

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–	0–2000 ppm 0–
Carbon Monoxide	100 ppm 0–1000	1000 ppm 0–10%
Hydrogen	ppm 0–50 ppm	0–500 ppm 0–
Nitric Oxide	0–5%	30%
Oxygen	0–1 ppm	0–100 ppm
Phosgene	0–1 ppm	0–200 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 0–
Ozone	0–10 ppm	2000 ppm 0–200
Hydrogen Peroxide	0–10 ppm	ppm
Hydrogen Chloride	0–10 ppm	0–200 ppm
Hydrogen Cyanide	0–10 ppm	0–200 ppm
Hydrogen Fluoride	0–10 ppm	0–500 ppm
Hydrogen Sulfide	0–10 ppm	0–200 ppm
Nitrogen Dioxide	0–10 ppm	0–200 ppm
Sulfur Dioxide		

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



SPECIFICATIONS

Gas Type	Customer-selected from available sensor list
Range	Supplied with standard range for each gas unless otherwise specified
Accuracy	Generally $\pm 5\%$ of value, but limited by available calibration gas accuracy
Electronic Repeatability	$\pm 1\%$ of full scale
Electronic Linearity	$\pm 0.5\%$ 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)

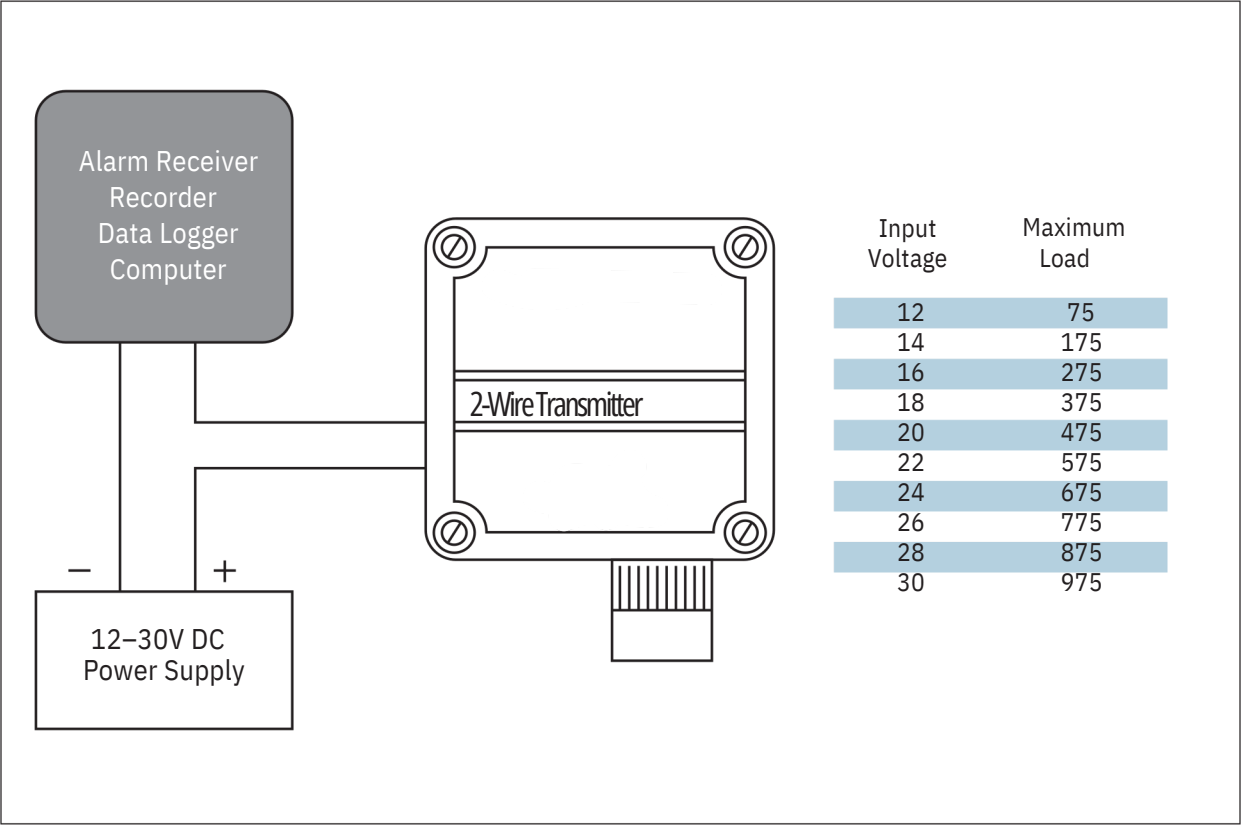


Figure 1: Maximum load



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)	26	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	Suffix D - Units of Measurement
Codethemeasurement rangeusinga four digit number.	1 ppm
The standard range for each gas is shown in parentheses in “Suffix BB - Gas Type (Standard range shown in parentheses)”.	2 ppb
Minimum and maximum ranges are shown in “Gas and Range Availability” on page 1.	3 %
Consult Badger Meter Technical Support for special ranges.	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

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