

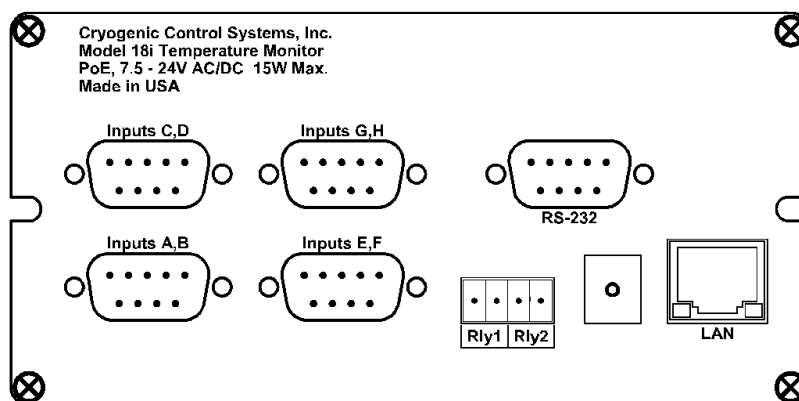


Model 18i, 14i, 12i: Summary of New Features

The Model 18i is a super-set of the 18C and is 100% upward compatible.

	Model 18i	Model 18C
Input Channels	<p>Number: 2, 4 or 8</p> <p>Independent, multipurpose input channels support Diode, Platinum RTD and most cryogenic NTC temperature sensors. No use of multiplexing or scanning.</p> <p>Operation from 500mK to 1,200K with an appropriate sensor.</p> <p>NTC sensor support features step-less 10mV AC constant-voltage excitation.</p> <p>Supported Sensors: All 18C plus devices with input voltages up to 7.2V, including GaAIAs (6-volt) diodes.</p> <p>Input circuits: New low drift, low gain error circuits offer higher measurement accuracy and stability.</p> <p>Error Reporting: Inputs report clipping, over-voltage and excessive noise pickup.</p>	<p>Number: 2, 4 or 8</p> <p>Independent, multipurpose input channels support Diode, Platinum RTD and most cryogenic NTC temperature sensors. No use of multiplexing or scanning.</p> <p>Operation from 500mK to 1,200K with an appropriate sensor.</p> <p>NTC sensor support features step-less 10mV AC constant-voltage excitation.</p> <p>Error Reporting: Over-voltage.</p>
Web 2.0 Embedded Web Server	<p>Using secure, encrypted Ethernet HTTPS protocol, the monitor's embedded web server provides complete instrument control and configuration without the need for external platform-dependent utility software. Functions performed through the web browser include:</p> <ul style="list-style-type: none"> - Complete real-time status and configuration. - Custom sensor calibration tables downloads. - Data-logging file downloads. - Installation of firmware updates. - Real-time strip-chart displays. - CalGen[®] sensor curve fitting and generation. - Run and access user scripts. 	<p>Most configuration functions performed by a combination of a simple web server plus a PC based Utility Software package.</p>
Industrial Automation	<p>High security operating system:</p> <ul style="list-style-type: none"> - Configurable firewall. - HTTPS encryption and authentication. <p>Modbus industrial automation protocol allow direct connection to a variety of PLCs.</p> <p>SCPI compatible ASCII command language</p>	<p>SCPI compatible ASCII command language</p>
User Programs	<p>The Monitor can be programmed by using the IPython scripting language. All functions of the instrument are available to the programming interface and are executed as standard remote commands.</p>	<p>N/A</p>
Utility Software	<p>Not required. All functions previously performed by it are now done by the embedded web server.</p>	<p>Required to:</p> <ul style="list-style-type: none"> - Download user calibration curves. - Run strip-charts - Download data log files

