# GEMÜ 4232

## Travel sensor for linear actuators

## Features

- Optional equipment protection increased safety (Ex e) in combination with non-incendive protection (Ex n) and (dust) protection by enclosure (Ex t) for use in Zones 2, 22
- Easy fitting to GEMÜ linear actuators
- Compact, solid housing
- Durable
- Can be retrofitted to GEMÜ valves or third-party actuators
- Technically advanced and proven construction

## Description

The GEMÜ 4232 travel sensor is intended for the attachment to valves with linear actuators and is used to determine the valve position. It is used as a travel sensor for the GEMÜ 1434 µPos, GEMÜ 1435 ePos, GEMÜ 1436 cPos and GEMÜ 1441 cPos-X intelligent positioners, which can be connected using either the open cable ends or an M12 cable connector (depending on the design and/or selection of the positioner).

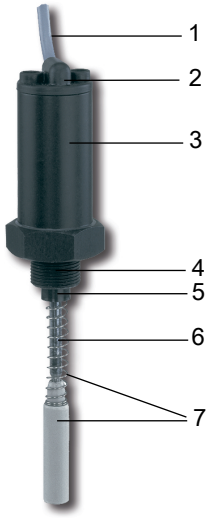
## Technical specifications

- **Ambient temperature:** -10 to 80 °C
- **Valve stroke** 0 Up to 75 mm
- **Protection class:** IP 64. IP 65

Technical data depends on the respective configuration

further information
webcode: GW-4232

# Product desription




| Item | Name | Materials |
|---|---|---|
| 1 | Cable | LIYY |
| 2 | Cover | Depending on design, anodized aluminium, PVDF or PP |
| 3 | Housing | Depending on design, anodized aluminium, PVDF or PP |
| 4 | Threaded piece | Depending on design, anodized aluminium (SS for explosion-protected design), PVDF or PP |
| 5 | Bushing with internal lip ring | Bushing PP, lip ring PUR |
| 6 | Spindle | 1.4104 |
| 7 | Mounting kit | Material depending on design (specific to valve) |

# Availability

| | Code | Special version Explosion protection Ex i (code X) or Ex e, n, t (code Z) |
|---|---|---|
| Housing material [1)] | **05** | - |
| | **14** | X |
| | **20** | - |

1) **Housing material**
Code 05: PP, polypropylene
Code 14: Anodized aluminium
Code 20: PVDF, polyvinylidene fluoride

# Order data

The order data provide an overview of standard configurations.

Please check the availability before ordering. Other configurations available on request.

The travel length depends on the necessary mounting kit.

Note: A valve specific mounting kit is required for assembly. For designing the mounting kit, the valve type, nominal size, control function and actuator size must be stated.

## Order codes

| 1 Type | Code |
|---|---|
| Travel sensor for linear actuators | 4232 |

| 2 Fieldbus | Code |
|---|---|
| Without | 000 |

| 3 Accessory | Code |
|---|---|
| Accessory | Z |

| 4 Housing material | Code |
|---|---|
| PP, polypropylene | 05 |
| Anodized aluminium | 14 |
| PVDF, polyvinylidene fluoride | 20 |

| 5 Travel length | Code |
|---|---|
| Potentiometer, 30 mm length | 030 |
| Potentiometer, 50 mm length | 050 |
| Potentiometer, 75 mm length | 075 |

| 6 Cable length | Code |
|---|---|
| 2 m cable, 3-pin | 02M0 |
| 5 m cable, 3-pin | 05M0 |
| 10 m cable, 3-pin | 10M0 |
| 20 m cable, 3-pin | 20M0 |

| 7 Cable connection | Code |
|---|---|
| Open wires with cable ends | 0000 |
| M12 cable connector, straight | 4001 |

| 8 Special version | Code |
|---|---|
| Without | |
| ATEX/IECEx ib for zone1/21<br>intrinsic safety ignition protection | X |
| ATEX nC,eC/tC for zone 2/22<br>Ex eC, nC, tC ignition protection | Z |

## Order example

| Ordering option | Code | Description |
|---|---|---|
| 1 Type | 4232 | Travel sensor for linear actuators |
| 2 Fieldbus | 000 | Without |
| 3 Accessory | Z | Accessory |
| 4 Housing material | 14 | Anodized aluminium |
| 5 Travel length | 030 | Potentiometer, 30 mm length |
| 6 Cable length | 05M0 | 5 m cable, 3-pin |
| 7 Cable connection | 0000 | Open wires with cable ends |
| 8 Special specification | | Without |

