



**600 Series
Industrial
Ethernet
Switches**

Network Configuration Guide

*Industrial Ethernet Switch
Network Management Guide*

- 608MFX-ST**
- 608MFXE-ST-15**
- 608MFXE-ST-40**
- 608MFXE-ST-80**





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578 Azalea Rd. Suite 105
Mobile, AL USA 36609

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Warning

Do not perform any services on the unit unless qualified to do so. Do not substitute unauthorized parts or make unauthorized modifications to the unit.

Do not operate the unit with the top cover removed, as this could create a shock or fire hazard.

Do not block the air vents on the sides or the top of the unit.

Do not operate the equipment in the presence of flammable gasses or fumes. Operating electrical equipment in such an environment constitutes a definite safety hazard.

Safety Warnings

ELECTRICAL SAFETY



WARNING: Disconnect the power cable before removing the enclosure top.

WARNING: Do not operate the unit with the top cover removed.

WARNING: Do not work on equipment or cables during periods of lightning activity.

WARNING: Do not perform any services on the unit unless qualified to do so.

WARNING: Do not block the air vents.

WARNING: Observe proper DC Voltage polarity when installing power input cables. Reversing voltage polarity can cause permanent damage to the unit and void the warranty.

LASER SAFETY (608MFXE Versions Only)



WARNING: CLASS 1 Laser Product.

WARNING: Do not stare into the Laser Beam.

608MFX NETWORK CONFIGURATION

The N-TRON 608MFX is a product derivative of the OSM/ESM family jointly manufactured by Siemens and N-TRON. Some of the software menus may refer to the OSMTP62 (Optical Systems Module) or ESM (Electrical Systems Module) when identifying the N-TRON 608MFX. These names are synonymous.

There are 3 main ways to configure and/or monitor the N-TRON 608MFX:

1. Command Line Interpreter - Serial Port
2. Command Line Interpreter - TELNET
3. SNMP (SNMP Host SW not supplied by N-TRON).

COMMAND LINE INTERPRETER (CLI)

You can configure and/or query all the important parameters of a 608MFX using a command line interpreter. These functions may be accessed using the serial port (marked V24) or via TELNET.

The CLI can be used for the following:

- To set the IP address and the subnet mask of the 608MFX.
- To assign new passwords for the 608MFX.
- To view/modify parameters of the 608MFX.

To access the CLI, connect a PC serial port to the 608MFX serial port (see HW Installation guide). After a successful connection and reboot, the boot menu should be displayed:

Password Protection

Access using the CLI is password-protected. You can log in as administrator or as user (with different passwords). An administrator can read and modify 608MFX parameters, a user can only read 608MFX settings. Note: The default admin password is **admin**, and the default user password is **user**.

Once the connection has been established via the serial port or TELNET, the following prompt appears:

Login:

Type in **admin** (for administrator) or **user** (for user) according to your access permission and then press **[Return]**.

Password:

Enter your administrator or user password and press **[Return]**.

The CLI then displays the start menu and the prompt

CLI>

You can now activate the commands of the CLI.

Reset

You can reset the 608MFX by depressing and holding the Select/Set button. If necessary, depress the Select/Set button until the display mode LEDs indicate the port status (all display mode LEDs = OFF). Then, press the Select/Set button for at least 6 seconds. The display mode LEDs begin to flash after ~3 seconds, and then 2 seconds later the 608MFX is reset (All LED's go briefly on and then off again).

This also restores defaults to the 608MFX (except those that are persistent). The reboot menu is displayed below.



```
SIMATIC NET - Industrial Ethernet
ROM resident Boot Loader for OSM/ESM
Copyright (c) 1999 Siemens AG

MAC Address       : 08:00:06:6E:6A:1D
Device Type      : OSM TP62
Order Number     : 6GK1105-2AB00
Hardware Version  : 2
Boot Software Version : V1.1.0.1
Firmware Version  : V2.1.0.019
Boot Counter     : 1

Power on self test ... Done.

Loading firmware from flash ..... Done.
Starting firmware ... Done.
Starting BOOTP...BOOTP failed.

Warning: IP address is not initialized.

SIMATIC NET - Industrial Ethernet Switch Module.
MAC address: 08-00-06-6E-6A-1D
Device type: OSM TP62
Device name: sysName Not Set

Login:
```

CLI Commands

This section explains the commands of the CLI, their functions and syntax.

