

# Cryogenic Digital Thermometers

For CY670 Series Diode Sensors and Platinum Resistance Devices

CYD211 and  
CYD218 Series



CYD211 shown slightly smaller than actual size.

- **Single Input for Silicon Diode or RTD**
- **Large 5-Digit LED Display**
- **Retransmission Analog Output 0 to 10V or 4 to 20 mA**
- **RS232C Serial Interface and Alarm Relays**

The CYD211 temperature monitor provides the accuracy, resolution, and interface features of a benchtop temperature monitor in an easy to use, compact instrument. With appropriate sensors, the CYD211 measures temperature from 1.4 to 800 K and in difficult sensing conditions, including high vacuum and magnetic fields. Standard features on the CYD211 include alarms, relays, user-configurable analog voltage or current output, and a serial interface. The CYD211 is an ideal choice for liquified gas storage/monitoring, cryopump control, cryo-cooler, materials science applications, and for applications that require greater accuracy than thermocouples allow.

## Specifications

### Thermometry

**Number of Inputs:** 1

**Measurement Type:** 4-lead differential

**Excitation:** Constant current, 10  $\mu$ A or 1 mA

**Isolation:** Measurement is not isolated from chassis ground

### Supported Sensors:

**Diodes:** Silicon, GaAlAs;

**RTDs:** 100  $\Omega$  Platinum, 1000  $\Omega$  Platinum

### Sensor Type Selection:

Front panel selectable

### Temp. Range:

**Silicon Diodes:** 1.4 to 500 K

**100  $\Omega$  PT:** 30 to 800 K

**Input Connector:** DB-25  
**A/D Resolution:** 24-bit  
**Input Accuracy:**  $\pm 10$  mK @ 4.2 K  
**Msmt Resolution:** 0.6 mK @ 4.2 K  
**Maximum Update Rate:** 7 rdg per sec  
**User Curve:** One 200-point CalCurve or user curve

### Front Panel

**Display Type:** 5-digit LED  
**Display Units:** K,  $^{\circ}$ C,  $^{\circ}$ F, V, and  $\Omega$   
**Display Update Rate:** Twice per sec  
**Temperature Display Resolution:** 0.001 $^{\circ}$  from 0 to 99.999 $^{\circ}$ , 0.01 $^{\circ}$  from 100 to 999.99 $^{\circ}$ , 0.1 $^{\circ}$  above 1000 $^{\circ}$   
**Sensor Units Display Resolution:** Sensor dependent to 5 digits  
**Display Annunciators:** K,  $^{\circ}$ C,  $^{\circ}$ F, V $\Omega$

### Interface

**Serial Interface:** RS232C (protocol and sample programs included)

**Baud:** 9600

**Update Rate:** 7 readings per sec

**Connector:** 9-pin D style plug

**Alarms:** 2-high and low

**Settings:** High setpoint, low setpoint, dead band, latching or non-latching

**Actuators:** Display message, relays

**Relays:** 2

**Contacts:** Normally open (NO), normally closed (NC), and common (C)

**Contact Rating:** 30 Vdc at 1 A  
**Operation:** With high and low alarms  
**Connector:** DB-25 (included)  
**Analog Output:**  
**Settings:** Voltage or current, scale  
**Update Rate:** 7 readings per sec

	Voltage	Current
<b>Range</b>	0 to 10V	4 to 20 mA
<b>Accuracy</b>	$\pm 1.25$ mV	$\pm 2.5$ $\mu$ A
<b>Resolution</b>	0.3 mV	0.6 $\mu$ A
<b>Min Load</b>	500 $\Omega$	N/A

### General

**Ambient Temperature:** 15 to 35 $^{\circ}$ C (58 to 95 $^{\circ}$ F) at rated accuracy, 10 to 40 $^{\circ}$ C (50 to 104 $^{\circ}$ F) at reduced accuracy

**Power Requirement:** Unit comes with a 100 to 250 Vac transformer and 120 Vac power cord

**Dimensions:** 48 H x 96 W x 166 mm D (1.89 x 3.78 x 6.53")

**Mounting:** Panel mount into 45 H x 92 mm W (1.77 x 3.62") cutout

**Weight:** 0.65 kg (1.5 lb)

**OMEGACARE<sup>SM</sup>** extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.



## To Order

Model No.	Description
<b>CYD211</b>	Single input, 1/8 DIN, silicon diode monitor

### Accessories

Model No.	Description
<b>TP2111</b>	Single 1/4 DIN panel mount adaptor
<b>TP2112</b>	Dual 1/4 DIN adaptor

Comes complete with sensor mating connector, 120V line cord, and operator's manual.

**Note:** Units are calibrated at no additional cost.

For 220 Vac option, add suffix "-220" to model number (included European line cord), no additional charge.

**Ordering Example:** CYD211, single input monitor. OCW-3, OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.

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For CY670 Series Diode Sensors and Platinum Resistance Devices

## CYD218 Series Eight Inputs



- 8-Channel Input
- 8 Simultaneous Displays
- Range 1.4 to 800 K
- Serial Interface
- Alarms

The CYD218 Series has similar specifications to the CYD211 Series with the addition of 8 simultaneous displays. The displays are for silicon diodes or Pt RTD detectors, 16 high/low alarms, latching or non-latching relays, datalogging with memory, and printer output.

