Thermo Westronics

Data Acquisition, Monitoring & Management

Solutions in Data Acquisition & Management

Thermo Westronics' SmartView products continue to push the frontier of paperless data acquisition technologies. As with our legacy products, today's systems reliably capture critical process parameters with the added benefit of rapidly deploying historical and real-time information throughout the enterprise. Now you can monitor, analyze and respond to process variations regardless of your proximity to the application.

The SmartView Family offers measurable benefits by providing a comprehensive solution to help you better record and manage your process data.

The SmartView Advantage

- Easy to Use: Intuitive touchscreen technology allows for one touch access to all critical process parameters.
- Improved Response to Process Variables: View, analyze and document process status and/or anomalies from any location.
- Quality Verification/ Documentation: Reduces the time required to verify product consistency and generate appropriate documentation.
- Compliance with Regulatory Agencies: Easily document, report and archive process data to satisfy regulatory requirements.
- Lower Cost of Ownership: Improved reliability over traditional paper-based systems.
- Reduced Installation and Maintenance Costs: Fits or adaptable to existing paper recorder panel cutouts. Eliminates paper, pens and other consumable items. Front accessibility to all electronics.
- Extended Product Lifecycle: Field upgradeable firmware and enhanced memory capacity allows the system to evolve as requirements change.
- Versatile Hardware and Software: Flexible storage options, display modes, I/O configurations and network functions.

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Integration:
Data acquisition platforms and PC-based software that function as a stand-alone solution or can be easily integrated into an existing process control infrastructure. Allows information sharing with other OPC (OLE for Process Control) compliant systems.

Configuration:
Secure, flexible and intuitive configurations capable of supporting a wide range of application complexities that improve operation's ability to monitor, document and analyze their processes locally or over a network.

Analysis:
Enhanced data analysis and graphing software to view and compare process data in various formats and styles.

Management:
Efficient collection, consolidation and distribution of process data through secure access over a plant LAN, intranet or the internet.

Scalability:
Expands as your needs grow without rewiring or accessing the back panel.

Contents

A History of Innovation

Innovation, the spirit of Thermo Westronics since its inception in 1945, is the driving force behind our ability to provide reliable, state-of-the-art paper-based and paperless data acquisition systems.

1945

Originally incorporated as Westronics Inc., the company was formed by three engineers from Convair as a custom engineering service company specializing in the development of systems for the oil field industry.

1950

The introduction of our first family of traditional chart recorders and indicators changed the direction of the company.

1956

Looking back it is hard to conceive that a 5-inch single pen recorder (S5A) designed to replace a much larger 11-inch system in oil well logging trucks would lead to the development of indicating systems for the refining industry.

1962

As processes increased in complexity so did the need for enhanced instrumentation for acquiring and monitoring data. Westronics Inc. was the first to introduce and patent a low profile multipoint recorder, which found its way into more process-oriented applications. The M11B provided customers with the ability to document and analyze 24 points of data while eliminating the need for additional panel space. This was followed by the introduction of the M5B 5-inch multipoint system in 1964.

1975

Our spirit thrived throughout the late 60s and 70s and in 1975, we established a major presence in the utilities industry. The E3 Series along with other data recorders lead us to become a major supplier in the nuclear power market.

1984

The advent of the microprocessor era brought about notable advances in data acquisition technology. We released our DDR10, the first digital recorder, followed shortly thereafter by the 3000, 1600 and 1200 series microprocessor-based systems.

1996

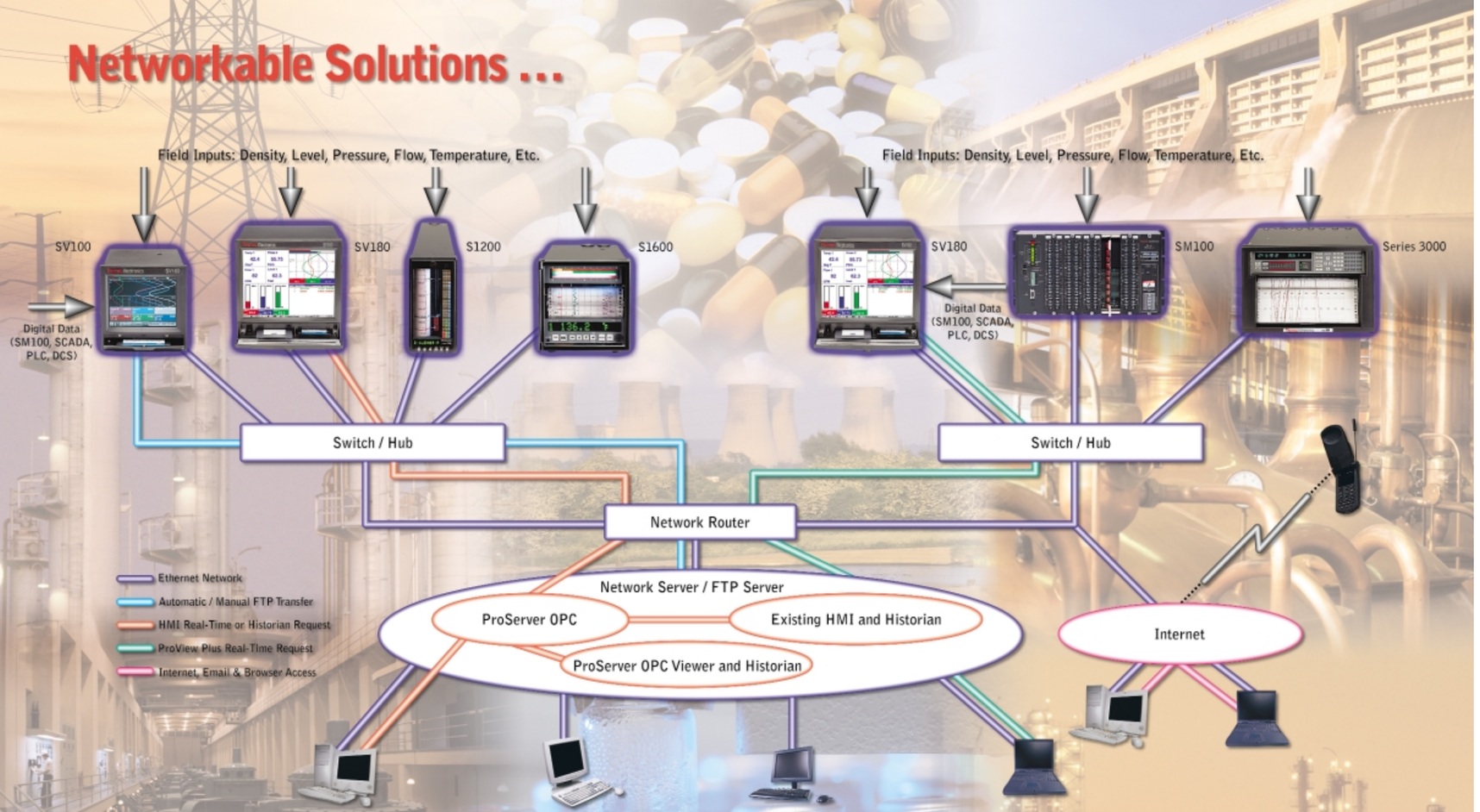
Recognizing our customer's need for more sophisticated data management and display functionality, Westronics Inc.progressed from a recorder manufacturer to a provider of advanced data acquisition, monitoring and management solutions with the introduction of our SmartView family of paperless products. We further expanded by acquiring Angus Electronics and Ranger.

