

RELIABILITY

FLEXIBILITY

FAST DELIVERY

ENGINEERING
SUPPORT

ONE STOP
I/O SHOP



8400674M

DISTRIBUTED I/O AND SIGNAL CONDITIONERS



Ethernet, Modbus, Profibus I/O



Transmitters, Isolators, Splitters



Limit Alarms / Computation



Depend on Acromag

*Experience counts:
especially when
you are selecting
an I/O partner.
And with 60+ years
of I/O experience,
Acromag can help
you to improve
reliability, increase
productivity and
reduce your costs.*



ISO9001
AS9100



EtherNet/IP®



Acromag: The I/O Leader

Acromag is a customer-driven manufacturer focused on developing process automation I/O products that provide the best long term value in the industry. Compare and you'll find that Acromag products offer an unmatched balance of price, performance, and features.

60+ Years of I/O Experience

Acromag has more than 60 years of measurement and control experience. Since 1957, we have delivered nearly a million units to thousands of customers around the globe for manufacturing, power, environmental, transportation, and military applications.

Top Quality and a 2-Year Warranty

We take every measure to guarantee you dependable operation and products that perform at or beyond their specifications. Our state-of-the-art manufacturing and military-grade components add an extra degree of ruggedness. Most products qualify for an extended 2-year warranty. And with ISO 9001/AS9100 certified quality control, you get full confidence.

All trademarks are the property of their respective owners.

Online Ordering

For your convenience, Acromag provides full product documentation and pricing information on our website. You can obtain quotes or even place your order directly on our website.

Fast Delivery from Stock

Most products can be shipped within 24 hours of receiving your order.

Special Services

We are happy to accommodate your special requirements and offer the following services:

- custom product development
- custom calibration
- source inspections, quality audits
- special shipping, documentation
- protective humiseal coating
- plastic and stainless steel tagging

Certification and Approvals

Many Acromag products carry globally recognized agency approvals and safety certifications.

- CE
- UL, cUL
- ATEX
- CSA
- Ethernet conformance
- Modbus conformance
- Profibus certification
- IECEx

Industrial Input/Output Solutions



I/O MODULES

INPUT SIGNALS

Voltage AC/DC
Current AC/DC
Thermocouple
RTD / Resistance
Frequency
Thermistor
Strain / Load Cell
Pot / Slidewire
Discrete Sensors

Amplify

Filter

Isolate

Convert

Scale

Split

Linearize

Suppress
Surges

Trip
Alarm

Integrate

Totalize

Math /
Compute

OUTPUT SIGNALS

DC Voltage
DC Current
Relay
Solid-State Switch
Frequency
Pulse Width
Modulation
Display / Readout

