CONNECTING COMPETENCE.

SCHRACK TECHNIK

TIME- AND MONITORINGRELAYS

SERIES 5 AND 6

PROJECT DEVELOPMENT – A COMPLETE SOLUTION

SCHRACK TECHNIK is a leader in the area of energy and data technology. We offer optimised, coordinated systems and solutions for private, commercial and industrial applications.

Thanks to many years of experience and involvement in standardisation and a wide range of committees, we are in the position to keep you informed about the latest technological developments and how to achieve the best possible return on your investment in building technology.

Our specialized technicians can help you in many areas, such as choosing the right technology, planning and project realisation.

ENERGY TECHNOLOGY

ENCLOSURES AND CABINETS FOR ENERGY DISTRIBUTION, MODULAR PROTECTION DEVICES
MODULAR CONTROLLERS, SWITCHES, OVERVOLTAGE PROTECTION
FUSES, CONNECTION & CABLING TECHNOLOGY

INDUSTRY & PANEL BUILDING

RELAYS, TRANSFORMERS, METERS AND MEASURING EQUIPMENT
CIRCUIT BREAKERS AND SWITCH DISCONNECTORS, CONTACTORS AND MOTOR CONTACTORS
MAIN SWITCHES, CONTROL UNITS

BUILDING INSTALLATION TECHNOLOGY

SWITCHES AND SOCKETS, INSTALLATION MATERIALS
BUILDING SYSTEMS TECHNOLOGY
AND ACCESS CONTROL SYSTEMS

EMERGENCY LIGHTING & SYSTEMS

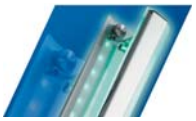
EMERGENCY LIGHTING
UPS SYSTEMS
COMPENSATION AND CO-DETECTION SYSTEMS

NETWORK TECHNOLOGY

COPPER AND FIBRE-OPTIC CABLING
ACTIVE COMPONENTS, NETWORK CABINETS
CABLING FOR DATA CENTRES

CABLES AND CONNECTIONS

PVC-, SINGLE-CORE, SHEATHED-, HOSE CABLES
PVC CONTROL LINES, REMOTE- AND FIRE ALARM CABLES
HIGH-CURRENT CABLES, COAXIAL CABLES, INDUSTRIAL CABLES, ELECTRONIC CABLES



LIGHT TECHNOLOGY

INDOOR AND OUTDOOR LIGHTING
TECHNICAL LIGHTING, DECORATIVE LIGHTING
SPECIAL LIGHTING, BULBS

GENERAL INFORMATION

- All **dimensioned drawings** are displayed within the confines of available space on the page and are only intended as a guide.
- All **circuit diagrams** are schematic wiring diagrams which are intended to allow better understanding of the function, and will need to be edited/added to during the course of project planning.
- All **images** represent samples of the product and are intended for information purposes only.

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TABLE OF CONTENTS

TIMERS

LOAD DROP DOWN RELAY

MONITORING RELAYS

TIMER ZR5E0011

SCHRACK-INFO

Wide input voltage range
1 change over contact
Width 17,5 mm
Installation design

TECHNICAL DATA

1. Functions
The function has to be set before connecting the relay to the supply voltage.
E ON delay

2. Time ranges

Time range	Adjustment range
1 s	50 ms
10 s	500 ms
1 min	3 s
10 min	30 s
1 h	3 min
10 h	30 min
100 h	5 h

3. Indicators

Green LED U/t ON:	indication of supply voltage
Green LED U/t flashes:	indication of time period
Yellow LED R ON/OFF:	indication of relay outputs

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1 Nm
Terminal capacity:
1 x 0.5 to 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	Terminals A1(+)-A2
Types ZR5..24-240 V AC/DC:	24 to 240 V AC/DC
Tolerance:	24 V-15% to 240 V+10%
Rated consumption:	4 VA (1.5 W)
Rated frequency:	AC 48 to 63 Hz
Duty cycle:	100%
Reset time:	100 ms
Residual ripple for DC:	10%
Drop-out voltage:	>30% of minimum rated supply voltage
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4 kV

