

# BACHARACH

## MGS-550

### GAS TRANSMITTER

## Installation Guide

P/N: 1100-0999  
Revision 0  
June 5, 2015

IP66-Rated ABS Enclosure with Local Sensor



Flame Proof/Explosion Proof Ex d Enclosure with Local Sensor



Magnetic Wand



**CAUTION:** DO NOT USE the MGS-550 in oxygen-enriched environments of >21% oxygen. High “off-scale” readings may indicate an explosive concentration.



**WARNING:** Strictly follow the instructions in the User Manual (part number 1100-1000).

### 1: OPERATING AREA AND CONDITIONS

The Bacharach MGS-550 is an instrument for the continuous monitoring of toxic and combustible gases, oxygen and refrigerants in ambient air. The instrument is housed in a rugged ABS or aluminum enclosure for indoor and outdoor applications. The instrument can be connected to a Bacharach monitoring system or a Programmable Logic Controller (PLC). With the integrated alarm relay configuration, the instrument can be operated as a stand-alone unit (with additional local alarm signaling). The instrument is designed to be installed in non-classified, non-hazardous, permanent locations.

The instrument is powered by 19.5 to 28.5 VDC or 24 VAC (± 20%). The measured gas concentration is converted to a 4 to 20 mA, 0 to 5 V, 0 to 10 V, 1 to 5 V, 2 to 10 V analog and digital Modbus RTU output signal. The instrument accepts wire sizes of 16 to 24 AWG (0.2 to 1.5 mm<sup>2</sup>).

### 2: SAFETY INSTRUCTIONS

**USER MANUAL:** Before using this equipment, carefully read and strictly follow the User Manual (part number 1100-1000). The user must fully understand and strictly observe the instructions. Use the equipment only for the purposes listed and under the conditions specified in that document.

**CODE COMPLIANCE:** Comply with all local and national laws, rules and regulations associated with this equipment.

**GENUINE PARTS:** Use only genuine Bacharach spare parts and accessories, otherwise proper functioning of the equipment may be impaired.

**FLAME PROOF AND EXPLOSION PROOF JOINTS:** Joints of the flame proof/explosion proof enclosure are not in accordance with the relevant minimum or maximum values of EN/IEC 60079-1. The joints are not intended to be re-worked by the user.

**EXPLOSIVE DIRECTIVES:** As long as no EC-Type Examination Certificate per Annex II, clauses 1.5.5, 1.5.6 and 1.5.7 of Directive 94/9/EC exists: the measuring function of the gas detection transmitter for explosion protection, according to Annex II, clauses 1.5.5, 1.5.6 and 1.5.7 of Directive 94/9/EC is not covered.

When using the product in areas subject to explosion hazards, refer to the following:

- Instruments or components for use in explosion-hazard areas which have been tested and approved according to national, European or international Explosion Protection Regulations may only be used under the conditions specified in the approval and with consideration of the relevant legal regulations.
- The instruments or components may not be modified in any manner. The use of faulty or incomplete parts is forbidden. The appropriate regulations must be observed at all times when carrying out repairs on these instruments or

### 3: MOUNTING

**ENVIRONMENTAL CONSIDERATIONS:** Carefully consider the full range of environmental conditions to which the instruments will be exposed.