# Technical data

## Temperature

**Ambient temperature:** -10 — 80 °C

Special version X and Z: -10 to 70 °C

**Storage temperature:** -10 — 80 °C

## Product compliance

**Explosion protection:** ATEX (2014/34/EU) and IECEx, order code special version X or Z

**Code X marking:** **Intrinsic safety (Ex i) ignition protection**

**ATEX**

Gas: Ⓔx II 2G Ex ib IIB T4 Gb

Dust: Ⓔx II 2D Ex ib IIIC T130 °C Db

Certificate: IBExU20ATEX1045

**IECEx**

Gas: Ex ib IIB T4 Gb

Dust: Ex ib IIIC T130 °C Db

Certificate: IECEx IBE 20.0027 X

Operation in potentially explosive areas only in conjunction with a safety barrier complying with ATEX which is designed for operating passive resistor elements or potentiometers and for which separate operating instructions apply.
In addition, the supplied limit resistor must be installed in the wiper cable between the safety barrier and travel sensor.

**Code Z marking:** **Increased safety (Ex e) ignition protection in combination with non-incendive (Ex n) and (dust) protection by enclosure (Ex t)**

**ATEX**

Gas: Ⓔx II 3G Ex ec nC IIC T4 Gc X

Staub: Ⓔx II 3D Ex tc IIIC T80°C Dc X

**IECEx**

Gas: Ex ec nC IIC T4 Gc X

Dust: Ex tc IIIC T80°C Dc X

Certificate: IECEx IBE 20.0027 X

**Potential equalisation:** **Special version code X and Z**

The travel sensor must be integrated into the system's potential equalization via the pre-assembled earthing kit.
The potential equalization connection's maximum permissible resistance limit value is defined as R ≤ 100 Ω.
During the plant-specific maintenance cycle, the potential equalization connection must be checked to ensure that it has been connected correctly and that the maximum resistance limit value has not been exceeded.

**RoHS Directive:** 2011/65/EU

## Mechanical data

**Protection class:**

IP 64 in accordance with EN 60529 – housing material anodized aluminium (code 14)
IP 65 in accordance with EN 60529 – housing material PVDF, PP (code 20)

**Weight:**

| Travel sensor length | Material | | |
|---|---|---|---|
| | Aluminium (code 14) | | PP (code 05 PVDF (code 20) |
| | Standard | Special version (code X and Z) | Standard |
| **30 mm (Code 030)** | 110 | 170 | 140 |
| **50 mm (Code 050)** | 125 | 180 | 150 |
| **75 mm (Code 075)** | 140 | 190 | 160 |

Weight in g
Weight specifications include 2 m of cable with open ends and cable ends.
Additional weight in each case:
25 g per additional metre of cable
20 g with M12 cable connector (cable connection code 4001)

**Service life:**

10 x $10^6$ operations

**Installation position:**

Optional

**Min. stroke:**

Dependent on the connected device

**Max. stroke:**

| Travel sensor version | | |
|---|---|---|
| Code 030 | Code 050 | Code 075 |
| 30 mm | 50.2 mm | 74.4 mm |

## Electrical data

**Duty cycle:** Continuous duty

**Electrical connection:** Open wires with multicore cable ends (code 0000)
M12 cable plug A-coded, straight, 5-pin, plastic (code 4001)

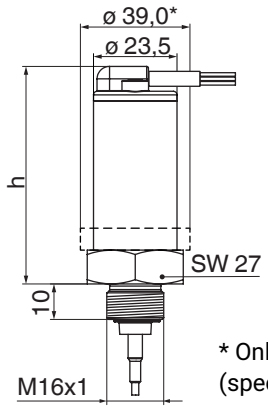
**Supply voltage Uv:** max. 42 V DC
(does not apply to code X special version – the intrinsically safe characteristic values apply here)
The travel sensor is generally supplied by the connected positioners (GEMÜ 1434, 1435 or 1436).