today...

To this day Thermo Westronics, a Measurement and Control business of Thermo Electron Corporation, continues to offer customers a product portfolio that leverages innovative technologies and software solutions to improve plant productivity, optimize operations and streamline the management of critical process data.

For additional information, visit www.thermowestronics.com.

Networkable Solutions ...



... in Process Data Management

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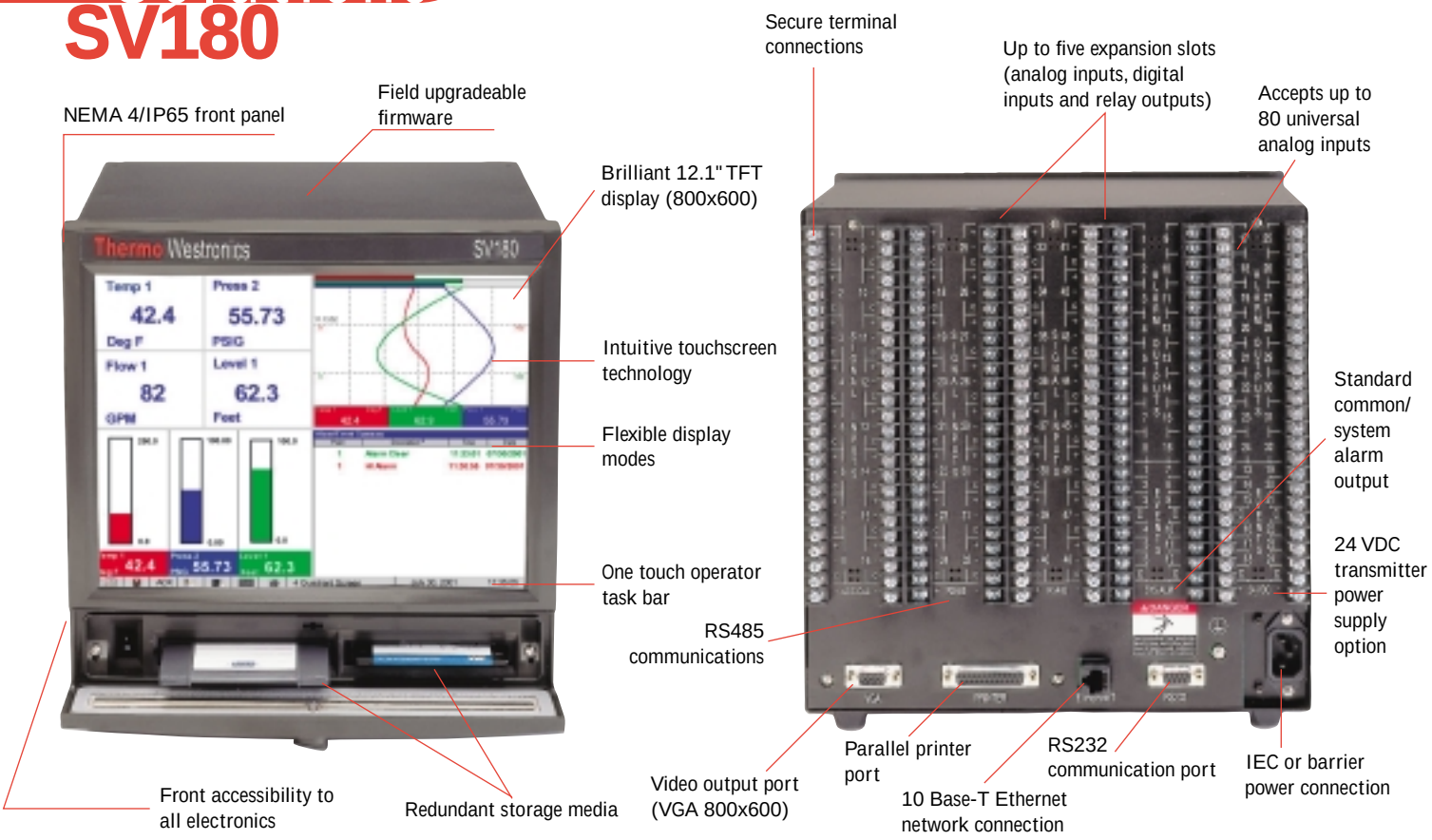
SV180



