



## DS485DIS Digital Strain RS458 Display Module



*User Manual*  
[www.mantracourt.co.uk](http://www.mantracourt.co.uk)

**ME** mantracourt

## Contents

DS485DIS Overview .....	2
Requirements.....	2
Configuration.....	2
Operational Modes.....	2
Item Mode.....	2
Result Mode.....	2
Button Functions.....	2
Button 1 .....	2
Item Mode.....	2
Result Mode.....	2
Button 4 .....	3
Item Mode.....	3
Result Mode.....	3
LED Functions .....	3
NET LED .....	3
RESULT LED .....	3
Item Mode.....	3
Result Mode.....	3
System Zero.....	3
Physical Connections .....	3
Configuration Connections .....	3
Connecting to up to 4 DSCs using DSJ4 .....	4
Connecting to between 5 and 8 DSCs using DSJ4 .....	5
Error Reporting.....	5
The Command List.....	6
Specification.....	8
Environmental.....	8
CE Approvals.....	8
Warranty .....	8

## DS485DIS Overview



The DS485DIS is an LED display module which allows up to eight (8) DSC or DLC devices to be connected and summed.

The display can toggle between gross and a zeroed net display and optionally allows the user to cycle through the individual displays that form the sum.

The inputs are all synchronised so the summed display is a true representation of the instantaneous input without skew.

## Requirements

This display can connect to various DSC and DLC devices but do require an RS485 interface and the MantraBus II protocol.

Suitable devices are: DSCS4MAN, DSCH4MAN, DLCSMAN and DLCHMAN.

The DSC and DLC devices must have sequential station numbers from 1 to the total number of devices. The default baudrate is 115200.

## Configuration

This module is configured using an RS232 connection to a PC or laptop. Mantracourt's Instrument Explorer with a DS485DIS driver is used for configuration.

The Station number of this module is fixed at 253 and the default RS232 baudrate is 115200.

## Operational Modes

There are two modes of operation.

### Item Mode

The user can select which input value to view and can toggle between Gross and Zeroed Net mode.

### Result Mode

The display normally shows a **Result** (Default is **sum** but other functions are available see later) of all inputs which can be toggled between Gross and Zeroed Net mode.

Also the user can step through the individual items to view their values. If in Net mode then each item can be viewed as Gross or Net.

After a user settable delay the display will always revert to the Result display.

## Button Functions

### Button 1

Toggles between Gross display and Net display. When switching from Gross to Net display a tare is performed.

### Item Mode

Any Time

Toggles between Gross display and Net display. When switching from gross to Net display a tare is performed.

### Result Mode

Viewing Result

Toggles between Gross display and Net display. When switching from gross to Net display a tare is performed.

Viewing Items when in Gross mode

No effect.

Viewing Items when in Net mode

Toggles the individual item display between gross and net but does not apply a zero.

**Button 4** Selects next item to view.

**Item Mode**

Any Time Selects the next item. Once the last item is reached the next item to be displayed will be the first item.

**Result Mode**

Any Time Selects the next individual item to view. Once the last item is reached the next item to be displayed will be the result.

**LED Functions**

**NET LED**

Any Time Indicates the display is showing a Net value.

**RESULT LED**

**Item Mode** Always Off.

**Result Mode**

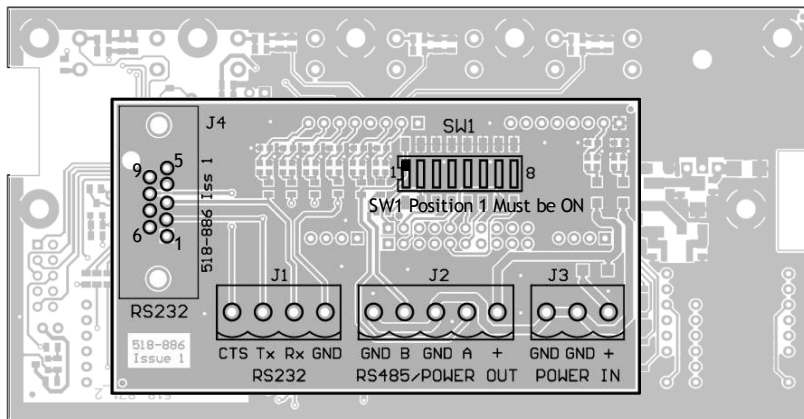
Indicates when an individual item is being displayed rather than the Result.

