



A part of the new PINNACLE family

Ascent I/O

New!

Smart Distributed & Peer-to-Peer I/O – Wireless, Serial, and Ethernet/Internet

- 8 Analog/Sensor In, 8 Analog Out, 10 Discrete In, 10 Discrete Out
- Distributed SCADA I/O and multi-way peer-to-peer "I/O Mirroring"
- High-speed Ethernet and RS-232/485 Serial port standard
- Allen-Bradley (DF1) & Modicon (Modbus) protocol support
- Built-in LCD HMI for local setup and system test without computer
- User configurable web page HMI - built in
- High security with secure AES encrypted communications
- Built-in non-volatile totalizers, runtime meters, and rate computation
- Optional internal spread spectrum radio
- Store & Forward Repeater operation to extend radio range
- Low-power and smart power management for battery backed applications
- 3-year warranty on parts and labor



Ascent – Smart distributed and peer-to-peer I/O for monitoring and remote control applications:

- Expand the I/O of a PLC or RTU, and add sites to a SCADA system at very low cost
- Save thousands of dollars of in-plant wiring with peer-to-peer wireless, serial, or Ethernet I/O.
- Eliminate costly PLCs, HMIs and programming where smart I/O with a built-in web HMI will do.

Supported by most PLCs, RTUs & HMIs

Ascent can be used with all major PLCs, RTUs, and HMI software using Modbus TCP/IP, Modbus RTU or DF1 protocols.

Peer-to-peer I/O Mirroring - Ascent I/O modules can be linked up "back-to-back" (up to 8 to 1) to exchange sensor and control signals over a secure two-way wireless link, external radio or modem (via RS-232/485 serial port), or Ethernet. Ascent I/O saves thousands of dollars in wiring and conduit costs.

Wireless Store & Forward – Any Ascent I/O module can also serve as a repeater to extend the effective range of a wireless network.

Local LCD HMI - View and force I/O, and make simple configuration changes without a computer!

Web Page Configuration – Ascent I/O modules come ready to run, but can be customized with a standard web browser (like Windows Internet Explorer). No special software is required on your PC or laptop.

Customizable User HMI – Need a simple low-cost user interface? Ascent I/O includes a simple web-page HMI to save you hundreds of dollars in PC-based software costs, and setup is simple. Web page configuration is done in just minutes without programming; just fill in the blanks.

Remote Support – Ascent I/O can be reconfigured and customized over a secure Ethernet or wireless link; eliminating costly field trips and improving customer support. I/O can be "forced" via a secure web page to facilitate remote troubleshooting.

Low Power– Ascent I/O is optimized for battery-backed systems with multiple power-saver modes, DC power and send-on-exception operation.

Smart I/O Functions – Ascent I/O includes cost-saving built-in functions that eliminate programming, simplify field installation and increase versatility:

Discrete Inputs

- configurable filtering & debounce
- non-volatile high-speed totalizers
- non-volatile runtime
- rate calculation (high speed), or
- interval (slow) rate calculation

Discrete Outputs

- duty cycle (PWM) pulse function
- synchronized flash function

Analog Inputs

- sensor support (TC, RTD, Thermistor)
- configurable filtering/averaging
- configurable totalization

Communications Bridging

- Ethernet to Modbus & Generic Serial/radio (virtual serial port)
- Radio to Serial

All readings, totalizers, runtime and rate calculations are internally scalable to engineering units; so users see actual levels, flows and temperatures.

Rugged Reliability – Ascent I/O is is100% tested over an extended temperature range of -40C to 70C, and backed by an industry leading 3-year factory parts and labor warranty.

Ascent Combo - Specifications

I/O

Analog I/O

Input/Sensor Types:	Qty 8, 16-bit (24-bit internal) 20mA, Volts, mV, Ohms, RTD (10,100, 1K ohm), Thermocouple (J,K,T,E,R,S,B,N) Thermistor (10K, II & III)
Input Conditioning	Programmable Averaging (0, 1, 2, 4, 8, 16, 32 samples), Programmable Speed (7.5 to 4000 samples per second)
Input Functions (each Input)	Accumulator (integrate/totalize input with 1 to 255 sec sampling interval)
Analog Outputs:	Qty 8, 12-bit, 0/4 to 20mA (voltage output with external resistor)

Discrete I/O

Input Ranges	Qty 10, Optically Isolated Order as 12/24V (up to 30Vdc/Vac), or 120V/240V (up to 260Vac)
Input Conditioning	Programmable Filtering (0, 1, 2, 4, 8, 16, 32ms)
Input Functions (each Input)	Totalizer (10KHz Max.), Rate, dual mode 1 to 255 second sample period), or 0 to 65,535ms (1/F measurement technique)
Discrete Outputs:	Qty 10, Relay contact, 3A max. per output

Communications, Networking & HMI

Ethernet

Protocol support	10 BaseT Modbus TCP (Slave), Modbus UDP (Slave), HTTP, ARP, SDX (ICL), Serial Port Forwarding to serial port or internal radio
Security	128-bit AES encryption using SDX protocol, separate passwords on user and configuration web pages.

Serial Port

Data rate	RS-232 and RS-485 2400 baud to 115K baud
Protocol support	Modbus RTU Slave (Modicon), DF1 (Allen-Bradley), SDX (ICL), Store & Forward (Modbus & SDX)
Security	128-bit AES encryption

Internal Radio (optional)

Radio type	Choice of 3 radios; Digi (Xtend), Freewave (MR2), or MDS (Transnet)
Freewave	902MHz to 928MHz Spread Spectrum, frequency hopping. (plus MESH networking with Digi Xtend radio) Sensitivity: -108dBm (BER 10 ⁻⁶), 32-bit CRC, point to multipoint, network diagnostics, FGR-115 compatible
MDS	Sensitivity: -108dBm (BER 10 ⁻⁶), 16-bit CRC, point to multipoint, network diagnostics, Transnet compatible
Digi/Maxstream	Sensitivity: -110dBm @9600 baud, -100dBm @115K baud, point to multipoint & peer to peer, DigiMesh
Modes of Operation:	Point to multipoint [all models], peer to peer and mesh (Digi Xtend only)
Output power	1Watt maximum (user settable down to 100mW)
Data rate	115K or 9600 baud, over the air
Antenna Connection:	Reverse polarity SMA
Protocol support	Modbus RTU Slave (Modicon), DF1 (Allen-Bradley), SDX (ICL), Store & Forward (Modbus & SDX)
Security	256-bit AES encryption on all over-the-air messaging, plus 128-bit AES encryption on SDX messages

Local HMI

Display:	122x32 Graphic LCD w/backlight (4 lines x 20 characters max. in character mode)
Input:	5 Axis navigation Switch plus "Escape" pushbutton switch

Web HMI

HTML web pages; separate security access for configuration and users
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General

Terminal Blocks

Removable, 3.5mm (0.138"), 12 to 22AWG, 15A/contact maximum

Mounting

35mm. DIN rail or panel mount

Dimensions

6.2"W x 6.2"H x 2.5"D (includes terminal blocks and elevation off panel on DIN rail)
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Environment

- 40°F (-40°C) to 158°F (70°C), 5%RH to 95% RH, non-condensing
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Power

10 to 30Vdc
Ethernet OFF; 50mA typical. @ 12Vdc (Dos and AOs off), 300mA max. (radio transmit, AOs/DOs ON)
Ethernet ON (without radio): 200mA typical. @ 12Vdc (Dos and AOs off), 750mA max. @ 12Vdc (AOs/DOs ON)

Warranty

3 years, factory parts and labor

Represented by:

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