6. Output circuit
1 potential free change over contact

Rated voltage:	250 V AC
Switching capacity:	2000 VA (8 A / 250V)
Fusing:	8 A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000 VA resistive load
Switching frequency:	max. 60/min at 100 VA resistive load max. 6/min at 1000 VA resistive load (according to IEC 947-5-1)
Overvoltage category:	III. (according to IEC 60664-1)
Rated surge voltage:	4 kV

7. Control input

Input not potential free:	Terminals A1-B1
Loadable:	yes
Max. line length:	10m
Trigger level (sensitivity):	automatic adaption to supply voltage
Min. control pulse length:	DC 50 ms / AC 100 ms

8. Accuracy

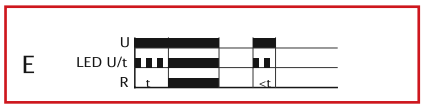
Base accuracy:	±1% of maximum scale value
Adjustment accuracy:	<5% of maximum scale value
Repetition accuracy:	<0.5% or ±5 ms
Voltage influence:	-
Temperature influence:	≤0.01% / °C

9. Ambient conditions

Ambient temperature:	-25 to +55 °C (according to IEC 68-1)
Storage temperature:	-25 to +70 °C
Transport temperature:	-25 to +70 °C
Relative humidity:	15% to 85% (according to IEC 721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (according to IEC 664-1)
Vibration resistance:	10 to 55 Hz 0.35 mm (according to IEC 68-2-6)
Shock resistance:	15 g 11 ms (according to IEC 68-2-27)

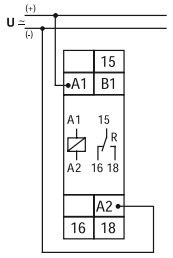
FUNCTIONS

ON delay (E)
When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and is restarted when the supply voltage is next applied.



CONNECTIONS

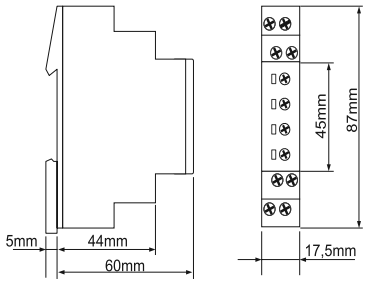
without control input



WEIGHT

Single packing:	72 g
Package 10 pcs:	670 g per Package

DIMENSIONS



DESCRIPTION	ORDER NUMBER
Single function timerelay E (ON delay), 24-240VAC, 1 change over, 8A/250V	ZR5E0011

TIMER ZR5R0011

SCHRACK-INFO

Wide input voltage range
1 change over contact
Width 17,5 mm
Installation design

TECHNICAL DATA

1. Functions
The function has to be set before connecting the relay to the supply voltage.
R OFF delay

2. Time ranges

Time range	Adjustment range	
1 s	50 ms	1 s
10 s	500 ms	10 s
1 min	3 s	1 min
10 min	30 s	10 min
1 h	3 min	1 h
10 h	30 min	10 h
100 h	5 h	100 h

3. Indicators
Green LED U/t ON: indication of supply voltage
Green LED U/t flashes: indication of time period
Yellow LED R ON/OFF: indication of relay outputs

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1 Nm
Terminal capacity:
1 x 0.5 to 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit
Supply voltage: Terminals A1(+)-A2
Types ZR5..24-240 V AC/DC: 24 to 240 V AC/DC
Tolerance: 24 V-15% to 240 V+10%
Rated consumption: 4 VA (1.5 W)
Rated frequency: AC 48 to 63 Hz
Duty cycle: 100%
Reset time: 100 ms
Residual ripple for DC: 10%
Drop-out voltage: >30% of minimum rated supply voltage
Overvoltage category: III (according to IEC 60664-1)
Rated surge voltage: 4 kV

6. Output circuit
1 potential free change over contact
Rated voltage: 250 V AC
Switching capacity: 2000 VA (8 A / 250V)
Fusing: 8 A fast acting
Mechanical life: 20 x 10^6 operations
Electrical life: 2 x 10^5 operations at 1000 VA resistive load
Switching frequency: max. 60/min at 100 VA resistive load
max. 6/min at 1000 VA resistive load (according to IEC 947-5-1)
Overvoltage category: III. (according to IEC 60664-1)
Rated surge voltage: 4 kV