**System Zero**

Once the module is installed it may be necessary to perform a system zero. To do this power off the DS485DIS and hold down keys 1, 2 and 4 and re-apply the power. The normal reading will be displayed for a couple of seconds but should then reset to zero. The keys can now be released. The system zero can be re-applied at any time. Performing this will reset to Gross mode. To remove the system zero the communication interface must be used.

**Physical Connections**

**Configuration Connections**



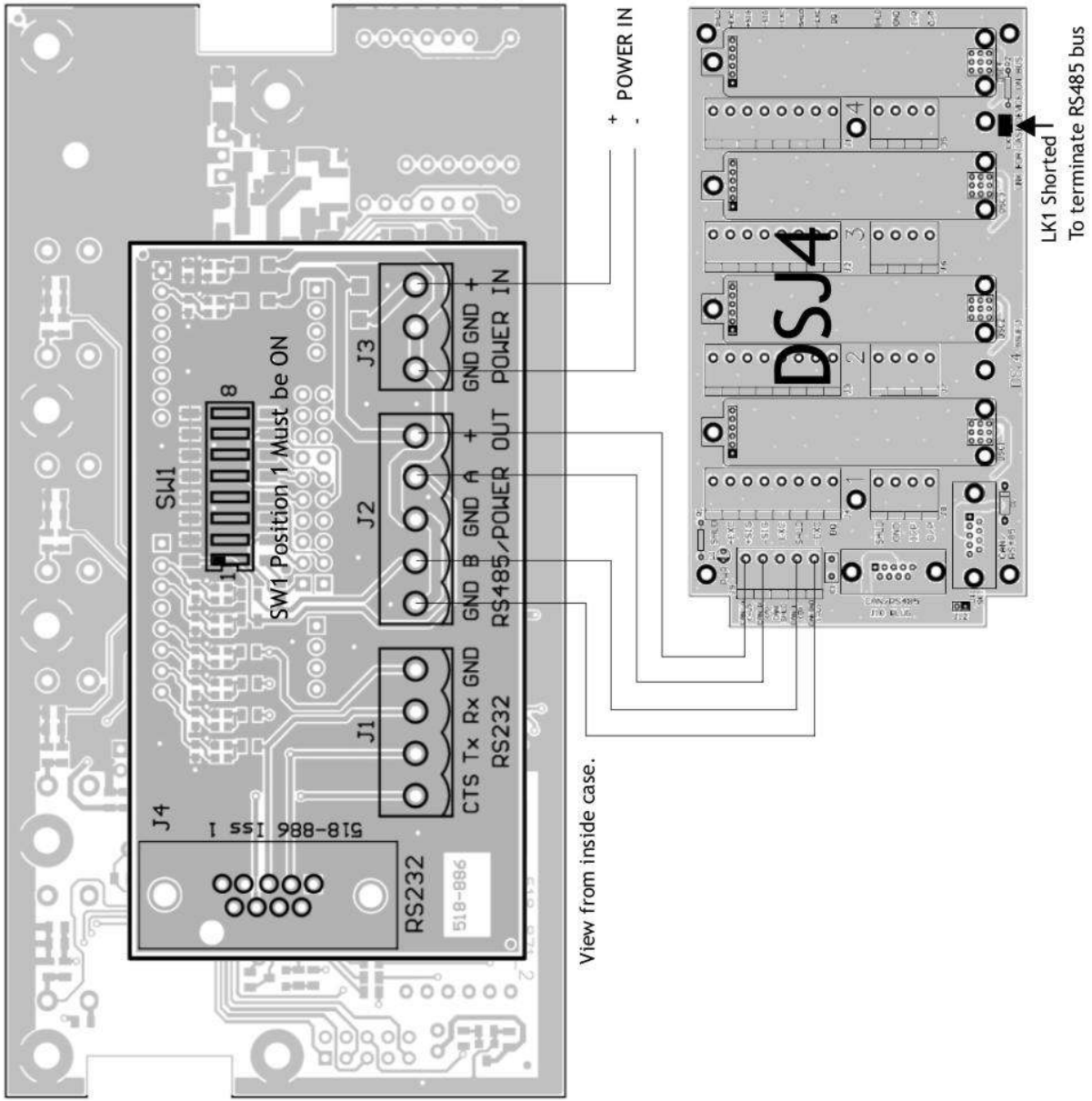
View from inside case.

