

1- or 2-Channel Circular Recorder/Controllers

CT8100
Starts at
\$1272



- ✓ 305 mm (12") Chart
- ✓ 1- or 2-Pen Versions
- ✓ Programmable Inputs:
Thermocouple, RTD,
DC Current or Voltage
- ✓ Control Outputs
- ✓ 4-Digit, 14 mm (0.56") High
Display per Pen



CT8110, \$1514,
shown smaller
than actual size.

The CT8000 Series circular chart recorder/controllers measure, display, and control up to 2 process variables. Choose from a variety of programmable inputs. All recorder, control, and alarm functions are easily configured via the front keypad. The user can choose 1 of 2 alarm settings for each pen. RS485 communications and NEMA 4X (IP66) are also available. Control outputs include SSR driver, 4 to 20 mA, and relays. With the 4 to 20 mA option, the user can retransmit the process value.

Specifications

Inputs

Input Types/Range:

Thermocouple: J, K, T, R, S, E, B, N, C

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

DC Current: 0 to 20 mA, 4 to 20 mA.
external shunt resistor, 2.5 Ω or 250 Ω
(not included)

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; 2.5 Ω or
250 Ω for mA inputs

RTD Excitation Current:

330 μA , typical

Input Scan Rate: 1 scan per second

Input Correction:

Offset adjustment -999 to 999 units

Remote Setpoint: 0 to 5 V, 1 to 5 V

Sensor Fault Detection:

Sensor break on all T/Cs,
RTDs, 1 V, 1 to 5 V, 4 to 20 mA, and
millivolt inputs. No sensor break can
be detected for zero-based volt and milliamp
ranges. Display goes to
"SnSr" and pen goes up-scale if a
sensor break is detected.

Display goes to "Hi" 5% above span;
display goes to "Lo" 5% below scan.

Transmitter Power Supplies:

One isolated 50 mA @ 24 Vdc
supply available

Input Performance

Performance Under

Reference Conditions:

Measurement Error:

Type J, K, T, E, N, C T/Cs and RTDs:
 $\pm 0.25\%$ of span ± 1 degree.

Type R, S, B, C T/Cs: $\pm 0.25\%$ of span
@ 25 $^\circ\text{C}$ (77 $^\circ\text{F}$) mVdc and Vdc; $\pm 0.25\%$
of scaled span plus 1 least-significant digit

Cold-Junction

Compensation Error:

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

Cold-Junction

Compensation Rejection:

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

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,
 $\pm 0.3^\circ\text{C}$ (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 $^\circ\text{C}$ (77 $^\circ\text{F}$)

Common-Mode Rejection:

90 dB minimum; 24 Vac maximum for
RTD input; 115 Vac maximum all others

Normal-Mode Rejection:

85 dB minimum @ 60 Hz or greater
isolation:

RTD inputs 24 Vac; all other inputs
115 Vac; inputs share a common
signal ground

Reference Conditions

Ambient Temperature: 25 $^\circ\text{C}$ (77 $^\circ\text{F}$)

Relative Humidity: 60 to 70%

Recording

Pen Type: Disposable fiber tip

Pen Color: Pen 1—red; pen 2—green

Chart Size: 305 mm (12")

Chart Drive: Stepper motor

Chart Rotation: User configurable:

0.1 to 999 hours in 0.1-hour increments

Chart Span: Bottom and top of span,
-9999 to 9999 units

Filtering: 1 to 20 scans averaging
(affects display and recording)

Recording Performance

Chart Resolution Accuracy:

0.5% of chart span reference accuracy

Resolution: 0.15% of chart span

Deadband: 0.3% of chart span

Response Time:

20 seconds for full scale travel

Chart Rotation Accuracy:

$\pm 0.5\%$ of rotation time, assuming all
backlash removed

Operator Interface

Display: 4-digit, 0.56" (14 mm) high,
red, 7-segment, LED display

Resolution:

T/C and RTD: 0.1 and 1 $^\circ$

mV, V and mA: 0.001, 0.01, 0.1 and 1 unit

Status Indicators:

Recorders: ALRM1 and ALRM2; red LEDs.

Controllers: MAN, OUT1, OUT2, ALRM;
yellow and red LEDs

Keypad: 3 keys for programming and unit
operation; 1 or 2 auto/manual keys on
controllers

Display Modes:

Recorders: Process value(s)

Controllers: Process value(s) or
deviation(s), with or without setpoint
sequentially

Alarms

Number: Up to 2 process alarms for each of 2 inputs

Type:

Recorder: Process high or low.

