

InsuLogix® G2

Acetylene, Hydrogen, and Moisture Monitor



- Laser technology - detects down to 0.5 ppm acetylene in oil
- Provides actionable information for oil-filled transformers
- Easy to install - proven installation in 1.5 hours
- Long life, low maintenance (10+ years)
- High performance acetylene measurement

DESCRIPTION

The InsuLogix® G2 provides early detection of faults in power transformers. The G2 measures the presence of two key gases, plus moisture, for early onset detection of internal faults.

Gases created during an internal fault are a key indicator used to flag the fault's severity and evolution in power transformers.

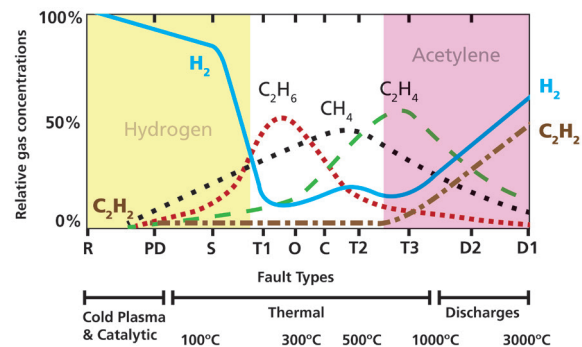
By detecting and measuring both hydrogen and acetylene, the InsuLogix® G2 is the only monitor that a transformer operator needs to efficiently and cost effectively monitor the health of the active part of power transformers.

WHY ACETYLENE AND HYDROGEN?

Hydrogen is an important gas used for early detection of majority of incipient faults. Hydrogen gas is generated during a low temperature fault (>150 °C). Monitoring the hydrogen rate of change in oil to detect the faults in their early stages is a strategy that many utilities have following for the last 30 years.

Acetylene is a gas generated in oil when high energy faults create temperatures exceeding 700 °C. When levels of acetylene exceeding 1 ppm concentration in oil are detected, operators begin planning action for the asset.

In most situations, the alarms generated by gas monitors (multigas or single gas) are validated by testing an oil sample in a laboratory before the transformer expert makes a decision.



The graph above shows the value of hydrogen (H_2) in detecting the early phases of a fault as well as the critical value of acetylene (C_2H_2) if and when the fault progresses to a level which requires immediate attention.

IEEE C57-104 2019: Figure 1 – Relative percentage of dissolved gas concentrations in mineral oil as a function of temperature and fault type [B86]*

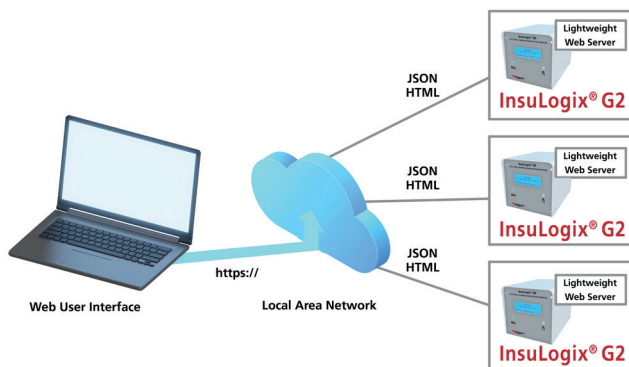
* [B87] Duval, M., "Ongoing Activities at IEEE, IEC and CIGRE on DGA", Proceedings of the Transformer & Switchyard Users Group (TSUG) Meeting, St-Louis, Aug 5, 2013

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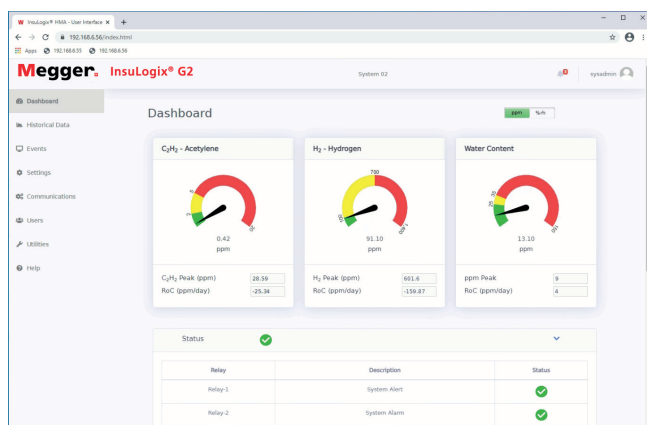
ADDITIONAL FEATURES

- Modbus, DNP3, and IEC 61850 communication protocols available
- RS485 and Ethernet ports
- 12 Configurable solid-state relays
- Web user interface for data visualization and administrative tasks
- Multiple G2 units can be accessed via a single web server session
- LED status indicator
- LCD display of key gases
- Fully compliant to industry guidelines for instrumentation operating in substation environment

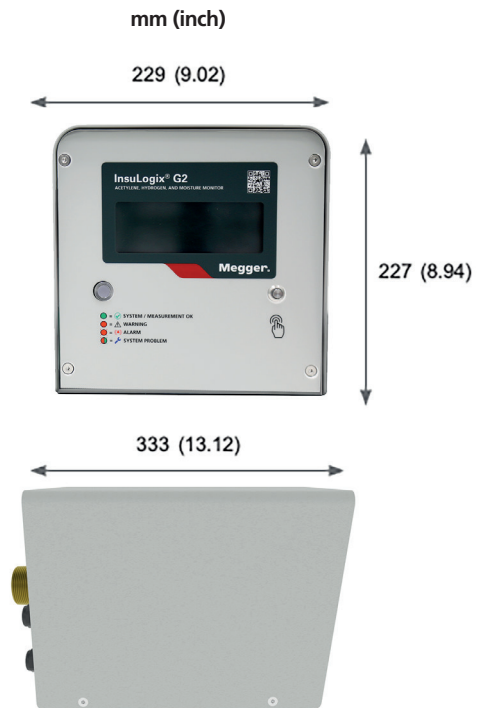
Web user interface – communication architecture



