SERIALDIS
Serial ASCII Display Module

User Manual

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Contents

SERIALDIS Overview

The SERIALDIS is a 6 digit LED display module which displays ASCII data sent to it via an RS232 or RS485 serial connection.
The device has addressing support so multiple devices can be driven whilst residing on a serial bus.
Being a 7 segment display it is not possible to display all alphanumeric characters so this display is primarily for numeric data.

Overview

Requirements

The module requires a serial input, either RS232 or RS485, which supplies the data to display followed by a carriage return.
The baudrate is selectable from 9600 to 115200 but is fixed at 8 data bits, 1 stop bit and no parity.

Configuration

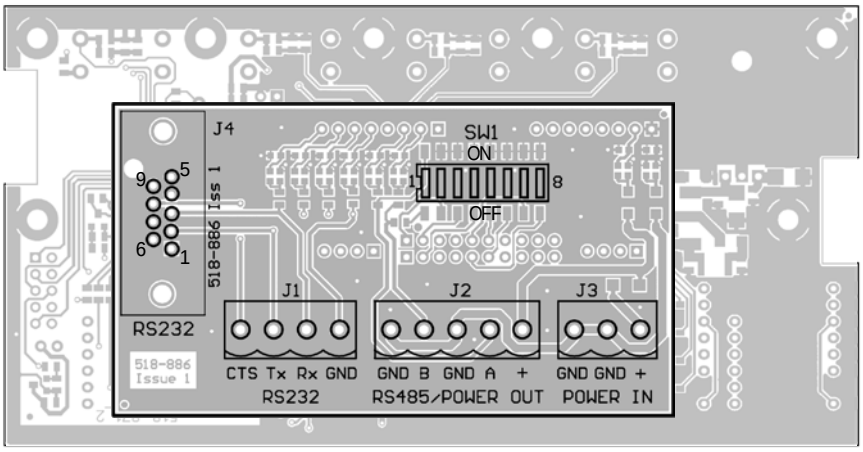
Configuration is by DIP switches where the baudrate and address can be set.

Operation

The display accepts ASCII data and on receipt of a carriage return character (decimal 13, hexadecimal 0D) the data will be displayed.

Physical Connections

Single PC Connection



View from inside case.

Connect power to The 'Power In' connector.

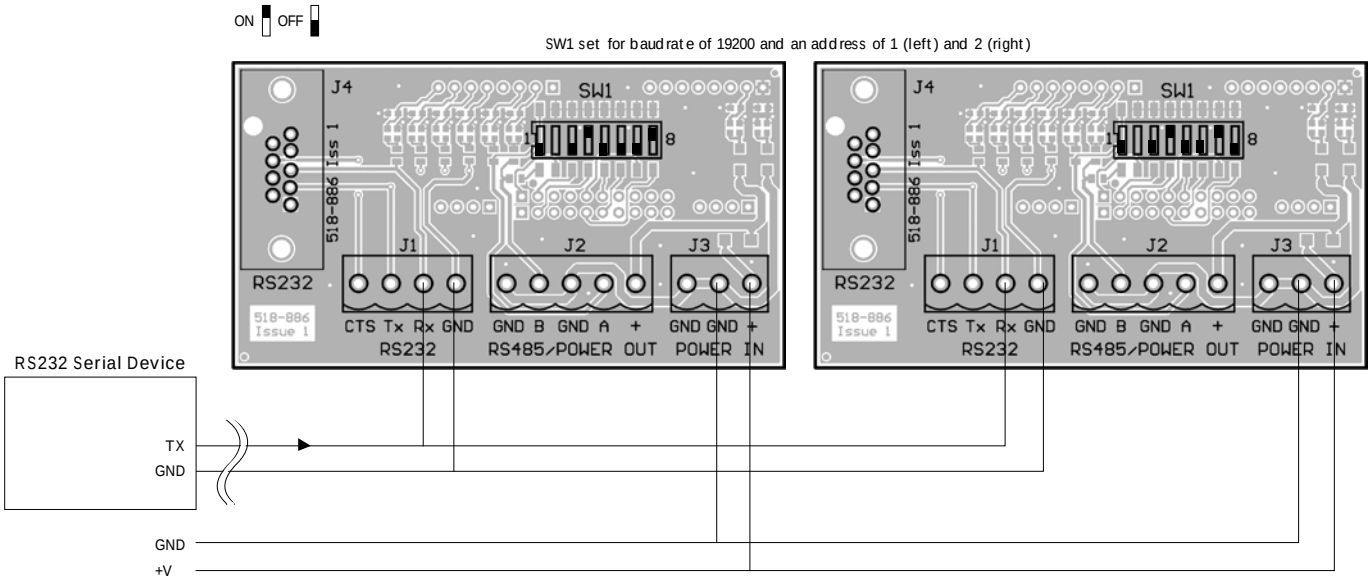
Connect to the serial bus using either J1 or J4 for RS232 or J2 for RS485.

