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SE-485-DIN MANUAL

OPTICALLY ISOLATED RS-232 TO RS-422/485 CONVERTER

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DISCLAIMER

Specifications are subject to change without notice. Startco Engineering Ltd. is not liable for contingent or consequential damages, or for expenses sustained as a result of incorrect application, incorrect adjustment, or a malfunction.

This product has a variety of applications. Those responsible for its application must take the necessary steps to assure that each installation meets all performance and safety requirements including any applicable laws, regulations, codes, and standards.

Information provided by Startco is for purposes of example only. Startco does not assume responsibility for liability for use based upon the examples shown.

1. INTRODUCTION

1.1 GENERAL

Startco Engineering Ltd. purchases the 485LDRC9 from B&B Electronics Ltd and modifies this component to create the SE-485-DIN. Sections of this manual were taken from the B&B Electronics publication "485LDRC9-1903-1/3", tables were revised to reflect our unique application.

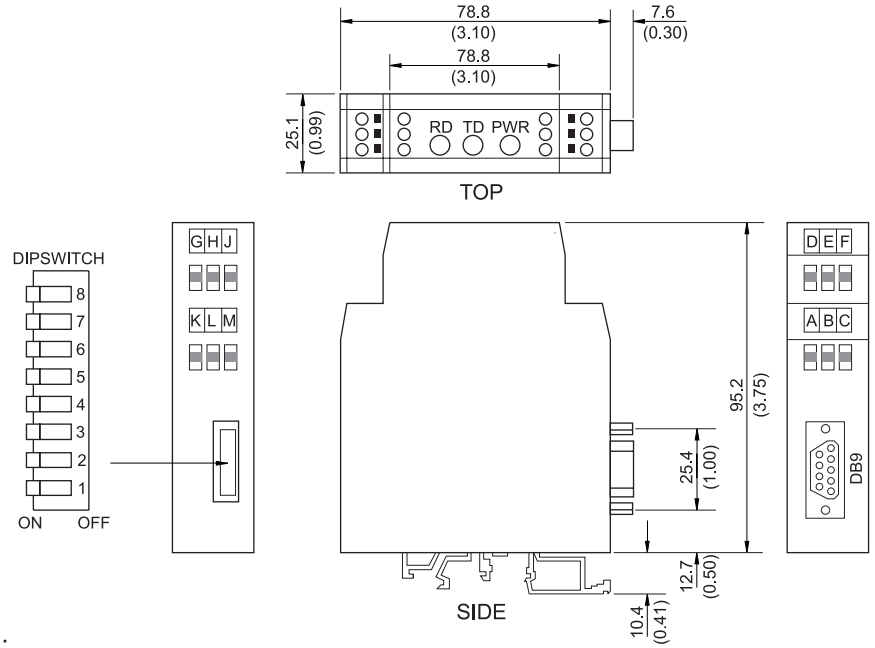
The SE-485-DIN optically isolates and converts unbalanced, full or half-duplex RS-232 signals to optically isolated, balanced, full or half-duplex RS-422 or RS-485 signals at baud rates up to 115.2 kbps. This unit also surge suppresses the RS-422/485 lines. It features Send Data Control circuitry so no software control of handshake lines is required in RS-485 mode.

Baud rate is switch selectable from 9600 baud to 57600 baud. In two-wire RS-485 mode, the SE-485-DIN is compatible with all Startco products with the RS-, EIA-, or TIA-485 interface.

1.2 DESCRIPTION

Three LED's indicate RS-485 Transmit Data, RS-485 Receive Data, and Power.

The SE-485-DIN has terminal blocks on the RS-232 side and the RS-422-485 side. The RS-232 side also has a DB9 female connector. Transmit (TD), Receive (RD) and Ground are supported on the RS-232 side. The unit is powered by a supply voltage of 10 to 30 Vdc on the RS-232 side. Transmit Data A (-), Transmit Data B (+), Receive Data A (-), Receive Data B (+), and Ground are supported on the RS-422/RS-485 side. Communication features on the SE-485-DIN are dipswitch selectable on the unit.



