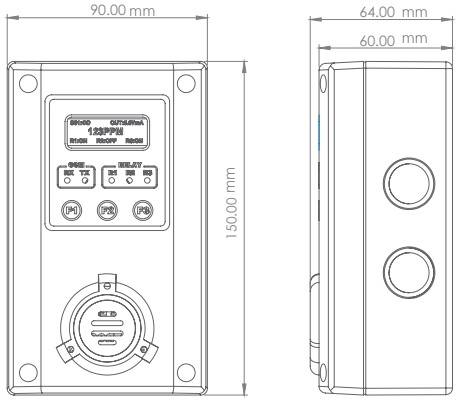
GREYSTONE
ENERGY SYSTEMS INC

ANALOG TOXIC/COMBUSTIBLE GAS TRANSMITTER



Q5 SERIES

PRODUCT DESCRIPTION

The Q5 Series smart gas sensor/transmitters detect various toxic and combustible gases using different sensing technologies. Key features include:

- **NEMA 4X enclosure** with an integral buzzer.
- **LCD display** for gas concentration and LED indicators for relays and communications.
- **Pre-calibrated sensors** that can be user-installed to reduce costs and downtime.
- **Menu-selectable screens** displaying relay status, time, TWA, STEL, and concentration data.
- **Non-proprietary programming and calibration** accessed via a password.
- **Stand-alone or networked installation** with RS-485 or Modbus communication.
- **Analog outputs** (4-20 mA, 2-10 VDC, 1-5 VDC) that are fully assignable.
- **User-programmable relays and buzzer** for various activation options.
- **Duct mount** , **splash guard** and **Flow through Calibration cap kits** available

This series offers flexibility, ease of use, and cost efficiency for gas detection applications.

SPECIFICATIONS

VOLTAGE	24 VDC Nominal, range 18-30 VDC, 0.3 A DC Total Max 24 VAC Nominal, range 15-24 VAC, 0.3 A AC Total Max AC Power must not be grounded
FUSE	0.750A Polyswitch
SUPPLY CURRENT | POWER CONSUMPTION	0.3A maximum | 8.4 VA
SENSING ELEMENT TECHNOLOGY	Combustible gases: Catalytic Toxic gases and Oxygen: Electrochemical Carbon Dioxide: Non-Dispersive Infra-Red (NDIR)
SENSOR LIFE	Combustible gases: Catalytic : 5 years Toxic gases and Oxygen : Electrochemeical : 2- 5 years typical Hydrogen/ Oxygen: Electrochemical: 5 years Carbon Dioxide: Non-Dispersive Infra-Red (NDIR)
ACCURACY	± 2.5% of reading
REPEATIBILITY	± 1% of reading
SHELF LIFE	Electrochemical (toxic) : 6 months from the date of purchase Catalytic (combuistible : 1 Year from date of purchase
RESPONSE TIME	Less than 30 seconds for 90% step change
COVERAGE AREA	(see table of gas)

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SPECIFICATIONS

MOUNTING HEIGHT	(see table of gas)
FACTORY CALIBRATION RANGE	(see table of gas)
DISPLAY	LCD graphic display c/w backlight
PANEL CONTROL	Keypad: 3 Capacitive touch sensing keys: F1, F2, F3
PANEL INDICATOR	5 Status LED's RS-485 TX Status (Green) RS-485 RX Status (Green) Relay 1 Status (Red) Relay 2 Status (Red) Relay 3 Status (Red)
WARM UP TIME	1 hour
RELAYS OUTPUTS	3 Relays SPDT (Form C), dry contacts 1.0 A maximum at 30 VDC (resistive load) 0.3 A maximum at 125 VAC (resistive load)
TIME DELAYS	Actuation : 0 to 999 seconds De-Actuation : 0 to 999 seconds
RELAYS LIFE EXPECTANCY	Mechanical : 50,000,000 Operations minimum @36000 operations/hours electrical : 200000 operations minimum @ rated load
ANALOG OUTPUTS	4-20mA , 2-10 VDC 1-5 VDC Analog Signal Output
DIGITAL OUTPUT	RS-485 Modbus RTU/OptoMux (Proprietary GES Controller Protocol) connects to Q4C Controller , M-Controller and Q-Controller
BAUD RATE	1200, 2400, 4800,9600, 14400, 19200, 28800, 38400, 57600, 76800 Bits/Second (Default: 4800 BPS)
BUZZER	80 db at 10 cm, 2700 Hz Buzzer with 3 programmable tones
OPERATING ENVIRONMMENT	Indoor Use only
OPERATING TEMPERATURE	(see table of gas)
STORAGE TEMPERATURE	Storage : 0° C to 40° C, depends on sensor specification
OPERATING HUMIDITY	5% to 95% RH non condensing
OPERATING PRESSURE	Atmospheric +/-10%
ENCLOSURE	Plastic Enclosure ,Polycarbonate Lexan, Fire retardant UL94 V-0 IP 66 & NEMA 4, 4X, 12 & 13
WIRING	12 AWG to 24 AWG for Screw Terminals Blocks(De -Pluggable) , 16 AWG or 18 AWG wire for Power supply (1km max)
CABLE SPECIFICATION	BELDEN 9841 or equivalent ,120 ohms Input
DIMENSIONS	5.91"x 3.54" x 2.56"(150 mm x 90 mm x 65 mm)
WEIGHT	LESS THAN 0.5lbs

