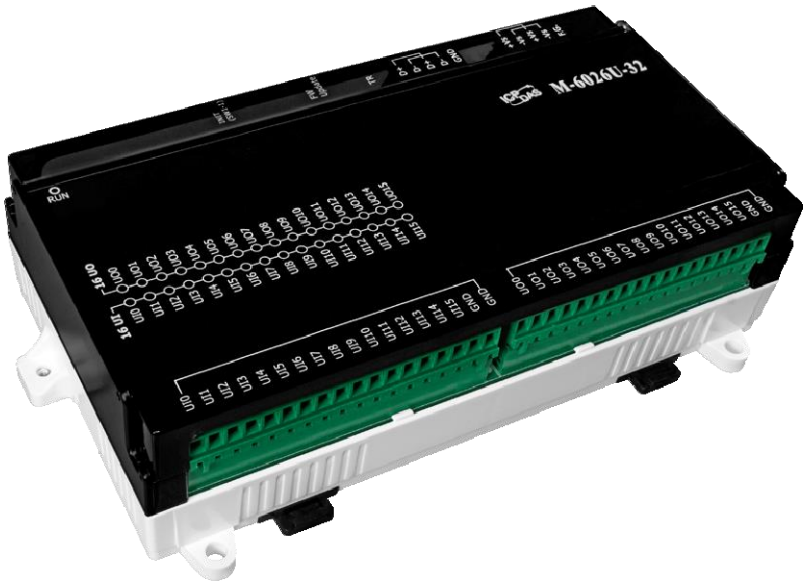
# M-6026U-32

## 16-channel Universal Input and

## 16-channel Universal Output




**Version: 1.1**

**Date: Oct. 2025**

Author: Horse Chien

Editor: Janice Hong



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# Revision History

| Revision | Date | Description |
|---|---|---|
| 1.1 | 2025/10 | ● Modify Section 2.1 Specifications<br>● Modify Section 2.3 Wire Connections –Digital Input |
| 1.0.0 | 2017/12 | First releas |



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# 1. Introduction

The M-6026U-32 is a 16-channel Universal Input and 16-channel Universal Output distributed I/O module that provides a wide variety of input, output, and smart control solutions, all of which are based on a single universal hardware platform. The M-6026U-32 module combines both the input and the output on the same board, saving both time and space when both are at a premium, meaning the space requirements for I/O boards can be reduced by as much as 50%. Traditional I/O board schemes typically required separate input and output boards to be mounted within an enclosure, increasing the time to mount the boards and the cost of installation. The M-6000 I/O board series are communications devices that can be used to connect to facility management systems to enable control of refrigeration, HVAC, and lighting systems.

## Features

- 16-channel Universal Input and 16-channel Universal Output
- Status LED for each Universal Input and Output Channel
- Each Universal Input point can be configured as Analog Input, Digital Input or Counter Input
- 100 VDC Overvoltage Protection for each Universal Input Channel
- Open Wire Detection for +4 to +20 mA Output channels
- Supports the Modbus RTU Protocol
- DIN-Rail or Wall Mounting
- Space-saving Design
- Wide Operating Temperature Range: -25 to +75℃



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# 2. Hardware

## 2.1 Specifications

| Model | M-6026U-32 |
|---|---|
| **CPU Module** | |
| Watchdog Timer | Module, Communication (Programmable) |
| EMS Protection | |
| ESD (IEC 61000-4-2) | ±4 kV Contact for each Terminal |
| | ±8 kV Air for Random Point |
| **LED Indicators** | |
| Status | 1 x Power and Communication |
| **Analog Input** | |
| Channels | 16, universal for AI and DI |
| Type | Voltage |
| | Current |
| Range | Voltage: 0 ~ 2.5V, 0 ~ 5 V, 0 ~ 10 V |
| | Current: 0 to 20 mA, 4 to 20 mA |
| | RTD: Pt1000 |
| Resolution | 16-bit |
| Accuracy | ±0.1% of FSR |
| Overvoltage Protection | 100 VDC |
| **Analog Output** | |
| Channels | 16 |
| Type | Voltage |
| | Current |
| Range | Voltage: 0 to 10 V |
| | Current: 0 to 20 mA, 4 to 20 mA |
| Resolution | 12-bit |
| Accuracy | ±0.2% of FSR |
| Open Wire Detection | For 4 to 20 mA only |



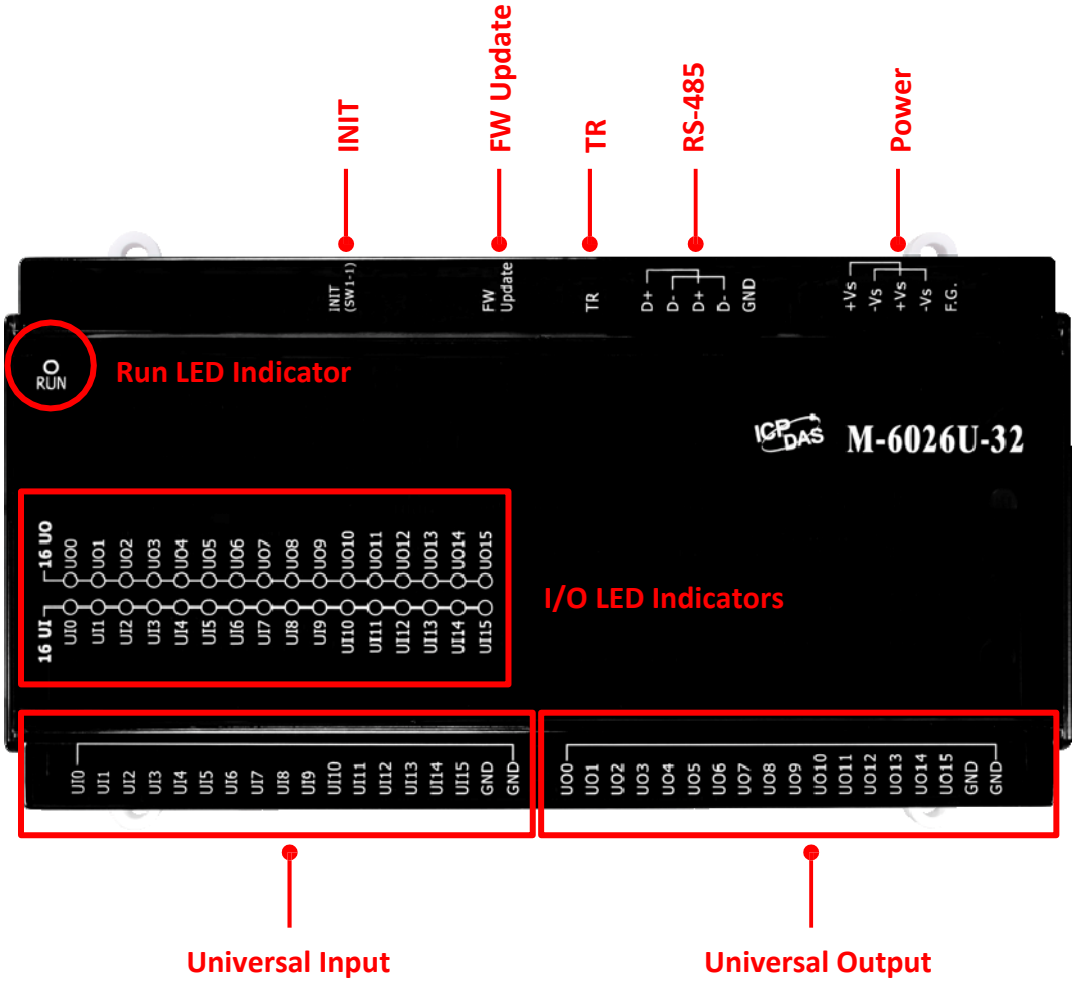
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| | |
|---|---|
| Voltage Output Capability | 10 V@ 20mA |
| **Digital Input** | |
| Channels | 16, universal for AI and DI |
| Type | Dry Contact |
| ON Voltage Level | Close to GND |
| OFF Voltage Level | Open |
| Fuse Protection | 01:00 AM |
| **COM Ports** | |
| Ports | 1 x RS-485 |
| Baud Rate | 1200 to 115200 bps |
| Data Format | (N, 8, 1) (N, 8, 2) (E, 8, 1) (O, 8, 1) |
| Protocol | Modbus RTU |
| **Power** | |
| Consumption | 14 W Max. |
| Powered from Terminal Block | 24 VAC or 24 VDC |
| **Mechanical** | |
| Dimensions (mm) | 237 x 134 x 59 (W x L x H) |
| **Environment** | |
| Operating Temperature | -25 ~ +75 °C |
| Storage Temperature | -40 ~ +80 °C |
| Humidity | 10 ~ 95% RH, Non-condensing |



