GasSens

Modular Gas Detector

B12 2-Wire Gas Transmitter

OVERVIEW

The B12 2-wire gas transmitter monitors hazardous gases in ambient air.

Series B12 transmitters are loop-powered instruments that transmit a 4–20 mA signal linearly proportional to gas concentration. Operated from a 24V DC power supply, the transmitter can drive loads up to 675 Ohms, sufficient for most monitoring applications. Alternatively, the unit can operate at 12V DC, with reduced output load, for applications requiring battery operation.

Transmitters are normally supplied with the sensor close coupled to the enclosure. However, for special applications, the unit can be supplied with separate sensors that can be located up to 25 feet from the transmitter. Sensor duct mounting adapters and sensor flow cells can also be provided for specific applications. Contact Badger Meter Technical Support with details of any special requirements.



GAS AND RANGE AVAILABILITY

Gas	Minimum Range	Maximum Range
Ammonia	0–100 ppm	0–2000 ppm
Carbon Monoxide	0–100 ppm	0–1000 ppm
Hydrogen	0–1000 ppm	0–10%
Nitric Oxide	0–50 ppm	0–500 ppm
Oxygen	0–5%	0–30%
Phosgene	0–1 ppm	0–100 ppm
Bromine	0–1 ppm	0–200 ppm
Chlorine	0–1 ppm	0–200 ppm
Chlorine Dioxide	0–1 ppm	0–200 ppm
Fluorine	0–1 ppm	0–200 ppm
Iodine	0–1 ppm	0–200 ppm
Ozone	0–1 ppm	0–200 ppm
Hydrogen Peroxide	0–10 ppm	0–2000 ppm
Hydrogen Chloride	0–10 ppm	0–200 ppm
Hydrogen Cyanide	0–10 ppm	0–200 ppm
Hydrogen Fluoride	0–10 ppm	0–200 ppm
Hydrogen Sulfide	0–10 ppm	0–500 ppm
Nitrogen Dioxide	0–10 ppm	0–200 ppm
Sulfur Dioxide	0–10 ppm	0–200 ppm

Gas	Minimum Range	Maximum Range
Arsine	0–1000 ppb	0–2000 ppm
Diborane	0–1000 ppb	0–2000 ppm
Germane	0–1000 ppb	0–2000 ppm
Hydrogen Selenide	0–1000 ppb	0–2000 ppm
Phosphine	0–1000 ppb	0–2000 ppm
Silane	0–20 ppm	0–2000 ppm
Acid Gases	0–10 ppm	0–200 ppm
Ethylene Oxide	0–20 ppm	0–200 ppm
Formaldehyde	0–20 ppm	0–200 ppm
Alcohol	0–500 ppm	0–2000 ppm
Acetylene	0–500 ppm	0–2000 ppm
NOx	0–100 ppm	0–200 ppm

