

1- or 2-Channel Circular Recorders

CT5100 Series



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.

Specifications

Inputs:

Input Types/Range:

Thermocouple: J, K, T, R, S

RTD: 100 Ω platinum, 0.00385 $\Omega/\Omega/^\circ\text{C}$

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 M Ω for T/C and mV inputs, 100 k Ω for 5 V inputs, 4.7 Ω for μA inputs

RTD Excitation Current:

150 μA , typical

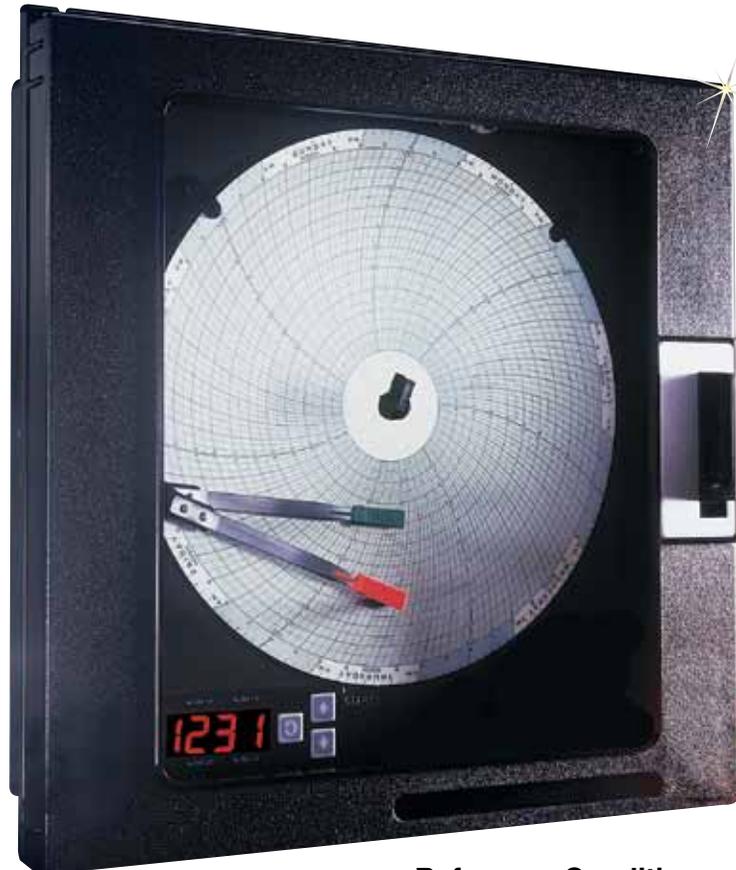
Input Scan Rate: 1 scan per second for non-RTD inputs; 1 scan per 1.2 seconds for RTD inputs

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.



CT5110 shown smaller than actual size.

Input Performance

Under Reference Conditions:

Measurement Error:

Type J, K, T, R, S and RTD: $\pm 0.25\%$ of span ± 1 degree; mA, mV and Vdc: $\pm 0.25\%$ of scaled span plus 1 least-significant digit

Cold-Junction Compensation Error:

$\pm 0.2^\circ\text{C}$ @ 25°C ($\pm 0.36^\circ\text{F}$ @ 77°F)

Cold-Junction Compensation Rejection:

0.04 $^\circ\text{C}$ deviation from 25°C (0.07 $^\circ\text{F}$ from 77°F)

Linearization Error:

T/Cs: $\pm 0.25^\circ\text{C}$ (0.45 $^\circ\text{F}$) typical, $\pm 0.5^\circ\text{C}$ (0.9 $^\circ\text{F}$) worst case

RTDs: $\pm 0.1^\circ\text{C}$ (0.18 $^\circ\text{F}$) typical, $\pm 0.3^\circ\text{C}$ (0.54 $^\circ\text{F}$) worst case

Ambient Temperature Error:

$\pm 0.01\%$ of span per $^\circ\text{C}$ (1.8 $^\circ\text{F}$) 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:

$\pm 0.5\%$ 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
	CHROMEGLA®-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, ½ 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")

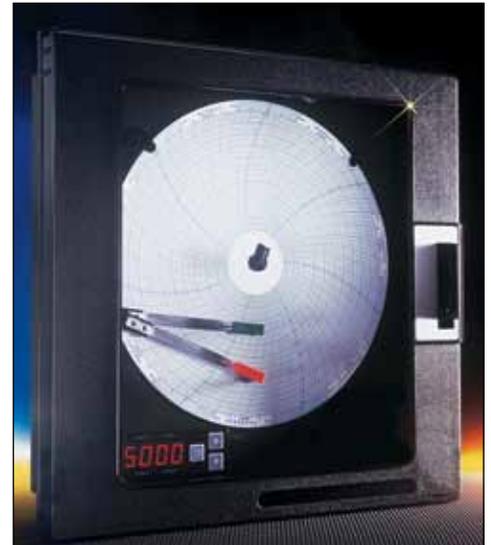
Panel Cutout: 322.58 W x 322.58 mm H (12.7 x 12.7")

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

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

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.