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## 2.2 Appearance




**LED Indicators**

- RUN : Red for normal operation.
- UI0 to UI15 : Green for Voltage Input, Red for RTD Input
- UO0 to UO15 : Green for Voltage Output, Red for Digital Input

**INIT Switch**

Used to activate INIT mode .



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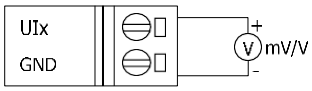
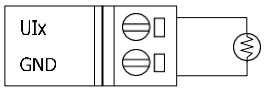
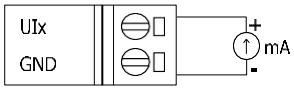
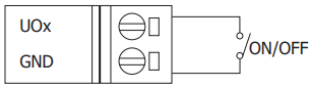
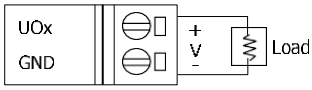
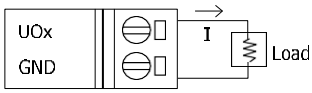
**FW Update Switch**

Used to update the firmware .

**TR Switch**

Activates Terminal Resistor. The M-6026U-32 module includes a 120-Ohm terminal resistor for use with the RS-485 interface

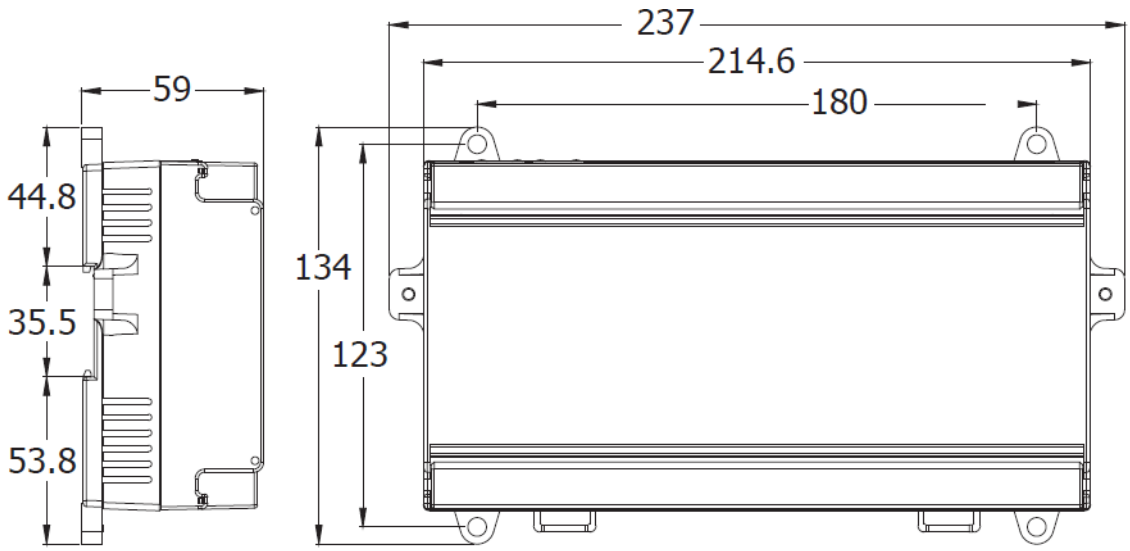
## 2.3 Wire Connections

| Voltage Input | RTD Input |
|---|---|
|  |  |
| **Current Input** | **Digital Input** |
|  |  |
| **Voltage Output** | **Current Output** |
|  |  |



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## 2.4 Dimensions (units: mm)






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# 3. Configuration via RS-485

➢ The factory default settings for RS-485 communication are:

- Address: 1
- Protocol: Modbus/RTU
- Baud Rate: 9600
- Parity: N,8,1
- Response Delay (ms): 0