COMMUNICATION

Ethernet

Modbus

Profibus

Peer-to-Peer

MultiCast

NETWORK I/O & DATA ACQUISITION

Ethernet I/O



www.Acromag.com/EthernetIO

Modbus I/O



www.Acromag.com/Modbus

Profibus I/O



www.Acromag.com/Profibus

SIGNAL CONDITIONERS

Transmitters



www.Acromag.com/Transmitters

Isolators / Splitters



www.Acromag.com/Isolators

Limit Alarms



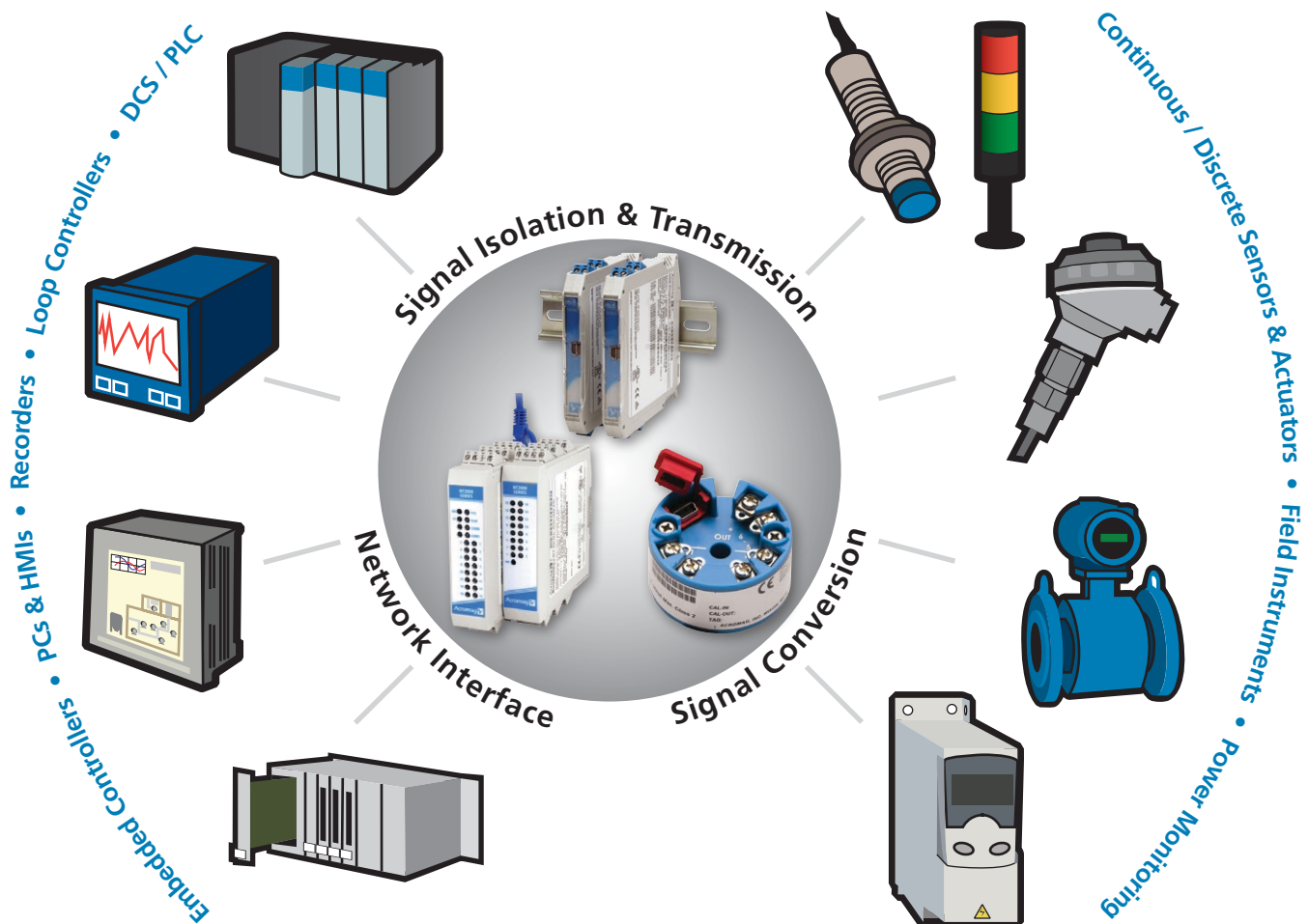
www.Acromag.com/Alarms

Computation



www.Acromag.com/Computation

Signal Interfacing Solutions



How Acromag I/O Is Used

Acromag I/O is ideal for a broad range of monitoring and control operations where controllers communicate with instrumentation on the plant floor or in the field.

Acromag Advantages

- Wide operating temperature ranges (up to -40 to 85C°).
- High resistance to RFI, EMI, surges, electrical transients.
- High-voltage isolation and built-in surge suppression.
- Easy to use and maintain.
- High channel density to save space.
- Large inventory of stock items for same day shipping.
- Special designs and custom services available.
- 2-year warranty available at no extra cost
- AS9100 and ISO 9001 certified quality management

Operation in All Locations

- Safe zones and hazardous locations (Zone 2).
- Explosion-proof locations (Zone 1).
- Approvals from CE, UL/cUL, FM, CSA, ATEX, IECEx.

Controller Interface

- PLCs, PACs, controllers
- DCS distributed control systems
- PCs, embedded computers, SCADA systems
- Operator interface terminals and remote terminal units

Continuous Sensors

- Temperature
- Flow
- Speed
- Position
- Pressure
- Level
- Weight / load
- Drives

Discrete Sensors and Switches

- Dry contacts
- Solid-state
- Valves
- PNP, NPN
- Proximity
- Lights, horns

Actuators and Analytical Instruments

- Drives, motors
- Heaters, coolers
- Displays, indicators
- Power supplies
- Valves, positioners
- Recorders, analyzers



Raw Materials Processing

These industries rely on Acromag process instruments for accurate and repeatable measurements from sensor signals.

