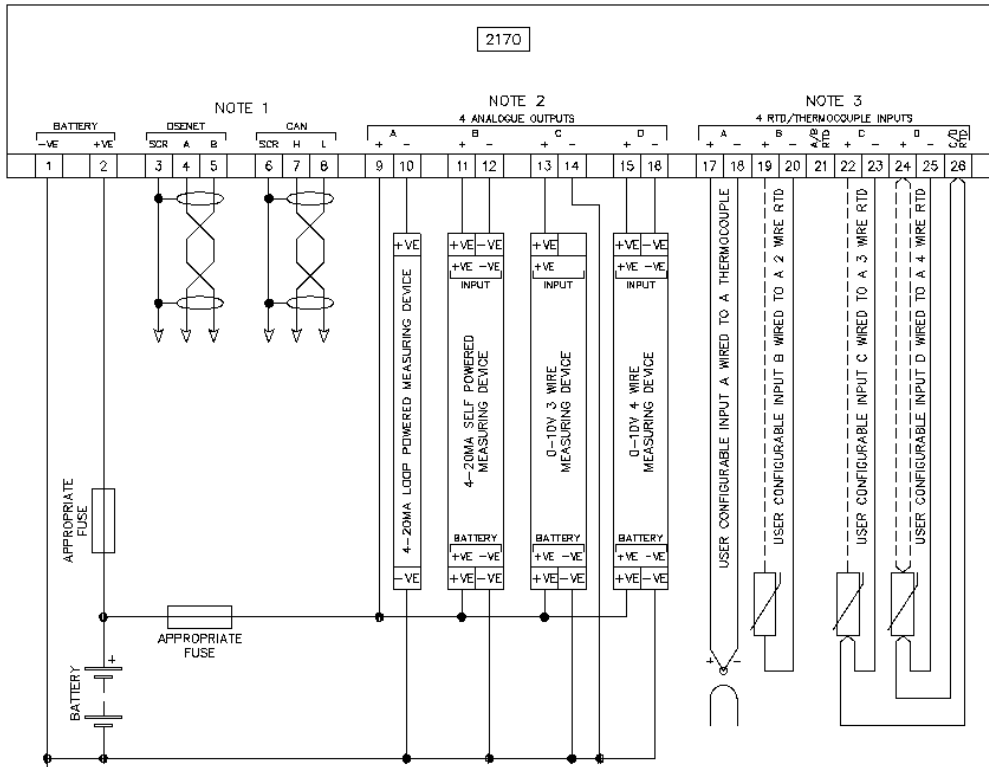


TYPICAL WIRING DIAGRAM

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 GROUNDED

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.

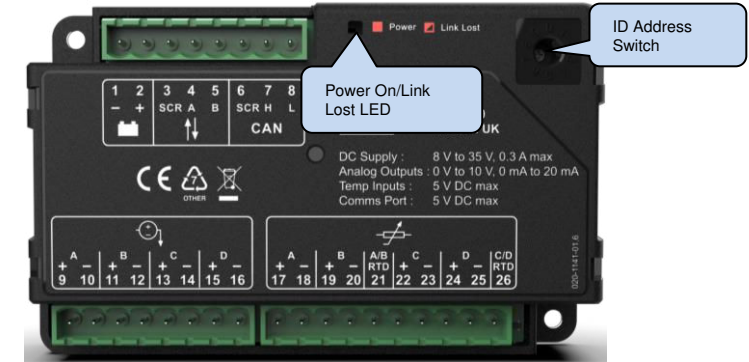


DSE2170 Installation Instructions

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 |

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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) |