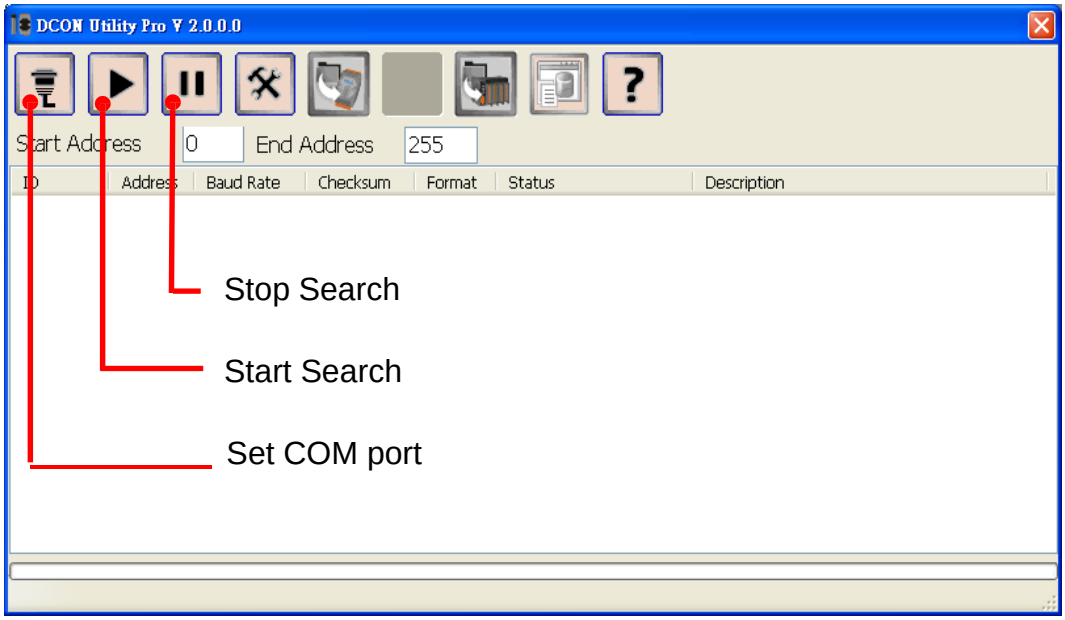
**Note**

If multiple M-6026U-32 are connected to the same RS-485 network, each module needs be set with a unique RS-485 address. More than one module having the same address will cause communication failure

➢ Testing RS-485 Communication

1. Install the DCON Utility Pro, which can be downloaded from http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/dcon_utility/

2. Double-click the desktop icon to launch the DCON_Utility_Pro.

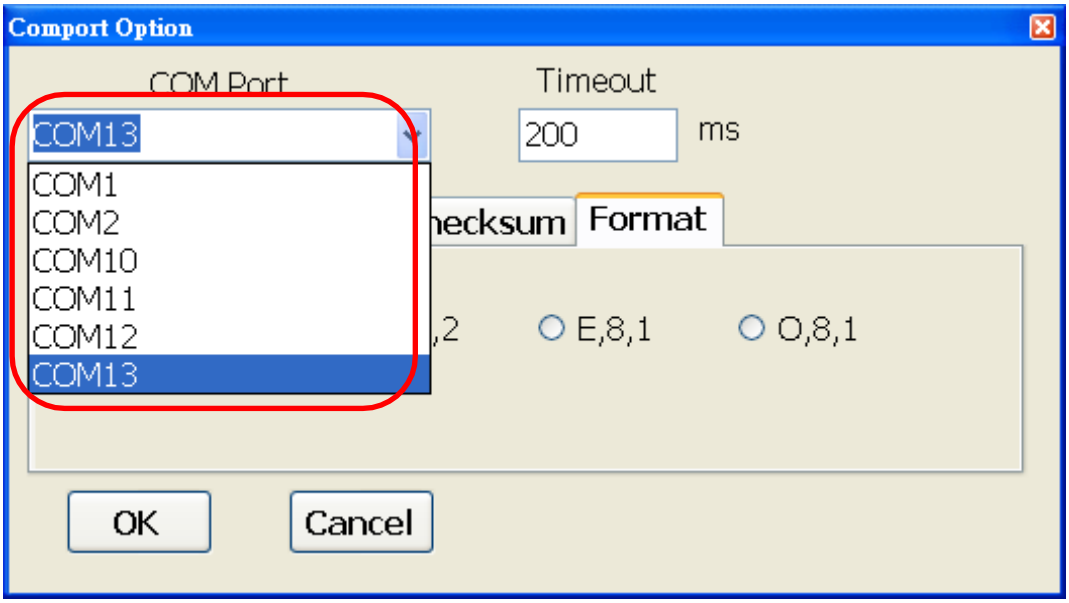




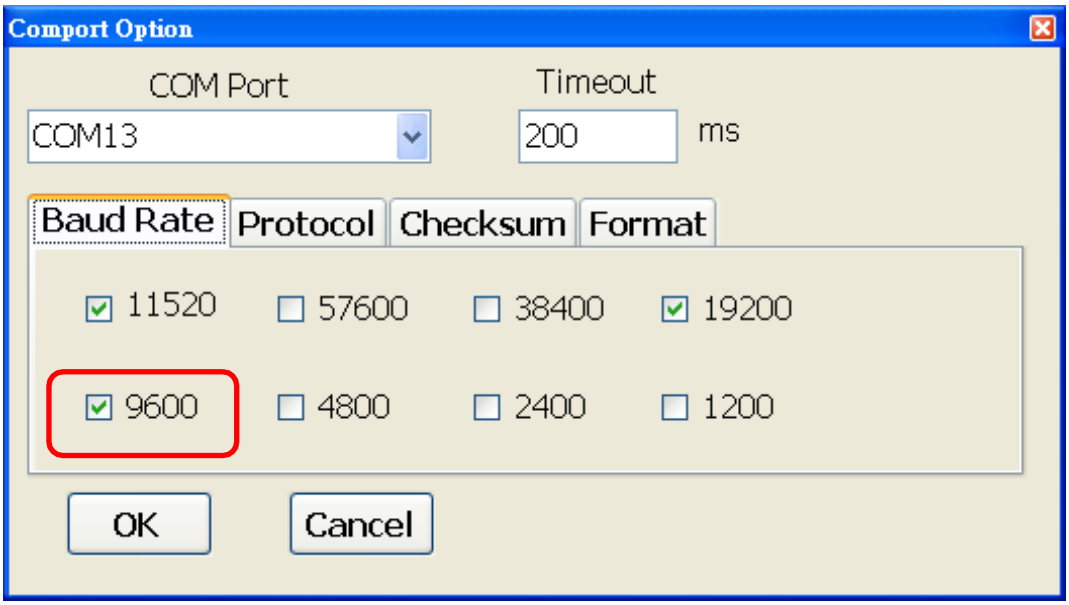

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3. Click the icon  to open the COM Port options digital and configure the COM port.