**TARGET GAS CONSIDERATIONS:** The physical data of the gas or vapor to be detected must be observed.

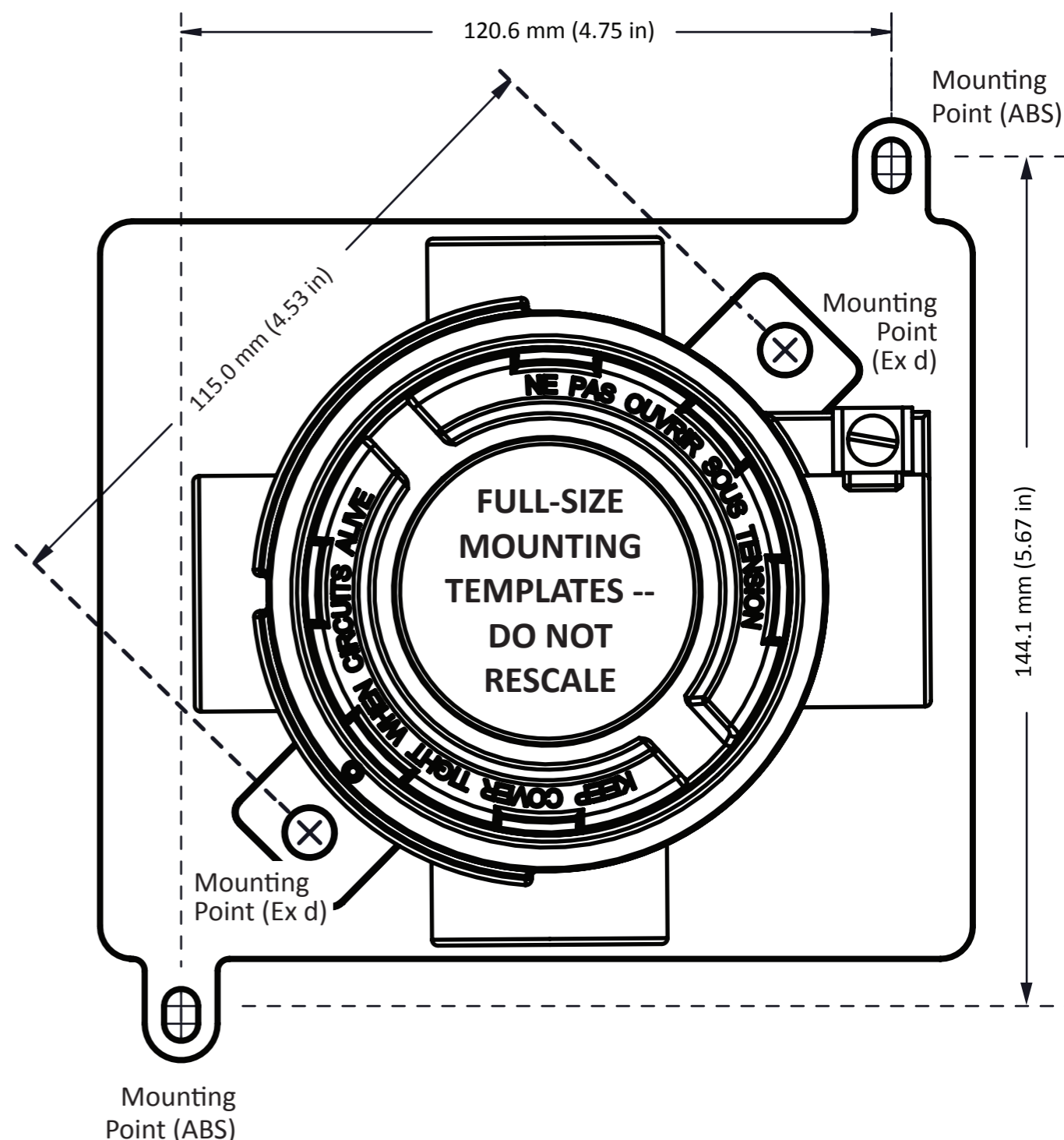
**APPLICATION CONSIDERATIONS:** The specifics of the application (for example, possible leaks, air movement/draft, etc.) must be observed.

**ACCESSIBILITY CONSIDERATIONS:** The degree of accessibility required for maintenance purposes must be granted.

**ACCESSORY CONSIDERATIONS:** The types of optional and accessory equipment that will be used with the system must be kept in mind.

**SENSOR POSITIONING:** When installing the instrument or the remote sensor, the sensor opening should always be pointing downward.

