



Macurco™ GBC
Gas Boiler Controller
Installation Manual



Please refer to Product Operation Manual for additional product information and features.

1. Safety

Installation must comply with recognized standards of the appropriate authority in the country and concerned locality.

To access the complete manual, go to www.macurco.com or scan the code below:



Macurco Gas Detection
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⚠ WARNING

Each person using this equipment must read and understand the information in this User manual before use. Use of this equipment by untrained or unqualified persons or use that is not in accordance with this user manual, may adversely affect product performance.

GBC may not function effectively below 32 °F (0 °C) or above 125 °F (51 °C). Using the equipment outside of this temperature range may adversely affect product.

Immediately exit any environment that causes an alarm condition on the sensor.

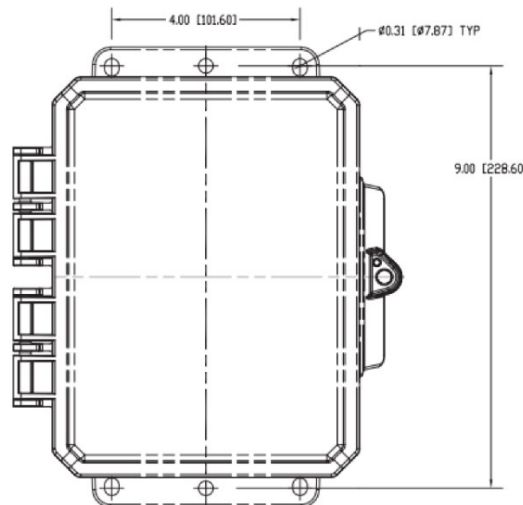
Do not disassemble unit or attempt to repair or modify any component of this instrument. This instrument contains no user serviceable parts, and substitution of components may adversely affect product performance and void product warranty.

High voltage terminals (120/240 VAC) are located within this detector, presenting a hazard to service technicians. Only qualified technicians should open the detector case and service the internal circuits. Ensure power is de-energized from the detector relays prior to servicing the unit. Failure to do so may result in electrical shock.

2. Installation Instructions

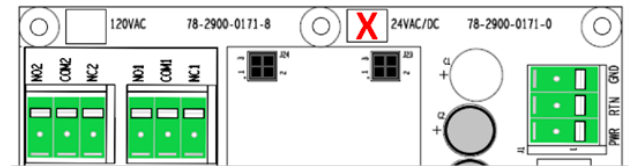
The Macurco GBC enclosure has 6 mounting holes and is shipped with mounting screws. Install the mounting screws on the four corners of the enclosure. The GBC should be mounted with sufficient space all round for access to conduit entry holes on the top and bottom side of the unit. Mount the unit in an appropriate space to see and hear the visual and audible notification and to easily access the reset button. The enclosure comes with one predrilled 3/4" conduit at the bottom center of enclosure (conduit fitting connector not included).

Note: If additional entry holes are required, use caution when drilling new holes in the enclosure. Protect the internal components to prevent damage while drilling.



3. Main Power Connection

Warning: When making connections, make sure the power is off. The GBC offers two power input versions. GBC-X-24: 24 VAC or VDC and GBC-X-120: 120 VAC. Always check the input power type marked on the top of the GBC Main PCBA prior to connecting power.



There are three terminals for Power: Power, Return, Ground. The power connections to the GBC should be size AWG 18 (minimum) for short runs. For longer runs follow recommended power wire gauge guidelines. Match the polarity for power connection, for the low voltage models there is a bridge rectifier, so it is not polarity sensitive.

Wire Gauge	Maximum Run Length	
	(feet)	(meters)
18	500	152
16	800	244
14	1250	381

Note: Only connect the GBC to Class 2 power supply. **Note:** It is recommended to use an independent transformer for powering the unit(s) due to possible interferences from other devices on the same power supply.

4. Sensor Connections

There are two sensor connections on the GBC. These connections provide power to the respective units and monitor the normally close circuit that controls the GBC. The GBC can support up to four Macurco 6-Series gas detectors (350 mA max) in any combination. The sensors must be wired in series for the normally closed circuit to operate correctly.

Note: If not using Sensor Connection 2 with a gas detector a jumper wire or zero-ohm resistor is needed between alarm and 24 V. A zero-ohm resistor is factory populated in the Sensor Connection 2, but a jumper wire can be used as well.