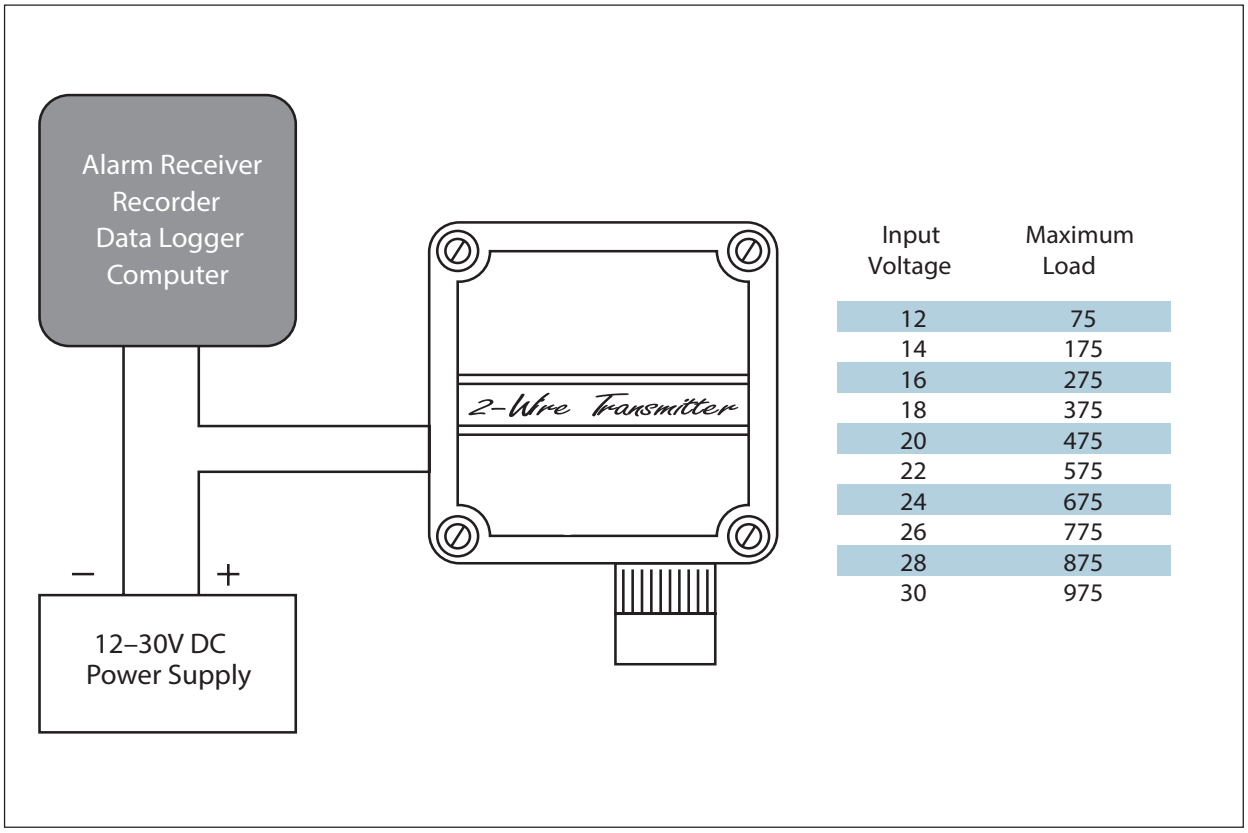
Badger Meter

ATI-DS-05286-EN-01 (January 2026)

Product Data Sheet

SPECIFICATIONS

Gas Type	Customer-selected from available sensor list
Range	Supplied with standard range for each gas unless otherwise specified
Accuracy	Generally ±5% of value, but limited by available calibration gas accuracy
Electronic Repeatability	±1% of full scale
Electronic Linearity	±0.5% of full scale
Zero Drift	Sensor dependent, but generally less than 2% of full scale per month, non-cumulative
Span Drift	Application dependent, but generally less than 3% per month
Output	Loop-powered 4-20 mA, 675 Ohms maximum at 24V DC
Power	12–30V DC
Enclosure	NEMA 4X polystyrene. Explosion-proof optional, Class 1, Div. 1, Groups B, C & D
Controls	Zero and span potentiometers mounted on transmitter circuit board
Operating Temperature	–30 to 55 °C (–22 to 131 °F) except oxygen, which is –10 to 55 °C (–10 to 131 °F)
Sensor Pressure Limits	7–30 PSIA (0.5–2 bar)
Weight	0.25 lb (0.12 kg); 1.75 lbs (0.8 kg) for X-Proof enclosure
Display	Optional 3-digit LCD (not available with X-Proof enclosure)



Input Voltage	Maximum Load
12	75
14	175
16	275
18	375
20	475
22	575
24	675
26	775
28	875
30	975

Figure 1: Maximum load

ORDERING INFORMATION

Specify model number using the suffixes below.

Model B12-S1-AA-BB-CCCC-D 2-Wire Gas Transmitter

S1 - 1 Sensor	
Suffix AA - Enclosure	
XX	None
1E	NEMA 4X
2E	Explosion-proof
3E	Dual Condulet (explosion-proof systems only)
4E	NEMA 4X with integral LCD display
5E	NEMA 4X with separated sensor, 25-ft sensor cable
6E	NEMA 4X with integral LCD display and separated sensor, 25-ft sensor cable
7E	NEMA 4X with duct insertion sensor, 25-ft cable (requires 00-0814 adapter)
8E	NEMA 4X with LCD display and insertion duct sensor (requires 00-0814 adapter)

Suffix BB - Gas Type (Standard range shown in parentheses)					
10	Bromine (0–2 ppm)	21	Hydrogen Chloride (0–20 ppm)	31	Hydrogen Selenide (0–1000 ppb)
11	Chlorine (0–10 ppm)	22	Hydrogen Cyanide (0–20 ppm)	32	Phosphine (0–1000 ppb)
12	Chlorine Dioxide (0–2 ppm)	23	Hydrogen Fluoride (0–20 ppm)	33	Silane (0–20 ppm)
13	Fluorine (0–2 ppm)	24	Hydrogen Sulfide (0–50 ppm)	34	Hydrogen Peroxide (0–10 ppm)
14	Ozone (0–2 ppm)	25	Nitric Oxide (0–100 ppm)	35	Iodine (0–2 ppm)
15	Ammonia (0–100 ppm)	25	Nitrogen Dioxide (0–20 ppm)	36	Acid Gases (0–10 ppm)
16	Carbon Monoxide (0–100 ppm)	27	Sulfur Dioxide (0–20 ppm)	37	ETO (0–20 ppm)
18	Hydrogen (0–4%)	28	Arsine (0–1000 ppb)	38	Formaldehyde (0–20 ppm)
19	Oxygen (0–25%)	29	Diborane (0–1000 ppb)	39	Alcohol (0–500 ppm)
20	Phosgene (0–2 ppm)	30	Germane (0–1000 ppb)	40	Acetylene (0–1000 ppm)
				42	NOx (0–100 ppm)

Suffix CCCC - Measurement Range

Code the measurement range using a four digit number.

The standard range for each gas is shown in parentheses in *"Suffix BB - Gas Type (Standard range shown in parentheses)"*.

Minimum and maximum ranges are shown in *"Gas and Range Availability" on page 1*.

Consult Badger Meter Technical Support for special ranges.

Suffix D - Units of Measurement	
1	ppm
2	ppb
3	%
4	% LEL

Accessories

00-0118	Calibration adapter for standard sensors
00-0258	Calibration adapter for explosion-proof sensors
45-0046	Rain shield for explosion-proof sensors
00-0261	Remote calibration adapter for combustible sensors
00-0253	Flow cell assembly for A10 standard sensors
00-0298	Flow cell assembly for C10 explosion-proof sensors

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.