



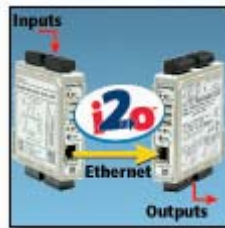
• **BUSWORK line– SERIES 900 I/O modules for Analogue/Digital signals**

➤ Ethernet:

- ❖ **SERIE 900 EN:** Modules for I/O signals (A/D) with output **ETHERNET/IP & MODBUS/TCP communication**
- ❖ **SERIE I2O:** Modules for I/O signals (A/D) with **ETHERNET BI Directional MODBUS/TCP output communication**
- ❖ **SERIE I2O COMBO:** Modules for I/O **MIXED** signals (A/D) with **BI Directional MODBUS/TCP output communication**

• Ethernet/Switch ed Ethernet/Fibra Ottica:

- ❖ **SERIE EIS-358:** **Industrial** Ethernet switch with 8 Ethernet transparent ports with Redundant Ethernet 10/100T
- ❖ **SERIE EIS-408:** **Industrial** Ethernet switch (web managed) with 6 Ethernet ports and Redundant Optical fiber output (singlemode and multimode availability)



• Modbus:

- **900 MB SERIES:** For I/O signals (A/D) with **MODBUS-RTU/RS 485 output**



• Profibus:

- **900 PB SERIES:** For I/O signals (A/D) with **PROFIBUS-DP output**

• **RADIO MODEM SYSTEM** European Certificate ETS300



- Output communication protocol: **RS 485, RS 232, ETHERNET (MODBUS/TCP)**
- **FHSS TECHNOLOGY** (frequency hopping spread spectrum)
- **MAX FREQUENCY UP TO 2,4 GHz** (power 1mW -200mW)
- **Encryption code up to 256 bit** (encryption code up to 256 bit for RF safety protection)
- European certification for transmission approvals ETS300

Certificato n° 9160.MA02



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• INTELLIPACK – 800 SERIES

The INTELLIPACK 800 SERIES is a high-performance line INTELLIGENT transmitters Alarms Math modules, to provide an extremely flexibility and powerful SIGNAL CONDITIONING capability. (Universal I/O ranges and **by pick-up frequency/pulse too**); PC configuration; internal microcontroller; push button field calibration for routine maintenance).



600T SERIES

- ISOLATED TRASMITTERS line 1-2-4 channels with MA-V-TC-MV-RTD inputs and MA-V output
- **SPLITTER MODULES** 1 Input - 2 Output LOOP POWERED and/or EXTERNAL POWERED (AC or DC voltage)



• ACR SERIES -&- A5B SERIES

- Single channel trasmitters series, universal input: 0-100 mA/ \pm 100Vcc/0-20 Acc Output: 0-20mA/0-10 Vcc
- **Economical** signal conditioning and isolation line, for **inputs to A/D board** and outputs from D/A boards (mV/V current CC; Termocople J,K,T,E,R,S,B; Strain-gauge,ecc....) **Up to 16 modules** plug into a backpanel (multiplexed or non-multiplexed) easily mounted in a 19" rack.





• **ALARM ANNUNCIATOR Panalarm/Rochester**



- **Alarm Annunciator PANALARM Series 90**
 - Front access logic cards
 - Universal bussing to permit system modification, expansion or changes of input/output signals
 - Integral or remote logic
 - Integral or remote push buttons
 - Modular construction, any matrix configuration up to 10 high by 10 wide
 - Flush, wall or 19" rack mounting
 - Window legend engraved on coloured plastic
 - Front accessible for lamp changing
 - Modular annunciator display
- **Alarm Annunciator ROCHESTER/PANALARM Series 100 & series 3100D**
 - Serial port for MODBUS communication (optinal)
 - Bi-directional serial communication
 - Alarms Trasmitter/Receiver to/from PLC, DCS or PC
 - Modbus Master or Slave selectable, programmable by DIP switch
 - Modular construction, small dimension, easily expanded
 - Input/Output local configurable
 - Modbus protocol RS485 or DNP standard interface
- **Alarm Visual Display ROCHESTER Series AN-6150**
 - Compact cellular structure
 - LED illumination
 - Window legends laser printed on transparent film for rapid changes
 - Front accessible for lamp changing

• **Transducer - SCIENTIFIC COLUMBUS**

- Transducers for Power Measurements for Voltage and Current in CA and C

• **Load Logger - SCIENTIFIC COLUMBUS**

- Economical digital ammeter for curren value up to 1000 Ampère

• **Multifunction Monitoring System - AMETEK**

- Monitoring Parameters for controll Temperature and vibration machine, eccentricity , movement and tachometer

• **Electronic "SPECIAL" Transmitters High and low Range**

- **For absolute, relative, and differential pressure with accuracy time response of 7ms for General Electric Gas Turbine application:**



- Absolute and relative pressure transmitter with remote diaphragm
- Differential pressure transmitter with remote diaphragm
- Mud density transmitter

