# 1- or 2-Channel Circular Recorders

## CT5100 Series

MADE IN USA | 2 YEAR WARRANTY | CE
**Optional†**

- ✔ **254 mm (10") Chart**
- ✔ **1- or 2-Pen Versions**
- ✔ **Programmable Inputs: Thermocouple, RTD, DC Current, or Voltage**
- ✔ **4-Digit, 14 mm H (0.56") LED Display**

CT5100 Series circular chart recorders can measure and display up to 2 process variables. Choose from a variety of programmable inputs. All recorder and alarm functions are easily configured with the 3 front-panel keys. Required panel depth is only 64 mm (2.5"), with only a 33 mm (1.3") protrusion.



**CT5110 shown smaller than actual size.**

## Specifications

### Inputs:
**Input Types/Range:**
  **Thermocouple:** J, K, T, R, S
  **RTD:** 100 Ω platinum, 0.00385 Ω/Ω/°C
  **DC Current:** 0 to 20 mA, 4 to 20 mA; internal 4.7 Ω shunt resistor
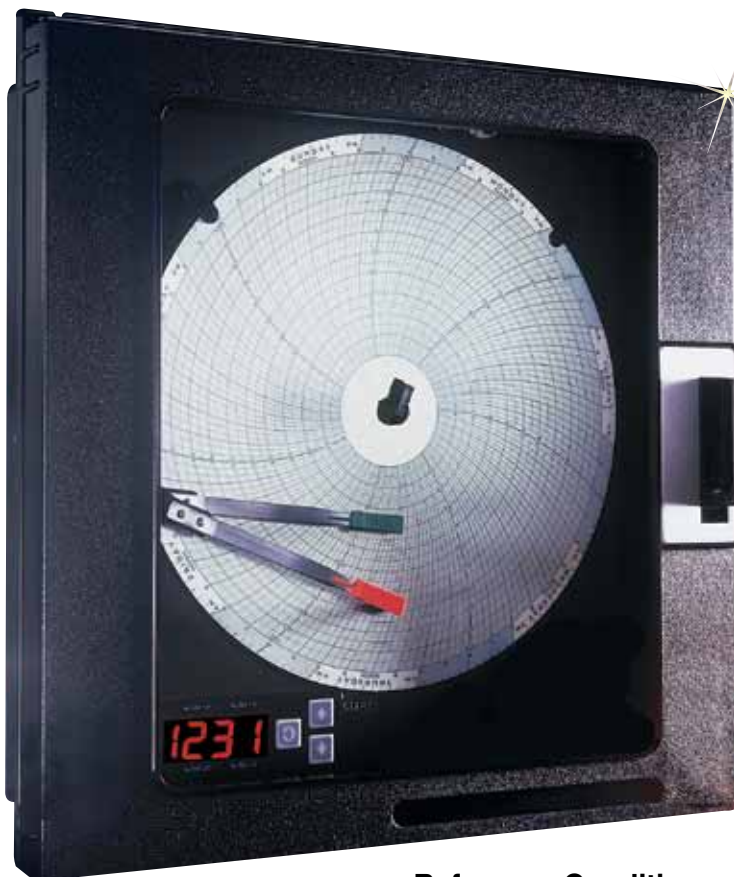  **DC Voltage:** 0 to 25 mV, 0 to 50 mV, 10 to 50 mV, 0 to 5 V, 1 to 5 V
**Impedance:** >100 MΩ for T/C and mV inputs, 100 kΩ for 5 V inputs, 4.7 Ω for µA inputs
**RTD Excitation Current:** 150 µA, typical
**Input Scan Rate:** 1 scan per second for non-RTD inputs; 1 scan per 1.2 seconds for RTD inputs
**Input Correction:** Offset adjustment: 999 to 999 units
**Sensor Fault Detection:** Display goes to "SnSr" and pen goes up-scale if a sensor break is detected. No sensor break can be detected for zero-based volt and milliamp ranges. Display goes to "Hi" 10% above span; display goes to "Lo" 10% below span or zero, whichever is higher.

### Input Performance
### Under Reference Conditions:
**Measurement Error:** Type J, K, T, R, S and RTD: ±0.25% of span ±1 degree; mA, mV and Vdc: ±0.25% of scaled span plus 1 least-significant digit
**Cold-Junction Compensation Error:** ±0.2°C @ 25°C (±0.36°F @ 77°F)
**Cold-Junction Compensation Rejection:** 0.04°/°C deviation from 25°C (0.07°/°F from 77°F)
**Linearization Error:**
  **T/Cs:** ±0.25°C (0.45°F) typical, ±0.5°C (0.9°F) worst case
  **RTDs:** ±0.1°C (0.18°F) typical, ±0.3°C (0.54°F) worst case
**Ambient Temperature Error:** ±0.01% of span per °C (1.8°F) deviation from 25°C (77°F)
**Common Mode Rejection:** >120 dB @ 50/60 Hz, 260 Vac max.
**Normal Mode Rejection:** 85 db minimum @ 60 Hz or greater
**Isolation:** 350 Vac, 500 Vdc; inputs share a common signal ground

### Reference Conditions:
**Ambient Temperature:** 25°C (77°F)
**Relative Humidity:** 60 to 70% RH
**Supply Voltage:** 115 Vac, 60 Hz
**Source Resistance:** <10 Ω for T/C input
**Lead Resistance:** <0.1 Ω (Pt100)

### Recording:
**Pen Type:** Disposable fiber tip
**Pen Color:** Pen 1—red; pen 2—green
**Chart Size:** 254 mm D (10")
**Chart Drive:** Stepper motor
**Chart Rotation:** User configurable: 8 hours, 12 hours, 24 hours, 48 hours or 7 days
**Chart Span:** Bottom and top of span, -9999 to 9999 units

