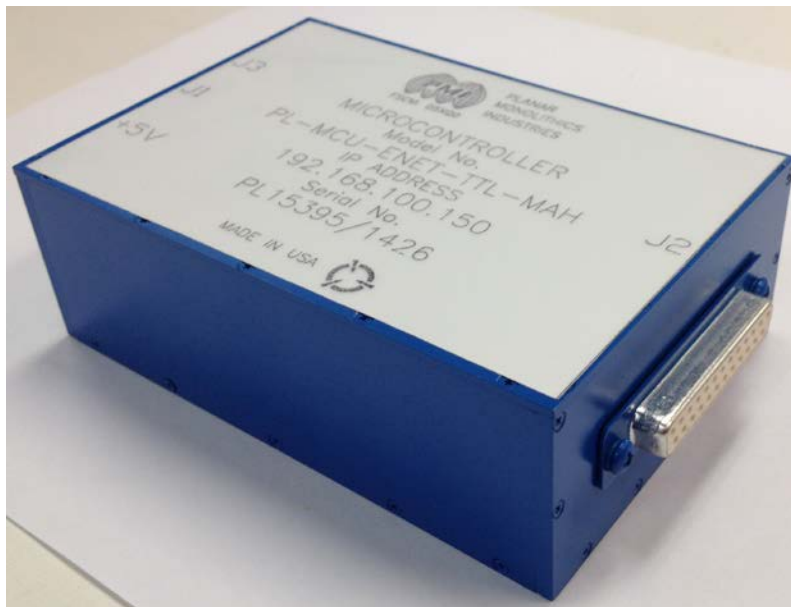
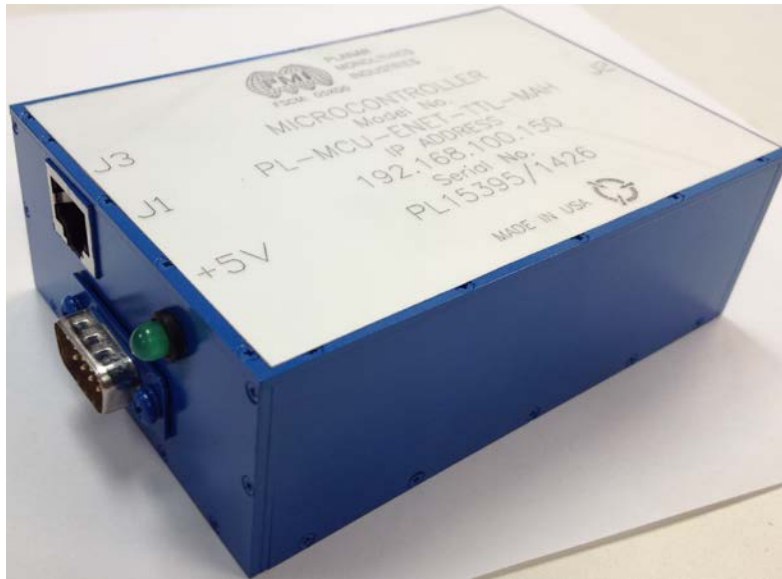




**TYPICAL CHARACTERISTICS  
ON  
PL-MCU-ENET-TTL-MAH**

**PMI MODEL NUMBER PL-MCU-ENET-TTL-MAH IS AN ETHERNET MICROCONTROLLER TEST BOX WHICH ALLOWS FOR AN ETHERNET COMMAND TO BE SENT AND UP TO 18 PARALLEL TTL OUTPUT BITS.**



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# TYPICAL CHARACTERISTICS ON PL-MCU-ENET-TTL-MAH

## OUTLINE DRAWING

**DESCRIPTION**

PMI MODEL NUMBER PL-MCU-ENET-TTL-MAH IS AN ETHERNET MICROCONTROLLER TEST BOX WHICH ALLOWS FOR AN ETHERNET COMMAND TO BE SENT AND UP TO 18 PARALLEL TTL OUTPUT BITS.

**SPECIFICATIONS**

- SIZE: 4.5" X 3.0" X 1.5"
- CONNECTORS: 0-9 MALE; 0-25 FEMALE, RJ-45
- POWER SUPPLY: +5 V, 150 mA TYP
- IP ADDRESS: FACTORY PRESET
- FINISH: PAINTED BLUE

**MECHANICAL OUTLINE**

**ENVIRONMENTAL RATINGS**

- TEMPERATURE: -40°C TO + 70°C (OPERATING)
- HUMIDITY: 5% TO 95%, NONCONDENSING

ALL DIMENSIONS ARE IN INCHES  
TOLERANCES:  
DIMENSIONS IN PARENTHESES ARE  
DIMENSIONS IN MILLIMETERS

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PMI CONFIDENTIAL AND PROPRIETARY

**REVISIONS**

REV	NO.	DESCRIPTION	DATE	APPROVED
A1		ORIGINAL RELEASE	4/20/14	

**APPROVALS**

DESIGN	DATE	BY	DATE	BY
DDD	4/21/14			

**PRODUCT FEATURE**

REV	DATE	BY	DATE	BY
A	05X00		27023001	

PL-MCU-ENET-TTL-MAH

SIZE: N/A

1 OF 1



**TYPICAL CHARACTERISTICS  
ON  
PL-MCU-ENET-TTL-MAH**

TEST. ITEM NO	PARAMETERS	SPECIFIED VALUE	TEST RESULTS
1	TTL Outputs:	Pins 1 – 18 Toggle High/Low with Ethernet Commands	Pins 1 – 18 Toggle High/Low with Ethernet Commands
2	Power:	+5 V @ 150 mA Typ	<b>+5 V @ 148 mA</b>

**Ethernet to TTL Microcontroller  
PL-MCU-ENET-TTL-MAH**

**Operating Instructions**





## TYPICAL CHARACTERISTICS ON PL-MCU-ENET-TTL-MAH

### **1) PL-MCU-ENET-TTL-MAH**

PMI Model Number PL-MCU-ENET-TTL-MAH is a microcontroller box which inputs an Ethernet command that allows 18 parallel TTL bits to be toggled high and low.

