

Circular Chart Recorder

CT87 Series



- ✓ Easy-to-Read 152 mm (6") Circular Chart
- ✓ Type J Thermocouple Input
- ✓ Economical
- ✓ LED Digital Display of Temperature
- ✓ Front Panel Controls for Fast, Easy Setup
- ✓ Select From 3 Temperature Ranges
- ✓ 6-Hour, 24-Hour, or 7 Day Chart Rotation
- ✓ Select for Single or Continuous Chart Rotation
- ✓ Free Standing or Wall Mounted
- ✓ Fold Down Carrying Handle
- ✓ Durable Polycarbonate Case
- ✓ Plug-In SMP Connection for J Thermocouple
- ✓ Adaptor for 120 Vac Operation (220 Vac Optional)
- ✓ Battery Back-Up for Power Interruptions

CT87LF or CT87LC

- ✓ Low Temperature Recorders
- ✓ Typical Temperature Measurement Applications
- ✓ Freezers
- ✓ Refrigerators
- ✓ Environmental Chambers
- ✓ Room Temperatures

CT87LC Ranges

- ✓ -40 to 0°C, -30 to 10°C, and 10 to 50°C

CT87LF Ranges

- ✓ -40 to 30°F, -20 to 50°F, and 50 to 120°F
- ✓ Comes with 4" L, 1/8" Dia., 304 SS Needle Tip Probe with 4.6 m (15') Leads

CT87HF or CT87HC

- ✓ High Temperature Recorders for Higher Temperature Measurement Applications

- ✓ Ovens
- ✓ Process Chambers

CT87HC Ranges

- ✓ 0 to 120°C, 0 to 250°C, and 250 to 500°C

CT87HF Ranges

- ✓ 0 to 250°F, 0 to 500°F, and 500 to 1000°F
- ✓ Comes with 6' L 24 Gage Glass Insulated Thermocouple



CT87LF low temperature recorder, with CT87-J-NP probe (included with the CT87L models).

The CT87 Series temperature recorder is a precision instrument used to monitor and record temperature on a 152 mm (6") circular chart. The CT87 may be carried as a portable instrument or mounted in a fixed location. The CT87 offers a variety of features to meet any temperature recording requirement. A combination of 3 temperature ranges and 3 chart speeds provides a high degree of flexibility. In addition, the chart rotation may be set for single or continuous turn operation as required by a particular application. To protect the data being recorded, the CT87 uses an automatic battery backup to maintain operation during a power outage.

Specifications

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Low Temp °F: -40 to 30, -20 to 50, 50 to 120

Low Temp °C: -40 to 0, -30 to 10, 10 to 50

High Temp °F: 0 to 250, 0 to 500,
500 to 1000

High Temp °C: 0 to 120, 0 to 250,
250 to 500

Ambient Operating Temp: 0 to 49°C
(32 to 120°F)

Relative Humidity: 0 to 96%

Accuracy: ±1°C (±2°F)

Chart Diameter: 152 mm (6")

Chart Speed Selectable:

6-hr, 24-hr, 7 days

Chart Rotation Selectable:

Single turn, continuous

Chart Speed Accuracy: ±1%

Display: 3 digit LED 13 mm (0.5")

Recording Pen: Ink type

Case Size: 235 H x 184 W x 70 mm L
(9¼ x 7¼ x 2¾")

Weight: 2.2 kg (4 lb, 7 oz)

Battery Back-Up Life: 48-hr,
8 "AA" alkaline batteries (included)

Primary Power: 115 Vac, 50/60 Hz
or 220 Vac, 50/60 Hz

Temperature Probe:

Low Temp Recorder:

CT87-J-NP (needle probe)

High Temp Recorder:

TC-GG-J-24-72-SMP-M-PP



To Order Visit omega.com/ct87 for Pricing and Details

Model No.	Voltage	Ranges
CT87LF	110	-40 to 30°F, -20 to 50°F and 50 to 120°F
CT87LF-220	220	
CT87LC	110	-40 to 0°C, -30 to 10°C and 10 to 50°C
CT87LC-220	220	
CT87HF	110	0 to 250°F, 0 to 500°F and 500 to 1000°F
CT87HF-220	220	
CT87HC	110	0 to 120°C, 0 to 250°C and 250 to 500°C
CT87HC-220	220	

Accessories

Model No.	Description
CT87-PEN-BLACK	Replacement pen
CT87-J-NP	Low temp replacement probe, 4" L, 1/8" Dia, 304 SS needle probe, 4.6 m (15') leads
TC-GG-J-24-72-SMP-M-PP	High temp replacement sensor, 6' L, 24 gage glass insulated "J" thermocouple

Note: Many other "J" type probes are available, visit omega.com. Comes complete with 1 package assorted charts, 2 pens, AC adaptor, Type J thermocouple, 8 "AA" batteries and operator's manual. CT87L also comes with CT87-J-NP probe. CT87H also comes with TC-GG-J-24-72-SMP-M beaded wire thermocouple probe.

Ordering Examples: CT87HC, 110V circular chart recorder with beaded wire probe included.

OCW-3, OMEGACARESM extends standard 1-year warranty to a total of 4 years.

CT87LF low temperature model, with CT87-J-NP probe (included with the CT87L models), shown smaller than actual size.



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

Replacement Charts

Charts	Temperature
CT87C--40-30F/(*)	-40 to 30°F
CT87C--40-0C/(*)	-40 to 0°C
CT87C--20-50F/(*)	-20 to 50°F
CT87C--30-10C/(*)	-30 to 10°C
CT87C-50-120F/(*)	50 to 120°F
CT87C-10-50C/(*)	10 to 50°C
CT87C-L(**)-MIX	60 assorted charts
CT87C-0-250F/(*)	0 to 250°F
CT87C-0-120C/(*)	0 to 120°C
CT87C-0-500F/(*)	0 to 500°F
CT87C-0-250C/(*)	0 to 250°C
CT87C-500-1000F/(*)	500 to 1000°F
CT87C-250-500C/(*)	250 to 500°C
CT87C-H(**)-MIX	—

* Insert "24H" for 24-hour chart, "6H" for 6-hour, or "7D" for 7 days.

** Insert either F or C for an assortment of 60 charts.

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CT87P Series



- 13 mm (0.5") LED Display
- 152 mm (6") Chart
- 3 Pressure Ranges
- 4 Recording Speeds
- Front-Panel Selectable Controls
- Single or Continuous Chart Rotation
- Free Standing or Wall Mount

The CT87P pressure recorder is a versatile instrument that accurately measures and records pressures. The remote sensor has a 1.8 m (6') long cord and a 17-4 stainless steel pressure port with 1/4 NPT threads. The burst pressure is 2500 psi, rated for any gas or fluid compatible with 17-4 stainless steel. Battery backup ensures normal operation during power interruptions. The unit can also be run from any 12 Vdc source (auto or marine).

SPECIFICATIONS

- Pressure Ranges psi Model:** 0 to 500 psi, 0 to 150 psi, 0 to 50 psi
- Pressure Ranges bar Model:** 0 to 35 bar, 0 to 10 bar, 0 to 3.5 bar
- Pressure Accuracy:** ±1% full scale
- Ambient Operating Temp Range:** 0 to 60°C (32 to 140°F)
- Remote Pressure Sensor:** 1.8 m (6') long 17-4 stainless steel 1/4 NPT pressure port, 2500 psi burst pressure, rated for any gas or fluid compatible with 17-4 stainless steel
- Ambient Operating Relative Humidity:** 96% maximum
- Selectable Chart Speeds:** 6 hours, 24 hours, 7 days, 31 days
- Chart Rotation Mode (Selectable):** Single turn or continuous
- Chart Speed Accuracy:** ±1%



CT87P, shown smaller than actual size.

Chart Diameter: 152 mm (6")
Display: 3-digit, 13 mm (0.5") LED
Primary Power Supply: 120 Vac, 50/60 Hz, or 220 to 240 Vac, 50/60 Hz (AC adaptor included)
Battery Life: 48 hours continuous use
Battery Backup: 8 "AA" alkaline batteries (included)

Recording Pen: Ink

Case Size: 235 H x 184 W x 70 mm D (9 1/4 x 7 1/4 x 2 3/4")

Weight: 2.13 kg (4.7 lb)

Case Material: Polycarbonate

Remote sensors included

To Order	
MODEL NO.	DESCRIPTION
CT87P	Circular pressure recorder, psi ranges
CT87PB	Circular pressure recorder, bar ranges
CT87P-230	Circular pressure recorder, psi, 230 Vac
CT87PB-230	Circular pressure recorder, bar, 230 Vac
CT87P-RP	Replacement pressure sensor
CT87-PEN-BLACK	Replacement pen
CT87P-C-(*)	60 pressure charts
MN1500	"AA" batteries (pack of two)

(*) Insert pressure range code from chart below.



PRESSURE RANGE	PRESSURE CHART CODES			
	6 HOURS	24 HOURS	7 DAYS	31 DAYS
0 to 500 psi	6H500PSI	24H500PSI	7D500PSI	31D500PSI
0 to 150 psi	6H150PSI	24H150PSI	7D150PSI	31D150PSI
0 to 50 psi	6H50PSI	24H50PSI	7D50PSI	31D50PSI
0 to 35 bar	6H35BAR	24H35BAR	7D35BAR	31D35BAR
0 to 10 bar	6H10BAR	24H10BAR	7D10BAR	31D10BAR
0 to 3.5 bar	6H3.5BAR	24H3.5BAR	7D3.5BAR	31D3.5BAR

Comes complete with AC adaptor, 60 assorted charts, 2 pens, 8 "AA" batteries and operator's manual.

Ordering Example: CT87P, 152 mm (6") circular pressure recorder with psi ranges, OCW-3, OMEGACARESM extends standard 1-year warranty to a total of 4 years.

CT87PB, 152 mm (6") pressure recorder with bar ranges.

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.



CT89 Series



- ✓ Advanced Microcontroller Design
- ✓ Large LED Digital Temperature Display
- ✓ 3 Temperature Ranges and 4 Chart Speeds
- ✓ Front Panel Selectable Single Turn or Continuous Chart Rotation
- ✓ Front Panel Controls for Fast and Easy Setup
- ✓ Standard 120V Operation
- ✓ Battery Back-Up Assures Normal Operation During Power Interruptions
- ✓ 12V Vehicular or Marine Use Operations
- ✓ Stainless Steel Remote Reading 102 mm (4") Probe with 4.6 m (15') Cable
- ✓ Fold-Down Handle
- ✓ Freestanding or Wall Mounted
- ✓ Durable Polycarbonate Case, Cover, and Handle

Applications

- ✓ Food Storage
- ✓ Environment, Energy Management
- ✓ HVAC, Refrigeration Maintenance
- ✓ General Laboratory Monitoring
- ✓ Computer Room Monitoring
- ✓ Ovens, Dryers, Paint Booths



CT89F with probe included.

The newly designed CT89 temperature recorder with remote sensor employs advanced microcontroller design that enables this versatile instrument to accurately measure and record temperatures in air, gas, liquids, powders, solids, and semi-solids. The CT89 is a precision instrument used to monitor and record temperature on 6" circular chart

paper. It may be carried as a portable instrument or mounted in a fixed location. A combination of 3 temperature ranges and 4 chart speeds provide a high degree of flexibility. In addition, the chart rotation may be set for single or continuous turn operation. To protect the data being recorded the CT89 uses an automatic battery backup to maintain operation during a power outage.



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.

CT89F.

