

# Serial Remote I/O Master/Slave Modules

## Remote I/O Master Module

D2-RMSM Retired



## Remote I/O Slave Module

D2-RSSS \$276.00



Legacy products. Not recommended for new installations. D2-RMSM no longer available. Limited availability for D2-RSSS.

### Overview

You can use remote I/O in addition to the I/O in the local base. The remote master is located in the CPU base and communicates with the remote slaves via shielded twisted-pair cable. To use a remote I/O system, you will need the following:

#### Remote master

One master can be used for each channel. It can be a D2-RMSM, or the bottom port on a D2-250-1 or D2-260 CPU. (The CPU port only supports RM-NET.)

#### Remote slave

A D2-RSSS and I/O base must be used for each slave.

*The remote I/O points are updated asynchronously to the CPU scan. For this reason, remote I/O applications should be limited to those that do not require*

### Remote Master Specifications

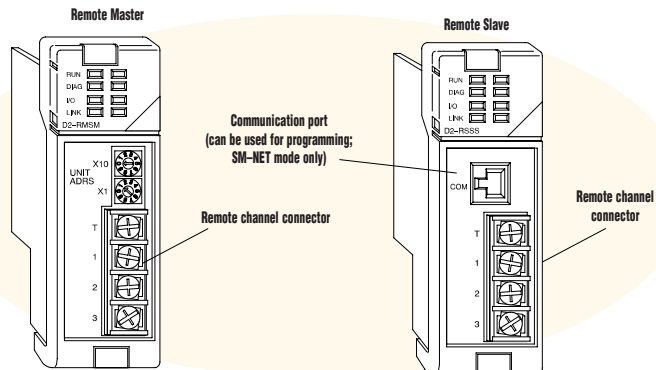
<b>Module Type</b>	Intelligent device	
<b>Number of Masters per CPU</b>	Two maximum for D2-240 and eight (seven + one CPU port) for the D2-250(-1) and D2-260 (built-in master feature in D2-250(-1) and D2-260 bottom port can be used as a master for RM-NET and would count as one master if used). D2-230 does not support remote I/O.	
<b>Maximum Number of Channels</b>	CPU dependent as above Channels may be split between RM-NET and SM-NET if necessary.	
<b>Channel Capacity:</b>	<b>RM-NET</b>	<b>SM-NET</b>
<b>Maximum # Slaves</b>	7	31
<b>Baud Rates</b>	19.2K, 38.4K baud	Selectable (19.2K, 38.4K, 153.6K, 307.2, 614.4K baud)
<b>Transmission Distance</b>	3,900 ft. (1.2Km)	3,900 feet (1.2Km) @ 19.2 K or 38.4K baud 1,968 feet (600m) @ 153.6K baud 984 feet (300m) @ 307.2K baud 328 feet (100m) @ 614.4K baud
<b>Communication to Slaves</b>	RS-485 via twisted pair with shield @ 38.4 Kbaud	
<b>Recommended Cable</b>	Belden 9841 or equivalent - 120 ohm impedance, 12pF/ft	
<b>Terminal Type</b>	Fixed	
<b>Operating Environment</b>	0°C to 60°C (32°F to 140°F), 5% to 95% humidity (non-condensing)	
<b>Internal Power Consumption</b>	200 mA maximum	
<b>Manufacturer</b>	Koyo Electronics	

*the I/O points to be updated on every scan.*

H2-EBC system

### Remote Slave Specifications

<b>Maximum Slave Points per CPU</b>	No remote I/O for D2-230 D2-240, D2-250(-1), D2-260 support a maximum of 2048 points per channel. However, actual I/O available is limited by available I/O points and number of local I/O being used. The D2-240 has a total of 320 X input, 320 Y outputs, and 256 control relays available to share between local and remote I/O. The D2-250(-1) has a total of 512 X inputs, 512 Y outputs and 1024 control relays to share between local and remote I/O. The D2-260 has 1024 X inputs, 1024 Y outputs, 2048 control relays, 2048 GX inputs and 2048 GY outputs to share between local and remote I/O points.
<b>I/O Addresses Used</b>	I/O modules in slave bases do not automatically consume any standard input and output points. You select which points are consumed by setup instructions in your RLL program.
<b>Terminal Type</b>	Fixed
<b>Communications Port</b>	RS-232, 9.6 Kbaud (same as top port on CPUs, SM-NET mode only)
<b>Base Power Requirement</b>	200 mA maximum
<b>Operating Environment</b>	0°C to 60°C (32°F to 140°F), 5% to 95% humidity (non-condensing)
<b>Manufacturer</b>	Koyo Electronics



# Ethernet Remote I/O Master Modules

## Ethernet Remote I/O Master Module

**H2-ERM100 \$216.00**

**H2-ERM-F \$399.00**

Legacy product.  
Not recommended for new installations. Limited availability.



systems. Of course, combinations are fine, too. The ERM also supports EDrives. See the Drives section for details.

