



Certificate of Compliance

Certificate: 1934905

Master Contract: 237041

Project: 70008236

Date Issued: July 23, 2014

Issued to: GfG Instrumentation, Inc.

1194 Oak Valley Dr, Ste 20
Ann Arbor, MI 48108
USA
Attention: Tony Poley

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Gary Benden

Issued by: Gary Benden

PRODUCTS

CLASS 4828 81 - SIGNAL APPLIANCES-Combustible Gas Detection Instruments - For Hazardous Location-Certified to U.S. Standards

CLASS 4828 01 - SIGNAL APPLIANCES - - Combustible Gas Detection Instruments-For Hazardous Locations

Class I, Division 1, Groups A, B, C and D T3

Ex ia IIC T3

Class I, Zone 0 AEx ia IIC T3

- G450 Multiple Gas Detector, Portable, Battery Operated, rated 3 Vdc, Ta=50 °C when used with rechargeable battery packs 1450-211 and 1450-212 or with battery pack 1450-202 with two Duracell MN1500, AA size alkaline batteries. Certified with and without G400-MP1 Pump or G400-MP2 Pump. See Notes 1 and 2.

Note 1: The above instruments were also checked for performance for Ta = -20 to 50 °C and have been found to be acceptable as an indicator of the presence of the flammable gases and vapors within the scope of the certification when used in accordance with the manufacturer's instructions.



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Note 2: As a condition of certification, the charger may not be connected when the Gas Detector is in the hazardous location unless the area is known not to be hazardous.

Note 3: Under certain extreme circumstances, the non-metallic cover may generate an ignition-capable level of electrostatic charge; therefore the equipment shall not be used in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.

Class I, Division 1, Groups A, B, C and D T3

Ex ia IIC T3

Class I, Zone 0 AEx ia IIC T3

- G460 Multiple Gas Detector, Portable, Battery Operated, rated 3 Vdc, Ta=55 °C when used with rechargeable battery packs 1450-211 and 1450-212 or with battery pack 1450-202 with two Duracell MN1500, AA size alkaline batteries. Certified with and without G400-MP1 Pump or G400-MP2 Pump. See Notes 1 and 2.

Note 1: The above instruments were also checked for performance for Ta = -20 to 55 °C and have been found to be acceptable as an indicator of the presence of the flammable gases and vapors within the scope of the certification when used in accordance with the manufacturer's instructions. The G460 with IR-EX 005 Sensor complies with the performance requirements of CSA C22.2 No. 152 over the temperature range of 0 to 55 °C. Outside this range, it exceeds the standard's minimum tolerance requirements of ±3% of full scale. At -10°C it is -4% and at -20°C it is -5%.

Note 2: As a condition of certification, the charger may not be connected when the Gas Detector is in the hazardous location unless the area is known not to be hazardous.

Note 3: Under certain extreme circumstances, the non-metallic cover may generate an ignition-capable level of electrostatic charge; therefore the equipment shall not be used in a location where the external conditions are conducive to the build-up of electrostatic charge on such surfaces. In addition, the equipment shall only be cleaned with a damp cloth.



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APPLICABLE REQUIREMENTS

CAN/CSA Standard C22.2 No. 0-10	General Requirements - Canadian Electrical Code, Part II
CAN/CSA Standard C22.2 No.142-M1987	Process Control Equipment Industrial Products
UL Standard 916:1998	Energy Management Equipment
CAN/CSA Standard C22.2 No.152-M1984	Combustible Gas Detection Instruments
ANSI/ISA Standard 12.13.01-2000	Performance Requirements for Combustible Gas Detectors
CAN/CSA Standard C22.2 No. 30-M1986	Explosionproof Enclosures for use in Class I Hazardous Locations
UL Standard 1203:2004	Explosionproof & Dust-ignitionproof Electrical Equipment
CAN/CSA Standard C22.2 No.157-92	Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations
CAN/CSA Standard E60079-0:02 Second Edition	Electrical Apparatus for explosive gas atmospheres – General Requirements
CAN/CSA Standard E60079-11:02 Second Edition	Electrical Apparatus for Explosive Gas Atmospheres – Part 11: Intrinsic Safety "i"
UL Standard 913:2002	Intrinsically Safe Apparatus and Associated Apparatus