Specifications

Temperature Scale: -40 to 30°F, -20 to 50°F, 50 to 120°F, -40 to 0°C, -30 to 10°C, and 10 to 50°C

Chart Speed Selectable: 6 hours, 24 hours, 7 days, 31 days

Chart Speed Accuracy: ±1%

Chart Diameter: 152 mm (6")

Temperature Display: 3 digit LED; 13 mm (0.5") H

Temperature Accuracy: ±1°C (±2°F)

Temperature Sensor: Stainless steel tip submersible with 4.6 m (15') of cable

Recording Pen: Ink type

Power Supply: 120 Vac, 50/60 Hz or 220/240 Vac, 50 Hz

Battery Backup: 8 alkaline "AA" cells (included)

Battery Life: 48 hours

Operating Temperature: 0 to 49°C (32 to 120°F)

Operating Humidity: 0 to 96% max

Dimensions: 235 L x 184 W x 70 mm D (9.25 x 7.25 x 2.75")

Weight: 7 oz (4 lb)

To Order Visit omega.com/ct89 for Pricing and Details

Model No.	Description
CT89F	Temperature chart recorder, 110 Vac, °F
CT89F-220	Temperature chart recorder, 220 Vac, °F
CT89C	Temperature chart recorder, 110 Vac, °C
CT89C-220	Temperature chart recorder, 220 Vac, °C
CT87-PEN-BLACK	Replacement pen
CT89-PROBE	Replacement stainless steel temperature probe, 120 mm (4") L, with 4.6 m (15') wire

Charts	Temperature
CT87C--40-30F/(*)	-40 to 30°F
CT87C--40-0C/(*)	-40 to 0°C
CT87C--20-50F/(*)	-20 to 50°F
CT87C--30-10C/(*)	-30 to 10°C
CT87C-50-120F/(*)	50 to 120°F
CT87C-10-50C/(*)	10 to 50°C
CT87C-L(**)-MIX	60 assorted charts

Comes complete with 60 assorted 152 mm (6") diameter charts, 102 mm (4") probe, 2 black cartridge pens, and operator's manual.

* Insert "6H" for 6-hour, "24H" for 24-hour chart, "7D" for 7 days, or "31D" for 31 days.

** Insert either "F" or "C" for an assortment of 60 charts.

Ordering Example: CT89F, temperature chart recorder 110 Vac.

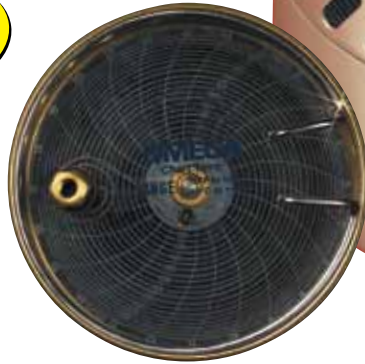
OCW-3 OMEGACARE extends standard 1-year warranty to a total of 4 years.

CHART-TEMP® Temperature Recorders

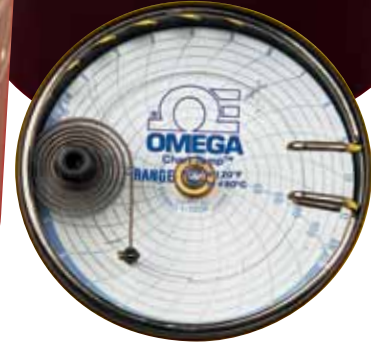
CT-100 Series



Comes with
Extra Charts!



CT-300F-1H shown smaller than actual size.



**From -40 to 260°C
(-40 to 500°F)
Low-Temperature
Recorders with Ranges
Up to 104°C (220°F) and
Either 1- or 7-Day Charts
and 2% Accuracy
Oven Recorders with
Ranges Up to 260°C
(500°F) and Either
1- or 24-Hour Charts
with 3% Accuracy**

OMEGA® CHART-TEMP® recorders are dry-stylus, spring-wound, clock-driven circular chart recorders. Simply rewind the drive when replacing the chart. These recorders are excellent for recording temperatures inside buildings, refrigerators, or ovens. Units with ranges up to 260°C (500°F) are available.



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.

Specifications

Dimensions: 82.5 H x 100 mm diameter
(3.26 x 3.94")

Weight:

High-Temp Models: 397 g (14 oz)
Low-Temp Models: 600 g (21 oz)

Low-Temperature Recorders

To Order		
Model No.	Temperature Range	Charts Model No.
CT-100AF-(*)	0 to 100°F	(*)-100F
CT-120AF-(*)	20 to 120°F	(*)-120F
CT-160AF-(*)	-40 to 160°F	(*)-160F
CT-220AF-(*)	20 to 220°F	(*)-220F
CT-70AF-(*)	-30 to 70°F	(*)-70F

* Insert "1" for 1-day or "7" for 7-day recorder. Units with "-7" suffix are 7-day recorders.

Ordering Examples: CT-100AF-1, 1 hr recorder with 0 to 100°F temperature range.

OCW-3, OMEGACARESM extends standard 1-year warranty to a total of 4 years.

High-Temperature Recorders

Model No.	Temperature Range	Charts Model No.
CT-300F-(*)	70 to 300°F	(*)-300F-CHART
CT-400F-1H	70 to 400°F	(*)-400F-CHART
CT-500F-(*)	70 to 500°F	(*)-500F-CHART
CT-150C-1H	20 to 150°F	1H-150C-CHART
CT-200C-1H	20 to 200°C	1H-200C-CHART
CT-260C-1H	20 to 260°C	1H-260C-CHART

* Insert "1H" for 1-hour or "24H" for 24-hour recorder. Units with "-1H" suffix are 1-hour recorders.

Ordering Example: CT-500F-1, 1-hour recorder with 70 to 500°F temperature range.

OCW-3, OMEGACARESM extends standard 1-year warranty to a total of 4 years.

1 or 2 Channel Circular Recorders

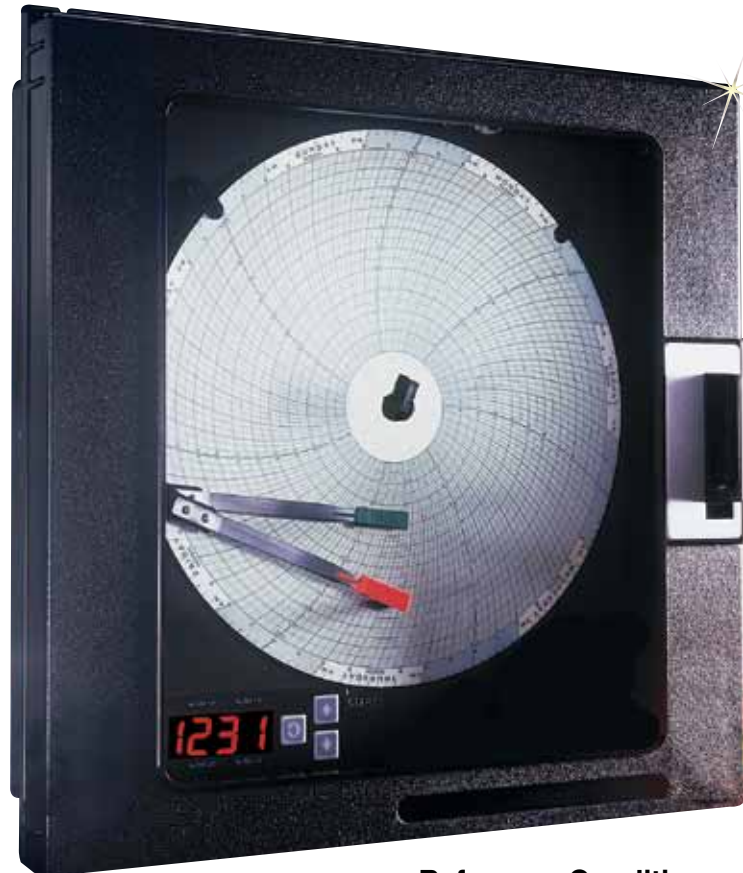
CT5100 Series



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.



CT5110 shown smaller than actual size.

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

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 around

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
	CHROME [®] -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, 1/8 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



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



Microprocessor-Based Circular Chart Recorder

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CT6100 Series



- ✓ Accepts Thermocouple, RTD, Vdc, and mA DC Inputs
- ✓ High Accuracy and Stability
- ✓ User Configurable via Front-Panel Keypad
- ✓ Easy-to-Use Menu-Driven Interface for Rapid Configuration and Calibration
- ✓ Available in 1-, 2-, or 3-Pen Versions
- ✓ Large-Character Alphanumeric LCD with Backlight
- ✓ Simultaneous Digital Display of Process Variable for Each Channel
- ✓ Programmable Locks for Security



CT6103 shown smaller than actual size.

The CT6100 Series microprocessor-based circular chart recorders are available in 1-, 2-, or 3-channel variants. They combine the simplicity and clarity of pen drawing with the versatility of microprocessor control. Each channel is compatible with all industry-standard sensors and signals, including thermocouple Types J, K, T, E, N, R, S, and B; Pt100 platinum RTDs; and 4 or 20 mA current loops.

Low and high measurement ranges are provided for each input type; separate range cards are not required. Multi-input versions feature optoelectronic isolation of the input stages to eliminate troublesome installation ground loops. Multislope integrating 16-bit A/D converters ensure precise measurement by sampling the input every 0.5 seconds.

Thermocouple and RTD characteristics are fully linearized. The recorders use automatic cold-junction compensation for thermocouple measurement.

All CT6100 Series models feature alarm relays. Single-pen recorders are equipped with 3 fail-safe single-pole changeover relays; 6 relays are standard on the 2- and 3-pen versions. Color-coded LEDs indicate the status of each relay. All relay functions are user selectable; setpoint values and hysteresis levels are entered directly via the keypad, while relay action and channel assignment are selected from user-friendly menus. Circuit precision is matched by the backlash-free pen-drive mechanism, which has a positioning resolution

greater than 0.1%. An integral feedback potentiometer enables closed-loop monitoring of each pen position.

Each recorder uses a low-maintenance stepper motor. The rotation speed of the 244 mm diameter chart is microprocessor controlled and user programmable.

All CT6100 recorders are housed in a strong molded case that can be panel or surface mounted. A gasket-lockable door protects internal components from harsh industrial environments and offers protection rated to NEMA 12 (IP55). A tough acrylic window lets the user view the chart trace, digital channel readings, and alarm status with the recorder's door closed.



Specifications

Inputs

Input Types: Thermocouple K, T, J, N, E, B, R, S; Platinum RTD (Pt100) 3-wire; $\pm 2V$, $+20V$ dc; ± 2 mA, ± 20 mA

Input Ranges: Thermocouples to BS4937 (type B minimum temp 200°C); RTD to BS1904:1984

Cold Junction Compensation: Automatic; $\pm 0.02^\circ C/^\circ C$ stability

Input Resistance:

- Thermocouple:** 10 M Ω
- ± 2 mA:** 200 Ω
- ± 20 mA:** 20 Ω
- $\pm 2V$, $\pm 20V$:** >1 M Ω

Min Span: 5°C (9°F), thermocouples K, J, T, E, N and RTD; 50°C (90°F) other thermocouple types, 50 mV, 200 mA

T/C BURN-OUT: Pull-up or pull-down, selectable

RTD Lead Resistance:

3-wire, compensated up to 10 Ω maximum per lead

Input Protection: ± 50 Vdc on signal inputs

Input Isolation: Optoelectronic on 2 and 3 input models 500 Vrms channel-to-channel, 500 Vrms channel-to-ground

Sensor/Transmitter Power:

12 or 24 Vdc, 25 mA, selectable; for current loop inputs

Performance

Accuracy:

RTD, Low Range (-200 to 200°C): $\pm 0.2^\circ C$

RTD, High Range (200 to 850°C): $\pm 0.8^\circ C$

Thermocouple: $\pm 0.25\%$ full scale

Voltage/Current: $\pm 0.2\%$ full scale

Temperature Stability:

$\pm 0.02\%$ FS/ $^\circ C$

Linearization Accuracy:

T/C Types J, K, T, N, E: $\pm 0.1^\circ C$, -50 to 200°C, $\pm 1^\circ C$ maximum

T/C Types R and S: $\pm 0.2^\circ C$, -50 to 200°C, $\pm 1^\circ C$ maximum

T/C Type B: $\pm 1^\circ C$ maximum

RTD: $\pm 0.1^\circ C$, -200 to 850°C

Calibration Shift:

$\pm 10^\circ C$ user programmable to eliminate sensor errors (thermocouple and RTD)

Chart and Display

Chart Drive: DC stepper motor
Chart Speeds: 1 to 24 hours in steps of one hour, 2 to 31 days in steps of 1 day
Writing Method: Disposable ink cartridges; pen 1-red; pen 2-green; pen 3-blue

Pen Positioner: DC stepper motor

Positioning Resolution:

$>0.1\%$ full scale

Response Time:

Zero to full scale in 4.5 seconds

Pen Lift: Powered, activated from front panel; chart fast time advance possible with pens raised

Display: 2 line x 20 character dot matrix liquid crystal with backlight and automatic temperature compensation; 9.6 mm (0.37") character height

Display Resolution:

