

Gas cylinder scale Model GCS-1

WIKA Datenblatt 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 ... 27.22 kg to 0 ... 136.08 kg [0 ... 60 lbs to 0 ... 300 lbs]
- High ingress protection, IP65, 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 its high IP65 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 meets the highest overload and EMC requirements in order to ensure safe, error-free and accurate operation.

Measuring ranges

| Measuring ranges | | | | |
|------------------|-----------------|-------------|-------------|--------------|
| kg | Measuring range | 0 ... 27.22 | 0 ... 45.36 | 0 ... 136.08 |
| | Overload safety | 0 ... 115 | 0 ... 130 | 0 ... 340 |
| lbs | Measuring range | 0 ... 60 | 0 ... 100 | 0 ... 300 |
| | Overload safety | 0 ... 250 | 0 ... 300 | 0 ... 750 |

Other measuring ranges on request.

Output signal

| Model | Output 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: $\leq (\text{power supply} - 10 \text{ V}) / 0.02 \text{ A}$

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

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

Voltage supply

Power supply

DC 14 ... 30 V

Maximum output current

$\leq 35 \text{ mA}$

Accuracy specifications

Accuracy of analogue signal

$\leq 0.1 \%$ of span

Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2)

Non-linearity (IEC 61298-2)

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

Long-term stability (per month)

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

Adjustability of zero point, span

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

Temperature coefficients in rated temperature range

Mean TC zero point: $\leq \pm 0.1 \%$ 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 [5 ... 70 °F]

Atmospheric pressure: 860 ... 1,060 mbar

Humidity: 45 ... 75 % r. h.

Nominal position: Horizontal

Power supply: DC 24 V

Load: see "Output signal"

Operating conditions

Free fall

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

Ingress protection

IP65 (IEC 60529)

Ex marking

| Ex markings | |
|-------------|--|
| Option 1 | without Ex approval |
| Option 2 | (ATEX) II 3G Ex nA IIC T4/T5 Gc X (IECEX) BVS 16.0001X Ex nA IIC T4/T5 Gc |

Permissible temperature ranges

Ambient: -20 ... +50 °C [-4 ... +122 °F] (T4)

-20 ... +40 °C [-4 ... +104 °F] (T5)

Storage: -20 ... +60 °C [-4 ... +140 °F]

Operation: -20 ... +50 °C [-4 ... +122 °F]

Materials

Sensor

Aluminium

Case

Stainless steel

Base plate

Stainless steel

Safety-related maximum values

(only valid for instruments to ATEX category 3G)

| | Model GCS-1-A (4 ... 20 mA) | Model GCS-1-G (DC 0 ... 5 V) | Model GCS-1-F (DC 0 ... 10 V) |
|------------------------|--------------------------------|---------------------------------|----------------------------------|
| Power supply | DC 14 ... 24 V | DC 14 ... 24 V | DC 14 ... 24 V |
| Power limitation P_1 | 1 W | 1 W | 1 W |

Electrical connection

Type of connection: Cable outlet

Cable length: 6 m [≈ 20 ft]

