

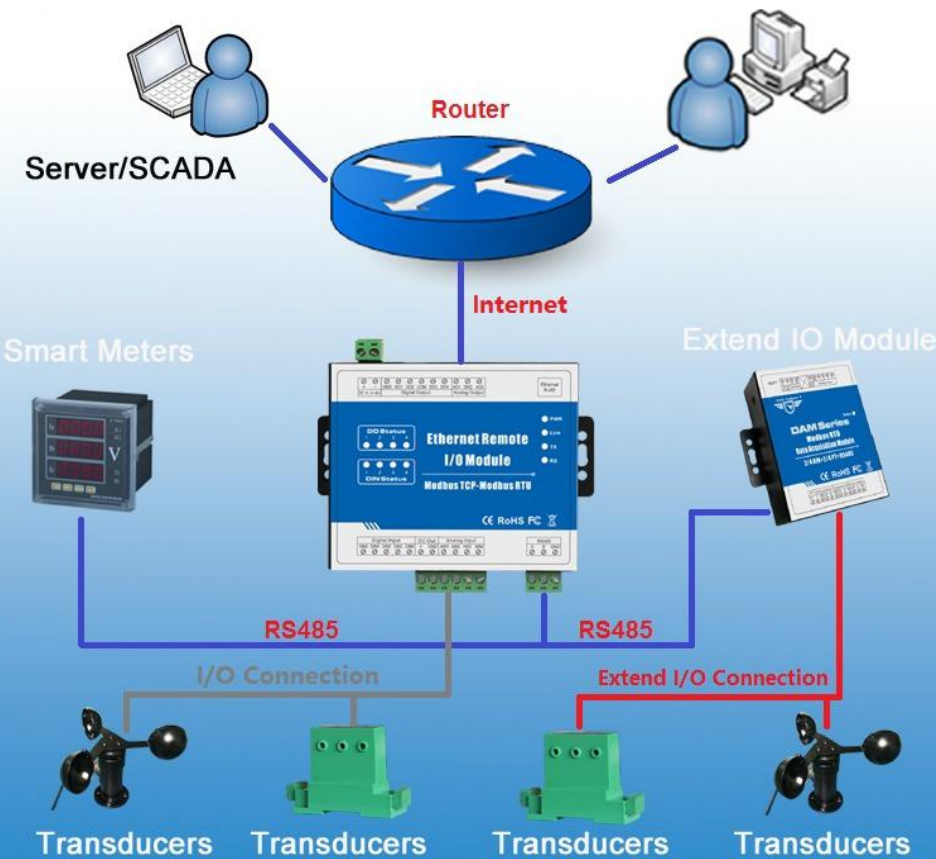
Mapping Registers for extending I/O or Instrument