**Note: Applications requiring an extremely large number of T1H-EBC100 analog I/O or H4-EBC 16-channel analog I/O, could exceed the buffer capacity of a single H2-ERM100 module. In these cases, an additional H2-ERM100 may be required.**

### Simple connections

The ERM connects to your control network using Category 5 UTP cables for cable runs up to 100 meters. Distances can be greatly extended with Ethernet/Fiber media converters like the SE-MC2U-ST. The PLC, ERM and EBC slave modules work together to update the remote I/O points. These three scan cycles are occurring at the same time, but asynchronously. Critical I/O points that must be monitored every scan are best placed in the CPU base.

### Networking ERMs with other Ethernet devices

It is highly recommended that a dedicated Ethernet remote I/O network be used for the ERM and its slaves. While Ethernet networks can handle a large number of data transactions, and normally handle them very quickly, heavy

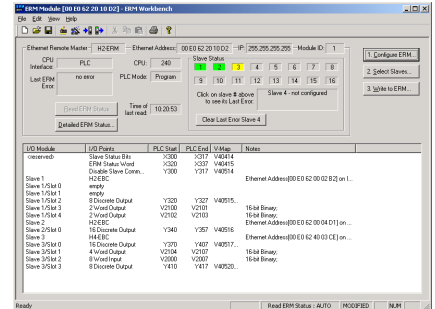
reliability of the slave I/O and the speed of the I/O network. Ensure ERM networks, multiple ERM networks and ECOM/office networks are isolated from one another.

### Software configuration

ERM Workbench is a software utility that must be used to configure the ERM and its remote Ethernet slaves. ERM Workbench supports two methods of configuring the ERM I/O network:

- ERM Workbench PLC Wizard greatly simplifies the configuration procedure when a PLC is used as the CPU interface.
- ERM Workbench configures the I/O network whether the CPU interface is a PLC or WinPLC, and allows access to all ERM(100) I/O network parameters.

### ERM Workbench Software



### Overview

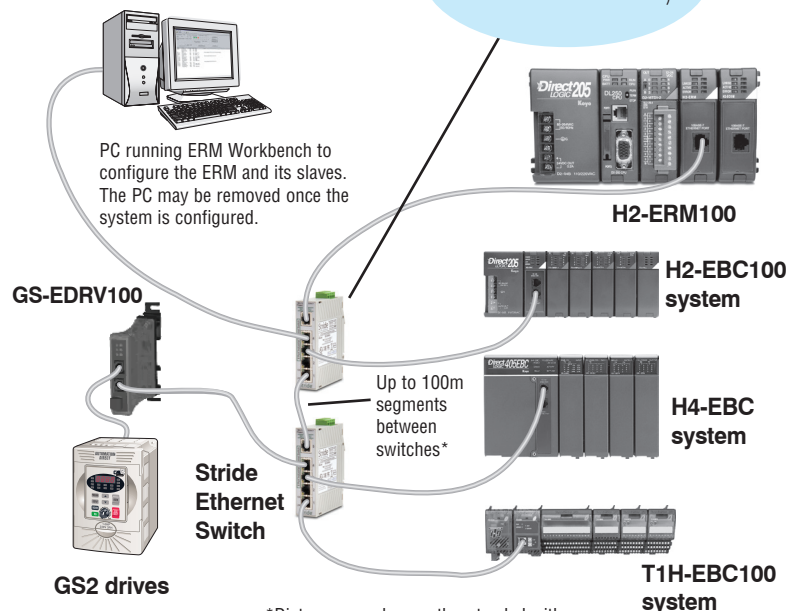
The Ethernet Remote Master H2-ERM100 connects D2-240, D2-250-1 and D2-260 CPU systems to slave I/O over a high-speed Ethernet link. The H2-ERM100 can also be used in a WinPLC system, but only one H2-ERM100 can be used with one slave per system.

### Need a lot of I/O?

Each ERM module can support up to 16 additional H2-EBC100 systems, 16 Terminator I/O EBC systems (T1H-EBC100), or 16 fully expanded H4-EBC

Ethernet traffic can adversely affect the

Stride Ethernet Switch (see the Communications Products section for details)



PC running ERM Workbench to configure the ERM and its slaves. The PC may be removed once the system is configured.

H2-ERM100

H2-EBC100 system

H4-EBC system

T1H-EBC100 system

\*Distances can be greatly extended with Ethernet/Fiber media converters like the SE-MC2U-ST.

Specifications	H2-ERM100	H2-ERM-F
<b>NOTE: H2-ERM-F is not recommended for new installations</b>		
<b>Communications</b>	10/100BaseT Ethernet	10BaseFL Ethernet
<b>Data Transfer Rate</b>	100 Mbps	10 Mbps
<b>Link Distance</b>	100 meters (328 ft)	2K meters (6560 ft)
<b>Ethernet Port</b>	RJ45	ST-style fiber optic
<b>Ethernet Protocols</b>	TCP/IP, IPX, Modbus TCP/IP, DHCP, HTML configuration	TCP/IP, IPX
<b>Power Consumption</b>	300 mA @ 5 VDC	450 mA @ 5 VDC
<b>Manufacturer</b>	Host Automation Products, L.L.C.	