SPECIFICATIONS

INPUT CAPACITY	16, 32, 48, 64 or 80 isolated direct inputs (160 total points including calculated points)
INPUT TYPES	DC Voltage: Linear, square root and log programmable to 10VDC (50 mV, 100mV, 200mV, 1 V, 5 V and 10 V bipolar ranges) DC Current: Linear, square root and log programmable to 4-20mA, 10-50mA T/C: J, K, T, E, R, S, B, C, Nicrosil Nisil and Nickel/Nickel Moly RTD: 10Ω Cu, 100Ω Pt 385, 100Ω Pt 392, 200Ω Pt 385, 200Ω Pt 392 and 120Ω Ni Dry contact External source: SM100, DCS, PLC, SCADA or computer generated
ACCURACY	Voltage: ±0.05% of programmed range Current: ±0.1% using external shunt resistor T/C: ±1.5˚C for J, K, T, E, Nicrosil-Nisil and Nickel/Nickel Moly; ±3˚C for R, S,and C; ±4˚C for B RTD: ±0.5% C
RESOLUTION	0.006% of full scale
IMPEDANCE	> 10MΩ
COMMON MODE VOLTAGE	300 VAC peak to peak
NOISE REJECTION	Common Mode: >120 dB at 50/60 Hz Normal Mode: >60 dB at 50/60 Hz
SCAN RATES	All points scanned every second
RECORDING	Internal Memory: 32 MB of RAM, 16 MB Flash Storage Media: 3.5" floppy disk, PCMCIA ATA flash or Zip disk (single or dual drives)
DISPLAY	Type: 12.1" Color Active Matrix TFT LCD (800x600) Modes: User defined screens (Vertical & Horizontal Trends, Bargraph, Digital, Overview, Alarm/Event Summary, Custom) Video Output: VGA 800 x 600
ALARM FUNCTIONS	Up to 5 alarm setpoints per point Contact Output / Input: 16 isolated Form A or B contact outputs and 12 digital inputs per card (1 Amp @ 117 VAC or 26 VDC resistive, 0.5 Amp @ 230 VAC resistive, 0.4 Amp @ 250 VDC resistive)
POWER	100 to 240 VAC (50 to 60 Hz) or 90 to 125 VDC or 18 to 30 VDC Transmitter power supply: 24VDC @ 2A
COMMUNICATIONS	Serial Ports: RS232 and/or RS485 Other: Parallel printer port Network: Ethernet (10 Base-T), TCP/IP, ModEthernet, OPC & FTP (automatic and manual data transfers to primary or secondary servers) Proview Software Suite
ENVIRONMENTAL	Operating Temperature: -10˚ to 50˚C Operating Humidity: 10% to 90% RH non-condensing Enclosure: NEMA 4/IP65 front panel
DIMENSIONS	Bezel: 288mm x 288mm Cutout: 282mm x 282mm Depth: 232mm

For additional specifications, visit www.thermowestronics.com.

* See back cover for nuclear qualifications.

Field upgradeable firmware

5.5" TFTdisplay (320 x 240)

Intuitive touchscreen technology

User programmable display modes

One touch operator task bar

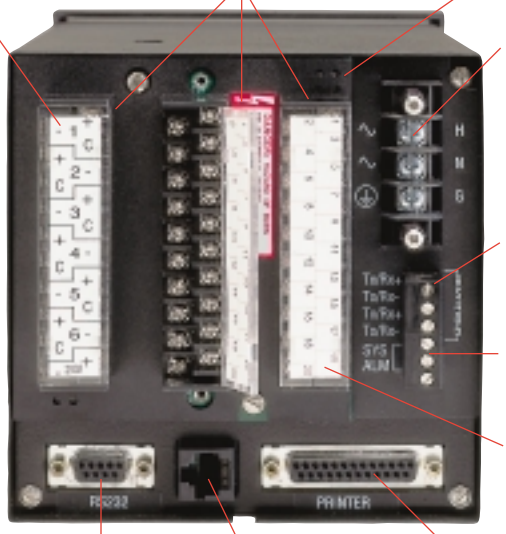
Front accessibility to all electronics

Flexible storage media

Secure terminal connections

3 expansions slots. Up to 18 analog inputs

Flexible alarm output/ digital input configuration



Secure power connection

RS485 communication port

Standard common/ system alarm output

24 VDC transmitter power supply option

RS232 communication port

10 Base-T Ethernet network connection

One touch screen print

Specifications

Input Capacity	6, 12 or 18 isolated direct inputs (36 total points including calculated points)
Input Types	DC Voltage: Linear, square root and log programmable to 10 VDC (50 mV, 100 mV, 200 mV, 1 V, 5 V and 10 V bipolar ranges) DC Current: Linear, square root and log programmable to 4-20 mA, 10-50 mA T/C: J, K, T, E, R, S, B, C, Nicrosil Nisil and Nickel/Nickel Moly RTD: 10Ω Cu, 100Ω Pt 385, 100Ω Pt 392, 200Ω Pt 385, 200Ω Pt 392 and 120Ω Ni Dry contact External source: SM100, DCS, PLC, SCADA or computer generated
Accuracy	Voltage: ± 0.05% of programmed range Current: ±0.1% using external shunt resistor T/C: ±1.5˚C for J, K, T, E, Nicrosil-Nisil and Nickel/Nickel Moly; ±3˚C for R, S and C; ±4˚C for B RTD: ±0.5% ˚C
Resolution	0.006% of full scale
Impedence	>10MΩ
Common Mode Voltage	300 VAC peak to peak
Noise Rejection	Common mode: >120 dB at 50/60 Hz Normal mode: >60 dB at 50/60 Hz
Scan Rates	All points scanned every 125 mS
Recording	Internal Memory: 32 MB of RAM and 16 MB of Flash Storage Media: 3.5" floppy disk, PCMCIA ATA flash or Zip disk
Display	Type: 5.5" Color Active Matrix TFT LCD (320 x 240) Modes: Vertical & Horizontal Trends, Bargraph, Digital, Overview, Alarm/Event Summary, Custom
Alarm Functions	Up to 5 alarm setpoints per point Contact Output/Input: 6 isolated Form A or B contact outputs and 6 digital inputs per card (1 amp @ 117 VAC or 25 VDC resistive, 0.5 Amp @ 230 VAC resistive, 0.4 Amp @ 250 VDC resistive)
Power	100 to 240 VAC (50 to 60 Hz) or 90 to 125 VDC or 18 to 30 VDC Transmitter Power Supply: 24 VDC at 120 mA (per input card)
Communications	Serial ports: RS232 and/or RS485 Other: Parallel printer port Network: Ethernet (10 Base-T), TCP/IP, ModEthernet, OPC & FTP (automatic and manual data transfers to primary or secondary servers) Proview Software Suite
Environmental	Operating Temperature: -10˚ to 50˚C Operating Humidity: 10% to 90% RH non-condensing
Dimensions	Bezel: 144 mm x 144 mm Cutout: 138 mm x 138 mm Depth: 9.25"

For additional specifications, visit www.thermowestronics.com.

* See back cover for nuclear qualifications.

