

GPIO

The Name of Reliability

Autonics

Sensors, Controllers & More

Keypad based HMI with the Power of a PLC



- Integrated 8 Digital Inputs and 8 Digital Outputs with optional Analog I/O.
- I/O can be expanded using external I/O Expansion Modules (FIOD-0808).
- Analog Inputs for RTD, Thermocouple, mV and mA. Analog Output is 4~20mA.
- Temperature Control with PID.
- Timers, Real Time Clock & High Speed Counters / Interrupts (25kHz, 32 bit).
- 512 KB Memory.
- Floating Point Math, Recipes and Multiple Data Entry objects.
- Text, Graphic and Bargraph Display.
- Dual port support for connection to a PLC, Printer, SCADA or Drive.
- On Line Monitoring & Off Line Simulation.
- Direct connection to Modbus RTU.
- Easy Panel Mount design.
- IP65 rated.



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GPIO Keypad based HMI with the power of a PLC

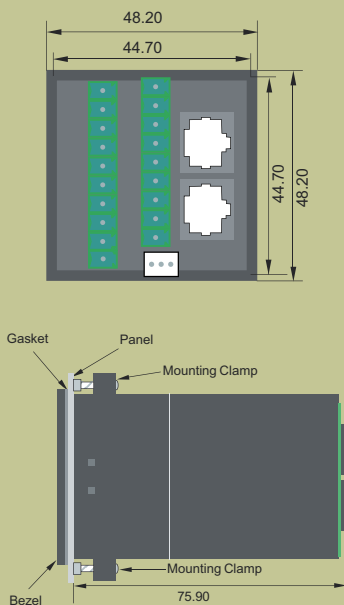


Actual Size

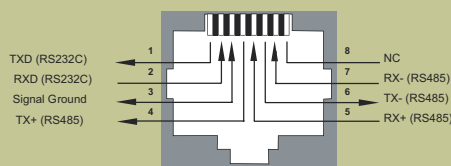
» Memory & Display

Memory	512 KB
Data Registers	1000 Standard & 1400 Retentive Registers
Display	128×64 pixels (1.25") Monochrome Graphical Backlit LCD up to 65,535 screens definable
Bezel	IP65 rated keypad
Keys	8 keys with tactile feedback

» Dimensions (unit: mm)



» Communication Port



The **GPIO** Series operator interface/ PLC provides man-machine interface for PLCs. It communicates over a serial communication port. GPIO additionally provides I/O, which can be configured to fit almost any application.

» Digital I/O

GPIO Series can have up to **8 digital inputs** and **8 digital outputs** on the unit. Digital inputs are high impedance 24VDC, and outputs are open collectors. The Digital I/O capability of GPIO units can be expanded using external I/O Expansion Module (FIOD-0808).

» Analog I/O

GPIO controllers can have 1 analog input and 1 analog output optionally. Analog inputs are mA mV, thermocouple and RTD. Analog outputs are 4-20mA. The Analog I/O capability of GPIO unit can be expanded using external add on I/O Modules.

» PID

The built-in PID controller can process 12 independent inputs in addition to the Analog inputs of the unit. The input to the PID controller is a data register, which can hold an analog input or any other value.

» Specifications

Model		GPIO-D6N-A1	GPIO-D6P-A1	GPIO-D8N-A0	GPIO-D8P-A0	
Power		24 VDC ±10%				
I/O		6 Digital I/O, 1 Analog I/O		8 Digital I/O		
Memory		512 KB				
Data Registers		1000 Standard & 1400 Retentive Registers				
Display		128×64 pixels (1.25") Monochrome Graphical Backlit LCD up to 65535 screens definable				
Bezel		IP65 rated keypad				
Keys		8 keys with tactile feedback				
Digital Inputs	Rated Input Voltage	24 VDC (28 VDC max.)				
	Input Impedance	Normal Input: 4.7 kΩ		High Speed Input: 2.3 kΩ		
	Logic	Logic "0": 0~5 V		Logic "1": 14~28 V		
	Rated Input Current	Normal Input: 4.89 mA		High Speed Input: 10 mA		
Digital Outputs	Open Collector	Type	NPN	PNP	NPN	PNP
		Load Current	300 mA max.			
		Voltage Drop at ON	0.4V or less			
Analog Inputs	Voltage	0~100 mV, 0~50 mV		—		
	Current	0~20 mA, 4~20 mA		—		
	RTD	3-wire RTD (Alpha 1, Alpha2)		—		
	T/C	Type B, R, S, E, J, K, N and T		—		
Analog Outputs		4~20 mA				
Communication Ports		Two communication ports (RS232/RS485/CMOS; user configurable)				
Immunity to ESD		Level 3 as per IEC 1000-4-2				
Immunity to Transients		Level 3 as per IEC 1000-4-4				
Radiated Susceptibility		Level 3 as per IEC 100-4-3				
Emissions		EN55011 CISPR A				
Operating Temperature		0 to 50°C				
Storage Temperature		-20 to 80°C				
Humidity		10 to 90% (non-condensing)				

» Communication

- Each of the two communication ports support **RS232, RS422, and RS485** signal level serial communication with **ModBus**.
- A GPIO can simultaneously communicate on both serial ports.
- It can be programmed with a PC on either port.
- Both can also be used with a serial printer.

