Cryogenic Digital Thermometers
For CY670 Series Diode Sensors and Platinum Resistance Devices

**CYD211 and CYD218 Series**

- **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 µA or 1 mA
- **Isolation:** Measurement is not isolated from chassis ground

**Supported Sensors:**
- **Diodes:** Silicon, GaAlAs;
  RTDs: 100 Ω Platinum, 1000 Ω Platinum

**Sensor Type Selection:**
- Front panel selectable

**Temp. Range:**
- **Silicon Diodes:** 1.4 to 500 K
  100 Ω PT: 30 to 800 K

**Input Connector:** DB-25
- **A/D Resolution:** 24-bit
- **Input Accuracy:** ±0.5 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, °C, °F, V, and Ω
- **Display Update Rate:** Twice per sec
- **Temperature Display Resolution:**
  - 0.001° from 0 to 99.999°, 0.01° from 100 to 999.99°, 0.1° above 1000°
- **Sensor Units Display Resolution:** Sensor dependent to 5 digits
- **Display Annunciators:** K, °C, °F, V, Ω

**Interface**
- **Serial Interface:** RS232C (protocol and sample programs included)
  - **Baud:** 9600
  - **Update Rate:** 7 readings per sec
  - **Connector:** 9-pin D style plug
- **Alarms:**
  - **Settings:** High setpoint, low setpoint, dead band, latching or non-latching
- **Actuators:** Display message, relays

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

<table>
<thead>
<tr>
<th>Range</th>
<th>Voltage</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 to 10 V</td>
<td>±1.25 mV</td>
<td>±2.5 µA</td>
</tr>
<tr>
<td>4 to 20 mA</td>
<td>0.6 µA</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**General**
- **Ambient Temperature:** 15 to 35°C (58 to 95°F) at rated accuracy, 10 to 40°C (50 to 104°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)

**To Order**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYD211</td>
<td>Single input, 1/4 DIN, silicon diode monitor</td>
</tr>
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</table>

**Accessories**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>TP2111</td>
<td>Single 1/4 DIN panel mount adaptor</td>
</tr>
<tr>
<td>TP2112</td>
<td>Dual 1/4 DIN adaptor</td>
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</tbody>
</table>

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, OMEGACARESM 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 Ω, 1000 Ω
Sensor Excitation: 10 μA ±0.2% DC for CY670, 1 mA ± 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 Ω

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, ±0.3°C (at 0°C)
Repeatability: ±10 mK
Thermal Response: ≈ 2 sec

To Order

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<tr>
<td>CYD218E</td>
<td>8 RTD, 8 CY670, or 4 RTD and 4 CY670 temperature monitor, simultaneous display, RS232, datalogger, and printer output</td>
</tr>
<tr>
<td>CYD218S</td>
<td>CYD218E with IEEE-488, relays, analog output</td>
</tr>
</tbody>
</table>

Accessories (Platinum Resistance Temperature Devices - RTD)

<table>
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<tr>
<th>Model No.</th>
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<tbody>
<tr>
<td>PT-102</td>
<td>RTD, 14 to 873 K (2 x 20.3 mm long, 250 mg weight)</td>
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<tr>
<td>PT-103</td>
<td>RTD, 14 to 873 K (1.8 x 12.1 mm long, 120 mg weight)</td>
</tr>
<tr>
<td>PT-111</td>
<td>RTD, 14 to 673 K (1.8 x 5 mm long, 52 mg weight)</td>
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</tbody>
</table>

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™ extends standard 1-year warranty to a total of 4 years.