Automation Components, Inc.

Q5/B5 SERIES
Toxic/Combustible Gas Transmitter

The B5/Q5 Toxic/Combustible Gas Detectors use various sensing technologies to detect a wide assortment of gases. These units are housed in a NEMA 4X rated plastic enclosure that will meet the most stringent applications. All models feature an internal clock, LCD Display for displaying gas concentrations and setup, LED Status Indication, integral buzzer with three user configurable relays and a number of different communication protocols for use with one of our gas controllers or your building management system. Factory calibrated sensor module replacements are available and are easily replaced in the field by removing two screws on the previous module. All units should be checked for proper functionality and calibration once the replacement sensor module is reinstalled and has had a chance to warm up. A user selectable password can be used to protect the system integrity. The Q5 can be used as a standalone gas detector or in conjunction with the Q4C, M-Controller or Q-Controllers using the proprietary RS-485 Optomux communication protocol. The B5 uses BACnet™ MSTP (RS485) protocol to communicate directly with a BAS. ACI also offers a full line of horns and strobes that can be used with the Gas detectors or building management system to alert building occupants of an alarm condition. Refer to all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products. The Q5/B5-GENL can be ordered to monitor specific combustible gases such as Gasoline, Ethanol, Diesel or Jet fuel. Contact ACI for specific gases.

Applications: Mechanical Rooms, Warehouses, Refrigeration Plants, Industrial Plants, Process Monitoring, Leak Detection, Parking Garages, Auto/Truck Maintenance Facilities, Oil and Gas Industry

The Q5/B5 Series Gas Transmitters are covered by ACI's Two (2) Year Limited Warranty against defects in material and workmanship from the date of shipment with the exception of the Sensor Modules (Electrochemical/Toxic: Six Months and Catalytic/Combustible: One Year). The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's website, workaci.com.