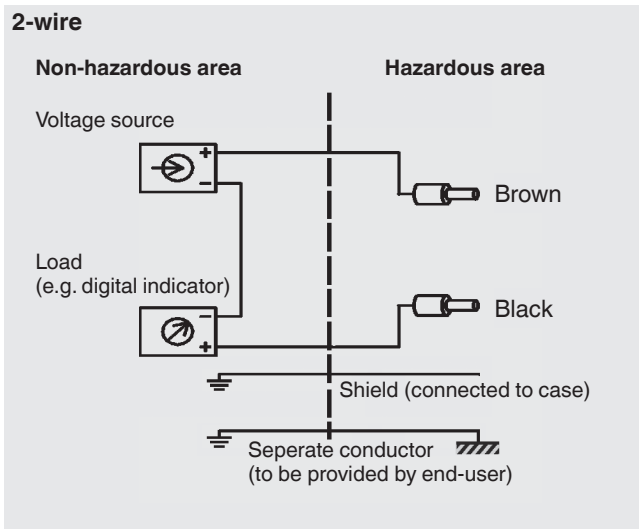
Electrical safety

Short-circuit resistance: S_+ vs. U_-

Reverse polarity protection: U_+ vs. U_-

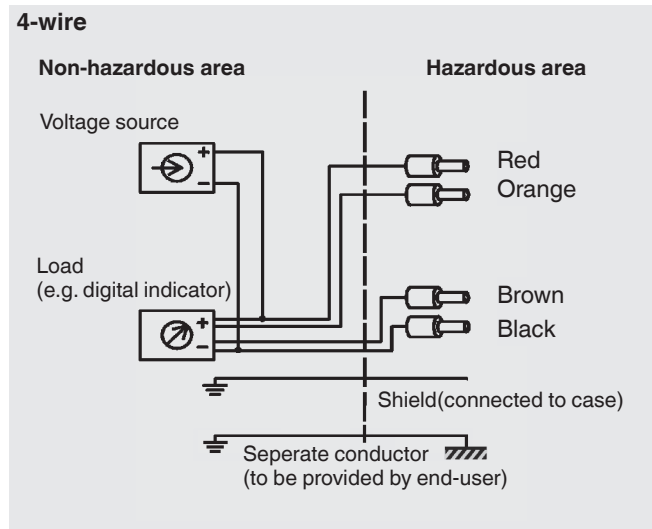
Insulation voltage: DC 500 V

Connection diagram



Pin assignment (2-wire)

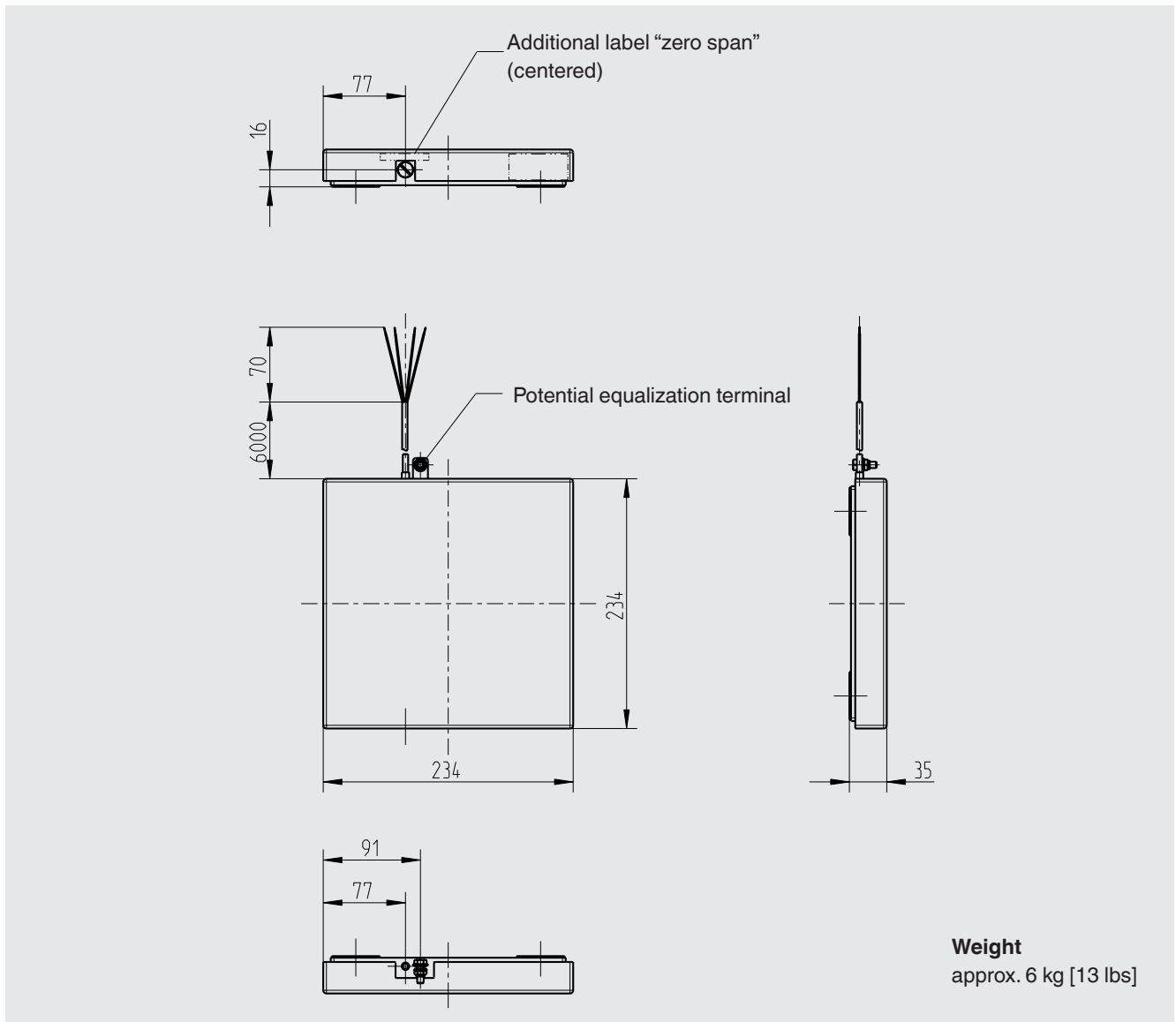
| | |
|-------------|------------|
| U_+ / S_+ | brown (BN) |
| U_- / S_- | black (BK) |






