USER MANUAL
Carbon Dioxide Detector GS-CO2-02

The Futuristic Carbon Dioxide Detector GS-CO2-02 is a reliable monitoring solution for CO2 levels. Suited for demand control ventilation in commercial buildings and various industrial applications, it excels in monitoring confined spaces in residential or commercial buildings, laboratories, hospitals, manufacturing areas, etc.

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**Design and specifications are subject to change without notice

FEATURES

- High-performance Swiss-made photoacoustic sensors (PAS) and circuit technology for accurate measurement, temperature compensation, and long-term stability with up to 10 years of sensor life.
- Smart and compact form factor.
- Digital technology with multiple selectable analog outputs.
- Optional features include relay output, in-built buzzer alarm, and RS-485 Modbus Communication.
- Transmitter options with or without display.
- Jumper-selectable outputs: 4-20 mA or 0-10V DC.
- RS-485 Modbus Communication.
- Optional buzzer alarm.

SPECIFICATIONS

|	
CO2 Range	0-2000ppm
	0-5000ppm
	(selected at time of ordering)
Accuracy	±5% in 400~5000 ppm range
Output	4-20mA/ 0-10 VDC (User field selectable)
Display	41/2 digit LCD Display
Relay	Optional single relay output (NO)
	Freely programmable
	Rated 2 amps
Storage Conditions	-10 to 60°C
Size	100 (H) x 85 (W) x 25 (D) mm
Response Time	<3 minutes for 90% step change
Warm up Time	<2 minutes, 10 mins for max accuracy

ORDERING CODE

CO2 Transmitter Series	GS-CO2-02		
Mounting Type	XX	WN	Wall Mount
		D1	Duct Integral Probe
Relay	XX	NN	None
		01	SPST Relay, 2A
Buzzer	XX	NN	None
		1	Programmable Buzzer
Comm. Port	X	N	None
		1	RS485, Modbus
Display	XX	NN	Without display
		D2	LCD Display
CO2 Measurement Range	XXX	2K	0 to 2000 PPM
		5K	0 to 5000 PPM
Example Code: GS-CO2-02-WN-01-NN-N-D2-2K			

WIRING

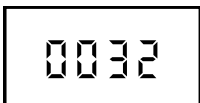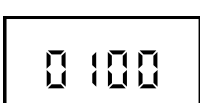| 1	2	3	4	5	6
NO	CO	-	+	-	+
Relay		4-20 mA o/p		24VDC	

JUMPER SELECTION FOR OUTPUT

V

mA
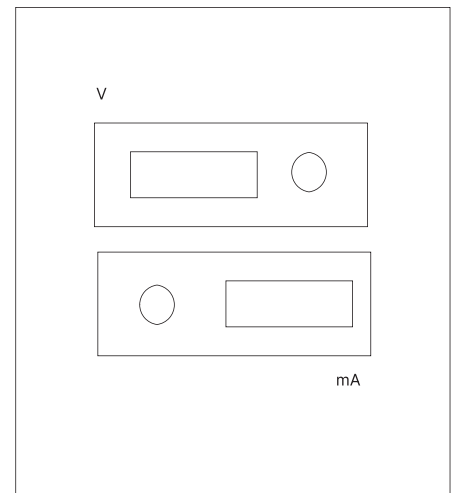
OFFSET SETTING CHART

⚠ TO BE USED BY AUTHORISED PERSONNEL ONLY

Offset setting is a provision given in the instrument to enable it to adjust the readout value to meet a desired value. Use this facility with discretion.

WARNING - RISK OF WRONG READOUTS ❗

S.No.	STEPS	SCREEN	PARAMETER
1	Long press S1 for 5 secs to go to password	PASS	**PASS** Password (Factory Set)
2	Using S2 S3 set the PASS value to 32	0032	**PASS** Password (Factory Set)
3	Press S1 to go to the offset setting	OFF	**OFF** Offset Value
4	Using S2 S3 adjust the offset value to match the calibrated master instrument	0100	**OFF** Offset Value
5	Press S4 to save	0100	**OFF** Offset Value
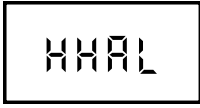
Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

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ALARM SETTING CHART

S.No.	STEPS	SCREEN	PARAMETER
6	Press S1 to go to SET1	SET1	**SET1** Relay-1 Set Point
7	Using S2 S3 set the value of relay 1	0800	**SET1** Relay-1 Set Point
8	Press S4 to save	0800	**SET1** Relay-1 Set Point
9	Press S1 to go to HYS1	HYS1	**HYS1** Hysteresis Value
10	Using S2 S3 set the relay 1 hysteresis value	0001	**HYS1** Hysteresis Value
11	Press S4 to save	0001	**HYS1** Hysteresis Value
6	Press S1 to go to SET2	SET2	**SET2** Relay-2 Set Point
7	Using S2 S3 set the value of relay 2	0500	**SET2** Relay-2 Set Point
8	Press S4 to save	0500	**SET2** Relay-2 Set Point
9	Press S1 to go to HYS2	HYS2	**HYS2** Hysteresis Value
10	Using S2 S3 set the relay 2 hysteresis value	0001	**HYS2** Hysteresis Value
11	Press S4 to save	0001	**HYS2** Hysteresis Value