0.1°C for temperature inputs, software programmable for voltage/ current inputs

Alarm Display: Relay status shown by red and green front panel LEDs

Relays

Type: SPDT; 30 Vdc or 250 Vac @ 6 A maximum; 150 W DC, 1660 Vac non-inductive

Action: Software selectable from: high alarm/low alarm/deviation alarm/control relay (high)/control relay (low); relays de-energize in alarm state; assignable to any channel

Hysteresis:

User programmable

0.0 to 10% span

Snubber Network:

22 nF and 100 Ω across each contact

Analog Output (Option)

any channel, range selectable within any segment of chart range

Resolution: 12-bit

Compliance: 20V approx

Isolation: Optoelectronic

Action: direct or reverse

General

Security: 3-level software lock including password protection, internal hardware jumper lock, lockable door

Power: 115 or 230 Vac $\pm 10\%$, switch selectable, 50/60 Hz: terminal block connection

Power Requirements: <25 W

Operating Ambient: 0 to 55°C

(32 to 131°F), 0 to 90% RH

(non condensing)

Case: Steel, with glass-filled polyester resin door with acrylic window

Protection: NEMA 12 (IP55)

Mounting: Panel or surface

Dimensions: 336 W x 396 H x 171 mm D (13.2 x 15.6 x 6.7")

Weight: From single pen: 7 kg (15.4 lb) to three pen: 7.7 kg (17.0 lb)

Panel Cutout: 288 W x 356 mm H (11.3 x 14.0")



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 Visit omega.com/ct6100 for Pricing and Details

Model No.	Description
CT6101	1-pen recorder with 3 relays and transmitter power supply
CT6102	2-pen recorder with 6 relays and transmitter power supply
CT6103	3-pen recorder with 6 relays and transmitter power supply

Accessories

Model No.	Description
CT6100-RED	Red pens, pack of 3
CT6100-GREEN	Green pens, pack of 3
CT6100-BLUE	Blue pens, pack of 3
CT6100-0-100/24H	100 chart papers, 24 hours
CT6100-0-100-31D	100 chart papers, 31 days
POWERCORD-SE	Power cord with one end stripped

Option*

Order Suffix	Description
-PV	Analog output of 0 to 20 mA or 4 to 20 mA, assignable to any channel

* Option is not field installable. It must be ordered at the time of purchase.

Comes complete with 1 package of 24 hour chart paper, pen(s) and operator's manual.

Ordering Example: CT6101, 1-pen recorder with 3 relays and transmitter power supply and POWERCORD-SE, power cord.

OCW-3, OMEGACARESM extends standard 1-year warranty to a total of 4 years.

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

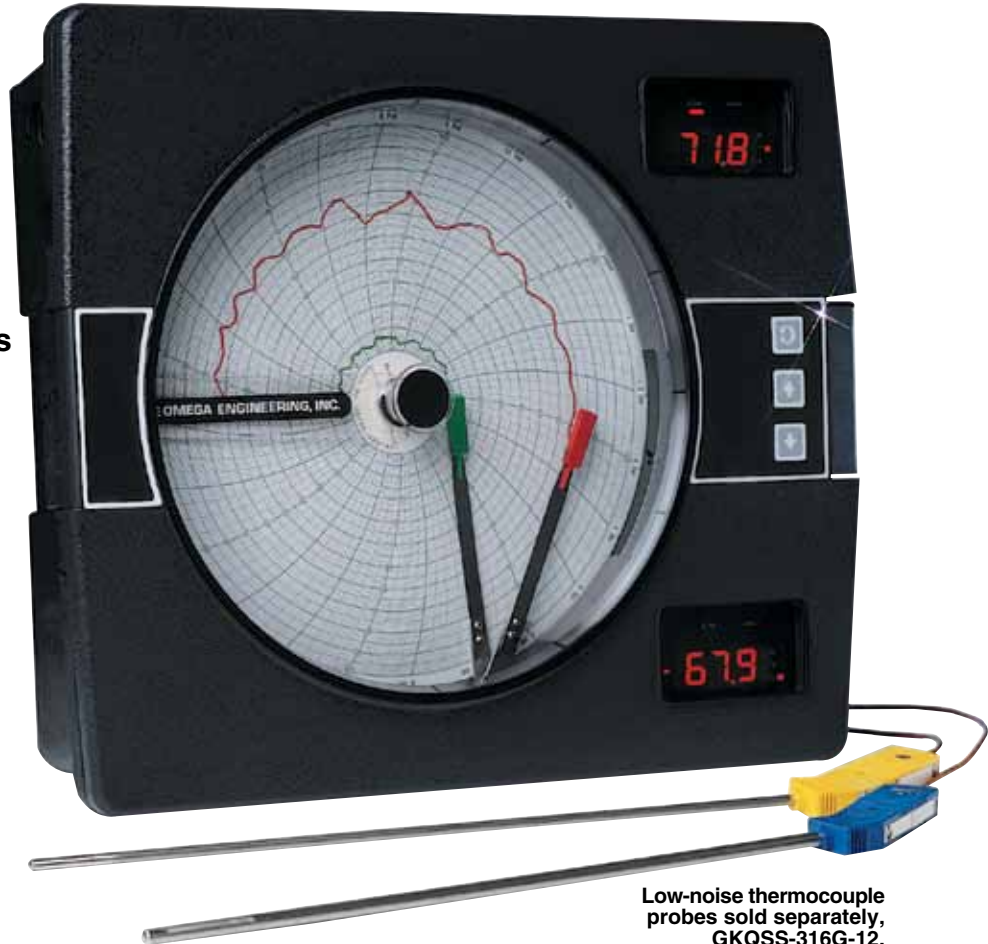
Thermocouple:

- 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

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.

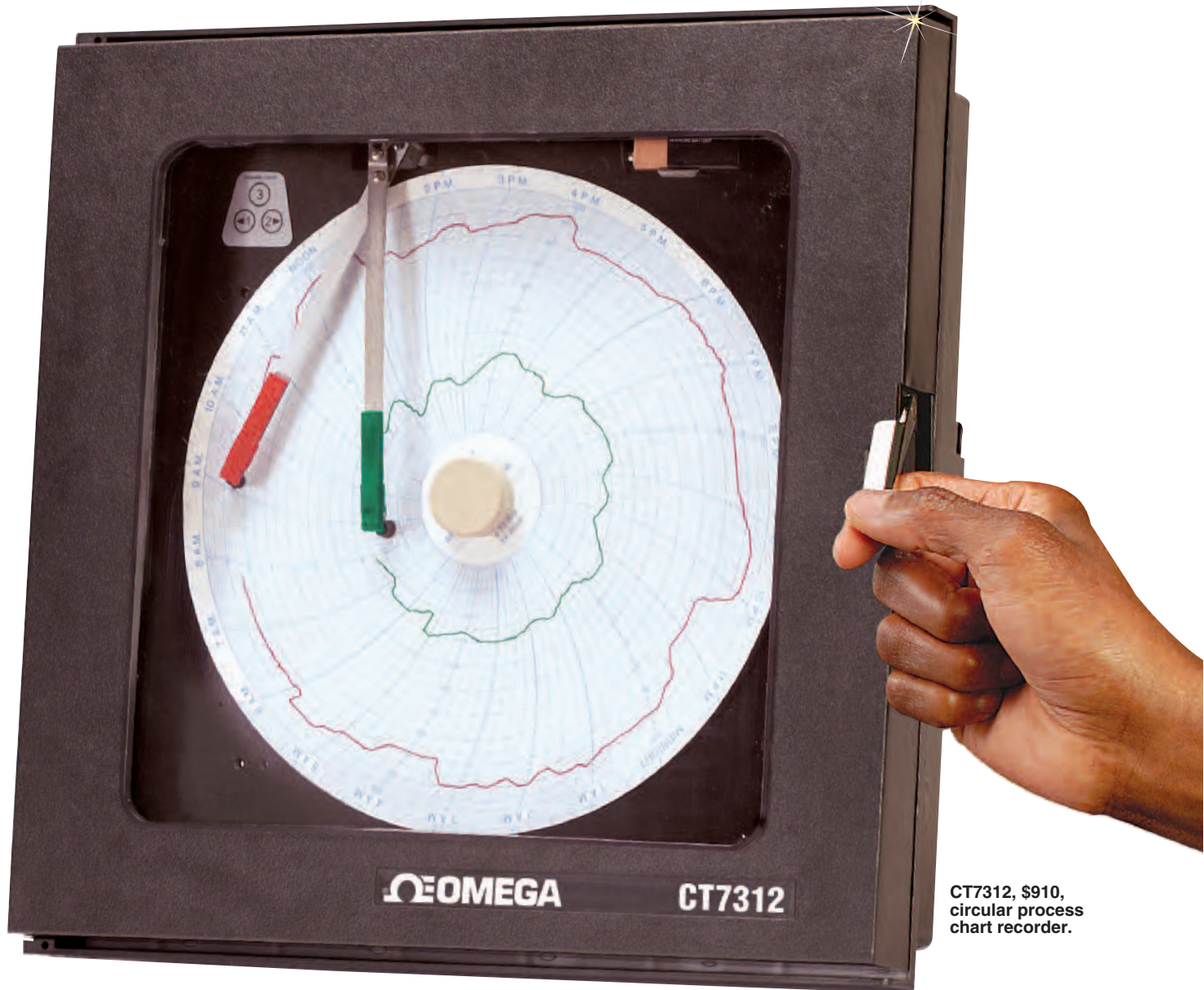
Ordering Examples: CT7110, 2-pen circular recorder, CT7000-RED, CT7000-GREEN, spare pens, CT7000C-0-100/24, spare paper, and CT7202, recorder control, 1 pen, 2 relays.

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



Economical 2-Pen Circular Process Recorder

Rometec srl - www.rometec.it - info@rometec.it - Rometec srl - www.rometec.it - info@rometec.it



CT7312, \$910, circular process chart recorder.

CT7300
Starts at
\$845



- ✓ Universal Input
- ✓ 2-Pen Circular Process Recorder with 254 mm (10") Chart
- ✓ Quick, Easy Setup
- ✓ Easy-to-Replace Paper Chart with Magnetic Hub

- ✓ LED Display Indication (Optional)
- ✓ No "DIP Switches" to Set During Configuration
- ✓ Up to 48 Hours of Battery Backup Recording Time
- ✓ Latching or Non-Latching Programmable Relays
- ✓ Built-In Chart Lights

The CT7300 Series consists of economical 2-pen circular process chart recorders that measure and record up to 2 process variables from a variety of inputs. Settings are

easily configured for multiple applications. To protect the user's process, the battery backup will continuously record up to 48 hours if a power loss occurs.

Specifications Power

Line Voltage: 110/220 Vac, 50/60 Hz
Power Consumption: 15 VA maximum

Input

Thermocouple Types: J, K, T, R, B, S
RTD (3-Wire): Pt100 ∇ RTD (385 curve)

Linear: 4 to 20 mA, 0 to 5 Vdc

Common Mode Rejection:
>120 dB at 60 Hz

from each other (share common ground)

Cold Junction Accuracy:

±0.2°C/°F @ 25°C (77°F) ambient

Ambient Error: ±0.01% span/°C from 25°C ambient

Isolation: PV inputs isolated from all alarm outputs

Input Range Table:

Type	Range
J	-130°C to 760°C (-202°F to 1400°F)
K	-130°C to 1370°C (-202°F to 2498°F)
T	-200°C to 400°C (-328°F to 752°F)
B	100°C to 1824°C (212°F to 3315°F)
R	0°C to 1650°C (32°F to 3002°F)
S	0°C to 1649°C (32°F to 3000°F)
Pt100 (DIN)	-210°C to 440°C (-346°F to 824°F)
mA	4 to 20 mA
V	0 to 5 Vdc

Note: Thermocouples and RTDs are scalable within range

Recording

Chart Size: 254 mm (10")

Recording Accuracy:

±0.5% of span (100-division span)

Sensor Break:

Full scale pen <10 seconds

Chart Speed: Configurable—4, 8, 12, 24, 48 and 168 hours of rotation

Input Filtering:

Programmable up to 120 seconds

Battery Backup:

9V, up to 48 hours of recording time

Options

Relay: DPDT, 1.0 A @ 120 Vac resistive

Relay Program:

Process, band, non-latching, latching

Error Protection:

De-energized during sensor break

Hysteresis:

Set at 2 units; activation is safe-sided

Environmental and Physical

Operating Temperature:

0 to 60°C (32 to 140°F)

Storage Temperature:

-40 to 65°C (-40 to 149°F)