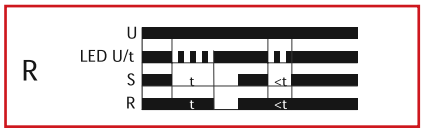
7. Control input
Input not potential free: Terminals A1-B1
Loadable: yes
Max. line length: 10m
Trigger level (sensitivity): automatic adaption to supply voltage
Min. control pulse length: DC 50 ms / AC 100 ms

8. Accuracy
Base accuracy: ±1% of maximum scale value
Adjustment accuracy: <5% of maximum scale value
Repetition accuracy: <0.5% or ±5 ms
Voltage influence: -
Temperature influence: ≤0.01% / °C

9. Ambient conditions
Ambient temperature: -25 to +55 °C (according to IEC 68-1)
Storage temperature: -25 to +70 °C
Transport temperature: -25 to +70 °C
Relative humidity: 15% to 85% (according to IEC 721-3-3 class 3K3)
Pollution degree: 2, if built in 3 (according to IEC 664-1)
Vibration resistance: 10 to 55 Hz 0.35 mm (according to IEC 68-2-6)
Shock resistance: 15 g 11 ms (according to IEC 68-2-27)

FUNCTIONS

OFF delay (R)
The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted.

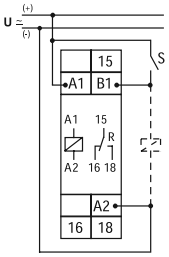


WEIGHT

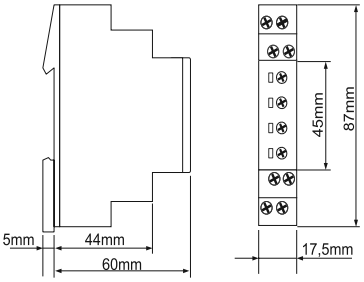
Single packing:	72 g
Package 10 pcs:	670 g per Package

CONNECTIONS

with control input



DIMENSIONS



DESCRIPTION	ORDER NUMBER
Single function timerelay R (OFF delay), 24-240VAC, 1 change over, 8A/250V	ZR5R0011

TIMER ZR5ER011

SCHRACK-INFO

2 functions
7 time ranges
Wide input voltage range
1 change over contact
Width 17,5 mm
Installation design

TECHNICAL DATA

1. Functions
The function has to be set before connecting the relay to the supply voltage.
E ON delay
R OFF delay

2. Time ranges

Time range	Adjustment range	
1 s	50 ms	1 s
10 s	500 ms	10 s
1 min	3 s	1 min
10 min	30 s	10 min
1 h	3 min	1 h
10 h	30 min	10 h
100 h	5 h	100 h

3. Indicators
Green LED U/t ON: indication of supply voltage
Green LED U/t flashes: indication of time period
Yellow LED R ON/OFF: indication of relay outputs

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1 Nm
Terminal capacity:
1 x 0.5 to 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit
Supply voltage: Terminals A1(+)-A2
Types ZR5..24-240 V AC/DC: 24 to 240 V AC/DC
Tolerance: 24 V-15% to 240 V+10%
Rated consumption: 4 VA (1.5 W)
Rated frequency: AC 48 to 63 Hz
Duty cycle: 100%
Reset time: 100 ms
Residual ripple for DC: 10%
Drop-out voltage: >30% of minimum rated supply voltage
Overvoltage category: III (according to IEC 60664-1)
Rated surge voltage: 4 kV

6. Output circuit
1 potential free change over contact
Rated voltage: 250 V AC
Switching capacity: 2000 VA (8 A / 250V)
Fusing: 8 A fast acting
Mechanical life: 20 x 10^6 operations
Electrical life: 2 x 10^5 operations at 1000 VA resistive load
Switching frequency: max. 60/min at 100 VA resistive load
max. 6/min at 1000 VA resistive load (according to IEC 947-5-1)
Overvoltage category: III. (according to IEC 60664-1)
Rated surge voltage: 4 kV

