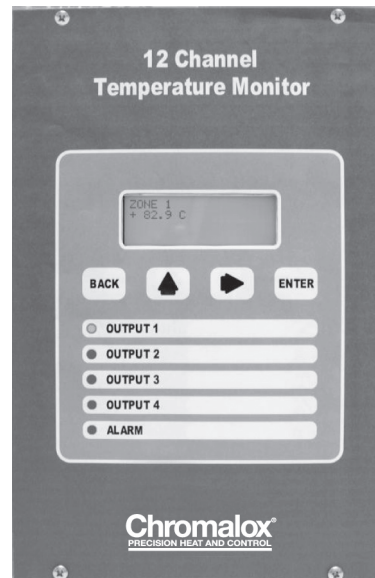# CX224

## 12-Channel Temperature Monitor



- **Prevent Costly Damage to Motors, Generators, Transformers and Other Equipment**

- **Monitor Up to 12 Inputs**

- **Variety of Inputs: RTD, Thermocouple, 4 to 20 mA, in any Combination**

- **Program Via Front Panel & RS485 or RS232 (Modbus Protocol)**

- **Power Loss Protection**

- **24 Independent Trip Points (2 Per Channel)**

- **5 Outputs (Relays or Logic)**

- **Logic Outputs can be Used With External SSRs**

- **Programmable Deadband (Hysteresis)**

- **Rugged Steel Enclosure**

- **Can be Used as a 4-Channel On/Off Controller**

- **Display High, Low, or Any Valid Zones**

- **Self Calibrating**

- **Password Protected Areas Allow Supervisory Control and Monitoring of Trip Points**

**ISO 9001**
APPROVED • CERT. NO. A3164

**Chromalox®**
PRECISION HEAT AND CONTROL

## Description

The CX224 consists of a 12-Channel Temperature Monitor and ChromaSoft™ CX224 Software. It is the next generation in temperature monitoring equipment from Chromalox designed to meet the needs of electric machinery protection. The 12-channel scanning capability, standard RS485/RS232 interface and Windows-compatible software utility for system configuration and data logging provide overtemperature and undertemperature protection and critical feedback to safeguard expensive machinery.

## Software

**CX224 Software Features:**

- Compatibility with Microsoft® Windows® operating system
- User-friendly configuration program
- Save unlimited set-up configurations
- Commission mode to test configurations before implementation
- Continuously displayed measurement and relay status of all 12 channels
- Data logging
- Data graphing for trend analysis

## Custom Options

- Difference between two channels
- Average reading of several channels
- Other input types

## Specifications

**Input:** 1 to 12 RTDs (2 or 3-wire), thermocouples, or 4 to 20 mA current loops. Accepts any combination of input types.

**Standard Input Types:**
RTD:
-200 to 700°C: PA (Platinum/100 Ω/0.00392 Ω/Ω/°C)
-200 to 700°C: PB (Platinum/100 Ω/0.00391 Ω/Ω/°C)
-200 to 850°C: PD/PE (Platinum/100 Ω/0.00385 Ω/Ω/°C)
-200 to 600°C: PF (Platinum/1000 Ω/0.00385 Ω/Ω/°C)
-80 to 260°C: NA (Nickel/120 Ω/0.00672 Ω/Ω/°C)
-100 to 260°C: CA (Copper/10 Ω/0.00427 Ω/Ω/°C)
Thermocouple (grounded models require TI241):
-270 to 1000°C: Type E
-200 to 1200°C: Type J
-270 to 1150°C: Type K
-270 to 400°C: Type T
4 to 20 mA current loop: Pressure (PSI, Bar), Humidity (%), Temperature (°F, °C), Vibration (G), and process variable (mA, VDC)
**Note:** 4 to 20 mA inputs must be linear with respect to the measured variable.

**Input Scan Rate:** 1.5 seconds maximum.

**Input Fault Detection:**
Options for ignoring, sounding alarm, or tripping relays associated with the failed sensor. Other zones are unaffected.

**Output:** 24 independent trip points (2 per channel): 5 relays, one relay is intended for use as an alarm function (but can be configured as a trip point), and one internal audible alarm. Alarm may be programmed to sound when selected relays trip. Logic output option is available for controlling external SSRs or sending a signal to another device.

**Relays:** Form C, SPDT 10 A @ 250 VAC/24 VDC resistive load; 10 A make current; 2500 VA breaking capacity, ¼ HP at 120 VAC motor load.

**Trip point Hysteresis (deadband):**
Programmable from 0 to 20 (°C or °F).

**Display:** 20 × 4 line backlit LCD. 0.1°C or 0.1°F resolution. Front panel LEDs indicate relay and alarm status

**Accuracy:** 2°C (3°F) in 0 to 60°C (32 to 158°F) ambient, over entire range of the input

**Supply Power:** 85 to 240 VAC @ 50/60 Hz. or 110 to 370 VDC, 5 watts max.; or 18 to 36 VDC, 6 watts max.

**Power Loss Protection:**
Trip points and program parameters stored in non-volatile memory. Normal operation resumes when power is restored.

**Keyboard:** 4 membrane type keys with audible feedback.

**Serial Interface:**
RS485 or RS232 (Modbus protocol).

**Programming:** Programmable from front panel or via RS485 or RS232 interface using Modbus protocol. PC software is included for data logging, commissioning, and configuration. Program settings may be password protected

**Firmware Fault Protection:**
Watchdog resets microprocessor if it fails to perform program sequence

**Enclosure:** Steel case; NEMA 4 front panel

**Ambient Temperature Rating:**
0 to 60°C (32 to 158°F)

**Connections:** Terminal blocks at rear accept wires to AWG 12

**Leadwire Resistance Compensation:**
Up to 30 Ω per leadwire for RTDs, with no effect on reading

**Dimensions:** 7.5 × 11.5 × 2" (191 × 292 × 51 mm)

**Mounting:** Panel mount enclosure. Cutout size of 6.8 × 10.6" (173 × 269 mm)

**Weight:** 3.8 lbs. (1.72 kg.)

**Agency Approvals:**
UL: 508

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## Ordering Information

**CX224  12-Temperature Monitor**

| Code | Power supply |
|------|-------------|
| A | 85-240 VAC @ 50/60 Hz / 110-370 VDC |
| B | 18-36 VDC |

| Code | Output |
|------|--------|
| 1 | Relays |
| 2 | Logic (5 VDC) |

| Code | Interface |
|------|-----------|
| A | RS232 |
| B | RS485 |

| CX224 - | A | 1 | A | Typical Model Number |
|---------|---|---|---|----------------------|

The CX224 monitor comes complete with CX224 software.

## Accessories

**AC102734:** Communication package. Includes isolated RS232 to RS485 converter, power supply for converter, 6' (1.8 m) serial cable, and DB25 to DB9 adapter

**TI241:** 8-channel thermocouple isolator. Electrically isolates grounded thermocouples for use with CX224