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- Absolute and relative pressure transmitter for installation under sea piping

- **Events Sequences Recorder ROCHESTER Model ISM-1**

- Local/remote Digital event printer
- 1 millisecond event recording on up-to 3072 inputs
- Nuisance alarm suppression on each input
- Flexible printer options
- Modbus serial data to SCADA or DCS
- Clock synchronization
- Diagnostics
- Windows configuration software



- **Transient Fault Recorder systems ROCHESTER Series TR100+/TR2000**

- 0-160 analog input and 0-320 digital input
- Traditional Digital Fault Recorder for Generation, Transmission & Distribution Power System Monitoring
- Multi-function Recorder for Generation, Transmission & Distribution Power System Monitoring
- Fault, Trend and Harmonic Recording available simultaneously
- Transient fault recorder, post fault analysis to verify protection and circuit breaker operations
- Power quality monitor, voltage and frequency profiles, voltage dips and surges, loss of supply
- Real time monitor
- Very high-speed transient recorder, analyze switching transients, lightning strikes
- Trend recording, verify voltage regulation and balancing
- Phasor measurement unit
- Sequence of Events Recorder, **1 millisecond** or better resolution on digital contacts
- Pre-fault time from 10 seconds to 10 minutes
- Post-fault time from 30 seconds to 5 minutes
- Portable unit for test and verification (**DL-8000**)



• Power and Quality Energy Recorder ROCHESTER Series PQ&R

- 8 Input (4 voltage, 4 current for TA and TV transformer)
- Real time clock resolution **1 ms**
- 6.4GB Internal Hard disk (up to 1000 events/surveys)
- Every data type recorder (V,I;KWh,Var,HZ,...) up to 16 weeks
- Transfer data logger communication output in RS232, Modem, in Ethernet TCP/IP 10Base2 or 10BaseT



• IR/UV Flame Detector – AMETEK

- **Spectra BC 10 IR** Infrared flame detector for Industrial application
- **Spectra BC 20 IR** Infrared flame detector for Industrial application with internal relays
- **Spectra BC 10 UV** Ultraviolet flame detector for Industrial application
- **Spectra BC20 UV** Ultraviolet flame detector for Industrial application with internal relays
- **Spectra GT10** Flame detector for high Temperature/Pressure turbine and Boiler application
- **Spectra GT 20** Flame detector for LM Aeroderivate gas turbines
- **Spectra GT 30** Flame detector for high pressure gas turbines



- **Special thermocouples, cables – for GENERAL ELECTRIC gas Turbines**

- Thermocouples exhaust gas and wheel space for gas turbines Frame 5/6/7/9
- Thermocouples, cables for hermetic exhaust gas and wheel space for gas turbines Frame 6/7/9
- Thermocouples and cable for exhaust gas in gas turbines LM 2500 e LM 5000



- **Multifunction Digital Counter – ROCHESTER**

- Precision **0,07%**
- Modbus Protocol
- For Active, Reactive and Watthour Energy Monitoring



- **Programmable Digital/Analog Transducer DPMS - ROCHESTER**

- **Modbus** and DNP3.0 communication
- Measuramet parameters: max 34 simultaneous

- **Portable Quality Power Monitor Meridian Quatro – ROCHESTER**

- Power quality monitor; harmonic, transient and flicker analysis, for electrical station and sub-station.





MOORE INDUSTRIES PRODUCTS:

- ❖ **Signal Transmitters, Isolators and Converters** (V,I,T/C,RTD,Ohm.... ATEX certificate for Intrinsically-safe and explosion proof area (field installation or Din mounting)
- ❖ **Converters model HCS** HART/MODBUS RTU protocol (up to 16 Hart trasmitters in multidrop) DIN mounting
- ❖ **Trip amplifiers** (up to 4 SPDT output) setting by PC, (blind modules or with integrated display for local diagnostic) DIN mounting
- ❖ **PID controllers**, Monitors and back-up Stations (dedicated for clorizzation and declorizzation)
- ❖ **Loop Monitors** with Analog output, digitali and Modbus RTU model **HIM** for monitoring diagnostic on ESD systems to and from DCS back-up monitoring on DVC6000 EMERSON MULTIFUNCTION VALVE
- ❖ **I/O modules concentrators** for analog and digital signals (MUX-DEMUX9 WITH Point to Point (Peer to peer and Peer to Host) by Modbus and Ethernet communication
- ❖ **I/P and P/I converter** for field mounting (Pipe 2") and DIN/Rack19" style. Safe and Harzardous area for I.S. Eex-ia and Eex-d installation (**double ATEX certification available**)
- ❖ **Energy Power transducer for C.A.** monitorino on TC/TV mono and Three-fases with integrated display and analogues (4-20mA), Modbus RTU and digital pulse output
- ❖ **Indicators and Loop Display** for safety and Hazardous Area (Atex Eex-ia Eex-d certified) with pipe and DIN style mounting with universal analogue inputs (available for frequency/pulse input from motors and magnetic pick-up, too).
- ❖ **All Instruments (as Temperature converter, Loop monitors display, HIM ect....)are available IEC-61508 approval (up to SIL3)**
- ❖ Others accessories as Racks, Boxes and special Enclosures are available