The commands that are available depend on the access level; in other words, whether you logged in as user or as administrator. Table 3–2 contains an overview of the commands available for the administrator and user. The command–line interface provides functions comparable with those available in Web–Based Management.

Symbols

Table 3–1 explains the symbols used with the CLI commands.

Symbol	Meaning
<>	Mandatory entry
	Used to separate possible alternative input values in a command. The factory default is shown on the extreme left. Only one of the possible values can be selected. Example: aging <E D> : You must either enter aging E (aging enabled) or aging D (aging disabled), E is the default.
[]	Optional parameters. These options are used, for example, to be able to address several port numbers at the same time. The individual optional extensions are separated by commas; you can address groups using dashes. Example: If you enter the numbers 2,5- 8 in the [ports] field of a command, this command applies to ports 2 and 5 to 8.
()	Description of the commands.

Fast Input

To enter a command quickly, write the first letter or letters and then press the **[Tab]** key. If the required command is not shown, press the **[Tab]** key again.

Example: The following example illustrates how to use CLI commands.

The command **status <E | D> [ports]** is used to enable or disable 608MFX ports. The user enters the following: **status** followed by a blank and then the mandatory setting either **E** (= enable) or **D** (= disable) and then the optional port numbers as described in Table 3–1. If you do not enter a port number, the command applies to all ports.

- To enable the ports 2, 4, 6 to 8:
Enter **status E 2,4,6-8** and confirm with **[Return]**.
- To disable ports 1 and 5 to 8:
Enter **status D 1,5-8** and confirm with **[Return]**.

CLI Menus and Description

The following tables contain the commands, CLI menus and a brief description. If there are several alternatives for a command parameter, the default is always the value to the extreme left.

Start Menu

You can display all the other menus from the start menu. This is displayed immediately after you login and includes the following commands:

Table 3–2 Start Menu Commands

Command	Description	Comment
/	Returns you to the start menu (available in every menu)	Home function
?	Displays the current menu again (available in every menu)	Refresh function
restart	Restarts the 608MFX (available in every menu).	Administrator only.
exit	Closes the CLI/TELNET session. (available in every menu.)	
info	Displays status information about the 608MFX.	
SYSTEM	Opens the SYSTEM menu.	The SYSTEM menu is used to set the system parameters.

Table 3–2 Start Menu Commands - Continued

OSM	Opens the Optical Systems Module menu.	You make the 608MFX–specific settings (for example fault mask) in the OSM menu.
AGENT	Opens the AGENT menu.	You can enter the settings for network management (for example IP address) in the agent menu.
SWITCH	Opens the SWITCH menu.	You can make global settings for the 608MFX in the switch menu.
PORT	Opens the PORT menu.	The port menu is used to set the parameters of the 608MFX ports.
SERVICE	Opens the SERVICE menu.	In the SERVICE menu, you can change the password for CLI/TELNET.

System Menu

In the System menu, you can make settings required for downloading new 608MFX firmware from a TFTP server and for other system functions.

Table 3-3 Settings in the System Menu

Command	Description	Comment
info	Displays the current system settings.	
defaults	Restores the defaults of the 608MFX (complete reset).	Administrator only The protected settings are also reset to their default values.