12	Press S1 to go to H-AL	H-AL	**H-AL** (CO2 ppm) High Alarm for buzzer
13	Using S2 S3 set the high alarm value (Default set point is 2000ppm)	2000	**H-AL** (CO2 ppm) High Alarm for buzzer
14	Press S4 to save	2000	**H-AL** (CO2 ppm) High Alarm for buzzer
15	Press S1 to go to HHAL	HHAL	**HHAL** (CO2 ppm) High High Alarm buzzer
16	Using S2 S3 set the high high alarm value (Default set point is 3000ppm)	3000	**HHAL** (CO2 ppm) High High Alarm buzzer
17	Press S4 to save	3000	**HHAL** (CO2 ppm) High High Alarm buzzer
18	Press S1 to go to VHAL	VHAL	**VHAL** (CO2 ppm) Very High Alarm buzzer
19	Using S2 S3 set the very high alarm value (Default set point is 3800ppm)	3800	**VHAL** (CO2 ppm) Very High Alarm buzzer
20	Press S4 to save	3800	**VHAL** (CO2 ppm) Very High Alarm buzzer
21	Press S1 to go to VVHAL	VVAL	**VVAL** (CO2ppm) buzzer Very Very High Alarm
22	Using S2 S3 set the very very high alarm (Default set point is 4000ppm)	4000	**VVAL** (CO2ppm) buzzer Very Very High Alarm
23	Press S4 to save	4000	**VVAL** (CO2ppm) buzzer Very Very High Alarm

BUZZER SETTING CHART

Buzzer Logic: The buzzer in the instrument rings only if things go out of bounds - either dropping below the Low Alarm (L-AL) or going beyond the High Alarm (H-AL) limits. No buzzer sounds when everything is in the expected range. So, as long as you're not hearing the buzzer, your process is running within the defined limits.

S.No.	STEPS	SCREEN	PARAMETER
24	Press S1 to go to BUZZ	BUZZ	**BUZZ** Buzzer
25	Using S2 S3 to select yes/no	YES	**BUZZ** Buzzer
26	Press S4 to save	YES	**BUZZ** Buzzer
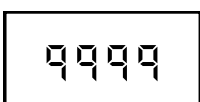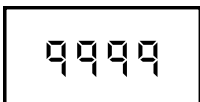
Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

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RANGE LOCKING CHART

⚠️ TO BE USED EXCLUSIVELY BY MANAGERS OR SENIOR EXECUTIVES

The instrument's low and high ranges can be locked. This ensures that only authorized personnel at the managerial or executive level have the capability to make adjustments or modifications to these settings.

WARNING - RISK OF WRONG READOUTS❗

S.No.	STEPS	SCREEN	PARAMETER
27	Press S1 to go to LCKL	LCKL	**LCKL** Readout Low Range Lock
28	Using S2 S3 adjust low range lock (Instrument will display this reading even if actual readout is below this reading)	0001	**LCKL** Readout Low Range Lock
29	Press S4 to save	0001	**LCKL** Readout Low Range Lock
30	Press S1 to go to LCKH	LCKH	**LCKH** Readout High Range Lock
31	Using S2 S3 adjust high range lock (Instrument will display this reading even if actual readout is above this reading)	9999	**LCKH** Readout High Range Lock
32	Press S4 to save	9999	**LCKH** Readout High Range Lock
33	Press S1 to go to normal working mode	8888	Normal working mode

Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

INPUT RANGE CONFIGURATION CHART

WARNING - Do not disturb the PASS, LO-1, and HI-1 settings as these are factory settings.