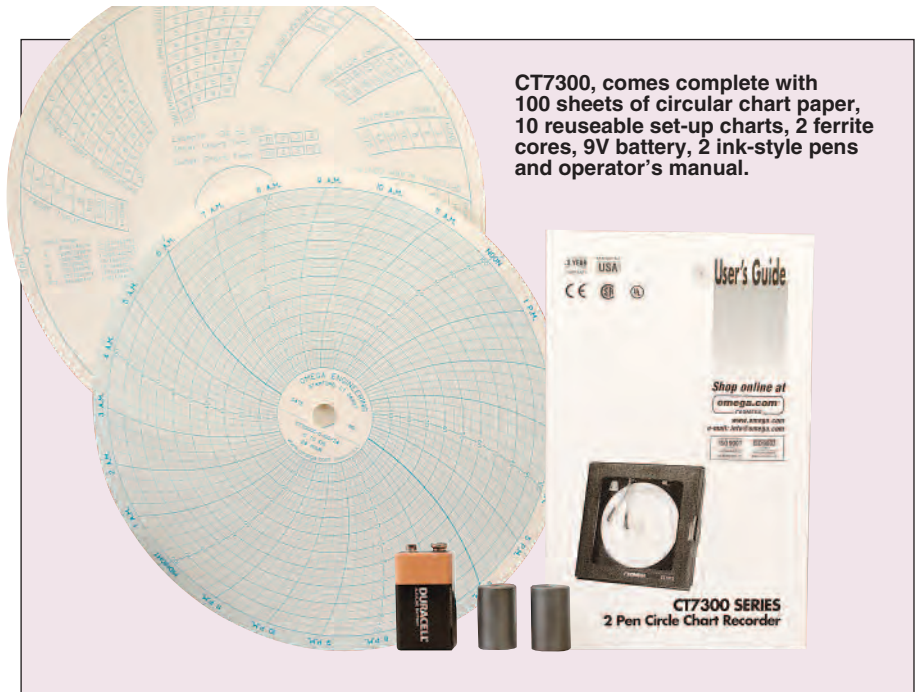
Humidity:

0 to 90% RH (non-condensing)

Vibration: 0.3 to 100 Hz @ 0.2 g

Mounting: ±20 degrees of vertical, ±10 degrees of horizontal

Panel Rating: NEMA 12X standard (NEMA 4 (IP65) optional)



CT7300, comes complete with 100 sheets of circular chart paper, 10 reuseable set-up charts, 2 ferrite cores, 9V battery, 2 ink-style pens and operator's manual.



Dimensions:

356 H x 356 W x 97 mm D
(14 x 14 x 4")

Panel Cutout: Industry standard

323 x 323 mm (13 x 13")

Weight: 3 kg (7 lb)

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.

MOST POPULAR MODELS HIGHLIGHTED!

To Order (Specify Model Number)

Model No.	Price	Description
CT7310	\$845	Recorder, circular process, 2-pens
CT7311	856	Recorder, circular process, 2-pens, 1 relay
CT7312	910	Recorder, circular process, 2-pens, 2 relays

Comes complete with operator's manual, 10 reuseable set-up charts, 2 ferrite cores, 2 ink-style pens, 9V battery and 100 charts.

Accessories

Model No.	Price	Description
CT7300-GREEN	\$25	Pens, green, package of 6
CT7300-RED	25	Pens, red, package of 6
CT7000C-0-100/24	18	Paper, circular, 100 qty
CT7000C-(range/time*)	18	Paper, circular, 100 qty
CT7000C-CUSTOM	630	Paper, specify range, 10 x 100 qty
CT7300-SUP	19	Spare setup charts, 10 to a box

* Other standard ranges: 0 to 600/24, 0 to 400/24, 0 to 200/24, 30 to 230F/24, 0 to 100/7, 0 to 1000/24, 0 to 300/24, 0 to 300/7, 0 to 800/24, 0 to 2000/24, -50 to 50/7, 0 to 200/7, 0 to 2500/24, 0 to 1200/24, 60 to 180F/24, 0 to 14PH/24, -50 to 50/24. For NEMA 4 (IP65) rated case, add "-NEMA" to model number and add \$50 to price. For LED display indication, add "-D" to model number and add \$95 to price.

Ordering Examples: CT7310, 2-pen circular process recorder, CT7300-RED and CT7300-GREEN, spare pens, CT7000C-0-100/24, spare paper, \$845 + 25 + 25 + 18 = \$913. CT7310-NEMA, chart recorder with NEMA 4 (IP65) rated case, \$845 + 50 = \$895. OCW-2, OMEGACARESM extends standard 3-year warranty to a total of 5 years (\$152), \$845 + 152 = \$997.



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• Flow and Level

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Band Heaters, Cartridge Heaters, Circulation Heaters, Comfort Heaters, Controllers, Meters and Switching Devices, Flexible Heaters, General Test and Measurement Instruments, Heater Hook-up Wire, Heating Cable Systems, Immersion Heaters, Process Air and Duct, Heaters, Radiant Heaters, Strip Heaters, Tubular Heaters

Microprocessor Based Circular Chart Recorders

CT9000 Series



Remember to
Order Extra
Paper and Pens!

1-, 2-, 3-, or 4-Pen Version
Programmable for 254, 280, or 305 mm (10, 11, or 12") Charts
Accepts Thermocouple, RTD, V, mV, mA, or Switch Signals
40-Character Display
Up to 4 Alarms per Variable
16 Profiles

The CT9000 microprocessor-based circular recorder offers 1 to 4 trends with 1 color per channel. The latter allows future trend addition upgrades and improves chart annotation of times, dates, scale values, trend line tags, and user-configurable real-time actuated chart messages. This instrument can accept up to 8 inputs. Some inputs do not have to be associated with the trend pens (i.e., display only). Up to 4 process values can be displayed at one time on the 40-character vacuum fluorescent display (2 lines of 20 characters each). Full English prompts allow easy configuration. With the recorder's proven dotting head print technology, there is no time difference between trend lines. This feature, along with the straight radial time line (compared with the curved lines on other recorders) allows for more accurate reading of data. The unit uses plain paper charts with pre-printed rings to further enhance readability and provide better long-term storage.

Specifications

General

T/C Accuracy: Typically 1°C (1.8°F)

Chart Accuracy: 0.3% of span

Chart Rotation Accuracy:

0.2 minutes for 24 hours

Ambient Temperature Error:

±0.01% of span per °C (1.8°F)

deviation from 25°C (77°F)

Isolation: 500 Vdc/350 Vac

CMR: 120 dB minimum

NMR: 100 dB @ 60 Hz or greater

Scan Rate: 2 scans/s on each input

Operating Temperature:

0 to 50°C (32 to 122°F)

Storage Temperature:

-40 to 65°C (-40 to 149°F)

Humidity: 10 to 90% RH, non-condensing

Vibration: 0.3 to 100 Hz @ 0.2 g

CT9144 shown
smaller than
actual size.



Line Voltage: 90 to 264 Vac, 50/60 Hz

Power Consumption: 60 VA max

Enclosure: Gasketed cover, case and window.

NEMA Rating: NEMA 3 (IP54)

Mounting: Panel or optional wall mounting

Mounting Position:

Up to 30° forward or backward tilt from vertical; up to 10° side tilt from vertical

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: 11.34 kg (25 lb)

Clock Accuracy: 1 min/month typically,

4 min/month worst case

Battery Backup: 5 years minimum,

10 years typically; lithium battery

(included)

Operator Interface

Display: 2-line, 40-character VFD with

5 mm (0.21") high characters

Status Indicator: 8 user configurable,

red LED status indicator

Keypad: 15 keys for programming and

unit operation

Display Formats: 3

Operator Messages: 12

Operator Inputs: 12

Recording

Pen Type: Disposable 4-pen fiber-tip

marker assembly.

Pen Colors: Red, green, blue, black

Chart Drive: DC stepper motor

Chart Size: Programmable for

10-, 11- or 12-inch charts (12-inch

charts are actually 11.875")

Chart Rotation:

6 to 9999 hours per revolution

Recorded Values: Any of over 20 values

can be trended/recorded

Recording Methods:

Drag pen simulation, instantaneous

value, connect the values, average

value, connect the averages

Action on New Chart: Print scales and

range list, begin normal recording

Chart Messages: 12

Input Ranges

Thermocouple

J: -200 to 1200°C (-328 to 2192°F)

K: -250 to 1370°C (-418 to 2498°F)

E: -250 to 1000°C (-418 to 1832°F)

N: -250 to 1300°C (-418 to 2372°F)

T: -250 to 400°C (-418 to 752°F)

R: 200 to 1700°C (392 to 3092°F)

S: 250 to 1750°C (482 to 3182°F)

B: 200 to 1800°C (392 to 3272°F)

G: 0 to 2300°C (32 to 4172°F)

C: 0 to 2300°C (32 to 4172°F)

D: 0 to 2300°C (32 to 4172°F)

NNM: 0 to 1370°C (32 to 4172°F)

PLATINEL II: 0 to 1400°C (32 to 2552°F)

RTD: -200 to 480°C (-328 to 896°F)

100 Ω platinum with 385 curve 2- or

3-wire, also available with 392 curve

or 100 Ω nickel

Volts DC: To 25 mV, 0 to 100 mV,

0 to 1V, 0 to 10V

mA DC: 0 to 20 mA or 4 to 20 mA with internal 50 Ω shunt

Rometec srl - www.rometec.it - info@rometec.it - Rometec srl - www.rometec.it - info@rometec.it

Open/closed switch sensing without external voltages or resistors

Processing: Square root and exponential functions for linear inputs

Value Cutoff: None, at value, to zero below value, to zero near zero

Measurement Error: $\pm 0.025\%$ of measurement span reference accuracy

Cold-Junction Compensation

Accuracy: $\pm 0.2^\circ\text{C}$ @ 25°C

($\pm 0.36^\circ\text{F}$ @ 77°F)

Cold-Junction Compensation

Rejection:

0.04 $^\circ$ deviation from 25°C (77°F)

Thermocouple Linearization Error:

$\pm 0.25^\circ\text{C}$ (1.45°F) typical, $\pm 0.5^\circ\text{C}$ (0.9°F)

worst case with exceptions; RTD: $\pm 0.1^\circ\text{C}$

(0.18°F) typical, $\pm 0.3^\circ\text{C}$ (0.54°F) worst

case

Sensor Fault Detection: Sensor break

on all T/Cs, RTDs, 1V, 1 to 5V, 4 to

20 mA and mV ranges; sensors high

and low on all inputs, 5% above or

below range

Sensor Break: Up-scale or down-scale

On/Off Outputs

On/Off Actuators:

Any of over 100 digital values/states

can be used to actuate on/off outputs

Relays: SPDT contacts rated

5 A resistive @ 115 Vac

Solid State Relays:

Open-collector output, can provide

40 mA @ 3 Vdc or 20 mA @ 4 Vdc

Pulsed Outputs: 50 ms pulse when

used with totalizer pulsed outputs

Current Outputs

Drivers: Any of 20 values can be used

to drive analog outputs

Output Span:

To 20 mA or 4 to 20 mA, nominal

Resolution:

12 bits based on 0 to 25.6 mA span

Accuracy: $\pm 0.1\%$ of 20 mA span

Compliance: 650 Ω load

Totalizers:

Number: 4 are included in the option

Digits: 9, displayable with or

without commas

Types: Continuous, prelude count

down, and pulse counting

Presets: 1 per totalizer

Pulsed Outputs: Fully configurable

computing capabilities

Derived Variables: 12

Math Functions: Add, subtract,

multiply, divide, average, exponential,

log 10, log e, power 10, power e

Built-In Equations: Linear, polynomial,

$^\circ\text{C}$ to $^\circ\text{F}$, $^\circ\text{F}$ to $^\circ\text{C}$, linear mass flow, DP

mass flow, BTU, RH, F_o , ZrO_2

Other Functions: High select, low

select, high peak, low peak, track and

hold, 1 of 2 selector, convert actuator

Custom Curves: Four 20-point curves,

usable in multiple calculations

Logic Capabilities

Actuators:

Over 100 digital values are accessible

Derived Actuators:

24 combinations of 24 items

Logic Operators:

NOT, OR, AND, parentheses

Timers: 4

Time/Date Combination Actuators: 6

Alarms

Alarm level up to 4 alarms for each of

Type: Process high or low, rate rising or falling

Hysteresis: Fully adjustable



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.