- Chemical, petrochemical
- Metal, glass, ceramic
- Pulp, paper, textile



Factory Automation

Fast response times, high reliability, and proven compatibility with control networks make Acromag I/O popular for use on assembly lines.

- Food, beverage, pharmaceutical
- Automotive, electronic assembly
- Building automation, HVAC



Oil, Gas, and Mining

Built for operation in extreme environments, Acromag I/O reliably interfaces sensors to actuators and controllers.

- Exploration, extraction
- Production
- Distribution



OEM Machine Control

High channel density plus shock and vibration immunity help machine builders add more I/O to monitor and control their equipment.

- Semiconductor, lithography
- Boilers, furnaces, generators
- Test stands, industrial machinery



Power Generation

Able to resist noise and surges from high-voltage electrical sources, Acromag I/O delivers dependable data to plant control systems.

- Fossil fuels, hydroelectric, nuclear
- Solar, wind, geothermal
- Fuel cells, batteries



Defense, Security, and Aerospace

Acromag I/O finds a home in many military and security systems due to their ability to operate over wide temperature ranges.

- Simulators and trainers
- Ground / airborne / naval controls
- Surveillance systems



Water / Wastewater

Offering outstanding value and easy installation, Acromag I/O is the first choice of many municipalities to help manage their water systems.

- Municipal
- Industrial
- Desalinization
- Irrigation



Research and Development

When high-resolution and high-accuracy measurements are required, Acromag I/O ensures precise data collection.

- Test and measurement systems
- Data acquisition systems
- Scientific research
- Quality control/assurance

Network I/O & Data Acquisition



[www.acromag.com/
BusWorksNT](http://www.acromag.com/BusWorksNT)

BusWorks® NT Series

Ethernet remote I/O modules support a mix of up to 64 channels of discrete, analog or temperature on a single IP address.

- Ethernet/IP, Modbus TCP/IP, Profinet, and i2o peer-to-peer or multicast communication
- MQTT, OPC-VA for IIoT
- Dual RJ45 ports for daisy chain topology
- Easy configuration using Internet browser



[www.acromag.com/
BusWorksXT](http://www.acromag.com/BusWorksXT)

BusWorks® XT Series

High-performance, space-saving remote, analog and discrete I/O modules - with Xtra Technology - for Ethernet networks.

- Ethernet/IP, Profinet, Modbus TCP/IP, and i2o peer-to-peer communication
- Redundant and bussed DC power
- Easy PC/Windows configuration via USB



[www.acromag.com/
BusWorks900](http://www.acromag.com/BusWorks900)

BusWorks® 900 Series

A series of dependable, yet economical, remote analog and discrete I/O modules for Ethernet or RS485 networks.

- Ethernet/IP, Modbus TCP/IP, i2o peer-to-peer, Modbus-RTU, and Profibus-DP communication
- Easy configuration using Internet browser or Windows software



[www.acromag.com/
EtherStax](http://www.acromag.com/EtherStax)

EtherStax® ES2000 Series

High-density I/O blocks designed for high-reliability operation in Ethernet networks.

- Modbus TCP/IP, UDP/IP, and i2o peer-to-peer communication
- Up to 96 channels of discrete or analog I/O in a vertically-stackable unit
- Redundant power and communication



[www.acromag.com/
software-tools](http://www.acromag.com/software-tools)

Software Tools

- OPC, .NET, ActiveX, Visual Basic/C++
- Function libraries with C source code
- Compatible with Windows, Linux, VxWorks, QNX, OS-9, and other OSs



www.acromag.com/DT

DT230/330 Series

A high-performance line of programmable dual-channel transmitters.

- Easy configuration via USB with Windows software or Agility App™ for Android
- Wide variety of input, output, and power configurations



www.acromag.com/SP

SP230/330 Series

A high-performance line of signal splitters / duplicators offering precise scaling of I/O ranges.

- Easy configuration via USB with Windows software or Agility App for Android
- Wide variety of input, output, and power configurations



www.acromag.com/TT

TT230/330 Series

A high-performance line of thin transmitters and isolators offering great flexibility.