SVP

Specifications

Input Capacity	16 isolated direct inputs (36 total points including calculated points)
Input Types	DC Voltage: Linear, square root and log programmable to 10 VDC (50 mV, 100 mV, 200 mV, 1 V, 5 V and 10 V bipolar ranges) DC Current: Linear, square root and log programmable to 4-20 mA, 10-50 mA T/C: J, K, T, E, R, S, B, C, Nicrosil Nisil and Nickel/Nickel Moly RTD: 10Ω Cu, 100Ω Pt 385, 100Ω Pt 392, 200Ω Pt 385, 200Ω Pt 392 and 120Ω Ni Dry contact External source: SM100, DCS, PLC, SCADA or computer generated
Accuracy	Voltage: ± 0.05% of programmed range Current: ±0.1% using external shunt resistor T/C: ±1.5˚C for J, K, T, E, Nicrosil-Nisil and Nickel/Nickel Moly; ±3˚C for R, S and C; ±4˚C for B RTD: ±0.5% ˚C
Resolution	0.006% of full scale
Impedence	>10MΩ
Common Mode Voltage	300VAC peak to peak
Noise Rejection	Common Mode: >120 db 50/60 Hz Normal Mode: >60db @ 50/60 Hz
Scan Rates	All points scanned every 125mS
Recording	Internal Memory: 32 MB of RAM and 16 MB of Flash Storage Media: 3.5" floppy disk, Zip disk, or PCMCIA
Display	5.5" Color Active Matrix TFT LCD (320 x 240)
Alarm Functions	Up to 5 alarm setpoints per point No contact outputs
Power	100 to 240 VAC (50 to 60 Hz) or 90 to 125 VDC or 18 to 30 VDC
Communications	Serial ports: RS232, RS485 Network: Ethernet (10 Base-T), TCP/IP Protocol, FTP (Automatic and manual data transfers) ProView Software Suite
Environmental	Operating Temperature: -10˚ to 50˚C Operating Humidity: 10% to 90% RH non-condensing
Dimensions	Case: 13⅜" L x 11⅝" W x 6" D

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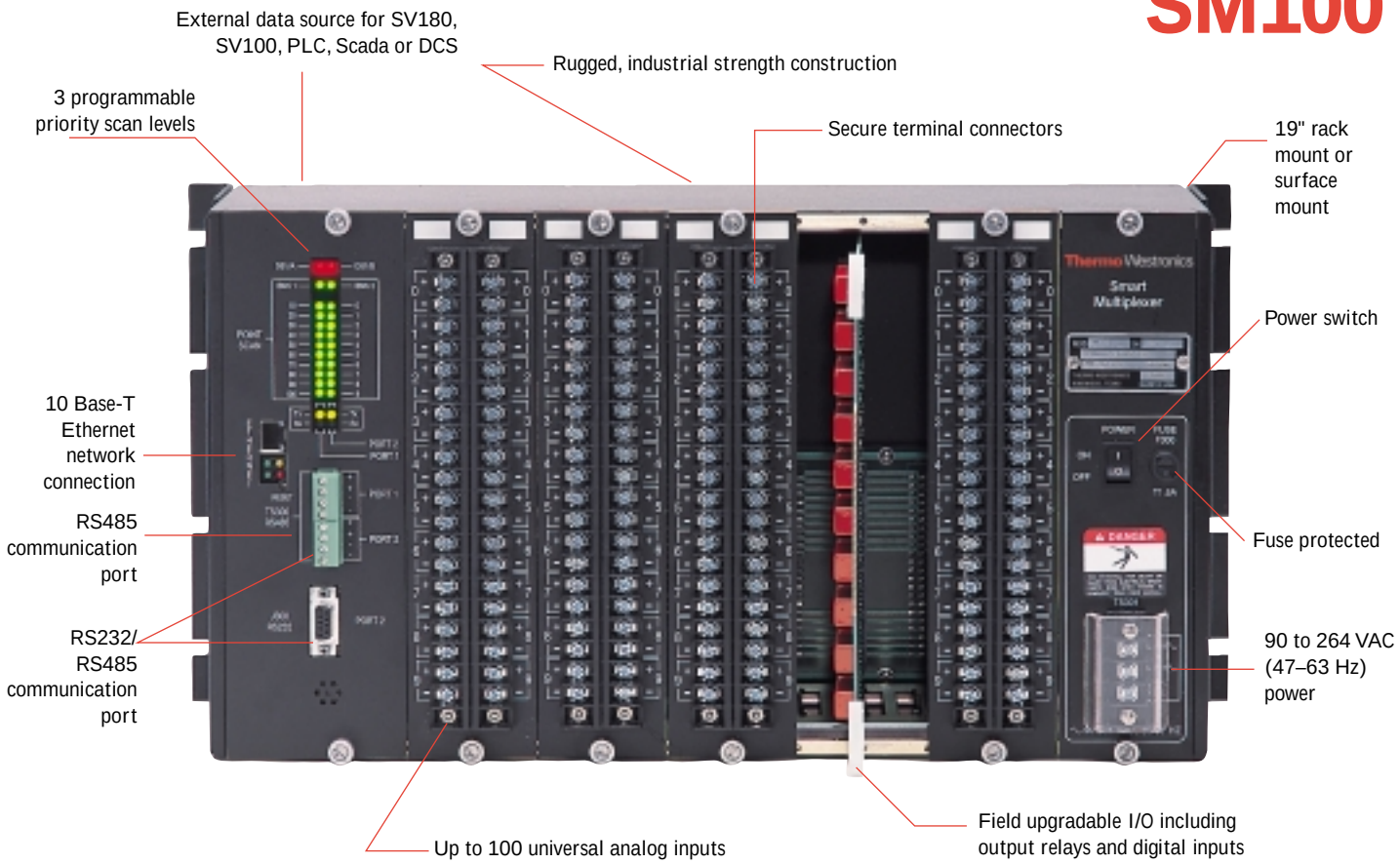
SM100