### Specifications (CYD218S, CYD218E)

**Input:** 8 silicon diodes or RTDs

**Output:** RS232 serial Interface, alarms, datalogging, printer support (IEEE-488, relays, and analog output for CYD218S)

**Data Memory:** 1500 point storage non-volatile memory or continuous to computer

**Silicon Diode:** CY670 Series

**Platinum Resistance Element:** 100  $\Omega$ , 1000  $\Omega$

**Sensor Excitation:** 10  $\mu$ A  $\pm$ 0.2% DC for CY670, 1 mA  $\pm$  0.3%

**Temperature Range:** 1.4 to 475 K for CY670, 1.4 to 800 K for Platinum RTD

**Precision Curve Storage:**

Curve 10 and DIN 43760

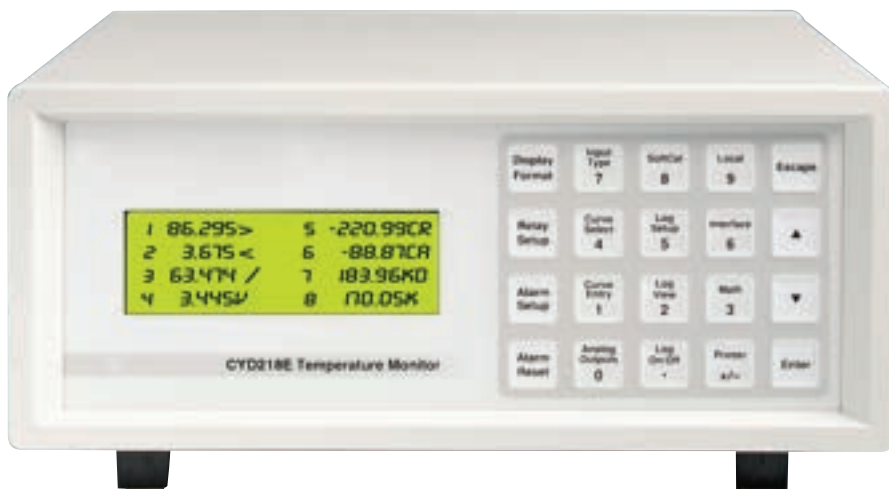
**Ambient Temperature:** 15 to 35°C (58 to 95°F)

**Electronic Accuracy:** 0.011 K at 4.2 K

**Display:** 5 LCD display for each of 8 inputs simultaneously displayed

**Display Resolution:** 0.001 K

**Units:** K, °C, V or  $\Omega$



CYD218E shown smaller than actual size.

**Measurement Type:** 4 lead  
**Update Rate:** 16 readings/sec  
**Power:** 100, 120, 220, 240 Vac; +5 to 10%, 50/60 Hz  
**Size:** 90 H x 217 W x 317 mm D (3.5 x 8.5 x 12") half rack  
**Weight:** 3 kg (6.6 lb)  
**(PT-100)**

**Temperature Range:** 14 to 873 K (673 for PT-111)

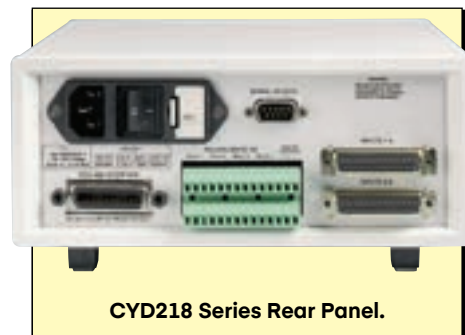
**Standard Curve:** DIN 43760

**Leads:** 0.25 D x 15 mm L (0.009 x 0.59")

**Accuracy:** Class B,  $\pm$ 0.3°C (at 0°C)

**Repeatability:**  $\pm$ 10 mK

**Thermal Response:**  $\approx$  2 sec



CYD218 Series Rear Panel.



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### To Order

Model No.	Description
CYD218E	8 RTD, 8 CY670, or 4 RTD and 4 CY670 temperature monitor, simultaneous display, RS232, datalogger, and printer output
CYD218S	CYD218E with IEEE-488, relays, analog output

### Accessories (Platinum Resistance Temperature Devices - RTD)

Model No.	Description
PT-102	RTD, 14 to 873 K (2 x 20.3 mm long, 250 mg weight)
PT-103	RTD, 14 to 873 K (1.8 x 12.1 mm long, 120 mg weight)
PT-111	RTD, 14 to 673 K (1.8 x 5 mm long, 52 mg weight)

Comes complete with sensor mating connector, 120V line cord, and operator's manual.

**Note:** Units are calibrated at no additional cost.

**Ordering Examples:** CYD218E, monitor with eight inputs and PT-102, platinum RTD.

OCW-3, OMEGACARE<sup>SM</sup> extends standard 1-year warranty to a total of 4 years.