

# Do-more H2 Series PLC System Specifications

## General Specifications

General Specifications	
<b>Operating Temperature</b>	32°F to 131°F (0°C to 55°C)
<b>Storage Temperature</b>	−4°F to 158°F (−20°C to 70°C)
<b>Ambient Humidity</b>	30% to 95% relative humidity (non-condensing)
<b>Environmental Air</b>	No corrosive gases
<b>Vibration</b>	MIL STD 810C, Method 514.2 IEC60068-2-6 JIS C60068-2-6 (Sine wave vibration test)
<b>Shock</b>	MIL STD 810C, Method 516.2 IEC60068-2-27 JIS C60068-2-27
<b>Noise Immunity</b>	NEMA ICS3-304
<b>Agency Approvals</b>	UL508 (File No. E157382, E316037) CE (EN61131-2)

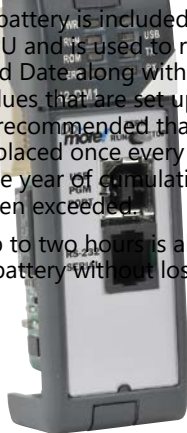
# CPU Modules

## Specifications

### Battery Specifications

A battery is included with the Do-more CPU and is used to retain the Time and Date along with any Tagname values that are set up as retentive. It is recommended that the battery be replaced once every five years or when one year of cumulative OFF time has been exceeded.

Up to two hours is allowed to change out a battery without loss of data.