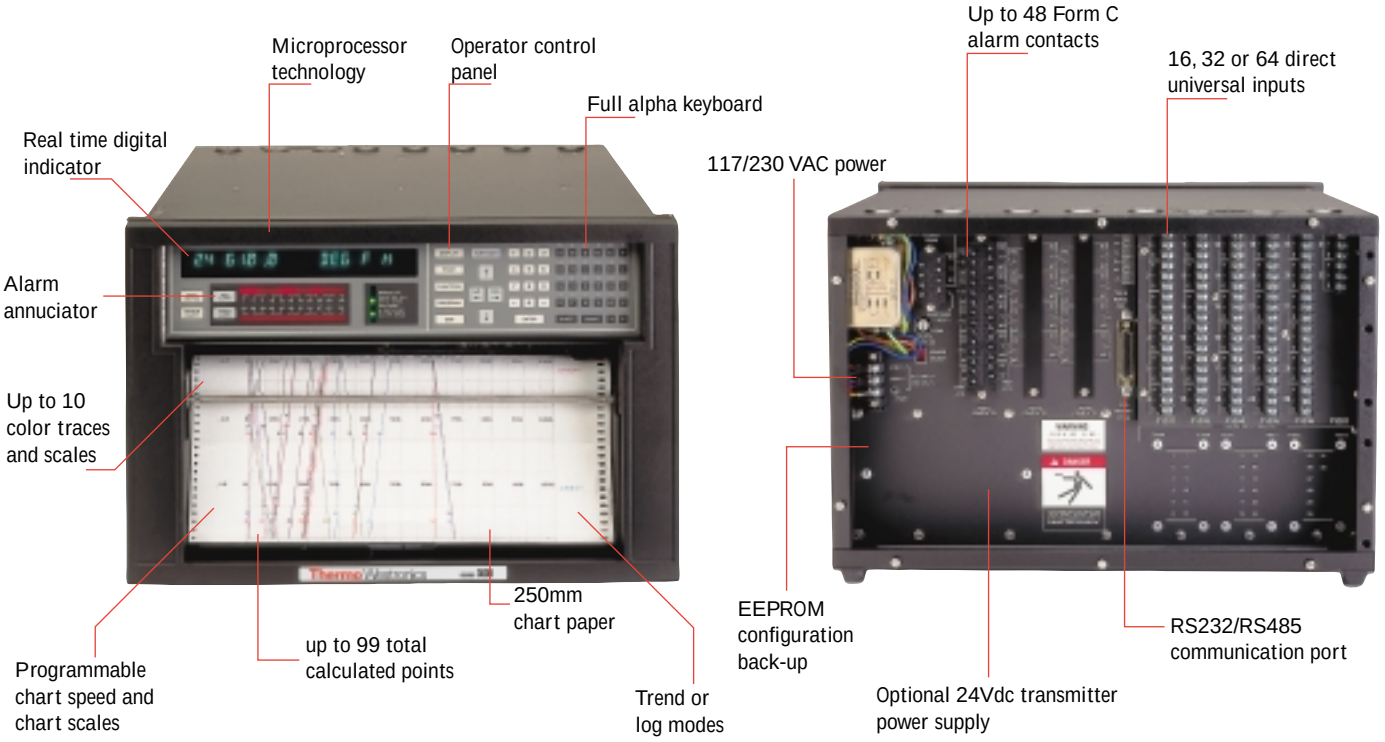


SPECIFICATIONS

INPUT CAPACITY	Up to 5 input cards maximum 20 channel card: T/C, mA,mV, V 10 channel card: T/C, mA, mV, V, RTD 10 channel card: contact ouputs
INPUT TYPES	DC Voltage: Linear & square root programmable to ±100 mV, ±1V, ±10 V DC Current: Linear& square root (4-20mA, 10-50mA) T/C: J, K, T, E, R, S, B, C, Ni-Ni Moly & Nicrosil RTD: 100 & 200Ω Pt 385 & 392; 500Ω, 120Ω Nickel; 10Ω Cu (3-wire or 4-wire RTDs) Dry contact
ACCURACY	Voltage: ±0.05% Current: ±0.1% including shunt resistance Thermocouple: ±1˚C for J, K, T, E, Nicrosil-Nisil, and Nickel/Nickel Moly; ±3˚C for R, S, and C; ±4˚C for B RTD: ±5˚C
IMPEDANCE	>10MΩ (100 mV & 1 V ranges) 30KΩ (10 V range)
COMMON MODE VOLTAGE	300 VDC or peak VAC
NOISE REJECTION	Common mode: >120 dB at 50/60 Hz Normal mode: >60 dB at 50/60 Hz
SCAN RATE	60 mS/channel maximum 3 programmable priority scan levels (High, Medium & Low)
ALARM FUNCTIONS	Up to 3 alarm setpoints per point Contact ouput: 10 isolated Form C (1 Amp @ 117 VAC or 26 VDC for resistive loads)
POWER	90 to 264 VAC at 40 Watts Line Frequency: 47 to 63 Hz
COMMUNICATIONS	Port 1: RS485 or Ethernet (RJ45) Port 2: RS485 or RS232
PROTOCOLS	RTU Modbus, ASCII Modbus, ModEthernet
SOFTWARE	Windows based configurator, ProView Software Suite
ENVIRONMENTAL	Operating Temperature: –25˚ to 50˚C Operating Humidity: 0% to 95% non-condensing
DIMENSIONS	13.32" H x 23.07" W x 11.8" D

For additional specifications, visit www.thermowestronics.com.