**Travel sensor:**

| | Travel sensor version | | |
|---|---|---|---|
| | Code 030 | Code 050 | Code 075 |
| **Linearity:** | ± 0.2 % | ± 0.25 % | ± 0.1 % |
| **Repeatability:** | > 10 µm | > 10 µm | > 10 µm |
| **Nominal resistance:** | 3 kΩ | 5 kΩ | 5 kΩ |

# Dimensions

## Housing material aluminium

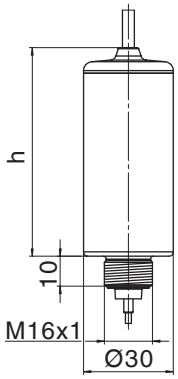



* Only explosion-protected designs (special version X and Z)

| Travel sensor length (code) | h | |
|---|---|---|
| | Standard | ATEX design (code Z) |
| **030** | 62.2 | 67.2 |
| **050** | 84.2 | 89.2 |
| **075** | 109.2 | 114.2 |

Dimensions in mm

## Housing material PVDF or PP

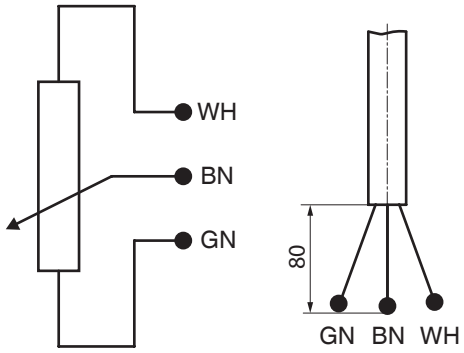



| Travel sensor length (code) | h |
|---|---|
| **030** | 69.6 |
| **050** | 91.6 |
| **075** | 116.6 |

Dimensions in mm

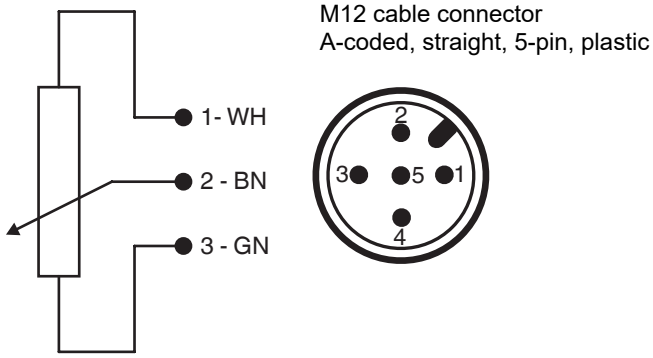
# Electrical connection

## Design with open wires with cable ends (code 0000)




This design is suitable for connecting to the GEMÜ 1435 positioner (except the GEMÜ 1435 design with M12 cable connector).

## Design with M12 cable connector (code 4001)




This design is suitable for connecting to the GEMÜ 1434, 1436 or 1435 positioner with the M12 cable connector design.
For special versions X and Z:
The M12 connector must only be connected in the safe area (outside the potentially explosive zone). The enclosed M12 cable connector is only intended for connection to the positioner (the positioners (GEMÜ 1434, 1435 and 1436) are not explosion-protected and must only be installed outside of the potentially explosive zone).

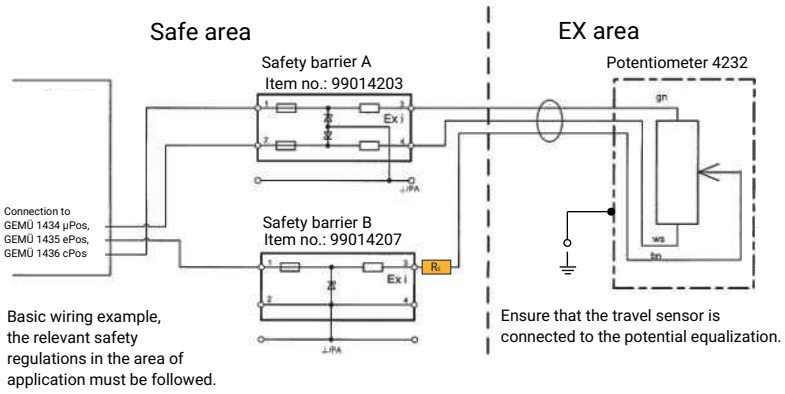
# *Special version (code X)*

**Potential equalisation:**

The electrical connection of the travel sensor to the positioner must be routed via safety barriers (the supplied limit resistor also must be wired) – see wiring diagram.

In order to wire the safety barriers appropriately, the connection cable for the travel sensor can be cut to length at the point at which the safety barriers are being installed (generally a DIN rail) and the end piece including the fitted M12 cable connector can be used to continue wiring from the safety barriers to the installation position for the positioner.

**Wiring diagram**



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