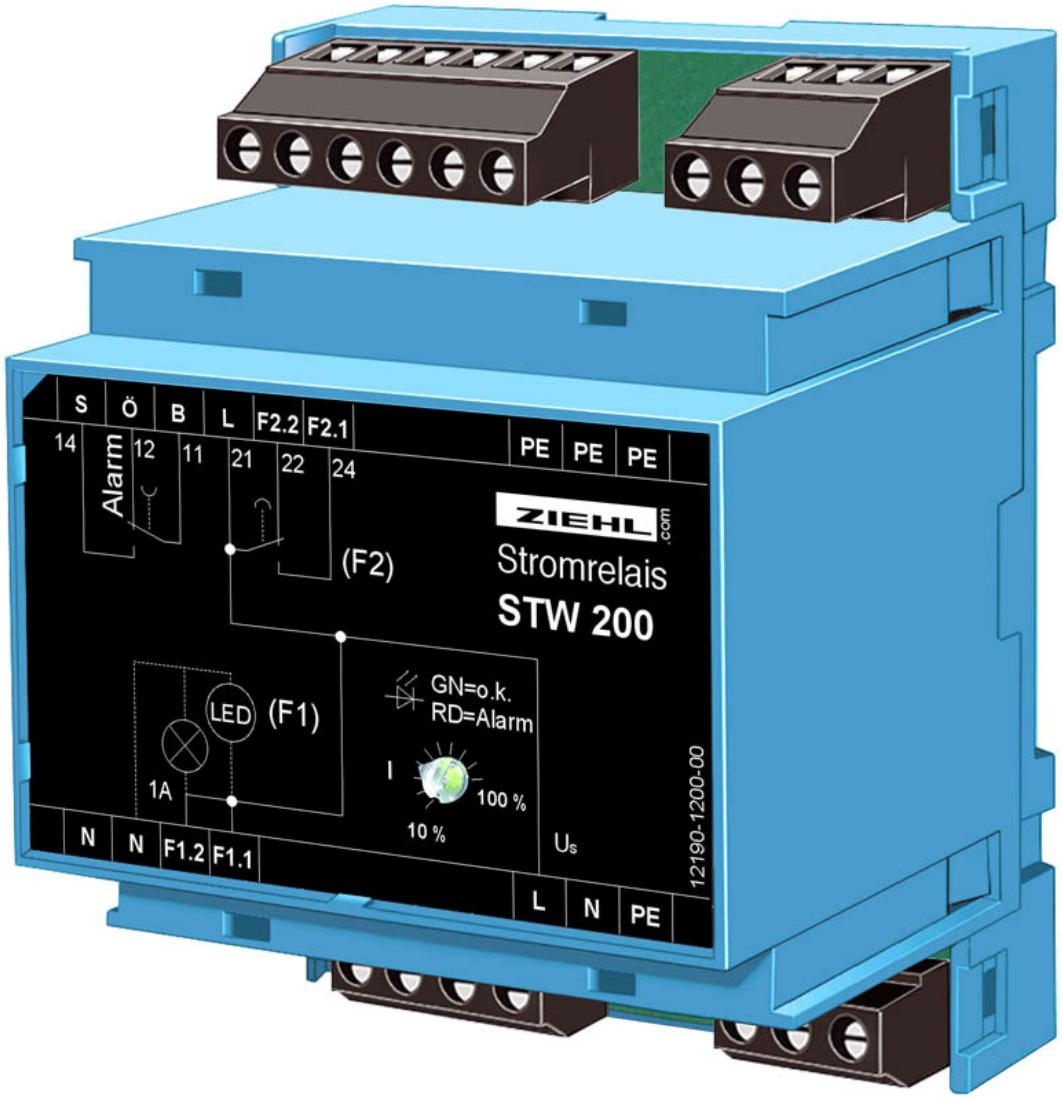
# Operating Manual

## Current-Relay for Obstacle Lights STW 200





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# Application and short description

**General**

Current-relays STW 200 monitor AC-currents for falling below an adjusted limit. The ranges 12 ... 120 mA and 0.1 ... 1 A allow the monitoring of LED-Lamps as well as incandescent lamps in obstruction lights.
In case of main lamp failure a relay switches on the reserve lamp. An alarm contact is available for signalling a lamp failure.