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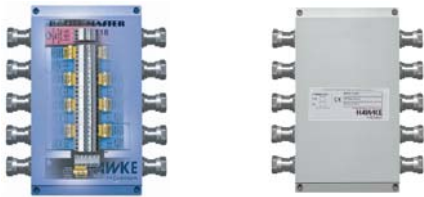


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HAWKE PRODUCTS:

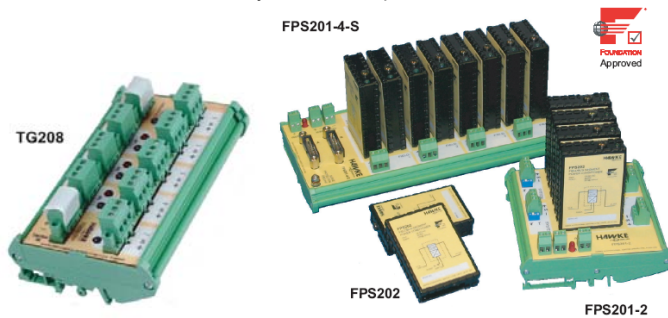
❖ **INTRINSICALLY SAFE AREA - SERIES 100**

- **“ROUTE-MASTER” Fieldbus System – series 100**
 - -Intrinsically-safe Fieldbus segment power Supplies and device couplers
 - -For I.S. Fieldbus applications (FOUNDATION FIELDBUS or PROFIBUS-PA) at 350 mA per segment
- **ROUTE-MASTER SERIES 100-S FIELDBUS DEVICE COUPLERS**
 - -For use with any non-HAWKE I.S. Interface
 - -Capacity: 4 or 8 Fieldbus devices, plus TRUNK IN/OUT
- **ROUTE-MASTER SERIES 110 POWER TRAY**
 - -Supports ‘unpowered’ H1 Interface (e.g. Delta V –Series 2 – by EMERSON)
 - **APPROVALS: ATEX**



❖ **GENERAL PURPOSES AND ZONE 2 ‘NON INCENDIVE’ AREA - SERIES 200**

- **TRUNKGUARD-SERIES 200- DEVICE COUPLER**
 - Capacity: 4-8-10 Devices plus Trunk ‘IN/OUT’
 - Unique SHORT-CIRCUIT PROTECTION DEVICE
 - Unique AUTOMATIC TERMINATION FEATURE
 - Approvals: ATEX – CAT. 3 Energy limited NON-ARCING
- **FPS 200 FIELDBUS POWER SUPPLY**
 - High density and redundant isolated power supply for fieldbus application using FOUNDATION FIELDBUS or PROFIBUS PA systems
 - Incorporates high capacity surge protection for incoming transients.
 - Compatible with all HAWKE user-friendly Device Couplers



❖ **HAZARDOUS AREA – ZONE 1 AND ZONE 2 – SERIES 300**

- **TRUNKGUARD – SERIES 300 – DEVICE COUPLER**
 - Capacity: 4-8 Devices plus Trunk ‘IN/OUT’
 - Unique MAGNETIC INTERLOCK
 - Unique SHORT-CIRCUIT PROTECTION DESIGN
 - Unique AUTOMATIC TERMINATION UNIT
 - Surge protection: BUILT-IN
 - Approval: ATEX



INTEGRATED ENGINEERING SYSTEMS - OTHERS

- Radio Modem System (Modbus and Ethernet Redundance and bi-directional) for I/O Analog and Digital Monitoring signals
- Monitorino System For Electrical network Satation in Substation (DNP, Ethernet, Optical Fiber, RS485).
- I/O (A/D) Monitoring signals and Control Systems in Ethernet and bi-directional redundance optical fiber
- Temperature Trasmitters, Microprocessor technology
- Marshalling cabinet
- Junction boxes with cable glands
- Explosion proof alarm annunciators
- Intrinsically Safe Cenelec approved alarm annunciators
- Intrinsically Safe beacons and clusters
- Intrinsically Safe selector switches (2 or 3 positions)
- Intrinsically Safe push-buttons and emergency stop
- Intrinsically Safe LED lamps
- Intrinsically Safe light tower
- Intrinsically Safe sounders
- Intrinsically Safe relays
- Mosaic Mimic Systems
- I.S. Zener barriers 1,2,3,4 channels
- I.S. Active barriers
- Multi channels "PAPERLESS" Recorders
- Multi channels Multiplexers V,I,Ohm,TC,RTD.. input. Rack and panel mounting (8-16 channel cards)

mA microAutomation srl

Marketing Dept.