Max. 10MHz High Speed Pulse Counter

Max. 300KHz High Speed Pulse Output

Modbus TCP Ethernet Remote I/O Module

KING PIGEON



**MxxT Series
Data Sheet**

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www.GPRS-M2M.com

MxxT Series Ethernet Remote IO Extend I/O Diagram



Industrial Ethernet Remote I/O Module IoT Data Acquisition Module

Modbus TCP Ethernet Remote I/O Module Model List

Model	Descriptions	DC Output	DC Input	Typical Power Consumption
M100T	1 RJ45,1 RS485, 2 DI, 2 AI, 2 DO(Sink) or Relay	1 DC	12~36VDC	1.2W-1.68W
M110T	1 RJ45,1 RS485, 4 DI, 4 DO(Sink) or Relay	1 DC		
M120T	1 RJ45,1 RS485, 4 DI, 4 AI, 2AO, 4 DO(Sink) or Relay	1 DC		
M130T	1 RJ45,1 RS485, 8 DI, 4 DO(Sink) or Relay	1 DC	24VDC	1W-1.2W
M140T	1 RJ45,1 RS485, 8 DI, 8 DO(Sink) or Relay	1 DC		
M150T	1 RJ45,1 RS485, 8 DI, 4 AI, 4 DO(Sink) or Relay	1 DC		
M160T	1 RJ45,1 RS485, 8 DI, 48 AI, 8 DO(Sink) or Relay	1 DC		
M200T	1 RJ45,1 RS485, 2AO	1 DC	24~36VDC	1.2W-1.68W
M210T	1 RJ45,1 RS485, 4 DI	1 DC	12~36VDC	
M220T	1 RJ45,1 RS485, 4 DO(Sink) or Relay	1 DC		
M230T	1 RJ45,1 RS485, 4 AI	1 DC		
M240T	1 RJ45,1 RS485, 4 RTD, 2/3 wire PT100/pt1000	---		0.75W-0.95W
M310T	1 RJ45,1 RS485, 8 DI	1 DC	24VDC	1W-1.2W
M320T	1 RJ45,1 RS485, 8 DO(Sink) or Relay	1 DC		
M330T	1 RJ45,1 RS485, 8 AI	1 DC		
M340T	1 RJ45,1 RS485, 8 RTD, 2/3 wire PT100/pt1000	↔		0.75W-0.95W
M410T	1 RJ45,1 RS485, 16 DI	1 DC	12~36VDC	1.1W-1.32W
M420T	1 RJ45,1 RS485, 16 DO(Sink) or Relay	↔		0.75W-1W

Special instructions for ordering

- 1) If the model provides digital input, the DIN default type: wet contact, optional: dry contact. The input type cannot be changed after manufacturer delivered. The DIN1 default is high-speed count mode; it can be changed to low-speed count mode by open the shell and change the internal jumper. If require dry contact input, please note when ordering, if DIN1 require high-speed pulse count mode then must be wet contact.
- 2) If the model provides digital output, the DO default type: SINK, optional: Relay. The output type cannot be changed after manufacturer delivered. The DO1 supports high-speed pulse output; DO2 can be used to control the direction of the stepper motor. If require relay output, please note when ordering, if DO1, DO2 used for high-speed pulse output then must be Sink.
- 3) The model number: M240T, M340T support thermal resistance temperature transmitter default type: PT100, optional: PT1000, if you need PT1000 type of thermal resistance, please note when ordering.
- 4) All models support the register mapping, can extend I/O or instruments by Modbus RTU/ASCII protocol.
- 5) The valid number of I / O ports corresponding to the model number is described in the Model List, the not included I/O port in the model is invalid, although in the hardware reserved them.



1. Brief introduction

The MxxxT Ethernet Remote I/O Module is an industrial class, isolated designed, high reliability, high stability and high precision data acquisition module, embedded 32-Bit High Performance Microprocessor MCU, Integrated 1 Industrial 10/100M adaptive Ethernet module inside. It provides multi I/O, supports standard Modbus TCP, can be intergraded into SCADA, OPC server, and other automation systems. It is design for working in the harsh industrial application environment, widely used in a variety of industrial automation, security monitoring system, automatically measurement and control system.

The MxxxT Ethernet Remote I/O module provides a RS485 interface, through the RS485 bus, it can cascade Modbus I/O devices or Modbus meters, e.g.: a variety of digital input or digital outputs, analog inputs or outputs, thermal resistance IO module combination, save costs. At the same time, the Ethernet Remote I/O module has register mapping function, the cascade Modbus I/O data are automatically collected to the mapping memory area, the TCP Client query without waiting then can get a quick response to meet the industrial timely requirements.

The MxxxT Ethernet Remote I/O module provides different I/O ports for variety applications. Includes optical-isolated digital inputs, compatibles dry contact and wet contact, supports max 700KHz high speed pulse counter, digital outputs supports 10Hz~300Khz high speed pulse output or relay outputs, isolated 12bits analog inputs, supports 0~5V, 0~10V, 4~20mA, 0~20mA analog signal, 12bits analog outputs, supports 0~10VDC signal output, resistance thermal detector inputs compatibles 2/3 wires PT100 and PT1000. All of the I/O ports are high sampling frequency and special filtering strategy to ensure its reliability.