# Power Requirements

## These charts help determine your power requirements

This section shows the amount of power supplied by each of the base power supplies and the amount of power consumed by each DL205 device. The Power Consumed charts list how much INTERNAL power from each power source is required for the DL205 devices. Use this information when calculating the power budget for your system.

In addition to the internal power sources, the DL205 bases offer a 24 VDC auxiliary power supply with external power connections. This auxiliary power supply can power external devices.

## Use ZIPLinks to reduce power requirements

If your application requires a lot of relay outputs, consider using the ZIPLink AC or DC relay output modules. These modules can switch high current (10A) loads without putting a load on your base power budget. Refer to the Terminal Blocks and Wiring Solutions section in this catalog for more information.

This logo is placed next to the I/O modules that are supported by the ZIPLink connection systems. See the I/O module specifications at the end of this section.



Power Consumed		
Device	5V(mA)	24V Auxiliary
<b>Operator Interface</b>		
DV-1000	150	0
C-more Micro-Graphic	210	0

Power Supplied							
Device	Price	5V(mA)	24V Auxiliary	Device	Price	5V(mA)	24V Auxiliary
<b>Bases</b>				<b>Bases</b>			
D2-03B-1	\$132.00	2600	300	D2-06BDC1-1	\$194.00	2600	None
D2-03BDC1-1	\$150.00	2600	None	D2-06BDC2-1	\$184.00	2600	300
D2-04B-1	\$143.00	2600	300	D2-09B-1	\$220.00	2600	300
D2-04BDC1-1	\$171.00	2600	None	D2-09BDC1-1	\$238.00	2600	None
D2-06B-1	\$176.00	2600	300	D2-09BDC2-1	\$238.00	2600	300

Power Consumed		
Device	5V(mA)	24V Auxiliary
<b>CPUs</b>		
D2-230	120	0
D2-240	120	0
D2-250-1	330	0
D2-260	330	0
H2-WPLC***	680	0
<b>DC Input Modules</b>		
D2-08ND3	50	0
D2-16ND3-2	100	0
D2-32ND3	25	0
D2-32ND3-2	25	0
<b>AC Input Modules</b>		
D2-08NA-1	50	0
D2-08NA-2	100	0
D2-16NA	100	0
<b>Input Simulator Module</b>		
F2-08SIM	50	0
<b>DC Output Modules</b>		
D2-04TD1	60	20
D2-08TD1	100	0
D2-08TD2	100	0
D2-16TD1-2	200	80
D2-16TD2-2	200	0
F2-16TD1P	70	50
F2-16TD2P	70	50
D2-32TD1	350	0
D2-32TD2	350	0
<b>AC Output Modules</b>		
D2-08TA	250	0
F2-08TA	250	0
D2-12TA	350	0
<b>Relay Output Modules</b>		
D2-04TRS	250	0
D2-08TR	250	0
F2-08TR(S)	670	0
D2-12TR	450	0
<b>Combination In/Out Module</b>		
D2-08CDR	200	0

Power Consumed		
Device	5V(mA)	24V Auxiliary
<b>Analog Modules</b>		
F2-04AD-1	100	5
F2-04AD-2	110	5
F2-08AD-1	100	5
F2-08AD-2	100	5
F2-02DA-1	40	60 (note 1)
F2-02DA-1L	40	70 @ 12V (note 1)
F2-02DA-2	40	60
F2-02DA-2L	40	70 @ 12V
F2-02DAS-1	100	50 / channel
F2-02DAS-2	100	60 / channel
F2-08DA-1	30	50 (note 1)
F2-08DA-2	60	140
F2-4AD2DA	60	80 (note 1)
F2-8AD4DA-1	35	100 (note 1)
F2-8AD4DA-2	35	80 (note 1)
F2-04RTD	90	0
F2-04THM	110	60
<b>Specialty Modules</b>		
D2-CTRINT	50*	0
D2-CM / D2-EM	100/130	0
H2-CTRIO	400	0
H2-CTRIO2	275	0
D2-DCM	300	0
F2-DEVNETS	160	0
F2-SDS-1	160	0
H2-PBC	530	0
H2-EBC100	300	0
H2-EBC-F	640	0
H2-ECOM100	300	0
H2-ECOM-F	640	0
F2-CP128	235	0
<b>Remote I/O</b>		
H2-ERM100, (-F)	300, (-F: 450)	0
D2-RMSM	200	0
D2-RSSS	150	0
<b>Programming Devices</b>		
D2-HPP	200	0

\*requires external 5VDC for outputs  
Note 1: Add an additional 20 mA per output loop.