1- or 2-Channel Circular Recorder/Controllers

CT8100
Starts at
$1272

2 YEAR WARRANTY · **MADE IN USA** · **CE**

- ↙ **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**

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.

OMEGA CARE℠ Extended Warranty Program

CT8110, $1514, shown smaller than actual size.

Specifications
Inputs
Input Types/Range:
Thermocouple: J, K, T, R, S, E, B, N, C
RTD: 100 Ω Platinum, 0.00385 Ω/ Ω/°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 MΩ for T/C and mV inputs; 100 kΩ 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: ±0.25% of span ±1 degree.
Type R, S, B, C T/Cs: ±0.25% of span @ 25°C (77°F) mVdc and Vdc; ±0.25% of scaled span plus 1 least-significant digit
Cold-Junction Compensation Error:
±0.2°C (0.36°F) @ 25°C (77°F)
Cold-Junction Compensation Rejection:
0.04°/°C (0.07°/°F) deviation from 25°C (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 (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:
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°C (77°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:
±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°
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, ⅛ 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® (nicrosil-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

Remember to Order Extra Paper and Pens!

▭ *MOST POPULAR MODELS HIGHLIGHTED!*

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.**

OMEGACARE^SM extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. **OCW-1** *OMEGACARE^SM 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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