5. Horn/Strobe Connection

The horn/strobe output provides 24 VDC power to a remote horn/strobe (250 mA Max). The horn/strobe will engage during the same time the onboard relays are set to engage based on the detector set point.

6. Relay Connections

There are four expansion slots that accept the Macurco Expansion Relay boards. Each Expansion Relay board contains two SPDT, 120/240 VAC, 10 A Max (resistive) relays. Each relay can be wired to be either normally open (NO) or normally closed (NC) depending on the application.

7. Programming on detectors to work with the GBC

Settings:	CM-6/CM-12 Default	Change To:	GD-6/GD-12 Default	Change To:
Power Up Test	On	Off	On	Off
Display	On	On	On	On
Buzzer	On	On	On	On
Alarm Relay Setting	200 ppm	200 ppm	20% LEL	20% LEL
Alarm Relay Configuration	Normally Open (NO)	Normally Closed (NC)	Normally Open (NO)	Normally Closed (NC)
Fan Relay Setting	35 ppm	50 ppm	10% LEL	10% LEL
Ran Relay Delay	3 minutes	0 minutes	3 minutes	0 minutes
Fan Relay Minimum Runtime	0 minutes	0 minutes	0 minutes	0 minutes
Fan Relay Latching	Off	On	Off	On
Trouble Fan Setting	Off	Off	Off	Off
4-20mA	bAS (basic)	bAS (basic)	bAS (basic)	bAS (basic)
Calibration due	dIS (disabled)	dIS (disabled)	dIS (disabled)	dIS (disabled)

Power-UP Test Setting – “PUT”

To select the Power Up Test Configuration, in normal mode, push the Next button to get to “Con” or the Configuration menu. Then push the Enter button to enter the Con menu. Then push the Next button to get to the second selection “PUT” or Power Up Test setting. Push Enter. If the test is “PUT” push Next to turn it “OFF” (flashing) then push Enter to confirm the change (solid) and push Enter again to return to “PUT” in the Con menu. Push Next until “End” is displayed then push Enter to get back to normal operation.

Alarm Relay Configuration – “Arc”

To select the Alarm Relay Configuration, in normal mode, push the Next button to get to “Con” or the Configuration menu. Then push the Enter button to enter the Con menu. The sixth selection is the “Arc” or Alarm Relay Configuration. Push Next five times to get to “Arc” then Enter. If the relay is “nO” (normally open) push Next to turn it to “nC” (flashing) then push Enter to confirm the change (solid) and push Enter again to return to “Arc” in the Con menu. Push Next until “End” is displayed then push Enter to get back to normal operation.

Fan Relay Setting – “FrS”

To select the Fan Relay setting, in normal mode, push the Next button to get to “Con” or the Configuration menu. Then push the Enter button to enter the Con menu. The seventh selection is the “FrS” or Fan Relay setting. Push Next six times to get to “FrS” then Enter.

- **CM-XX:** If the fan relay is “dIS” (disabled) push Next to change it to 15, 25, 35, 50 or 100 ppm (flashing) then push Enter to confirm the change (solid) and push Enter again to return to “FrS” in the Con menu.
- **GD-XX:** If the fan relay is “dIS” (disabled) press Next to change it to 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 or 20% LEL (flashing) then press Enter to confirm the change (solid) and press Enter again to return to “FrS” in the Con menu.

Push Next until “End” is displayed then push Enter to get back to normal operation.

Fan Relay Delay Setting – “Frd”

To select the Fan Relay Delay setting, in normal mode, push the Next button to get to “Con” or the Configuration menu. Then push the Enter button to enter the Con menu. The eighth selection is the “Frd” or Fan Relay Delay. Push Next seven times to get to “Frd” then Enter. If the delay is “0” (disabled) push Next to change it to 1, 3, 5, or 10 minutes (flashing) then push Enter to confirm the change (solid) and push Enter again to return to “Frd” in the Con menu. Push Next until “End” is displayed then push Enter to get back to normal operation.

Fan Relay Latching Setting – “FrL”

To select the Fan Relay Latching Option, in normal mode, push the Next button to get to “Con” or the Configuration menu. Then push the Enter button to enter the Con menu. The tenth selection is the “FrL” or Fan Relay Latching Option. Push Next nine times to get to “FrL” then Enter. If latching is “OFF” push Next to turn it to “ON” (flashing) then push Enter to confirm the change (solid) and push Enter again to return to “FrL” in the Con menu. Push Next until “End” is displayed then push Enter to get back to normal operation.

