

# Modular Housings for Hazardous Areas

**Knick** >

**For supply of intrinsically  
safe 2-wire transmitters  
and SMART transmitters.**

## WG 25



### The Task

The passive WG 25 repeater power supply is loop-powered. It is used for galvanic hazardous area isolation of a 2-wire supply line and transmits both 4 ... 20 mA and HART® signals in each direction. With a voltage drop of just 4.2 V, the WG 25 uses the supply optimally so that all common 2-wire transmitters can be connected.

### The Advantages

Compared with active repeater power supplies, it has considerable price and reliability advantages.

For example, only a central, safe-area power supply that does not even need Safe Isolation is required even for multi-channel systems.

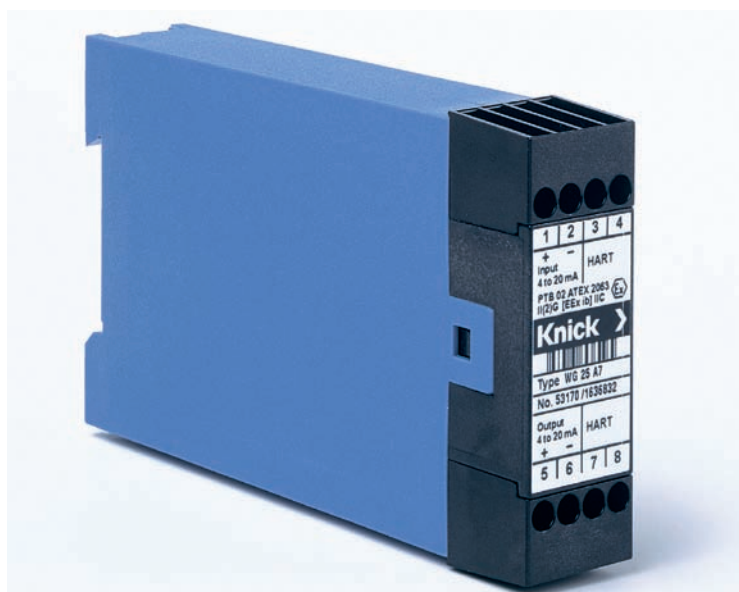
- Extremely high reliability, MTTF of 300 years
- Safe Isolation, transient protection
- 10 kV test voltage (optional)
- High electromagnetic compatibility
- Extremely low residual ripple and common-mode interference
- Excellent pulse formation
- HART® transmission
- Hazardous-/safe-area isolation

### The Technology

Using Knick TransShield® technology, the WG 25 has specifications that have not yet been achieved by passive repeater power supplies:

**Warranty  
5 years!**

*Defects occurring within 5 years from delivery are remedied free of charge at our works (carriage and insurance paid by sender).*



# Loop-Powered Supplies

Isolation Amplifiers  
Transmitters

Indicators

Process Analytics

Portable Meters

Laboratory Meters

Sensors

Fittings



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## ■ The Facts

### Low-cost

Good price due to omission of integrated power supply

### No mains supply required

Cost saving due to lower wiring requirement, no mains influences

### Low power loss

No unnecessary heating in enclosure

### Safe Isolation according to EN 61140

Protection of maintenance staff and subsequent devices against non-permitted high voltages

### HART® transmission

Bidirectional point-to-point transmission of digital data according to HART® specification

### EMC tested

RFI suppressed and surge proof, reliable operation even with electromagnetic interference

### Maximum reliability

No maintenance work, therefore the related costs are not incurred

### 5-year warranty

HART® is a registered trademark of the HART Communication Foundation



Modular Housings

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## WG 25

### ■ Product Line

| Devices                         | Order No. |
|---------------------------------|-----------|
| WG 25                           | WG 25 A7  |
| Power supply                    |           |
| None, supply from output signal |           |
| Options                         |           |
| Increased test voltage 10 kV AC | 471       |

### ■ Specifications

#### Input data

|                             |  |
|-----------------------------|--|
| Input<br>(current loop)     | 4 ... 20 mA (transmission up to 22 mA possible),<br>intrinsically safe |
| Supply voltage              | $\geq 17$ V, short-circuit-proof, see diagram on page 244              |
| Operating current           | $< 1$ mA   |
| Input short-circuit current | $\leq 28$ mA   |
| Voltage drop                | $< 4.2$ V at 20 mA and supply $\leq 20$ V, see diagram on page 244     |

#### Output data

|                           |   |
|---------------------------|---|
| Output                    | 4 ... 20 mA, 1:1 transmission (22 mA)     |
| Overload                  | 50 mA, 30 V (corresponds to 600 ohm load) |
| Offset                    | $< 20$ $\mu$ A                            |
| Residual ripple $V_{rms}$ | $< 1.5$ mV/mA                             |