Model 18i, 14i, 12i: Summary of New Features



	Model 18i	Model 18C
Remote Interfaces	Ethernet Connects to any Ethernet Local Area Network. TCP SCPI implements a connection oriented ASCII based remote command interface. UDP SCPI implements a streaming remote command interface. Modbus TCP Industrial Automation Protocol Secure, encrypted HTTPS provides built-in web 2.0 web server. SMTP sends e-mail based on alarm conditions. TIMEP updates instrument time from the Internet. IGMP, DHCP	Ethernet Connects to any Ethernet Local Area Network. TCP SCPI implements a connection oriented ASCII based remote command interface. UDP SCPI implements a streaming remote command interface. HTTP provides a basic built-in web server. SMTP sends e-mail based on alarm conditions. IGMP, DHCP
	RS-232 Serial port is an RS-232 standard null modem. Data rates are 9600, 19,200, 38,400 and 57,200 Baud. Modbus Serial Industrial Automation Protocol.	RS-232 Serial port is an RS-232 standard null modem. Data rates are 9600, 19,200, 38,400 and 57,200 Baud.
	All Interfaces Programming Language is upward compatible. No changes in user software will be required. Enhanced SCPI command set. LabVIEW™ drivers available.	All Interfaces ASCII programming language is IEEE-488.2 SCPI compatible. LabVIEW™ drivers available.
Status Outputs	Audible and Visual Alarms: Independent audible, remote and visual alarms. Alarms can be latched. Relays: Two dry-contact relays. N.O. contacts available. Contact ratings: 10A@125VAC or 5A@30VDC.	Audible and Visual Alarms: Independent audible, remote and visual alarms. Alarms can be latched. Relays: Two dry-contact relays. N.O. contacts available. Contact ratings: 10A@125VAC or 5A@30VDC.
Data Logging	Essentially unlimited 2GB circular buffer.	Up to 1,000 entries.
Firmware Updates	Updates via the Ethernet using the embedded web server. No PC software required.	Updates via the Ethernet using a firmware upload PC utility.
Input Power	Input power requirements are: Power over Ethernet, 7.5-48V DC or 7.5-24V AC. External power supply provided.	Input power requirements are: Power over Ethernet, 7.5-48V DC or 7.5-24V AC. External power supply provided.
General	Front panel display: TFT LCD. 8X21 or 4x10 font. Size: 5.6"W x 2.9"H x 8.8"D. Weight: 3.5 Lbs. Conformity: European CE certified. ROHS compliant, Lead-free. Calibration: NIST traceable.	Front panel display: TFT LCD. 8X21 or 4x10 font. Size: 5.6"W x 2.9"H x 8.8"D. Weight: 3.5 Lbs. Conformity: European CE certified. Calibration: NIST traceable.

Model 18i, 14i, 12i: Summary of New Features

Input Specifications			
	Diode sensors	PTC resistor sensors	NTC resistor sensors
Input Configuration	Constant-Current DC	Constant-Current AC	Constant-Voltage AC
Input Range	0.1 – 2.50V 0.1 – 7.10V	1.0mA: 0.1 - 450Ω 100μA: 1.0 – 4.5KΩ	Minimum: 5Ω Maximum: 100KΩ
Accuracy: % Rdg ± % Range	0.004% ± 80μV	0.01% ± 0.0005%	14 – 30KΩ: 0.05% ± 0.05% 4 – 100KΩ: 0.15% ± 0.15%
Resolution: % Range	10μV	0.0003%	0.0003%
Excitation	10μA DC	1.0mA, 100μA	10mV, AC, Step-less 1.25mA to 100nA

Summary of Supported Sensors			
	Model 18i Temperature Range	Model 18C Temperature Range	Example Sensors
Silicon Diode	1.4 - 500K	1.4 - 500K	Cryo-con S900 SI-440, 430, 410 Lakeshore DT-670, 470
Platinum RTD	14 - 1200K	14 - 1200K	Cryo-con CP-100 Cryo-con GP-100 Cryo-con XP-100 Cryo-con XP-1K
Rhodium-Iron	1.4 - 800K	1.4 - 800K	Oxford PHZ 0002
Germanium Thermistor	500mK - 400K	500mK - 400K	AdSem, Inc.
CLTS	4 - 300K	4 - 300K	Vishay CLTS-2B
Silicon Thermistor	1.0 - 720K	1.0 - 720K	AdSem, Inc.
Cernox™	500mK - 325K	500mK - 325K	Lakeshore, all types
Carbon-Ceramic	500mK - 300K	500mK - 300K	Temati
Ruthenium Oxide	500mK - 270K	500mK - 270K	SI RO-600
GaAlAs diode	1.4K - 500K	N/A	Lakeshore TG-120
Thermistor	193 - 523K	193 - 523K	Measurement Specialties

Ordering Information

Product	Description
Model 18i	Eight-channel monitor. Includes 12VDC external power supply.
Model 14i	Four-channel monitor. Includes 12VDC external power supply.
4001-003	Single Power over Ethernet Power injector.
4001-002	IEEE-488.2 (GPIB) Option, field installable.
05-0007	International version of the external 12V power power supply including multi-blade kit.
4001-001	USB 2.0 Option. Serial Port Emulation. Field installable.
3012-021	Bench top instrument stand.
3012-020	Panel Mount hardware kit.

Contact Information

Cryogenic Control Systems, Inc.

PO Box 7012

Rancho Santa Fe, CA 92067

Tel: (858) 756-3900 Fax: (858) 759-3515

E-mail: sales@cryocon.com Web: www.cryocon.com

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