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8911

4-20mA Current Converter

DIN Rail Terminal Block

USER TECHNICAL MANUAL

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Revision History

The following table shows the revision history for this document.

Date	Version	Revision
19/01/15	2.0	Use manual issue
30/12/19	2.1	Change from Hytec to Newwood Solutions for contact details

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1. Product Description

The 8911 is a DIN Rail mounted terminal block which is used to connect a number of 4-20mA input instruments to a DAC 8402 via a TB8202 transition board using a SCSI 50-way cable.
The unit can drive up to sixteen devices, with loop power provided by an external 24-volt power supply.
There are a total of 32 terminals for connection of the 4-20mA instruments.
A circuit using an operational amplifier, an output transistor and a precision resistor is used to convert the voltage output from the DAC to a current. The standard conversion is from 0 to 5 volts to 0 to 20mA. (See Variants below)

2. Specification

Conversion accuracy.
Better than +/- 0.02%.

Compliance Voltage:
For the standard version using a 5-volt input, the maximum volt drop available across the instrument is 17 volts when using a 24-volt supply. This is reduced to 12 volts when the 10-volt input version is used. Supply voltages higher than 24 volts may be used, but no higher than 30 volts to avoid excessive power dissipation in the output devices.
The external supplies should be isolated from VME and sensed locally at the terminals.

Temperature range.
The unit is specified for operation over the temperature range 0 to 50^{o}C.

Power requirements:
+24 volts for loop output power, 320mA maximum demand.
+/- 12 to 15 volts analogue power, 100mA maximum demand.
All supplies fused on board and LED indication for supply presence.

Connectors
Refer to the tables in sections 5 and 7.

SCSI
50 way connection to 8202 transition board or equvilant.

Terminal Blocks
50-way Terminal Block – T26-T41 Terminal connector positions for sixteen current outputs.
T1-T16 Loop power supply 24 volts.
10-way Terminal Block - Power supply inputs.

3. Variants

The unit can be supplied with precision resistors compatible with either a 0-5 volt or 0-10 volt input.

4. Setting up

8911
No setting up is required.

5. Connections

4-20mA Instruments

Connect the 4-20mA Instruments between the relevant terminals:-
Instrument 1 (DAC channel 0) – terminal 1, 24-volt supply; terminal 26 current output (lower potential)
Instrument 2 (DAC channel 1) – terminal 2, 24-volt supply; terminal 27 current output (lower potential)
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.
Instrument 15 (DAC channel 14) – terminal 15, 24-volt supply; terminal 40 current output (lower potential)
Instrument 16 (DAC channel 15) – terminal 16, 24-volt supply; terminal 41 current output (lower potential)

8202 - 8911

Connect the 8911 to the 8202 using a 50-way twisted pair SCSI-2 cable. Plug one end of the cable into the SCSI socket on the 8911. Plug the other end into the SCSI socket on the rear panel of the 8202 relevant to the site used on the 8002 Carrier Board by the associated 8402. The lowest connector is for site A and the top connector site D.

Power: see below, section 7.

6. Software

No special software is needed for the 8911 when used with the 8402 or 8702.

Other

Please contact Newwood Solutions if you wish to discuss your requirements for other types of driver.

7. 8911 DIN-Rail Board Pin-out

SCSI 50-way	Signal
26	DAC O/P0
1	AGND
27	DAC O/P1
2	AGND
28	DAC O/P2
3	AGND
29	DAC O/P3
4	AGND
30	DAC O/P4
5	AGND
31	DAC O/P5
6	AGND
32	DAC O/P6
7	AGND
33	DAC O/P7
8	AGND
34	DAC O/P8
9	AGND
35	DAC O/P9
10	AGND
36	DAC O/P10
11	AGND
37	DAC O/P11
12	AGND
38	DAC O/P12
13	AGND
39	DAC O/P13
14	AGND
40	DAC O/P14
15	AGND
41	DAC O/P15
16	AGND
42	
17	
43	
18	
44	
19	
45	
20	
46	
21	
47	
22	
48	
23	
49	AGND
24	AGND
50	AGND
25	AGND

O/P TERMINAL	Signal
26	20MA O/P1
1	+24V O/P
27	20MA O/P2
2	+24V O/P
28	20MA O/P3
3	+24V O/P
29	20MA O/P4
4	+24V O/P
30	20MA O/P5
5	+24V O/P
31	20MA O/P6
6	+24V O/P
32	20MA O/P7
7	+24V O/P
33	20MA O/P8
8	+24V O/P
34	20MA O/P9
9	+24V O/P
35	20MA O/P10
10	+24V O/P
36	20MA O/P11
11	+24V O/P
37	20MA O/P12
12	+24V O/P
38	20MA O/P13
13	+24V O/P
39	20MA O/P14
14	+24V O/P
40	20MA O/P15
15	+24V O/P
41	20MA O/P16
16	+24V O/P
42	
17	
43	
18	
44	
19	
45	
20	
46	
21	
47	
22	
48	
23	
49	AGND
24	AGND
50	AGND
25	AGND

POWER TERMINAL CONNECTIONS:

ISSUE 1 PCB:

TRM1.1	+24V OUT (NOT USED)
TRM1.2	+24 VOLT SUPPLY INPUT
TRM1.3	GROUND
TRM1.4	+12 TO +15 VOLT ANALOGUE SUPPLY
TRM1.5	GROUND
TRM1.6	-12 TO -15 VOLT ANALOGUE SUPPLY
TRM1.7	GROUND
TRM1.8	GROUND
TRM1.9	N/C
TRM1.10	N/C

ISSUE 2 PCB:

TRM1.1	+24V OUT (NOT USED)
TRM1.2	GROUND
TRM1.3	+24 VOLT SUPPLY INPUT
TRM1.4	+24 VOLT SUPPLY INPUT SENSE
TRM1.5	GROUND
TRM1.6	GROUND – NEGATIVE SENSE +24 SUPPLY
TRM1.7	+12 TO +15 VOLT ANALOGUE SUPPLY
TRM1.8	0V ANALOGUE – INTERNALLY CONNECTED TO GROUND
TRM1.9	0V ANALOGUE
TRM1.10	-12 TO -15 VOLT ANALOGUE SUPPLY