GasSens

Modular Gas Detector

C12-17 Combustible Gas Transmitter

OVERVIEW

The Model C12-17 is a stand-alone gas transmitter designed to detect potentially hazardous concentrations of combustible gases in ambient air. Gases and hydrocarbon vapors such as methane, propane, butane, gasoline, toluene, hydrogen and many others can be reliably monitored in process buildings, analyzer enclosures, pump stations and gas compressor stations. In fact, anywhere gases or vapors may build up to explosive levels can be readily monitored using this transmitter.

TRANSMITTER OPERATION

C12-17 combustible gas transmitters are three-wire transmitters, operating from 24V DC power supplies and transmitting a 4-20 mA signal proportional to 0–100% LEL (Lower Explosive Limit) of a particular gas or vapor. The transmitter is available either as a blind transmitter or with integral LCD display that provides local indication of gas concentration, visible through the glass window in the explosion-proof housing.

Units supplied with the integral display also contain a single alarm setpoint and relay for local alarm purposes. This integral relay is a latching alarm that can be reset with a magnetic tool without opening the enclosure.

C12-17 transmitters can be connected directly to PLC, DCS or computer based alarm systems without additional hardware. If complete alarm systems are needed, Badger Meter can supply Series B14 modular alarm receivers or Series C14 multi-point scanning alarm units to provide all required alarm functions.



Figure 1: Transmitter without display



SENSOR OPERATION

Combustible gas sensors are made up of two matched sensing elements, one active and one passive. Both are electrically heated and form two legs of a Wheatstone bridge circuit.

When combustible gas contacts the sensor, the active element catalyzes the oxidation of gas, heating the active element and changing its resistance. The passive element remains unchanged, resulting in a change in the bridge circuit that is proportional to the gas concentration.

Explosion-proof sensor assemblies are made of 316 stainless steel for maximum corrosion protection. A sinter bonded flame arrestor provides the gas diffusion path to the sensing elements while maintaining the flame-proof integrity of the assembly.

Sensing elements are specially designed for maximum poison resistance and long life in harsh industrial environments, with sensor life typically 2 years or more.

Badger Meter

ATI-DS-05283-EN-01 (June 2026)

Product Data Sheet

SPECIFICATIONS

Gas Type	Calibrated for methane unless otherwise ordered
Display	3-digit LCD optional
Range	0–100% LEL
Response Time (T90)	10 seconds
Electronic Repeatability	±1%
Electronic Linearity	±0.5%
Accuracy	Generally ±5% of value, but limited by available calibration gas accuracy
Zero Drift	Less than 2% full scale per month
Span Drift	Less than 3% per month

Output	Powered 4-20 mA, 675 Ohms max. at 24V DC
Power	12–30V DC, 100 mA max.
Enclosure	Explosion-proof, Class 1, Div 1, Groups B, C & D
Alarm	Optional single alarm available
Alarm Relay	SPDT, 5 A @ 220V AC non-inductive, latching
Sensor	316 stainless steel
Controls	Potentiometer zero and span adjustment Potentiometer alarm setpoint adjustment Magnetic reset switch for latching alarm relay
Operating Temperature	–40 to 158 °F (–40 to 70 °C)
Weight	3 lb (1.3 kg)

ORDERING INFORMATION

Model C12-17-DDDD-E-F

Suffix C - Sensor Style	
1	Standard
2	Remote sensor with junction box

Suffix DDDD - Range	
0100	0–100% LEL
0050	0–50% LEL

Suffix E - Units of Measurement	
1	No display
2	Integral display & alarm relay

Accessories

00-0258	Calibration adapter
00-0261	Splash guard/remote calibration adapter
00-0298	Sensor flow assembly

Trademarks appearing in this document are the property of their respective entities. Due to continuous research, product improvements and enhancements, Badger Meter reserves the right to change product or system specifications without notice, except to the extent an outstanding contractual obligation exists. © 2026 Badger Meter, Inc. All rights reserved.