New Class of Distributed Signal Processing Products
Process Industries Are Looking For Better Instrumentation

To:

- Increase Process Efficiency
- Improve Quality of End Product
- Maximize Plant Safety
- Minimize Environmental Contamination
- Reduce Costs
  - (Product, Maintenance, Purchasing & Training)
Using Today’s Technology, Inside and Out
**VISION: Brings Intelligence Right to the Process**

**The Old Way:**
*Centralized Intelligence*

**Control Room**

- **Field**

  - **Central Computer**

**The New Way:**
*Distributed Intelligence*

**Control Room**

- **Field**

  - **Optional Host Computer**

**VISION** Brings Intelligence Right to the Process
VISION Series 4300 Can...

Alarm
Condition
Compute
Control
Communicate

At the Process!
Combines the Best Features of Three Separate Product Classes

- Signal Conditioning
- I/O Signal Processing
- Programmable I/O
Signal Conditioning

- Transmitters
- Alarms
- Function Modules
Signal Conditioning

**Benefits**

- Wide Variety of Signals Accommodated
- Highly Modular - Variety of Single Function Modules
- Stand-Alone - Performs Self-Contained Function
- Field Hardened
  - Operates in Wide Ambient Temperature Range
  - Rugged for Industrial Environments
  - Enclosure Options for Harsh Atmosphere

**Drawbacks**

- 4-20 mA Communication
- Extensive Interconnection Wiring Required
- Time Consuming to Trouble Shoot
- Cannot Communicate Directly with Host System
Digital Signal Conditioning for Host Devices such as PCs, PLCs and DCSs
**I/O Signal Processing**

**Benefits**

- Digital Communication
- Distributed Architecture
- Communicates Directly with Host Devices
- Simplified Wiring to Host System
- Small, Inexpensive Compared to PLC or DCS

**Drawbacks**

- Limited Input-to-Output Function
- Limited Intelligence
- Requires Host Control - No Stand Alone Function
Programmable Controllers
Remote Terminal Units (RTUs)
**Programmable I/O Devices**

**Benefits**
- Digital Communication
- Communicates Via Direct-Wired or Telemetered Media
- Extensive Intelligence and Configurability
- Stand Alone Input-to-Output Function
- Operates Independent of Host Computer

**Drawbacks**
- Difficult to Configure/Program
- Difficult to Maintain
- Large and Monolithic
- Operates Only in Controlled Environment
Universal Modules

**Features**

- **4300-LAI Analog Inputs**
  - Selectable between -110 to 110mV or 0 to 1000 Ohm

- **4300-HAI Analog Inputs**
  - Selectable between -11 to 11V or -55 to 55 mA

- **4300-HAO Analog Outputs**
  - Selectable between -11 to +11V or 0 to 55 mA

- **4300-DI Digital Inputs**
  - Selectable between 5 to 240 V, AC or DC

- **4300-DO Digital Outputs**
  - Selectable between 250VAC or 30VDC to 2 Amps

- **4300-HIM (Host Interface Module)**
- Designed for Installation Directly in the Process Environment
- Operates in Ambient Temperatures Ranging from -40 to +85°C
- Variety of Enclosure Options for Environmental Protection
• Up to 15 Modules Distributed along just Two Wires
• Full Redundancy Using only Six Wires
• Data Shared along Peer-to-Peer Network up to 4000
- Communicate with Host Device via Protocol of Choice (e.g., MODBUS)
- Communicate with Host Using Direct Wired or Telemetered Media
- Expanding Protocol Library for Widespread Compatibility
• Each Model is capable of Function Block Processing

• Analog Modules (HAI and HAO) Support functions such as: High and Low Limit Trips, Peak Picking, Scaling of Engineering Units, Averaging, other arithmetic functions

• Digital Modules (DI and DO) Support Functions such as: Trip, Totalizing, Pulse Duration, Logic State
• Higher Level Functions are Supported using the 4300-HIM Module:
  • Polynomial Equations
  • Arithmetic Mean
  • Standard Deviation
  • Interpolation
  • Flow, Mass Flow, Volumetric
  • Rate of Change
  • Time Stamping
  • Exception Reporting
  • Data Storage
  • Configuration Archiving
Series 4300 Modules Can:

- Process Analog and Discrete Input Signals
- Perform Computation and Logic Operations
- Generate Analog and Discrete Output Signals
- Communicate With Each Other
- Communicate to a Host

Optional Host Computer

Field

Control Room
Model 4300-4CC and Modules

- 4 Modules Per 10” Card Rack (Any Combination)
- Removable Mounting Brackets (NEMA 4 Enclosures Available)
- Dedicated Power Supply and Communication Slot
- Self-Contained Terminations and Interconnections
• No switches, jumpers, or pots to tweak for Configuration

• Fool-Proof Replacement of Modules
  • Modules start up in safe state
  • Configuration Downloaded Automatically upon Replacement

• Self-Diagnostics
  • Module LED indicates Board Malfunction, Improper Configuration, or Loss of Communication
Vision Configurator can be used with any DOS based computer.

Windows Version Available

Modules connected to the Configurator via Serial Cable.
**VISION Configurator**

**Features**

- Quickly and easily change processing parameters

Upload any module’s database for configuration changes

**Block Chain for Configuration**

<table>
<thead>
<tr>
<th>Tag Block List:</th>
<th>Sub-Chain List</th>
</tr>
</thead>
<tbody>
<tr>
<td>Id</td>
<td>Channel 1</td>
</tr>
<tr>
<td>Channel 1</td>
<td>NetIn</td>
</tr>
<tr>
<td>Channel 2</td>
<td>Do</td>
</tr>
<tr>
<td>Channel 3</td>
<td></td>
</tr>
<tr>
<td>Channel 4</td>
<td></td>
</tr>
</tbody>
</table>

**Channel 1 - DO**

- Block Type: DO
- Rev: 0
- Next Block: 7
- Scan: On
- Input Value Pointer: 10.0
- Block Value: 0
- <Open>
- Engineering Unit: [None]
- Polarit
  - (♀) Normal
  - (♂) Inverted
- Failsafe Output
  - (? Openwire
  - (?) Failsafe Value
- Failsafe Value: [ 0 ]

<OK>  <Cancel>  <PgUp>  <PgDn>
Series 4300

+ 6 Universal Modules
+ 2-Wire Digital Communication
+ Distributed Intelligence
+ Peer-to-Peer Field Network
+ Variety of Protocols to Host Devices
+ Field Hardened
+ Direct Wired or Telemetered Communication
+ Simple Configuration & Maintenance

Feature Summary:
Summary of VISION Benefits

- Versatility
- Compatibility
- Low Cost of Ownership
- After-the-Sale Support
• User-Configurable I/O Functions
• Just 4 I/O Module Types for All Basic Functions
• Computing Power for Tailored Applications
• Stand-Alone Network
• PC Interface
• Incremental Modularity for Easier Application and Expansion
- Wide-Range Input & Output Limits for Selecting to Match Existing Signal Ranges
- -40 to 85°C Operating Temperature Range for the Most Severe Ambients
- 4000ft Network Length, and Multi-Dropping Networks Via 4300-HIM Modules, for Any Plant
- Protocol Conversion by 4300-HIM (e.g. MODBUS) for Communication with In-Place Hosts
Low Cost of Ownership

- Initial Cost is Competitive with Yesterday’s Process I/O Instrumentation
- Module Universality Means Broad Applicability, Simplified Spares, Reduced Inventory
- Easy Installation, Less Wiring, & Simpler Maintenance Require Less Labor and Materials
TM Solutions has nearly 15 years of combined experience with process instrumentation, data acquisition and systems engineering.

- Factory or On-Site Training
- Assistance with Installation, Upgrades and Troubleshooting
- Worldwide Service
- Custom Maintenance and Repair Agreements
Providing all of these benefits --

- Wide Variety of Signals Accommodated
- Highly Modular
- Simple Configuration
- Field Hardened
- Digital Communication
- Distributed Intelligence
- Variety of Protocols
- Direct Wired or Telemetered
- Stand-Alone Input-to-Output

Plus:

Universality
2-Wire Communication