**SUN SHIELD CONSIDERATIONS:** If the instrument is exposed to direct sunlight, the use of a sunshield is recommended.



### 4: WEIGHTS AND DIMENSIONS (APPROXIMATE)

COMPONENT	WIDTH		HEIGHT		DEPTH		WEIGHT	
	mm	in	mm	in	mm	in	kg	lbs
General Purpose Enclosure	210	8.3	225	8.9	85	3.4	1	2
Explosion Proof Enclosure	125	4.9	190	7.5	90	3.5	1.6	3.5

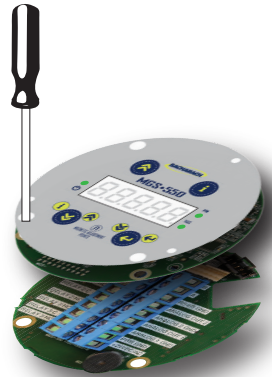
## 5: WIRING



**M20 OPENINGS:** The ABS and the flame proof/explosion proof enclosures provide four M20 openings for cable glands or plugs. These openings can be used for field wiring, direct attachment of a sensor or wiring of a remote sensor. Unused openings must be closed with a suitable plug and gasket, maintaining the IP or Ex d rating.

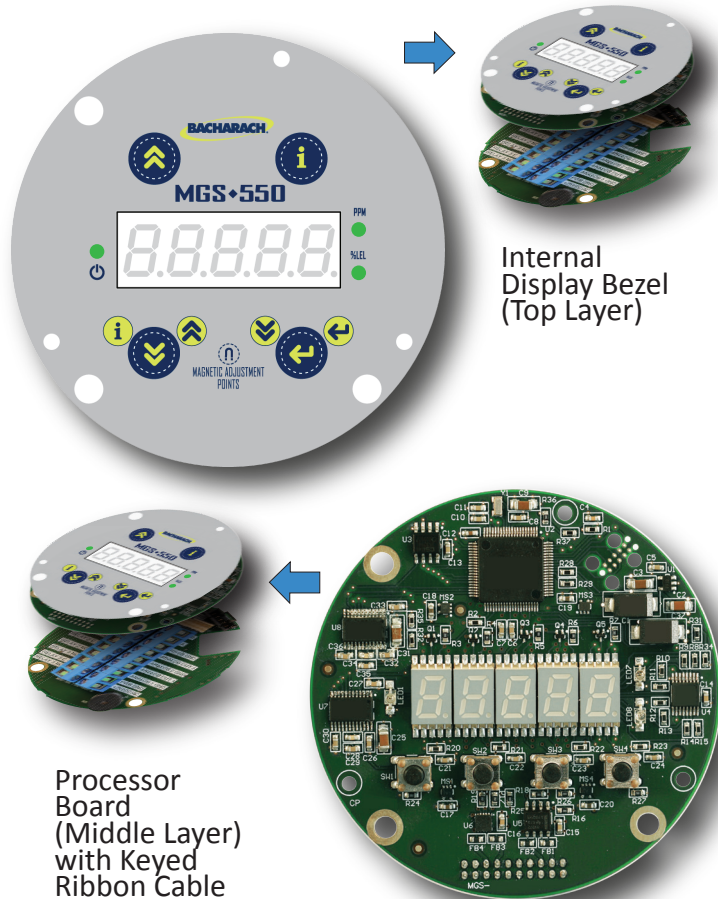


**NOTE:** To make wiring connections, you must first open the MGS-550 housing. The enclosure lid of the IP66 ABS housing has four captive screws. The enclosure lid of the Ex d (flame proof/explosion proof) housing unscrews.



Next, carefully disconnect the combination Display Bezel and Processor Board (which remain connected) from the lower Interface Board by unscrewing the 3 captive screws. Access the captive screws through holes in the Display Bezel.

Refer to the User Manual (part number 1100-1000) for detailed instructions on accessing the internal components for wiring.



**WARNING:** The MGS-550 must be powered by either (a) a suitable UL 60950/CSA certified power supply that is isolated from line voltage by double insulation, or (b) an appropriately rated UL listed/CSA Class 2 transformer. Failure to comply can result in personal injury or death.



**NOTE:** For 24 VDC installations, the input is protected. If the polarity is reversed, the instrument will not power-up.