**Application**:

Monitoring of LED-Lamps or light-bulbs in twin obstacle lights with alarm (lamp failure) and switching on a reserve lamp.
Monitoring of the function of single obstacle lights.
At conventional solutions with a change-over contact, there is a short on-pulse at the reserve lamp every time when the system is switched on. The STW 200 switches it on only in case of a failure of the main lamp.
LED-lamps can also be monitored with long cables between relay and lamp.
When monitoring LED-lamps a total failure is detected. Failures of single LEDs are not detected.

**Short description:**

- Measuring input 12…120 mA for LED-lamps
- Measuring input 0,1…1 A for incandescent lamps (bulbs)
- Adjustment range 10…100%
- Relay for switching on reserve lamp in operating current mode
- Relay for Alarm in closed current mode
- Cable-length from relay to lamp up to 500 m
- Display green = o.k., red = low current alarm
- Housing 70 mm wide, mounting height 55 mm


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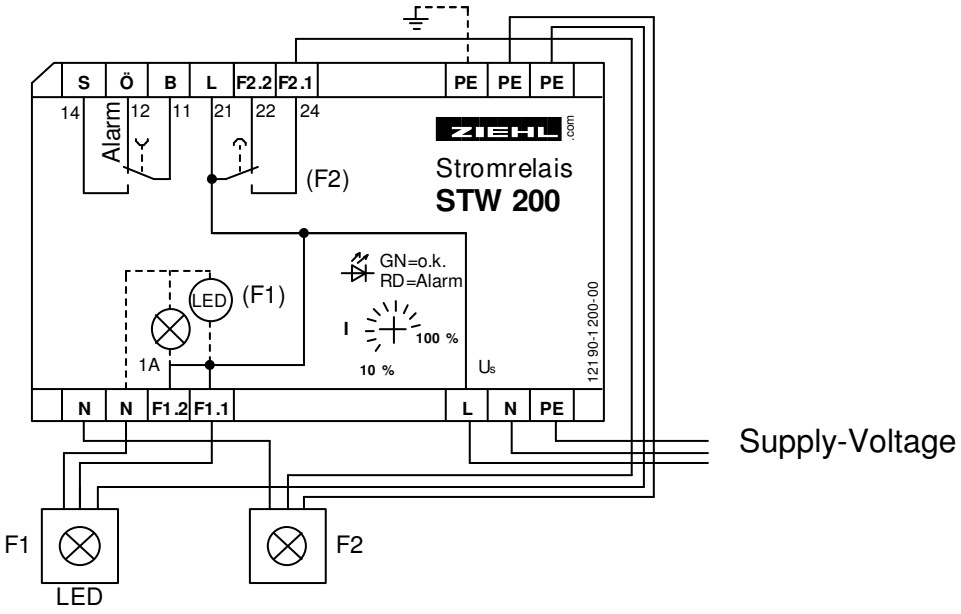
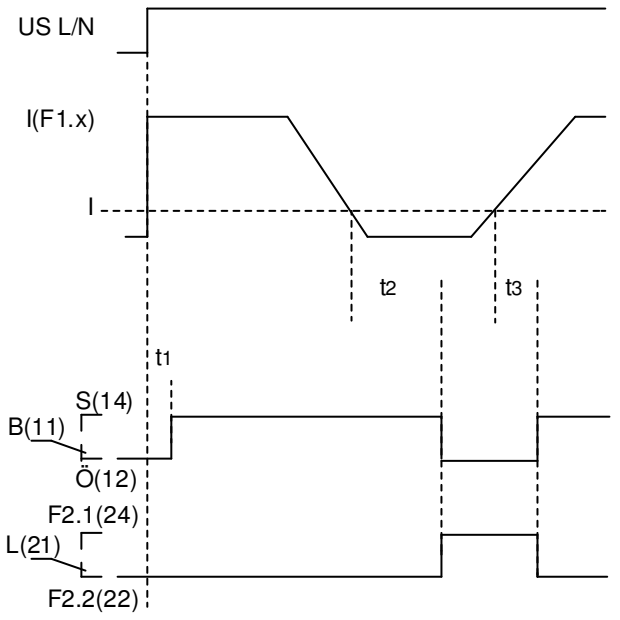
# Connection plan:




## Functional overview




Us: supply voltage
I(F1.x): current at terminal
F1.1 or F1.2
I: adjusted limit
t1: switch-on delay
t2: delay alarm
t3: switch-back delay



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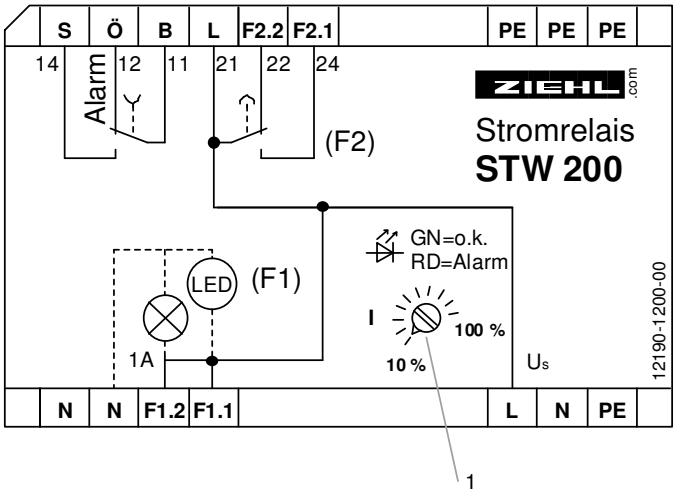
# Display and operating elements




1. Adjustment limit
   Display (LED):
   green = o.k.
   red = low current alarm

# Important information's

**ATTENTION**

**Dangerous electrical voltage!**
**May lead to electrical shock and burn.**
**Before beginning of work switch unit and equipment free of voltage.**

To use the equipment flawless and safe, transport and store properly, install and start professionally and operate as directed.
Only let persons work with the equipment who are familiar with installation, start and use and who have appropriate qualification corresponding to their function. They must observe the contents of the instructions manual, the information which are written on the equipment and the relevant security instructions for the setting up and the use of electrical units.
The equipments are built according to DIN / EN and checked and leave the plant according to security in perfect condition. To keep this condition, observe the security instructions with the headline „Attention“ written in the instructions manual.
If, in any case the information in the instructions manual is not sufficient, please contact our company or the responsible representative.
Instead of the industrial norms and regulations written in this instructions manual valid for Europe, you must observe out of their geographical scope the valid and relevant regulations of the corresponding country.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# Installation

The unit can be installed as follows:

- Installation in switchgear cabinet on 35 mm mounting rail according to EN 60715
- With screws M4 for installation on walls or panel. (additional latch included in delivery)
- Connection according to connection plan or type plate.

**Attention!**
**Make sure that the connected voltage corresponds with the voltage on the lateral type plate!**

**Adjusting the limit:**
The STW 200 measures the peak of the current-signal. At loads with a switching power supply, e.g. LED-lamps, the measured values may vary, depending on the method of measurement of the measuring instrument.
Because of the different curve-profiles of the current, at loads with switching power supply, the adjusted limit cannot be simply derived from the power consumption of the load.