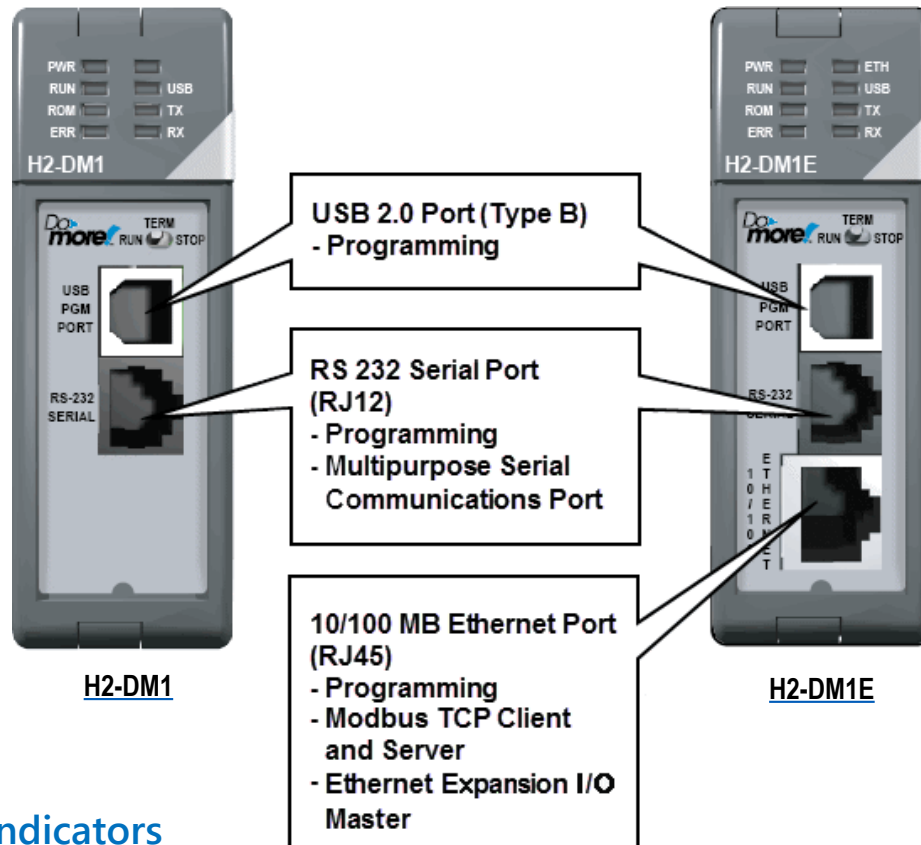
### H2-DM1



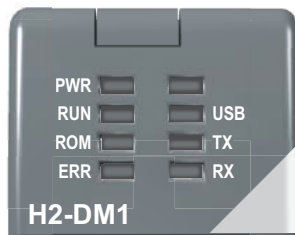
### H2-DM1E

Feature	H2-DM1	H2-DM1E
<b>Total Memory (bytes)</b>	262144 bytes	
<b>Ladder Memory (instruction words)</b>	65536 instruction words	
<b>V Memory (words)</b>	Configurable up to 65536 (4096 default)	
<b>Non-volatile V Memory (words)</b>	Configurable up to 65536 (4096 default)	
<b>D-memory (DWORDs)</b>	Configurable up to 65536 (4096 default)	
<b>Non-volatile D Memory (DWORDs)</b>	Configurable up to 65536 (4096 default)	
<b>R-memory (REAL DWORDs)</b>	Configurable up to 65536 (4096 default)	
<b>Non-volatile R Memory (REAL DWORDs)</b>	Configurable up to 65536 (4096 default)	
<b>Boolean execution/K</b>	50us	
<b>Stage Programming</b>	Yes	
<b>Number of Stages</b>	128 per Program code-block; number of code-blocks configurable to memory limit	
<b>Handheld Programmer</b>	No	
<b>Programming Software for Windows</b>	FREE Do-more Designer	
<b>Built-In communications ports</b>	USB, RS-232	USB, RS-232, Ethernet (10/100 Base-T)
<b>Program Memory</b>	Flash ROM	
<b>Total I/O points available</b>	X, Y, each configurable up to 65536 (2048 default); WX, WY (analog in/out) each configurable up to 65536 (256 default)	
<b>Local I/O points available</b>	256	
<b>Ethernet Remote I/O Discrete points</b>	131072	
<b>Ethernet Remote I/O Analog I/O Channels</b>	32768	
<b>Max Number of Ethernet slaves per Channel</b>	16	
<b>I/O points per Remote Channel</b>	32768	
<b>Discrete I/O Module Point Density</b>	4/8/12/16/32	
<b>Slots per Base</b>	3/4/6/9	
<b>Number of instructions available</b>	>160	>170
<b>Control relays</b>	Configurable up to 65536 (2048 default)	
<b>Special relays (system defined)</b>	1024	
<b>Special registers (system defined)</b>	512	
<b>Timers</b>	Configurable up to 65536 (256 default)	
<b>Counters</b>	Configurable up to 65536 (256 default)	
<b>System Date/Time structures</b>	8	
<b>User Date/Time structures</b>	Configurable up to 65536 (32 default)	
<b>ASCII String/Byte buffer structures</b>	Configurable up to memory limit (192 default)	
<b>Modbus Client memory</b>	Yes, configurable up to memory limit, default 1024 input bits, 1024 coil bits, 2048 input registers, 2048 holding registers	
<b>DL Classic Client memory</b>	Up to memory limit, default 512 X, 512 Y, 512 C, 2048 V	
<b>Immediate I/O</b>	No	
<b>Interrupt input (hardware / timed)</b>	No	
<b>Subroutines</b>	Program and Task code-blocks, up to memory limit	
<b>Drum Timers</b>	Yes, up to memory limit	
<b>Table Instructions</b>	Yes	
<b>Loops</b>	FOR/NEXT, WHILE/WEND, REPEAT/UNTIL loops	
<b>Math</b>	>60 operators and functions: Integer, Floating Point, Trigonometric, Statistical, Logical, Bitwise, Timing	
<b>ASCII</b>	Yes, IN/OUT, Serial, Ethernet TCP and UDP; 11 output script commands	
<b>PID Loop Control, Built In</b>	Yes, configurable to memory limit (over 2000)	
<b>Time of Day Clock/Calendar</b>	Yes	
<b>Run Time Edits</b>	Yes	
<b>Supports True Force</b>	Yes	
<b>Internal Diagnostics</b>	Yes	
<b>Password security</b>	Multi-user, credentialed, session-based security	
<b>System error log</b>	Yes	
<b>User error log</b>	Yes	
<b>Battery backup</b>	Yes (Battery included)	

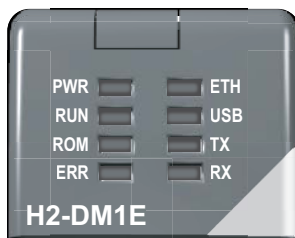
# CPU Modules



## LED Status Indicators



H2-DM1



H2-DM1E

LED Indicators		
Indicator	Status	Description
PWR	Green	Base Power ON
	Yellow	Low Battery
RUN	Green	CPU is in RUN Mode
	Yellow	Forces are Active
ROM	Yellow	CPU is updating Non-volatile Memory
ERR	Red	CPU Fatal Error
ETH	Green	Ethernet Link Good
	Yellow	Ethernet Activity
USB	Green	USB Receive Activity
	Yellow	USB Transmit Activity
TX	Green	RS-232 Transmit Activity
RX	Green	RS-232 Receive Activity