GPIO Editor is a Microsoft Windows® based configuration software. It helps the user to configure the GPIO unit. 'Configuration' means making the GPIO unit work as per the system requirements. When using the GPIO Editor feature, you can be more effective in presenting your application.

Screen Configuration

- Up to 65,535 screens can be defined.
- Screen Tasks can be assigned before/while/after a specific screen is activated.
- Text objects, Data Display, Data Entry or Alarm objects can be defined on screen.

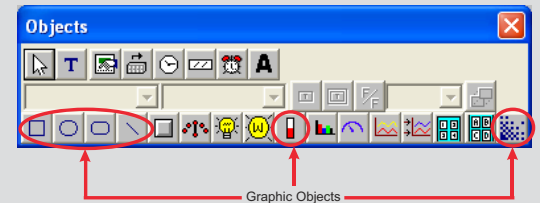
» Alphanumeric Objects » Graphic Objects on Screen

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Text Objects (Button T & A) 2. Data Entry 3. Display Data 4. Time & Date | <ol style="list-style-type: none"> 1. Bargraphs 2. Bitmaps 3. Bit or Word Lamps 4. Analog Meters |
|--|--|



» Language Configuration

The languages are selectable among a list of installed languages on your computer under the "Regional and Language" option of the Control Panel. The GPIO can be configured for a maximum of 9 different languages.



Tags

Tags central database that are used in the application. Once the tags are defined and their attributes selected, the tags can be used in the application on screens, tasks, alarms etc. A tag is a register, coil or an individual bit of a register.

1. System Registers (Read Only) ex: language register
2. System Coils (Read Only except "High Speed Enable" & "Beeper Enable" bits)
3. Data Registers (D0000~D0999) : General Purpose Registers
4. Retentive Registers (R0000~R01999): Nonvolatile registers for storage
5. Internal Coil (B0000~B4999): General purpose internal coils
6. Input Coil (X0000~X0099): Physical input coils
7. Output Coil (Y0000~Y0099): Physical output coils
8. Timer Registers (T000~T0127)
9. Counter Registers (C0000~C0177)

Tasks

A task is something that the GPIO unit needs to accomplish. In various areas, there are "Task Lists" where the designer can specify which tasks need to be performed. The order of the tasks in a task list determines which task is performed when:

1. Application Tasks
2. Screen Tasks
3. Global Key Tasks

Supported Tasks:

- | | |
|---|---|
| <ul style="list-style-type: none"> • Go to Screen • Go to Next Screen • Go to Previous Screen • Write value to Tag • Add a constant value to Tag • Subtract a constant from Tag • Add Tag B to Tag A • Turn Bit On • Turn Bit Off • Toggle Bit • Copy Tag B to Tag A • Swap Tag A and Tag B | <ul style="list-style-type: none"> • Print Data • Set RTC • Copy Tag to STR • Copy Tag to LED • Delay • Wait • Copy GPIO block to GPIO/ PLC block • Copy GPIO/PLC block to GPIO block • Copy RTC to PLC block • Execute PLC Logic block |
|---|---|

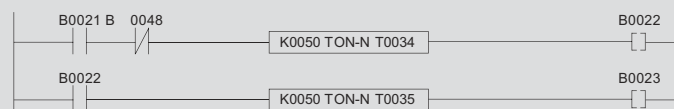
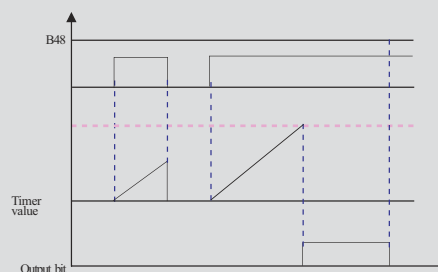
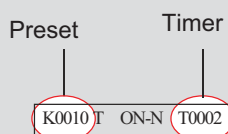
PLC Logic Block

- The GPIO Editor software allows the user to create a PLC ladder logic program. Function keys can activate bits in the ladder block.
- Ladder logic blocks are saved in the library. This allows applications to reuse the ladder block. The ladder block is downloaded with the application.
- PLC logic blocks can be added to the **Global** and **Power On Tasks** in the **Application Task List** and **Screen Task Lists** by selecting **Execute PLC Block** task.

Instructions used for developing a ladder:

- Inputs
- Outputs
- Timer
- Counter
- Data Compare
- Math Operation
- Data Move
- Transition
- Shift
- Rotate
- Logarithmic
- Data Conversion
- End

Example of Non Retentive Timer



On Line Ladder Monitoring

On Line Ladder Monitoring is used to monitor the tags used in a ladder block, at run time. User can monitor any active block running in either Power On Tasks, Global Tasks or Screen Tasks. It can also be used as a tool to debug the ladder. By using ON Line Ladder Monitoring, there is no need to embed the ladder tags on the screen.

On Line Screen Monitoring

On Line Screen Monitoring is used to monitor all the tags used in an application, at run time. The tags used in the Application Task List are automatically added in the monitor window. User can also add the tags to be monitored. It can also be used as a tool to debug the application. By using On Line Screen Monitoring, there is no need to embed the tag on the screen.

Optional Orders:

FIOD-0808

I/O Expansion Module

- » 8 digital inputs & 8 digital outputs
- » Diagnostic indication for communication
- » Din rail or panel mounted
- » Analog I/O Available
(4 IN / 2 OUT, 8 IN / 0 OUT & 8 RTD IN / 0 OUT)



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