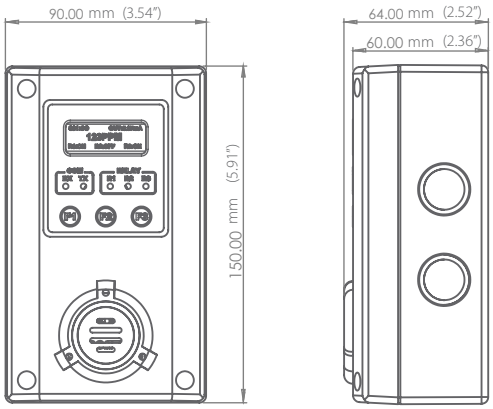
GREYSTONE
ENERGY SYSTEMS INC

## TOXIC/COMBUSTIBLE BACNET/MSTP GAS DETECTION TRANSMITTER




B5 SERIES

## PRODUCT DESCRIPTION

The B5 Series gas sensor/transmitters detect various gases using different sensing technologies. They come in a NEMA 4X enclosure with a buzzer and feature an LCD display, LED indicators, and BACnet communication capabilities.
Users can easily replace pre-calibrated sensors to reduce costs and downtime. The units can display multiple data screens and are protected by a user-selectable password. They can function as stand-alone units or be networked with a BACnet controller, supporting both Master and Slave Node configurations.

- **Uses Electrochemical, Catalytic Bead**, or **Infrared** Sensors
- **Pre-calibrated sensors** available for easy replacement without calibration
- Three on-board **user-programmable relays**
- **Non-proprietary set-up** and calibration procedures
- **Removable terminal blocks** for easy wiring
- **Digital display** of TWA, STEL, concentration, and relay status
- **Stand-alone** operation
- **BACnet MS/TP** digital communication protocol
- **Integral buzzer** with three tones
- **NEMA 4X enclosure** with knockouts
- **Sensor housing sealed** from electronics
- **Duct mount** available
- **Splash guard** available
- **Flow through/calibration cap** available
- Operates on **24 VAC/VDC**

## SPECIFICATIONS

| | |
|---|---|
| VOLTAGE | 24 VDC Nominal, range 18-30 VDC, 0.3 A DC Total Max<br>24 VAC Nominal, range 15-24 VAC, 0.3 A AC Total Max<br>Half wave rectified only, AC must not be grounded |
| FUSE | 0.750A Polyswitch |
| SUPPLY CURRENT \| POWER CONSUMPTION | 0.3A maximum \| 8.4 VA |
| SENSING ELEMENT TECHNOLOGY | Combustible gases: Catalytic<br>Toxic gases and Oxygen: Electrochemical<br>Carbon Dioxide, Sulphur Hexafluoride Non-Dispersive Infra-Red (NDIR) |
| SENSOR LIFE | Combustible gases: Catalytic : 5 years<br>Toxic gases and oxygen : Electrochemical 2 to 5 years typical<br>Carbon Dioxide, Sulphur Hexafluoride Non-Dispersive Infra-Red (NDIR) 5 years |

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## SPECIFICATIONS

| | |
|---|---|
| ACCURACY | ± 2.5% of reading |
| SHELF LIFE | Electrochemical (toxic): 6 months from the date of purchase<br>Catalytic (combustible): 1 Year from date of purchase<br>Infrared : 1 year from date of purchase |
| RESPONSE TIME | Less than 30 seconds for 90% step change |
| COVERAGE AREA | (see table of gas) |
| 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<br>RS-485 TX & RS-485 RX (Green)<br>Relay 1, Relay 2, Relay 3 (Red) |
| WARM UP TIME | 1 hour to 72 hours |
| RELAYS OUTPUTS | 3 Relays SPDT (Form C), dry contacts<br>1.0 A maximum at 30 VDC (resistive load)<br>0.3 A maximum at 125 VAC (resistive load) |
| TIME DELAYS | Actuation (Make) or De-Actuation (Break) @ 0 - 999 seconds |
| RELAYS LIFE EXPECTANCY | Mechanical @ 50 million & Electrical @ 200,000 operations<br>Electrical: 200000 operations minimum @ rated load |
| DIGITAL OUTPUT | RS-485 Serial BACnet® MS/TP (Master & Slave protocol) |
| BUZZER | 80 db at 10 cm, 2700 Hz Buzzer with 3 programmable tones |
| BAUD RATE | 9600,19200,38400,76800 Bits/Second ( default:38400) |
| 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 & 14 |
| WIRING | 12 AWG to 24 AWG for Screw Terminals Blocks(De -Pluggable) |
| 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) |

*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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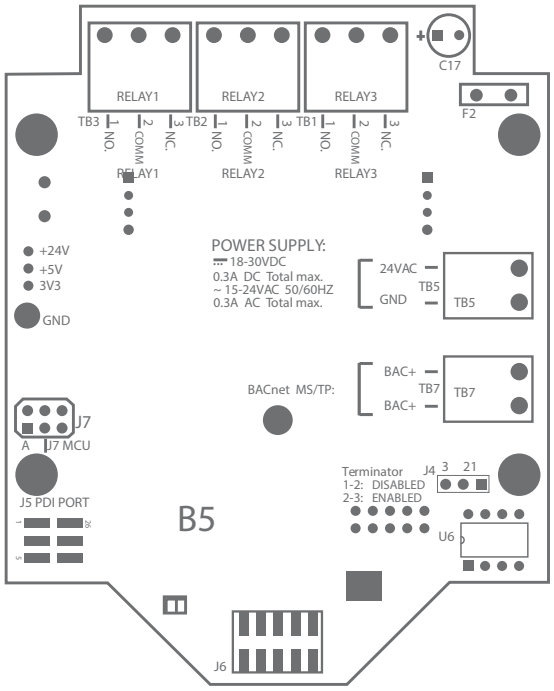
## WIRING INFORMATION




| TERMINAL | | FUNCTION |
|---|---|---|
| TB1<br>TB2<br>TB3 | NC: Normally Close<br>COM: Common<br>NO: Normally Open | 3 x Relays Outputs |
| TB5 | 24VAC<br>GND | Power IN<br>24VAC/DC |
| TB7 | BAC+<br>BAC- | 1x BACnet MSTP Port |

## ORDERING

| B | 5 | – | | | | | | | – | O | – | X | - | G |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

| PRODUCT | GAS ORDERING CODE | ENCLOSURE | REVISION |
|---|---|---|---|
| B5<br><br>BACnet/MSTP<br>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 |
|---|---|---|
| DUCT MOUNT | Mounting kit for duct installation | 85930-040-000-G |
| SPLASH GUARD | Unit cover for wet application application | 85930-001-000-G |
| CALIBRATION KIT | Kit for gas calibration ( please refers to manual) | 85930-006-000-G |

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| GAS TYPE | | SPAN RANGE | GAS 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 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 | -22 to 122 ( -30 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 | -22 to 122 ( -30 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-25PP** | 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 | 14 to 122(-10 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