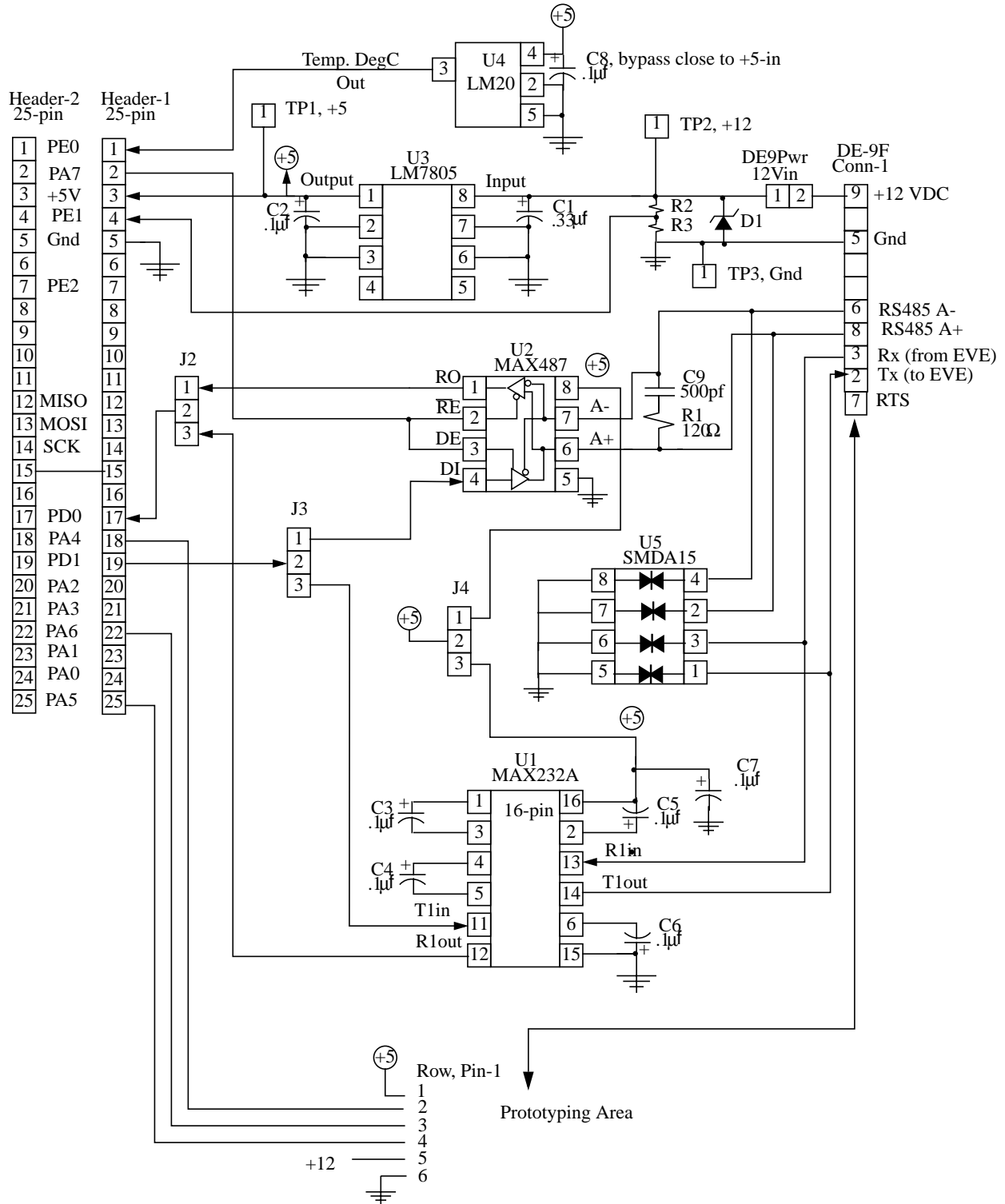
Serial Wiring Via CSAT ‘Comm’ Connector

<i>Signal</i>	<i>External ‘Mast’ Cable</i>		<i>Internal to CSAT Electronics box</i>			
	<i>Amp-9</i>	<i>CSAT</i>	<i>Bulkhead Cable DE9 (m) (f)</i>	<i>Serializer Adaptor ‘Y’ Cable</i>		<i>CSAT sio DE9(m)</i>
				<i>Serializer DE9(m)</i>		
(Rx) Sonic to EVE	1 -----	B	B ----(red)----	2	2 ----(yel)----	2
					3 ----(blu)----	2
(Tx) Eve to Sonic	2 -----	C	C ----(wht)----	3	3 ----(wht)-----	>3
(Gnd)	4 -----	E	E ----(grn)----	5	5 ----(grn)----	5
(RTS) to Sonic	3 -----	G	G ----(brn)----	7	7 ----(brn)-----	7
(CTS) to EVE	5 -----	H	H ----(blk)----	8	8 ----(blk)-----	8
Power +12	8 -----	D	D ----(red)----	CSAT (1)	--(red)--	9
Power Gnd	7 -----	F	F ----(blk)----	Pwr Conn. (2)		

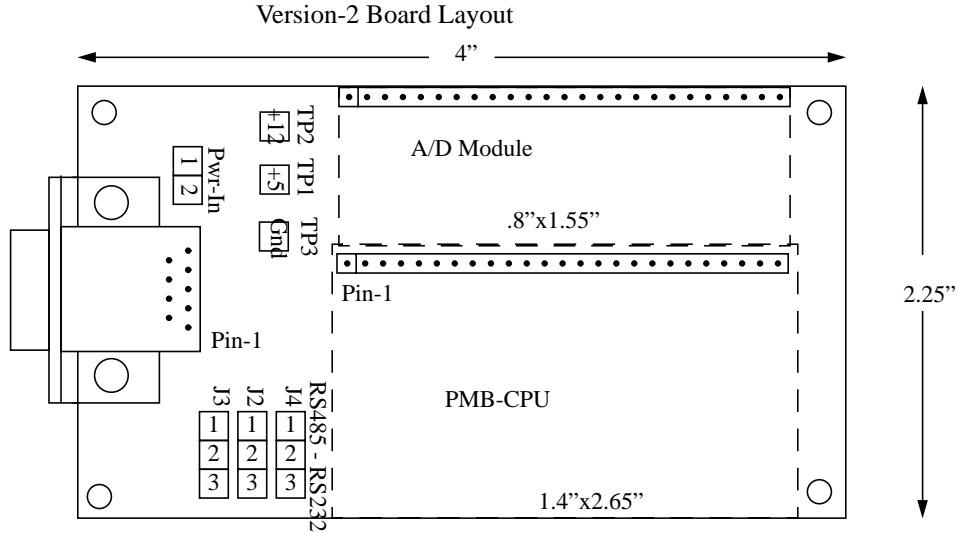