PRODUCT SPECIFICATIONS

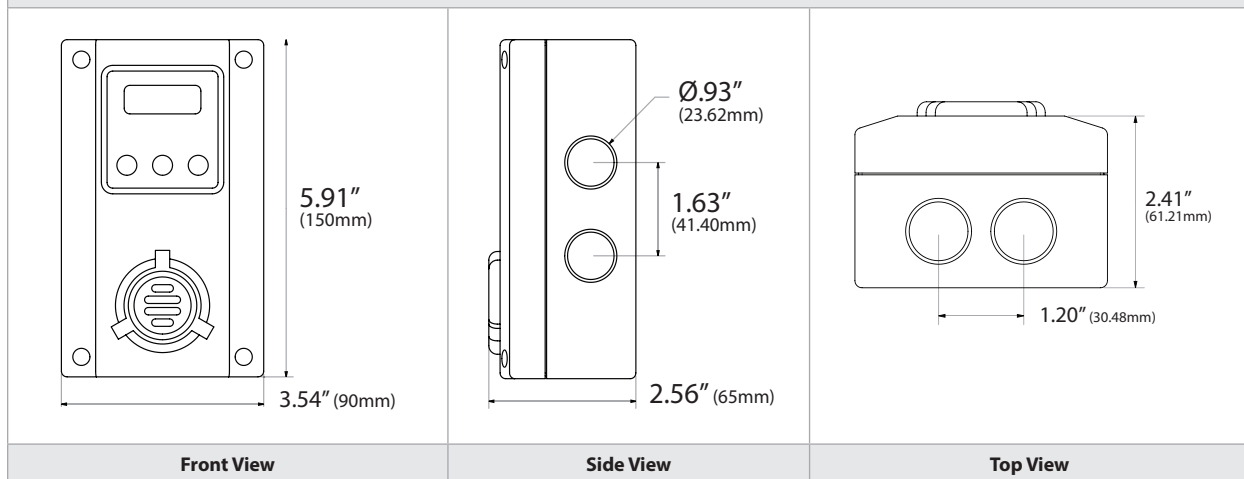|	
Supply Voltage (Q5):	**VDC Supply Voltage:** 24 VDC nominal (+18 to 30 VDC) **VAC Supply Voltage:** 24 VAC nominal (+15 to 24 VAC) (AC Power must not be grounded)
Supply Voltage (B5):	**VDC Supply Voltage:** 24 VDC nominal (+18 to 30 VDC) **VAC Supply Voltage:** 24 VAC nominal (+15 to 24 VAC) (AC Power must not be grounded)
Fuse Protection:	0.750A Polyswitch: (Resets after fault is cleared & power to circuit is removed)
Supply Current | Power Consumption:	0.3A maximum | 8.4 VA
Analog Output Signals (Q5 Only):	**Analog:** 4-20 mA, 1 to 5 VDC or 2 to 10 VDC (All Analog Output Signals require 4-Wires)
Maximum Load Impedance:	**4-20 mA Output:** 600 Ohms maximum | **1-5 VDC or 2-10 VDC:** 3000 Ohms minimum
Communication Protocols:	**Q5 Communication Protocols:** RS-485 Modbus RTU/OptoMux (Proprietary QEL Controller Protocol) **B5 Communication Protocols:** RS-485 Serial BACnet MS/TP (Master and Slave - Default:Master)
Communication Baud Rates (Q5):	1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600, 76800 Bits/Second (Default: 4800)
B5 Communication Baud Rates (B5):	9600, 19200, 38400, 76900 Bits/Second (Default: 38400)
Factory Calibration Range:	See Gas Sensor Selection & Specification Table on back of data sheet
Display:	LCD Graphic Display with backlight (Displays: TWA, STEL and Concentration)
Keypad:	Three Capacitive Touch sensing keys
Relays | Contact Type | Relay Contact Ratings:	Three | SPDT (Form C) Dry Contacts | 1.0A max. @ 30 VDC or 0.3A max. @ 125 VAC (Resistive Loads)
Relay Life Expectancy:	**Mechanical:** 50,000,000 operations minimum @ 36,000 operations/hour **Electrical:** 200,000 operations minimum @ rated load
Status LEDs:	Two Green LEDs (Tx/Rx Communication Status): Three LEDs (Relays 1, 2 & 3)
Buzzer:	80 dB at 3.94" (10 cm), 2700 Hz (3 Programmable Tones)
Warm Up Time:	24 Hours (Allow 24 hours before calibrating sensor after installation)
Sensor Type:	See Sensor Technology Type in Table on back of data sheet
Gas Types:	Combustible, Toxic Gases/Oxygen Sensor & Infrared
Coverage Area | Mounting Height:	See Gas Sensor Selection & Specification Table on back of data sheet
Life Expectancy:	**Electrochemical (Toxic):** 2 to 3 Years, typical | **Oxygen/Hydrogen (Toxic):** 18 months, typical **Catalytic (Combustible):** 3 to 5 Years, typical | **CO:** 7 Years, typical
Unit Shelf Life:	**Electrochemical (Toxic):** 6 months from the date of purchase **Catalytic (Combustible):** 1 year from date of purchase
Replacement Sensor Modules:	See additional on-line Product Literature or Contact ACI
Recommended Maintenance:	**Catalytic (Combustible):** Accuracy & Bump test every 3 months or as required by Code **Electrochemical (Toxic):** Accuracy & Bump test every 6 months or as required by Code **Oxygen/Hydrogen (Toxic):** Calibrate every 3 months
Enclosure Specifications (Material Type, Flammability, NEMA/IP Rating):	Plastic Enclosure; Polycarbonate Lexan; UL94 V-0, NEMA 4, 4X, 12 and 13 (IP66)
Enclosure Knockouts:	3/4" Knockouts (accepts 1/2" Conduit Fittings)