Ensure a complete understanding of all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products.

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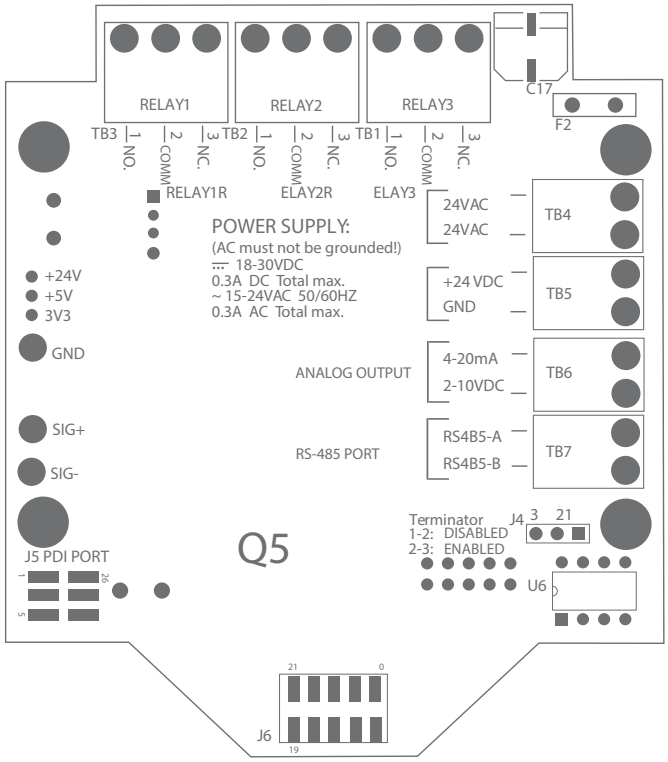
WIRING INFORMATION



TERMINAL		FUNCTION
TB1 TB2 TB3	NC: Normally Close COM: Common NO: Normally Open	3 x Relays Outputs
TB4	24VAC	Power IN VAC
TB5	24VDC	Power IN VDC
TB6	4-20mA 2-10VDC	Analog Output
TB7	A+ B-	1x RS-485 Port

ORDERING

Q	5	–							–	O	–	X	-	G

PRODUCT	GAS ORDERING CODE	ENCLOSURE	REVISION
Q5 Analog Toxic combustable gas transmitter	(See Gas table for Code)	O: Standard enclosure	-X -G: Factory Provided Greystone Product

NOTE: Greystone Energy Systems, Inc. reserves the right to make design modifications without prior notice.

