

Capital Controls

Chloralert™ Plus

Hazardous Gas Monitor

The Capital Controls Series 17CA3000 Chloralert™ Plus is a state-of-the-art device for rapidly measuring and alarming the ambient presence of low concentrations of toxic gases. The microprocessor-based receiver can accept input from up to four independent sensors each designed to accurately determine part per million levels of chlorine or sulfur dioxide. The receiver enclosure is NEMA 4X rated and can be wall mounted wherever the monitored gases are manufactured, stored or utilized. Each gas sensor may be located up to 1000 feet (305 meters) from the receiver. Multiple relays allow for remote alarming and activation of ancillary safety equipment such as SafeTC, blowers, scrubbers, etc.

The series 17CA3000 incorporates a unique one-man calibration procedure that allows one person to calibrate each sensor using the optional CAL2000 Calibrator. This feature allows the person doing the calibration to have instantaneous indication of the progress of the calibration at the sensor location.

The multi-line digital display shows the operating conditions of each of the sensors simultaneously. This includes indication of the actual detected gas levels in either PPM or mg/m³ as well as any operational or concentration alarms.

Configurable concentration alarms for instantaneous, short term exposure limit (STEL) and time weighted average (TWA) to meet various regulatory agency requirements.

- ◆ **Monitors:** Simultaneously monitors chlorine and sulfur dioxide gas.
- ◆ **Long Sensor Life:** 2 years under normal operating conditions.



- ◆ **Flexible Configuration:** Up to four combinations of gas sensors with up to nine assignable alarm relays.
- ◆ **Convenient Installation:** NEMA 4X receiver housing allows indoor or outdoor mounting up to 1000 feet (305 meters) from sensor locations.
- ◆ **Simple Calibration:** Menu driven procedure allows one person to easily calibrate sensor(s) and receiver.
- ◆ **Comprehensive Display:** 2 line by 20 character backlit LCD conveniently displays instantaneous readings, short term exposure limits (STEL), time weighted averages (TWA), calibration data, alarm settings, alarm conditions and alarm history for each gas sensor.
- ◆ **Minimal Maintenance:** Self-diagnostics and sensor failure detection standard.
- ◆ **Alarm history:** Most recent 40 alarms held in battery protected SRAM memory on first-in/first-out basis.
- ◆ **Uninterrupted Operation:** Optional battery backup allows up to 24 hours operation with main power failure.
- ◆ **Communications:** Optional 4-20 mA_{dc}, RS232 or RS485



BRIEF SPECIFICATION

The gas leak detector shall be designed for monitoring the presence of chlorine and/or sulfur dioxide in air. The unit shall accommodate up to four sensors. Each sensor shall monitor for the presence of a specific gas. The unit shall be capable of monitoring any combination of the chosen gases simultaneously. Points of measurement may be located up to 1000 feet (305 meters) from the indicating receiver. Housing for both the sensors and the indicating receiver shall be wall mounted and designed for NEMA 4X weatherproof service.

Each sensor shall contain a red LED which shall provide four unique operating indications. An extinguished LED shall indicate a non-functioning sensor. A continuously lit LED shall indicate proper operation. A slow or rapid blinking LED shall indicate a fail or pass of the calibration procedure. Each sensor shall transmit a conditioned analog signal, proportional to the measured gas concentration, to the remotely mounted indicating receiver. An optional self-check generator shall be available for each sensor to generate a self-test signal.

The measured value of gas concentration from each sensor shall be indicated on the 2-line by 20-character backlit LCD operator display of the indicating receiver. The unit shall have the capability of displaying the measured concentration from all sensors on the same display simultaneously. Operational details of each sensor shall be available through keyboard command. Character height shall be 0.19 inch minimum. All measured values shall be direct reading in either parts per million or milligrams per cubic meter. The indicating receiver shall include a membrane keypad with 20 tactile keys for operator display management and system configuration. The unit shall be provided with three programmable alarm relays as standard and the capability for six additional assignable relays. The receiver shall incorporate the capability for self-diagnostics which shall include monitoring the status of each sensor and automatically reporting any malfunctions.

The indicating receiver shall have the optional capability of providing a 4-20 mAdc analog output into 900 ohms for each connected sensor. The receiver shall also have the optional provision for either RS232 or RS485 communications connections.

In order to satisfy various regulating agency requirements, the unit shall be configurable to provide alarms for: instantaneous, short term exposure limits (STEL), time weighted averages (TWA) and custom alarms. The values for each of these limits shall also be displayable. An alarm history showing the most recent 40 alarms shall be provided and held in SRAM memory on a first-in/first-out basis. Displayable alarm information shall include: alarm type and level, alarm duration and time & date of occurrence.

An external, wall mountable battery kit shall be optionally available to provide up to 24 hours of operation in the event of a power failure. The battery shall be housed in a NEMA 4X enclosure for mounting adjacent to the indicating receiver. The battery shall be held at full charge by the receiver.

SENSORS

Sensors are presently available for two gases* including chlorine and sulfur dioxide. Each sensor is available in three detection ranges as shown below. Optional sensor-check generators can be furnished for each sensor type and range.

