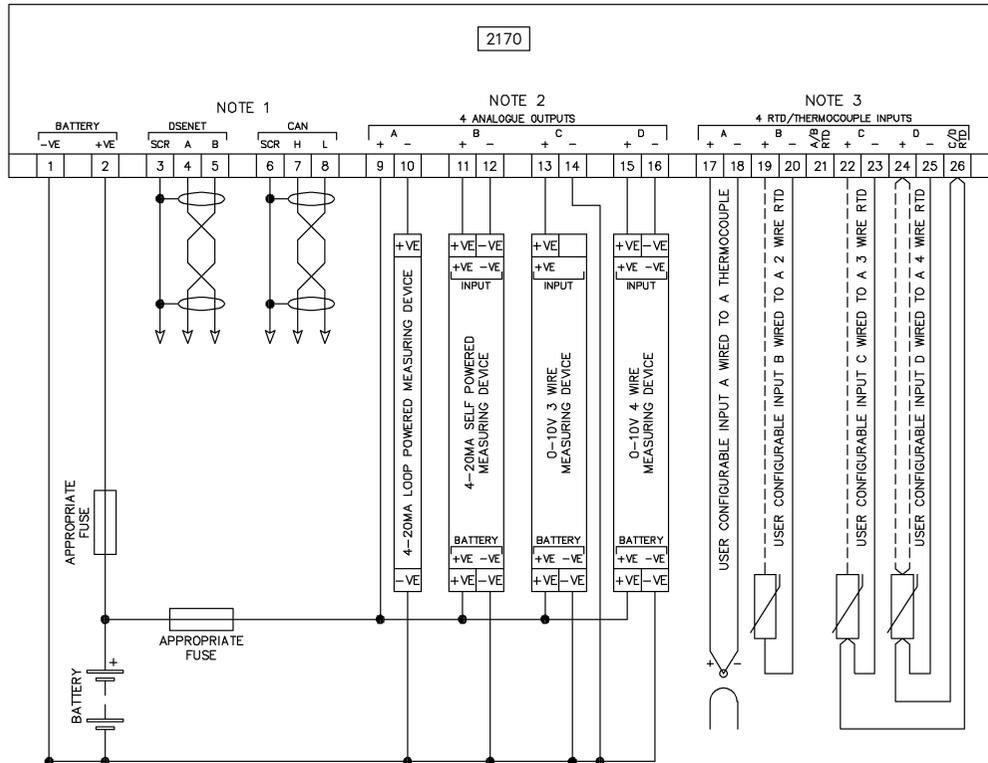


TYPICAL WIRING DIAGRAM

NOTE: A larger version of the Typical Wiring Diagram is available in the product's operator manual, refer to DSE Publication: 057-362 DSE2170 Operator Manual available from www.deepseaelectronics.com for more information.



BATTERY NEGATIVE MUST BE GROUND

NOTE 1. IF THE MODULE IS FIRST OR LAST UNIT ON THE LINK, IT MUST BE FITTED WITH A 120 OHM TERMINATION RESISTOR ACROSS TERMINALS A AND B FOR DSENET OR H AND L FOR CAN.

NOTE 2. THE 4 ANALOGUE OUTPUTS ARE INDIVIDUALLY CONFIGURABLE AS 4-20mA OR 0-10V.

NOTE 3. THE 4 RTD/THERMOCOUPLE INPUTS ARE INDIVIDUALLY CONFIGURABLE FOR RTD OR THERMOCOUPLE.



DEEP SEA ELECTRONICS

053-269

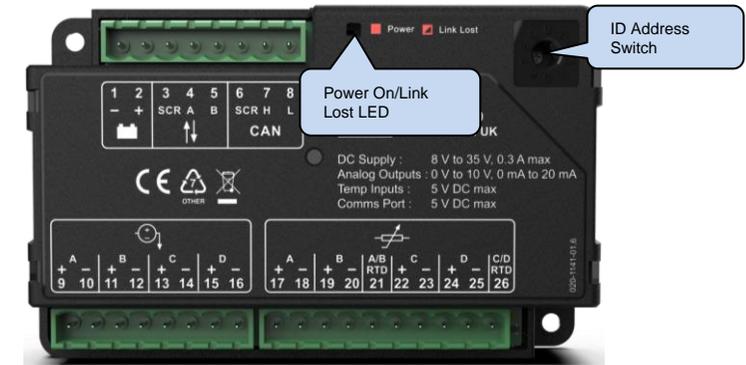
ISSUE 1

DSE2170 Installation Instructions

This document details the installation requirements of the DSE2170 Input and Output Expansion Module and is part of the DSEgenset® range of products.