- Easy configuration via USB with Windows software or Agility App for Android
- Wide variety of input, output, and power configurations



www.acromag.com/ST130

ST130 Series

Low-cost, miniature head-mount (DIN Form B) transmitters that deliver outstanding accuracy, linearity and stability.

- Easy PC/Windows configuration via USB
- Inputs: temperature, voltage, ohmic
- Output: 4-20mA DC (sink)



www.acromag.com/600T

600T Series

Select from a broad line of isolators, splitters, and transmitters.

- Auto-configuration and self-ranging models for easy setup
- Wide variety of input, output, and power configurations



www.acromag.com/Vertu

Panel Meters and Accessories

- Displays, alarms, power supplies
- Mounting and wiring accessories
- Coatings, tags, certificates, drawings



www.acromag.com/IntelliPacks

IntelliPack® 800 Series

Intelligent, programmable series of transmitters, math modules, and alarms.

- PC configuration, push-button adjust
- Wide variety of input, output, and power configurations

Expandable Remote I/O

Acromag's Busworks® NT Series lets you add expansion I/O modules for a high-density, cost-efficient remote I/O solution

Base unit NTE Ethernet models handle the network communication and interface up to 16 analog or digital I/O channels for remote monitoring or control applications. NTX Expansion models provide a cost-effective way to add a mix of I/O signal types under a single IP address.

Multi-protocol support

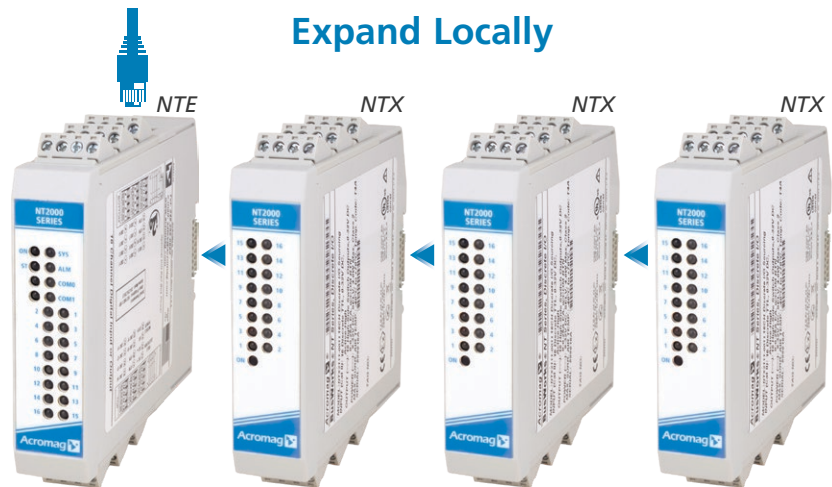
The NTE Ethernet I/O modules are pre-programmed to support Modbus/TCP, EtherNet/IP and Profinet* protocols. Just select which is to be used. Modules also support direct i2o® peer-to-peer communication without a master.

- Integrated I/O expansion bus
- Up to 64 I/O channels per port
- Mix analog, digital, and temperature I/O on one port
- i2o® peer-to-peer or multicast communications
- IIoT communication
- Rugged design, -40 to 70°C
- Hazardous location approvals