#### Transmission behavior

|                          |                  |
|--------------------------|------------------|
| Transmission error       | 0.2 % meas. val. |
| Supply voltage influence | $< 15$ $\mu$ A/V |
| HART® attenuation        | $< 10$ dB        |

## Specifications (continued)

### Isolation

|  |  |
|--|--|
| Test voltage                           | 4.4 kV AC<br>10 kV AC with option 471  |
| Working voltages<br>(basic insulation) | 1000 V AC/DC with overvoltage category II and pollution degree 2 according to EN 61010-1.<br>For applications with high working voltages, you should ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.<br>Permissible working voltage for other overvoltage categories and pollution degrees on request.<br>For hazardous area applications the maximum working voltage is 250 V. |
| Protection against electric shock      | Safe Isolation according to EN 61140 by reinforced insulation in accordance with EN 61010-1.<br>Working voltage up to 600 V AC/DC with overvoltage category II and pollution degree 2.<br>For applications with high working voltages, you should ensure there is sufficient spacing or isolation from neighboring devices and protection against electric shocks.<br>For hazardous area applications the maximum working voltage is 250 V.      |

### Standards and approvals

|                      |   |
|----------------------|---|
| Explosion protection | II (2) G [EEx ib] IIC PTB 02 ATEX 2063<br>For further details see certificates of conformity at our website: <a href="http://www.knick.de">www.knick.de</a> |
| EMC                  | 89/336/EEC directive, EN 61326, NAMUR NE 21   |

### Other data

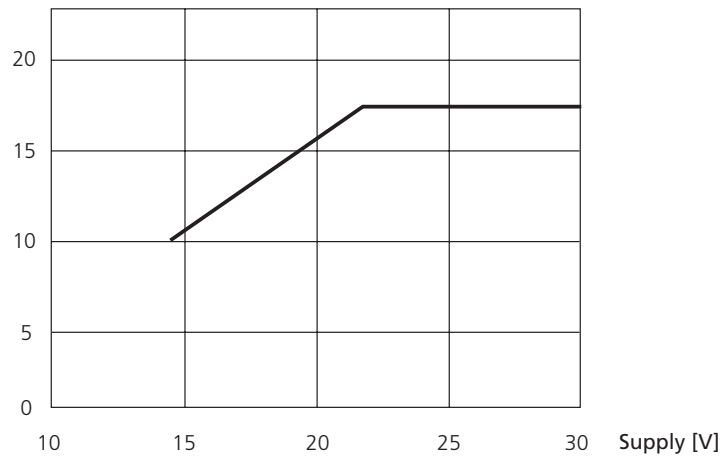
|                     |  |
|---------------------|--|
| Ambient temperature | Operation: -10 ... +50 °C<br>Transport and storage: -30 ... +80 °C   |
| Design              | Modular housing, width 22.5 mm, screw terminals<br>See dimension drawings for further measurements                       |
| Ingress protection  | Housing IP 40, terminals IP 20   |
| Mounting            | With snap-on mounting for 35 mm top hat rail according to EN 50022<br>See dimension drawings for conductor cross section |
| Weight              | Approx. 120 g  |

# Modular Housings for Hazardous Areas

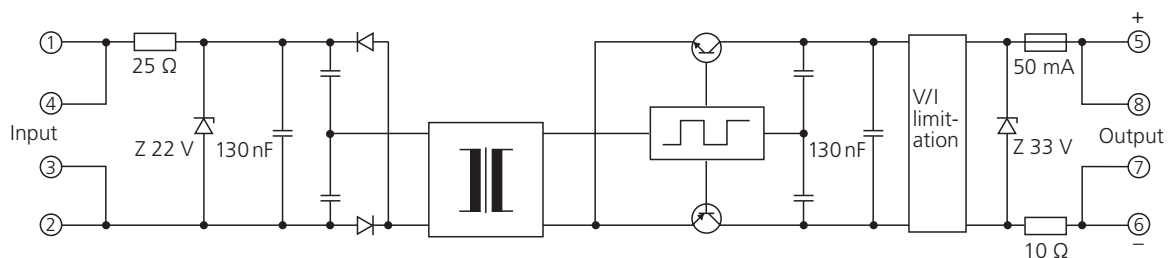
## WG 25

### Supply Voltage versus Supply

Supply voltage at 2-wire transmitter [V]