CT9173 shown smaller than actual size.

To Order	
Model No.*	Description
CT9111	1-pen, 1-color recorder with 1 input
CT9122	2-pen, 2-color recorder with 2 inputs
CT9133	3-pen, 3-color recorder with 3 inputs
CT9144	4-pen, 4-color recorder with 4 inputs
CT9151	1-pen, 4-color recorder with 1 input
CT9162	2-pen, 4-color recorder with 2 inputs
CT9173	3-pen, 4-color recorder with 3 inputs

Options

Order Suffix	Description
-AL**	2, 4, 6 or 8 relay outputs
-SR**	2, 4, 6 or 8 SSRs
-MA1	One 4 to 20 mA output
-MA2	Two 4 to 20 mA outputs
-MT1	Math (computing and logic capabilities)
-MT2	Totalizer
-MT3	Math and totalizer
-EN3	Plastic window (glass is standard)

** Total relays and SSRs may not exceed 8.

Accessories

Model No.	Description
CT9000C-RC-GR	Pen cartridge—green/red
CT9000C-RC-GRB	Pen cartridge—green/red/blue
CT9000C-RC-GRBB	Pen cartridge—green/red/blue/black
CT9000C-12-100	Paper, 305 mm (12"), 100 div. 100 sheets
CT9000C-12-70	Paper, 305 mm (12"), 70 div. 100 sheets
CT9000C-10-100	Paper, 254 mm (10"), 100 div. 100 sheets
CT9000C-11-100	Paper, 280 mm (11"), 100 div. 100 sheets
CT9000-WALL	Wall mounting brackets

Comes complete with a package of charts, pen cartridge and operator's manual.

Ordering Examples: CT9111, single-pen programmable recorder.

* For additional universal inputs, change last digit of base number to 2, 3, 4, 6, or 8, representing the total number of inputs for an additional cost per input beyond standard number offered (e.g., CT9144, 4-pen recorder with 4 inputs.) OCW-1 OMEGACARESM extends standard 2-year warranty to a total of 3 years. CT9151, 1-pen, 4-color recorder.

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Circular Chart Recorder

5 Models Available

PATENTS PENDING

CTXL Series



Choice of White or Gray to Meet Your Needs!

- 5 Models Available!**
- 1 Temperature/Humidity with Wired Probe
 - 2 Temperature/Humidity with Remote Wireless Probe
 - 3 Dual Process-Voltage or Current
 - 4 Dual Thermocouple
 - 5 pH/Temperature



Large 200 mm (8") 2-Sided Chart

CTXL-TRH recorder shown smaller than actual size.

- ✔ Large, 200 mm (8") Scale
- ✔ 1, 7 or 32 Day Recording
- ✔ Easy to Read Dual Channel Backlit LCD Readout
- ✔ Convenient Front Panel Programming/Operation
- ✔ Monitors Min/Max/Avg Values
- ✔ High/Low Audible/Visual Alarms
- ✔ Dual High Alarm Relays, Dual Low Alarm Voltage Outputs
- ✔ Double Sided Charts with Magnetic Mount Hub
- ✔ Benchtop or Wall Mount with Built-In Chart Lights
- ✔ Powered by 4 D Batteries or Universal AC Adaptor
- ✔ Data Logging PC Software Available Online
- ✔ RoHS 2 Compliant

The CTXL Series circular chart recorders from OMEGA combine form and function in an easy to use two-channel circular chart recorder with a large, 200 mm (8") diameter chart, and dual channel LCD readout. Depending on your application, the CTXL is available to measure ambient temperature and humidity (with an available wireless option capable of up to 90 m (300') (line of sight), dual thermocouple, dual process (1 V, 5 V, 10 V, or 0/4 to 20 mA), or pH/temperature.

The CTXL has a custom LCD readout that displays the current values of both channels, and can indicate the min, max or average input values as well. The display also indicates the chart speed (1, 7 or 32 day), battery status, high and low alarm indication, keypad lockout status, and battery life. Additional features of the CTXL include dual relays with contact closures for high alarms, and dual voltage outputs for low alarms to drive external relays. A built-in audible

buzzer also informs the user of an alarm condition. A hidden key (White Box) can lockout unauthorized access to the front keypad, preventing changes to the recorder settings.

The CTXL features a rugged, ABS enclosure, suitable for industrial environments, but it's also intended to fit right in to other environments, such as museums, art galleries, computer rooms, labs, clean rooms, even hospitals. The CTXL is designed for both benchtop and wall mount operation; a convenient base rotates out of the way, and is hidden by a decorative foot cover for wall mount use.

Each unit comes complete with 120 assorted double-sided charts, 2 pen sets, extra chart light, universal ac adaptor, 4 "D" cell alkaline batteries, RS232 cable and adaptor, wall mounting kit, and quick start manual. CTXL-TRH models are also supplied with sensor probe and clip, and 1.8 m (6') probe extension cable.

† Refer to accessories chart for NIST calibration ordering information.

Temperature/Relative Humidity Recorder

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Color of White or Gray to Meet Your Needs!

Large 200 mm (8") 2-Sided Chart

MODEL #1
CTXL-TRH



Optional†

- ✓ -17 to 49°C (2 to 120°F) and 2 to 98% RH Ranges
- ✓ Detachable Sensor Probe for Direct Attachment or Remote Mounting
- ✓ Available Wireless Sensor Model
- ✓ Windows-Based PC Data Logging Software Available Online
- ✓ Specialty Chart Papers Available for Custom Applications
- ✓ Benchtop or Wall Mount with Built-In Chart Lights
- ✓ RoHS 2 Compliant



PATENTS PENDING

CTXL-TRH recorder, shown smaller than actual size.

The CTXL-TRH recorder is designed for both local and remote monitoring of temperature and relative humidity. The standard sensor probe clips to the side of the unit, or may be detached and mounted up to 12 m (40') away, using available extension cables. For even longer distances, the recorder is available with a wireless probe, which can be placed up to 90 m (300') line of sight, or 33 m (110') indoors away from the recorder. Simply plug-in the wireless receiver in place of the probe into the recorder, and you're ready to go.

The CTXL-TRH is available with specialty paper charts, with optimal ranges marked right on the chart, so you can easily see from a distance that the temperature and humidity readings are within range.

A Windows-based application program allows the user to monitor

the temperature and relative humidity using their PC (software is available online). You can log the data to a file, as well as display the information on a custom on-screen chart; set the alarms on the recorder, and display their status on-screen. You can also re-scale the recorder chart paper, setting temperature and %RH limits anywhere within the range of the unit. This allows you to use the 8" chart to display narrow temperature and humidity bands, for greater resolution.

Specifications

(See Common Specifications on Page 8)

Temperature:

Range: -17.7 to 49°C (0 to 120°F)
Display Accuracy: ±1°C (2°F)
Chart Accuracy: ±1.5°C (3°F)
Display Resolution: 0.1° (F or C)

Relative Humidity:

Range: 0 to 98% RH
Display Accuracy: ±3% RH, 15 to 90% RH @ room temperature; ±5% RH, <15 or > 90% RH @ room temperature
Chart Accuracy: ±4% RH, 15 to 90% RH, ±6% RH, <15 or >90% RH
Display Resolution: 1% RH
Remote Probe: 12.2 m (40') max distance
Temperature/Humidity Sensor: Digital sensor
Probe Disconnect: Pens will go to the Home position; Display will show "Prb Err". Chart motor will continue to run
Alarm Set Point Resolution:
Temperature: 0.5°C or °F
Humidity: 1%RH
Alarm Deadband:
Temperature: 0.5°C or °F
Humidity: 3% RH

† Refer to accessories chart for NIST calibration ordering information.

MODEL #2

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Optional†

- ✓ Record Temperature/Humidity with Remote Wireless Probe
- ✓ RF Range 90 m (300') Line of Sight and 33 m (108') Indoors
- ✓ 1, 7 or 32 Day Recording
- ✓ Easy to Read Dual Channel Backlit LCD Readout
- ✓ Convenient Front Panel Programming/Operation
- ✓ Monitor Min/Max/Avg Values
- ✓ High/Low Audible/Visual Alarms
- ✓ Dual High Alarm Relays, Dual Low Alarm Voltage Outputs
- ✓ Double Sided Charts with Magnetic Mount Hub
- ✓ Benchtop or Wall Mount with Built-In Chart Lights
- ✓ Powered by 4 "D" Batteries or Universal AC Adaptor
- ✓ RoHS 2 Compliant

Specifications

(See Common Specifications on Page 8)

Transmitter

Transmit Sample Rate:

2 sec up to 2 min

Radio Frequency: ISM 915 MHz or ISM 868 MHz

Approvals:

CTXL-TRH-(*)-W9: FCC, Class A

RF Link Range:

Outdoor Line of Sight: Up to 90 m (300')

Indoor/Urban: Up to 33.5 m (110')

Computer Interface:

USB, to change transmit interval, frequency and channel ID

Operating Ambient: -18 to 49°C

(0 to 120°F), 2 to 98% RH

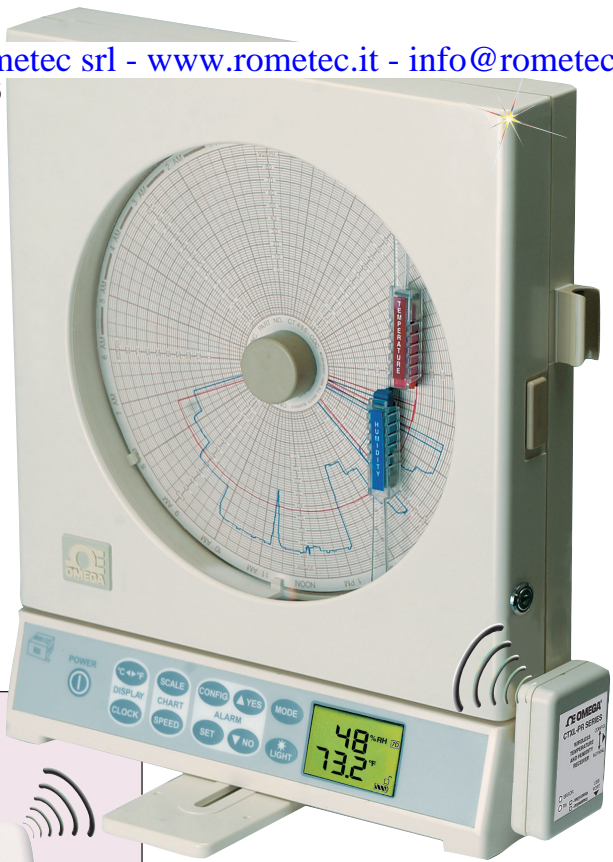
LED Indicators: Red LED for Low Battery and other communication error indications; Green LED for transmit indication

Power: One 3.6 Vdc "AA" Lithium Battery, 2400 mAH capacity, or optional ac adaptor, UNI-AC-100/240-5V

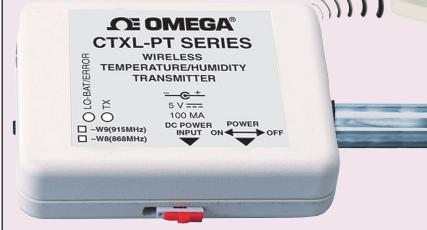
Battery Life: 1 year typical, at 1 minute transmission rate



PATENTS PENDING



Remote wireless temperature/humidity transmitter, included, shown smaller than actual size.



CTXL-TRH-W9 temperature/humidity recorder with remote wireless transmitter, shown smaller than actual size.