*coming soon

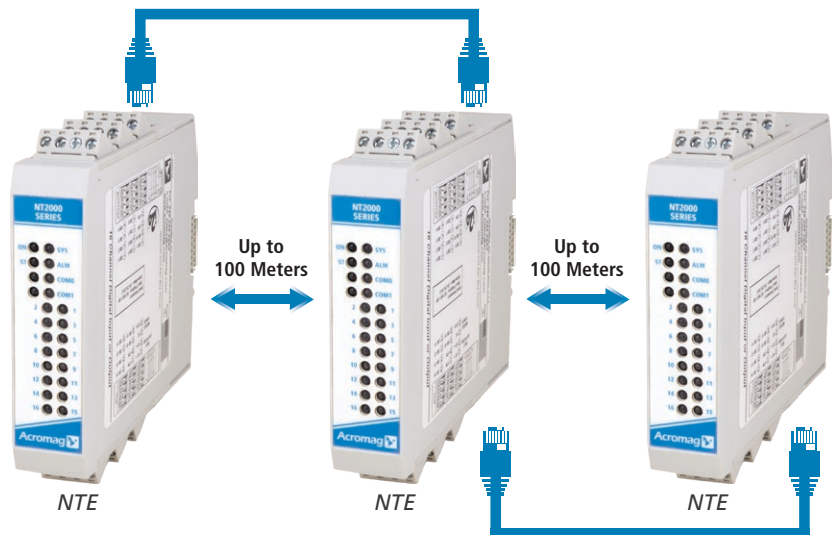


Expand Locally



Link up to three NTX expansion I/O modules to an NTE Ethernet I/O module over the integrated DIN rail I/O bus connectors.

Or Daisy Chain Remotely



Connect NTE Ethernet I/O modules with a daisy-chain topology using the internal dual-port switch to simplify network cabling.

I/O Support	Input Modules	Output Modules
DC Current	8 differential or 16 single-ended channels	8 output channels
DC Voltage	8 differential or 16 single-ended channels	8 output channels
Thermocouple	8 channels of Type J, K, T, R, S, B, E, N, or mV	
RTD/Resistance	4 channels Pt, Ni, Cv, 0-4500 ohms	
Digital I/O	16 channels	16 channels
Relays, Contact Closures	6 channels 120/240V AC	6 normally open 5A relays

Ethernet Based Configuration



Easy setup from anywhere with a web browser

NTE Ethernet I/O modules have a built-in web server for convenient configuration without installing any software. Several web pages lead you through the options to set your IP addresses, protocol, and I/O parameters. A diagnostics page lets you monitor I/O values from your PC, tablet, or smartphone.

Advanced features for IIoT and local control logic functions

The configuration pages will help you quickly set up advanced capabilities such as peer-to-peer communication, conditional logic computation, and alarm output.

- Peer-to-peer communication
- Counter/timers
- IF/THEN/ELSE logic
- Alarm output*
- RESTful APIs*
- OPC-UA server*
- MQTT support*
- Field-upgradeable

*coming soon

The screenshot shows the 'I/O Config' page for Slot 0. It includes settings for Channel 1, such as Current Range (±20mA) and Change Range (±20mA). It also features shared options for all channels, including Current Filter Selection (Low Filter, 80 ms), Burnout Current Enable (Off), ADC Setting Delay (0 μs), Change Filter Selection (High Filter, 480 ms), Change Burnout Current Enable (Off), and Change ADC Setting Delay (0 μs). A 'Change Slot 0 Configuration' button is at the bottom.

The screenshot shows the 'P2P Config' page, which displays a table of peer-to-peer communication settings for various slots.

Slot Number	Starting I/O Channel	# of Channels	Target IP Address	Starting Target Register	Update Time	Change of State	Percent Change	
Slot 1: Thermocouple	Channel 4	8	192.168.0.10	00050	0 ms	N/A	10.5%	<button>Update</button>
Slot 0: Digital I/O Board (Sourcing With 10kΩ Pull-down)	Channel 2	0	0.0.0.0	00000	0 ms	OFF	N/A	<button>Update</button>
Slot 0: Digital I/O Board (Sourcing With 10kΩ Pull-down)	Channel 2	0	0.0.0.0	00000	0 ms	OFF	N/A	<button>Update</button>
Slot 0: Digital I/O Board (Sourcing With 10kΩ Pull-down)	Channel 2	0	0.0.0.0	00000	0 ms	OFF	N/A	<button>Update</button>
Slot 0: Digital I/O Board (Sourcing With 10kΩ Pull-down)	Channel 2	0	0.0.0.0	00000	0 ms	OFF	N/A	<button>Update</button>
Slot 0: Digital I/O Board (Sourcing With 10kΩ Pull-down)	Channel 2	0	0.0.0.0	00000	0 ms	OFF	N/A	<button>Update</button>
Slot 0: Digital I/O Board (Sourcing With 10kΩ Pull-down)	Channel 2	0	0.0.0.0	00000	0 ms	OFF	N/A	<button>Update</button>
Slot 0: Digital I/O Board (Sourcing With 10kΩ Pull-down)	Channel 2	0	0.0.0.0	00000	0 ms	OFF	N/A	<button>Update</button>

The screenshot shows the 'Diagnostics' page for Slot 1: Digital I/O Board (Relay). It displays a grid of 12 indicators (6 inputs and 6 outputs) with corresponding 'Toggle Output' buttons and 'Counter' values. The counter values are: Input 1 (755), Input 2 (0), Input 3 (555), Input 4 (0), Input 5 (0), Input 6 (0). Each input has a 'Reset Counter' button below it.