4. Select the number of COM Port used to connect to the module.



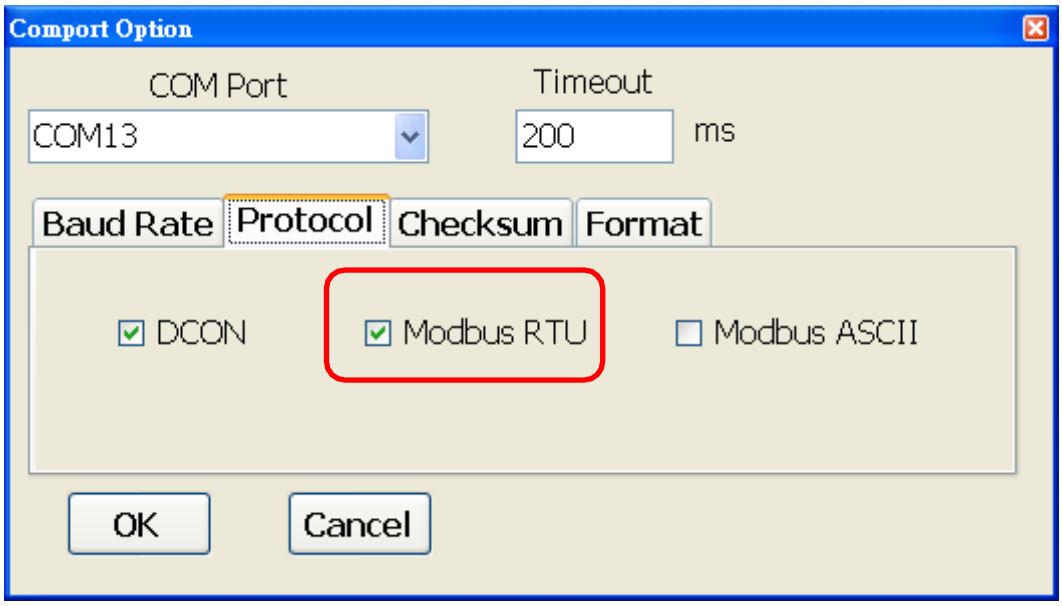

5. The factory default value for the Baud Rate is 9600 bps.



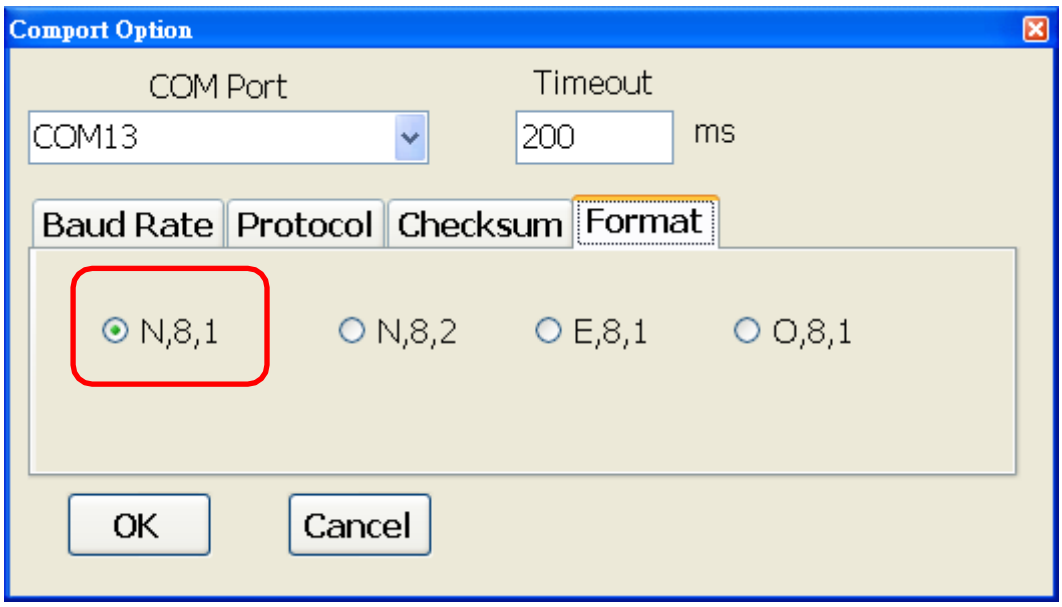



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6. Click the Protocol tab and check the checkbox for the protocol that is set for the module.