Receiver

Computer Interface:

USB, to change receive interval, frequency and channel ID

Operating Ambient: -18 to 49°C (0 to 120°F), 2 to 98% RH

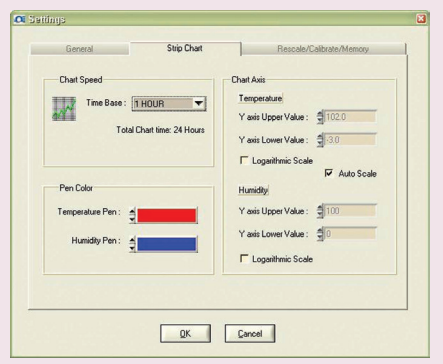
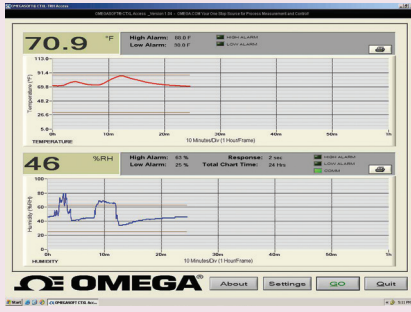
LED indicators: Red LED for comm. error indications, Green LED for receive indication

Power: From the CTXL recorder through the round DIN connector

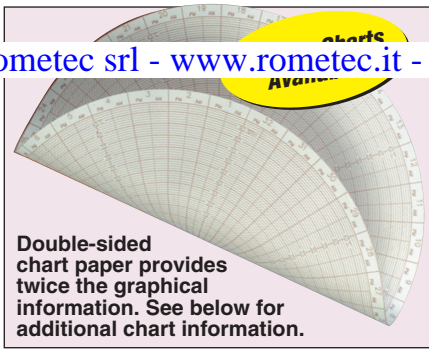
† Refer to accessories chart for NIST calibration ordering information.

Application Software Available Online!

- Monitors Temperature and Humidity
- Line Graph and Store of Readings in Real Time and Download of Recorded Data
- Set the Line Graph Scales to Auto, Logarithmic, or Manual
- Re-Scale the Recorder Chart Paper
- Print Line Graphs to a Printer



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Double-sided chart paper provides twice the graphical information. See below for additional chart information.

CTXL-TRH Units Include 120 Double-Sided Charts FREE!
 (20 each of 1-day, °F; 1-day, °C; 7-day, °F; 7-day, °C; 32-day, °F; 32-day °C).
 Additional charts can be ordered as 1 pack of 100 or 6 packs of 100 (see "Charts" table below left).

To Order

CTXL-TRH-W	Temperature/RH recorder	White	—
CTXL-TRH-G	Temperature/RH recorder	Gray	—
CTXL-TRH-W-(*)	Temperature/RH recorder	White	Y
CTXL-TRH-G-(*)	Temperature/RH recorder	Gray	Y

* Specify wireless type: "W9" for USA/Canada (915 MHz) or "W8" for Europe (868 MHz)

Double-Sided Charts†

Model No.	Description
CT485-CDF	100 charts, 1 day (am/pm), °F
CT485-CDC	100 charts, 1 day (am/pm), °C
CT485-C24F	100 charts, 1 day (24 hr), °F
CT485-C24C	100 charts, 1 day (24 hr), °C
CT485-CWF	100 charts, 7 day, °F
CT485-CWC	100 charts, 7 day, °C
CT485-CMF	100 charts, 32 day, °F
CT485-CMC	100 charts, 32 day, °C
CT485-CSP	120 charts, 20 each, 1 day (am/pm), 7 day, 32 day, °F and °C (one included with unit)

†† To order a package of 600 double sided charts, add suffix "-6" to model number for additional cost.

Double-Sided Specialty Charts (pkg of 20)

To Order

Model No.	Description	Optimal Band Range
CT485-MW(*)	Museum/art gallery, 7 day	18.3 to 22.2°C (65 to 72°F), 40 to 50% RH
CT485-MM(*)	Museum/art gallery, 32 day	18.3 to 22.2°C (65 to 72°F), 40 to 50% RH
CT485-HW(*)	Hospital, 7 day	20 to 23.3°C (68 to 74°F), 40 to 50% RH
CT485-HM(*)	Hospital, 32 day	20 to 23.3°C (68 to 74°F), 40 to 50% RH
CT485-LW(*)	Lab/clean room, 7 day	20 to 23.9°C (68 to 75°F), 40 to 55% RH
CT485-LM(*)	Lab/clean room, 32 day	20 to 23.9°C (68 to 75°F), 40 to 55% RH
CT485-PW(*)	Computer room/office, 7 day	18.3 to 23.9°C (65 to 75°F), 45 to 60% RH
CT485-PM(*)	Computer room/office, 32 day	18.3 to 23.9°C (65 to 75°F), 45 to 60% RH

* Specify temperature units, "C" for °C or "F" for °F.

Accessories

Model No.	Description
CTXL-PT-(*)	Wireless Temperature/Humidity probe transmitter, to retrofit a CTXL-TRH unit
CTXL-PR-(*)	Wireless Temperature/Humidity receiver, to retrofit a CTXL-TRH unit
UNI-AC-100/240-5V	Universal (110/240 Vac, 50/60 Hz) 5 Vdc adaptor, to power CTXL-PT externally
UNIV-AC-100/240	Universal (110/240 Vac, 50/60 Hz) 9 Vdc adaptor
CTXL-CABLE-6	1.8 m (6') sensor extension cable (replacement)
CTXL-CABLE-10	3 m (10') sensor extension cable
CTXL-CABLE-25	7.6 m (25') sensor extension cable
CTXL-CABLE-6-S	3 m (10') sensor extension cable
CT485B-CAL-KIT	RH calibration kit, 33 and 75% RH salt solutions
CAL-3-CTXL†	NIST-traceable calibration
CT485B-MAG	Chart magnetic hub
CT485-PS	Pen set, one each red and blue pens
CT485-PS-6	Six pen sets, six each red and blue pens
CTXL-RP-W-CAL-3	Temperature/humidity sensor probe (white) with CAL-3 certificate
CTXL-RP-G-CAL-3	Temperature/humidity sensor probe (gray) with CAL-3 certificate
CTXL-RP-W	Temperature/Humidity sensor probe (white)
CTXL-RP-G	Temperature/Humidity sensor probe (gray)
CT485B-CLIP-KIT	Sensor clip kit
OM-NOMAD-BATT	3.6V "AA" lithium replacement battery for CTXL-PT wireless transmitter

* Specify wireless type: "W9" for USA/Canada (915 MHz) or "W8" for Europe (868 MHz). To retrofit a CTXL-TRH recorder with wireless capability, one transmitter (CTXL-PT) and one receiver (CTXL-PR) are required.

Each unit comes complete with sensor probe and clip, 120 assorted double-sided charts, 2 pen sets, 1.8 m (6') remote sensor cable, wall mount kit, 4 "D" cell batteries, RS232 cable and adaptor, universal (110/240 Vac, 50/60 Hz) 9 Vdc adaptor, and quick start manual.

Ordering Example: CTXL-TRH-W-W9, white temperature/relative humidity recorder with remote/wireless probe, CT485-CWF, chart paper

Large 200 mm (8") 2-Sided Chart

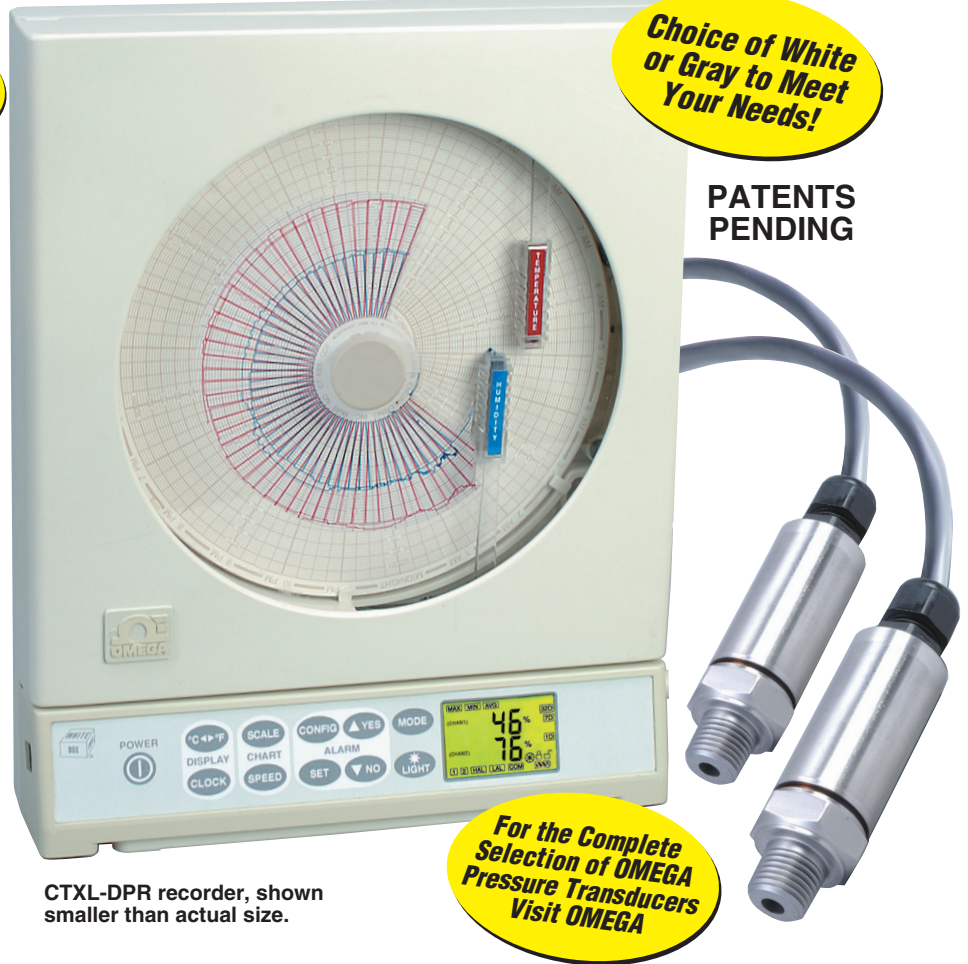
Choice of White or Gray to Meet Your Needs!

MODEL #3 CTXL-DPR



PATENTS PENDING

- ✓ Models Available for Voltage or Current Input
- ✓ Voltage Models Selectable for 1, 5 or 10V Inputs
- ✓ Current Models Selectable for 0 to 20 or 4 to 20 mA Inputs
- ✓ ±1% FS Display Accuracy
- ✓ Windows® Based PC Data Logging Software Available Online
- ✓ Benchtop or Wall Mount with Built-In Chart Lights
- ✓ RoHS 2 Compliant



CTXL-DPR recorder, shown smaller than actual size.

For the Complete Selection of OMEGA Pressure Transducers Visit OMEGA

The CTXL-DPR is a dual input process recorder, available with either voltage or current inputs. Both input channels are set to the same input range; the voltage input model has selectable ranges of 0 to 1, 0 to 5 and 0 to 10V, while the current model is selectable between 0 to 20 and 4 to 20 mA ranges. Standard charts are scaled for 0 to 100%; the user can also scale the chart paper to show a portion of the full range.

Specifications

(See Common Specifications on Page 8)

Input Types: Process voltage (DPR-V) or current (DPR-I)

Input Connection: mini DIN connector

Input Ranges: Both input channels configured to same input range

CTXL-DPR-V: 0 to 1V, 0 to 5V or 0 to 10V

CTXL-DPR-I: 4 to 20 mA or 0 to 20 mA

Display Accuracy: ±1.0%FS

Standard Chart Scale: 0 to 100%

Out of Range Input: Display will flash. Chart motor will continue to run

Alarm set point Resolution: 1%

Alarm Deadband: 3%

Excitation Voltage: 15Vdc @ 50 mA

To Order

Model No.	Description	Color	Input
CTXL-DPR-W-V	Dual input process recorder	White	Voltage
CTXL-DPR-G-V	Dual input process recorder	Gray	Voltage
CTXL-DPR-W-I	Dual input process recorder	White	Current
CTXL-DPR-G-I	Dual input process recorder	Gray	Current

Double-Sided Charts

Model No.	Description
CTXL-DPR-CD	100 charts, 1 day (am/pm), 0 to 100%
CTXL-DPR-CW	100 charts, 7 day, 0 to 100%
CTXL-DPR-CM	100 charts, 32 day, 0 to 100%
CTXL-CSP-P	120 charts, sample pack (one included with unit)

Accessories

Model No.	Description
CAL-3-CTXL†	NIST-traceable calibration
UNIV-AC-100/240	Universal 9 Vdc adaptor
CTXL-CABLE-6-S	1.8 m (6') analog input extension cable, stripped leads termination
CT485-PS	Pen set, one each red and blue pens
CT485-PS-6	Six pen sets, six each red and blue pens

Each unit comes complete with 120 assorted double-sided charts, 2 pen sets, 1.8 m (6') input cable, wall mount kit, 4 "D" cell batteries, RS232 cable and adaptor, universal ac adaptor, and quick start manual.

Ordering Example: CTXL-DPR-W-V, white dual voltage input recorder, CTXL-DPR-CW, chart paper (100 double-sided sheets, 7 day, 0 to 100%).

