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The Modicon Momentum M1/M1E PLC is ideal for distributed architectures with compactness and flexibility for control and I/O distribution on Ethernet. The entire line of Momentum products is based on small block I/O modules that require significantly less control cabinet space than traditional rack based PLC systems.

The Twido nano programmable controller is ideal for simple installations and small machines with standard applications comprising 10 to 100 I/O (max. 252 I/O). Benefits:

- Simplified Maintenance Using On-Board Diagnostics
- Reduction in Size of Enclosures
- Reduction in Cabling Costs
- Reduction in Cabling Errors
- Assisting Machine Design
- Simplification of Machine Architectures

The Inline Modular System provides complete I/O options from 2 to 32 points, high resolution analog and a large variety of special function modules. Branching network capability adds seamless connection of ASi network. Start with precisely tailored solutions for today and expand to fully meet tomorrow’s needs.

The AUTOMATIONWORX I/O system is an industry unique solution with family compatible wiring, installation and diagnostics from cabinet mount to machine mount I/O. This system allows you to mix block and modular I/O, in IP20 and IP65/67 formats to create an I/O network optimized to your application needs, while remaining consistent in installation and operation. This I/O system includes Inline Modular, Inline Block, Fieldline Standalone and Fieldline Modular including standardization that reduces total installed costs.

AS-interface is a simple network especially suitable for highly distributed machine automation. AS-interface uses a low-cost electromechanical connection system designed to connect four to seven point machine mount I/O modules over a two-wire cable carrying data and power. Mechanically coded cables ensure the I/O modules can be quickly installed or removed without errors. Flexible cabling supports star, line, branch and tree topologies with total network distances up to 300m with repeaters.

The Fieldline Modular is ideal for interfacing highly distributed sensors and actuators. Fieldline can be mounted on any level surface adapting the installation to the application.

The wide variety of 8 and 16 I/O versions are ideal for interfacing highly distributed sensors and actuators. Fieldline can be mounted on any level surface adapting the installation to the application.

Inline Block I/O is ideal for interfacing highly distributed digital signals. An excellent price/performance ratio with Inline Modular compatible wiring/maintenance features provide significant cost and time savings.

Prices on request ■ 1-800-GRAYBAR ■ www.graybar.com
Don’t see what you need? Please contact your nearest Graybar office!
Modicon® - Micro™
Schneider Electric / Telemecanique
Micro is a good choice for smaller machines, mobile systems and vehicles where minimal space requires maximum compactness, or when environmental conditions demand reliable performance. Micro PLCs enable machines to perform to their fullest potential.

Modicon® Premium™
Schneider Electric / Telemecanique
Modicon Premium is an optimized automation platform for simple to complex machinery, factory automation applications and infrastructure.

Benefits
• Up to 7 MB of Program Memory
• Compact Size and High Density I/O Modules
• Extension Racks for Multirack Architectures
• Extensive Catalog of Sensor/Actuator Buses, Machine Buses and Fieldbuses
• Integrated Ethernet TCP/IP Port on Many CPUs
• Motion Control, Electronic Cam, Weighing and Machine Safety Modules Available

Modicon® Quantum™
Schneider Electric / Telemecanique
Modicon Quantum is an optimized automation platform for batch/process applications with high level of performance for process control and architecture availability.

Benefits
• Up to 7 MB of Program Memory
• Powerful Process Control Library
• Supports Fieldbuses for Batch/Process Applications
• Integrated Ethernet TCP/IP Port on New CPUs
• High Performance Hot Standby Solution
• Special Treatment to Resist Corrosive Atmospheres

Wireless
Phoenix Contact
Now you can monitor and control level, flow, pressure, temperature, alarms, etc., while eliminating costs for cable, conduit, trenching and boring.