7. Click the Format tab and select the Parity that is set for the module.

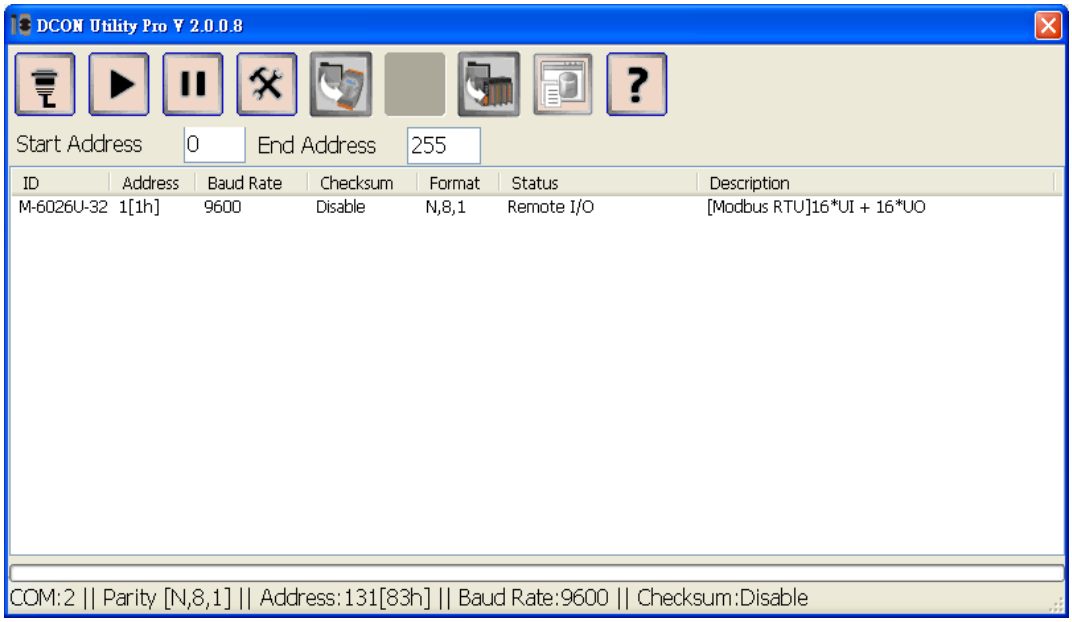



8. Click the Start Search  icon. To begin searching for devices connected to the network.

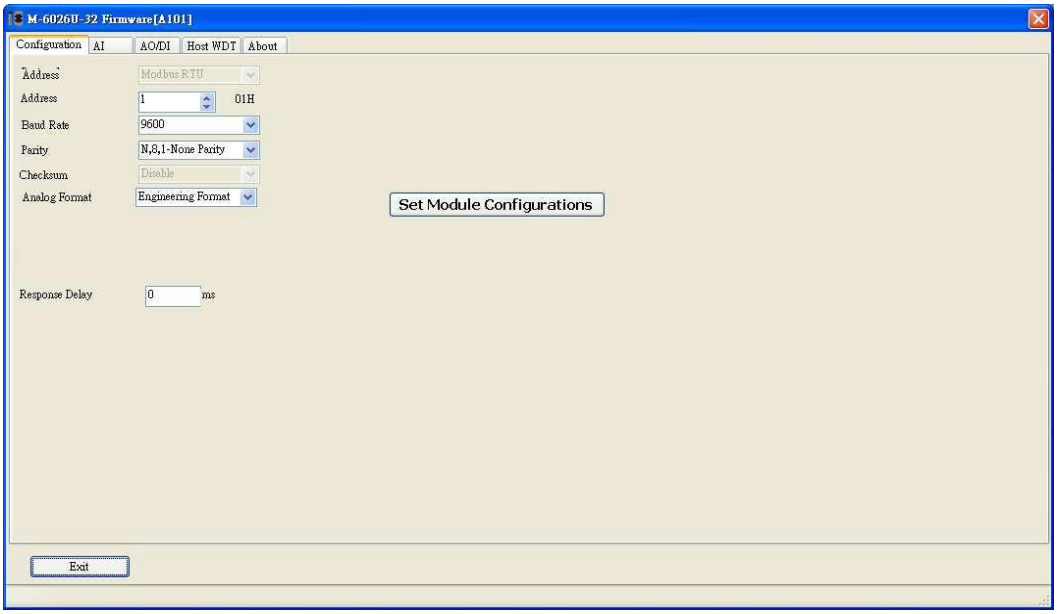


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9. Once the search has been completed, the M-6026U-32 module will be listed, as illustrated below.




10. Click the name of the module to open the Configuration dialog box and configure the module.




**Note**

When modifying any of the Protocol, Baud Rate, Parity, and Checksum items denoted as ”(INIT*)”, the SW1 switch must be set to the ON position, and then the module must be restarted, then the item can be modified. After adjusting the settings, return the SW1 switch to the OFF position and then restart the module to enable the new settings to take effect.



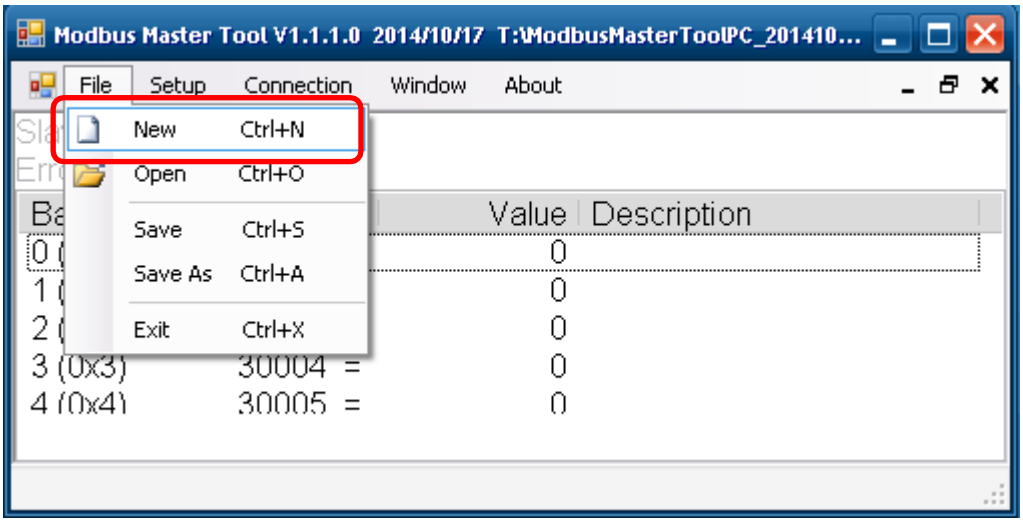
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# Appendix A: Modbus Master Tool for Windows

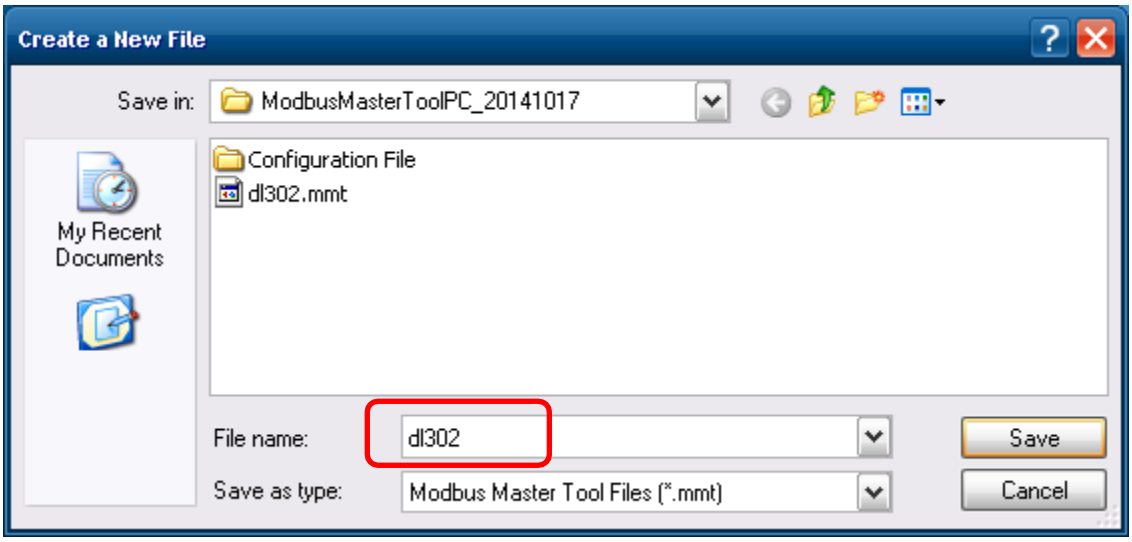
The Modbus Master Tool is a free, easy-to-use tool that can be used to configure the Modbus communication and diagnose any problems with the wiring setup.
The tool can be downloaded from:
http://ftp.icpdas.com/pub/cd/8000cd/napdos/modbus/modbus_master_tool/

This following provides a detailed explanation of the process required for establishing the communication with the M-6026U-32 module via the Modbus protocol.

1. Launch the Modbus Master Tool by double-clicking the icon for ModbusMasterToolPC.exe.
2. Select the **New** option from the File menu to create a new Modbus Master Tool configuration file.