S3000 / S3200† / S3200MB†



SPECIFICATIONS

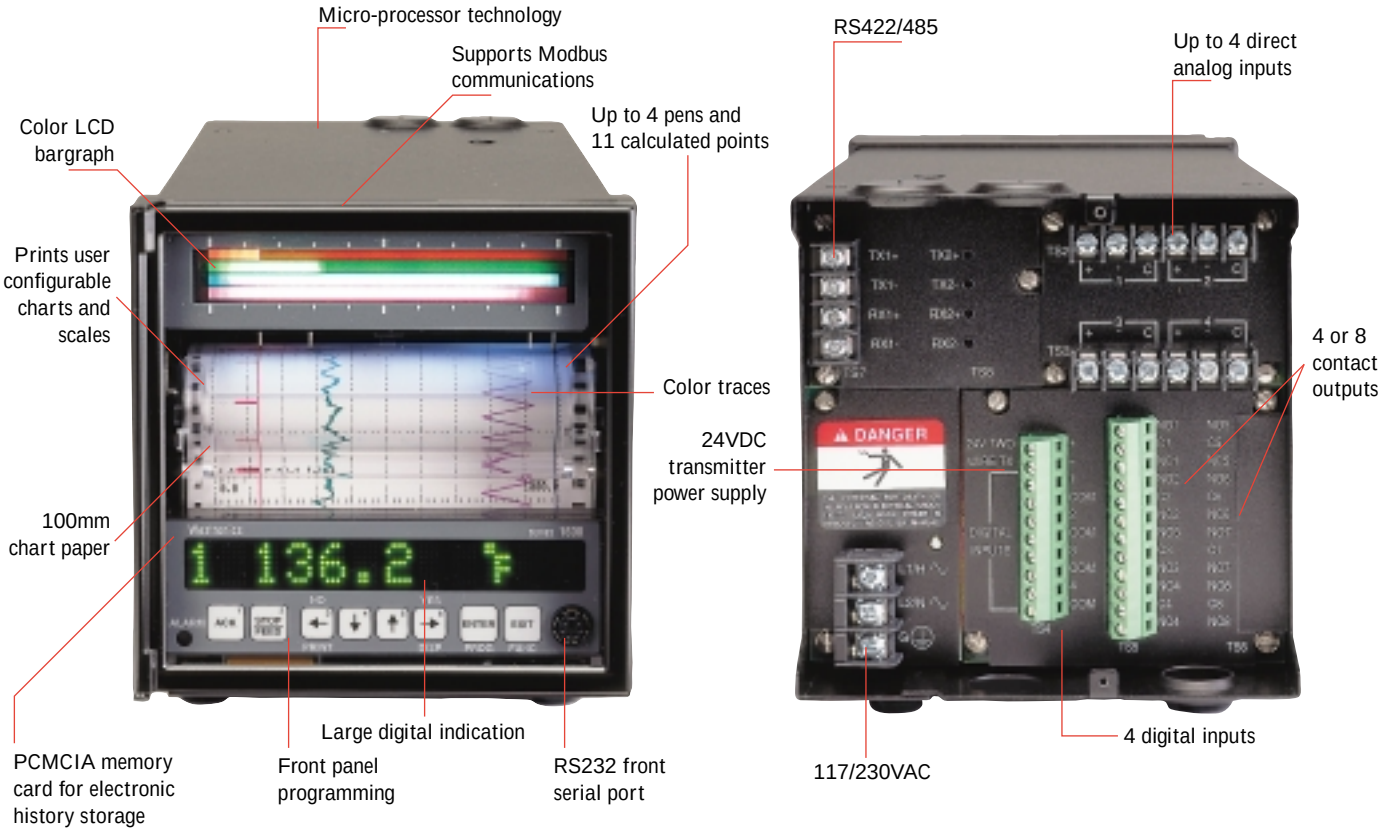
INPUT CAPACITY	S3000: 16, 32 or 64 direct inputs (99 total points including calculated points) †S3200: 12, 24 or 48 direct inputs (99 total points including calculated points) †S3200MB: up to 720 direct inputs using MM120 multiplexers
INPUT TYPES	Voltage: ±10VDC (50mV, 100mV, 200mV, 1V, 5V, 10V) Current: 4 to 20mA, 10 to 50mA T/C: J, K, T, E, R, S, B, C, Nicrosil-Nisil and Nickel-Nickel Moly RTD: 10Ω Cu, 100, 200, and 500Ω Pt, and 120Ω Ni Contact: N.O. or N.C. dry contacts User Programmable Linearizations
ACCURACY	Voltage: ±0.05% for 50mV to 10VDC Current: ±0.1% for 1mA to 200mA including shunt resistance RTD: ±0.5˚C T/C: ±0.5˚C J, K*, T*, E*, N, Ni/Ni-Moly, R, S, C, B, (* T, K, & E thermocouples are for temperatures above –140˚C)
IMPEDANCE	>10MΩ for T/C and 50mV, 100mV, 200mV, 1VDC, and 5VDC ranges; 110K ohms for 10VDC range
SCAN RATE	Up to 20 points/second (nominal)
COMMON MODE VOLTAGE	300VAC peak to peak
NOISE REJECTION	Common Mode: >120 dB at 50/60 Hz with 1K ohm source imbalance at 300 VAC peak to peak CMV Normal Mode: >60 dB at 50/60 Hz

ALARM FUNCTIONS	S3000 contacts: One common alarm (1A @ 117 VAC or 26 VDC for resistive loads) and/or 8, 16, 24, 32, or 48 Form C (EMI Hardened: 1A @ 117 VAC ±10%, 0.5 A @ 230 VAC ±10%, 0.4 A @ 250 VDC for resistive loads) †S3200 contacts: 6 or 12 Form C (EMI Hardened: 3A @ 117/230 VAC or 26 VDC, 0.2 A @ 125 VDC for resistive loads) †S3200MB contacts: 6 or 12 Form C or 24 Form A or B (EMI Hardened: 3A @ 117 VAC or 26 VDC, 0.4 A @ 250 VDC for resistive loads)
COMMUNICATIONS	RS232C, RS422 (modified), RS485 or custom
POWER	117 VAC +10%, 50/60Hz; 230 VAC +10%, 50/60Hz
ENVIRONMENTAL	Operating Temperature: 0˚ to 45˚ C Operating Humidity: 15 to 70% RH non-condensing
DIMENSIONS	S3000: 279mmH x 425.5mmW x 381mmD †S3200: 194mmH x 433mmW x 560mmD

(S3000 is a direct replacement for DDR10
†(S3200 is a direct replacement for M11E)
†(S3200/MB is a direct replacement for M11E/MB)

For additional specifications, visit www.thermowestronics.com.

* See back cover for nuclear qualifications.



SPECIFICATIONS

INPUT CAPACITY	4 direct inputs (15 total points including calculated points)
MEASUREMENT RATE	All points every 250mS (4 analog inputs) or 125mS (2 analog inputs)
INPUT TYPES	DC Voltage: Linear and square root programmable to 10V (100mV, 1V, and 10V ranges) DC Current: Linear and square root programmable to 4 - 20 mA, 10 - 50 mA Dry Contact Thermocouple: J, K, T, E, R, S, B, C, Nicrosil Nisil, and Nickel/Nickel Moly RTD: 10Ω Cu, 100Ω Pt 385, 100Ω Pt 392, 200Ω Pt 392, 120Ω Ni and log programmable
ACCURACY	Voltage: ±0.05% of programmed range Current: ±0.1% including shunt resistance Thermocouple: ±1.5˚C for J, K, T, E, Nicrosil-Nisil and Nickel/Nickel Moly; ±3˚C for R, S and C; ±4˚C for B RTD: ±0.5°C
RESOLUTION	0.003% of full scale
IMPEDANCE	>10M ohms 100mV and 1V ranges, 30K ohms for 10V range
COMMON MODE VOLTAGE	300 VAC peak to peak
NOISE REJECTION	Common Mode: >120 dB at 50/60 Hz Normal Mode: >60 dB at 50/60 Hz
ALARM	Up to 5 alarm setpoints per point Contact outputs: 4 or 8 dry Form C contacts (1A @ 117 VAC and 26 VDC, 0.5 A @ 230 VAC (resistive)) Digital inputs: 4 inputs assignable as Chart On/Off, Alarm Acknowledge, Event Marker or Active Chart Scale Set Select
DISPLAY	Alphanumeric: 12 character, 5 x 7 LED display, update rate programmable 1 to 60 seconds Bargraphs: Four, 101-element (red, green, blue, violet) LED display
COMMUNICATIONS	Serial Ports: 1 RS232 front and Up to 2 RS422/485 rear (Modbus ASCII or RTU protocol) Storage Media: PC memory card
POWER	90 to 264 VAC, 47 to 63 Hz Failure protection: Programmed parameters stored in EEPROM memory Transmitter power supply: 24 VDC @ 150 mA
ENVIRONMENTAL	Operating temperature: 0˚ to 45˚C Operating Humidity: 30% to 85% RH non-condensing
DIMENSIONS	5.67" x 5.67"W x 11.4"D (144mm x 144mm x 289mm)