The MxxxT Ethernet Remote I/O module can work at wide working voltage range, the range is 12 ~ 36VDC with anti-reverse protection design. Also, it provides 1channel 12~36VDC power output for external device to save wiring cost.

2. Standard Packing List

Ethernet Remote I/O Module X 1; User Manual X 1.

Note: The package does not include AC/DC Adaptor.

Optional: 35mm Standard DIN rail fixed Bracket

3. Mainly Features

- Embedded 32-Bit High Performance Microprocessor MCU, inbuilt watchdog;
- Power supply 12~36VDC with over voltage and phase-reversal protection;
- Embedded Web server for configuration and management;
- Integrated 10/100M adaptive Ethernet module, supports Modbus TCP protocol;
- Optical isolated digital input(Compatible Dry or Wet type), supports max 700KHz high speed pulse counter;
- Digital output(Sink) or relay output, supports 10Hz~300KHz high speed pulse output;
- Isolated analog input, 12-bit resolution, supports 0~20mA,4~20mA,0-5VDC, 0-10VDC;
- Analog output, 12-bit resolution, supports 0-10VDC;
- RTD input, supports PT100 and PT1000 resistance sensor, compatible 2 or 3 wires;
- High sampling frequency and special filtering strategy to ensure reliability;
- 1 RS485 Serial port, supports Modbus RTU/ASCII Master, can extend I/O modules;



Industrial Ethernet Remote I/O Module IoT Data Acquisition Module

- Supports register mapping function and extend I/O inquiry strategy;
- Provides 1 channel VDC power source output for external device, saving wiring cost;
- LED instructions work status, with reset button to reset, easy on-site installation and commissioning;
- Using metal shell, protection class IP30. Metal shell and system security isolation, especially suitable for industrial applications in the field;
- Small size, L105 * W88 * H30mm, compatible wall installation and DIN35mm industrial rail installation.

4. Technical Specifications

• Digital Input	
Sensor Type	Wet Contact (NPN or PNP), Dry Contact
I/O Mode	DI or Event Counter
Dry Contact	<ul style="list-style-type: none"> • On: short to GND, logic=1 • Off: open, logic=0
Wet Contact (DI to COM)	<ul style="list-style-type: none"> • On: 10 to 30 VDC, logic=1 • Off: 0 to 3 VDC, logic=0
Counter Frequency	Only the 1 st Channel can be used as pulse counter, Compatibles DI and counter simultaneously. Counter value will save after power off. High Speed Mode: Max. 700Khz(Default); Low Speed Mode: Max. 10KHz (Optional, can open the cover to choose low speed mode.)
Digital sampling frequency	500Hz
Digital filtering strategy	Continues 3 times
Isolation	Optical Isolated, 3k VDC or 2k Vrms
• Digital Output	
Type	Sink or Relay(DC 5A/30V, 5A/250VAC)
I/O Mode	DO or Relay or Pulse Output
Pulse Output Frequency	10Hz~300KHz(Only the 1 st Channel is Sink type can be used as high speed pulse output)
Over-Voltage Protection	50 VDC
Over-Temperature Shutdown	175°C (typical), 150°C (min.)
Load Current	Max.500 mA per channel
Digital sampling frequency	500Hz
Isolation	If DO is Sink type, then no isolation. If it is Relay, then is electrical isolation.
• Analog Input	
Type	Differential input
Resolution	12 bits
I/O Mode	Voltage / Current (backside switch selectable)



