

FB-700

smar

APR / 08



USER MANUAL

FB-700 - Fieldbus Module





**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

ATTENTION

From the serial number SN1249 of the FB700 module, SerialDownload (software to download the firmware) version V3.4.0.0 or higher and firmware version V3.46J or higher is necessary.

The software and firmware compatible with the new version of the module are available from System302 V7.0.6. For previous versions of System302, the upgrade for SerialDownload and firmware can be downloaded from the FB700 page at the Smar website (www.smar.com.br).

WARNING

The previous versions from firmware 3.46J may be downloaded to the module (with the SerialDownload software version above), but the characteristics of saving non-volatile data during the shutdown will be lost. (Non-volatile data are dynamic data saved during the power down, such as the OUT parameter from the Integrator block, or SP, OUT and BKCAL_IN parameters from the PID block). For more information refer to the Function Blocks User's Manual.

FB-700 – Fieldbus Module

(Supports Hot swap and Device ID)

Part Number:
FB-700 - Fieldbus Module

Description

The FB-700 is a Fieldbus interface card for the LC700 programmable controller. It integrates the discrete control capability of LC700 with Fieldbus.

The FOUNDATION™ fieldbus interoperability feature assures that the FB-700 will work perfectly with any other FOUNDATION™ device, even from manufacturers other than Smar.

The FB-700 is directly attached to the LC700 backplane. The LC700 accesses it as a regular I/O card, which supports many digital and analog I/O points mapped to the FB-700 function blocks. For proper operation, both CONF700 and SYSCON should configure the card.

Function Blocks

FB-700 can execute the following function blocks, some of which are pre-instantiated:

Block Type	Description	Number of Instantiations
RS	Resource	1
DIAG	Diagnostics Transducer	1
MAI	Multiple Analogic Inputs	2
MDI	Multiple Discrete Inputs	3
PID	PID Control	1
EPID	Enhanced PID Control	0
ARTH	Arithmetic	0
SPLT	Split Range	0
CHAR	Signal Characterizer	0
INTG	Integrator	0
AALM	Analogic Alarm	1
ISEL	Input Selector	0
SPG	Set point Ramp Generator	0
TIME	Time and Logic	0
LLAG	Lead-Lag	0
OSDL	Output Selector/Dynamic Limiter	0
CT	Constant	0
MAO	Multiple Analogic Output	2
MDO	Multiple Discrete Output	4

In the table above:

- Block Type: it means the available block types for the device
- Description: it shows the description of each block.
- Number of instantiations:
0 – this block type is not pre-instantiated in the FB-700.
1 to 4 – it indicates the quantity of pre-instantiated blocks in the FB-700.

There are blocks that have correlation with the LC700. These blocks are described below:

Block Type	Description	LC700 Block
MDI	Multiple Discrete Inputs	CODD
MDO	Multiple Discrete Outputs	CIDD
MAI	Multiple Analogic Inputs	COAD
MAO	Multiple Analogic Outputs	CIAD

Connecting FB-700 to LC700

Before connecting or disconnecting the FB-700 from the LC700 backplane, please be sure that the LC700 power is OFF.

LEDs behavior

The FB-700 red and yellow LEDs indicate errors and warnings as described in the following tables:

Yellow LED

Always on	FB-700 is saving nonvolatile data. After finishing this operation the yellow LED will be turned off.
Blinking at 1s rate	LC700 and FB-700 do not have the same configuration parameters. Please, check both SYSCON and LC700 configurations to ensure that the number of function blocks and FB700 TAG are the same.
Blinking at 3s rate	There is a new configuration in the dual port memory, but the LC700 does not check it.
Blinking at 5s rate	There is a new configuration in the dual port memory without any MIO function block.

Red Led

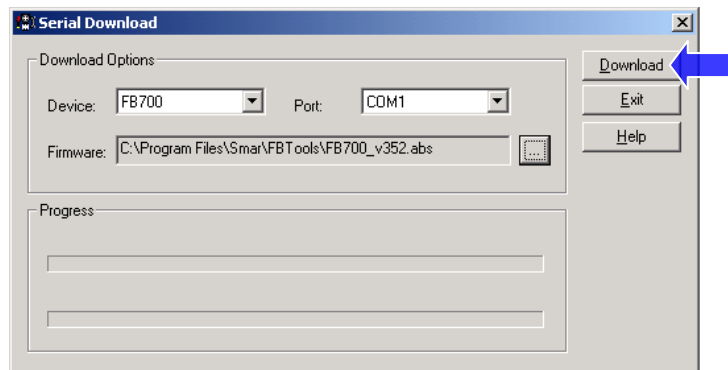
Always on	A critical error happened and FB-700 is in a permanent failure state. FB-700 must be resettled.
Blinking at 1s rate	LC700 is not accessing FB-700. Possible causes are LC700 is not running properly, FB-700 is not present in LC700 configuration or rack addressing is wrong.

Firmware Version Changes and Updates

Using the “FBTOOLS” software, the user can change versions of the firmware in the Flash memory. The FB-700 Module has a DB9 connector for this purpose.

Follow the steps below to update and/or change the firmware for the FB-700 module:

1. Choose a serial port.
2. Connect the C232-700 cable to the FB700 and the PC serial port chosen in item 1.
3. Press FB700 RESET button to force download mode. The red LED will turn on.
4. Select and open the file FB700.abs.
5. Click **Download** button to start the firmware download.