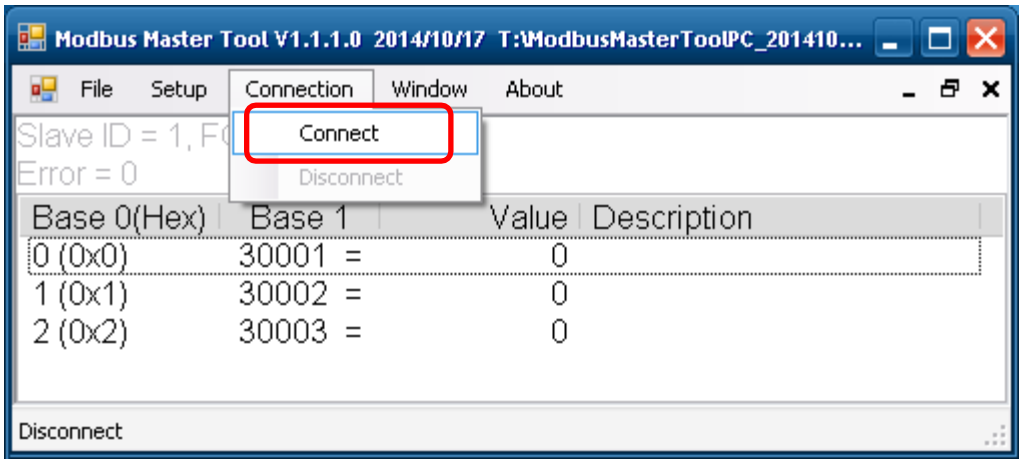

3. Enter a name for the file and then click the **Save** button to create the new file.



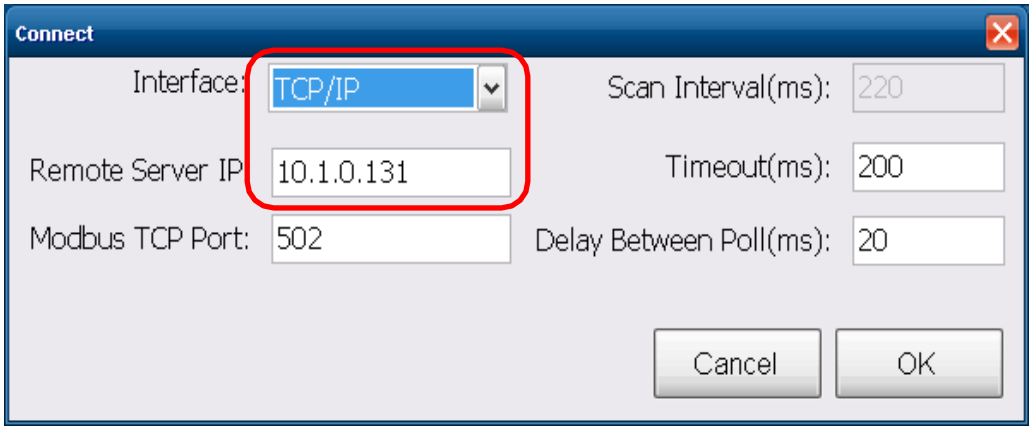



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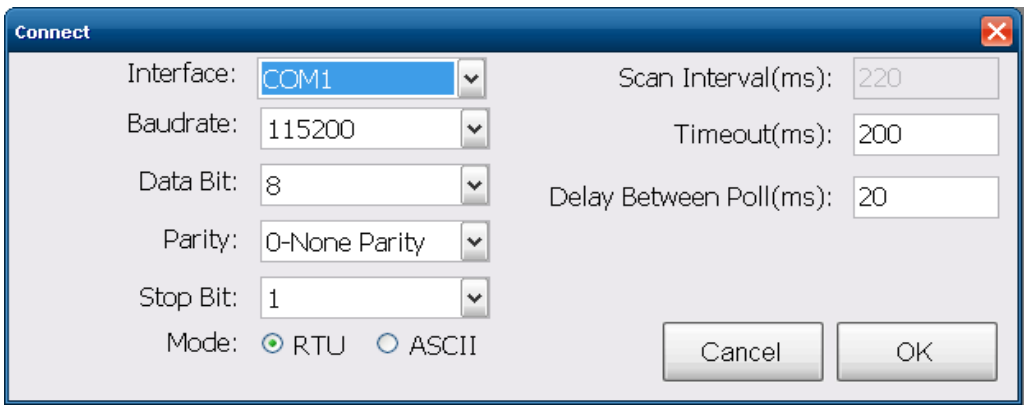
4. Select the **Connect** option from the Connection menu to open the Connect dialog box.




5. Select the required communication interface from the interface drop-down menu. If **TCP/IP** is used as the interface, also enter the IP for your M-6026U-32 module and click the **OK** button to save the new interface configuration.



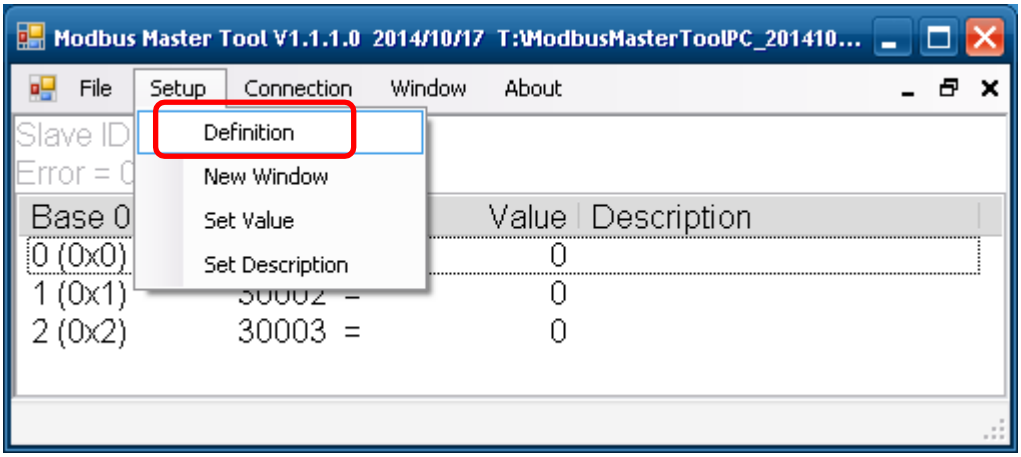

If the RS-485 interface is used, select the relevant COM port from the interface drop-dwon menu, click RTU from the Mode options and then click the **OK** button to save the new interface configuration.