Visit [Acromag.com/NT](https://www.acromag.com/NT)
TO LEARN MORE

Signal Splitters & Dual Transmitters



DT Series Transmitters & SP Series Splitters

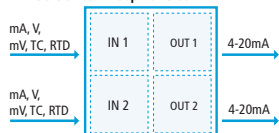
Dual-channel Transmitters

Acromag's DT Series transmitters are designed to offer a cost-effective, space-saving solution to interface a variety of process and sensor signals to your control systems. Each model supports several input ranges and can output a proportional 0/4-20mA, 0-10V, or +/-10V DC signals.

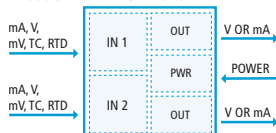
DT230/330 Transmitter Advantages

- USB-programmable (allows easy selection of options that is not possible with pots or jumpers)
- Two-channel unit saves space, reduces costs
- Signal splitter capability
- Loop-power (2-wire) or DC power (4-wire)
- Selectable filtering levels
- Configurable output clamp levels (NAMUR)
- Removable, front-facing terminal blocks (simplify your wiring tasks)
- Rail power bus and redundancy
- Supports sink/source wiring
- -40 to 70°C operation
- CE compliant. UL/cUL Class I Division 2 and IECEx ATEX Zone 2 approvals.

DT230 Series Loop-Powered



DT330 Series DC-Powered



www.Acromag.com/DT

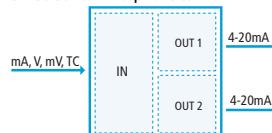
Signal Splitters

Acromag's SP Series of isolated signal splitters/duplicators are designed for easier installation and setup. Eight models, covering a broad range of sensor signals, provide dual 4-20mA outputs proportional to a single current, voltage or temperature input. A USB connection to a Windows® PC or Android® device enables simple, precise configuration of I/O ranges and a variety of operational settings with free software.

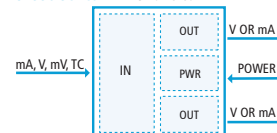
SP230/330 Splitter Advantages

- Easy configuration via USB with Windows® software or Agility™ app for Android®.
- Loop-power (2-wire) or DC power (4-wire)
- Input scales independently at each output.
- User-selectable filtering (none, low, med, high).
- User-configurable output range clamp levels support NAMUR-compliant operation.
- High accuracy, linearity, stability, and reliability.
- Shock (25g) and vibration (4g) resistant.
- CE compliant. UL/cUL Class I Division 2 and IECEx ATEX Zone 2 approvals.

SP230 Series Loop-Powered



SP330 Series DC-Powered



www.Acromag.com/SP

60+ YEARS OF DESIGN MANUFACTURING EXPERIENCE



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Acromag.com



- Product data sheets, manuals, and price information
- Order online with your credit card or purchase order
- Technical support, tutorials, and application notes
- Subscribe to our monthly e-newsletter

Because We Know I/O

You Get Personalized Support- Guaranteed

Doing business with Acromag means you can count on receiving dependable value when using our products. We guarantee to meet or exceed published product performance specifications and offer you exceptional personal service with a real person within one business day.

Products Designed for Dependable Value

Acromag's signal conditioning line features more than 100 transmitters, isolators, alarms, and computation modules. If networked I/O is required, Acromag offers analog, discrete, and temperature I/O modules for Ethernet, Modbus, Profibus, i2o[®] peer-to-peer or multicast communication.

Other Quality Acromag Services and Products

Embedded Processors

- FPGAs
- Embedded computers
- COM Express
- VME, VPX SBCs

Embedded I/O

- AcroPack[®] I/O mezzanine modules
- IndustryPack I/O modules
- PMC/XMC I/O modules
- Carrier cards

ISO9001
AS9100



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