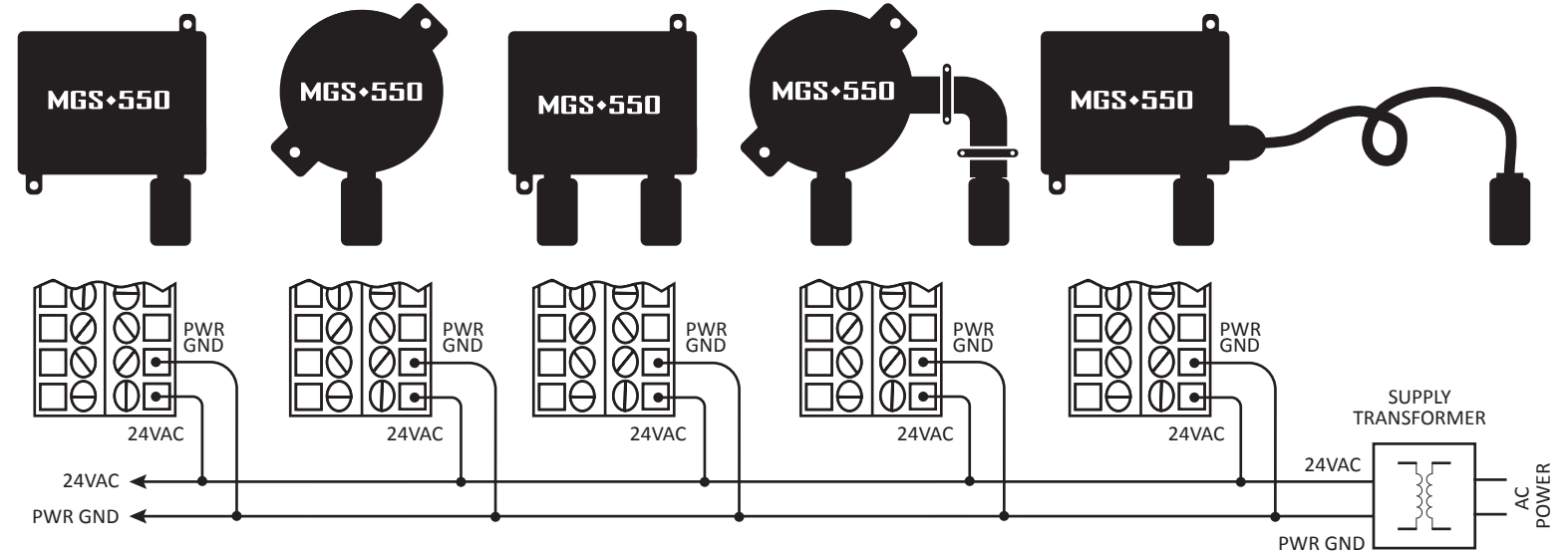


**SHIELD WIRE WARNING:** Connect the shield of the power wires to the earth ground of the central control system (e.g., chassis, ground bus bar, etc.).

- 1: Strip 0.2 to 0.25 inches (5 to 7 mm) of wiring insulation.
- 2: Connect the wires as indicated.

FUNCTION	PIN	LABEL
Power (+24VDC or 24VAC)	1	+24VDC/AC
	2	PWR GND
Analog Output 1	3	ANALOG 1 GND
	4	ANALOG OUT 1
Analog Output 2	5	ANALOG 2 GND
	6	ANALOG OUT 2
Modbus RTU	7	RS-485 GND
	8	A
	9	B

FUNCTION	PIN	LABEL
Relay 1 Output	10	RELAY 1 NC
	11	RELAY 1 C
	12	RELAY 1 NO
Relay 2 Output	13	RELAY 2 NC
	14	RELAY 2 C
	15	RELAY 2 NO
Relay 3 Output	16	RELAY 3 NC
	17	RELAY 3 C
	18	RELAY 3 NO



**NOTE:** For connections to an external controller such as a Bacharach MGS or GDA, refer to the manual that was included with the controller.