### **2) Ethernet Connection**

The microcontroller box has the following Ethernet connection through the RJ45 Port on the box:

IP Address: 192.168.100.150  
Subnet Mask: 255.255.255.0  
Default Gateway: 10.10.6.1  
Connection Port: 3000

**Note:** If directly connecting a computer to the box, a crossover cable must be used. If the computer and box are both connected to the same network, a standard Ethernet cable can be used.

### **3) Ethernet Command Structure**

The Ethernet command structure is set up to input 18 text characters containing either a 1 or 0 for each of the 18 parallel TTL outputs in the order of MSB to LSB.

**Example:** The table below shows the command to send just the LSB high, just the MSB high, or all bits high. Any bit or combination of bits can be toggled by placing a text character 1 in its place in the 18 character string.



**TYPICAL CHARACTERISTICS  
ON  
PL-MCU-ENET-TTL-MAH**

<b>Output</b>	<b>MSB</b>																<b>LSB</b>	
LSB	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
MSB	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
All High	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

LSB high all other bits low “000000000000000001”

MSB high all other bits low “100000000000000000”

All bits high “111111111111111111”

**4) TTL Outputs**

The 18 TTL Outputs are fitted with a series 1 k resistor to protect the microcontroller from short circuit conditions on the outputs. They will toggle from 0 V with a “0” input to +5 V with a “1” input.

**5) J2 - Pin Assignment**

Pin No.	Function	Description
1	TTL1	MSB
2	TTL2	
3	TTL3	
4	TTL4	
5	TTL5	
6	TTL6	
7	TTL7	
8	TTL8	
9	TTL9	
10	TTL10	
11	TTL11	
12	TTL12	



**TYPICAL CHARACTERISTICS  
ON  
PL-MCU-ENET-TTL-MAH**

13	TTL13	
14	TTL14	
15	TTL15	
16	TTL16	
17	TTL17	
18	TTL18	LSB
19	GND	GND
20	NC	No Connection
21	NC	No Connection
22	NC	No Connection
23	NC	No Connection
24	NC	No Connection
25	NC	No Connection

**6) J1 - Pin Assignment**

Pin No.	Function	Description
1	+5V	Supply Voltage
2	GND	Ground
3	NC	No Connection
4	NC	No Connection
5	NC	No Connection
6	NC	No Connection
7	NC	No Connection
8	NC	No Connection
9	NC	No Connection



## TYPICAL CHARACTERISTICS ON PL-MCU-ENET-TTL-MAH

### Graphical User Interface

The screenshot displays the graphical user interface for the PL-MCU-ENET-TTL-MAH controller. The interface is organized into several functional areas:

- Top Right:** A window titled "Connect to PL-MCU-ENET-TTL-MAH" containing a PMI logo and a slider for "Attenuator 1 Attenuation Level (dB)" with a scale from 0 to 31.
- Middle Right:** A window titled "Attenuator 2 Attenuation Level (dB)" with a similar slider.
- Bottom Right:** A window titled "Attenuator 1 Setting (dB)" and "Attenuator 2 Setting (dB)" which are currently empty.
- Center:** A large text area titled "IP Address for PL-MCU-ENET-TTL-MAH Controller" displaying the address "192.168.100.150".
- Bottom Center:** A "18-Bit Command Sent" field with a text input box.
- Bottom Left:** A "File Control" section with a "File Loops" input (set to 1), a "Delay (s)" input (set to 250m), and a "File Control" button.
- Right Side:** A vertical panel titled "PL-MCU-ENET-TTL-MAH Graphical User Interface" with a "18-Bit Command Sent" field and an "Attenuator Control Filename" field.
- Bottom Left Panel:** A detailed help section containing the following text:

This GUI is written to control two 5-bit attenuators, PMI Model Number DTA-100M18G-30-CD-1 connected to the Ethernet to TTL Controller, PMI Model Number PL-MCU-ENET-TTL-MAH.

When the Controller is connected and powered on, click Connect to PL-MCU-ENET-TTL-MAH to be able to send commands to the controller.

8 extra bits are available as toggle switches PIN 11 - PIN 18

The attenuation for each attenuator can be set via the sliders labeled Attenuator 1 and Attenuator 2 respectively or through a text file.

To enable the text file, toggle the File Control Switch to On.

The text file must be set up with Attenuator 1 Value, Attenuator 2 Value on each line (example: 16, 10).

The program will read through the file until there are no lines left.

The program will loop through the file the specified number of times, and then it will wait for new settings.

The value set is the attenuation level in dB and the current setting is shown in the box below the slider.

The 18-Bit Command Sent box shows the binary controls sent for pin
- Bottom Left Panel (PINs):** A row of 8 toggle switches labeled PIN 11 through PIN 18.
- Bottom Left Panel (Buttons):** A "Send Settings (Or Press Enter to Send)" button.