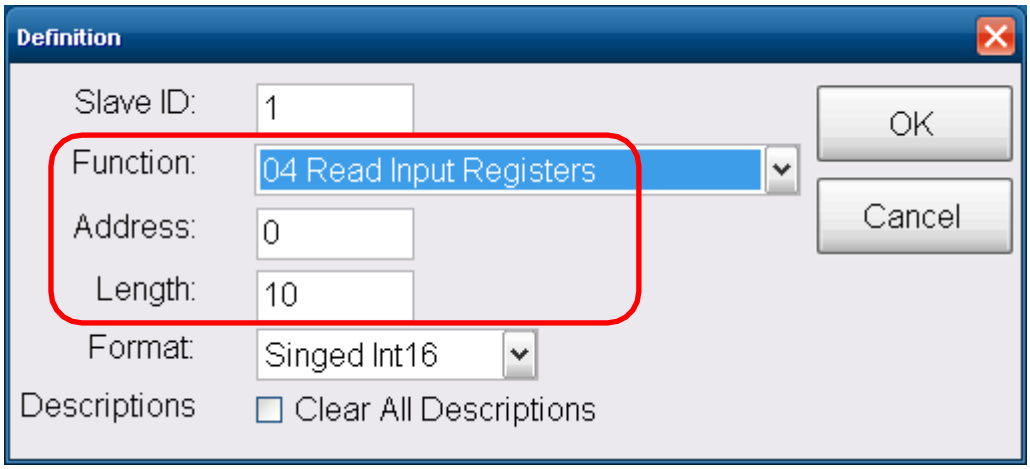



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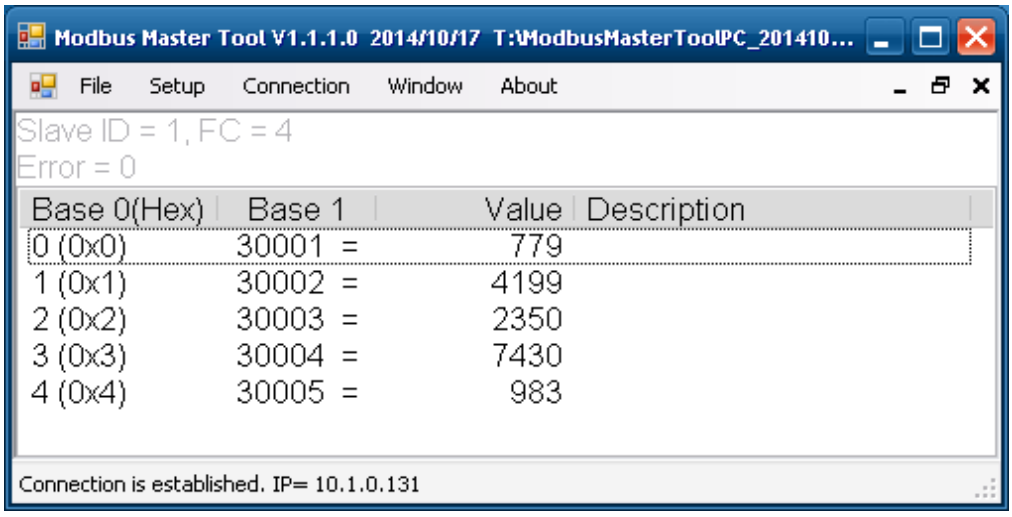
6. Select the **Definition** option from the Setup menu to open the Definition dialog box.




7. Select the Modbus function code from the Function drop-down menu, enter the starting address and the length in the respective text fields, and then click the **OK** button to save the new definition.




8. Read the data.





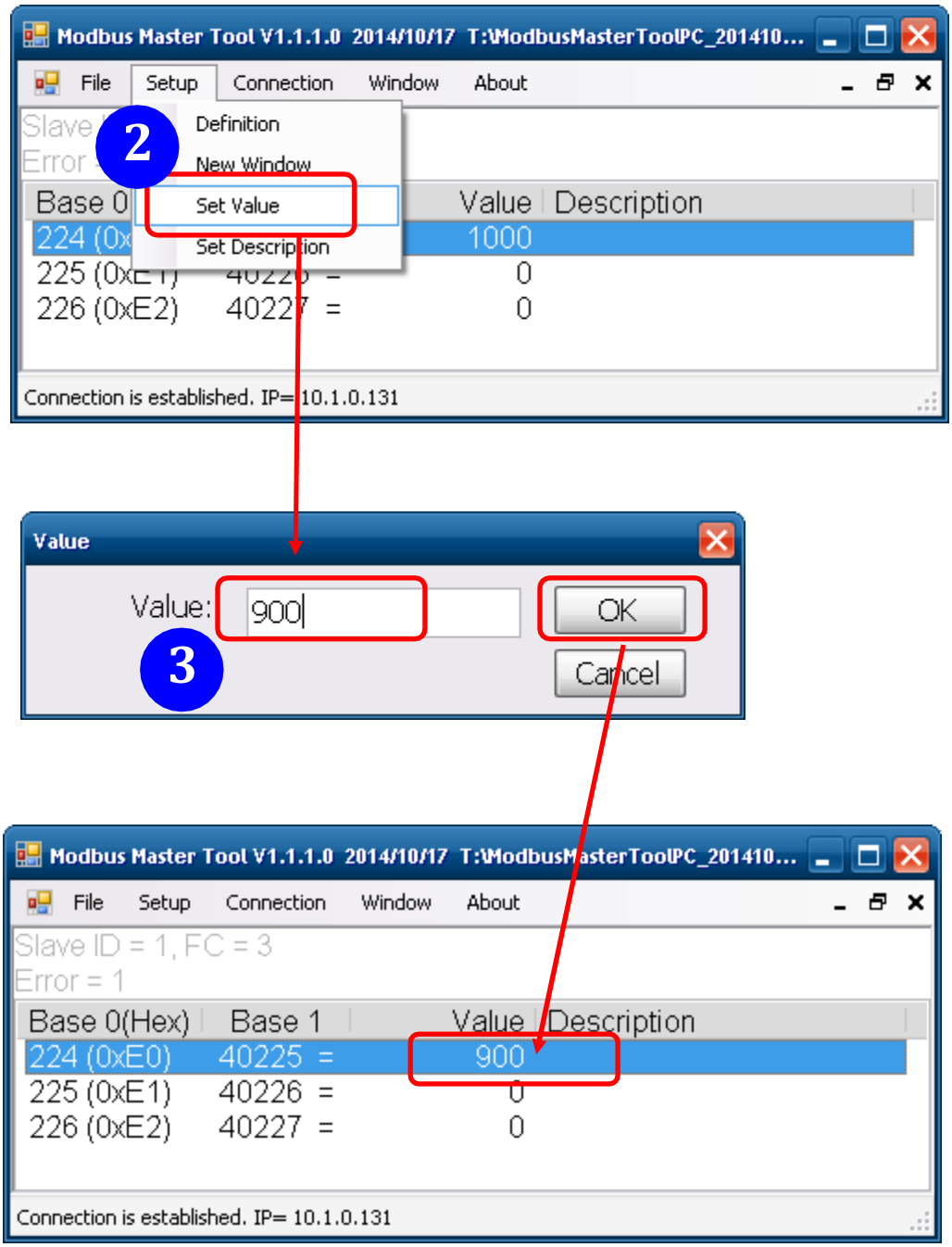

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9. Follow the procedure described below to write the data to the Holding Register or Coil Status

   (1). Click the Modbus address in the Holding Register or Coil Status list to highlight it.

   (2). Select the **Set Value** option from the *Setup* menu.

   (3). Enter the data in the Value box text field in the Value dialog box and then click the **OK** button to save the data.