7. Control input
Input not potential free: Terminals A1-B1
Loadable: yes
Max. line length: 10m
Trigger level (sensitivity): automatic adaption to supply voltage
Min. control pulse length: DC 50 ms / AC 100 ms

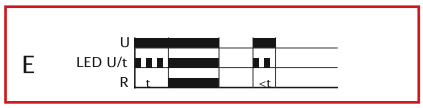
8. Accuracy
Base accuracy: ±1% of maximum scale value
Adjustment accuracy: <5% of maximum scale value
Repetition accuracy: <0.5% or ±5 ms
Voltage influence: -
Temperature influence: ≤0.01% / °C

9. Ambient conditions
Ambient temperature: -25 to +55 °C (according to IEC 68-1)
Storage temperature: -25 to +70 °C
Transport temperature: -25 to +70 °C
Relative humidity: 15% to 85% (according to IEC 721-3-3 class 3K3)
Pollution degree: 2, if built in 3 (according to IEC 664-1)
Vibration resistance: 10 to 55 Hz 0.35 mm (according to IEC 68-2-6)
Shock resistance: 15 g 11 ms (according to IEC 68-2-27)

FUNCTIONS

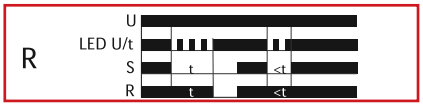
ON delay (E)

When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and is restarted when the supply voltage is next applied.

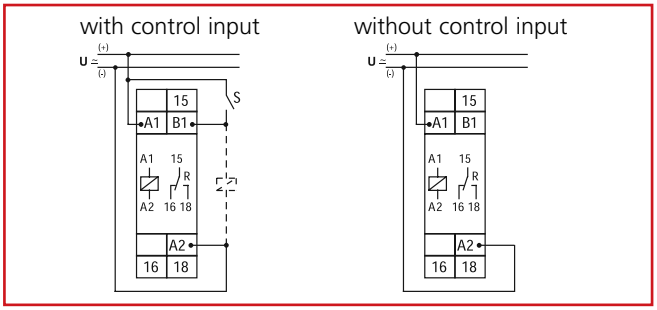


OFF delay (R)

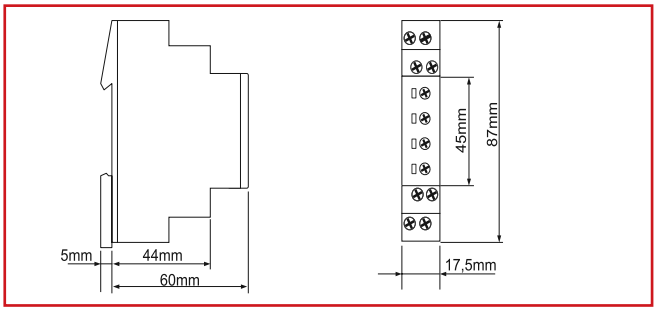
The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted.



CONNECTIONS



DIMENSIONS



WEIGHT

Single packing:	72 g
Package 10 pcs:	670 g per Package

DESCRIPTION	ORDER NUMBER
Double function timerelay E (ON delay) + R (OFF delay), 24-240VAC, 1 change over, 8A/250V	ZR5ER011

TIMER ZR5MF011

SCHRACK-INFO

- Timers multifunctional
- Up to 7 functions
- 7 time ranges
- Wide input voltage range
- 1 change over contact
- Width 17,5 mm
- Installation design

TECHNICAL DATA

1. Functions
The functions has to be set before connecting the relay to the supply voltage.

E	ON delay
R	OFF delay
Ws	Single shot leading edge with control input
Wa	Single shot trailing edge with control input
Es	ON delay with control input
Wu	Single shot leading edge voltage controlled
Bp	Flasher pause first

2. Time ranges

Time range	Adjustment range	
1 s	50 ms	1 s
10 s	500 ms	10 s
1 min	3 s	1 min
10 min	30 s	10 min
1 h	3 min	1 h
10 h	30 min	10 h
100 h	5 h	100 h

