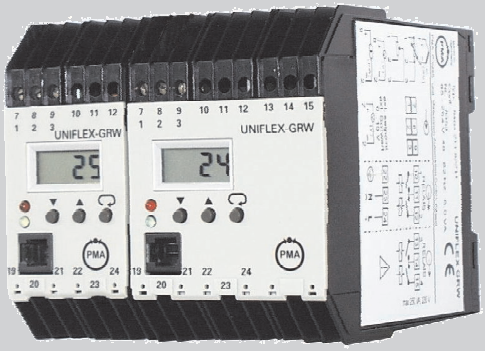



# UNIFLEX GRW

## 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**

**CE tested**

## *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***

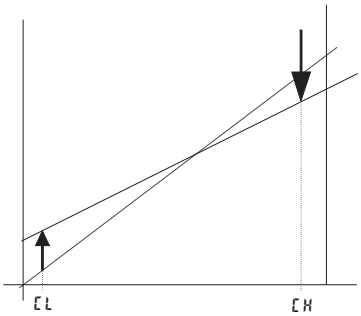
Resistance thermometer, thermocouples, resistance transducers are always monitored for break.

***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 or
– Setting of values from the calibration table (scaling).

*Fig. 1 sensor signal correction*




Subsequent corrections during operation are possible with both versions, by means of the front panel key(s). The curve can be adjusted for offset and for gain.

***Limit signalling***

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

***Alarm-hold function***

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

*Hysterisis*

– 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.

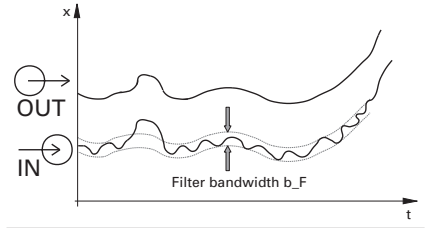
***Signalling***

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

***Filter***

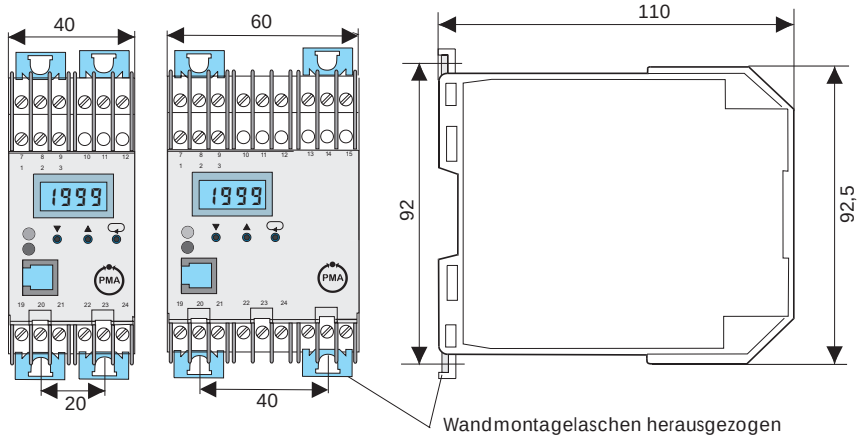
Built-in is a 1st-order mathematical filter. It is adjustable for time constant and bandwidth.

*Fig.2 Filter function*




The bandwidth is the tolerance above and below the process value, in which the filter is active. Changes of the process value larger than the adjusted bandwidth are not filtered and will be transferred directly to the output.

*Fig. 3 Dimensions (in mm)*




## TECHNICAL DATA

### INPUT (CONFIGURABLE)

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

***Measuring cycle:*** 100 ms

### THERMOCOUPLE

*Measurement limits (TC group 1)*
smallest span 4 (2) mV[1)]

| Type | Span start [°C] | Span end [°C] |
|---|---|---|
| E | -100 | 1000 |
| J | -100 | 1200 |
| L | -100 | 900 |
| K | -100 | 1370 |
| N | -100 | 1300 |
| T | -100 | 400 |
| W(C) | 0 | 2315 |