MODEL #4 CTXL-DTC



Optional†

- ✓ User Selectable for J, K or T Type Thermocouple Input
- ✓ Universal Thermocouple Connector Compatible with Standard and Miniature Connectors
- ✓ Up to $\pm 1.5^{\circ}\text{C}$ (2.7°F) Display Accuracy
- ✓ Benchtop or Wall Mount with Built-In Chart Lights
- ✓ Data Logging PC Software Available Online
- ✓ RoHS 2 Compliant

PATENTS
PENDING

Choice of White
or Gray to Meet
Your Needs!

CTXL-DTC
recorder,
shown smaller
than actual size.

Large 200 mm
(8") 2-Sided
Chart



The CTXL-DTC is a dual input thermocouple recorder, both input channels are set to the same calibration; the user can select either J, K or T type thermocouple calibration. Input connections are via UST type universal thermocouple connector that is compatible with both standard (type OST) and miniature (type SMP) thermocouple connectors.

The recorder comes with standard chart papers for J, K, and T Type thermocouple inputs. The blank chart paper can be used to re-scale the chart paper within the operating chart scale.

Specifications

(See Common Specifications on Page 8)

Input Types: Dual J, K, or T thermocouple; user programmable from PC

Input Connection: Universal connector, compatible with both standard (type OST) and miniature size (type SMP) thermocouple connectors

Display Range:

Type J: -100 to 700°C
(-148 to 1292°F)

Type K: -100 to 1000°C
(-148 to 1832°F)

Type T: -100 to 300°C
(-148 to 572°F)

Display Accuracy:
Type K: $\pm 2^{\circ}\text{C}$ (4°F)
Types J and T: $\pm 1.5^{\circ}\text{C}$ (3°F)

Standard Chart Scales:

Type J: -40 to 260°C
(-40 to 500°F)

Type K: -40 to 560°C
(-40 to 1040°F)

Type T: -40 to 160°C
(-40 to 320°F)

Open Thermocouple Input: Pens will go to the Home position; display will show "Prb Err". Chart motor will continue to run

Out of Range Input:
Display flashes

Alarm Set Point Resolution:
 1°C or $^{\circ}\text{F}$

Alarm Deadband: 3°C or $^{\circ}\text{F}$

To Order

Model No.	Description	Color
CTXL-DTC-W	Dual input thermocouple recorder	White
CTXL-DTC-G	Dual input thermocouple recorder	Gray

Double-Sided Charts

Model No.	Description
CTXL-DTC-(*)-CD	100 charts, 1 day (am/pm)
CTXL-DTC-(*)-CW	100 charts, 7 day
CTXL-DTC-(*)-CM	100 charts, 32 day
CTXL-CSP-T	120 charts, sample pack (one included with unit)

Accessories

Model No.	Description
CAL-3-CTXL†	NIST-traceable calibration
UNIV-AC-100/240	Universal 9 Vdc adaptor
CT485-PS	Pen set, one each red and blue pens
CT485-PS-6	Six pen sets, six each red and blue pens

* Specify chart range: "R1" for -40 to 560°C (-40 to 1040°F), "R2" for -40 to 260°C (-40 to 500°F), or "R3" for -40 to 160°C (-40 to 320°F)

Each unit comes complete with two SC-GG-K-30-36-PP thermocouples, 120 assorted double-sided charts, 2 pen sets, wall mount kit, 4 "D" cell batteries, RS232 cable and adaptor, universal ac adaptor, and quick start manual.

Ordering Example: CTXL-DTC-G, gray dual thermocouple input recorder, CTXL-DTC-R1-CW, chart paper [100 double-sided sheets, 7 day, -40 to 560°F (-40 to 1040°F) range].

**MODEL #5
CTXL-PH**



Optional†

- ✓ Record pH with Automatic Temperature Compensation
- ✓ Standard BNC pH Electrode Connector
- ✓ Pt100 RTD Temperature Sensor ATC
- ✓ Benchtop or Wall Mount with Built-In Chart Lights
- ✓ Data Logging PC Software Available Online
- ✓ RoHS 2 Compliant

The CTXL-PH is a high accuracy pH and temperature recorder, compatible with any standard pH electrode. The CTXL-PH also measures temperature from a pH electrode with built-in Pt100 RTD sensor for automatic temperature compensation for pH measurement. Standard charts feature 0 to 12 pH and 0 to 120°C ranges, while the recorder can display 0 to 14 pH and 0 to 100°C on the digital readout. The user can also scale the chart paper to show a portion of the full ranges, ie, from 6 to 8 pH and from 50 to 75°C, for greater resolution.

Specifications

(See Common Specifications on Page 8)

pH Input:

- Connection: BNC connector
- Display Range: 0 to 14 pH
- Chart Scale: 0 to 12 pH
- Accuracy: 0.1 pH, chart and display

Resolution:

- Chart Paper: 0.1 pH
- Display: 0.01 pH
- Input Impedance: 10¹² Ω, typical
- Automatic Temperature Compensation: 0 to 100°C (32 to 212°F)

Temperature Input

- Input: Pt100 RTD, 0.00385 curve
- Connection: Terminal block
- Display Range: 0 to 100°C (32 to 212°F), chart and display
- Chart Scale: 0 to 120°C
- Accuracy: 1°C, chart and display
- Resolution: Chart Paper: 1° Display: 0.1



Large Double-Sided Chart

Choice of White or Gray to Meet Your Needs!

CTXL-PH, pH/temperature recorder, shown smaller than actual size.



pH electrode and buffer solution sold separately.

PATENTS PENDING

To Order		
Model No.	Description	Color
CTXL-PH-W	pH/temperature recorder	White
CTXL-PH-G	pH/temperature recorder	Gray

** To form a complete system, add pH electrode (listed in accessories).

Double-Sided Chart

Model No.	Description
CTPH-CDC	100 charts, 1 day (am/pm), 0 to 12 pH/0 to 120°C
CTPH-CWC	100 charts, 7 day, 0 to 12 pH/0 to 120°C
CTPH-CMC	100 charts, 32 day, 0 to 12 pH/0 to 120°C
CTPH-CSP	120 charts, sample pack (one included with unit)

Accessories

Model No.	Description
PHE-7352-15-PT100	Heavy-duty pH electrode with Pt100 RTD temperature sensor
PHE-6510	Submersion pH electrode, CPVC (mounting assembly required), visit omega.com/phe-6510
PHE-6511	Submersion pH electrode, PVDF (mounting assembly required), visit omega.com/phe-6510
PHE-1311	General purpose pH electrode
PHA-4	4 pH buffer solution, 475 ml bottle
PHA-7	7 pH buffer solution, 475 ml bottle
PHA-10	10 pH buffer solution, 475 ml bottle
UNIV-AC-100/240	Universal 9 Vdc adaptor
CAL-3-CTXL†	NIST-traceable calibration
CT485-PS	Pen set, one each red and blue pens
CT485-PS-6	Six pen sets, six each red and blue pens

Each unit comes complete with 120 assorted double-sided charts, 2 pen sets, wall mount kit, 4 "D" cell batteries, RS232 cable and adaptor, universal ac adaptor, temperature compensation resistor and quick start manual.

pH Electrode sold separately.

Ordering Examples: CTXL-PH-W, white pH/temperature recorder, PHE-6510, submersible pH electrode (CPVC) and PHEH-65-10-PT100, mounting assembly with 100 Ω Pt RTD automatic temperature compensation.

Keypad Buttons

- Clock** – Display Time & Date for 3 seconds
- °C◀▶°F** – Toggle Temperature Units (Temp units)
- Scale** – Sets the Chart Scale for °C or °F (Temp units)
- Speed** – Sets Chart Speed for 1, 7 or 32 Day Operation
- Config** – Enter Configuration Menu
- Set** – Enable/Disable Alarms
- ▲ Yes** – Increase Set Value
- ▼ No** – Decrease Set Value
- Mode** – Display Min, Max, Average; also T1-T2 (thermocouple model)
- Light** – Chart Light and Display Backlight Switch
- White Box** – User Lockout

Common Specifications

- Display:** Custom, 4-digit, dual LCD with backlight
- Display Sampling Rate:** 2 sec
- Display Modes:** Max, min, avg, T1 – T2
- Chart Response Time:** 0.5, 3.5, 16 min for 1, 7, and 32 days, respectively
- Keypad Response:** 350 ms
- Chart Paper:** 203 mm (8") circular, linear radial divisions, double sided
- Chart Drive:**
 - Type:** Stepper motor
 - Accuracy:** 1% rotation
- Chart Hold-Down:** Magnetic hub
- Pen Drive:**
 - Type:** Stepper motor, linear screw drive
 - Deadband:** 0.5°C or °F and 3% RH
 - Pen Lift:** Automatic on door opening—pens are door mounted and swing clear of the chart when door opens
- Clock:** Time (24 hr clock) and date
- Clock Battery Backup:** Holds clock information for 14 days when main power is removed
- Audible Alarm:** Piezoelectric beeper
- Alarm Outputs:**
 - Relay Contacts:** Two, rated 2 A @ 30 Vdc (high alarm)
 - Voltage Output:** Two, rated 100 mA to drive an external relay (low alarm)
- Operating Ambient:** 0 to 49°C (32 to 120°F); 2 to 98% RH
- Power:** 4 "D" alkaline batteries and ac adaptor (included)
- Battery Life:** 3 months under normal conditions
- AC Adaptor:** 100 to 240 Vac input, 9 Vdc @ 1.7 A output
- Battery Status:** Indicator on LCD; shows 100, 75%

Operating Ambient: 0 to 49°C

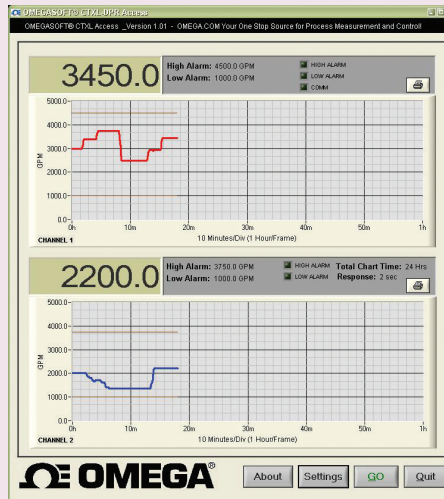
(32 to 120°F); 2 to 98% RH

Power: 4 "D" alkaline batteries and ac adaptor (included)

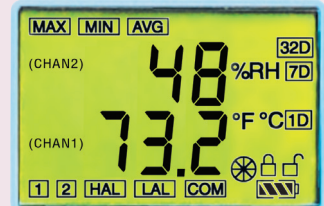
Battery Life: 3 months under normal conditions

AC Adaptor: 100 to 240 Vac input, 9 Vdc @ 1.7 A output

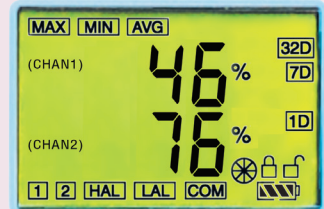
Battery Status: Indicator on LCD; shows 100, 75%



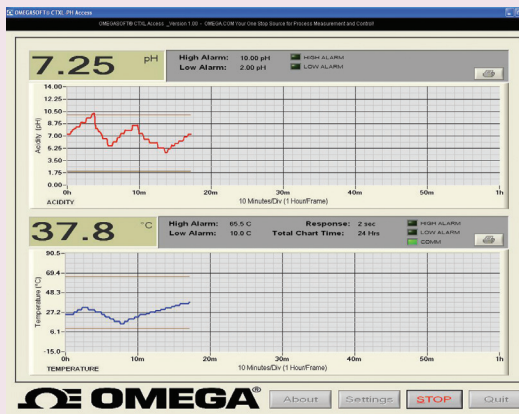
CTXL-DPR PC Application



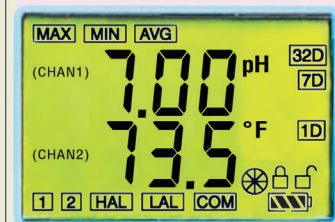
CTXL-TRH–Temperature/Humidity Local Display