Benefits
• Analog, Digital and Serial (RS 232, 422, 485, MODBUS and AB DF1)
• Reliable Transmission Up to 1,000 ft. – No Line of Sight
• Transmits Up to 20 Miles
• 902-928MHz Frequency Hopping Spread Spectrum Tolerates High-Interference Environments
• No FCC License Needed
• Compact, Robust Packaging

Spectrum Controls Products
Spectrum Controls
Spectrum Controls has been developing I/O and operator interface products for Schneider Electric platforms for the past 20 years. TSX Quantum I/O products include 16 channel Universal Analog Input, 32 channel High Density Analog Input and 8 channel Count/Flow modules. Spectrum Controls' products seamlessly interface with your control system using your existing programming tools. Other products include SY/MAX I/O and character-based operator interfaces.

Remote I/O for All Hazardous Locations
R. Stahl
The I.S. 1 system is a very cost-effective and flexible remote I/O system suitable for installation in all hazardous locations. The uniform system concept permits installation in Division 1 and 2, Zone 1 and 2 and in the non-hazardous location. A wide variety of enclosures are available to meet the specific configuration and environmental requirements associated with an I.S. 1 system and the process application.

Benefits
• No Explosion-Proof Enclosures Required
• Digital Communication with Most Automation Systems
• All Modules are Hot Swappable
• Field Enclosures Available in Many Versions to Fit Specific Engineering Requirements
• HART Input and Output Modules for Transmitters and Positioners

Unity Pro™
Schneider Electric / Telemecanique
Unity Pro is the common programming, debugging and operating software for the Modicon Premium, Atrium and Quantum ranges of PLCs. It is based on the standards set by PL7 and Concept software and provides a comprehensive set of new functions for greater productivity and openness to other software. Independent symbolic memory variables, structured data and user function blocks directly reflect the application-specific components of the automated process. Debugging and maintenance functions use simple animated graphic objects. A diagnostic display window provides a clear, chronological display of all system and application faults and a navigation function for finding the fault causes. Traces missing conditions back to the source. Standard XML Web format for data exchange has been adopted as the source format for Unity applications.

Prices on request ■ 1-800-GRAYBAR ■ www.graybar.com
Don't see what you need? Please contact your nearest Graybar office!
PL7™
Schneider Electric / Telemecanique

PL7 is the common programming, debugging and operating software for Modicon TSX Micro and Premium ranges of PLCs. It provides advanced Microsoft Windows based tools that deliver a multi-language development environment for control system programming. Five IEC editors give users the freedom to choose the programming language that fits their application requirements: Function Block Diagram (FBD), Ladder Diagram (LD), Sequential Function Chart (SFC), Structured Text (ST) and Instruction List (IL).

Concept™
Schneider Electric / Telemecanique

Concept is the powerful IEC programming software for the Momentum and Quantum range of PLCs. It provides advanced Microsoft Windows based tools that deliver a multi-language development environment for control system programming. Five IEC editors give users the freedom to choose the programming language that fits their application requirements: Function Block Diagram (FBD), Ladder Diagram (LD), Sequential Function Chart (SFC), Structured Text (ST) and Instruction List (IL).

ProWORX®
Schneider Electric / Telemecanique

ProWORX 32 is a flexible, easy to use cross-platform LL984-programming software for Modicon range PLCs. Program Modicon controllers online or offline, manage I/O subsystems, and analyze your plant’s activity in real-time, all in a familiar Windows environment. ProWORX 32 provides client/server capabilities to organize user-groups and user-rights, store projects centrally and realize office-plant floor bridging. Test projects in the project emulator to ensure the system will run at peak efficiency.

FactoryCast HMI™
Schneider Electric / Telemecanique

The Factory Cast HMI module integrates a web server that acts as a real time PLC data server, allowing information from Modicon Quantum, Premium and Micro PLCs to be displayed in the form of a Web page in standard HTML format. Human Machine Interface (HMI) capabilities such as email, data logging, user defined web pages and mathematical computations are embedded. The module can also be used in an existing configuration without any modification of the resident program.