Controllers: Process, deviation, or band

Hysteresis: Fully adjustable, 0 to 300 units, straddles alarm point

Security: Alarm setpoint changes can be prohibited

Sensor Fault Action: Alarms work normally in "HI" and "LO" conditions; alarm relays are de-energized in a "SnSr" sensor break condition

ON/OFF Outputs

On/Off Outputs:

Assignable to alarm or control outputs

Relays: SPDT; contacts rated 5 A resistive @ 115 Vac, 2.5 A resistive @ 230 Vac, 1/2 hp at 230 Vac (single phase), 250 VA @ 115/230 Vac

Solid State Relay Driver:

Open-collector output; can provide 40 mA at 3 Vdc or 20 mA at 4 Vdc; short circuit current is limited to 100 mA

Current Output

Drivers: Assignable to process value or setpoint retransmission or control outputs

Output Span:

0 to 20 mA or 4 to 20 mA, nominal

Resolution: 0.02% of 20 mA;

12 bits over a 0 to 25.6 mA span

Accuracy: ±0.1% to 20 mA

span reference accuracy

Compliance: 650 Ω load

Power Requirements

Line Voltage: 115/230 Vac, ±10%,

50/60 Hz (230 Vac is optional)

Power Consumption: 25 VA max

Construction

Enclosure: Gasketed cover, case and windows; structural foam case and cover with plastic or glass window area; door lock available

NEMA Rating: NEMA 3 (IP54) standard

Conduit Openings: 4 openings standard, 2 additional as required

Mounting:

Panel or wall, or optional pipe mounting

Overall Dimensions:

358.65 W x 425.96 H x 196.85 mm D

(14.12 x 16.77 x 7.75")

Panel Cutout: 322.58 W x 322.58 mm H

(12.7 x 12.7")

Panel Depth: 133.35 mm (5.25")

Panel Protrusion: 63.5 mm (2.5")

Weight: 9 kg (20 lb) max

Environmental and Operating Conditions

Operating Temperature:

0 to 55°C (32 to 131°F)

Storage Temperature:

-40 to 65°C (-4 to 149°F)

Humidity:

10 to 90% RH, non-condensing

Digital Communications

Communications Port: RS485 serial

communications, half-duplex

Bit Rate: 9600, 4800, 2400,

1200, 600, 300 baud

Configuration:

Monitor: Read only.

Normal: Read and write

Address: User configurable;

0 to 99 for each pen

General Reference Data

Data Backup:

Battery-backed SRAM for all data

Battery Backup:

5 years minimum life, 10 years typically

Approvals and Compliance

Safety: UL approved for USA: UL 1092,

UL 916 and QUXY, pending, UL certified for

Canada: CSA Spec 142, pending

Thermocouple Ranges

Sensor Type	Sensor Specs	Code	Reference Range °C	Reference Range °F
TC	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 750
	Platinum 13% rhodium-platinum	R	200 to 1650	400 to 3000
	Platinum 10% rhodium-platinum	S	200 to 1650	400 to 3000
	CHROMEGA®-constantan	E	0 to 750	0 to 1400
	Platinum 30% rhodium-platinum 6% rhodium	B	200 to 1800	400 to 3300
	OMEGA-P®-OMEGA-N® (nicosil-nisil)	N	0 to 1300	0 to 2370
	Tungsten 5% rhenium-tungsten 26% rhenium Pt100	C	200 to 2300	390 to 4170
RTD	100 Ω 0.00.385	Pt100	-140 to 400	-220 to 750

 **MOST POPULAR MODELS HIGHLIGHTED!**

Remember to Order Extra Paper and Pens!

To Order (Specify Model Number)

Model No.	Price	Description
CT8100	\$1272	1-pen circular recorder
CT8101	1321	1-pen circular recorder with 1 relay
CT8100-MA1	1395	1-pen circular recorder with one 4 to 20 mA output
CT8110	1514	2-pen circular recorder
CT8112	1722	2-pen circular recorder with 2 relays
CT8201	1588	1-pen circular recorder/controller with 1 relay
CT8202	1637	1-pen circular recorder/controller with 2 relays
CT8200-D1	1583	1-pen circular recorder/controller with 1 SSR driver
CT8200-MA1	1669	1-pen circular recorder/controller with one 4 to 20 mA output
CT8222	2211	2-pen circular recorder/controller with 2 relays
CT8220-D2	2201	2-pen circular recorder/controller with 2 SSR drivers
CT8220-MA2	2329	2-pen circular recorder/controller with two 4 to 20 mA outputs

Comes complete with package of charts, 1 pen per channel and operator's manual.

For RS485 communications, add suffix "-RST" to model number and add \$200

to price. For 230 Vac option, add suffix "-230V" to model number and add \$65 to price.

For glass window NEMA 4X, add suffix "-4X" to model number and add \$150 to price.

For transmitter power supply, add "-XPS" to model number and add \$125 to price.

Ordering Examples: CT8100, 1-pen circular recorder, CT8000C-0-100/24, 100 sheets of chart paper, \$1272 + 21 = \$1293. CT8112, 2-pen circular recorder with 2 relays, \$1722.

OMEGACARESM extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OCW-1 OMEGACARESM extends standard 2-year warranty to a total of 3 years (\$130).

Accessories

Model No.	Price	Description
CT7000-GREEN	\$25	Green pens, pkg. of 5
CT7000-RED	25	Red pens, pkg. of 5
CT8000C-0-100/24	21	Circular paper, 100 qty. 24-hour
CT8000C-0-100/7	21	Circular paper, 100 qty. 7-day
CT8000C-0-300/24	21	Circular paper, 100 qty. 24-hour
CT8000C-0-300/7	21	Circular paper, 100 qty. 7-day
CT8000C-0-500/24	21	Circular paper, 100 qty. 24-hour
CT8000C-0-800/24	21	Circular paper, 100 qty. 24-hour
CT8000C-0-1000/24	21	Circular paper, 100 qty. 24-hour
MS-1301	125	Reference Book: Assembly Automation and Product Design

Other ranges available; consult factory for details.



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