9 Way 'D' Socket RS232 Pinouts

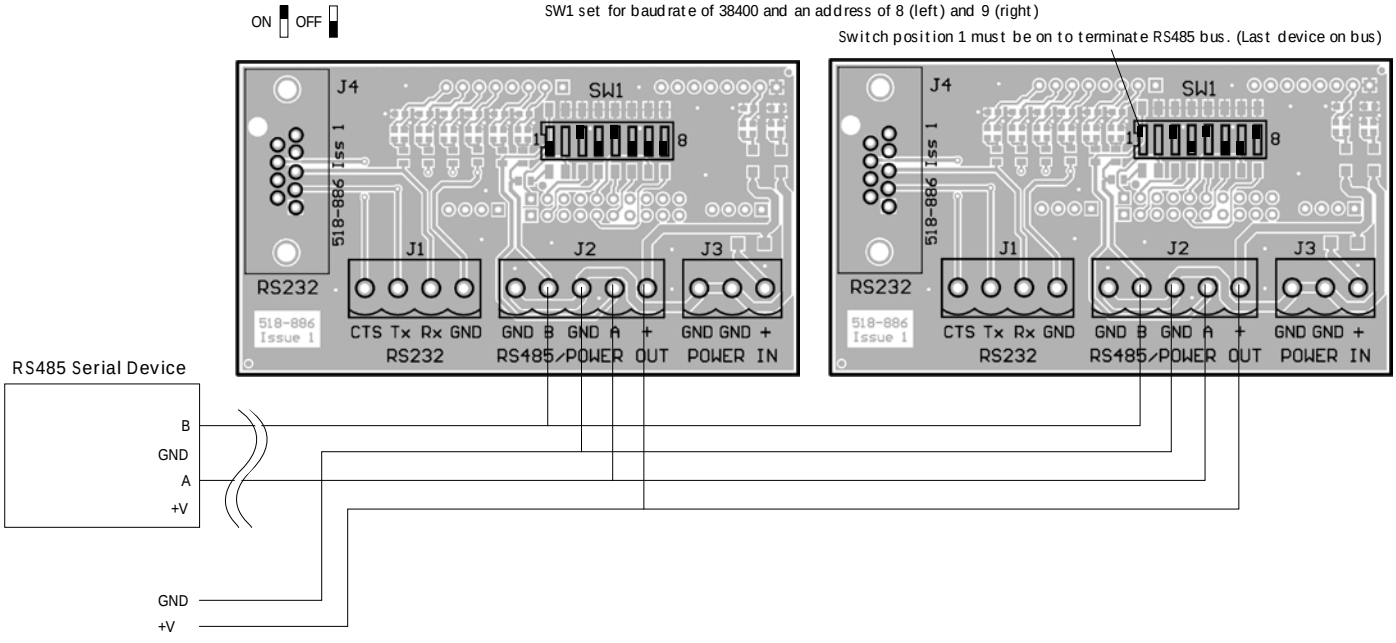
3	**RX (In)**
5	**GND**

J4 has been designed to enable a quick connection to a PC for testing by using a 9 way D cable extension (pin to pin) and connecting to the PC 9 way D socket.

Multidrop RS232



Multidrop RS485



Configuration

RS485 Terminating resistor, baudrate and address can be selected by DIP switch SW1. The numbers at the top of each table refer to the individual switches in SW1.

RS485 Terminator Resistor

On an RS485 bus the first and last modules on the bus should be terminated with a 120R resistor.

1	
Off	No Terminating Resistor
On	120R Terminating Resistor Applied

Baudrate

Set the baudrate to match the data that will drive the display.

3	**4**	
Off	Off	9600
Off	On	19200
On	Off	38400
On	On	115200

Address

Set the address of the display. To disable addressing set to all Off.

5	**6**	**7**	**8**	
Off	Off	Off	Off	0
Off	Off	Off	On	1
Off	Off	On	Off	2
Off	Off	On	On	3
Off	On	Off	Off	4
Off	On	Off	On	5
Off	On	On	Off	6
Off	On	On	On	7
On	Off	Off	Off	8
On	Off	Off	On	9
On	Off	On	Off	10
On	Off	On	On	11
On	On	Off	Off	12
On	On	Off	On	13
On	On	On	Off	14
On	On	On	On	15

NOTE: DIP switch changes require a power cycle to implement.

Error Reporting

If no serial data arrives for within 10 seconds (default) the display will show NoData. As soon as new data arrives this will be displayed instead.

Control Codes

Embedding control codes in the ASCII data can control certain functions of the display.

Control Byte	Value Byte	Function
0x01	Address	The value byte contains the address of the display device to send the data to.
0x02	Timeout	The value byte contains the new timeout period in seconds. This can be between 0 and 30. The default is 10.
0x03	LEDs	The value byte contains value whose binary bit values indicate whether to turn on or off the row of 4 LEDs. A value of 1 would light the rightmost LED. A value of 8 would light the left most LED. A value of 3 would light the two right hand LEDs.
0x04	Flash	The value byte indicates whether to flash the display. A value of 1 will cause the display to flash and a value of zero will stop it flashing.

Addressing

Up to 15 display modules can be uniquely addressed on an RS232 or RS485 bus. To address a particular module send the special control character 0x01 followed by a byte indicating the address.
i.e. To send data to display module addressed as 7 the following would be sent:

`[0x01][0x07]123.456[0x0D]`

Where the square brackets indicate a single byte whose value is shown in hexadecimal.

