

Ethernet Interface

for MOSCAD Over IP Connectivity

Two new MOSCAD options allow the system designer to connect MOSCAD, MOSCAD-L, and MOSCAD NFM RTUs to an Ethernet LAN (an INTRANET) using 10baseT connectivity. The options, pictured at right, are available in two forms:

- Ethernet plugin board – for direct insertion into Port 3 of the CPU module
- Ethernet Unit – installs within the RTU and connects to an RS232 port on the CPU module

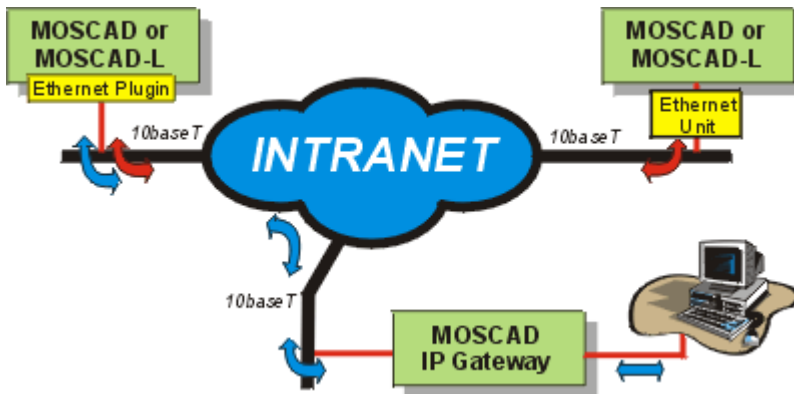


Ethernet Plugin in MOSCAD CPU

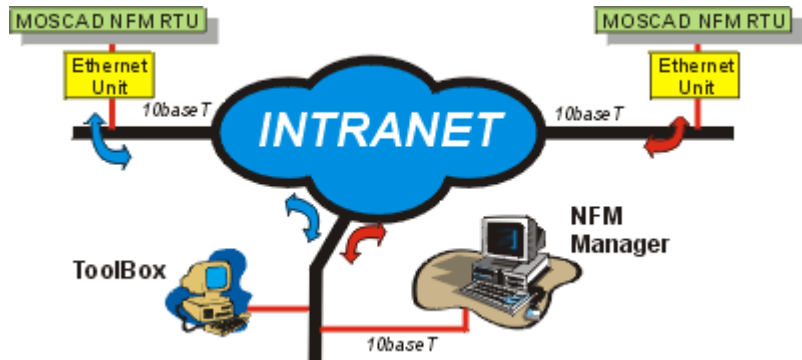
Ethernet Plugin in MOSCAD-L CPU

Ethernet Unit

These Ethernet options permit direct RTU-to-RTU communications and, when the MOSCAD IP Gateway is added, permit thru-Gateway RTU-to-Central communications to occur. This is shown in the figure below.

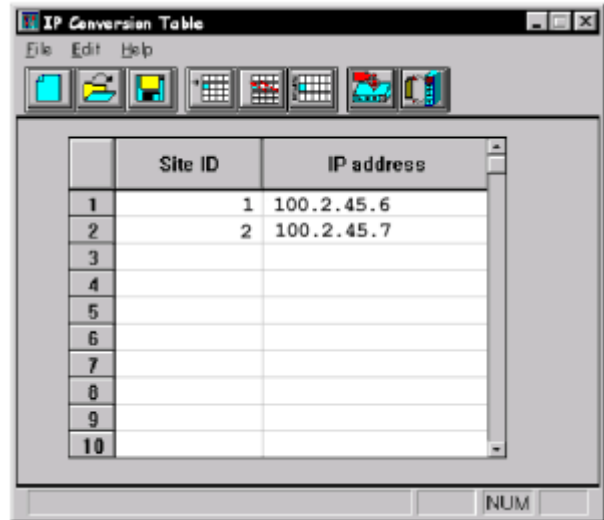


A MOSCAD Network Fault Management (NFM) system may also use an Intranet for connectivity. The Ethernet Units contain a local Management Information Base (MIB) and use the SNMP protocol to communicate with the Central over the Ethernet LAN. See the figure at right.



- The Ethernet plugin and the Ethernet Unit may be used with
- All MOSCAD firmware versions in Series 300 and Series 400 CPU modules
 - All MOSCAD-L firmware versions
 - All MOSCAD NFM RTUs with firmware version 2.40 and later
 - MOSCAD IP Gateway with firmware version 3.10 and later
 - MOSCAD ToolBox version 7.51 and later
 - MOSCAD Over IP option (for the ToolBox) version 2.00 and later

The Site Configuration tool in the MOSCAD ToolBox is used to configure both Ethernet interfaces. The configuration includes the IP address, an IP conversion table, the TCP/IP settings, etc. The figure at right shows an example of the IP conversion table.