Vijeo Look™
Schneider Electric / Telemecanique

Vijeo Look is a SCADA (Supervisory Control and Data Acquisition) software package designed for stand-alone stations that offers synergy between the Web and HMI (Human Machine Interface). Supplied with a pre-configured OFS (OPC Factory Server) Data Server, it is also compatible with Windows 2000 Professional and Windows XP Professional PC operating systems and supports the creation of applications for all Telemecanique new and old generation PLCs.

promis-e® Electrical CAD Software
ECT International

ECT International presents the promis-e family of software for electrical control system design and documentation. Whether you’re creating schematic drawings, panel layouts, wire lists, bills of material or terminal plans, promis-e electrical CAD software features intelligent, automatic functions that make the design process fast, efficient and accurate.

Displays for Compliance with FDA 21 CFR Part 11
R. Stahl

• No Programming Required in the Automation System with Regards to CFR Part 11
• User Access Management Integrated in the Operator Interface
• Audit Trail Generated Automatically

Displays for Hazardous Locations
R. Stahl

Operator interfaces and visualization systems for applications in hazardous areas (Class I, DIV 1 and 2). The Exicom product line is divided into four performance classes: Text, Graphic, Visualization and IPC.

• Exicom devices can be equipped with robust field housings made of plastic or stainless steel
• All visualization and operating systems can communicate with Microsoft Office products as well as ERP systems

In devices of the IPC class, PC and operator interface are separated by two twisted pair connections for digital image and signal transfer, providing users with any level of scalable IPC.

Prices on request ■ 1-800-GRAYBAR ■ www.graybar.com
Don’t see what you need? Please contact your nearest Graybar office!
Weed Instrument provides Fiber Optic Networking equipment for Industrial Control, Process Control and Automation applications.

Benefits

- Over Three Decades of Experience in Fiber Optic Networking Technology
- Provides Fault Tolerant, Multidrop and Fiber Optic Communications Solutions
- Fiber Optic Networking Products Installed in Over 150,000 Loops Worldwide
- Large Selection of Fiber Optic Converters for PLC’s and Distributed Control Systems

Magelis® Industrial PCs
Schneider Electric / Telemecanique

A complete range of industrial PCs designed to optimize your operator interface applications. The modular design of Magelis Modular IPC offers users flexibility when developing their applications. Telemecanique's new Magelis Smart and Compact IPC industrial PCs complement the range, characterized by their compactness, simplicity and easy set up. Used in conjunction with Telemecanique's software products and Web servers, the Magelis IPC offer provides a complete HMI solution that is smarter and more intelligent, yet even easier to set up and operate.

Magelis® XT-GT
Schneider Electric / Telemecanique

The Magelis XBT-GT line incorporates the latest technologies in the human-machine dialogue field to help machine builders and industrial users meet new control system standards. Packed with communications flexibility (onboard Ethernet, simultaneous multiple link with Uni-Telway, Modbus®, Modbus TCP/IP, WEB Gateway), and an external data medium (Compact Flash card) for storing production data and backing up applications, Magelis XBT-GT terminals integrate image, with up to 65,556 colors, and sound for powerful multi-media data displays. All terminals are Rohs compliant.

Magelis® XBT-N and R
Schneider Electric / Telemecanique

The Magelis XBT-N and R are compact, cost-effective text and graphical terminals ideal for simple and repetitive machines. It's one of the few HMI solutions in its class rated NEMA 4X for outdoor use and UL Class 1, Division 2 for hazardous locations. This line of small, text and graphical HMI is an ideal companion for small PLCs. Magelis XBT-N and R offer faster response times to operator actions by either displaying text messages, graphical alerts, or changing screen's color (XBT-R only). With a maximum depth of only 78 mm, Magelis XBT-N and R has a wider operating temperature range and performs at higher speeds than other HMI solutions.