Table 3-3 Settings in the System Menu – Continued

memreset	Restores the defaults of the 608MFX. The device is automatically restarted.	Administrator command restores the factory settings of the 608MFX. With the exception of the "protected settings", the settings made by the user are reset to the default values.
setsysc<string>	Sets the syscontact MIB variable. (To insert a blank in a string, use the tilde (~) instead of a blank.)	Administrator only
setsysl <string>	Sets the syslocation MIB variable. (To insert a blank in a string, use the tilde (~) instead of a blank.)	Administrator only
setsysn <string>	Sets the sysname MIB variable. (To insert a blank in a string, use the tilde (~) instead of a blank.)	Administrator only
events <show clear>	Show Clear content of the event log table.	Only the administrator can delete the event log table. The event log table contains all the events that cause traps or E-mails (when enabled). Other fault/error events such as communication errors are also logged with the SMTP server. The content of the event log table is retained even when the 608MFX is turned off.
addlog <text>	This command makes an entry in the log of the 608MFX.	Administrator only
server <IP address>	Sets the IP address of the TFTP server from which the new firmware for the 608MFX will be downloaded.	Administrator only
fwname < filename>	Enters the name of the file on the TFTP server containing the new 608MFX firmware (max. 32 characters) possibly including further path information (depending on the configuration of the TFTP server).	Administrator only
fwload	Starts the firmware download from the TFTP server.	Administrator only

Table 3-3 Settings in the System Menu – Cont.

cfgname <filename>	Enters the name (max. 32 characters) under which the 608MFX configuration is loaded or stored as a file on the TFTP server. Depending on the configuration of the TFTP server, this may also include further path names.	Administrator only
cfgsave	Stores the 608MFX configuration as a file on the TFTP server.	
cfgload	Loads the 608MFX configuration as a file from the TFTP server.	Administrator only
logname <file name>	Enters the name (max. 32 characters) under which the 608MFX log is stored as a file on the TFTP server. Depending on the configuration of the TFTP server, this may also include further path names.	Administrator only
logsave	Saves the 608MFX log as a file on the TFTP server.	Administrator only

Note: The protected settings are as follows: IP Address, Subnet Mask, Default Gateway, Port Name, System Name, System Location, System Contact. These settings are unaffected by restoring factory defaults (memreset).

OSM/ESM Menu

This menu includes special Optical Systems Module (OSM) and Electrical Systems Module (ESM) 608MFX settings (i.e. setting the fault mask).

Table 3–4 Settings in the OSM/ESM Menu

Command	Description	Comment
info	Displays the current values of the 608MFX setting.	
link <E D> [ports]	Enable Disable link monitoring.	Administrator only Link monitoring is part of the fault mask of the 608MFX. The signaling contact and the fault LED of the 608MFX are activated when a port whose link monitoring is activated has no valid link.

Table 3–4 Settings in the OSM Menu - Continued

<p>power <E D> [lines]</p>	<p>Enable Disable monitoring of the power supply lines L1 and L2.</p> <p>Example: power E 1,2 enables monitoring for both power supply lines.</p>	<p>Administrator only Monitoring of the power supply lines L1 and L2 is part of the fault mask of the 608MFX. The signaling contact and fault LED are activated when there is no voltage on a monitored power supply line or when the voltage is too low (less than 14 V).</p>
<p>standby <E D> [ports]</p>	<p>Enable Disable standby ports. This command specifies which ports are standby ports.</p>	<p>Administrator only</p>
<p>counters</p>	<p>Displays the results of the 608MFX counters. Meaning of the counters: Changes to RM active state: Indicates how often the 608MFX acting as RM closed the ring. Max. delay of RM test packets: Indicates (in ms) the maximum delay of the test packets sent by the RM. (The delay should not exceed 50 ms.) Changes to Standby active state: Indicates how often a standby slave took over the data exchange in a redundant coupling Signaled faults: Indicates how often the signaling contact of the 608MFX was activated.</p>	

Table 3–4 Settings in the OSM Menu – Cont.

resetc	Resets the 608MFX counters.	Administrator only
observer <E D R>	Enables, disables and restarts the observer. The operating state of the observer can be read out with the info command.	Administrator only

Agent Menu

The agent menu includes settings required to access the 608MFX using an Internet browser, SNMP management or TELNET.