*Measurement limits (TC group 2)*
smallest span 2 mV

| Type | Span start [°C] | Span end [°C] |
|---|---|---|
| R | 0 | 1760 |
| S | 0 | 1760 |
| B | 0 | 1760 |

Input resistance: 1MΩ

***Linearization***
built-in (temperature linear)

***Conformity error***
for TC-group 1: ≤ 0,2 K
for TC-Group 2: ≤ 0,5 K

***Input circuit monitor***
for break and reversed polarity

***Cold-junction-compensation***
internal or external (0...60 °C)
Selectable

***Display error***: ≤ 3 K ± 1 digit

### RESISTANCE THERMOMETER PT100 DIN IEC

***Measurement limits:*** -200...+850 °C
Smallest span: 50 (25) K [1)]
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

| Range | Smallest span | Current |
|---|---|---|
| 0...400 Ω | 20 Ω (10)[1)] | 0,4 mA |
| 0...1500 Ω | 50 Ω | 0,1 mA |

(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

### 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 galvanical 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

### 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.

*Hysterisis*
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

[1)] Figure in brackets, twice the effect

*Fig. 4 Configuration word 1*

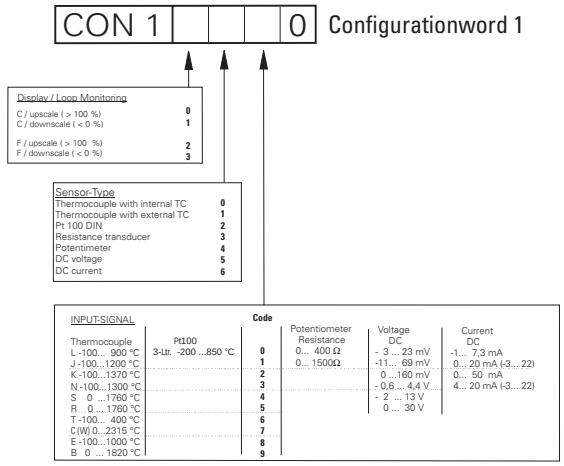



*Fig. 5 Configuration word 2*

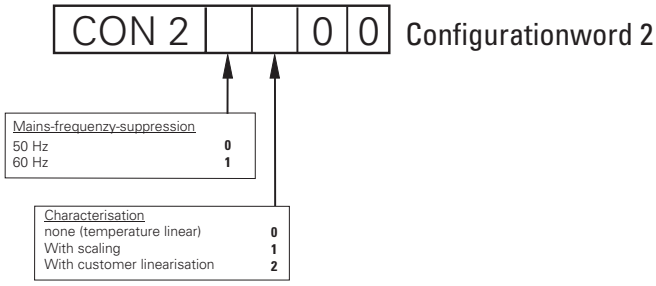



*Fig. 6 Configuration word 3*

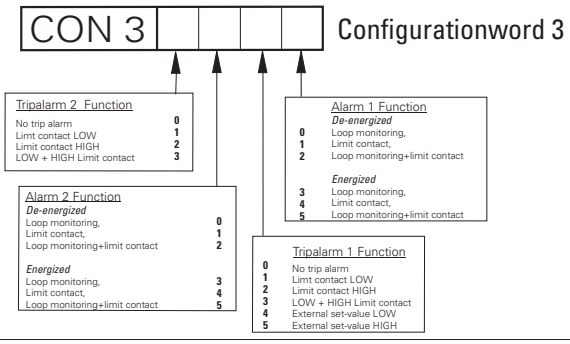
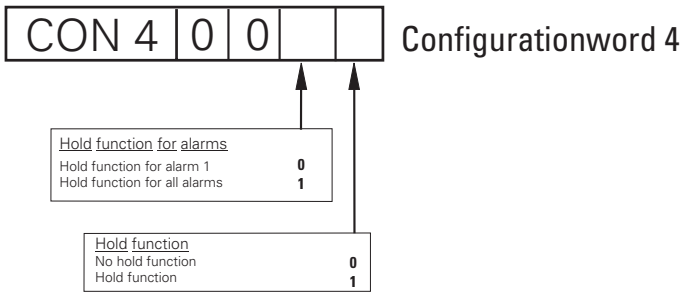



*Fig. 7 Configuration word 4*




## DISPLAY

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

***Characteristic:*** 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

***Red LED:*** input circuit monitor or limit signaller 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.

*PC-based operation*
Additional software is available (Engineering tool based on Windows) for configuration, parameter setting, and input signal correction.