### Recording Performance:
**Chart Recording Accuracy:** 0.5% of chart span reference accuracy
**Chart Rotation Accuracy:** ±0.5% of rotation time, assuming all backlash removed

### Operator Interface
**Display:** 4-digit, 14 mm H (0.56"), red, 7-segment, LED display
**Status Indicators:** 5 red LED alarm status indicators, 1 green LED pen 2 indicator
*†Refer to footnote on next page for CE ordering information.*

## Ranges

| Sensor Type | Sensor Specs | Code | Reference Range °C | Reference Range °F |
|---|---|---|---|---|
| T/C | Iron-constantan | J | 0 to 760 | 0 to 1400 |
| | CHROMEGA®-ALOMEGA® | K | 0 to 1360 | 0 to 2500 |
| | Copper-constantan | T | -200 to 400 | -330 to 752 |
| | Platinum 13% rhodium-platinum | R | 200 to 1650 | 400 to 3000 |
| | Platinum 10% rhodium-platinum | S | 200 to 1650 | 400 to 3000 |
| RTD | 100 Ω platinum, 0.00385 Ω/Ω/°C | Pt100 | -140 to 400 | -220 to 752 |

**Keypad:** 3 keys for programming and unit operation

**Display Modes:** Normal: process value(s) or blank

### Alarms
**Number:** Up to 2 process alarms for each of 2 inputs

**Type:** Process high or low

**Limit Device:** Optional high/low limits for each input with latching output; normally open output latches open; red reset button to the right of the display

**Hysteresis:** Fully adjustable, 0 to 200 units, single sided

**Security:** Alarm setpoint changes can be prohibited

**Sensor Fault Action:** Alarm works normally in "Hi" and "Lo" conditions; alarm relays are de-energized in a "SnSr" sensor break condition

### Relay Outputs:
**Relays:** SPDT; contacts rated 5 A resistive @ 115 Vac, 2.5 A resistive @ 230 Vac, ⅛ hp @ 230 Vac (single phase), 250 VA @ 115/230 Vac

### Power Requirements:
**Line Voltage:** 90/264 Vac, 50/60 Hz; optional: 20 to 50 Vac, 50/60 Hz, or 22 to 65 Vdc

**Power Consumption:** 18 VA max

### Construction:
**Enclosure:** Injection-molded Noryl® case and cover with acrylic window

**NEMA Rating:** NEMA 3 (IP54)

**Conduit Openings:** 3 openings on the right side

**Mounting:** Panel or wall

**Overall Dimensions:** 355.6 W x 355.6 H x 96.5 mm D (14 x 14 x 3.8")

**Panel Cutout:** 322.58 W x 322.58 mm H (12.7 x 12.7")

**Panel Depth:** 64 mm (2.5")

**Panel Protrusion:** 33 mm (1.3")

**Weight:** 8.8 kg (15 lb) max

**Retrofit:** With adaptor plate, will fit CT7000 cutout



**CT5100 shown smaller than actual size.**

### Environmental and Operating Conditions:
**Operating Temperature:** 0 to 50°C (32 to 122°F)

**Storage Temperature:** -40 to 65°C (-4 to 149°F)

**Humidity:** 10 to 90% RH, non-condensing

### General Reference Data:
**Data Backup:** EEPROM for configuration parameters and calibration data; EEPROM for alarm setpoints

### Approvals and Compliance:
**Safety:**
**UL Approved for USA:** UL 1092, UL 916 and QUXY, pending
**UL Certified for Canada:** CSA Spec 142, pending
**Limit/Device:** FM, pending

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

### Accessories

| Model No. | Description |
|---|---|
| **CT7000-GREEN** | Green pens, pkg. of 5, channel 2 only |
| **CT7000-RED** | Red pens, pkg. of 5, channel 1 only |
| **CT7000C-0-100/24** | Circular paper, 100 qty., 24-hr |
| **CT7000C-0-100/7** | Circular paper, 100 qty., 7-day |
| **CT7000C-0-300/24** | Circular paper, 100 qty., 24-hr |
| **CT7000C-0-300/7** | Circular paper, 100 qty., 7-day |
| **CT7000C-0-2500/24** | Circular paper, 100 qty., 24-hr |
| **CT7000C-GENERIC/24HR** | Circular paper, 100 qty., 24-hr |

***Note:** Other ranges available. Consult Sales for details.*

## To Order *Visit omega.com/ct5100 for Pricing and Details*

| Model No. | Description |
|---|---|
| **CT5100** | 1-pen recorder |
| **CT5101** | 1-pen recorder with 1 alarm relay |
| **CT5102** | 1-pen recorder with 2 alarm relays |
| **CT5100-LOCK** | 1-pen recorder with door lock |
| **CT5110** | 2-pen recorder |
| **CT5112** | 2-pen recorder with 1 alarm relay per channel |
| **CT5114** | 2-pen recorder with 2 alarm relays per channel |
| **CT5110-LOCK** | 2-pen recorder with door lock |

*Comes complete with package of paper, 1 pen per channel and operator's manual.*
*For transmitter power supply, add "**-XPS**" to model number.*
*To order CE approval, add suffix "**-CE**" to model number.*
***Ordering Examples: CT5100,** 1-pen recorder and **CT7000C-0-100/7,** 100 sheets of chart paper.*
***CT5102,** 1-pen recorder with 2 alarm relays.*
***OCW-1** OMEGACARE^SM extends standard 2-year warranty to a total of 3 years.*

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