Specifications

	Ethernet Plugin	Ethernet Unit
<i>General</i> Operating Voltage	+5 and +12 Vdc (from CPU module)	+10 to +16 Vdc (from RTU's power supply)
Power consumption	120 mA @ 12 Vdc (average) 1.2 A @ 12 Vdc (for 1.5 msec during transmit)	
Size Weight	3.9 x 3.5 x 1.1 inch (100 x 89 x 28 mm) 2 oz (59 grams)	5.0 x 3.9 x 1.8 inch (127 x 98.5 x 45 mm) 8 oz (236 grams)
Temperature Humidity	0 to +60°C 0 to 95% RH at +50°C (non condensing)	
<i>Processing Unit</i> Microprocessor & Clock	Motorola MC68EN360 @ 25 MHz	
<i>Memory</i> FLASH DRAM	1 Mbyte 16 Mbyte	
<i>Connection</i> Ethernet Indications	10baseT Power, reset, diagnostics, communication activity, status	
<i>EMC Specifications</i> Electrostatic discharge Radiated EMF Electrical fast transient/burst Radiated emission	IEC801-2, Level 2 IEC801-3, Level 3 IEC801-4, Level 1 EN55022 Class B	

Ordering Guide

See the appropriate sections below for each model type before ordering.

- MOSCAD RTU**
- Any MOSCAD RTU that contains a radio has a radio interface board installed in Port 3 on

the CPU module. The Ethernet plugin is installed in those same Port 3 connectors. Therefore, the Ethernet plugin is incompatible with all MOSCAD RTU models with radio. The Ethernet Unit, connected to Port 2 on the CPU module, should be used instead.

- Any MOSCAD RTU that requires/contains the math coprocessor and/or RAM expansion board may not use the Ethernet plugin. The Ethernet plugin is larger than other Port 3 plugins – it extends into the space occupied by the math coprocessor and RAM expansion boards. Therefore, the Ethernet plugin is incompatible with the math coprocessor or RAM expansion board. The Ethernet Unit, connected to Port 2 on the CPU module, should be used instead.
- Any MOSCAD RTU that does not contain a radio interface in Port 3 and does not contain the math coprocessor or RAM expansion board may use either the Ethernet plugin or the Ethernet Unit. However, note that the Ethernet Unit is installed in the space also used by the RS-232 Multiplex and RS-485 Junction Box and is therefore incompatible with these accessories when the RTU is in the default NEMA enclosure. The Ethernet Unit is compatible with these accessories when the RTU is in a rackmount configuration.
- Write the order similar to:

Item Qty Model	Description
1 1 F6900	MOSCAD RTU LESS RADIO
1A 1 V400	ADD: TCP/IP ON PORT 3
<i>or</i>	
2 1 F6973	MOSCAD RTU 20W VHF
2A 1 V527	ADD: TCP/IP PORT 1 OR 2 MOSCAD

MOSCAD-L RTU

Any MOSCAD RTU that contains a radio has a radio interface board installed in Port 3 on the CPU module. The Ethernet plugin is installed in those same Port 3 connectors. Therefore, the Ethernet plugin is incompatible with all MOSCAD RTU models with radio. The Ethernet Unit, connected to Port 2 on the CPU module, should be used instead.

Write the order similar to:

Item Qty Model	Description
3 1 F6801	MOSCAD RTU LESS RADIO
3A 1 V400	ADD: TCP/IP ON PORT 3
<i>or</i>	
4 1 F6853	MOSCAD RTU 4W VHF
4A 1 V527	ADD: TCP/IP PORT 1 OR 2 MOSCAD-L

NFM RTU

The MOSCAD NFM RTU models are not compatible with the Ethernet plugin -- the Ethernet Unit must be used with these NFM RTU models when connectivity over an Ethernet LAN is required.

Write the order similar to:

Item Qty Model	Description
5 1 F4535	NFM RTU MULTIPORT 24 VDC
5A 1 V333	ADD: TCP/IP PORT 1 OR 2 RACKMOUNT

MCP-M

- Most systems will be designed with the MCP-M (less radio) connected to an available port on the IP Gateway. The Gateway will add/strip the IP-prefix to/from the RTU message and present that message, in the native MDLC format, to the selected port and onto the MCP-M. A standard MCP-M less radio should be ordered in this scenario.
- When the MCP-M model does require Ethernet connectivity, a second Series 400 CPU module (with no radio interface) and an FKN4400 RS-485 cable must be added to the MCP-M. Either the Ethernet plugin or the Ethernet Unit may be used with the added CPU module. The added CPU must be configured by the installer as a Store-and-Forward node between the Ethernet LAN and the standard MCP-M CPU module.
- Write the order similar to:

Item	Qty	Model	Description
6	1	F4200	MCP-M LESS RADIO
7	1	F6936	MOSCAD SERIES 400 CPU MODULE
7A	1	V400	ADD: TCP/IP ON PORT 3
8	1	FKN4400	RS-485 CABLE

IP Gateway
formerly MCP-T

The IP Gateway has TCP/IP connectivity built into the standard unit. No Ethernet plugin or Ethernet Unit is required and none is compatible with the IP Gateway.

Write the order similar to:

Item	Qty	Model	Description
9	1	F4373	IP GATEWAY 20W VHF

ToolBox

As always, the computer containing the ToolBox software may be plugged into any unused port on any CPU module and utilize RS-232 connectivity into the system. But if that computer has connectivity to the Ethernet LAN, that 10baseT connection may be used instead of RS-232 connectivity.

Write the order similar to:

Item	Qty	Model	Description
10	1	F2316	PROGRAMMING TOOLBOX
10A	1	V204	ADD: MOSCAD OVER IP