PROFILE
The UNIFLEX GRW tripalarm provides solutions for measurement and monitoring in process control and other industrial applications. Temperature, voltage, current, and resistive signals can be connected without the need for any hardware changes. The built-in display allows configuration and parameter setting via the front panel keys. Via a PC and connecting adapter, the tripalarm also can be configured and adjusted remotely. This also allows documentation of the adjusted parameters, as also reading of the input signal and parameters during operation.

DESCRIPTION
The tripalarm has independent signal inputs for thermocouples, resistance thermometers, resistance transducers, DC-voltage and DC-current. For thermocouple measurement, the cold-junction compensation is provided by a built-in sensor. Resistance thermometers are to be connected in 3-wire connection. Signals (temperature sensors included) can be linearized with up to 8 segments.

Password
A password freely selectable prevents unauthorized access to configuration and parameter setting.

Input circuit monitor
Resistance thermometer, thermocouples, resistance transducers are always monitored for break.

Sensor signal correction
Sensor signal correction is used to match sensor and tripalarm for tolerance-compensated readings. Two different corrective methods are available:
- Correction with lower and upper input signal within the selected span
- Setting of values from the calibration

Alarm-hold function
Via SW the hold of an alarm can be selected. Reset is by means of the combination of two front keys.

Hysteresis
- programmable in engineering units or in % in the range from 0,0… 99,9 % referred to the output signal span.

Signal suppression (response delay)
- programmable from 0… 9999 s. All alarms shorter as the selected time gap are ignored.

Signalling
- red LED in front panel (lights up on alarm)
- with switching output (selection of energized or de-energized or no operation)

Filter
Built-in is a 1st-order mathematical filter. It is adjustable for time constant and bandwidth.

Password
A password freely selectable prevents unauthorized access to configuration and parameter setting.

Limit signalling
- Min. and max. alarm (adjusted in engineering units)
- Adjustable between -10 and 110 % referred to the output signal span.

The UNIFLEX GRW Tripalarm with Universal Input
Pt100, Thermocouple, Resistance transducer, Potentiometer, Voltage, Current
Output with 2 or with 4 contacts
Hold function for alarms
External setpoint
Adjustment via front key or PC
\( \text{tested} \)
**TECHNICAL DATA**

**INPUT (CONFIGURABLE)**

Resolution: approx. 20 000 steps referred to full span.

Measuring cycle: 100 ms

**THERMOCOUPLE**

**Measurement limits (TC group 1)**

<table>
<thead>
<tr>
<th>Type</th>
<th>Span start [°C]</th>
<th>Span end [°C]</th>
</tr>
</thead>
<tbody>
<tr>
<td>E</td>
<td>-100</td>
<td>1000</td>
</tr>
<tr>
<td>J</td>
<td>-100</td>
<td>1200</td>
</tr>
<tr>
<td>L</td>
<td>-100</td>
<td>900</td>
</tr>
<tr>
<td>K</td>
<td>-100</td>
<td>1370</td>
</tr>
<tr>
<td>N</td>
<td>-100</td>
<td>1300</td>
</tr>
<tr>
<td>T</td>
<td>-100</td>
<td>400</td>
</tr>
<tr>
<td>W(C)</td>
<td>0</td>
<td>2315</td>
</tr>
</tbody>
</table>

Measurement limits (TC group 2)

<table>
<thead>
<tr>
<th>Type</th>
<th>Span start [°C]</th>
<th>Span end [°C]</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>0</td>
<td>1780</td>
</tr>
<tr>
<td>S</td>
<td>0</td>
<td>1760</td>
</tr>
<tr>
<td>T</td>
<td>0</td>
<td>1760</td>
</tr>
</tbody>
</table>

Input resistance: 1MΩ

Linearization

built-in (temperature linear)

Conformity error

for TC-group 1: ≤ 0,1 K
for TC-group 2: ≤ 0,5 K

Input circuit monitor

for break and reversed polarity

**RESISTANCE THERMOMETER PT100 DIN IEC**

Measurement limits: -200...+850 °C

Smallest span: 50 (25) K

Sensor current: 0,4 mA

Connection technology

Three-wire

Lead resistance: ≤ 30 Ω per wire

Input resistance: 1 MΩ

Linearization

built-in

Conformity error: ≤ 0,1 K

Input circuit monitor: for break

Display error: ≤ 1 K ± 1 digit

**RESISTANCE & POTENTIOMETRIC TRANSDUCER**

<table>
<thead>
<tr>
<th>Type</th>
<th>Range</th>
<th>Smallest span</th>
<th>Current</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0...400 Ω</td>
<td>20Ω (10)²</td>
<td>0,4 mA</td>
</tr>
<tr>
<td></td>
<td>0...1500 Ω</td>
<td>50 Ω</td>
<td>0,1 mA</td>
</tr>
</tbody>
</table>

(Including lead resistance)

Input resistance: 1MΩ

Connection

Transducer: 3-wire connection, current through resistor

Resistance: 3 -wire connection

Input circuit monitor: for break

**DIRECT VOLTAGE**

mV signals, direct

Range 1: -3...23 mV, min. 2,5 mV
Range 2: -11...69 mV, min. 9 mV
Range 3: 0...160 mV, min. 15 mV
Input resistance: 1 MΩ

V signals via internal voltage divider

Range 1: -0,6...4,4 V, min. 400 mV
Range 2: -2...13 V, min. 1000 mV
Range 3: 0...30 V, min. 2000 mV
Input resistance: approx. 100 kΩ

**OUTPUT**

**CONTACT OUTPUT**

Relay with potential-free normally open contact. Contact rating: max. 250 VAC, 1A min. 5 V, 0,1 A. Energized or de-energized operation configurable.