3. Indicators

Green LED U/t ON:	indication of supply voltage
Green LED U/t flashes:	indication of time period
Yellow LED R ON/OFF:	indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1 Nm
Terminal capacity:
1 x 0.5 to 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	terminals A1(+)-A2
Type ZR5MF025	12 to 240 V AC/DC
Tolerance:	12 V-10% to 240 V+10%
Rated consumption:	4 VA (1.5 W)
Rated frequency:	AC 48 to 63 Hz
Duty cycle:	100%
Reset time:	100 ms
Residual ripple for DC:	10%
Drop-out voltage:	>30% of minimum rated supply voltage
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4kV

6. Output circuit
1 potential free change over contact

Rated voltage:	250 V AC
Switching capacity:	2000 VA (8 A / 250 V)
Fusing:	8 A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000 VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (according to IEC 947-5-1)
Overvoltage category:	III. (according to IEC 60664-1)
Rated surge voltage:	4kV

7. Control input

Input not potential free:	terminals A1-B1
Loadable:	yes
Max. line length:	10m
Trigger level (sensitivity):	automatic adaption to supply voltage
Min. control pulse length:	DC 50 ms / AC 100 ms

8. Accuracy

Base accuracy:	±1% of maximum scale value
Adjustment accuracy:	<5% of maximum scale value
Repetition accuracy:	<0.5% or ±5 ms
Voltage influence:	-
Temperature influence:	≤0.01% / °C

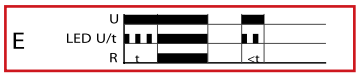
9. Ambient conditions

Ambient temperature:	-25 to +55 °C (according to IEC 68-1)
Storage temperature:	-25 to +70 °C
Transport temperature:	-25 to +70 °C
Relative humidity:	15% to 85% (according to IEC 721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (according to IEC 664-1)
Vibrations resistance:	10 to 55 Hz 0.35 mm (according to IEC 68-2-6)
Shock resistance:	15 g 11 ms (according to IEC 68-2-27)

FUNCTIONS

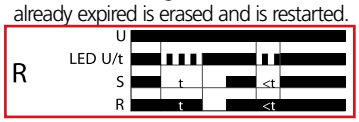
ON delay (E)

When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and is restarted when the supply voltage is next applied.



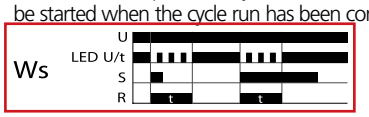
OFF delay (R)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted.



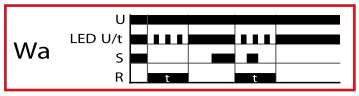
Single shot leading edge with control input (Ws)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (green LED U/t illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



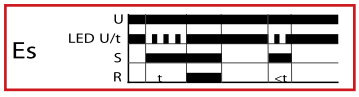
Single shot trailling edge with control input (Wa)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). Closing the control contact S has no influence on the condition of the output R. When the control contact is opened, the output relay switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated), the ouput relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



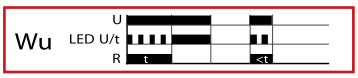
ON delay with control input (Es)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When teh control contact S is closed, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired , the interval already expired is erased and is restarted with the next cycle.



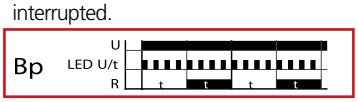
Single shot leading edge voltage controlled (Wu)

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interruted before the interval t has expired, the output relay switches into off-position. The interval already is erased and is restarted when the supply voltage is next applied.

