



# PointScan/109™



## 4-Channel RTD (100 Ohm Platinum) Input with 4-Channel (12/24 VDC/VAC) Digital Input Module

### Features

- 4 RTD (100 Ohm platinum) inputs with 16-bit resolution
  - -200° to +850°C input range
  - 0.5°C accuracy @ 20°C
  - 2-, 3-, or 4-wire input lead configurations
  - 250 micro amp pulsed (heat-reducing) excitation current
  - ±25 VDC over-voltage protection
  - 50/60 Hz filter for line cycle noise
- Four 12/24 VDC/VAC digital inputs
  - DC sinking/sourcing or AC wiring
  - Programmable digital filtering
  - One 2-kHz counter channel
- Ethernet and RS-485 ports with 1200 Vrms isolation



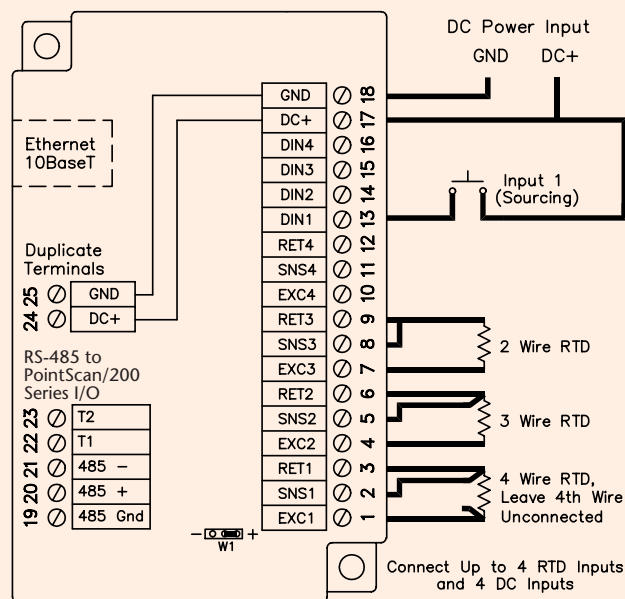
Four 2-, 3-, or 4-wire RTD (100 Ohm platinum) inputs with 16-bit resolution, 50/60 Hz input noise filtering, over-voltage protection, and on-board software linearization make the PointScan/109™ ideally suited for making highly accurate RTD-based measurements. Four 12/24 VDC/VAC digital inputs are available for monitoring a wide variety of digital devices including proximity switches, limit switches, power circuits, pushbuttons, and relays. Additional PointScan/109 features include an isolated Ethernet (10BaseT @ 10 Mbps) port, an isolated RS-485 port, hot-swap module replacement, plug-and-play operation, and self-calibration.

**RTD Inputs.** The PointScan/109 module measures 2-, 3-, or 4-wire (100 Ohm platinum) RTDs with choice of temperature coefficients (0.00385/American or 0.00392/European) and built-in compensation for lead wires. Linearization and scaling are performed in the module and the excitation current is pulsed only during the measurement (in order to reduce the self-heating of the RTD), resulting in highly accurate and repeatable measurements.

**Digital Inputs.** The four digital inputs can be jumper configured as either sinking or sourcing (24 VDC typical). These inputs can also be user-configured for either slow or fast filter response times. In “fast” mode, there is minimal filtering with channels responding to DC input changes in 2 ms. In “slow” mode, there is more filtering as channels look for stable inputs for 25 ms (20 Hz counting). Slow mode is typically used for either noisy environments (e.g.

*The PointScan/109 is ideally suited to make accurate RTD-based temperature measurements while sensing the state of digital devices*

### PointScan/109 Wiring Diagram



mechanical switch closures) or when reading AC inputs. An additional feature of the PointScan/109's digital inputs is the ability to configure channel 1 (only) as a 2-kHz counter.

