

Gas cylinder scale Model GCS-1

WIKA data sheet PE 87.19

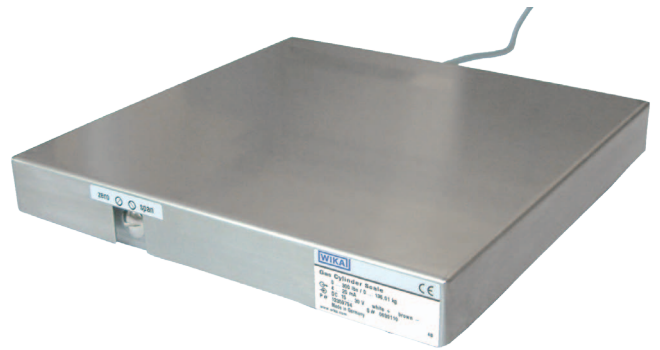


Applications

- Level measurement of liquid gases in gas cabinets and gas distribution systems
- Level measurement in chemical delivery systems
- Industrial weight measurement

Special features

- High overload safety up to 400 %
- 0.1 % FS accuracy
- Meets the highest EMC requirements
- Measuring ranges 0 ... 60 lbs to 0 ... 300 lbs (0 ... 27.2 kg to 0 ... 136.1 kg)
- High ingress protection, IP 65, for outdoor use and processes with high condensation



Gas cylinder scale model GCS-1

Description

The model GCS-1 gas cylinder scale has been designed for indoor and outdoor use in gas cabinets or gas containers.

Due to their high IP 65 ingress protection, there is no concern with using the gas cylinder scale for gas cylinders with heavy condensation.

The robust and compact design features high accuracy and temperature stability, meeting the requirements of the semiconductor industry.

The gas cylinder scale satisfies high overload and EMC requirements in order to ensure safe, error-free and accurate operation.

Measuring ranges

Weight				
lbs	Measuring range	0 ... 60	0 ... 100	0 ... 300
	Overload	0 ... 250	0 ... 300	0 ... 750
kg	Measuring range	0 ... 27.2	0 ... 45.4	0 ... 136.1
	Overload	0 ... 115	0 ... 130	0 ... 340

Other measuring ranges on request.

Output signal

Model	Signal
GCS-1-A (2-wire)	4 ... 20 mA
GCS-1-G (4-wire)	DC 0 ... 5 V
GCS-1-F (4-wire)	DC 0 ... 10 V

Load

Model GCS-1-A: $\leq (\text{supply voltage} - 10 \text{ V}) / 0.02 \text{ A}$

Model GCS-1-G: $> 5 \text{ k}\Omega$

Model GCS-1-F: $> 10 \text{ k}\Omega$

Power supply

Supply voltage

DC14 ... 30 V

Maximum output current

$\leq 35 \text{ mA}$

Accuracy

Analogue signal

$\leq 0.1 \%$ of span

$\leq 0.05 \%$ of span (BFSL)

Non-linearity (IEC 61298-2)

$\leq 0.05 \%$ of span

Long-term stability (per month)

$\leq 0.04 \%$ of span (at reference conditions)

Adjustability of zero point / span

$\pm 5 \%$ through built-in potentiometer

Temperature effect

Temperature coefficients in rated temperature range

■ Mean TC zero: $\leq \pm 0.1 \%$ of span / 10 K

■ Mean TC span: $\leq \pm 0.1 \%$ of span / 10 K

Reference conditions (per IEC 61298-1)

Temperature:	15 ... 25 °C
Atmospheric pressure:	950 ... 1050 mbar
Humidity:	45 ... 75 % relative
Nominal position:	Horizontal
Supply voltage:	DC 24 V
Load:	see output signal

Operating conditions

Mechanics

Resistant to impact of 90 kg from a height of 10 cm

Ingress protection: IP 65 (IEC 60529)

Permissible temperatures

Ambient temperature

■ T4: -20 ... +50 °C

■ T5: -20 ... +40 °C

Storage temperature: -20 ... +60 °C

Rated temperature range: -10 ... +50 °C

Materials

Sensor

Aluminium

Case

Stainless steel

Base plate

Stainless steel

Approvals, directives and certificates

CE conformity

EMC directive: 2004/108/EC

EN 61326 emission (group 1, class B) and
interference immunity (industrial application)

Explosion protection

Directive	Ignition protection type
Without ATEX approval	-
ATEX category 3G	Ex nL IIC T4, T5 X
ATEX category 3G	Ex nA IIC T4, T5 X

Safety-related maximum values

(only valid for devices to ATEX category 3G)