PRODUCT SPECIFICATIONS

Operating Temperature | Humidity:	See Sensor Selection & Specification Table on back of data sheet **|** 5 to 95% RH, non-condensing
Operating Atmospheric Pressure[1]:	14.696 psi (1.0132 bar) +/- 10%
Recommended Storage Temperature/ Humidity:	32 to 68°F (0 to 20°C) **|** 5 to 95% RH, non-condensing
Wiring Connections | Wire Size:	De-pluggable Screw Terminal Blocks **|** 16 to 24 AWG (0.2047 to 1.301 mm) Shielded Twisted Pair
Communications Cable:	Belden 9841 or Equivalent, 120 Ohms Input Impedance
Terminal Block Torque Rating:	0.37 ft-lb (0.502 Nm) Nominal
Approvals:	RoHS, cETLus Listed, Safety requirement for Electrical Equipment for Measurement, Control & Laboratory Use Part 1: CAN/CSA-22.2 No. 61010-1 Third Edition, Dated May 11, 2012; General Requirements UL 61010-1 Third Edition, Dated May 11 2012 **Q5C-CO & B5C-CO only:** UL 2075 Gas & Vapor Detectors & Sensors (ETL Control# 4010204)
Product Weight:	1.00 lbs. (0454 kg)
Product Dimensions (L x W x H):	5.91" (150 mm) x 3.54" (90 mm) x 2.56" (65 mm)

Note1: When installed @ > 3000' above sea level, the gas transmitters must be verified for accuracy & re-calibrated as needed after installation