Alarm Detection, Notification and Control Systems
RACO®

Since 1948, RACO has led the industry, offering a wide variety of alarm detection, notification and control systems, including wireless and Web-based systems. With over 35,000 units in the field, RACO’s full range of products includes AlarmAgent.com™, Verbatim®, Verbatim Gateway®, Catalyst®, Chatterbox®, Guard-It®, Cellarmul®, Verbatim SCADA, and Responder.

ConneXium™
Schneider Electric / Telemecanique

The ConneXium line of networking products offers a complete line of Ethernet hubs, switches, bridges and transceivers that enable a truly integrated Ethernet solution for real time control, data access and decision making.

- Hubs: Ethernet 10/100Mbps
  - 4 x 10BaseT (RJ-45)
  - 4 x 100BaseTX (RJ-45)
  - 3 x 10BaseT (RJ-45)/ 2 x 10BaseFL (ST)
- Switches: Ethernet 10Mbps/Fast Ethernet 100Mbps
  - 5 x 10BaseT/100BaseTX (RJ-45)/2 x 100Base TX (RJ-45)
  - 5 x 10BaseT/100BaseTX (RJ-45)/2 x 100Base FX (SC)
  - 5 x 10BaseT/100BaseTX (RJ-45)
  - 8 x 10BaseT/100BaseTX (RJ-45)
- Transceivers: Ethernet 10Mbps/Fast Ethernet 100Mbps
  - 1 x 10BaseT (RJ-45)/ 1 x 10Base FL (ST)
  - 1 x 100BaseTX (RJ-45)/1 x 100Base FX (SC)
- Bridges:
  - Modbus/ Ethernet 10Mbps
    - RS-232/485, 10/100BaseT (RJ-45)
  - Modbus Plus/ Ethernet 10Mbps
    - Modbus Plus (dual cable), 10/100BaseT (RJ-45)
- Cables

Fiber Optic Networking
Weed Instrument

Weed Instrument provides Fiber Optic Networking equipment for Industrial Control, Process Control and Automation applications.

Fiber Optic Networking

Prices on request ■ 1-800-GRAYBAR ■ www.graybar.com
Don’t see what you need? Please contact your nearest Graybar office!
R208/LynxSwitch Managed Industrial Ethernet Ring Switch
Weed Instrument
Features
• 20 to 30ms Reconfiguration in Case of Link Failure
• Flexible Port Configuration
• Free IP Config Software for Switch Management
• Military Spec. Design, -40° to +85°C
• Dual Power Inputs
• Multiple Management Levels to Support Various Applications

Industrial Telephone Modem
Phoenix Contact
The PSI-DATA/FAX-MODEM/RS232 DIN-rail mount modem provides worldwide access to machines and remote installations, via the public phone network, for remote maintenance, monitoring and program downloads. Unlike “office-grade” modems, this product offers industrial features such as wide range DC power supply, DIN-rail mounting, three-way isolation and integrated surge protection.

Modular Managed Switch
Phoenix Contact
No need for complex IT programming; just plug in the modules you need, configure the browser-based interface, and the expandable switch (2 to 24 ports) is ready to go. Simplified web diagnostics and intuitive LED indicators enable plant floor staff to easily install and maintain.

Networking Capabilities
Woodhead
Brad Harrison® passive media products pioneered the market for miniature connectors by introducing the first quick-disconnect alternative to hard wiring.
Brad Harrison DeviceNet Connectors are overmolded for optimum performance and strain-relief in harsh environments. Cable options include Thick, Thick Class I, Mid, Thin, Thin-600V and TPE-jacketed Flex Thin.