## SERIAL INTERFACE

RS 232C with active adapter for PC based operation with engineering tool

## POWER SUPPLY

### AC(DC) SUPPLY

85...264 VAC[4)], 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.

## 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
Storage: -20 ... + 70 °C

***Temperature effect***
(within -10...+ 60 °C)
*On span start*
R - input: ≤ 0,03 % / 10K
TC/U/I - input: ≤ 0,04 % / 10K
*On span*
R - input: ≤ 0,05 % / 10K
TC/U/I - input: ≤ 0,075 % / 10K

***Effect of internal cold junction compensation***
≤ 0,13 K / 10 K (after warming up)

***Relative humidity***
90 % rH, no condensation

***Shock and vibrations***
DIN IEC 68-2-6/Fc and DIN 68.2.29/Eb

[1)] With DC voltage limited use possible

## 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. Hysterisis 5 K, suppression 2s, 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 $mm^2$

### 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 On CD-ROM Licence (1x) | **9407-999-00801** |

*Fig. 8 Configuration word 5*

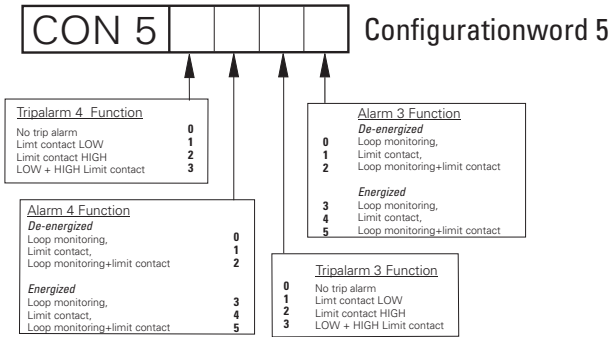
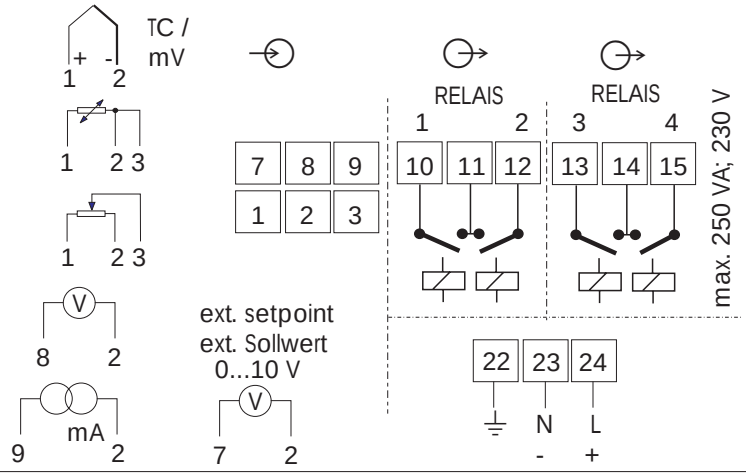
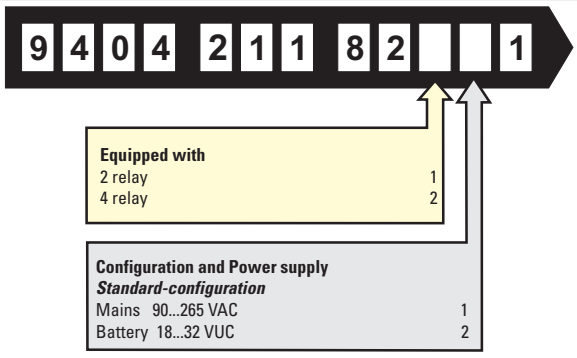



*Fig. 9 Electrical connections*




## ORDERING STRUCTURE





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