## PLC Mode Switch



Mode Switch Functions	
Mode Switch Position	CPU Action
<b>RUN (Run Program)</b>	CPU is forced into RUN Mode if no errors are encountered.
<b>TERM (Terminal)</b>	RUN, PROGRAM and DEBUG modes are available. In this mode, the mode of operation can be changed through the Programming Software.
<b>STOP (Stop Program)</b>	CPU is forced into STOP Mode.

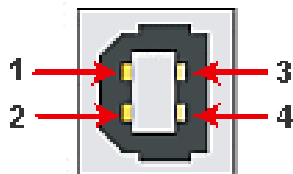
# CPU Modules

## Battery Specifications

A battery is included with the Do-more

USB Port and is used to retain the Time and Date memory for programming and monitoring via a PC running Do-more Designer. It is recommended that the battery be replaced once every five years or when

USB Port Specifications	
<b>Description</b>	one year of cumulative operation. The battery has a built-in self-test function that monitors the battery level. If the battery level is low, the CPU will display a warning message. Up to two hours is allowed to change out a battery without loss of data.
<b>Cables (ADC part #)</b>	USB Type A to USB Type B: <a href="#">USB-CBL-AB3</a> (3ft) <a href="#">USB-CBL-AB6</a> (6ft) <a href="#">USB-CBL-AB10</a> (10ft) <a href="#">USB-CBL-AB15</a> (15ft)

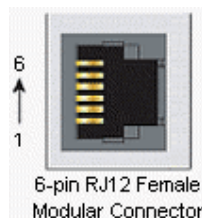


Pin	Description	
1	5V	Bus Voltage Sense
2	D-	Data -
3	D+	Data +
4	0V	Ground

## RS-232 Port

RJ-12 style connector used for:

- Connection to a PC running Do-more Designer
- Modbus RTU Master connections
- Modbus RTU Slave connections
- ASCII Incoming and Outgoing communications
- Custom Protocol Incoming and Outgoing communications



6-pin RJ12 Female Modular Connector

RS-232 Port Specifications	
<b>Description</b>	Non-isolated, full duplex RS-232 DTE port used for programming, online monitoring or can connect the CPU as a Modbus RTU or ASCII master or slave to a peripheral device. Includes ESD and built-in surge protection.
<b>Baud Rates</b>	1200, 2400, 4800, 9600, 19200, 38400, 57600, and 115200
<b>+5V Cable Power Source</b>	220mA maximum at 5V, $\pm 5\%$ . Reverse polarity and overload protected.
<b>Maximum Output Load (TXD/RTS)</b>	3kV, 1000pf
<b>Minimum Output Voltage Swing</b>	$\pm 5V$
<b>Output Short Circuit Protection</b>	$\pm 15mA$
<b>Cable Options (ADC part #)</b>	<a href="#">D2-DSCBL</a> <a href="#">FA-CABKIT</a> <a href="#">FA-ISOCQN</a> for converting RS-232 to isolated RS-422/485

Pin	Description	
1	0V	Power (-) connection (GND)
2	5V	Power (+) connection (220mA max.)
3	RXD	Receive Data (RS-232)
4	TXD	Transmit Data (RS-232)
5	RTS	Request to Send (RS-232)
6	CTS	Clear to Send (RS-232)

For a list of protocols supported by each port, please refer to the Communications topic of the Do-more H2 Series PLC Overview in this section.

# CPU Modules

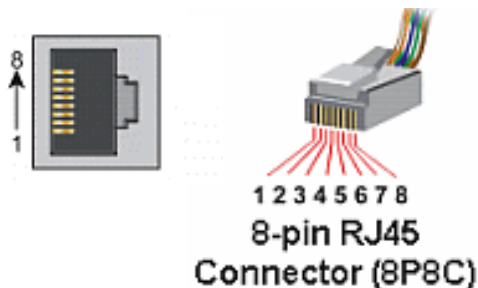
## Ethernet Port

RJ-45 style connector used for:

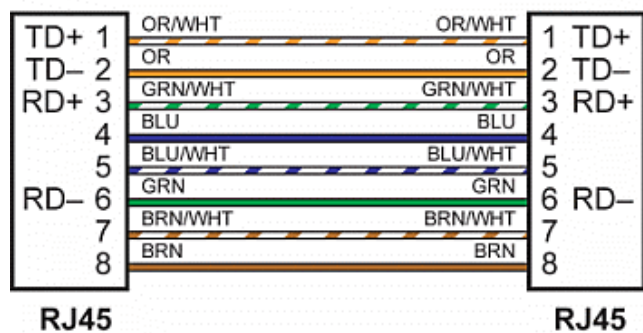
- Connection to a PC running Do-more Designer
- Modbus TCP Client connections (Modbus requests sent from the CPU)
- Modbus TCP Server connections (Modbus requests received by the CPU)
- Ethernet Expansion I/O Master

## Ethernet Port Specifications

<b>Description</b>	Standard transformer isolated Ethernet port with built-in surge protection for programming, online monitoring, Modbus/TCP client/server connections (fixed IP or DHCP) and Ethernet Expansion I/O capabilities.
<b>Transfer Rate</b>	10/100 Mbps; Auto-MDX (Crossover)

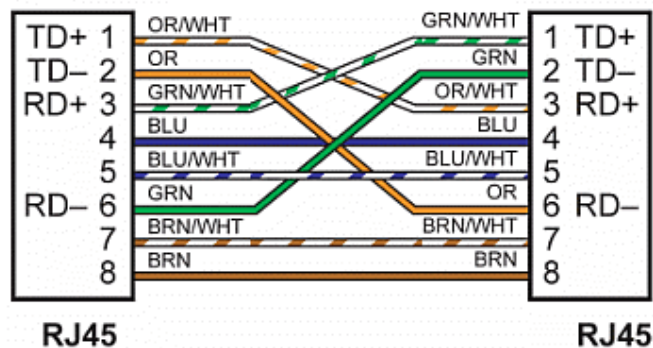


## Patch (Straight-through) Cable



## Crossover Cable

10/BASE-T/100BASE-TX



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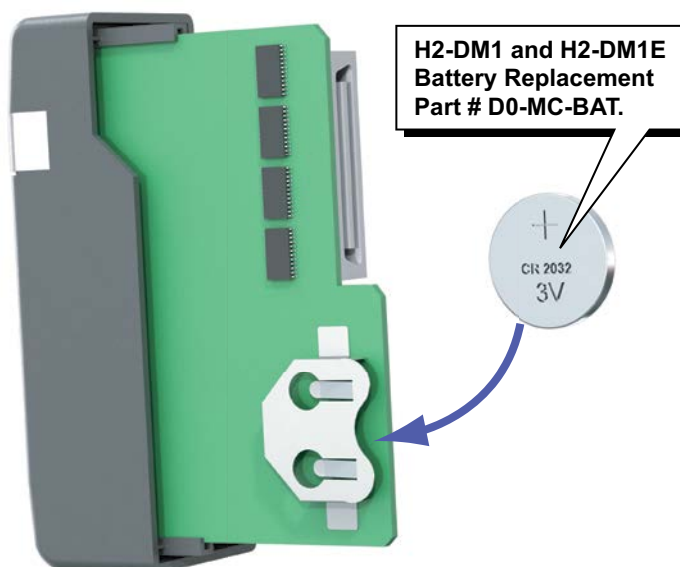
# CPU Modules

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Battery	
<b><u>D0-MC-BAT</u></b>	Coin type, 3.0 V Lithium battery, number CR2032



# CPU Modules

## Ethernet Expansion I/O

With Do-more Designer Software version V1.1 and newer, the [H2-DM1E](#) CPU's built-in Ethernet port can be configured as an Ethernet Expansion I/O master. Much like the [H2-ERM100](#) module, the Ethernet Expansion I/O feature allows expansion beyond the local chassis to slave I/O using the onboard high-speed Ethernet link.

The onboard Ethernet port can support up to 16 slave devices. The slave I/O modules supported are:

- [H2-EBC100](#)
- [T1H-EBC100](#) (Terminator I/O)
- [GS-EDRV100](#) (GS Drives)

The Ethernet Expansion I/O network uses Category 5 UTP cables for cable runs up to 100 meters (328 ft.) with extended distances achieved through Ethernet switches.

It is highly recommended that a dedicated network be used with the Ethernet Expansion I/O feature. Ethernet Expansion I/O networks and ECOM/office networks should be isolated from one another to prevent network delays.