Benefits
• Phosphor Bronze contacts for better yield strength and stress-resistance
• Anti-vibration design to prevent backout
• Gold-over-nickel plated contact material exceeds ODVA specs for the highest reliability
• Brad Harrison Profibus cordsets and connectors provide plug-and-play convenience for Profibus networks. They are available in Micro-Change, Mini-Change (12) and 9 pin D-Sub configurations. This media can be used to:
  • Provide quick-disconnect for auxiliary power for active I/O modules
  • Connect the data line from one device to another
  • Provide input and output to blocks
  • Provide diagnostic, mechanical and electrical functions

DATATRAB
Phoenix Contact
DATATRAB D-LAN-CAT.5E is a surge protection device for the most popular high speed data transmission systems. The circuit of this multi-functional surge arrester protects all 8 signal paths that are connected via the RJ-45 connector providing protection for Ethernet, Token Ring and CDDI (FDDI) network interfaces. The protection adapter fulfills the increased performance requirements for transmission quality in accordance with Category 5e (enhanced Category 5). This means that even in the case of transmission rates up to 100 mbps, data is transmitted reliably without signal attenuation.

PSI-MOS
Phoenix Contact
The PSI-MOS-DNET CAN/FO series converts copper based DeviceNet (and CANopen) systems to fiber optic mediums. This is the first PSM product to utilize a new modular ME Bus housing.
**Reliable Industrial Network Products**

**N-Tron™**

N-TRON Corp. develops, manufactures and markets highly reliable industrial network products designed to solve the most demanding communications requirements for mission-critical MIS, data acquisition and control applications. Our customers are engineering and information technology professionals who require Ethernet products to operate in industrial environments with high throughput and minimum downtime.

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**Unmanaged Switches**

**Phoenix Contact**

A full line of unmanaged switches with 5 - 16 ports and single/dual fiber options. Complete industrialization, alarm contact, redundant power autocross and packaging options provide complete connection option. The new standard function switches provide Ethernet switching for the cost of a hub or media converter.

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**SPEEDCON M12**

**Phoenix Contact**

SPEEDCON is a connection system from Phoenix Contact for M12 connections. A simple half turn makes a secure, watertight and vibration-proof connection between cordsets and devices. SPEEDCON works with all existing M12 connectors so it’s backwards, forward and future compatible.

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**EOTec 2000 Fiber Optic Converters**

**Weed Instrument**

Features

- FM Approved for Class I, Div. 2 Hazardous Locations
- Industrial Temperature Range -40° to +85°C
- Integrated Expandable Bus System (No External Wiring)
- Redundant Power Capability
- Hot Swappable Modules

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**The QUINT DC to DC UPS**

**Phoenix Contact**

The QUINT DC to DC UPS is a new family of DC Uninterruptible Power Supplies available. Unlike traditional AC UPS technology, the QUINT DC to DC UPS is a flexible, modular, industrial grade UPS which is designed to be powered by QUINT 24V DC power supply. This product ensures uninterruptible DC power to mission critical devices, even in the event of a complete power outage.

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**Phaseo® Power Supplies**

**Schneider Electric**

With dual upstream/downstream display for quick diagnostics and an output voltage that can be adjusted to compensate for voltage drops on the line and protection against overloads and short-circuits, the range of Phaseo power supplies is quite simply efficient. Designed to supply the voltage required for control and power circuits of automation system equipment from 0.3 to 40 A. Rectified and filtered power supplies are available for applications which accept fluctuations in the power supply of + or - 10%, and transformers, for converting a 400 V to an AC voltage between 24 V and 230 V. The wide range of input voltages ensures simplicity of choice due to fewer product references.