If data is sent with no addressing control bytes then all displays will show the data.
If a module is addressed as zero via SW1 then it will display all data.

Display Examples

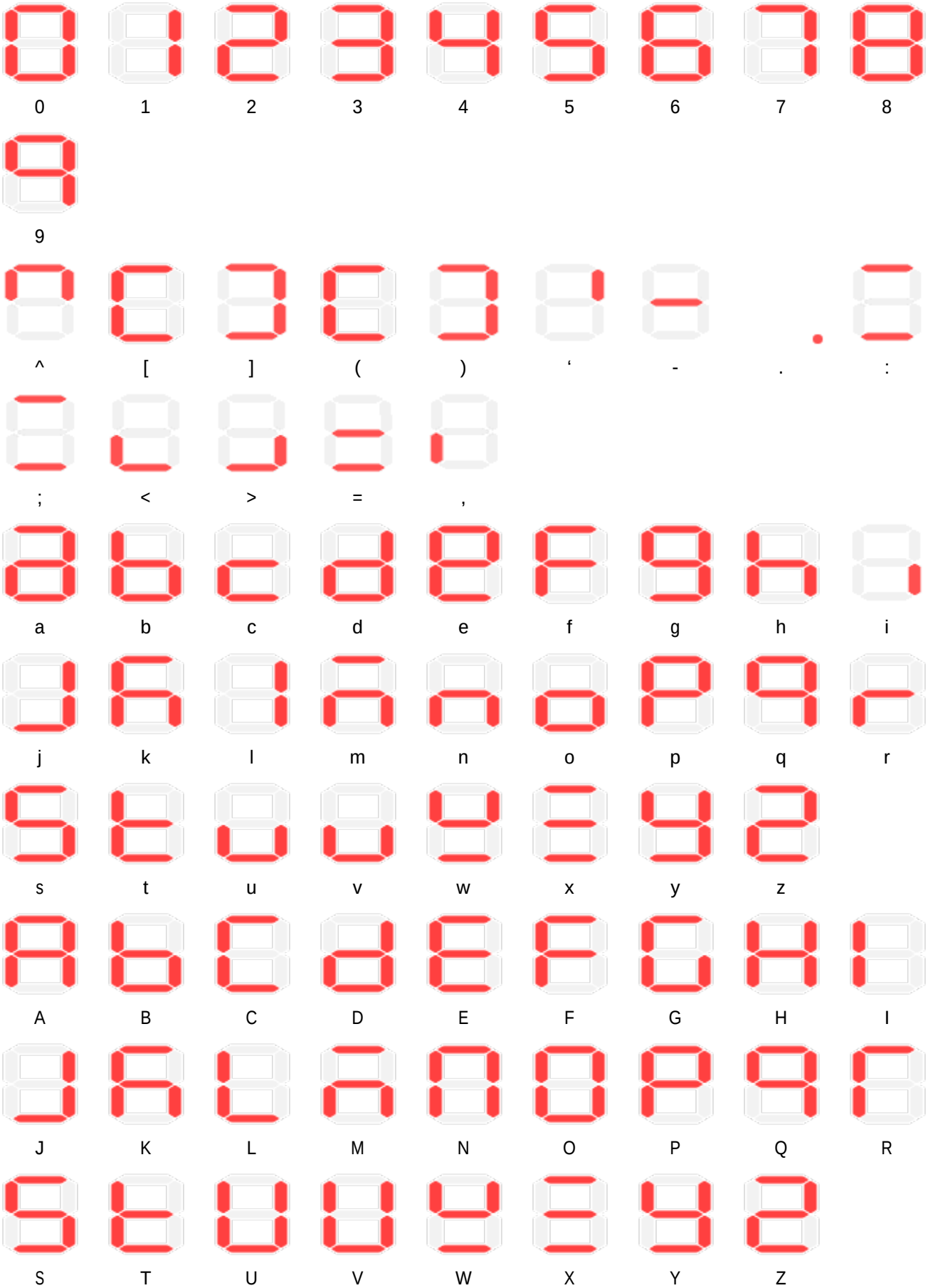
Each piece of data sent to the display must end in a carriage return (decimal 13, hexadecimal 0x0D). For clarity the carriage returns are not shown in the following table.
The following examples show the resulting display for data received:

`123.4`	123.4
`-123.456`	-123.456
`-00123.4`	-00123.4
`Hello`	HELLO

WARNING: if more data is sent than will fit in the 6 digit display the right most portion will be shown. Take care when sending numeric data that it is not too long otherwise integer digits will be lost.

`-123.4567`	23.4567
`1234.56789`	4.56789

Character Representations



Specification

Supply Voltage:	
Nominal Voltage	8 to 18V dc
Current Consumption:	
Max	200mA
Communications:	
RS232 and RS485	8 data bits, 1 stop bit, no parity.

Environmental

Storage temperature	- 20 to +70ºC
Operating temperature	-10 to 50ºC
Relative humidity	95% maximum non condensing

CE Approvals

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

Warranty

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

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

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