Pin assignment (4-wire)

| | |
|-------|-------------|
| U_+ | red (RD) |
| S_+ | orange (OG) |
| U_- | black (BK) |
| S_- | brown (BN) |

Dimensions in mm



Approvals

| Logo | Description | Country |
|--|--|----------------|
|   | EU declaration of conformity <ul style="list-style-type: none"> ■ EMC directive EN 61326 emission (group 1, class B) and interference immunity (industrial application) ■ RoHs directive ■ ATEX directive (option) Hazardous areas - Ex n Zone 2 Gas <p style="text-align: center;">[II 3G Ex nA IIC T4/T5 Gc X]</p> | European Union |
|  | IECEx (Option) Hazardous areas - Ex n Zone 2 Gas <p style="text-align: center;">[Ex nA IIC T4/T5 Gc]</p> | International |

Approvals and certificates, see website

Order numbers

Without Ex 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 ... 27.22 kg [0 ... 60 lbs] | 14196214 | 14196221 | 14196228 |
| 0 ... 45.36 kg [0 ... 100 lbs] | 14196215 | 14196223 | 14196229 |
| 0 ... 136.08 kg [0 ... 300 lbs] | 14196216 | 14196224 | 14196230 |



IECEX Ex nA IIC T4/T5 Gc

ATEX II 3G Ex nA IIC T4/T5 Gc 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 ... 27.22 kg [0 ... 60 lbs] | 14196208 | 14196217 | 14196225 |
| 0 ... 45.36 kg [0 ... 100 lbs] | 14196210 | 14196218 | 14196226 |
| 0 ... 136.08 kg [0 ... 300 lbs] | 14196213 | 14196220 | 14196227 |

Accessories

Digital indicators

| Designation | | Order number | |
|---|--|--------------|----------|
| | | AC 230 V | AC 110 V |
|  | Digital indicator DI30 in wall-mount enclosure | 12458741 | 14170428 |
|  | Digital indicator DI30 panel mounting | 7539422 | 12489825 |

For operation in accordance with the ATEX directive an isolated barrier is required.

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