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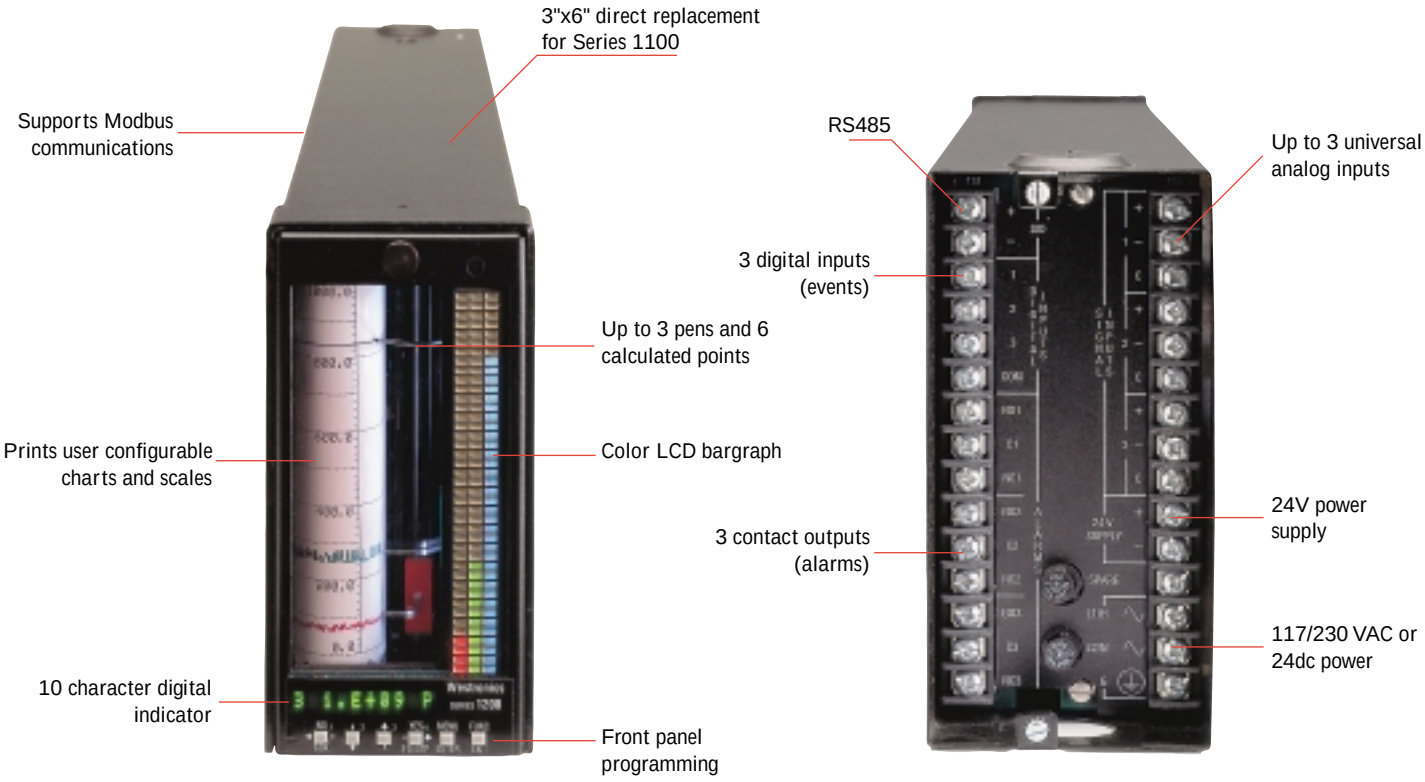
* See back cover for nuclear qualifications.

S1200 / S1200B†



SPECIFICATIONS

INPUT CAPACITY	3 direct inputs (9 total points including calculated points)
SCAN RATE	1 analog input: all 9 points scanned 12 times/sec. 2 analog inputs: all 9 points scanned 6 times/sec. 3 analog inputs: all 9 points scanned 4 times/sec.
INPUT TYPES	DC Voltage: Linear, square root and log programmable to 10 V (100 mV, 1 V, and 10 V ranges) DC Current: Linear, square root, and log programmable to 4 - 20 mA, 10 - 50 mA Dry Contact Thermocouple: J, K, T, E, R, S, B, C, Nicrosil Nisil, and Nickel/Nickel Moly RTD: 10Ω Cu, 100Ω Pt 385, 100Ω Pt 392, 200Ω Pt 392, and 120Ω Ni
ACCURACY	Voltage: ±0.05% of programmed range Current: ±0.1% including shunt resistance Thermocouple: ±1˚C for J, K, T, E, Nicrosil-Nisil and Nickel/Nickel Moly: ±3˚C for R, S and C; ±4˚C for B RTD: + 0.5° C
RESOLUTION	0.003% of full scale
IMPEDANCE	>10MΩ 100 mV and 1 V ranges, 30KΩ for 10 V range
COMMON MODE VOLTAGE	300 VAC peak to peak
NOISE REJECTION	Common Mode: >120 dB at 50/60 Hz Normal Mode: >60 dB at 50/60 Hz
ALARM	Up to 4 alarm setpoints per point Contact outputs: 3 dry Form C (1A @ 117 VAC and 26 VDC, 0.5 A @ 230 VAC resistive) Digital inputs: 3 inputs assignable as Chart On/Off, Alarm Acknowledge, Event Marker or Active Chart Scale Set Select
DISPLAY	Alphanumeric: 10 character, 5 x 5 LED display, update rate programmable 1 to 60 seconds Bargraphs: Three 41- element bargraphs (red, green, blue) LED display
COMMUNICATIONS	Serial port: RS485 (Modbus ASCII or RTU protocol)
POWER	1200: 90 to 264 VAC, 47 to 63 Hz 1200B: 24 VDC at approx. 35 VA Failure Protection: Programmed parameters stored in EEPROM memory. Transmitter power supply: 24 VDC
ENVIRONMENTAL	Operating temperature: 0˚ to 45˚C Operating Humidity: 30% to 85% RH non-condensing
DIMENSIONS	Unit: 5.59"H x 2.83"W x 20.19"D (142mm x 72mm x 513mm) Cutout: 5.43"H x 2.68"W (138mm x 68mm)

† (S1200B also available as a direct replacement for the Bailey 771)

For additional specifications, visit www.thermowestronics.com.