	Low	Medium	High
Cl ₂	5 ppm	10 ppm	50 ppm
SO ₂	10 ppm	20 ppm	100 ppm

Minimum Detectable Concentration

Cl₂ 0.1 ppm

SO₂ 0.1 ppm

*Contact the factory for availability of other gases.

TECHNICAL DATA

RECEIVER

Quality Standard: ISO 9001

Power Requirements: 93.5 to 276 Volts ac, 47 to 63 Hertz

Permitted Voltage Dropout Duration: < 20 ms

Power Consumption: 14 watts maximum (4 sensors)

Ambient Conditions: Temperature -5° to $+55^{\circ}\text{C}$ (23° to 131°F), Relative Humidity 0-100% non-condensing

Sensor Signal: Multiplexed, Frequency Modulated

Sensor Points: 1-4 mix and match in any configuration

Accuracy: +/- 5% of reading

Alarms: Instantaneous, Time weighted average (TWA), Short term exposure limit (STEL) and custom functions. Operation is customer configurable for latching, non-latching, with or without time delay.

Alarm/Contact Outputs: Customer assignable. Three SPDT Standard. Six additional SPST (optional). Contacts rated at 1.5 A at 120 Vac

Analog Output: 4-20 mAdc into 900 ohms for each connected sensor (optional)

Communications: RS232 or RS485 (optional)

Diagnostics: System, power and sensor failure. Auto sensor testing when optional Sensor-Check Generator Cell is provided on sensor

Display:

Display: Back-lit LCD, 2 lines X 20 characters, Display flashes for concentration and operational alarms

Keyboard: 20 Tactile keys

Enclosure:

Rating: Nema 4X (IP65), meets UL94V-0 flammability rating

Connections: 1/2" conduit

Dimensions: 8-5/8"(219 mm) H x 10-7/8"(276.3mm) W x 5-21/64"(135.4 mm) D

Weight: 4 lbs. (1.82 kg)

Optional Accessories:

Key Lock Receiver Door

Battery Back-up: 24 HRS minimum (4 sensors), trickle charge from receiver, battery status periodically displayed on receiver display

Dimensions: 8-3/4"(222.3 mm) H x 10-1/2"(266.7mm) W x 6-1/4"(158.8 mm) D

Weight: 15 lbs. (6.81 kg)

SENSOR

Gases: Chlorine (Cl_2) or Sulfur Dioxide (SO_2)

Type: Electrochemical

Minimum Detectable Concentration: 0.1 PPM

Response and Recovery Time: Less than one minute for 90% of exposure concentration

Ambient Conditions: Temperature -30° to $+55^{\circ}\text{C}$ (22° to 131°F), Relative Humidity 0-100% non-condensing, Barometric Pressure 0.8 to 1.2 atmospheres

Sensor Distance: Up to 1000 feet (305 meters) from the receiver

Calibration Mode: Automatic, non-intrusive, remote single person

Rating: Nema 4X (IP65)

Connection: 1/2" conduit

Dimensions:

11-3/64"(280.6 mm) H x 3-7/32"(81.8 mm) W x 2-5/32"(135.4 mm) D

12-9/16"(319.0 mm) H x 3-7/32" (81.8 mm) W x 2-5/32"(135.4 mm) D w/ Sensor-Check Generator Cell

Weight: 21 oz. (.34 kg)

Optional Accessories:

Sensor-Check Generator Cell (Cl_2)

Sensor Cable – Beldon #8719

Portable Calibration Gas Generator (Cl_2)

Calibration Gas Sample Bottle w/ or w/o Regulator (Cl_2 & SO_2)

MODEL NUMBER DESIGNATION

17CA3

Enclosure

Standard Wall Mounting _____ **1**
 Standard With key Locked door _____ **2**

Analog Outputs

None _____ **0**
 4 ANO _____ **1**

Digital Outputs

3 DO _____ **0**
 9 DO _____ **1**

Design Level

_____ **A**

Communications

None _____ **0**
 RS485 _____ **1**
 RS232 _____ **2**

Sensor Channel - Calibrated with Detector*

Not Required _____	0	0	0	0
Chlorine Sensor - (0-5 PPM) _____	1	1	1	1
Chlorine Sensor - (0-10 PPM) _____	2	2	2	2
Chlorine Sensor - (0-50 PPM) _____	3	3	3	3
Chlorine Sensor with Sensor Check - (0-5 PPM) _____	4	4	4	4
Chlorine Sensor with Sensor Check - (0-10 PPM) _____	5	5	5	5
Chlorine Sensor with Sensor Check - (0-50 PPM) _____	6	6	6	6
Sulfur Dioxide Sensor - (0-10 PPM) _____	7	7	7	7
Sulfur Dioxide Sensor - (0-20 PPM) _____	8	8	8	8
Sulfur Dioxide Sensor - (0-100 PPM) _____	9	9	9	9

* Specify type and quantity of sensor(s) required (4 maximum)

ISO 9001 Certification

Severn Trent Services is ISO 9001 certified to provide quality and precision materials. Disinfection technologies, water quality monitors and instrumentation for water and wastewater are areas of specialization. Over 35 years of industrial and municipal application experience in the water and wastewater industries is incorporated into the equipment design to provide high quality comprehensive solutions for the global market.

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