ACCESSORIES	DESCRIPTION	PART NUMBERS
M-CONTROLLER	Communication central unit, RS-485 port, Modbus protocol, BACnet /IP, 3 Relay , 8 Analog outputs	M-CONTROLLER2-00-A-G
Q4C- CONTROLLER	Communication central unit, RS-484 port, Modbus protocol, BACnet /IP, 4 Relays	Q4C-II-CONTROLLER-A-G
USB RS-485 CONVERTER KIT	Converter from USB to RS-485	-
DUCT MOUNT	Mounting kit for duct installation	85930-040-000-G
SPLASH GUARD	Unit cover for wet application	85930-001-000-G
CALIBRATION KIT	Kit for gas calibration (please refers to manual)	85930-006-000-G
Q-CONTROLLER	Communication central unit , RS-485 prt , Modbus protocol , BACnet/IP 4 relays , 8 analog outputs	Q-CONTROLLER-000 - A - G

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GAS TYPE		SPAN RANGE	ORDERING CODE	SENSING TECHNOLOY	AREA FT2 (M2)	RADIUS FT (M)	MOUNTING HEIGHT	OPERATING TEMPERATURE F (C)
Acetone	C3H6O	0-100%LEL	C3H6O-100L	Catalytic Bead	5000 (464.5)	40 (12.2)	Low	-22 to 122 (-30 to 50)
Ammonia	NH3	0-100ppm	NH3-100P	Electrochemical	7500 (696.7)	49 (14.9)	High	-22 to 122 (-30 to 50)
Ammonia	NH3	0-1000ppm	NH3-1000P	Electrochemical	7500 (696.7)	49 (14.9)	High	-22 to 122 (-30 to 50)
Arsine	ASH3	0-1ppm	ASH3-1P	Electrochemical	5000 (464.5)	40 (12.2)	Low	-4 to 104 (-20 to 40)
Benzene	C6H6	0-100% LEL	C6H6-100L	Catalytic Bead	5000 (464.5)	40 (12.2)	Low	-22 to 122 (-30 to 50)
Iso-Butane	C4H10	0-100% LEL	C4H10-100L	Catalytic Bead	5000 (464.5)	40 (12.2)	Low	-22 to 122 (-30 to 50)
Butanol n-Butane	BUTAN	0-100% LEL	BUTAN-100L	Catalytic Bead	5000 (464.5)	40 (12.2)	Low	-22 to 122 (-30 to 50)
Carbon Monoxide	CO	0-250ppm	CO-250P	Electrochemical	7500 (696.7)	49 (14.9)	Mid	- 4 to 122 (- 20 to 50)
Carbon Monoxide	CO	0-1000ppm	CO-1000P	Electrochemical	7500 (696.7)	49 (14.9)	Mid	- 4 to 122 (- 20 to 50)
Carbon Dioxide	CO2	0-5000ppm	CO2-5000P	Infrared	7500 (696.7)	49 (14.9)	Mid	- 4 to 122 (- 20 to 50)
Carbon Dioxide	CO2	0-5% VOL	CO2-5V	Infrared	7500 (696.7)	49 (14.9)	Mid	- 4 to 122 (- 20 to 50)
Carbon Dioxide	CO2	0-20% VOL	CO2-20V	Infrared	7500 (696.7)	49 (14.9)	Mid	- 4 to 122 (- 20 to 50)
Carbon Dioxide	CO2	0-100% VOL	CO2-100V	Infrared	7500 (696.7)	49 (14.9)	Mid	- 4 to 122 (- 20 to 50)
Chlorine	Cl2	0-5PPM	Cl2-5P	Electrochemical	5000 (464.5)	40 (12.2)	Low	- 4 to 122 (- 20 to 50)
Chlorine Dioxyde	ClO2	0-2PPM	ClO2-2P	Electrochemical	5000 (464.5)	40 (12.2)	Low	- 4 to 122 (- 20 to 50)
Combustibles	GENL	0-100%LEL	GENL-100L	Catalytic Bead	5000 (464.5)	40 (12.2)	Gas Dependent	-22 to 122 (-30 to 50)
Diborane	B2H6	0-2 PPM	B2H6-2P	Electrochemical	5000 (464.5)	40 (12.2)	Mid	- 4 to 104 (- 20 to 40)
Ethylene	C2H4	0-100%LEL	C2H4-100L	Catalytic Bead	5000 (464.5)	40 (12.2)	Mid	14 to 122(-10 to 50)