9 Way 'D' Socket RS232 Pinouts

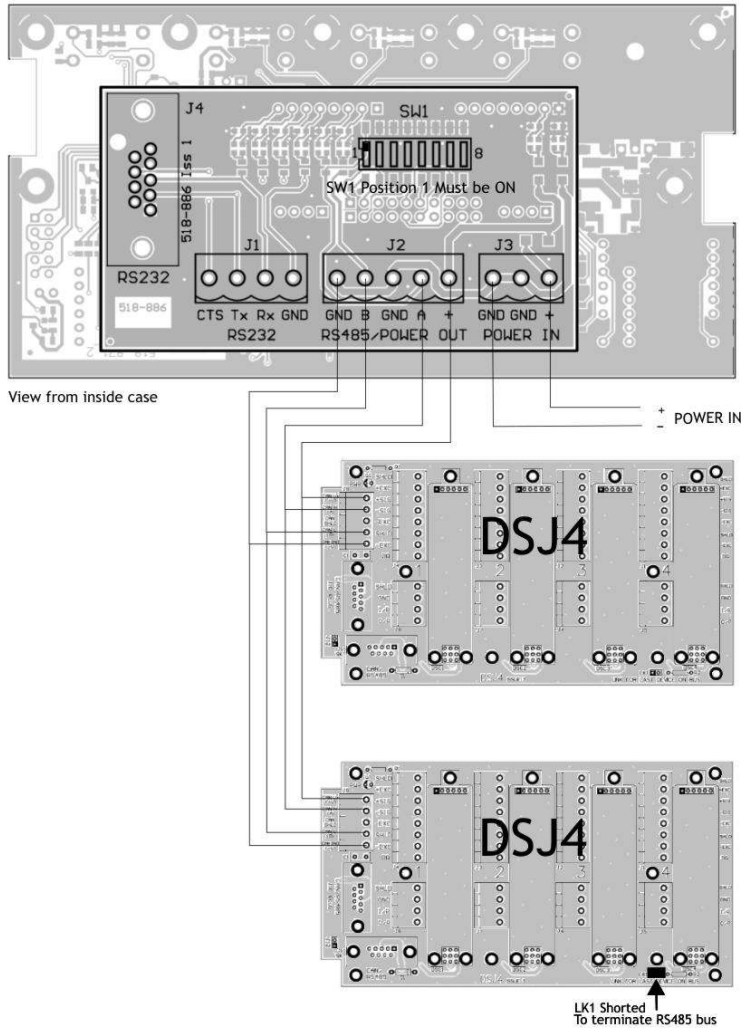
Pin	Function
2	TX (Out)
3	RX (In)
5	GND

To configure the module connect to a PC serial port. A simple 9 way 'D' type cable extension (pin to pin) can be used to connect to the 9 way 'D' connector on a PC. It may be that a USB to RS232 converter is required if your PC does not have an RS232 port. Alternatively you can connect via the 4 terminal RS232 connector.

Connecting to up to 4 DSCs using DSJ4



## Connecting to between 5 and 8 DSCs using DSJ4



## Error Reporting

When errors occur in communications on one of the attached DSC or DLC modules the display will show Err followed by a 2 digit error code.

The first digit indicates which DSC / DLC station number the error has occurred on.

The second digit indicates the error.

Only one error will be displayed at a time and on clearing the error the next (if one exists) will be displayed.

All errors are self resetting.