**Network Isolation.** The PointScan/109 has a single Ethernet (10BaseT) port that is isolated from the PC by 1200 Vrms, and a single RS-485 port that is also isolated by

1200 Vrms. This isolation protects PCs from damage caused by high voltages and protects the system from ground loops. The result is more reliable measurements in high-voltage environments.

**Field I/O Connection.** A high-density screw-terminal base supports direct connection of up to four RTD and four digital inputs. Each RTD input has three terminals: Excite,



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## Specifications & Ordering Information

Sense, and Return. Each digital input requires a positive DC or AC voltage (to indicate on ON condition), and all digital inputs are referenced to a common return or supply, which is connected to the negative side (ground) or positive side (DC+) of positive DC power source.

### Specifications

**Number of RTD Inputs:** 4  
**RTD Type:** 100 Ohm platinum, alpha = .00385 or .00392  
**Compatible Lead Configurations:** 2, 3, or 4 wire  
**Input Range:** -200° to +850°C  
**A/D Resolution:** 16 bits  
**Scaled Resolution:** 0.1°C  
**Full-Scale Accuracy @ 20°C:** 0.5°C  
**Span & Offset Temp. Coefficient:** ±25 ppm/°C  
**Excitation Current (Pulsed to Reduce Self Heating):** 250 µA  
**Max Lead Wire Resistance:** 100 Ohms per side, balanced  
**Input Protection:** ±25 VDC  
**Fastest Scan Rate (4 RTDs):** 700 ms\*  
**Fastest Scan Rate (4 DI):** 20 ms\*  
**Number of Digital Inputs:** 4  
**Nominal Digital Input Range:** 12/24 VDC/VAC  
**Guaranteed ON Voltage:** 9 VDC/VAC

**Max Input Voltage:** 30 VDC  
**Guaranteed OFF Voltage:** 5.0 VDC  
**Guaranteed OFF Current:** 1.4 mA  
**Input Resistance:** 3.6K Ohms  
**Nominal Input Current @ 24 VDC:** 6.7 mA  
**Filtered Mode ON/OFF Delay:** 25 ms  
**Filtered Mode Count Feature:** 10 Hz max  
**Fast Mode Count Feature:** 100 Hz max (2 kHz on channel 1)  
**Isolation:** 100 Vrms 1 minute  
**Ethernet Communications**  
**Number of Ethernet I/O Nodes:** 16,000  
**Ethernet Port on Each Module:** 10BaseT@10Mbps  
**Protocols Supported:** TCP/IP, MODBUS ASCII/RTU  
**Number of I/O per Node:** 256  
**Required Supply Voltage:** 10 to 30 VDC (0.75W typical)  
**Operating Temperature Range:** -30° to +70°C  
**Storage Temperature Range:** -40° to +85°C  
**Flammability (Module Plastic):** UL 94V-0 materials  
**Electrical Safety:** UL 508, CSA C22.2/14; EN61010-1 (IEC1010), CE  
**EMI Emissions:** FCC part 15, ICES-003, Class A; EN55022, CE  
**EMC Immunity:** EN50082-1 (IEC801-2, 3, 4) CE  
**Surge Withstand:** IEEE-472 (ANSI C37.90)  
**Vibration:** IEC68-2-6  
**Hazardous Locations:** UL 1604, CSA C22.2/213-M1987, (Class I, Div 2, Groups A, B, C, D), EN50021 (zone 2)

### Ordering Information

Description	Part No.
4-channel RTD (100 Ohm platinum) input with 4-channel (12/24 VDC/VAC) digital input module	PointScan/109
Optional hardcopy PointScan/100 series user's manual	1085-0901

For complete information on accessories and cables, visit [www.iotech.com/acc](http://www.iotech.com/acc)

### Related Products

Hardware	
PointScan/440	p. 265
PointScan/443	p. 268
Software	
KEPServerEX	p. 271
KEPServerEX Lite	p. 271

\* I/O register update time does not include external communications