**We recommend to find out the limit by turning the potentiometer I.**
**Turn the potentiometer slowly to lower values (left) until the LED in the potentiometer changes to green light (reserve lamp and alarm off). Then left about 20 % more of the adjusted limit.**


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# Technical Data

| | |
|---|---|
| Rated supply voltage $U_S$ / Frequency | AC 230 V 50 Hz |
| Power consumption | < 3 VA |
| Tolerance of supply voltage | 0,85 … 1,1 $U_S$ |
| Tolerance of frequency | 48 ... 62 Hz |

Adjustment range:

| | |
|---|---|
| Limit I | 10…100 % of measuring range |
| Tolerance | ± 20 % |
| Repeating error | < 1 % |
| Temperature-factor | < 0.1 %/K |
| Hysteresis | ca. 5 % |

Measuring ranges

| Input | F1.2 | F1.1 |
|---|---|---|
| Adjusting range | 0.1…1 A | 0.012…0.12 A |
| Resistance of input | <= 0.2 Ohm | <= 0.5 Ohm |
| Overload capacity continuously | 2 A | 1,5 A |
| Overload capacity < 10 s<br>Overload capacity < 1 s | 5 A<br>10 A | 3 A<br>10 A |

| | |
|---|---|
| Frequency of measured signal | 45…65 Hz |
| Cable capacitance with LED-lamp | max. 200 nF = approx. 500 m |

Switching delays:

| | |
|---|---|
| Switch on delay t1 | < 0.2 s |
| Alarm delay t2 | = 2 s |
| Switch-back delay t3 | = 0.2 s |
| Tolerance at Tu = 25 °C | < ± 10% |
| Temperature-factor | < 0.4 %/K |

Data of relay — EN 60947-5

| | |
|---|---|
| Type of contact | 2 change-over contacts (CO) |
| Switching voltage | max. AC 415 V |
| Switching current | max. 6 A |
| Switching capacity | max. 2000 VA (ohm resistive load)<br>max. 120 W at DC 24 V |
| Rated nominal current Ie (for CO) | 3 A AC15 250 V;2 A DC13 24 V |
| Recommended fuse | 3.15 A gl (slow) |
| Expected contact life mechanical | $3 \times 10^7$ switching cycles |
| Expected contact life electrical | $1 \times 10^5$ switching cycles at 240 V / 6 A |
| Factor of reduction at cosφ = 0,3 | 0.5 of max. switching capacity |


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| | |
|---|---|
| Test conditions | EN 50178 / EN 60 947 |
| Rated insulation voltage Ui | 250 V |
| Contamination level | 3 |
| Overvoltage category | III |
| Rated impulse voltage | 4000 V |
| On-time | 100 % |
| Rated ambient temperature range | -40 °C ... +55 °C |
| Temperature for storage | -40…+70 °C |
| EMV – interference resistance | EN 61000-6-2 |
| EMV – emitted interference | EN 50 081-1 |
| Vibration resistance EN 60068-2-6 | 2…25 Hz ±1.6 mm<br>25 ... 150 Hz 5g |
| Housing | Design V 4, Polyamide PA 66, UL 94 V-2 |
| Mounting height | 55 mm |
| Width | 4 TE |
| Dimensions (H x W x D) | 90 x 70 x 58 mm |
| Installation | Snap mount on 35 mm rail EN 60715<br>or with screws 2 x M 4 |
| Protection housing / terminals | IP 30 / IP 20 |
| Wire connection one wire | 1 x 4 $mm^2$ |
| Stranded with insulated ferrules | 1 x 2.5 $mm^2$ |
| Weight | approx. 210 g |