Industrial Ethernet Remote I/O Module IoT Data Acquisition Module

Input Range	0~5VDC , 0~10VDC, 0~20 mA, 4~20mA,
Accuracy	±0.1% FSR @ 25°C ±0.3% FSR @ -10 and 60°C ±0.5% FSR @ -40 and 75°C
Sampling frequency	20Hz
Isolation	Electrical isolation
• RTD Input	
Sensor Type	PT100 or PT1000
Measurement Range	-150~+420°C
Resolution	0.1°C or 0.1 ohm
Input Connection	2- or 3-wire
Accuracy	±0.1% FSR @ 25°C ±0.3% FSR @ -40 and 75°C
Sampling frequency	20Hz
Isolation	No
• Analog Output	
Type	Differential input
Resolution	12 bits
Output Range	0 to 10 VDC
Drive Current	1A (max.)
Accuracy	±0.1% FSR @ 25°C ±0.3% FSR @ -10 and 60°C ±0.5% FSR @ -40 and 75°C
Isolation	No
• Working Power Requirements	
Input Voltage	12~36VDC for no-AO output model, 24~36VDC for AO output model; Peak Voltage:+40VDC, Power consumption: Less than 1.7W, If equipped relay output, then each Relay action: 0.15W.
Input Current	139 mA @ 24 VDC
• Power Output	
Output Voltage	12~36VDC, equal to the input voltage.
Output Current	139 mA @ 24 VDC
• LAN	
Ethernet	10/100 Mbps adaptive Ethernet module, RJ45 ports
Protection	15KV ESD Protection

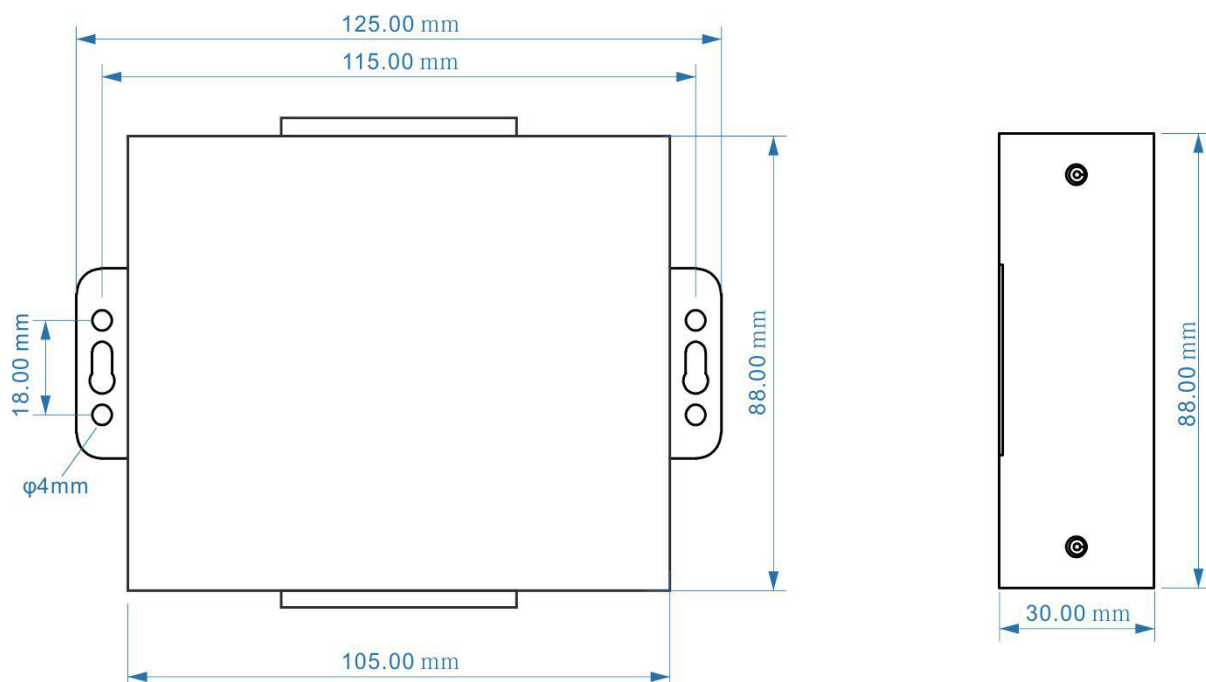


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Protocols	Modbus TCP, TCP/IP
Max. TCP Connection	5
• Serial Port	
RS485	MODBUS RTU/ASCII Master.
Protection	15KV ESD Protection
Modbus Slave address	1~255
Inquiry Frequency	100mS
Baud Rate	1200,2400,4800,9600,19200,38400,57600,115200,128000Bps;
Mapping registers	Bit register: 300, 16-Bit register: 300. Total 600 mapping registers.
• Physical Characteristics	
Wiring	I/O cable max. 14 AWG
Dimensions	105 x 88 x 30 mm
Weight	Under 205 g
Mounting	DIN rail or wall
• Environmental Limits	
Operating Temperature	Standard Models: -10 to 60°C (14 to 140°F) Wide Temp. Models: -40 to 75°C (-40 to 167°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Altitude	Up to 3000 m