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# Appendix B: Modbus Address Table

## M-6026U-32 Modbus Address Mappings (Base 1)

| Address | Description | Attributes |
|---|---|---|
| 30001 ~ 30016<br>40001 ~ 40016 | The Analog Input value for channels 0 to 15 | R |
| 30065 ~ 30080<br>40065 ~ 40080 | The Analog Output read back value from channels 0 to 15 | R |
| 30129 ~ 30160<br>40129 ~ 40160 | The Counter value for Digital Input channels 0 to 15, two registers are used for each channel | R |
| 30865 ~ 30896<br>40865 ~ 40896 | The Resistance input value for channels 0 to 15 in increments 0.01 ohms, two registers are used for each channel | R |
| 40033 ~ 40048 | The Analog Output value for channels 0 to 15 | R/W |
| 40097 ~ 40112 | The Safe Analog Output value for channels 0 to 15 | R/W |
| 40193 ~ 40208 | The Power-on Analog Output value for channels 0 to 15 | R/W |
| 40257 ~ 40272 | The Analog Input Type code for channels 0 to 15 | R/W |
| 40289 ~ 40304 | The Analog Output Slew Rate for channels 0to 15 | R/W |
| 40417 ~ 40432 | The Analog Output Type Code for channels 0 to 15 | R/W |
| 40385 ~ 40400 | The Resistance offset for input channels 0 to 15 in increments of 0.1 ohms. | R/W |
| 40449 ~ 40464 | The Temperature offset for input channels 0 to 15 in increments of 0.1°C, from -128 to 127 | R/W |



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<table>
<tr><th>Address</th><th>Description</th><th>Attributes</th></tr>
<tr><td>40481</td><td>The Firmware version (low word)</td><td>R</td></tr>
<tr><td>40482</td><td>The Firmware version (high word)</td><td>R</td></tr>
<tr><td>40483</td><td>The name of the Module(low word), 0x6026</td><td>R</td></tr>
<tr><td>40484</td><td>The name of the Module(high word), 0x4444</td><td>R</td></tr>
<tr><td>40485</td><td>The Module address</td><td>R/W</td></tr>
<tr><td>40486</td><td>Bits 5:0<br>Baud Rate, 0x03 ~ 0x0A
<table>
<tr><td>Code</td><td>0x03</td><td>0x04</td><td>0x05</td><td>0x06</td></tr>
<tr><td>Baud</td><td>1200</td><td>2400</td><td>4800</td><td>9600</td></tr>
<tr><td>Code</td><td>0x07</td><td>0x08</td><td>0x09</td><td>0x0A</td></tr>
<tr><td>Baud</td><td>19200</td><td>38400</td><td>57600</td><td>115200</td></tr>
</table>
Bits 7:6<br>00: no parity, 1 stop bit<br>01: no parity, 2 stop bits<br>10: even parity, 1 stop bit<br>11: odd parity, 1 stop bit</td><td>R/W</td></tr>
<tr><td>40488</td><td>The Modbus response delay time in ms, valid range 0 to 30</td><td>R/W</td></tr>
<tr><td>40489</td><td>The Host watchdog timeout value in 0.1 second intervals, valid range is 0 to 255 (25.6 seconds)</td><td>R/W</td></tr>
<tr><td>40490</td><td>Enable or Disable the Channel, 0000h to FFFFh</td><td>R/W</td></tr>
<tr><td>40492</td><td>The Host watchdog timeout count, Write 0 to clear</td><td>R/W</td></tr>
<tr><td>40498</td><td>The Digital Input filter time in ms</td><td>R/W</td></tr>
<tr><td>00033 ~ 00048<br>10033 ~ 10048</td><td>The Digital Input value for channels 0 to 15. Note: The Analog Output Type Code for the channel should be set to F.</td><td>R</td></tr>
<tr><td>00065 ~ 00080<br>10065 ~ 10080</td><td>High latched value for Digital Input</td><td>R</td></tr>
</table>



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| Address | Description | Attributes |
|---|---|---|
| 00097 ~ 00112<br>10097 ~ 10112 | Low latched value for the Digital Input | R |
| 00129 ~ 00144<br>10129 ~ 10244 | Over/under range status of analog input channel 0 to 15 | R |
| 00193 ~ 00208 | The Counter update trigger edge for Digital Input channels 0 to 15 | R/W |
| 00225 ~ 00240 | The Current output open wire detection for Analog Output channels 0 to 15 | R |
| 00257 | Protocol,<br>0:DCON<br>1: Modbus RTU | R |
| 00260 | Modbus Host Watchdog mode 0:<br>same as I-7000<br>1: AO and DO commands can be used clear the status of the host watchdog timeout | R/W |
| 00261 | Enables or disables the host wathcdog 1:<br>Enabled<br>0: Disabled | R/W |
| 00264 | Write 1 to clear latched DIO states | W |
| 00265 | Reads DI active state | R/W |
| 00269 | Specifies the Modbus data format, 0:<br>Hexadecimal<br>1: Engineering | R/W |
| 00270 | Host watch dog timeout status, write 1 to clear status of the host watch dog timeout | R/W |
| 00273 | Reset status,<br>1: This is the first time that the register has been read since the module was powered on, 0: This is not the first time that the register has been read since the module was powered on | R |
| 00513 ~ 00528 | Write 1 to clear the Counter value for Digital Input channels 0 to 15 | W |



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## Analog Input

| Type Code | Range | Data Format | Minimum | Maximum |
|---|---|---|---|---|
| 05 | +/-2.5 V | Engineering | -25000 | +25000 |
| | | Hexadecimal | 8000h | 7FFFh |
| 06 | +/-20 mA | Engineering | -20000 | +20000 |
| | | Hexadecimal | 8000h | 7FFFh |
| 07 | +4 mA ~ +20 mA | Engineering | +4000 | +20000 |
| | | Hexadecimal | 0000h | FFFFh |
| 08 | +/-10 V | Engineering | -10000 | +10000 |
| | | Hexadecimal | 8000h | 7FFFh |
| 09 | +/-5 V | Engineering | -5000 | +5000 |
| | | Hexadecimal | 8000h | 7FFFh |
| 0D | +/-20 mA | Engineering | -20000 | +20000 |
| | | Hexadecimal | 8000h | 7FFFh |
| 1A | 0 mA ~ +20 mA | Engineering | 0 | +20000 |
| | | Hexadecimal | 0000h | FFFFh |
| 2A | Pt1000 | Engineering | -2000 | +6000 |
| | | Hexadecimal | D556h | 7FFFh |

## Analog Output

| Type Code | Range | Data Format | Minimum | Maximum |
|---|---|---|---|---|
| 0 | 0 mA ~ +20 mA | Engineering | 0 | +20000 |
| | | Hexadecimal | 0000h | FFFFh |
| 1 | +4 mA ~+20 mA | Engineering | +4000 | +20000 |
| | | Hexadecimal | 0000h | FFFFh |
| 2 | 0V ~ +10 V | Engineering | 0 | +10000 |
| | | Hexadecimal | 0000h | FFFFh |
| F | Digital Input | | | |
| | | | | |



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