S.No.	STEPS	SCREEN	PARAMETER
1	Long press S1 to go to password	PASS	**PASS** Password (Factory Set)
2	Using S2 S3 set the PASS value to 24	0024	**PASS** Password (Factory Set)
3	Press S1 to go to the RNGL setting	RNGL	**LO-1** (CO2 PPM) Input Lower Range
4	Using S2 S3 set the RNGL value to 0 (Factory set LO-1 setting is '0' for any range)	0000	**LO-1** (CO2 PPM) Input Lower Range
5	Press S4 to save	0000	**LO-1** (CO2 PPM) Input Lower Range
6	Press S1 to go to the RNGH setting	RNGH	**HI-1** (CO2 PPM) Input Higher Range
7	Using S2 S3 set the RNGH value to 2000/5000/9999 depending on the opted range (Eg: Factory set HI-1 setting is '5000' if the opted range is 0-5000)	2000	**HI-1** (CO2 PPM) Input Higher Range
8	Press S4 to save	2000	**HI-1** (CO2 PPM) Input Higher Range

Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

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OUTPUT RANGE CONFIGURATION CHART

Only when 'Analog Output 4-20mA' is selected at the time of ordering
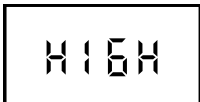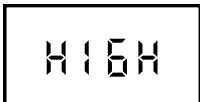
WARNING - Do not disturb OPL, OPH, and RSPT settings as these are factory settings.

S.No.	STEPS	SCREEN	PARAMETER
9	Press S1 to go to the OPL1 setting	OPL1	**OPL1** (CO2 PPM) Output Lower Range
10	Using S2 S3 set the OPL1 value to 0 (Factory set OPL1 setting is '0')	0000	**OPL1** (CO2 PPM) Output Lower Range
11	Press S4	0000	**OPL1** (CO2 PPM) Output Lower Range
12	Press S1 to go to the OPH1 setting	OPH1	**OPH1** (CO2 PPM) Output Higher Range
13	Using S2 S3 set the OPH1 value to 2000/5000/9999 depending on the opted range	2000	**OPH1** (CO2 PPM) Output Higher Range
14	Press S4 to save	2000	**OPH1** (CO2 PPM) Output Higher Range
15	Press S1 to go to the RSPT setting	RSPT	**RSPT** Readout Response Time
16	Using S2 S3 set the RSPT value to 0...99 sec (Factory set RSPT is '1' second)	0003	**RSPT** Readout Response Time
17	Press S4 to save	0003	**RSPT** Readout Response Time

Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.
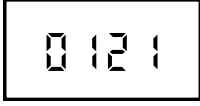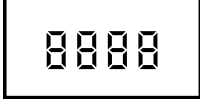
RELAY OUTPUT CONFIGURATION CHART

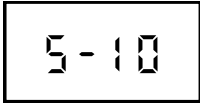Only when 'Relay Output' is selected at the time of ordering

S.No.	STEPS	SCREEN	PARAMETER
18	Press S1 to go to the CON1 setting	CON1	**CON1** - Relay 1
19	Using S2 S3 select the value 'HIGH'	HIGH	**CON1** - Relay 1
20	Press S4 to save	HIGH	**CON1** - Relay 1
21	Press S1 to go to the CON2 setting	CON2	**CON2** - Relay 2
22	Using S2 S3 select the value 'HIGH'	HIGH	**CON2** - Relay 2
23	Press S4 to save	HIGH	**CON2** - Relay 2
24	Press S1 to go to back to normal working mode	8888	Working Mode

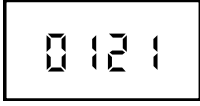Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

RS485 MODBUS COMMUNICATION CHART

S.No.	STEPS	SCREEN	PARAMETER
1	Press S1 to go to password	PASS	**PASS** Password (Factory Set)
2	Using S2 S3 set the PASS value to 10	0010	**PASS** Password (Factory Set)
3	Press S1 to go to the S-ID setting	5-10	**S-ID** Communication ID
4	Using S2 S3 enter the instrument ID (Select any ID from 1 to 255)	0121	**S-ID** Communication ID
5	Press S4 to save	0121	**S-ID** Communication ID
6	Press S1 to go to the BAUD setting	BAUD	**BAUD** Device Baud Rate
7	Using S2 S3 select baud rate (Select from 4800,9600,19200,38400 bps)	4800	**BAUD** Device Baud Rate
8	Press S4 to save	4800	**BAUD** Device Baud Rate
9	Press S1 to go to back to normal working mode	8888	Working Mode

Note: On not pressing any key, the instrument returns to Run mode in 10 seconds.

RS 485 MODBUS COMMUNICATION DETAILS

Baud Rate - 9600 bps, Parity - None, Date Bits - 8, Stop Bit - 1, Slave ID - 1

40001	Process value
40002	Low Alarm Set Point
40003	High Alarm Set Point
40004	Offset
40005	Input Range Low
40006	Input Range High
40007	Output mA Low Range
40008	Output mA High Range
40009	Output Voltage Low Range
40010	Output Voltage High Range
40011	Relay set point
40012	
40013	Relay Trigger (low trigger-0, high-1)
40014	Decimal Point
40015	
40016	Buzzer Acknowledge
40017	Buzzer use (yes -0, no-1)

Factory set Baud Rate is 9600. However, you may select between 4800, 9600, 19200, 38400 bps Using the programming menu.