The DSE2170 Input and Output Expansion module is designed to enhance the input capabilities of supported DSE modules. The module offers 4 Analogue Outputs and 4 Thermocouple/RTD inputs. The configuration of the expansion module is done within the host module's configuration. The only configuration applied to DSE2170 is the selection of the ID switch to match the host module's configuration.

CONTROLS AND INDICATION



STATUS LED

The Status LED indicates the operating state of the module.

Status LED	Condition
Off	Module is not powered.
Red Flashing	Module is powered but there is no communication.
Red Constant	Module is powered and communication is working.

ID SWITCH

The DSENet ID Rotary Selector selects the communication ID that the module uses for DSENet or the source address that the module uses for CAN, as it is capable of being connected to multiple DSE2170 modules/devices at the same time. The DSENet® ID rotary switch must be operated using an isolated adjustment tool.

NOTE: The DSENet® ID must be set to a unique number compared to any other DSE2170. The DSENet® ID of the DSE2170 does not interfere with the DSENet® ID of any other type of expansion module. For instance it's OK to have a DSE2160 with a DSENet® ID of 1 and a DSE2170 with a DSENet® ID of 1.

POWER SUPPLY REQUIREMENTS

Description	Specification
Minimum Supply Voltage	8 V continuous
Cranking Dropouts	Able to survive 0 V for 50 ms providing the supply was at least greater than 10 V for 2 seconds before the dropout and recovers to 5 V afterwards.
Maximum Supply Voltage	35 V continuous (60 V protection)
Reverse Polarity Protection	-35 V continuous
Maximum Operating Current	200 mA at 12 V 95 mA at 24 V
Maximum Standby Current	50 mA at 12 V 30 mA at 24 V

Deep Sea Electronics Ltd.

Tel: +44 (0)1723 890099
Email: support@deepseaelectronics.com
Web: www.deepseaelectronics.com

Deep Sea Electronics Inc.

Tel: +1 (815) 316 8706
Email: support@deepseaelectronics.com
Web: www.deepseaelectronics.com

USER CONNECTIONS

DC SUPPLY, DSENET® & RS485

	Pin No	Description	Cable Size	Notes
	1	DC Plant Supply Input (Negative)	2.5 mm ² AWG 13	Connect to ground where applicable.
	2	DC Plant Supply Input (Positive)	2.5 mm ² AWG 13	Supplies the module and Digital Outputs
	3	DSENET® Expansion Screen	Shield	Use only 120 Ω CAN or RS485 approved cable
	4	DSENET® Expansion A	0.5 mm ² AWG 20	
	5	DSENET® Expansion B	0.5 mm ² AWG 20	
CAN	6	CAN Screen	Shield	Use only 120 Ω CAN or RS485 approved cable
	7	CAN H	0.5 mm ² AWG 20	
	8	CAN L	0.5 mm ² AWG 20	

ANALOGUE OUTPUTS

NOTE: The 4 Analogue outputs A to D are individually configurable as 4-20 mA or 0-10 V.

	Pin No	Description	Cable Size	Notes
	9	Analogue Output A	1.0mm ² AWG 18	Configurable as 0 mA to 20 mA or 0 V to 10 V.
	10	Analogue Output A Common	1.0mm ² AWG 18	
	11	Analogue Output B	1.0mm ² AWG 18	Configurable as 0 mA to 20 mA or 0 V to 10 V.
	12	Analogue Output B Common	1.0mm ² AWG 18	
	13	Analogue Output C	1.0mm ² AWG 18	Configurable as 0 mA to 20 mA or 0 V to 10 V.
	14	Analogue Output C Common	1.0mm ² AWG 18	
	15	Analogue Output D	1.0mm ² AWG 18	Configurable as 0 mA to 20 mA or 0 V to 10 V.
	16	Analogue Output D Common	1.0mm ² AWG 18	