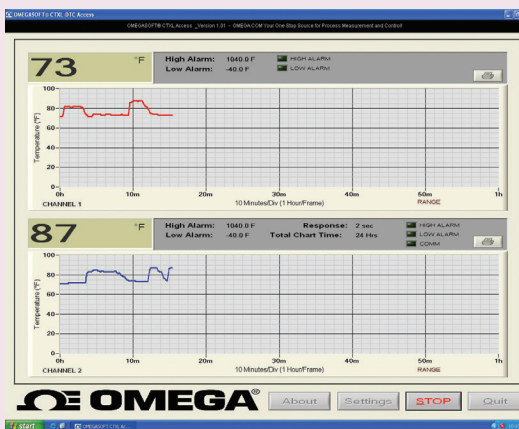
CTXL-DPR–Dual Process Local Display



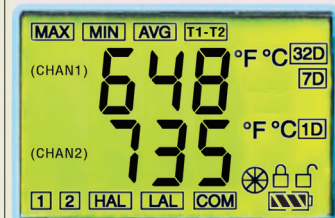
CTXL-PH PC Application



CTXL-PH–pH & RTD Local Display



CTXL-DTC PC Application



CTXL-DTC–Dual Thermocouple Local Display

Serial PC Communications: RS232, 2-way, 9600 baud

Memory: 256K EEPROM (2.8 chart revolutions worth of data)

Lock/Unlock (White Box) Key: Press and hold for 3 seconds to enable/disable; when in lock mode, all keys are inactive except for the power, light, mode, clock and lock/unlock keys

Mounting: Keyhole slots for wall mounting; foot cover for bench top use

Case: ABS plastic

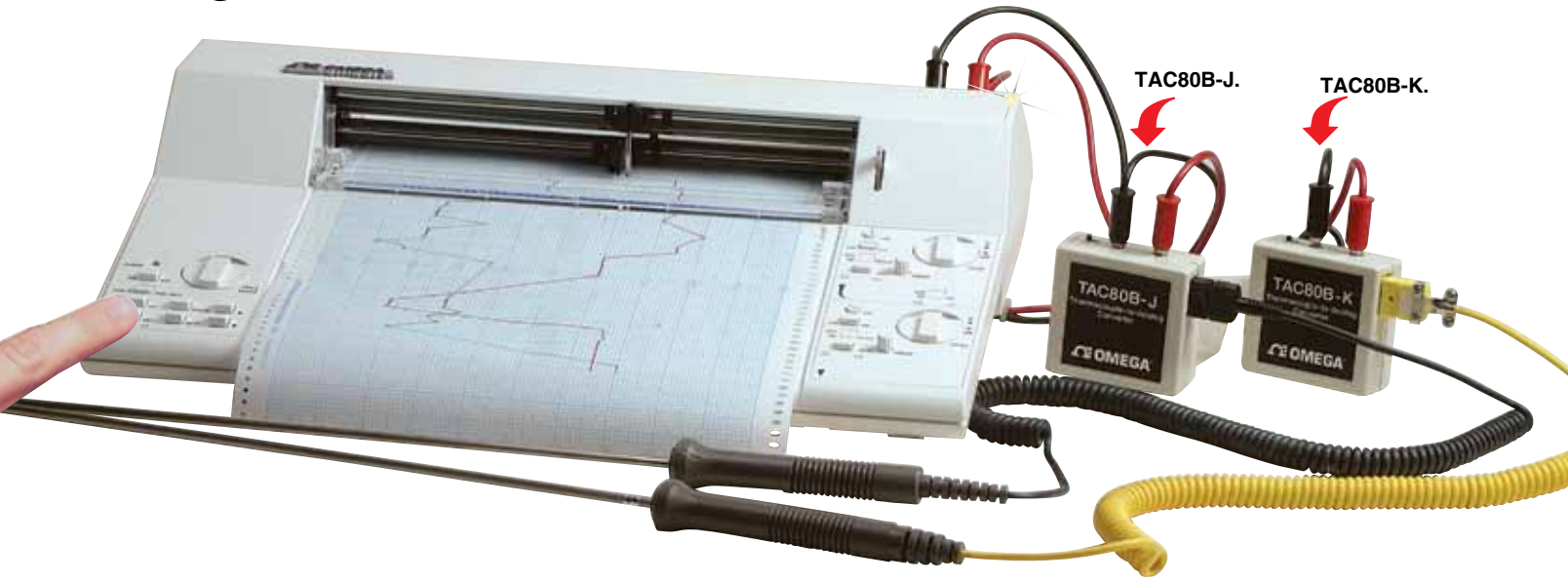
Dimensions: 33.5 H x 27.1 W x 6.7 cm D (13³/₁₆ x 10¹/₁₆ x 2⁵/₈")

Weight: Approx. 3.2 kg (7 lb) with batteries

200 mm (8") Flatbed Recorder

Rometec srl - www.rometec.it - info@rometec.it - Rometec srl - www.rometec.it - info@rometec.it

Single and Dual Channel



RD45A-EPL with optional TAC-80B thermocouple-to-analog converters, and JHIN-18G-RSC-12 and KHIN-18G-RSC-12 thermocouple probes. Shown smaller than actual size.

RD45A-EPL



- ✓ 14 Input Ranges from 1 mV to 20 Vdc
- ✓ Selectable Left or Right Side Zero Position
- ✓ Differential Inputs
- ✓ Electric Pen Lift and Remote Control Options
- ✓ Pen Offset Compensation Optional

The RD45A single-channel and RD46A dual-channel flatbed recorders are ideal instruments for use in research, development and production, as well as in service and education applications. Designed for ease of use, these recorders have an ergonomic shape which allows the user to easily write comments on the chart, even next to the pen.

The wide, 200 mm (8") chart is capable of recording measurements from 1 mV full scale to 20 V. Chart speeds from 0.1 mm/min to 20 mm/

sec (1 mm = 0.03937") are available. As an option, pen offset compensation is available. This eliminates the recording offset caused by the distance between the 2 pens.

Specifications

Input Ranges: 1, 2, 5, 10, 20, 50, 100, 200, 500 mV; 1, 2, 5, 10, 20 Vdc

Variable Range:

From 40 to 100% FS

Span Accuracy: 0.3% FS

Non-Linearity: 0.3% FS

Deadband: 0.2% FS

Response Time:

0.2 sec for 5 to 95% FS

Input Impedance: 1 M Ω dc; 10 k Ω in series with 1.5 μ F for ac

Input: Floating, non-symmetric

Input Terminals: 2 safety terminals

Max Input Voltage: 42 Vdc/30 Vac max at input terminals; (personal safety limits)

CMRR: 130 dB

Zero Adjustment: -50 to 150% FS

Zero Position: User-selectable, left or right side

Remember to Order Extra Pens and Paper!

Zero Drift: 1 μ V/ $^{\circ}$ C max

Chart Speeds: 0.1, 0.2, 0.5, 1, 2, 5, 10, 20 mm/min or mm/sec (1 mm = 0.03937")

Chart Paper: 200 mm W x 25 m L (7.87" x 82")

Chart Step Size: 0.05 mm (0.002")

Chart Timebase Accuracy: \pm 50 ppm

Pen Lift Option: Electronic; automatic pen lift after 30 sec if chart is not advanced

Operating Ambient Range:

-10 to 40 $^{\circ}$ C (14 to 104 $^{\circ}$ F);

35 to 85% RH, non-condensing

Storage Temperature Range: -40 to 75 $^{\circ}$ C (-40 to 167 $^{\circ}$ F)

Power: 110/220 Vac, switchable;

-15/+20%; 50/60 Hz

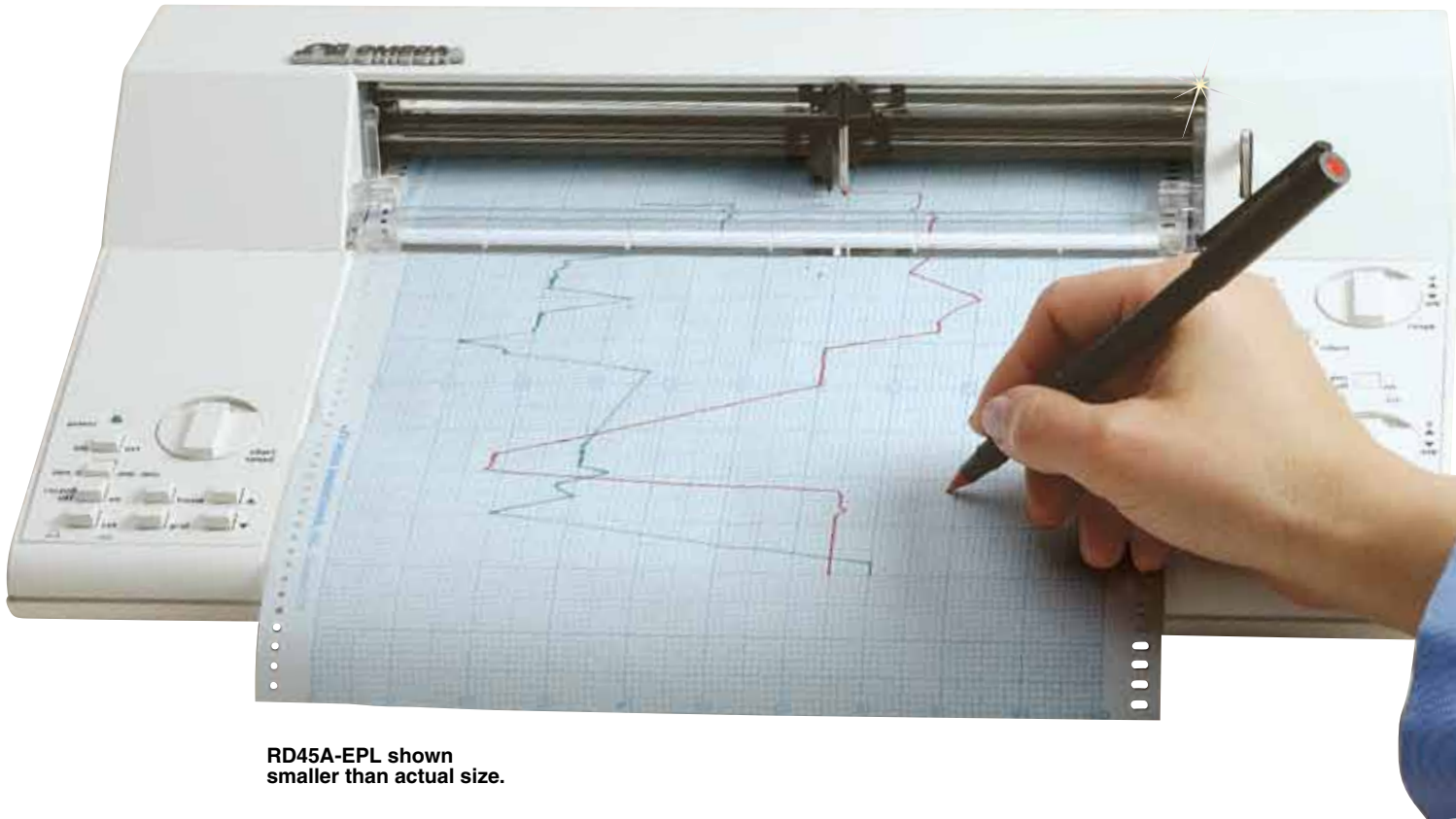
Power Consumption:

30 VA single-channel; 40 VA dual-channel

Dimensions:

90 H x 380 W x 290 mm D (3.6 x 15 x 11.5")

Weight: 3.5 kg (7.7 lb)



RD45A-EPL shown smaller than actual size.

To Order	
Model No.	Description
RD45A-EPL	Single-channel recorder with pen lift and remote control, 200 mm (8")
RD46A-EPL	Dual-channel recorder with pen lift and remote control, 200 mm (8")

Each recorder comes with 1 pen for each channel, one 25 m (82') roll of paper, power cord, fuse, input adaptor connectors and complete operator's manual.

Ordering Example: RD46A-EPL, dual-channel recorder, RDX40-RP, extra chart paper [ten 25 m (82') rolls].

OCW-3, OMEGACARESM extends standard 1-year warranty to a total of 4 years.

Ergonomic Shape Lets User Write Comments Right on the Chart, Even Next to the Pen!



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.

Accessories and Options

Model No.	Description
RDX40-RP	10 rolls of chart paper, 25 m (82') each
RDX40-RD1	6 red pens, channel-1; also event marker
RDX40-BL	6 blue pens, channel-1
RDX40-GR	6 green pens, channel-1
RDX40-BK	6 black pens, channel-1
RDX40-RD2	6 red pens, channel-2
RDX40-BK2	6 black pens, channel-2