Table 3–5 Settings in the Agent Menu

Command	Description	Comment
Info	Displays the current agent settings.	
ip <IP address>	Enters the Internet protocol address of the 608MFX. The IP address is entered as usual in four fields each with a maximum of 3 decimal digits separated by periods, for example: 142.11.7.53	Administrator only The IP address must be entered if you want to access the 608MFX using an Internet browser, TELNET or SNMP. The IP address can also be assigned automatically by BOOTP.
subnet <IP address>	Subnet mask. The subnet mask is entered as usual in 4 fields each with a maximum of 3 decimal digits separated by periods, for example: 255.255.0.0.	Administrator only The subnet mask must be entered if you want to access the 608MFX using the CLI or SNMP.
gateway <IP address>	Sets the default gateway IP address, address format see above.	Administrator only The gateway IP address must be entered if you want to access the 608MFX via a gateway.
smtp <IP address>	Sets the IP address of the SMTP server, address format see above.	Administrator only
email <address>	Enters an E-mail address to which messages, for example alarms can be sent (up to 50 characters). The entry is in the standard format user@host.domain	Administrator only
mail <D E>	Disable Enable the E-mail function.	Administrator only

Table 3–5 Settings in the Agent Menu - Continued

from <address>	Sets the “from” field (up to 50 characters) of the E-mail function.	Administrator only Default OSM@ <IP-address>
bootp <D E>	Disable Enable BOOTP	Administrator only
rmon <D E>	Disable Enable RMON	Administrator only
telnet <E D>	Enable Disable TELNET	Administrator only
snmp <E D>	Enable Disable SNMP	Administrator only SNMP must be enabled if you want to access the 608MFX with SNMP.
traps <E D>	Enable Disable traps	Administrator only
showtrap	Shows the current trap configuration.	
settrap <entry> <IP> <E D>	Sets a trap recipient as an entry in the trap configuration. entry: Trap entry 1 - 10 IP: IP address of the trap recipient Enable Disable this trap recipient.	Administrator only
setrmon	This command is only used internally to store and load the configuration.	Administrator only
getcomm <string>	Sets a read-only community string (up to 32 characters). The default is <i>public</i> .	Administrator only
setcomm <string>	Sets a read-write community string (up to 32 characters). The default is <i>private</i> .	Administrator only

Table 3–5 Settings in the Agent Menu – Cont.

ping [count] [size] <IP>	Sends a ping to the specified IP address. Example: ping -c 10 -s 128 192.168.1.1	Ten (count) pings with a frame length (size) of 128 bytes are sent to IP address 192.168.1.1.
showec	Shows the current event configuration.	
setec <event> <E D><E D><E D>	Sets an entry in the event configuration. Enable Disable this entry.	Administrator only
showdis	Not Used on the 608MFX	Not Used
showdic	Not Used on the 608MFX	Not Used
setdname <input> <name>	Not Used on the 608MFX	Not Used
setdic <input> <E D> <E D> <E D>	Not Used on the 608MFX	Not Used

Switch Menu

In the switch menu, you can make global settings for the 608MFX.

Table 3–6 Settings in the Switch Menu

Command	Description	Comment
info	Displays the currently active settings in the switch menu.	

Table 3–6, Settings in the Switch Menu - Continued

aging <E D>	Enable Disable aging.	Administrator only When aging is activated, a land address is automatically deleted in the FDB table of the 608MFX if no packet is received from the station with the relevant MAC address within the aging time.
agetime <seconds>	Setting for the aging time in seconds. The default is 40 seconds.	Administrator only
fdbpoll <seconds>	Sets the interval at which the copy of the filtering database kept internally on the 608MFX is updated.	Administrator only For service purposes only
mirror <D E>	Enable Disable mirroring.	Administrator only Mirroring allows the data exchange at one 608MFX port (mirrored port) to be mirrored to another port (monitor port) where it can be recorded with a protocol analyzer.
m_ports <src> <dest>	Selects ports for mirroring src – (mirrored) port, i.e. the port whose data exchange will be recorded. (The default is 2) dest – (monitor) port, i.e. the port to which the protocol analyzer is connected. (The default is 1)	Administrator only
baud <9600 19200 38400 115200>	Sets the transmission rate of the serial port. The default is 115200.	Administrator only