DIMENSIONAL DRAWING

Front View	Side View	Top View

SENSOR SELECTION AND SPECIFICATION

Gas Type	Gas Span Code	Combustible	Toxic	100% LEL[1] in % By Vol.	Measurment Range	Operating Temp °F (°C)	Square Feet ft[2] (m[2])	Radius ft (m)	Mounting Height
Acetone	CH3CO-100L	•		2.6%	0-100% LEL	14 to 122 (-10 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Ammonia	NH3-100P		•	N/A	0-100 PPM	-22 to 122 (-30 to 50)	7500 (696.7)	49 (14.9)	High[2]
Ammonia	NH3-1000P		•	N/A	0-1000 PPM	-22 to 122 (-30 to 50)	7500 (696.7)	49 (14.9)	High[2]
Arsine	ASH3-1P		•	N/A	0-1 PPM	-4 to 104 (-20 to 40)	5000 (464.5)	40 (12.2)	Low[2]
Benzene	C6H6-100L	•		1.3%	0-100% LEL	14 to 122 (-10 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Iso-Butane	C4H10-100L	•		1.8%	0-100% LEL	14 to 122 (-10 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Butanol, n-Butane	BUTAN-100L	•		1.9%	0-100% LEL	14 to 122 (-10 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Carbon Dioxide	CO2-5000P	Infrared	Infrared	N/A	0-5000 PPM	-4 to 122 (-20 to 50)	7500 (696.7)	49 (14.9)	Mid[2]
Carbon Dioxide	CO2-5V	Infrared	Infrared	N/A	0-5% by Vol	-4 to 122 (-20 to 50)	7500 (696.7)	49 (14.9)	Mid[2]
Carbon Dioxide	CO2-20V	Infrared	Infrared	N/A	0-20% by Vol	-4 to 122 (-20 to 50)	7500 (696.7)	49 (14.9)	Mid[2]
Carbon Dioxide	CO2-100V	Infrared	Infrared	N/A	0-100% by Vol	-4 to 122 (-20 to 50)	7500 (696.7)	49 (14.9)	Mid[2]
Carbon Monoxide	CO-250P		•	N/A	0-250 PPM	-4 to 122 (-20 to 50)	7500 (696.7)	49 (14.9)	Mid[2]
Carbon Monoxide	CO-1000P		•	N/A	0-1000 PPM	-4 to 122 (-20 to 50)	7500 (696.7)	49 (14.9)	Mid[2]
Chlorine	CL2-5P		•	N/A	0-5 PPM	-4 to 122 (-20 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Chlorine Dioxide	CLO2-2P		•	N/A	0-2 PPM	-4 to 122 (-20 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Diborane	B2H6-2P		•	N/A	0-2 PPM	-4 to 104 (-20 to 40)	5000 (464.5)	40 (12.2)	Mid[2]
Ethylene	C2H4-100L	•		2.7%	0-100% LEL	14 to 122 (-10 to 50)	5000 (464.5)	40 (12.2)	Mid[2]
Ethylene Oxide	ETO-20P		•	N/A	0-20 PPM	-4 to 122 (-20 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Germane	GEH4-2P		•	N/A	0-2 PPM	-4 to 104 (-20 to 40)	5000 (464.5)	40 (12.2)	Low[2]
Hydrogen	H2-1000P		•	N/A	0-1000 PPM	-4 to 122 (-20 to 50)	7500 (696.7)	49 (14.9)	High[2]
Hydrogen	H2-2000P		•	N/A	0-2000 PPM	-4 to 122 (-20 to 50)	7500 (696.7)	49 (14.9)	High[2]
Hydrogen	H2-100L	•		4.0%	0-100% LEL	14 to 122 (-10 to 50)	7500 (696.7)	49 (14.9)	High[2]
Hydrogen Bromide	HBR-30P		•	N/A	0-30 PPM	-4 to 104 (-20 to 40)	5000 (464.5)	40 (12.2)	Low[2]
Hydrogen Chloride	HCL-30P		•	N/A	0-30 PPM	-4 to 122 (-20 to 50)	5000 (464.5)	40 (12.2)	Mid[2]
Hydrogen Cyanide	HCN-50P		•	N/A	0-50 PPM	-4 to 122 (-20 to 50)	5000 (464.5)	40 (12.2)	Mid[2]
Hydrogen Sulphide	H2S-25P		•	N/A	0-25 PPM	-4 to 122 (-20 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Hydrogen Sulphide	H2S-100P		•	N/A	0-100 PPM	14 to 122 (-10 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Methane	CH4-100L	•		5.0%	0-100% LEL	14 to 122 (-10 to 50)	7500 (696.7)	49 (14.9)	High[2]
Methanol	CH3OH-100L	•		6.7%	0-100% LEL	14 to 122 (-10 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Nitric Oxide	NO-100P		•	N/A	0-100 PPM	-4 to 122 (-20 to 50)	7500 (696.7)	49 (14.9)	Mid[2]
Nitrogen Dioxide	NO2-10P		•	N/A	0-10 PPM	-4 to 122 (-20 to 50)	7500 (696.7)	49 (14.9)	Low[2]
Oxygen[3]	O2-25V		•	N/A	0-25% by Vol	-22 to 122 (-30 to 50)	7500 (696.7)	49 (14.9)	Mid[2]
Ozone	O3-1P		•	N/A	0-1 PPM	-4 to 122 (-20 to 50)	5000 (464.5)	40 (12.2)	High[2]
Iso-Pentane	C5H12-100L	•		1.4%	0-100% LEL	14 to 122 (-10 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Phosphine	PH3-1P		•	N/A	0-1 PPM	-4 to 104 (-20 to 40)	5000 (464.5)	40 (12.2)	Low[2]
Phosphine	PH3-5P		•	N/A	0-5 PPM	-4 to 104 (-20 to 40)	5000 (464.5)	40 (12.2)	Low[2]
Propane	C3H8-100L	•		2.1%	0-100% LEL	14 to 122 (-10 to 50)	7500 (696.7)	49 (14.9)	Low[2]
Silane	SiH4-50P		•	N/A	0-50 PPM	-4 to 104 (-20 to 40)	5000 (464.5)	40 (12.2)	Mid[2]
Sulpher Dioxide	SO2-6P		•	N/A	0-6 PPM	-4 to 122 (-20 to 50)	5000 (464.5)	40 (12.2)	Low[2]
Combustibles[1]	GENL-100L	•		Specify Gas	0-100% LEL	-40 to 122 (-40 to 50)	5000 (464.5)	40 (12.2)	Gas Dependent