Analog Wiring for Krypton Hygrometer via CSAT ‘Analog’ Connector

<i>Signal</i>	<i>External ‘Krypton’ Cable</i>		<i>Internal to CSAT Electronics box</i>		
	<i>Amp-9</i>	<i>CSAT</i>	<i>Bulkhead Cable CSAT</i>	<i>Serializer Berg 10-Pin to A/D-J3</i>	
Krypton +	1 -----	C	C ----(wht)---	3	AD Ch1+
Krypton -	2 -----	D	D ----(grn)----	4	AD Ch1-
Shields	3 -----				
Channel 2 +	4 -----	E	E ----(brn)----	5	AD Ch2+
Channel 2 -	5 -----	F	F ----(blk)----	6	AD Ch2 -
Power +12	8 -----	A	A ----(red)----	CSAT (1)	--(red)--
Power Gnd	7 -----	B	B ----(blk)----	Pwr Conn. (2)	

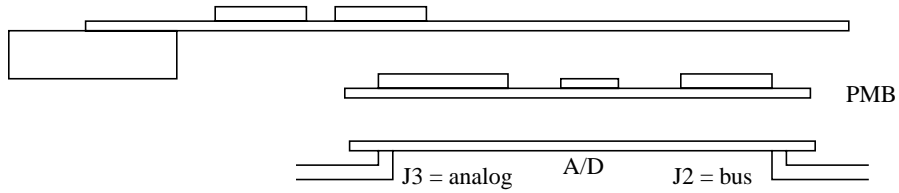
0.6 Schematic:



0.7 Layout:



View of Jumper / PMB CPU and A/D side of board.
Components are located on the 'bottom'



0.8 Parts List:

See \$PAM/pc_files/Accounting/SOAD_SioBoardParts.xls