REQUIREMENTS FOR UL

Specification	Description
Screw Terminal Tightening Torque	<ul style="list-style-type: none"> 4.5 lb-in (0.5 Nm)
Conductors	<ul style="list-style-type: none"> Terminals suitable for connection of conductor size 13 AWG to 20 AWG (0.5 mm² to 2.5 mm²). Conductor protection must be provided in accordance with NFPA 70, Article 240 (USA). Low voltage circuits (35 V or less) must be supplied from the engine starting battery or an isolated secondary circuit and protected by a Listed fuse rated max. 2A. The communication, sensor, and/or battery derived circuit conductors shall be separated and secured to maintain at least ¼" (6 mm) separation from the generator and mains connected circuit conductors unless all conductors are rated 600 V or greater. Use only copper conductors rated for a minimum operating temperature of 194 °F (90 °C). Generator winding RTD sense inputs shall be marked-"Isolation from accessible signal/control circuits per UL 2200".
Communication Circuits	<ul style="list-style-type: none"> Must be connected to communication circuits of UL Listed equipment (if working to UL requirements).
Mounting	<ul style="list-style-type: none"> The device shall be installed within an unventilated Type 1 enclosure minimum, or ventilated Type 1 enclosure minimum provided with filters to maintain a pollution degree 2 or controlled environment. For flat surface mounting in Type 1 Enclosure Type rating provided with filters to maintain a pollution degree 2 or controlled environment. Surrounding air temperature -22 °F to +158 °F (-30 °C to +70 °C).

THERMOCOUPLE / RTD INPUTS

NOTE: The 4 RTD/Thermocouple inputs are individually configurable for RTD or Thermocouple.

	Pin No	Description	Cable Size	Notes
	17	RTD / Thermocouple Input A (Positive)	0.5mm ² (AWG20)	User configurable Input A. Available sensor types: 2 Wire PT100, 3 Wire PT100, 2 Wire PT1000, 3 Wire PT1000, Type J, Type K and Type L
	18	RTD / Thermocouple Input A (Negative)	0.5mm ² (AWG20)	
	19	RTD / Thermocouple Input B (Positive)	0.5mm ² (AWG20)	User configurable Input B Available sensor types: 2 Wire PT100, 3 Wire PT100, 2 Wire PT1000, 3 Wire PT1000, Type J, Type K and Type L
	20	RTD / Thermocouple Input B (Negative)	0.5mm ² (AWG20)	
	21	RTD Compensation for RTD Input A and B	0.5mm ² (AWG20)	Connect RTD resistance compensation wire. For further details, refer to section entitled <i>Typical Wiring Schematic</i> elsewhere in this document.
	22	RTD / Thermocouple Input C (Positive)	0.5mm ² (AWG20)	User configurable Input C Available sensor types: 2 Wire PT100, 3 Wire PT100, 2 Wire PT1000, 3 Wire PT1000, Type J, Type K and Type L
	23	RTD / Thermocouple Input C (Negative)	0.5mm ² (AWG20)	
	24	RTD / Thermocouple Input D (Positive)	0.5mm ² (AWG20)	User configurable Input D Available sensor types: 2 Wire PT100, 3 Wire PT100, 2 Wire PT1000, 3 Wire PT1000, Type J, Type K and Type L
	25	RTD / Thermocouple Input D (Negative)	0.5mm ² (AWG20)	
	26	RTD Compensation for RTD Input C and D	0.5mm ² (AWG20)	Connect RTD resistance compensation wire. For further details, refer to section entitled <i>Typical Wiring Schematic</i> elsewhere in this document.

DIMENSIONS AND MOUNTING

Parameter	Specification
Enclosure Type	For use indoors or enclosed spaces only.
Protection Category	IP21, NEMA 1
Overall Size	120 mm x 75 mm x 31.5 mm (4.72 " x 2.95 " x 1.24 ")
Weight	0.20 kg (0.44 lb)
Mounting Type	DIN Rail or Chassis Mounting. Base mounted to a vertical surface with connection terminals to the bottom.
Mounting Holes	Diameter 4.5 mm (0.18 "), 108 mm X 63 mm (4.25 " x 2.48 ") centres
Operating Temperature	-30 °C +70 °C (-22 °F +158 °F)
Storage Temperature	-40 °C +85 °C (-40 °F +185 °F)