Ethylene Oxide	ETO	0-20PPM	ETO-20P	Electrochemical	5000 (464.5)	40 (12.2)	Low	- 4 to 122 (- 20 to 50)
Germane	GeH4	0-2PPM	GeH4-2P	Electrochemical	5000 (464.5)	40 (12.2)	Low	- 4 to 104 (- 20 to 40)
Hydrogen	H2	0-1000PPM	H2-1000P	Electrochemical	7500 (696.7)	49 (14.9)	High	- 4 to 122 (- 20 to 50)
Hydrogen	H2	0-2000PPM	H2-2000P	Electrochemical	7500 (696.7)	49 (14.9)	High	- 4 to 122 (- 20 to 50)
Hydrogen	H2	0-100% LEL	H2-100L	Catalytic Bead	7500 (696.7)	49 (14.9)	High	14 to 122(-10 to 50)
Hydrogen Bromide	HBR	0-30PPM	HBR-30P	Electrochemical	5000 (464.5)	40 (12.2)	Low	-22 to 122 (-30 to 50)
Hydrogen Chloride	HCl	0-30PPM	HCl-30P	Electrochemical	5000 (464.5)	40 (12.2)	Mid	- 4 to 122 (- 20 to 50)
Hydrogen Cyanide	HCN	0-50PPM	HCN-50P	Electrochemical	5000 (464.5)	40 (12.2)	Mid	- 4 to 122 (- 20 to 50)
Hydrogen Sulphide	H2S	0-25PPM	H2S-25P	Electrochemical	5000 (464.5)	40 (12.2)	Low	- 4 to 122 (- 20 to 50)
Hydrogen Sulphide	H2S	0-100PPM	H2S-100P	Electrochemical	5000 (464.5)	40 (12.2)	Low	-4 to 122 (-20 to 50)
Methane	CH4	0-100%LEL	CH4-100L	Catalytic Bead	7500 (696.7)	49 (14.9)	High	-22 to 122 (-30 to 50)
Methanol	CH3OH	0-100%LEL	CH3OH-100L	Catalytic Bead	5000 (464.5)	40 (12.2)	Low	-22 to 122 (-30 to 50)
Nitric Oxide	NO	0-100PPM	NO-100P	Electrochemical	7500 (696.7)	49 (14.9)	Mid	- 4 to 122 (- 20 to 50)
Nitrogen Dioxide	NO2	0-10ppm	NO2-10P	Electrochemical	7500 (696.7)	49 (14.9)	Low	- 4 to 122 (- 20 to 50)
Oxygen	O2	0-25% VOL	O2-25V	Electrochemical	7500 (696.7)	49 (14.9)	Mid	-22 to 122 (-30 to 50)
Ozone	O3	0-1PPM	O3-1P	Electrochemical	5000 (464.5)	40 (12.2)	Mid	- 4 to 122 (- 20 to 50)
Iso-Pentane	C5H12	0-100%LEL	C5H12-100L	Catalytic Bead	5000 (464.5)	40 (12.2)	Low	-22 to 122 (-30 to 50)
Phosphine	PH3	0-1PPM	PH3-1P	Electrochemical	5000 (464.5)	40 (12.2)	Low	- 4 to 122 (- 20 to 50)
Phosphine	PH3	0-5PPM	PH3-5P	Electrochemical	5000 (464.5)	40 (12.2)	Low	- 4 to 122 (- 20 to 50)
Propane	C3H8	0-100%LEL	C3H8-100L	Catalytic Bead	7500 (696.7)	49 (14.9)	Low	-22 to 122 (-30 to 50)
Silane	SiH4	0-50PPM	SiH4-50P	Electrochemical.	5000 (464.5)	40 (12.2)	Mid	- 4 to 122 (- 20 to 50)
Sulphur Dioxide	SO2	0-6PPM	SO2-6P	Electrochemical	5000 (464.5)	40 (12.2)	Low	- 4 to 122 (- 20 to 50)
Sulphur Hexafluoride	SF6	0-1000PPM	SF6-1000P	Infrared	5000 (464.5)	40 (12.2)	Low	- 4 to 122 (- 20 to 50)

***Low** = 0.5 to 1.5' (0.15 to 0.46m) above floor
***Mid** = 4.0 to 6.0'(1.20to 1.83m) above floor
***High** = 0.5 to 1.5' (0.15 to 0.46m) below ceiling

RoHS COMPLIANT

Greystone Energy Systems, Inc.
150 English Drive, Moncton,
New Brunswick, Canada E1E 4G7

Ph: +1 (506) 853-3057 Fax: +1(506) 853-6014
North America: 1-800-561-5611
E-mail: mail@greystoneenergy.com