

Circular Recorders

CT7000 Series



- ✓ 1- or 2-Pen Versions
- ✓ 254 mm (10") Chart
- ✓ Accepts Thermocouple, RTD, V, mV, or mA Signals
- ✓ Programmable Inputs, Speed, and Alarms
- ✓ 4-Digit Display per Pen
- ✓ Isolated Inputs

The CT7000 microprocessor-based circular chart recorder measures, displays, records, and controls up to 2 process variables from a variety of inputs. Record and control functions, alarm settings, and other parameters are easily configured via the 3 front keys. The CT7000 offers a 254 mm (10") circular chart and 4-digit LED display(s). Display resolution and filters are user configurable.

Each pen has 2 alarm settings. Alarms are user configurable as process high or low, deviation from setpoint (above or below), or deviation band (open or closed within band). Alarm hysteresis adjustment is also user configurable. Optional control capability includes on/off and PID control. Output type selections include SPST relay, SSR driver, and 4 to 20 mA DC (user configurable to 0 to 20 mA DC). Also, 4 to 20 mA DC outputs may be used for retransmitting the process value. Digital communications is optional.

Specifications

Input Ranges

Thermocouple:

- J:** 0 to 760°C (0 to 1400°F)
- K:** 0 to 1360°C (0 to 2500°F)
- T:** -220 to 400°C (-330 to 750°F)
- E:** 0 to 750°C (0 to 1400°F)
- N:** 0 to 1300°C (0 to 2370°F)
- R:** 200 to 1650°C (400 to 3000°F)
- S:** 200 to 1650°C (400 to 3000°F)
- B:** 200 to 1800°C (400 to 3300°F)
- C:** 200 to 2300°C (390 to 4170°F)

RTD:

100 Ω (0.00385 Ω/Ω/°C),
-140 to 400°C (-220 to 750°F)

Volts DC: 0 to 25 mV, 0 to 50 mV,
10 to 50 mV, 0 to 5 V, 1 to 5 V



Low-noise thermocouple probes sold separately, GKQSS-316G-12, GTQSS-316G-12

Milliamps: 4 to 20 mA DC (via appropriate external shunt resistor)

Performance

Measurement Error Limit

Thermocouple Types J, K, T, E, N and RTD: ±0.25% of reading + 1° @ 25°C (77°F)

Type R, S, B, C Thermocouples: ±0.25% of span @ 25°C (77°F)

mVdc and Vdc: ±0.25% of scaled span plus 1 least-significant digit

Ambient Temperature Error

Limit: 0.01% of span per °C (1.8°F) deviation from 25°C (77°F)

Process Value Output Error Limit: ±0.5% of span

Record Error Limit: ±0.5% of chart span or better, typically; ±1.0% of chart span maximum

Display/Record Filter: 1 to 20 scans averaging

Pen Resolution: 0.15% of chart span

Recording Deadband: 0.3% of chart span

Process Filter:

1 to 20 scans averaging

Pen Response (Full Scale Deflection): 20 s

Display Resolution

T/C and RTD: 0.1 or 1°

mVdc and Vdc: 0.001, 0.01, 0.1 or 1

Calibration Drift:

Self-compensating for ambient temperature; all calibration values are stored in memory

Sensor Fault Detection: Displays "Hi" or "Lo" process input (10% above or below range) and sensor break "SnSr"; pen action on error condition is user configurable to 0 or 100% of chart span; on/off outputs go "off"; proportional outputs go to user-defined value from 0 to 100%

Record Chart: 254 mm (10") circular chart

Chart Range: -9999 to 9999

Chart Drive: DC stepper motor

Chart Rotation:

User configurable from 0.1 to 999.9 hours per revolution

Pen Type: Disposable fiber-tip

Pen Color: Pen 1, red; pen 2, green

Display**Digital Displays:**

2 possible: 1 per installed pen; (4) 7-segment digits, 14 mm (0.56") high, red LEDs, automatic (-) positioning, decimal point positioning

Alarm Display:

2 alarm indications possible per pen; ALRM1 and ALRM2; red LEDs; single ALRM indication provided for controller pens

Status Display:

LED indicates Out 1, Out 2, Man, Ramp, Soak, Seg 1 through Seg 6, process units as applicable

Alarms: Process, deviation (with hysteresis), deviation band

Outputs (Optional)

Relay: SPST, 115 Vac: 250 VA, 230 Vac: 250 VA

SSR Driver: Open-collector output, short circuit protected @ 100 mA maximum, provided 4 Vdc at 20 mA or 3 Vdc @ 40 mA

Current:

0 to 20 or 4 to 20 mA DC into 650 Ω max (control or process value)

Control Parameters**Proportional Band Output:**

1 to 3000 units

Manual Reset (Integral):

-1500 to 1500 units

Auto Reset (Integral):

0 to 100 repeats/min

Rate (Derivative): 0 to 10 min

Cycle Time Output: 1 to 240 s

Physical**Dimensions:**

335 H x 384 W x 92 mm D (13.2 x 15.1 x 3.6")

Panel Cutout:

321 H x 343 mm W (12.6 x 13.5")

Weight: 9.1 kg (20 lb), maximum

Vibration: 0.5 to 100 Hz @ 0.2 g

Keypad: Located on front cover, tactile feedback membrane keys

Enclosure: Gasketed cover; black, structural foam

Windows: Plexiglass standard

Memory Backup:

Battery, 5-year minimum life

Common-Mode Rejection:

90 dB minimum; 24 Vac maximum for RTD input; 15 Vac maximum for other inputs

Normal-Mode Rejection:

85 dB minimum @ 60 Hz or greater

**Line Voltage:**

115/230 Vac ±10%, 50/60 Hz

Power Consumption: 25 VA max

Operating Temperature:

0 to 55°C (32 to 131°F)

Storage Temperature:

-40 to 65°C (-40 to 149°F)

Humidity:

0 to 90% RH, non-condensing

Transmitter Power Supply:

Provides up to 40 mA at 24 Vdc

ESD: No effect from 5000 V static charge over surface area



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

To Order

Model No.	Description
CT7100	Recorder, circular, 1 pen
CT7110	Recorder, circular, 2 pens
CT7102	Recorder, 1 pen, 2 relays
CT7102-XPS	Recorder, 1 pen, 2 relays, transmitter power supply
CT7114	Recorder, 2 pens, 4 relays
CT7202	Recorder, control, 1 pen, 2 relays
CT7224	Recorder, control, 2 pens, 4 relays

Comes complete with operator's manual, pens and 100 charts. OMEGACARESM extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order.

Accessories

Model No.	Description
CT7000-GREEN	Pens, green, package of 5, channel 2 only
CT7000-RED	Pens, red, package of 5, channel 1 only
CT7000C-0-100/24	Paper, circular, 100 qty
CT7000C- (range/time*)	Paper, circular, 100 qty

* Other standard ranges: 0-600/24, 0-400/24, 0-200/24, 30-230F/24, 0-100/7, 0-1000/24, 0-300/24, 0-300/7, 0-800/24, 0-2000/24, -50-50/7, 0-200/7, 0-2500/24, 0-1200/24, 60-180F/24, 0-14PH/24, -50-50/24.

Note: Recorder may be supplied with other configurations of options.

Ordering Examples: CT7110, 2-pen circular recorder, CT7000-RED, CT7000-GREEN, spare pens, CT7000C-0-100/24, spare paper, and CT7202, recorder control, 1 pen, 2 relays.

OCW-1, OMEGACARESM extends standard 2-year warranty to a total of 3 years.