Hysteresis

programmable in engineering units or in % in the range from 0,0...99,9 % referred to the output signal span.

Signal suppression (response delay)

programmable from 0...9999 s. All alarms shorter than the selected time gap are ignored.

Operating mode

selectable for input circuit monitoring and/or limit signalling.

Alarm-hold function

Via SW the hold of an alarm can be selected. Reset is by means of the combination of two front keys.

Input circuit monitor

Output action selectable upscale or downscale.

Dynamic response

For a step change from 10 to 90 % of input signal

Output follows input: approx. 250 ms

**DIRECT CURRENT**

Range 1: -1...7,3 mA, min. 1 mA
Range 2: -3...22 mA, min. 2 mA
Range 3: 0...50 mA, min. 4 mA
Input resistance: approx. 18 Ω

Additional linearization

for all input signals possible with 8 segments and 9 supporting points, permits even correction of standard linearisation curves.

(Potentiometric transducers excluded).

External setvalue

0...10 V from PLC or similar. Not galvanically from input circuitry isolated. Activated on contact 1 via SW

**Permissible interference at input**

to DIN IEC 770 6.2.4

Common mode suppression: negligible

Series mode: no effect up to 450 mV_rms for TC (type S)

1 V_rms for mV (0...50 mV)

750 mV_rms for Pt100 (0...100 °C)

10 V_rms for DC 0...4 V / 0...5 mA

**Output circuit monitor**

Pull-out tabs

Wandmontagelaschen herausgezogen

Fig. 3 Dimensions (in mm)
**Display**

4-digit LCD, 7 mm high, with front panel keys for configuration and parameter setting.

- **Characteristics**: linear
- **Conformity error**: including factory calibration error ≤ 0.06 % of fsd
- **Reproducibility**: ≤ 0.01 %
- **Factory calibration**: at 23 °C, RT ± 1 K, TC ± 2 K
- **Green LED**: ready for operation

**Configuration word 1**

```
CON 1 | 0
```

**Configuration word 2**

```
CON 2 | 00
```

**Configuration word 3**

```
CON 3 | 0
```

**Configuration word 4**

```
CON 4 | 00
```

**Red LED**: input circuit monitor or limit signaler activated. Blinking mode during operation with sensor signal correction.

**Operation**

Configuration, Parameter setting and input signal correction are menu-guided via three front-panel keys. A password freely selectable avoids unauthorized access to configuration and parameter setting. Release of alarm by pushing two front keys in parallel.

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**Environmental conditions**

- **Temperature limits**
  - For specified accuracy: 0...55 °C
  - For operation: -10 ... + 60 °C
  - Storage: -20 ... + 70 °C

- **Power supply effect** negligible within specified limits.

- **Behavior with mains failure** no loss of configuration data.

**GALVANICAL ISOLATION**

- Between input and output and power supply.
- Test voltages
  - Between input and output: 500 VAC
  - Between mains and in-/output: 2.3 kVAC

**ENVIRONMENTAL CONDITIONS**

- **Temperature limits**
  - For specified accuracy: 0...55 °C
  - For operation: -10 ... + 60 °C
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- **Power supply effect** negligible within specified limits.

- **Behavior with mains failure** no loss of configuration data.

**AC(DC) SUPPLY**

- **85...264 VAC**, 50 or 60 Hz
- **Consumption**
  - 2 relays approx. 4.8 VA
  - 4 relays approx. 7.2 VA

**UNIVERSAL SUPPLY**

- **18...32 VDC / 24 VAC +10-15 %**
- **Consumption**
  - 2 relays approx. 1.1 W / 1.8 VA
  - 4 relays approx. 1.5 W / 2.4 VA

**Power supply effect** negligible within specified limits.

**Behavior with mains failure** no loss of configuration data.
ELECTROMAGNETIC COMPATIBILITY
Complies with EN 50081-1 / EN 50082-2 for unlimited use within rural and industrial areas.

EXPLOSION PROTECTION
No explosion protection

SAFETY CHARACTERISTICS
According to EN 61010-1
Excess-voltage category II
Pollution degree 2
Operating voltage range 300 V
Protective class I

CE-marking
According to European directives for “Electromagnetic compatibility” and “Electrical equipment use within specified voltage limits (safety characteristics).

ORDERING INFORMATION
If not specified otherwise, the tripalarm will be delivered with the following standard settings:
Standard version CON1 0200, CON2 0001
Range 0...150 °C. Pt100, 3-wire input circuit monitoring upscale action.
Switching output de-energized, set to span start and end. Hysteresis 5 K, suppression 2 s, filter time 0.1 s, bandwidth 5 K. Password mode activated, password 0

GENERAL
Dimensions
2 Contacts: 93 x 111 x 40 mm
4 Contacts: 93 x 111 x 60 mm

Mode of Protection
Housing and terminals IP30

Electrical connection
screw terminals for max. 2.5 mm²

Weight
2 contacts: 0.23 kg net
4 contacts: 0.3 kg net

Mounting: 35 mm rail to DIN 46277 or wall

Mounting position
Vertical. Dense mounting and temperatures ≥ 50 °C forced ventilation recommended.

ACCESSORIES
Operating notes: D / E / F
9499-040-57601

OPTIONAL ACCESSORIES
Description | Order-no
--- | ---
Adapter for connection of UNIFLEX DMS to a RS232 interface of a laptop or PC | 9407-998-00001
Engineering tool for setting of configuration and parameters, read-out and documentation, base Windows from 3.11 onwards | 9407-999-00801

Fig. 8 Configuration word 5

Fig. 9 Electrical connections

ORDERING STRUCTURE