Model GCS-1-A	Ex nL IIC T4, T5 X	Ex nA IIC T4, T5 X
Supply voltage:	DC 14 ... 24 V	DC 14 ... 24 V
Current limitation I _i :	30 mA	-
Power limitation P _i :	1 W	1 W
Internal capacitance C _i :	0,1 µF ¹⁾	-
Internal inductance L _i :	1,2 mH ²⁾	-

Model GCS-1-G	Ex nL IIC T4, T5 X	Ex nA IIC T4, T5 X
Supply voltage:	DC 14 ... 24 V	DC 14 ... 24 V
Current limitation I _i :	30 mA	-
Power limitation P _i :	1 W	1 W
Internal capacitance C _i :	0,1 µF ¹⁾	-
Internal inductance L _i :	1,2 mH ²⁾	-
Max. output voltage U _o :	DC 12 V	-
Max. output current I _o :	35 mA	-
External capacitance C _o :	4,122 µF	-
External inductance L _o :	23,4 mH	-

Model GCS-1-F	Ex nL IIC T4, T5 X	Ex nA IIC T4, T5 X
Supply voltage:	DC 14 ... 24 V	DC 14 ... 24 V
Current limitation I _i :	30 mA	-
Power limitation P _i :	1 W	1 W
Internal capacitance C _i :	0,1 µF ¹⁾	-
Internal inductance L _i :	1,2 mH ²⁾	-
Max. output voltage U _o :	DC 12 V	-
Max. output current I _o :	35 mA	-
External capacitance C _o :	4,122 µF	-
External inductance L _o :	23,4 mH	-

1) 56 pF / cable length in m

2) 0.1 µH / cable length in m

Electrical connection

Type of connection: Cable outlet

Cable length: 6 m (≈ 20 ft)

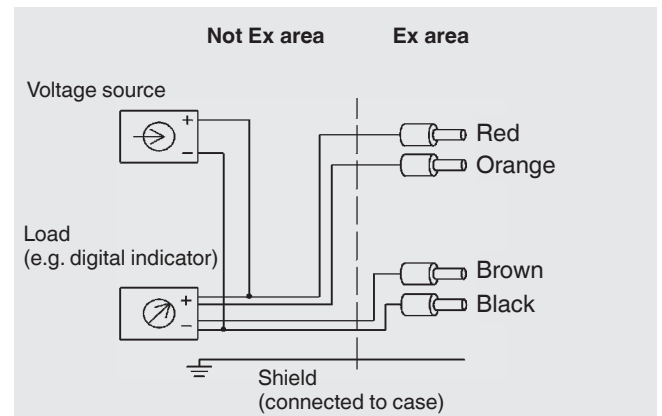
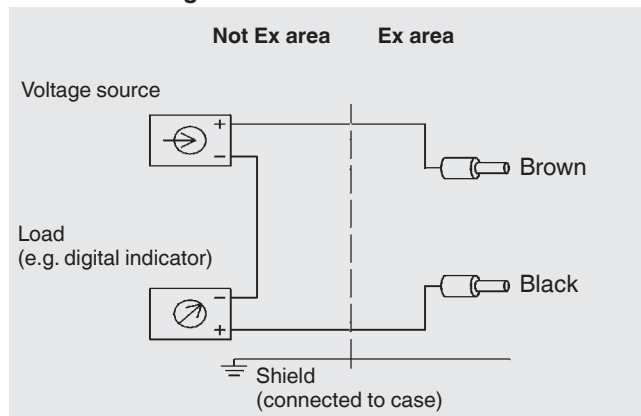
Electrical safety

