

Modbus RS485, TCP/IP Web-enabled Network Centric



The EasyIO30P IO-30P-ME Controllers are rugged, network centric, high performance multi-protocols Input/Output controllers to accommodate general and specific applications, featuring Modbus Serial (RS485) and Modbus TCP/IP protocols plus a built-in Web server for easy configuration.

Features:

➤ Web Browser Configuration

Built-in Web server enables configuration with popular web browser over an Ethernet connection. I/O status can be monitored over the Internet connection.



➤ High-Speed Data Rates

Multiple serial communication (RS485) speed selection from 9.6kbps to 115.2kbps. Supports Ethernet 10Base-T/100Base-T interface, half or full duplex.

➤ As Bridge Controller

The controller can be configured as Bridge Controller providing a network bridge for Ethernet and serial communication (RS485) via built-in protocol converter. This will reduce wiring cost, simplify network implementation and significant cost reduction.

➤ Device ID

Complementing existing standard protocols, EasyIO-30P can be uniquely identified over the network. This facilitating online network device search and simplify reconfiguration.

➤ Network Security

All configurations changes are protected via password setting, either through standard network protocol access (Modbus) or web browser.

➤ Multiple Input/Output Type

The controller has eight Digital Inputs, eight Analogue Input for current, voltage, resistance and temperature sensor, eight Digital Outputs (relay), four Analogue Output (current and voltage), and two isolated Open Collector outputs (with PWM control) for high speed switching.

➤ High Accuracy Analogue Channels

High speed 14-bits A/D converter with programmable gain amplifier yields a high resolution and accuracy reading on analogue input points. 12-bits D/A provides more accurate analogue output control.

➤ Programmable/Standalone Functionality

The controller can be configured to operate as standalone device. Over 40 types of programmable functions are available, typically thermostat, PID, scheduler, conversion, timer, utilities, totaliser and etc.

➤ Online Help/Information

All related information/helps are available through the controller web server. Information such as registers details, wiring diagram, device specification and etc are provided to assist the user.

➤ Status Indicator

Operational activity on each individual channel of DI, DO and Open Collector Outputs (PWM) are conveniently indicated by LED, so as the Power, Operation, Communication and Faults status.

➤ Reset

A Reset Switch has been provided for system reset without power removal (Warm Start operation).

➤ Online Firmware Upgrade/Configuration

The controller firmware can be upgraded either through RS485 or Ethernet connection. Network communication and operation parameters can be changed via RS485/Ethernet with the built-in boot-loader and terminal program.

➤ Robust System Operation

The controller has a built-in High accuracy Real Time clock with backup battery. Software and hardware watchdog timer are provided for high reliability operation.

➤ Ease of Installation

All I/Os are connected via field removable terminal block connectors for easy maintenance. The controller casing fits standard DIN rail mounting.

Device Specifications

- Weight: 400g

Electrical

Power Supply: 24VAC, 3.6VA max, or 20 ~ 34VDC
Consumption: 150mA max @ 24VDC
Operating Temperature: 32° to 150° F (0° to 65° C)
Storage Temperature: -4° to 150° F (-20° to 65° C)
Operating Humidity: 10% to 95% relative humidity non-condensing

Communication

Physical Interface 1 (Port 1):

- EIA-485 (BUS A,B) Two-wire
- Half Duplex
- Baud Rate Speed: (9.6K, **19.2k**, 38.4K, 115.2K bit/s)
- Data Bit: (**8 bits**)
- Parity: (None, **Even**, Odd)
- Application Protocol: Modbus Serial & TCP/IP
- Multi-drop Capability: Yes, Slave (hardware ID setting)

Physical Interface 2 (Port 2):

- Ethernet 10/100 Base-T
- Ethernet Support: IP,TCP,UDP,ICMP,IGMP,FTP,HTTP
- Application Support: Modbus-TCP

Input/Output Configuration

Universal Input:

- 8 Channels
- Voltage: 0 - 10V (+/-0.005V) , 0 - 5V (+/- 0.003V)
- Current: 4 - 20mA (+/-0.01mA) , 0 - 20mA (+/-0.01mA)
- Resistance: 0 - 30K (+/-10 Ohm), 0 - 10K (+/-5 Ohm),
0 - 1.5K (+/-1 Ohm)
- Thermistor: 10K, 10K Shunt, 1K Balco, 1K Platinum : All
(+/-0.01°C)

Digital Input:

- 8 Channels
- Type: Voltage Free
- Limit: +5V at 500Ohm Resistance maximum

Digital Output:

- 8 Channels
- Type: Relay Contacts, SPST NO, 48VA at 24VAC, Pilot Duty

Transistor Output:

- 2 Channels
- Type: Open Collector Output, Isolation 3.75KV
- Max Rating: 1A, 60V

Analogue Output

- 4 Channels (12 bits resolution)
- Type: Current: 0 - 20mA, 4 - 20mA (up to 800 Ohm load),
Voltage: 0 - 10V

Mechanical:

- Dimension: 187mm x 110mm x 47mm
- Material: UL94 ABS

Function Blocks

Input/Output

- 1) Digital Input
- 2) Digital Output
- 3) PWM Control (Open Collector Output)
- 4) Analogue Input
- 5) Analogue Output
- 6) Digital & Analogue Internal Register
- 7) Multi-state
- 8) Fan Control
- 9) Digital State Latch
- 10) Digital State Timer
- 11) Digital State Counter
- 12) Digital Input Expander

Loop/Process

- 13) Thermostat
- 14) Loop Control (PID)
- 15) Drive
- 16) Selection
- 17) Flow Detect
- 18) Momentary Start/Stop
- 19) Totaliser
- 20) Pulse Accumulator
- 21) Analogue Limit
- 22) Set Point Adjust
- 23) Digital Alarm
- 24) Analogue Alarm

Conversion

- 25) Digital to Analogue
- 26) Analogue to Digital
- 27) Analogue to Percentage
- 28) Percentage to Analogue
- 29) Scaling
- 30) Table Conversion

Schedule

- 31) Holiday
- 32) Scheduler
- 33) Optimum Start/Stop

Timer/Sequencer

- 34) Sequencer
- 35) Timer Function

Utilities

- 36) Logic
- 37) Counter
- 38) Mathematic
- 39) Digital Gate
- 40) Analogue Gate
- 41) Sample & Hold
- 42) Mixed Air Volume

Others

- 43) Coil Output Register Binding
- 44) Holding Register Binding