5. Physical Layout and Installation Diagram

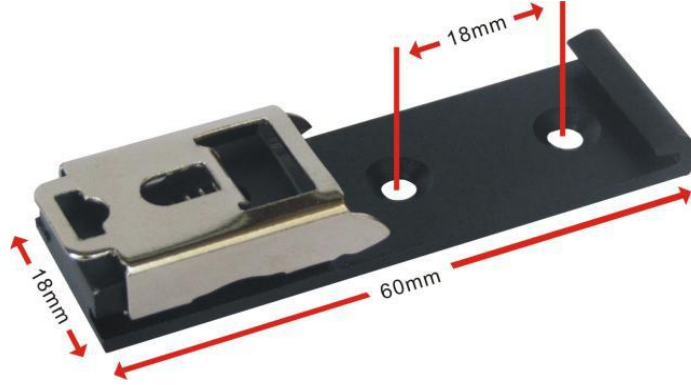
5.1 Physical layout





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35mm Standard DIN rail fixed Bracket(Optional Bracket)



35mm DIN Rail Fixed Bracket

5.2 Led Instruction

+ -	GND DO1 DO2 DO3 DO4 COM DO5 DO6 DO7 DO8 COM	A B GND	Reset	Ethernet RJ45
DC In 12-36V	Digital Output	RS485		

DO Status

1 2 3 4 5 6 7 8

● ● ● ● ● ● ● ●

DIN Status

1 2 3 4 5 6 7 8

● ● ● ● ● ● ● ●

Ethernet Remote I/O Module

Modbus TCP-Modbus RTU

CE RoHS FC

Digital Input										DC Out		Analog Input								
GND	DIN1	DIN2	DIN3	DIN4	GND	DIN5	DIN6	DIN7	DIN8	+	GND	AIN1	AIN2	AIN3	AIN4	GND	AIN5	AIN6	AIN7	AIN8
⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗	⊗

LED Indicator Instruction

	Power Indicator: Power on the module will always on.
	Link Indicator: MODBUS TCP connection successful will always on.
	RS485 Indicator: Flicks while data transmitting on RS485 Serial port.
	Error Indicator: will turn on when power on occurs error or upgrade firmware failure.



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	Digital input status indicator, turn on while status change.
	Digital Output status indicator, turn on while relay close or Sink output high level.

5.3 Interface Instructions for installation

See below interface definition, please connect the correct wires.

Interface Definition Instruction		
DC in 12~36V	+	DC12~36V positive input, 1A, for power on the Unit. If need to use the AO port, then please power on it by DC24~36v.
	-	DC12~36V negative input.
DC Out	+	DC Power output positive for external device, output voltage= input voltage.
	GND	DC Power output negative port.
Reset		Reset button. Recovery the parameters to factory default value.
Ethernet RJ45		Ethernet port.
RS485	A	RS485 data A
	B	RS485 data B
	GND	RS485 data ground if required.
Digital Input	DINx+	The x channel digital input positive
	GND	Digital input negative
Digital Output	DOx+	The x channel Digital Output High Level or Relay NO port.
	GND	Sink output: GND (For output type is SINK.)
	COM	Relay output: COM.(For output type is Relay)
Analog Input	AINx+	The x channel Analog input positive.
	GND	Analog input negative.
Analog Output	AOx+	The x channel Analog output positive.
	GND	Analog output negative.
RTD Input	RTDx+	The x channel Resistance Thermal input positive.
	RTDx -	Resistance Thermal input negative.
	COM	Resistance Thermal input COM port.

The End!

Any questions please help to contact us feel free.

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