6. Disconnect the C232-700 cable.
7. Press RESET button again to reset the FB700. The red LED will turn off.

Notes:

1. Certify that no other application or resident program in the PC is using the I/O port or IRQ of the selected serial port.
2. After resetting, the FB700 will automatically execute a factory initialization procedure (yellow LED will turn on), if necessary.
3. An LC700 system can have more than one FB module. The limit number of FB modules per system is determined by the amount of the available configuration memory.

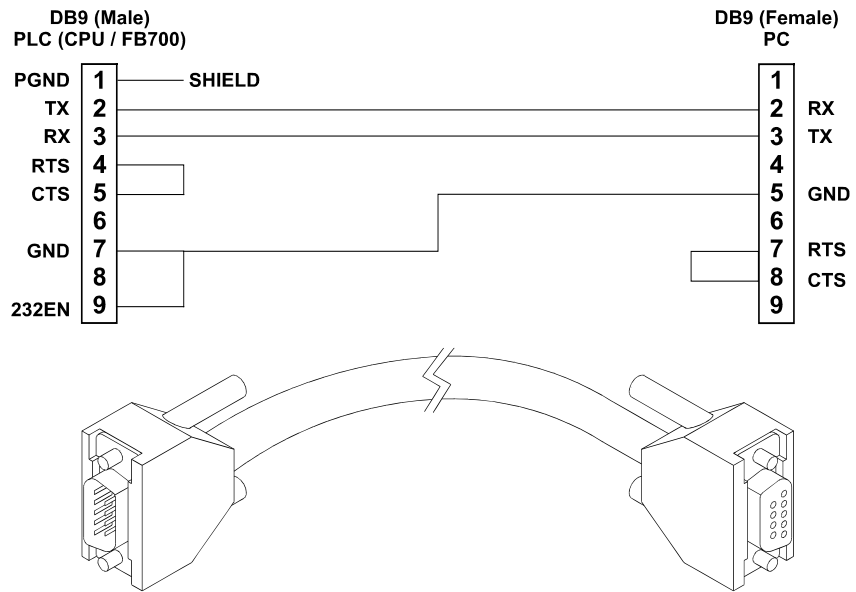
Cable EIA-232 to Connect FB-700

Part Number:

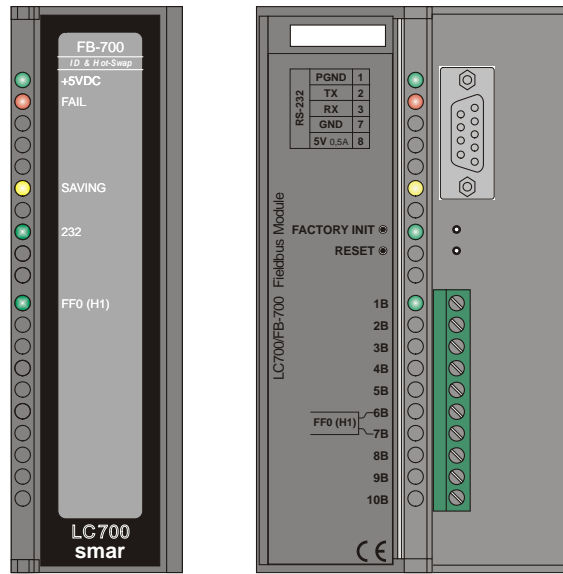
C232-700 – cable to connect FB-700 module to the PC

Description

This cable must be used in updating/changing the firmware version in the internal flash memory of the FB-700 module.



Cable EIA-232 to connect FB-700



Fieldbus Module FB-700

Technical Specifications

CPU	
Type	Low Power Microcontroller
Architecture	8-bit CISC

MEMORY		
	Capacity	Functionality
Code	512 kB, 8-bit Flash	Downloadable firmware
Data	128 kB, 8-bit RAM	Dynamic data
Retention	8 kB, 8-bit serial EEPROM	Configuration retention
Dual-Port	32 kB, 8-bit DPRAM	LC700 interface

FIELDBUS INTERFACE	
Number of Channels	1 H1 channel (31.25 Kbps)
Controller	FB3050 SMAR (DMA Integrated)
Physical Layer Standard	ISA-S50.02-1992
Fieldbus Interface	Passive (not bus powered)
Intrinsic Safety	Not compliant

INTERNAL SOURCE	
Supplied by the IMB bus	5 Vdc @ 110 mA
Total Maximum Dissipation	0.55 W
Source Indicator	Green LED + 5 Vdc

TEMPERATURE	
Operation	0 to 60 °C
Storage	-20 to 80 °C

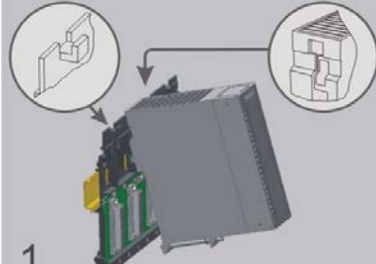

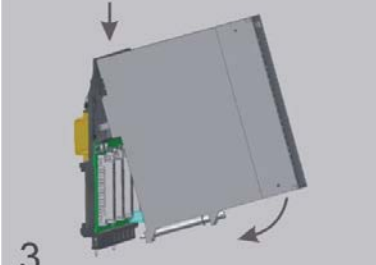

ISOLATION	
IMB Communication Channel	500 Vac

DIMENSIONS AND WEIGHT	
Dimensions (W x H x D)	39.9 x 137.0 x 141.5 mm (1.57 x 5.39 x 5.57 in)
Weight	0.261 kg


CABLES	
One wire	14 AWG (2 mm ²)
Two wires	20 AWG (0.5 mm ²)

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

	SRF – SERVICE REQUEST FORM	
	FB700 – Fieldbus Module	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: ____/____/____
<small>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</small>		