User interface main dashboard



General Dimensions



DISCLAIMER: Illustrations, specifications, and average values are subject to change. Megger reserves the right to revise the datasheet at any time, without notification



Sunshade Kit – G2, Part # 1015-561

InsuLogix® G2

Acetylene, Hydrogen, and Moisture Monitor

SPECIFICATIONS

| | |
|--------------------------------------|--|
| Measuring range | C ₂ H ₂ : 0.5-500 ppm (dissolved-in-oil) H ₂ : 25-5000 ppm (dissolved-in-oil) H ₂ O: 0-95 % RH |
| Accuracy | C ₂ H ₂ : ±0.5 ppm or 15 % of reading** H ₂ : ±25 ppm or 15 % of reading** H ₂ O: +/- 2 ppm or 2 % RH ** whichever is greater |
| Low detection limit (LDL) | C ₂ H ₂ : 0.5 ppm (dissolved-in-oil) H ₂ : 25 ppm (dissolved-in-oil) |
| Repeatability | C ₂ H ₂ : 14 % H ₂ : 10 % |
| Oil pressure rating | Full vacuum - 100 psi |
| Alarm relays | 12 programmable relays solid state (Form C) |
| Signal relays (1-8) | Rated load: 0.50 A at 125 V AC, 1 A at 24 V DC Max switching voltage: 125 V AC, 60 V DC |
| Power relays (9-12) | Rated load: 10 A at 120 V AC, 8 A at 30 VDC Max switching voltage, 250 V AC, 125 V DC |
| Analog output | 4 DC current outputs: 0/4-20 mA (optional) |
| Communication protocols | Modbus, DNP3, IEC 61850 |
| LED status indicator | Multicolor; Green-Red |
| Display type | 80 character LCD (4 x 20) |
| Display size | 146.00 mm x 62.50 mm (5.75 in. x 2.46 in.) |
| Backlight: | White LED |
| Data recording and event logs | 10 years at default (1 hour) recording frequency; minimum 2 years |
| User interface software | Residing in unit, web-server based |

| | |
|---------------------------|--|
| Input power supply | AC input voltage range: 90 – 264 V AC (47 – 63 Hz); 1.4 A (3 A Max) DC input voltage range: 105 -370 VDC 120W When connected to battery (during power outage) dropout voltage is < 90 VDC Internally fused at 3 A |
| Rear panel RJ45 | IP67 RJ45 female connector with bayonet style locking cap; 10/100Base-T |
| Conduit glands | 3/4 in. Liquidtight style 0.315 in. to 0.630 in. diameter cable capacity |

ENVIRONMENTAL

| | |
|------------------------------|-----------------------------|
| Operating temperature | -40 to +65 °C |
| Storage temperature | -40 to +85 °C |
| Operating humidity | 5 to 95 % RH non-condensing |

PHYSICAL

| | |
|------------------------------|---|
| Storage humidity | 5 to 95 % RH non-condensing |
| Dimensions | 227 mm x 229 mm x 333 mm (8.9 in. x 9.0 in. x 13.1 in.) |
| Weight | 13.5 kg (29.76 lb) |
| Installation | 1.5 in. NMPT connection from monitor |
| Operating altitude | 0 - 2000 m |
| Protection class | IP66 (NEMA 4X) |
| Pollution degree | 4 – Electrical equipment for outdoor use |
| Regulatory compliance | IEC 61010-2 081-2020 IEC 60529-2013 IP66 EN 61326-1:2013 EN 61326-6 EMCS111203-FCC_IC ESLU111203 - C22.2 No. 94.2-07 ESLU111203-IEC |

Note: Testing performed in both N2 blanketed and free breathing environments showed no significant difference in results

Reported values are resultant from testing with ball valves

ORDERING INFORMATION

| Description | Part number | Description | Part number |
|---|------------------|--|-----------------|
| Online DGA InsuLogix G2 | 1015-313 | Optional Accessories | |
| Included Accessories | | DNP3 protocol | 1015-314 |
| Oil sample port quick connector with 25 cm (10 in) tubing | 1015-318 | IEC 61850 protocol | 1015-316 |
| Oil port sample tubing 61 cm (24 in) | 2016-324 | Analog output module | 1015-315 |
| Modbus protocol | Included in unit | Mounting hardware kit (Union + Nipple, 1.5 in) | 1015-565 |
| IP67 rear panel Ethernet connector | 1015-317 | Sunshade kit - G2 | 1015-561 |
| | | G2 Extended warranty/year (2 year included) (3 Additional years maximum available) | Y12-WARRANTY-G2 |
| | | | Y24-WARRANTY-G2 |
| | | | Y36-WARRANTY-G2 |

SALES OFFICE

Megger Valley Forge
400 Opportunity Way
Phoenixville, PA, 19460, USA
T. 1-610 676 8500
F. 1-610-676-8610

InsuLogixG2_DS_en_V03

www.megger.com
ISO 9001
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