**Subject to technical changes**


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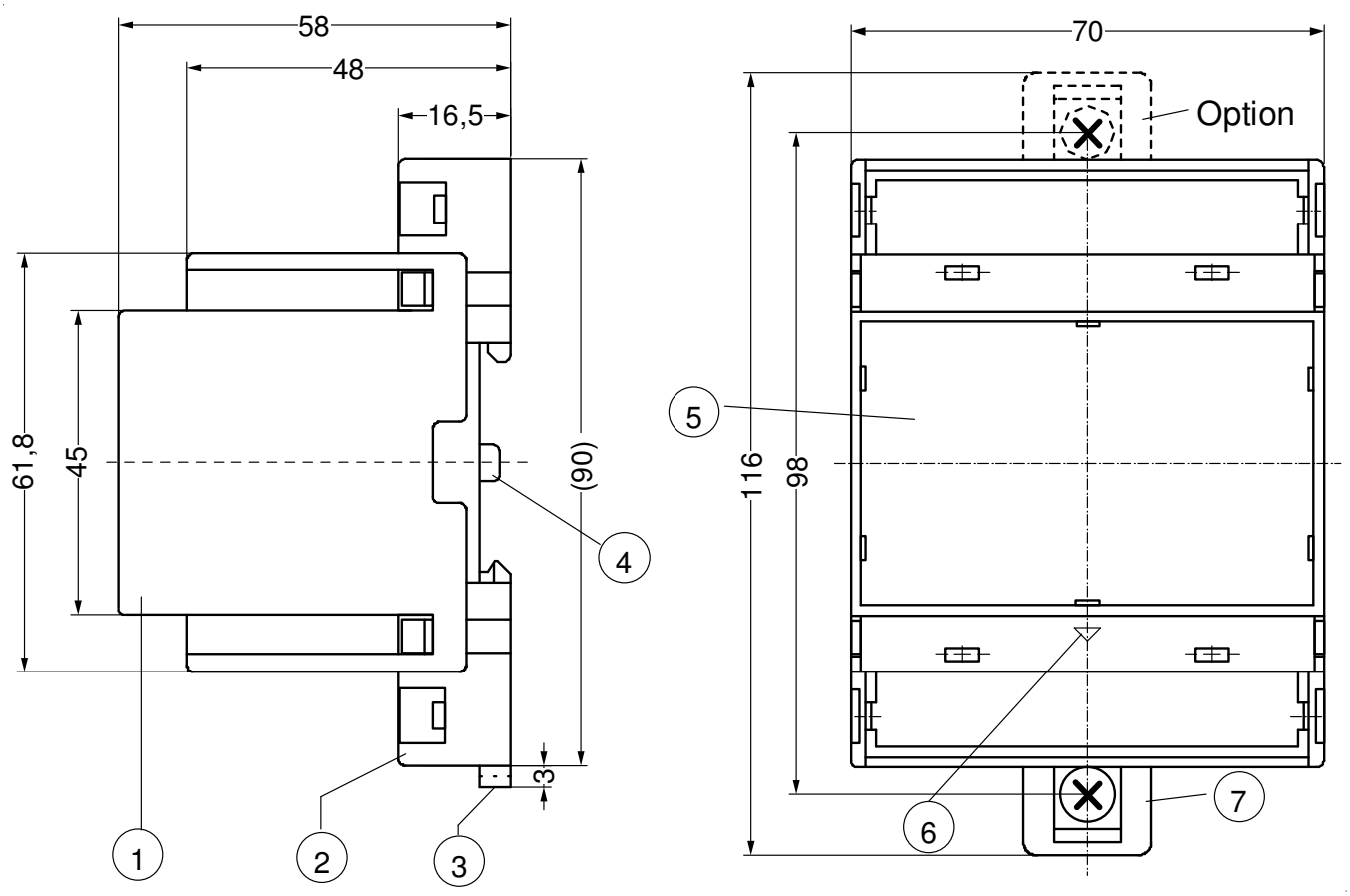
## Housing Design V4: Dimensions in mm




1 Oberteil / cover
2 Unterteil / base
3 Riegel / bar for snap mounting
4 Plombenlasche / latch for sealing
5 Frontplatteneinsatz / front panel
6 Kennzeichen für unten / position downward
7 Riegel bei Wandbefestigung mit Schrauben. Riegelbohrung Ø 4,2 mm / for fixing to wall with screws, Ø 4.2 mm.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