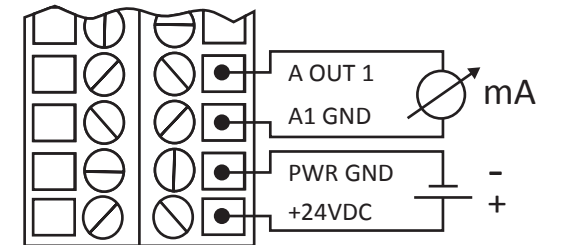


**POLARITY WARNING:** For 24 VAC installations in a daisy-chain configuration, the neutral polarity must be maintained for all instruments.

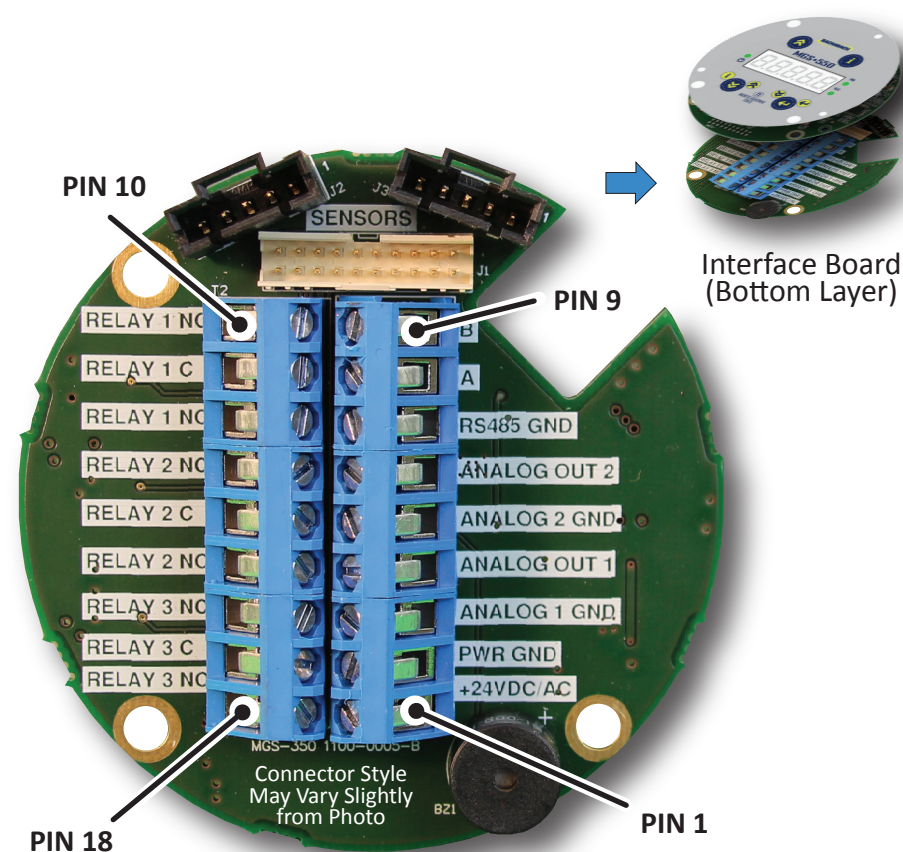
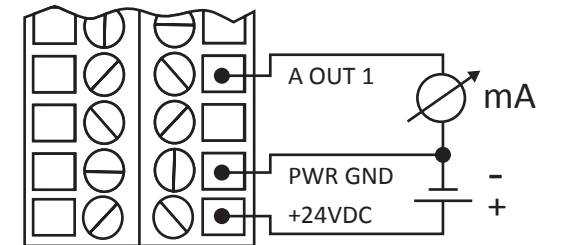


**NOTE:** After wiring is completed, carefully re-assemble the enclosure and its components, noting the keyed ribbon cable and sensor connectors. After installation is complete, be sure to refer to the User Manual (part number 1100-1000) for detailed instructions on registering the sensors and configuring the MGS-550 for proper operation.

4-Wire Power and Output to Central Control System



3-Wire Power and Output to Central Control System



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