2 <sup>nd</sup> Digit	Description
1	Communication error
2	Loadcell integrity error
3	Loadcell underrange
4	Loadcell Overrange
5	Cell limits exceeded
6	Sys limits exceeded
7	Temperature limits exceeded

Errors 5 and 6 are dependant on parameter settings in the modules. The CMIN, CMAX, SMIN and SMAX parameters will set the limits for these errors.

## The Command List

Below is the list of Mantrabus parameters supported by the module:

Parameter Name	Command Number	Description	Data Type																						
B485	40	<p>Baudrate for RS485 port for connection to DSC and DLC bus. This requires a RST command or a power cycle to activate.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Baudrate</th> </tr> </thead> <tbody> <tr><td>0</td><td>2400</td></tr> <tr><td>1</td><td>4800</td></tr> <tr><td>2</td><td>9600</td></tr> <tr><td>3</td><td>19200</td></tr> <tr><td>4</td><td>38400</td></tr> <tr><td>5</td><td>57600</td></tr> <tr><td>6</td><td>76800</td></tr> <tr><td>7</td><td>115200</td></tr> <tr><td>8</td><td>230400</td></tr> <tr><td>9</td><td>460800</td></tr> </tbody> </table> <p><b>Default = 7 (115200)</b> <b>Range = 0 to 9</b></p>	Value	Baudrate	0	2400	1	4800	2	9600	3	19200	4	38400	5	57600	6	76800	7	115200	8	230400	9	460800	Read/write
Value	Baudrate																								
0	2400																								
1	4800																								
2	9600																								
3	19200																								
4	38400																								
5	57600																								
6	76800																								
7	115200																								
8	230400																								
9	460800																								
B232	41	<p>Baudrate for RS232 port for connection to PC for configuration. This requires a RST command or a power cycle to activate.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Baudrate</th> </tr> </thead> <tbody> <tr><td>0</td><td>2400</td></tr> <tr><td>1</td><td>4800</td></tr> <tr><td>2</td><td>9600</td></tr> <tr><td>3</td><td>19200</td></tr> <tr><td>4</td><td>38400</td></tr> <tr><td>5</td><td>57600</td></tr> <tr><td>6</td><td>76800</td></tr> <tr><td>7</td><td>115200</td></tr> </tbody> </table> <p><b>Default = 7 (115200)</b> <b>Range = 0 to 7</b></p>	Value	Baudrate	0	2400	1	4800	2	9600	3	19200	4	38400	5	57600	6	76800	7	115200	Read/write				
Value	Baudrate																								
0	2400																								
1	4800																								
2	9600																								
3	19200																								
4	38400																								
5	57600																								
6	76800																								
7	115200																								
NOSV	42	<p>Sets or returns the number of DSC or DLC devices connected.</p> <p><b>Default = 1</b> <b>Range = 1 to 8</b></p>	Read/write																						
INTV	43	<p>Sets or returns the interval between display updates (and thus the rate at which the connected DSC and DLC modules are interrogated). This requires a RST command or a power cycle to activate.</p> <p><b>Default = 300</b> <b>Range = 50 to 6000</b></p>	Read/write																						
DP	44	<p>Sets or returns the position of the decimal point.</p> <p><b>Default = 3</b> <b>Range = 0 to 5</b></p>	Read/write																						
RS	45	<p>Sets or returns the resolution of the display. i.e. the value that the display increments by such as 0.5.</p> <p><b>Default = 0</b> <b>Range = Unlimited</b></p>	Read/write																						

