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DF58

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VERSION 2.0

INSTALLATION MANUAL

RS232 / RS485 INTERFACE



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web: www.smar.com

**Specifications and information are subject to change without notice.
For the latest updates, please visit the SMAR website above.**

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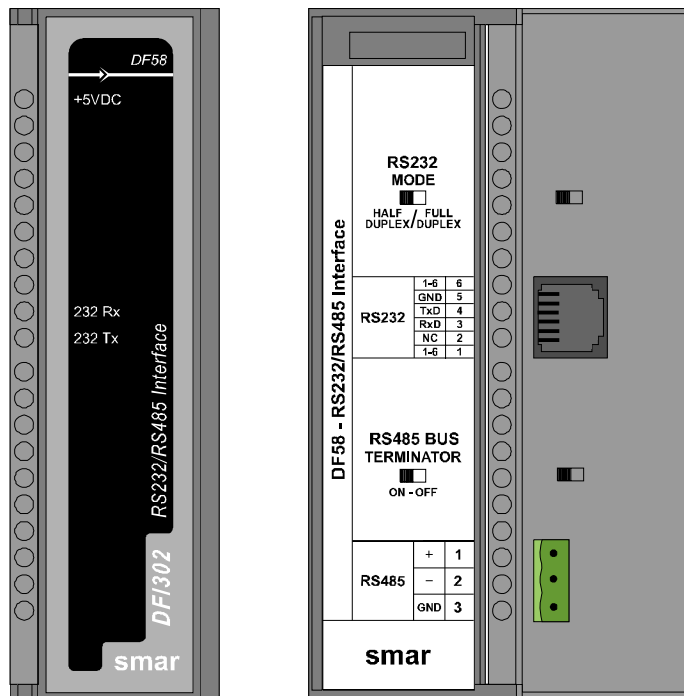
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DF58 - RS232/RS485 INTERFACE

Description

This module converts the electrical characteristics of the communication signal from the EIA-232 (RS-232) specification to EIA-485 (RS-485) specification. Due to fundamental difference between EIA-232 and EIA-485 purposes, which the first is proper to peer-to-peer applications, this module was implemented to work automatically. No control signal is necessary to manage the bus contention at EIA-485 side. You just need to connect the transmission and reception lines on the both sides to put the interface to work.

The converter circuit provides signal isolation to grant a safe connection between two systems. This module was designed to use the DF1/LC platform and so, no power supply was embedded in the board. It uses the +5Vdc lines from the rack to energize the circuit.



Interface Settings

There are two interface settings located on the front panel to adapt this interface to your applications: EIA-232 Mode and EIA-485 Bus Terminator.

EIA-232 Mode: Half-Duplex/Full-Duplex

The EIA-232 Mode setting adapts the use of EIA-232/EIA-485 Interface to your communication driver at EIA-232 side. Normally, the interfaces this type that connect unidirectional buses with bi-directional bus, the unidirectional bus will can present the Full-Duplex features caused by transmission message reflection (echo).

If your driver does not treat accordingly the reception simultaneously with the transmission messages, or by disabling the reception or by discarding the reflected message, you need to select the Half-Duplex option. If the reflected message does not cause disturb on your applications, you can select the Full-Duplex option.

EIA-485 Bus Terminator: On/Off

The EIA-485 is a multidrop type bus and so, the transmitter driver is put on high impedance (Hi-Z) state when there is no message to transmit. Therefore, the EIA-485 bus requires a bus terminator to prevent noise problems during the idle state of the EIA-485.

For right line impedance matching you need to activate only one terminator by bus. Leave others terminators deactivated.

Connectors

There are two connectors on the front panel to interconnect two communication systems. The first, a RJ12 type connector is used for EIA-232 systems and the other, a terminal block type connector is used for EIA-485 systems.

RJ12 Pin Assignment

Pin Number	Description
1	Connected to 6 pin
2	Not used
3	RxD: EIA-232 input signal - reception
4	TxD: EIA-232 output signal - transmission
5	GND: EIA-232 signal ground
6	Connected to 1 pin

Note

The 1 and 6 pins are interconnected to allow the interconnection of the modem signals when required by communication drivers, like as Clear-To-Send (CTS) with Request-To-Send (RTS).

Block Terminal Pin Assignment

Pin Number	Description
1	+: EIA-485 Noninverting signal
2	-: EIA-485 Inverting Signal
3	GND: Reference for EIA-485 Communication Signal

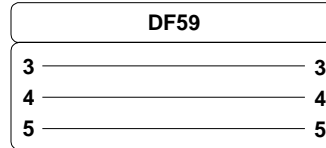
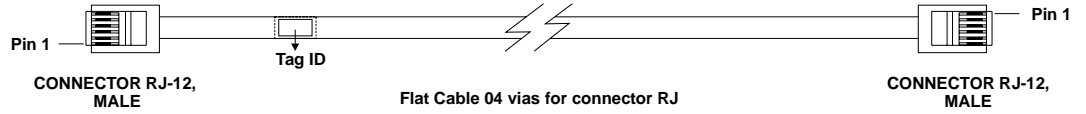
Note

The GND pin is used to set a common voltage ground reference for all EIA-485 nodes. The EIA-485 side of EIA-232/EIA-485 Interface is isolated and left on floating state. To avoid undesirable high common mode voltage it is recommended to put all EIA-485 nodes on the same voltage reference by connecting all GND pins together and grounding at just one point.

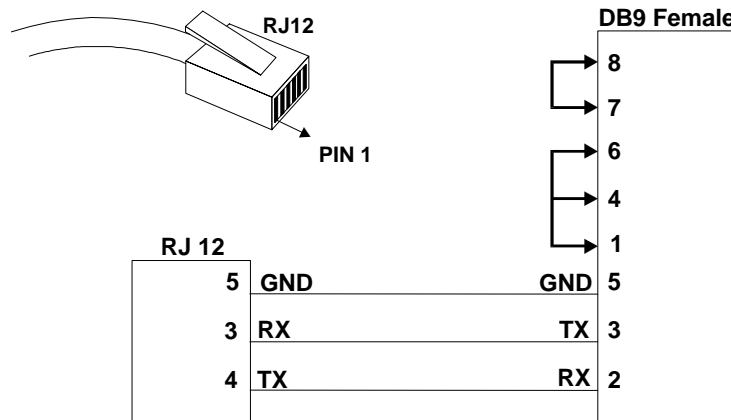
Cabling and Applications

There is a set of cables from Smar to be used according to your applications.

To connect **DF51 (Processor module) and DF58 (RS232/RS485 Interface)**, you need a DF59 cable or just assembly one following the squematic.



To assembly a serial cable between **DF58 (RS232/RS485 Interface) and PC computer**, see the following instructions which show us a connection between RJ12 (used in the DF58) and DB9 Female:



The jumpers under DB9 side are recommended but not necessary. It depends on the application, which is running in PC.

Technical Specifications	
Number of Communication Channel	1
Data Communication Interface	EIA-232 / EIA-485
Data rate	Up to 200 Kbps
EIA-232 side	Enables EIA-232 Half-Duplex or Full-Duplex mode
EIA-485 side	Enables Embedded Bus Terminator activation
Isolation	1600 Vrms @1 minute, typical
Power Supply	Provided by the IMB bus, +5 Vdc, @ 60 mA Typical

Note
In the interconnection of the 485 network, to attend the EMC standard (Electromagnetic capability), it is necessary to use a 3-wire shielded twisted pair cable. Where, two wires are used to communication and the third is used as reference. The shielding must be connected in one of the housing endings.

