

SI-700

smar
FIRST IN FIELDBUS

JUL / 05

SI-700

VERSION 1



SI-700 - EIA-232/ EIA-485 INTERFACE



smar
www.smar.com

Specifications and information are subject to change without notice.
Up-to-date address information is available on our website.

web: www.smar.com/contactus.asp

SI-700 – EIA-232/EIA-485 INTERFACE

Part Number

SI-700 (EIA-232/EIA-485 Interface)

Description

This module converts the electrical characteristics of the communication signal from the EIA-232 specification to the EIA-485 specification. Due to the fundamental differences between the EIA-232 (it is used in peer-to-peer applications) and the EIA-485, this module was implemented to work automatically. No control signal is necessary to manage the bus contention on the EIA-485 side. It is necessary to connect the transmission and reception lines on both sides to make the interface work.

The converter circuit provides signal isolation to grant a safe connection between two systems. This module was designed to use the DFI/LC platform. No power supply was embedded in the board. It uses the +5Vdc lines from the IMB bus to energize the circuit.

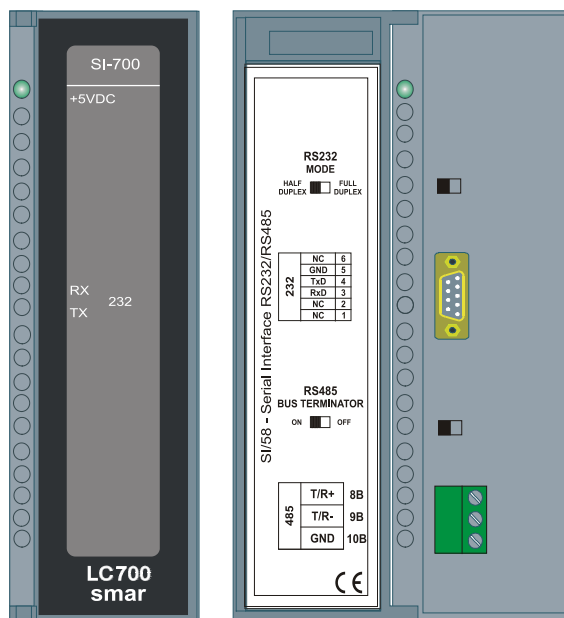


Figure 1- SI-700 Interface EIA-232/EIA-485

Interface Settings

There is two interface settings located on the front panel to adapt this interface to the 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 the communication driver at the EIA-232 side. Normally interfaces of this type connect unidirectional buses with a bi-directional bus. The unidirectional bus will be able to present the Full Duplex features caused by transmission message reflection (echo). If the driver used does not treat properly the reception and the transmissions messages simultaneously, either disabling the reception or discarding the reflected message, it will be necessary to select the Half-Duplex option. If the reflected message does not disturb the applications, you can select the Full-Duplex option.

- EIA-485 Bus Terminator: On/Off

The EIA-485 is a Multidrop type bus. The transmitter driver is put in the 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 the proper line impedance matching it is necessary to activate only one terminator by bus. Leave the other 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 the EIA-232 systems and the other, a terminal block type connector is used for the 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: Pins 1 and 6 are interconnected to allow the handshaking between the modem signals when required by communication drivers, such as Clear-To-Send (CTS) with Request-To-Send (RTS) interconnection.

Pin Block Terminal

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

NOTE

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

Cabling and Applications

For each application, Smar also produces a set of cables to be used accordingly. See the specifications below.

Technical Specifications

Number of Communication Channels	1
Data Communication Interface	EIA-232 / EIA-485
Baud rate	Up to 200 Kbps enable
EIA-232 side	Enables EIA-232 Half-Duplex or Full-Duplex mode
EIA-485 side	Enables Embedded Bus Terminator activation
Protection EIA-485	No transmission when the bus is in break state.
Isolation	1600 Vrms @1 minute, typical
Power Supply	Supplied by the IMB bus, +5 Vdc, @ 100 mA, typical

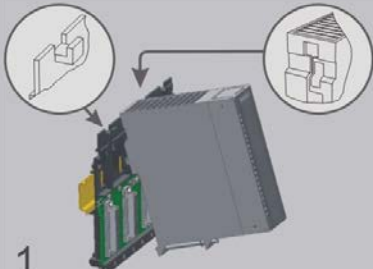

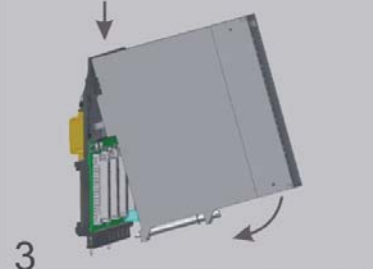
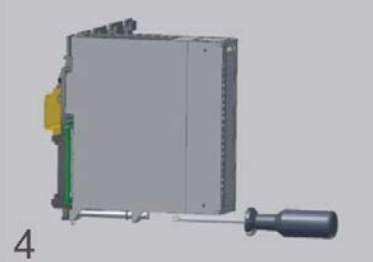


NOTE

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.

Installing the Module in the Rack

Follow the steps below to install the module in the rack.

 <p>1</p>	<p>Attach the top of the module (with a 45° inclination) to the module support located on the upper part of the rack.</p>
 <p>2</p>	<p>Mounting detail.</p>
 <p>3</p>	<p>Push the module fixing it to the module connector.</p>
 <p>4</p>	<p>Next, fix the module to the rack using a screwdriver, and fasten the fixation screw at the bottom of the module.</p>

Appendix A

smar	SRF – SERVICE REQUEST FORM	
	SI-700 –EIA-232/EIA-485 Interface	Proposal N°: _____
COMPANY INFORMATION		
Company: _____		
Unit: _____		
Invoice: _____		
COMMERCIAL CONTACT		
Full Name: _____		
Phone: _____		Fax: _____
E-mail: _____		
TECHNICAL CONTACT		
Full Name: _____		
Phone: _____		Extension: _____
E-mail: _____		
EQUIPMENT DATA		
Model: _____		
Serial Number: _____		
PROCESS DATA		
Process Type (Ex. boiler control): _____		
Operation Time: _____		
Failure Date: _____		
FAILURE DESCRIPTON		
(Please, describe the failure. Can the error be reproduced? Is it repetitive?)		

OBSERVATIONS		

USER INFORMATION		
Company: _____		
Contact: _____		
Section: _____		
Title: _____		Signature: _____
Phone: _____		Extension: _____
E-mail: _____		Date: ____ / ____ / ____
For warranty or non-warranty repair, please contact your representative. Further information about address and contacts can be found on www.smar.com/contactus.asp		

