ENGINEERING PRODUCTS

Multi-gas Detection and Control System

CEL4 Series
December 2011

SCALABLE SYSTEM USING UP TO 4 SENSOR/TRANSMITTERS CONNECTED TO A CENTRAL CONTROL PANEL

Features:

- Proven RS-485 transmission technology for up to 4 remote sensor/transmitters.
- Relay outputs or 4-20mA analog outputs from the Control Panel.
- Equipment is composed of solid-state circuitry housed in rugged enclosures.

Applications:

- Energy savings through the intermittent operation of ventilation equipment in enclosed facilities.
- Suitable for garages, tunnels, warehouses and other enclosed commercial locations where a hazardous build-up of gases may occur.

The CEL4 Series Multi-gas Detection & Control System is designed to provide a compact, high quality reliable gas detection system at a moderate cost.

The ACME CEL4 series is a microprocessor-based up to 4 channel multi-gas detection and control system that can be used with a wide variety of ACME toxic, combustible & oxygen gas sensors. The sensors can be grouped in any combination. The wiring between the Control Panel and the remote sensors is accomplished by a 4-wire "daisy-chain".

The LCD provides a digital readout of gas concentrations and ON-OFF output level status for each channel as well as system error codes.

In its most basic configuration, the CEL4 Control Panel supports up to 4 channels where each channel is treated independently controlling a fan zone.

In this configuration, all channels have their own SPDT relay output at Low gas levels and/or a 4-20mA signals proportional to the gas readings. In a more practical application, the channels are divided into groups that collectively serve various fan zones. In this latter configuration each group (zone) has a set of relay output contacts at Low gas levels and/or 4-20mA signal proportional to the demand from that group.

High & Alarm gas level SPDT relay outputs are always common to all channels.

The CEL4 series Sensor/ Transmitters are available with different sensor technologies depending on the type of target gas and job application.

The CO-ST-485, for example, uses a Electro-chemical (ECH) CO sensor; The CO2-ST-485 employs a non-dispersive infrared (NDIR) CO2 analyzer; The XX-EL-ST-485 sensor/transmitters all have electrochemical cell type sensors. The Acme 40-ST-XP Combustible Gas Vapor sensors are catalytic bead (pellistor) and furnished in explosion-proof enclosures for use in Class 1 hazardous locations.

Acme also offers a version of the CEL where a maximum of 32 channels is supported. Output configurations are more versatile and a removable user keypad is available to customize the system parameters.

CEL4 series Sensor/Transmitters

Technical Data:

Gas detected:	Toxics: Carbon Monoxide, Carbon Dioxide, Nitrogen Dioxide, Hydrogen, Hydrogen Sulphide, Sulphur Dioxide, Oxygen, etc. Combustibles: Propane, Methane, Butane
Detection range:	Varies by gas
Sensors:	ECH, NDIR, Catalytic Bead or Electrochemical
Mounting:	Wall or column with brackets (supplied)
Unit dimensions:	152mmH x 152mmW x 101mmD (6"H x 6"W x 4"D)
Supply voltage:	24V (9V for Combustibles) supplied from Control Panel
Outputs :	RS-485
LED indicators:	Power "On", Bar graph for CO-ST-485
Operating Temperature:	Varies by gas
Realtive Humidity:	5-95% non-condensing
Approvals:	CAN/CSA-22.2 No 1010.1-92 UL 61010C-1 ISA S82.01
Sensor Life:	7 Years for CO only; 2 Years for Electrochemical; 10 Years for NDIR; 3 Years for Catalytic Bead Sensors

How to order

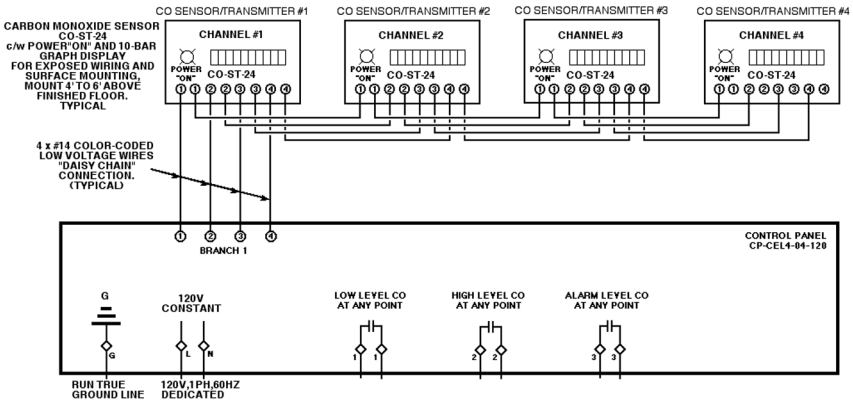
Indicate "N" the number of sensors (of the same gas for multi-gas) to be included.
Add a "BB" suffix at the end to indicate an integral battery back-up.
For other supply voltage, substitute 120 by the desired voltage (24, 240 or 277V).

Gasoline Fumes (CO)
CO-CEL4-N-120
Carbon Dioxide (CO2) for IAQ
CO2-CEL4-N-120
Diesel Fumes (NO2 based)
DG-NO-CEL4-N-120
Gasoline Fumes (CO) &
Diesel Fumes (NO2 based)
MGD-NO-CEL4-N-120

Combustible Gas
Methane : 40-CH4-CEL4-N-120
Propane : 40-C3H8-CEL4-N-120
Butane : 40-C4H10-CEL4-N-120
Other gases
Oxygen : O2-CEL4-N-120
Hydrogen : H2-CEL4-N-120
Chlorine : CL2-CEL4-N-120
Ammonia : NH3-CEL4-N-120

For other gases or other combination of gases, contact factory for model number.

Typical wiring diagram



Principle of operation:

The ST Series Sensor/Transmitters provide a linear, 4-20 mA output signal over the desired detection range for the gas selected. This signal is digitally transmitted to the CEL4 Control Panel using an addressable RS-485 communication interface.

Typical specifications:

Supply, install and connect at locations shown on plans ACME model XX(-EL)-ST-485 Sensor/Transmitters and a CEL4 Control Panel.

Each Sensor/Transmitter shall be interrogated by the Control Panel and its data acquired and stored in memory.

The CEL4 Control Panel shall have multiple ON-OFF outputs at LOW LEVEL detection, common outputs for HIGH and ALARM LEVEL and visual status indicators for each sensor. Discrete relay contacts shall be available to operate the mechanical ventilation equipment based on demand. Local and/or remote alarm devices shall also be activated by the ON-OFF relays.

The CEL4 Control Panel's logic circuits shall operate the exhaust/supply fans and dampers according to job specifications. The Control Panel shall supply 24VAC to all remote Sensor/Transmitters.

The standard panel provided shall be a gasketed NEMA 1 enclosure with provision for a 120VAC 50/60 Hz power input. Power shall be supplied from a dedicated uninterruptible 15A circuit. (Provision for battery back-up is optional).

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CERTIFIED BNQ ISO 9001:2008 SYSTEM

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