- SW-700

smar
First in Fieldbus

Instruction Operation Manual

SW-700 - Switch Ethernet

JUL / 04

SW-700

FOUNDATION™

SW700ME

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SW-700 MODULE

Part Number
SW-700 - Ethernet Switch

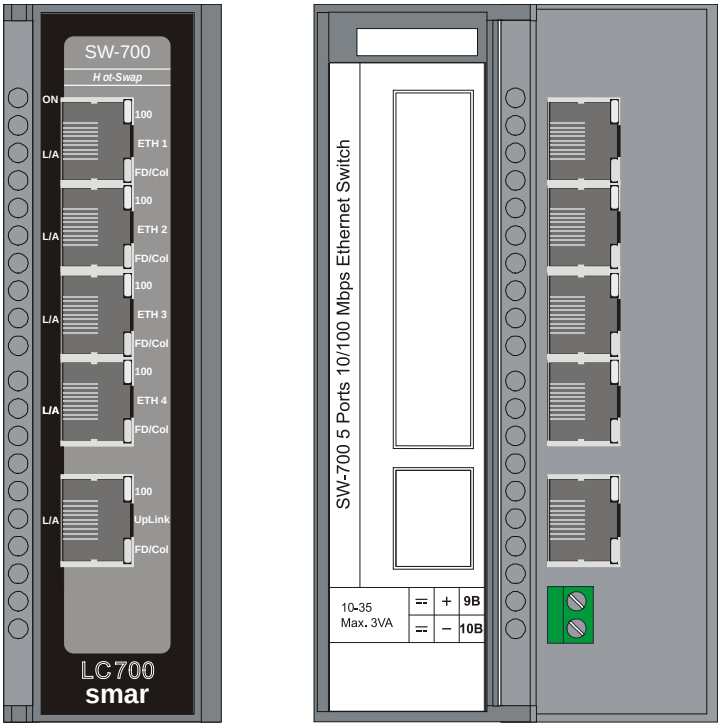
Description

Smar SW-700 module is a Fast Ethernet Switch that provides LAN networks with 10 Base-T/100 Base-TX high-speed auto-sensing connectivity. Five ports, where one is dedicated for the Uplink will provide access for many devices and will help to eliminate traffic congestions that cannott be well treated by Network Hubs.

The SW-700 is also a great choice when connecting different speed networks as Ethernet and Fast Ethernet and will also optimize finding the right path for same type of Ethernet. LED indicators for link/activity, speed, full/half duplex and collision for each individual port and one for module power.

It can be powered by the Rack or by an external 24Vdc. Power supply redundancy circuit will automatically switch from the user preferred supply to the other one in case of failure.

Industrial design, no internal fans and low EMC makes it a great option for automation and process control applications.



SW-700 Auto-sensing Ethernet Switch

Operation

The SW-700 has a frame buffer composed of 1M bits of built-in memory. The address look-up table for MAC addresses learning/searching consists of 1K direct-mapping tries.

The SW-700 uses Nway auto-negotiation to complete the UTP port connections of physical links which conform to IEEE 802.3u specifications. IEEE 802.3x full duplex flow control is supported. When operating in half duplex mode, a proprietary back-pressure algorithm is implemented to prevent traditional hub devices from partitioning due to excessive collisions.

The SW-700 supports non-blocking wire speed forwarding rates and special designs to resolve head-of-line blocking problems and channel-capture problems. A broadcast storm filtering function is also provided for abnormal broadcast traffic issues.

Auto-polarity is implemented to correct the detected reverse polarity of RXIP/RXIN signal pairs.
The SW-700 implements power saving mode on per port basis. A port automatically enters power saving mode 10 seconds after the cable is disconnected from it.

Address Search, Learning and Aging:
The SW-700 contains a full 1K of look-up table entries and uses a direct-mapping scheme to achieve address search and learning.