Table 3–6, Settings in the Switch Menu - Cont.

flow <D E>	Enable Disable the flow control for all 608MFX ports	Administrator only
find < MAC address >	Finds a MAC address in the FDB table of the 608MFX. Also specifies the ports to which a received packet with this (destination) address is sent.	The address must be entered in hexadecimal with blocks of two hexadecimal digits separated by hyphens, for example: 08:-00:-06:01:FF:EF
lt	Displays the content of the FDB table of the 608MFX	The addresses are displayed in hexadecimal. The ports to which the address is assigned are also displayed.
macuni <MAC> <port>	Sets a static entry of a unicast address in the address table.	Administrator only
macmulti <MAC> <port1,port2,...>	Sets a static entry of a multicast address in the address table.	Administrator only
macerase <MAC address>	Deletes a static entry of an address in the address table.	Administrator only

Port Menu

In this menu, you can make port-specific settings for the individual 608MFX ports.

Table 3–7 Settings in the Port Menu

Command	Description	Comment
info	Displays the current settings of the 608MFX ports.	For explanations of the displayed parameters, see below or refer to the Glossary.

Table 3–7 Settings in the Port Menu - Continued

<p>stat <S T E clear> [port]</p>	<p>Shows the counter readings - of the frame length (S) - of the frames (T) - of the errors (E) of the selected port. The counters are reset with clear. Examples: show S 1,3-5 Shows the frame length of ports 1 and 3 through 5.</p>	
<p>name <port > <string></p>	<p>With this function, you can assign a symbolic name (string) with a length of up to 64 characters to each 608MFX port. (To insert a blank in a string, use the tilde (~) instead of a blank.) Example: name 5 Management~Port Assigns the symbolic name Management Port to port 5 of the 608MFX.</p>	<p>Administrator only</p>
<p>status <E D> [port]</p>	<p>Activate Deactivate 608MFX ports. Deactivated 608MFX ports are disabled for data exchange.</p>	<p>Administrator only</p>
<p>fd_flow <E D> [port]</p>	<p>Enable Disable full duplex flow control.</p>	<p>Administrator only This flow control is effective when the selected ports operate in the full duplex mode and when flow control is activated in the Switch menu.</p>
<p>autoneg <E D> [port]</p>	<p>Enable Disable autonegotiation.</p>	<p>Administrator only Only the 10BASE T/100BASE TX ports can be switched to the autonegotiation mode.</p>
<p>lock <E D> [port]</p>	<p>Enable Disable the Lock port property.</p>	<p>Administrator only</p>

Table 3–7 Settings in the Port Menu – Cont.

hd_flow <E D> [port]	Enable Disable half duplex flow control.	Administrator only This flow control is effective when the selected ports operate in the half duplex mode and when flow control is activated in the Switch menu.
speed <? 10H 10F? > [port]	Displays Sets transmission rate/ duplicity of the ports ? displays the possible settings for the transmission rate and duplicity of the ports. 10H -- set 10 Mbps, half duplex. 10F -- set 10 Mbps, full duplex. 100H -- set 100 Mbps, half duplex. 100F -- set 100 Mbps, full duplex.	Administrator only (The transmission rate and duplicity of a port set by the user only takes effect if autonegotiation is disabled for this port. When autonegotiation is disabled, the transmission rate and duplicity of an 608MFX port must match the transmission rate and duplicity of the connected partner device.

Service Menu

Table 3–8 Settings in the Service Menu

Command	Description	Comment
info	Shows the basic settings of the 608MFX such as the MAC address, IP address, hardware and firmware versions.	
passwd [admin user]	Allows the entry of a new password for the administrator or user.	Administrator only

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