Short-circuit resistance: S+ vs. U-

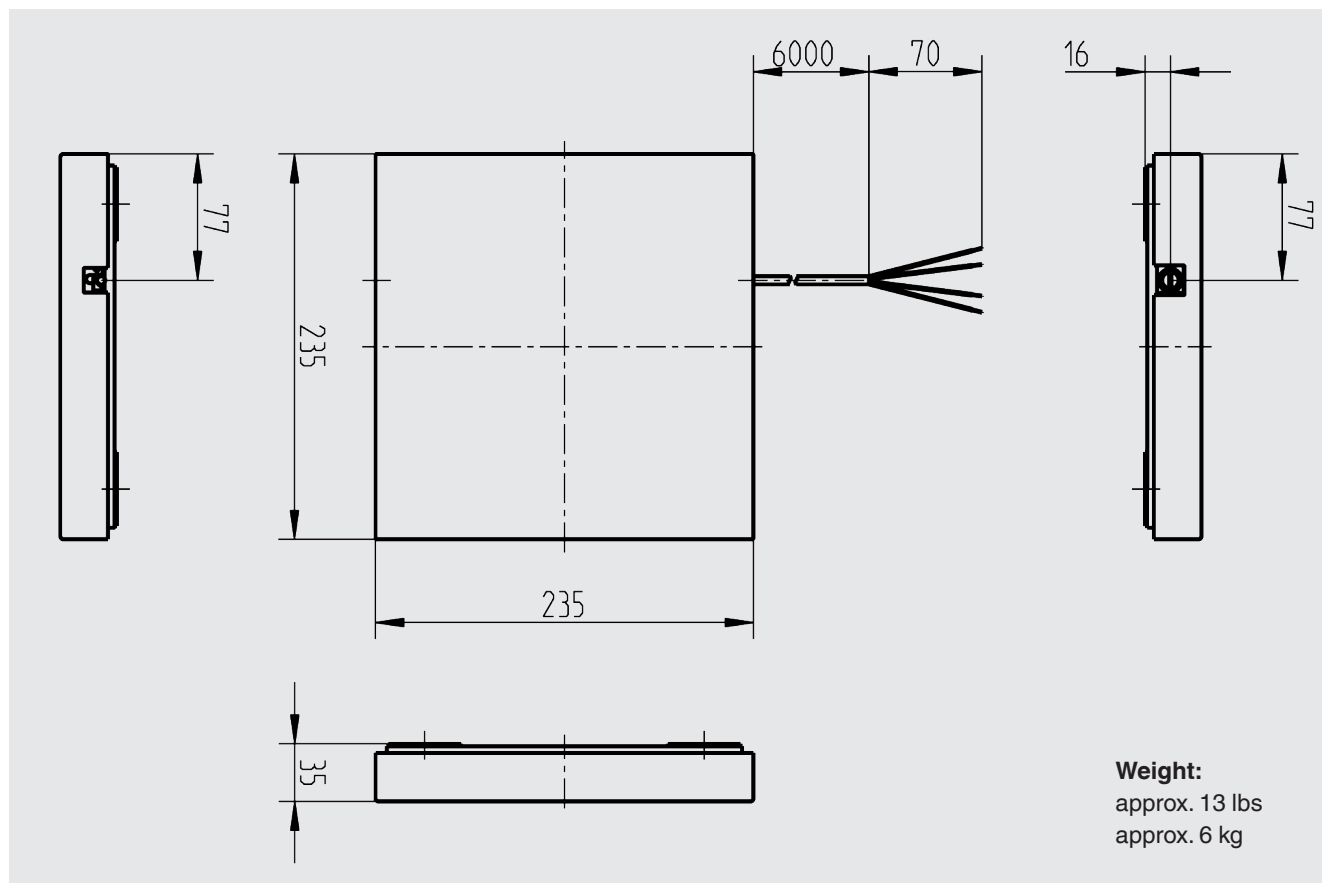
Reverse polarity protection: U+ vs. U-

Insulation voltage: DC 500 V

Connection diagram





Dimensions in mm



Accessories

Digital indicators

	Description	Order number	
		AC 230 V	AC 110 V
	Digital indicator DI30 wall mounting case	12458741	12489841
	Digital indicator DI30 panel mounting	7539422	12489825

The use of an Ex galvanic isolator (transmitter supply isolator) is required for the operation in accordance with the ATEX directive. For example, model MTL5344, manufacturer MTL Instruments GmbH, is suitable.

Order numbers

Without ATEX approval

Measuring range	Order number		
	GCS-1-A (4 ... 20 mA)	GCS-1-G (DC 0 ... 5 V)	GCS-1-F (DC 0 ... 10 V)
0 ... 60 lbs / 0 ... 27.2 kg	13470273	12489540	12716121
0 ... 100 lbs / 0 ... 45.4 kg	13470302	12489612	12716171
0 ... 300 lbs / 0 ... 136.1 kg	13470311	12489621	12716201

With ignition protection type Ex nA IIC T4, T5 X

Measuring range	Order number		
	GCS-1-A (4 ... 20 mA)	GCS-1-G (DC 0 ... 5 V)	GCS-1-F (DC 0 ... 10 V)
0 ... 60 lbs / 0 ... 27.2 kg	13470116	13471148	13471253
0 ... 100 lbs / 0 ... 45.4 kg	13470257	13471156	13471261
0 ... 300 lbs / 0 ... 136.1 kg	13470265	13471164	13471288

With ignition protection type Ex nL IIC T4, T5 X

Measuring range	Order number		
	GCS-1-A (4 ... 20 mA)	GCS-1-G (DC 0 ... 5 V)	GCS-1-F (DC 0 ... 10 V)
0 ... 60 lbs / 0 ... 27.2 kg	12364453	13471172	13471318
0 ... 100 lbs / 0 ... 45.4 kg	12364445	13471181	13471326
0 ... 300 lbs / 0 ... 136.1 kg	12359794	13471201	13471342

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