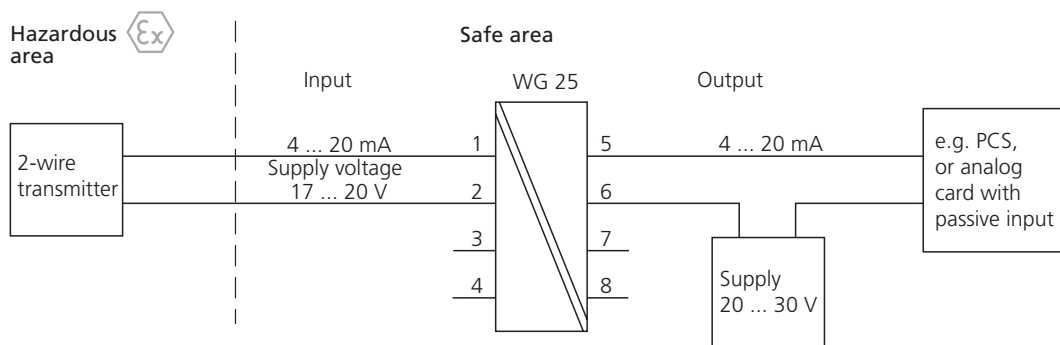


### Block Diagram



### Application Examples

#### Without HART® communication



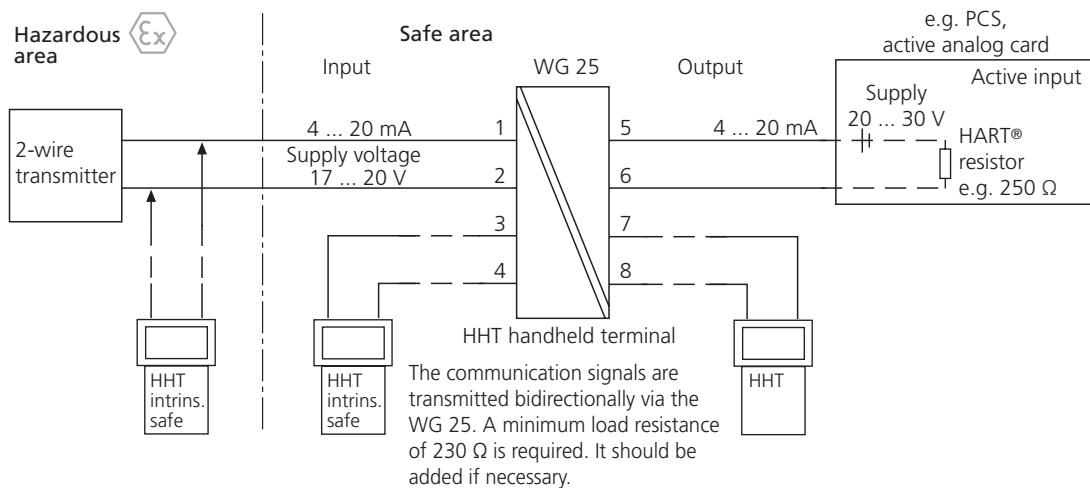
# Loop-Powered Supplies

|                                      |            |                   |                 |                   |         |          |
|--------------------------------------|------------|-------------------|-----------------|-------------------|---------|----------|
| Isolation Amplifiers<br>Transmitters | Indicators | Process Analytics | Portable Meters | Laboratory Meters | Sensors | Fittings |
|--------------------------------------|------------|-------------------|-----------------|-------------------|---------|----------|

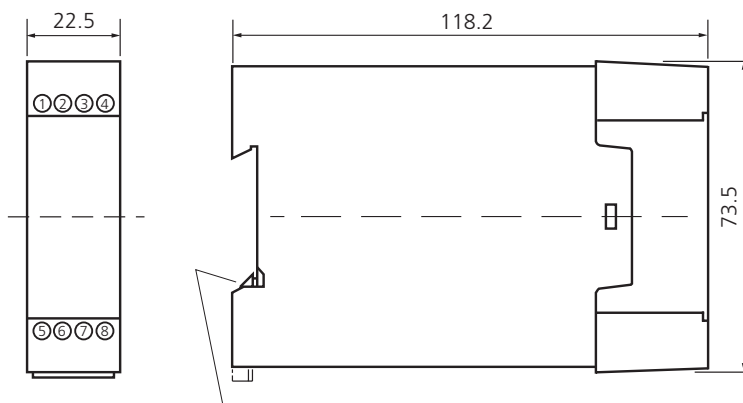
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## Application Examples (continued)

### With HART® communication



## ■ Dimension Drawings and Terminal Assignments



- 1 Input +
- 2 Input -
- 3 HHT IS
- 4 HHT IS
- 5 Output +
- 6 Output -
- 7 HHT
- 8 HHT

Snap-on mounting on 35 mm top-hat rail (EN 50022)

Captive M3x8 clamping screws, box terminals with self-releasing wire protection

Max. conductor cross-section: 1 x 4 mm<sup>2</sup> solid  
1 x 2.5 mm<sup>2</sup> stranded wire with ferrule  
2 x 1.5 mm<sup>2</sup> stranded wire with ferrule

Installation, commissioning, and maintenance may only be carried out by trained personnel!

All dimensions in mm!