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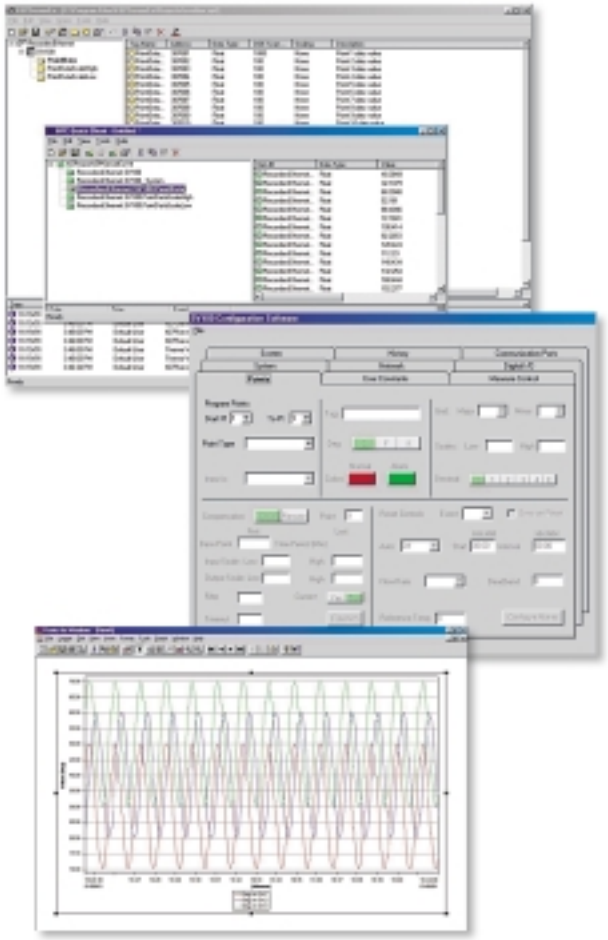
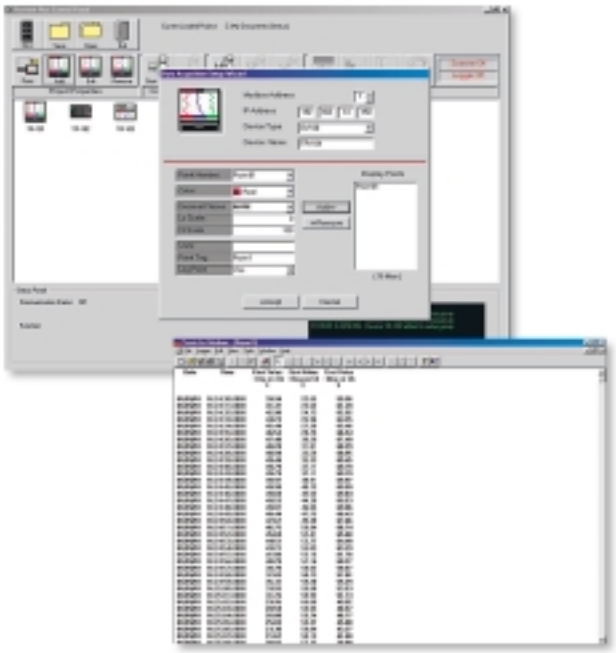
ProView Software Suite





ProView – The Software Suite for Process Professionals
Whether incorporating our products into an existing platform or designing a system from the ground up, the ProView Software Suite is a perfect compliment to any Thermo Westronics' data acquisition system.

The ProView Software Suite includes the basic ProView package for configuration, graphing and analysis; the network awareness and real-time capabilities of ProView Plus; and the advanced functionality and integration of ProServer OPC (OLE for Process Control). From system configuration and monitoring to data distribution and management, our software suite offers the flexibility to satisfy even the most stringent application requirements.

ProView
- PC based system configuration
- View, graph and print data
- Print and e-mail configuration files
- Export data in CSV format

ProView Plus
- Advanced graphing, data analysis and report generation
- Networkable: LAN, intranet & internet (TCP/IP, ModEthernet & FTP client/server)
- Real-time communications (trends, events, alarms, totals, etc.)
- Circular, horizontal, bar graph & digital displays
- Remote messaging, data retrieval and brightness adjust
- Group views for real-time and historical review
- Data capture on local or network storage device
- Windows® task bar indicator for alarm and event monitoring
- Ability to clear history buffer and freeze screen via network connection
- Ethernet/Serial time (clock) synchronization

ProServer OPC
- Share data across other OPC compliant platforms
- Compatible with existing HMI software and data historians
- Advanced real-time viewer, data historian and archiving
- Automatic/manual tag generation
- Server diagnostics

Web Browser Access
- Real-time viewing (actual screens)
- Alarm status, digital values and trending
- Remote messaging and email (SMTP)

For additional specifications, visit www.thermowestronics.com.

Nuclear Qualifications

Certification	Instrument						
	SV100	SV180	S1600	S1200	S3000	S3200	S3200/MB
IEEE 344-1987	YES	YES	YES	YES	YES	YES	YES
EMI/RFI Test – EPRI TR-102323	YES	YES	YES	YES	YES	YES	–
Software V & V	YES	YES	YES	YES	YES	YES	–
10CFR 21	YES	YES	YES	YES	YES	YES	–
10CFR 50 Appendix B	YES	YES	YES	YES	YES	YES	–
IEEE 323-1983 (mild environment)	YES	YES	YES	YES	YES	YES	–

Product Training

Product training is available to all customers.
Please contact the factory for details.

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