NOTES:

1. DIMENSIONS IN MILLIMETRES (INCHES).

TERMINAL BLOCK CONFIGURATION
RS-232

(D)	TD (input)
(A)	RD (output)
(B)	SIG. GND
(F)	+10 to 30 V DC
(C)	PWR. GND

RS-422/485

TDA	(G) Tx inverted or (-) (output)
RDA	(K) Rx inverted or (-) (input)
TDB	(H) Tx non-inverted or (+) (output)
RDB	(L) Rx non-inverted or (+) (input)
ISO GND	(M) Signal Ground/Common

DB9 FEMALE CONFIGURATION
RS-232

Pin 2	RD (output)
Pin 3	TD (input)
Pin 5	SIG. GND

FIGURE 1 Outline and Configuration Details

2. INSTALLATION

The SE-485-DIN is DIN rail mountable.

To **remove** Converter from Din Rail:

- Place a flat-blade screwdriver blade in disengage clip on the converter enclosure.
- Gently pry on screwdriver handle.
- Rock enclosure toward you to release it from the DIN rail.

3. OPERATION AND SETUP

Switch 1, 2, 3, and 4 select the interface mode. For Startco applications set Switch 1, 2, 3, and 4 to ON. Use terminal G (-) and H (+) for network connection.

Send Data Control recognizes the first bit of data from the RS-232 side, enables the transmitter and disables the receiver. After the last bit of data is sent from the RS-232 side and a one-character timeout has occurred, the transmitter is disabled and receiver is enabled. For 9600 to 57600 baud the timeout is selected with dipswitches. For other baud rates, the timeout is set by R11 inside the unit (see Table 3.2). A 120 Ω termination resistance is selected with Switch 5.

TABLE 3.1 TYPICAL COMMUNICATION SETUPS

	Switch 1 TX Enable	Switch 2 RX Enable	Switch 3, 4
RS-485 2-Wire Mode (Startco setting)	ON	ON	Both ON (3)
RS-485 4-Wire Mode	ON	OFF (2)	Both OFF (4)
RS-422 4-Wire Mode	OFF (1)	OFF (2)	Both OFF (4)

(1) Transmitter always ON.
(2) Receiver always ON.
(3) For 2-wire mode, terminal G (TDA) is connected to K (RDA) and terminal H (TDB) is connected to L (RDB).
(4) For 4-wire mode, G (TDA) and H (TDB) are the transmit pair and K (RDA) and L (RDB) are the receiver pair.

TABLE 3.2 BAUD RATE SELECTION

	Switch 6	Switch 7	Switch 8	R11	Timeout (ms)
1200	OFF	OFF	OFF	820 kΩ	8.33
2400	OFF	OFF	OFF	430 kΩ	4.16
4800	OFF	OFF	OFF	200 kΩ	2.08
9600*	OFF	OFF	ON	Not Installed	1.04
19200*	OFF	ON	OFF	Not Installed	.540
38400*	ON	OFF	OFF	Not Installed	.260
57600*	ON	ON	OFF	Not Installed	.176
115200	OFF	OFF	OFF	8.2 kΩ	.0868

*Switch Selectable

4. TECHNICAL SPECIFICATIONS

Supply ..... +10 to 30 Vdc @ 100 mA

Temperature Range ..... -40 to +80°C

Humidity Range ..... 0 to 95% non-condensing

Data Rates ..... 1200 bps to 115200 bps
9600 bps to 57600 bps
switch selectable (1)
See Table 3.2

Isolation ..... 2000 Vac optical isolation
of data signals and ground

Surge Suppression ..... 7.5 v, bi-directional
avalanche breakdown
device.
500 W peak power
dissipation.

Clamping Time ..... <1 picosecond
(theoretical)

(1) Switch settings provide a one character delay from transmit to receive.

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