Acetaldehyde, Benzene, Carbon Disulfide, Dioxane, Ethane, Ethanol, Ethylbenze, Gasoline, Heptane, Hexane, Ipa, Isopropanol, Jet Fuel, Kerosene, Naphtha, Styrene, Toluene, Voc's, Xylenes, Acetylene, Diesel, Pentane, Ethyl Acetate, Propylene

Note 1: Lower Explosive Limit (LEL) | **Note 2:** Low = 0.5 to 1.5' (0.15 to 0.46m) above floor | Mid = 4.0 to 6.0' (1.20 to 1.83m) above floor | High = 0.5 to 1.5' (0.15 to 0.46m) below ceiling | **Note 3:** Oxygen sensors monitor oxygen depletion caused by numerous gases including: Nitrous Oxide, Helium, Nitrogen, Sulfur hexafluoride, Argon, Xenon, Neon.

STANDARD ORDERING — MODEL

		MODEL #
A. Sensor Series *Select One (1)*	**Q5** = Toxic/Combustible Gas Transmitter Series with Analog/Relay/Communicating Output Signals and Display (All gasses except CO) **Q5C** = Carbon Monoxide Toxic Gas Transmitter (Certified to meet UL 2075 Requirements for Carbon Monoxide (CO) only) **B5** = Toxic/Combustible MS/TP BACnet™ Gas Detection Transmitter with Relays and LCD Display (All gases except CO) **B5C** = Carbon Monoxide MS/TP BACnet™ Toxic Gas Transmitter (Certified to meet UL 2075 Requirements for Carbon Monoxide (CO)only)	
B. Gas Span Code	Enter a "Gas Span Code" from the Sensor Selection & Specification Table	
C. Enclosure *No Selection Required*	**O** = Standard Wall Mount Enclosure ⟶	O
D. Revision *No Seleciton Required*	**X** = Factory Provided ⟶	X
E. For GENL Sensors	Enter a "Gas Span Code" from the Sensor Selection & Specification Table (See Combustibles)	

STANDARD ORDERING

Model #	Item #	Description
Q5C-CO-250P-O-X	141036	CO, 0-250 ppm, UL2075 Certified
B5C-CO-250P-O-X	140654	BACnet™ CO, 0-250 ppm, UL2075 Certified

ACCESSORIES ORDERING | Q5, B5

Model #	Item #	Description
GAS CAL KIT	148426	Cal Kit includes Carry Case, 0.5lpm regulator, C10 to CGA-600 adapter, tubing
85930-006-000	128901	Calibration Adapter for Q5/B5, Q6/B6
85930-007-000	130812	Sensor Splash Guard Kit for Q5/B5, Q6/B6
85930-040-000	131510	Duct Mount Kit (Adapter, Tubing, Pitot Tubes) for Q5/B5, Q6/B6
GSG-1	141059	Gas Sensor Protective Guard (White)

Note: See GAS CAL KIT Data Sheet if required

ACCESSORIES ORDERING | HORN STROBE

Model #	Item #	Description
FSIG-SLM500A	136476	Streamline Horn and Strobe (Amber)
FSIG-SLM500B	142976	Streamline Horn and Strobe (Blue)
FSIG-SLM500G	143013	Streamline Horn and Strobe (Green)
FSIG-SLM500R	143132	Streamline Horn and Strobe (Red)

ACCESSORIES ORDERING | MOUNTING BASE

Model #	Item #	Description
FSIG-SLMBD-012-024GY	142977	Deep Base for FSIG-SLM500 Series; Gray
FSIG-SLMBW-012-024GY	136477	Wall Mount Base for FSIG-SLM500 Series; Gray

Note: See Strobe & Alarm Data Sheet if required