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**DIN Rails Mountable**

**PULS**

PULS offers the widest variety of switched-mode DIN-rail mount power supplies in three families; MiniLine, SilverLine and Dimension in both single and 3-phase from 25 - 960 watts with a variety of features. PULS also offers specialty supplies and modules for redundancy. DeviceNet, AS-Interface, UPS and decoupling.
**HVAC / Energy Management Temperature Sensors**

*Weed Instrument*

**Features**
- True Area-Averaging Sensor
- Fluid Immersion Sensor
- Duct Air Sensor
- Room Air Sensor
- Outdoor Air Sensor
- Pipe Clamp Sensor
- Bolt-On Surface Sensor
- 4-20mA Output Transmitter

**Industrial Temperature Sensors**

*Weed Instrument*

**Features**
- RTD (Resistance Temperature Detectors)
- High Accuracy
- Thermocouples
- High Temperature Range
- Fast Response Time
- Connection Heads
- Temperature Transmitters
- Head Mount Design
- Din Rail Mount Design
- Thermowells

**Nautilus™ Sensors for Pressure Control**

*Schneider Electric*

Nautilus Pressure Switches have been designed to control or regulate pressure in fluid, water and hydraulic or pneumatic systems. It is completely programmable with 10 million - cycle operation.

**Osiprox™ Inductive Proximity Sensors**

*Schneider Electric*

The Osiprox line of inductive proximity sensors provides a single-product solution for any metal environment. Out of the box, the proximity sensor is unshielded. However, by simply pressing one button, you can teach the sensor to ignore surrounding metal, and even metal behind a metal target. A second precision setting narrows the field to mere millimeters.

**Osiris® Photo-Electric Sensors**

*Schneider Electric*

A simple product for all detection applications. Self-adapts to all applications and environments. Product selection and availability simplified.

**Osiswitch™ Limit Switches**

*Schneider Electric*

These miniature limit switches provide modularity of connection. This translates into improved machine availability.

**RTDs and Thermocouples**

*Weed Instrument*

Weed Instrument provides a wide selection of catalog RTDs and thermocouples used in thousands of industrial, process and OEM applications. Our RIDs offer performance, reliability and economy. We offer thermocouples for virtually every high temperature process application, including smelting and melting, forging, heat treating, incineration and cogeneration, and utility and waste boilers. We also manufacture a wide choice of Magnesium Oxide (MgO) insulated thermocouples, in all thermocouple element types, for various process and laboratory applications.

**Encoders**

*Pepperl+Fuchs*

Rotary encoder family of products to meet demanding customer applications. Incremental and absolute encoders are available to provide a variety of solutions for speed monitoring, accurate linear motion and axial positioning.
Automatic doors—garage, elevator, revolving, sliding, and swinging—can pose serious logistic problems. Pepperl+Fuchs has a line of zone scanner products for both industrial and non-industrial environments, offering safe, reliable and energy efficient zone scanners that detect and differentiate between people and vehicles, and indicate their movement direction.

Preventa safety solutions provide protection in all the safety functions of your automation system. Solutions that are both approved and conform to international standards.

Preventa™ Machine Safety
Schneider Electric

IS Barriers - Intrinspak
R. Stahl
Intrinsic safety barrier with a replaceable fuse and direct DIN rail mounting and grounding all in a slim 1/4 in. wide housing. Choose from the Type 9001 single channel, Type 9002 dual channel or Type 9004 single channel with electronic current limitation.

I.S. Isolators - IS Pac
R. Stahl
The compact isolators IS Pac are equipped with removable terminals. The devices snap singly onto DIN rails and can either be centrally supplied from the common power supply (Pac-Bus) or simply and conveniently connected to the automation system using the Pac-Carrier.

With the IS Pac system, system specific solutions in any possible constellation from engineering to cabinet manufacturing are available.

Benefits
• Inputs or Outputs Intrinsically Safe Class I, II, III Div. 1, Gas Groups A-G (AEx ia) IIC, (EEx ia) IIC
• Galvanic Isolation Between Inputs, Outputs and Power Supply
• Modules for DIN-Rail Installation or Comfortable System Integration via Pac-Carrier
• Extended Temperature Range -20°C to +70°C
• Installation Also Possible in Zone 2 or Div. 2 and in Dust-Ex Circuits

Graybar’s technical staff provides custom solutions, products and support for a variety of automation markets and applications. Call us and let us help you with your next automation project!