The following standards are exclusively applied to model number G460

CAN/CSA Standard C22.2 No. 60079-0:11	Explosive atmospheres — Part 0: Equipment — General requirements
CAN/CSA Standard C22.2 No. 60079-11:11	Explosive atmospheres — Part 11: Equipment protection by intrinsic safety "i"
UL Standard 913 Seventh Edition	Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations
UL Standard 60079-0 Sixth Edition	Explosive atmospheres — Part 0: Equipment — General requirements
UL Standard 60079-11 Sixth Edition	Explosive Atmospheres – Part 11: Equipment Protection by Intrinsic Safety "i"



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MARKINGS

The manufacturer is required to apply the following markings (per CSA C22.2 No. 0-10, Clause 6.3):

- Products shall be marked with the markings specified by the particular product standard.
- Products certified for Canada shall have all Caution and Warning markings in both English and French.

Additional bilingual markings not covered by the product standard(s) may be required by the Authorities Having Jurisdiction. It is the responsibility of the manufacturer to provide and apply these additional markings, where applicable, in accordance with the requirements of those authorities.

Markings are per drawings 7002-454 (G450 nameplate), 7002-902 (Alkaline battery pack), 7002-950 (NiMH Battery pack 1450-211), 7002-955 (NiMH battery pack 1450-212), 205-201.03 (G400-MP1 Pump) and 205-203.03 (G400-MP2 Pump).

- Manufacturer's name, "GfG Instrumentation, Inc.", or CSA Master Contract Number "237041", adjacent to the CSA Mark in lieu of Manufacturer's name.
- Model number: as specified in the PRODUCTS section, above.
- Battery supply designation: as specified in the PRODUCTS section, above.
- Ambient temperature rating: as specified in the PRODUCTS section, above (may be abbreviated).
- Manufacturing date in MMY format, or serial number, traceable to month of manufacture.
- The CSA Mark, as shown on page 1 of the Certificate of Conformity.
- Hazardous Location designation: as specified in the PRODUCTS section, above.
- Temperature Code: as specified in the PRODUCTS section, above (May appear on control drawing).
- The following words are applied for both models:
 - "WARNING – EXPLOSION HAZARD – USE ONLY BATTERY PACK 1450-202, 1450-211 OR 1450-212. DO NOT MIX OLD BATTERIES WITH USED BATTERIES. REPLACE OR RECHARGE BATTERIES ONLY IN NONHAZARDOUS LOCATION." (or equivalent warnings)
 - "C22.2 No. 152-M1984" and "ANSI/ISA-12.13.01-2000" adjacent to CSA Monogram
 - CAUTION - READ AND UNDERSTAND INSTRUCTION MANUAL BEFORE OPERATING OR SERVICING."
 - For Battery Packs and G400-MPx Pumps –
 - Company Identification.
 - Part Number
- The following words are exclusively applied to model number G460:
 - "Exia"
 - "INTRINSICALLY SAFE"
 - "WARNING– EXPLOSION HAZARD – SUBSTITUTION OF COMPONENTS MAY IMPAIR INTRINSIC SAFETY" (Equivalent wording is acceptable).
 - "WARNING– TO PREVENT IGNITION OF FLAMMABLE OR COMBUSTIBLE ATMOSPHERES, DISCONNECT POWER BEFORE SERVICING".
 - "WARNING– POTENTIAL ELECTROSTATIC CHARGING HAZARD – WIPE WITH DAMP CLOTH ONLY".
 - "08.1934905X" (Certificate number) adjacent to the CSA Monogram.
- Optional hazardous location designation for Canada are:
 - "Class I, Zone 0 Ex ia IIC T3" and



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- “Class I, Zone 0 Ex ib IIC T3”

All units are provided with an instruction manual. The instruction manual is to contain the following information adjacent to any statements about CSA certification of performance: “The G460 with IR-EX 005 Sensor complies with the performance requirements of CSA C22.2 No. 152 over the temperature range of 0 to 55 °C. Outside this range, it exceeds the standard’s minimum tolerance requirements of $\pm 3\%$ of full scale. At -10°C it is -4% and at -20°C it is -5%.”