<b>FUNC</b>	46	<p>Sets or returns the current operating mode. This requires a RST command or a power cycle to activate.</p> <table border="1"> <thead> <tr> <th>Value</th> <th>Mode</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>Item Mode</td> </tr> <tr> <td>1</td> <td>Result Mode Sum 1+2+3+4+5+6+7+8</td> </tr> <tr> <td>2</td> <td>Result Mode (1+3+5+7)-(2+4+6+8)</td> </tr> <tr> <td>3</td> <td>Result Mode (1+3+5+7)/(2+4+6+8)</td> </tr> <tr> <td>4</td> <td>Result Mode (1+3+5+7)*(2+4+6+8)</td> </tr> </tbody> </table> <p><b>Default = 1</b> <b>Range = 0 to 4</b></p>	Value	Mode	0	Item Mode	1	Result Mode Sum 1+2+3+4+5+6+7+8	2	Result Mode (1+3+5+7)-(2+4+6+8)	3	Result Mode (1+3+5+7)/(2+4+6+8)	4	Result Mode (1+3+5+7)*(2+4+6+8)	Read/write
Value	Mode														
0	Item Mode														
1	Result Mode Sum 1+2+3+4+5+6+7+8														
2	Result Mode (1+3+5+7)-(2+4+6+8)														
3	Result Mode (1+3+5+7)/(2+4+6+8)														
4	Result Mode (1+3+5+7)*(2+4+6+8)														
<b>K1OP</b>	50	<p>Sets or returns whether Key 1 is operational. <b>Default = 1</b> <b>Range = 0 to 1</b></p>	Read/write												
<b>K2OP</b>	51	<p>Sets or returns whether Key 2 is operational. <b>Default = 1</b> <b>Range = 0 to 1</b></p>	Read/write												
<b>K3OP</b>	52	<p>Sets or returns whether Key 3 is operational. <b>Default = 1</b> <b>Range = 0 to 1</b></p>	Read/write												
<b>K4OP</b>	53	<p>Sets or returns whether Key 4 is operational. <b>Default = 1</b> <b>Range = 0 to 1</b></p>	Read/write												
<b>K4TO</b>	54	<p>Sets or returns duration that individual items are displayed for (in seconds) before automatically returning to display the Result. Only effective in Result Mode. <b>Default = 10</b> <b>Range = 0 to 255</b></p>	Read/write												
<b>RST</b>	100	<p>Resets the module. Some parameter changes require a reset to become active. These are B485, B232, FUNC and INTV.</p>	Command												
<b>DOZR</b>	101	<p>Performs a system zero.</p>	Command												
<b>REMZ</b>	102	<p>Removes system zero.</p>	Command												



## Specification

<b>Supply Voltage:</b>	
Nominal Voltage	8 to 18V dc
<b>Current Consumption: (no modules connected)</b>	
Nominal	200mA max
<b>Communications:</b>	
Module Communications Bus	RS485 8 data bits, 1 stop bit, no parity.
Configuration Bus	RS232 8 data bits, 1 stop bit, no parity.

## Environmental

Storage temperature	-20 to +70 ° C
Operating temperature	-10 to +50 ° C
Relative humidity	95% maximum non condensing
Front panel sealing	IP65

## CE Approvals

European EMC Directive                    2004/108/EC  
 BS EN 61326-1:2006  
 BS EN 61326-2-3:2006

Low Voltage Directive                    2006/95/EC  
 BS EN 61010-1:2001  
 Rated for Basic Insulation  
 Normal Condition  
 Pollution Degree 2  
 Permanently Connected  
 Insulation Category III

## Warranty

All DS485DIS products from Mantracourt Electronics Ltd., ('Mantracourt') are warranted against defective material and workmanship for a period of (3) three year from the date of dispatch.

If the 'Mantracourt' product you purchase appears to have a defect in material or workmanship or fails during normal use within the period, please contact your Distributor, who will assist you in resolving the problem. If it is necessary to return the product to 'Mantracourt' please include a note stating name, company, address, phone number and a detailed description of the problem. Also, please indicate if it is a warranty repair.

The sender is responsible for shipping charges, freight insurance and proper packaging to prevent breakage in transit.

'Mantracourt' warranty does not apply to defects resulting from action of the buyer such as mishandling, improper interfacing, operation outside of design limits, improper repair or unauthorised modification.

No other warranties are expressed or implied. 'Mantracourt' specifically disclaims any implied warranties of merchantability or fitness for a specific purpose. The remedies outlined above are the buyer's only remedies. 'Mantracourt' will not be liable for direct, indirect, special, incidental or consequential damages whether based on the contract, tort or other legal theory.

Any corrective maintenance required after the warranty period should be performed by 'Mantracourt' approved personnel only.



© In the interests of continued product development, Mantracourt Electronics Limited reserves the right to alter product specifications without prior notice.

Code No. 517-912	Issue 1.2	21.08.13
------------------	-----------	----------