By extracting the least 10 bits of a destination MAC address to index the 1K-entry look-up table, the SW-700 can decide where the packet goes. If the searching result indexes to an empty entry, the packet is broadcast to all other ports. On the other hand, the SW-700 extracts the least 10 bits of a source MAC address to index the 1K-entry look-up table. If the result indexes to an empty entry, it records the source MAC address and related switching information. If the result leads to an occupied entry with different switching information, it updates the entry with the new information. This is referred to as 'learning'. The look-up engine will update time stamp information of an entry whenever the corresponding source MAC address appears. If the time information is not updated for a period of time, the entry will be removed, referred to as the aging process. The maximum aging time for the SW-700 is approximately 300 seconds, and the minimum aging time is approximately 200 seconds.

Installation

The SW-700 may be installed in a rack, powered by the rack bus or alone with a 24 Vdc external power supply, using the DF9 rack to mount it on the DIN rail. For both cases, when the module is powered, the green LED for power indication will light.

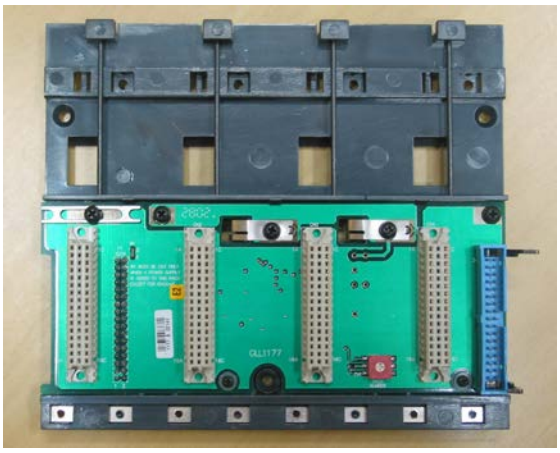
Installation of the module into the DF9 individual support

SW-700 module can also be installed into the DF9 individual support using 24 Vdc external power supply. DF9 can be observed in the picture below:

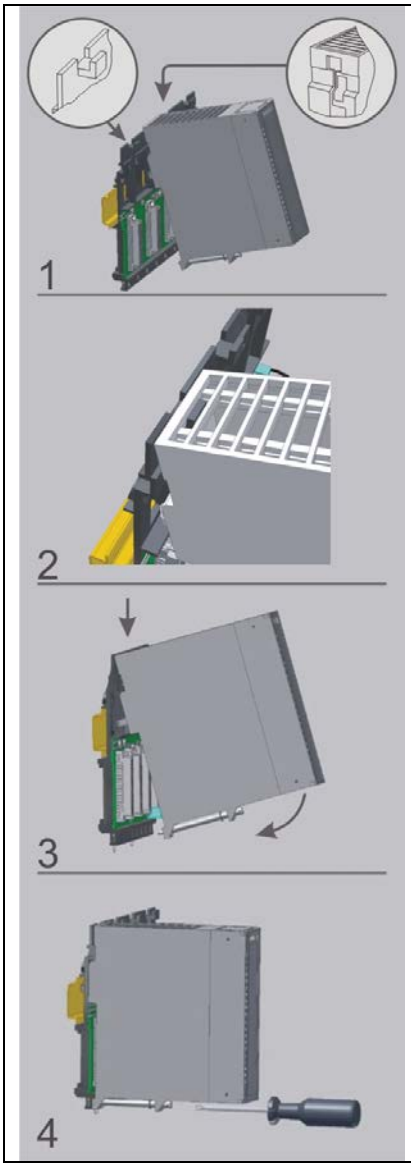
Individual Support– DF9

Installation of the Module into the Rack R700-4

The SW-700 module can be installed in the rack, powered by the bus rack. The Rack R700-4 is ready for mounting in DIN rail. The steps for the module installation are showed below:



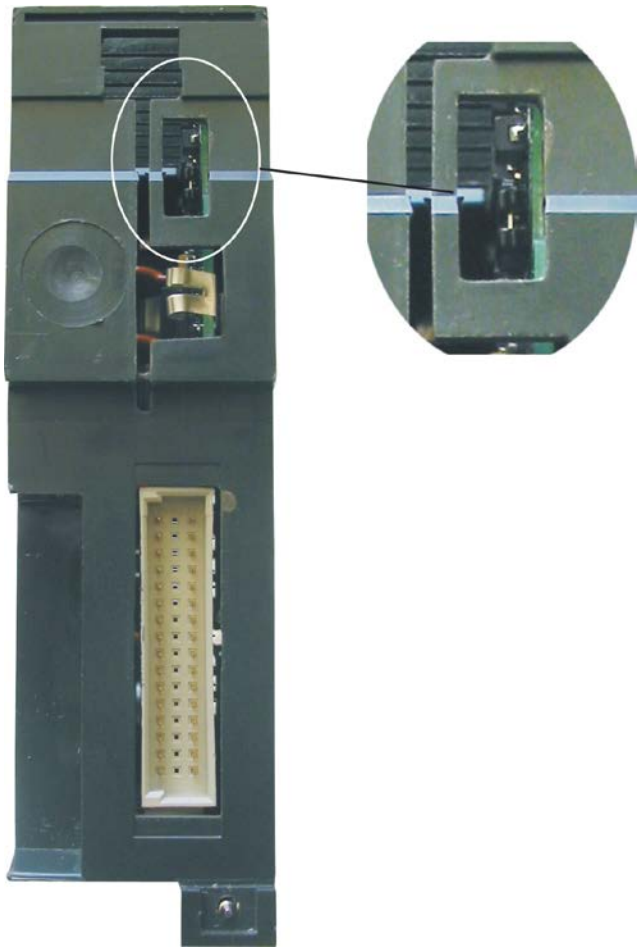
Rack - R700-4

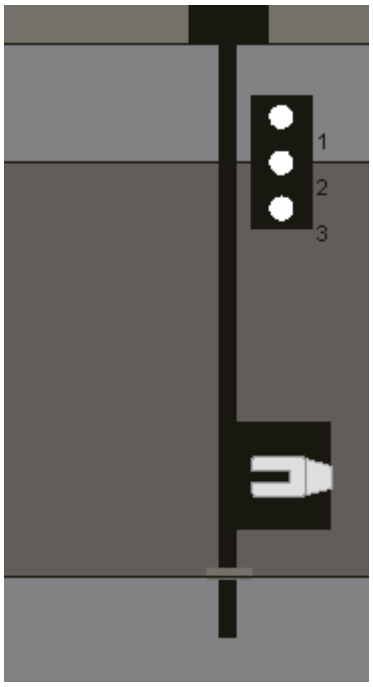
	Attach the top of the module (with a 45^{o} inclination) to the module support located on the upper part of the rack. Mounting detail. Push the module fixing it to the module connector. Next, fix the module to the rack using a screwdriver, and fasten the fixation screw at the bottom of the module.

Redundant Power Supply Operation

The SW-700 may be powered externally or through the IMB. So, it supports power supply redundancy. The user must set jumpers in order to configure the main power.

Find the jumper at the bottom of the module box. With the aid of a plier set the position of the jumpers according to the operation mode.





Jumper detail

Main power supply through an external power supply and IMB redundancy.

Procedure:
Jumper must be placed between 1 and 2

Main power supply through an IMB and external power supply redundancy.

Procedure:
Jumper must be put between 2 and 3

Technical Specifications

PORTS	
4 Ports (Regular Ports)	RJ-45
1 Port (Uplink Port - no cross cable to connect to a hub or switch)	RJ-45

INTERNAL POWER	
Internal (rack)	5 Vdc
Current Consumption	500 mA maximum

EXTERNAL POWER	
Voltage Range	10 - 35Vdc
Current Consumption	115 mA @24 Vdc maximum
Power Consumption	2.8 W maximum

COMPATIBILITY
Fully compliant with IEEE 802.3 and 802.3u

NETWORK
Connector Type: RJ45 Ethernet 10Base-T and High Speed Ethernet 100Base-TX

INDICATION LEDS
System: Power LED Individual Ports: Collision/Speed/Active Uplink: Collision/Speed/Active

POWER SAVING
Each port automatically enters on power saving mode 10 seconds after cable disconnect.

REDUNDANCY
Between Internal IMB Vcc and the External Power Supply

TEMPERATURE	
Operation	0ºC to 60ºC

DIMENSIONS AND WEIGHT	
Dimensions	39.9x137.0x141.5 mm (1.57x5.39x5.57 in)
Weight	0.290 kg

Appendix A

smar	SRF – SERVICE REQUEST FORM	
	SW-700 – Ethernet Switch	Proposal Nº:

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