

# **ERM/SLAVE NETWORK ADDRESSING MODES**

---



## In This Chapter...

ERM / Remote Slave Network Identifiers.....	2-2
---	-----

# ERM/Remote Slave Network Identifiers

This chapter describes the various network identifiers used by the ERM and its slave modules. Each module on a network must be uniquely identified. There are three identifiers that can be used to make a module unique.

The three module identifiers are:

- Module ID
- IP (Internet Protocol) Address (a slave may be used on the Internet, but I/O cycle time may be very high)
- Ethernet Address (MAC Address)

The first two are user-selectable. The third one is set at the factory. A Name may be assigned to a module, but the ERM cannot address a slave by its Name.

The identifiers are used to link the ERM module to its remote slaves. The decision about which type of identifier to use is an important one. Much of the decision depends on the protocol requirements of your particular application. Ease of maintenance and troubleshooting also must be considered before deciding which type to use.

## ERM / Slave Configuration Tools

ERM Workbench software utility must be used to configure the ERM and its slave modules. If either Module ID (set by dip switch) or Ethernet Address is used for network identification, then ERM Workbench is all that is needed to configure the network modules. ERM Workbench is described in detail in Chapter 3.

Identifiers	Protocol	How to Set	Format	Restrictions/Notes
Module ID	IPX	DIP Switch	Slave Number 1–63, Set ERM to 0	Module ID can be changed without NetEdit. Disables Module ID in NetEdit.
		NetEdit	Slave Number 1-65535 Set ERM to 0	DIP Switch must be set to "0". Must use NetEdit to set Module ID.
IP Address	UDP/IP	NetEdit	4 Three-digit Numbers xxx.xxx.xxx.xxx (See Page 2–4)	See Your Network Administrator, Only for UDP/IPAdminist
Ethernet Address	IPX	Set at Factory	12 Hex digits	Factory-assigned

NetEdit software utility will be needed in addition to the ERM Workbench if IP Addressing (UDP/IP) is necessary or if the Module ID is software set. If the H4–EBC slave is used with analog I/O or the high speed counter, NetEdit will be required to configure the H4–EBC. NetEdit is described in detail in Chapter 4.

### ERM / Slave Module ID

You can assign the Slave Module ID:

- Using the DIP switches on the module (1–63).
- Using the configuration tools in NetEdit that is included within the ERM Workbench utility (1–65535).

Use the DIP switch if you want the ability to install or change slave modules without using a PC to set the Module ID. Set the module's DIP switch, insert the module in the base, and connect the network cable. Your Module ID is set on powerup, and your module is ready to communicate on the network.

Ignore these numbers

8	7	6	5	4	3	2	1	ON
↓	↓	↓	↓	↓	↓	↓	↓	↓

Not Used → 7 6 5 4 3 2 1 0

$2^5$   $2^4$   $2^3$   $2^2$   $2^1$   $2^0$

(32)(16)(8) (4) (2)(1)

Binary Value

For ERM100, Dipswitch 6 is Recover - Dipswitch is used to reset IP settings back to factory default on power-up in case device is lost on network.

The numbers (0–7) printed on the circuit board indicate the power of 2 represented by each slide switch.

H2-EBC

If you prefer to be able to set or change all Module IDs on your network from a single PC, use the tools in NetEdit. In chapter 4, we step through the use of NetEdit and the network identifier options.

The Module ID equals the *sum* of the binary values of the slide switches set in the ON position. For example, if you set slide switches 1, 2, and 3 to the ON position, the Module ID will be 14. This is found by adding  $8+4+2=14$ . The maximum value you can set on the DIP switch is  $32+16+8+4+2+1=63$ . This is achieved by setting switches 0 through 5 to the ON position.

### IP Address

An IP Address can be assigned to the ERM module or its slaves if your network requires one. Normally, a network administrator will assign an IP Address to each device on the network. Since it is recommended to use a separate dedicated network for your ERM, you do not have to use the IP Address, unless you are using the UDP/IP protocol. Use the Module ID or Ethernet Address for each module when using the IPX protocol.

You can use NetEdit within the ERM Workbench utility to give the ERM or its slave modules an IP Address. Each ERM and slave must have a unique IP Address.

The module ships from the factory with an IP Address of 255.255.255.255. This is not a usable IP Address for normal communications. It only serves as a default setting which can be changed using NetEdit. The valid settings are 0 through 254. You do not have to change the default IP Address unless you are using IP Address protocol. The default setting does not cause conflicts with other network communications.

If you change the default IP Address for linking to other network devices, **you must change all four "255" fields**. If any field contains the number 255 *and* other fields have been changed, the module will *not* be recognized on the network.

Example

Valid IP Address:	192.168.100.002
No!	<del>255.168.100.002</del>



---

**WARNING:** There cannot be duplicate IP Addresses on your network. If you are using the IP Address, all modules must have a unique number.

---

### Ethernet Address

A unique Ethernet Address is assigned to each module at the factory and will not change. It is printed on a label attached to each module. The Ethernet Address is recognized by ERM Workbench and NetEdit. The Ethernet Address is a twelve digit number with no deliberate relationship to your network or functional areas of your plant. It does not usually serve as a convenient and easily remembered identifier for the module.

### Using Multiple Network Identifiers

Using one type of identifier does not limit your use of the other identifier types. IP addressing, Module ID and Ethernet Addressing may be used on one dedicated remote I/O network.

Factory-assigned Ethernet Address