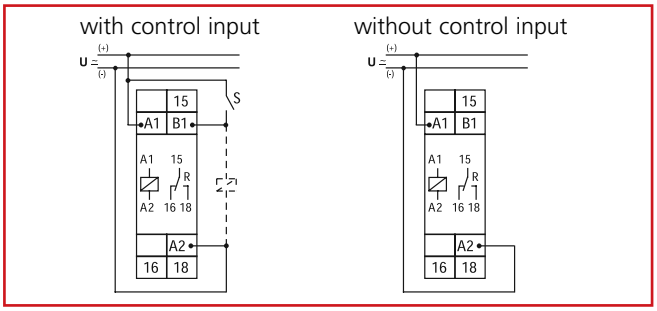


Flasher pause first (Bp)

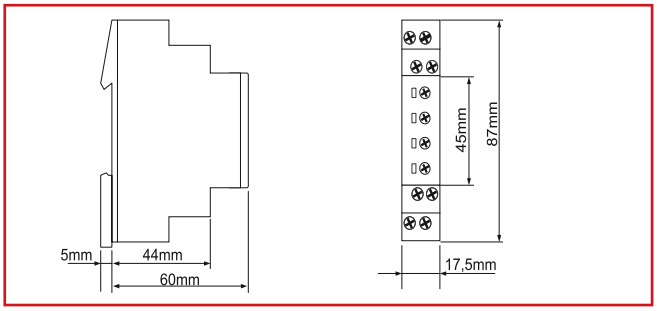
When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated).
The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.



CONNECTIONS



DIMENSIONS



WEIGHT

Single packing:	72 g
Package 10 pcs:	670 g per Package

DESCRIPTION	ORDER NUMBER
Multifunction timerelay E, R, Ws, Wa, Es, Wu, Bp, 12-240VAC, 1 change over, 8A/250V	ZR5MF011

TIMER ZR5MF025

SCHRACK-INFO

- Timers multifunctional
- Up to 7 functions
- 7 time ranges
- Wide input voltage range
- 2 change-over contacts
- Width 35 mm
- Installation design

TECHNICAL DATA

1. Functions
The functions has to be set before connecting the relay to the supply voltage.

E	ON delay
R	OFF delay
Ws	Single shot leading edge with control input
Wa	Single shot trailing edge with control input
Es	ON delay with control input
Wu	Single shot leading edge voltage controlled
Bp	Flasher pause first

2. Time ranges

Time range	Adjustment range	
1 s	50 ms	1 s
10 s	500 ms	10 s
1 min	3 s	1 min
10 min	30 s	10 min
1 h	3 min	1 h
10 h	30 min	10 h
100 h	5 h	100 h

3. Indicators

Green LED U/t ON:	indication of supply voltage
Green LED U/t flashes:	indication of time period
Yellow LED R ON/OFF:	indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1 Nm
Terminal capacity:
1 x 0.5 to 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	terminals A1(+)-A2
Type ZR5MF025	12 to 240 V AC/DC
Tolerance:	12 V-10% to 240 V+10%
Rated consumption:	6 VA (2 W)
Rated frequency:	AC 48 to 63 Hz
Duty cycle:	100%
Reset time:	100 ms
Residual ripple for DC:	10%
Drop-out voltage:	>30% of minimum rated supply voltage
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4kV

6. Output circuit
2 potential free change over contacts

Rated voltage:	250 V AC
Switching capacity:	2000 VA (8 A / 250 V)
Fusing:	8 A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000 VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (according to IEC 947-5-1)
Overvoltage category:	III. (according to IEC 60664-1)
Rated surge voltage:	4kV

7. Control input

Input not potential free:	terminals A1-B1
Loadable:	yes
Max. line length:	10m
Trigger level (sensitivity):	automatic adaption to supply voltage
Min. control pulse length:	DC 50 ms / AC 100 ms

8. Accuracy

Base accuracy:	±1% of maximum scale value
Adjustment accuracy:	<5% of maximum scale value
Repetition accuracy:	<0.5% or ±5 ms
Voltage influence:	-
Temperature influence:	≤0.01% / °C

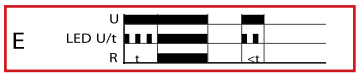
9. Ambient conditions

Ambient temperature:	-25 to +55 °C (according to IEC 68-1)
Storage temperature:	-25 to +70 °C
Transport temperature:	-25 to +70 °C
Relative humidity:	15% to 85% (according to IEC 721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (according to IEC 664-1)
Vibrations resistance:	10 to 55 Hz 0.35 mm (according to IEC 68-2-6)
Shock resistance:	15 g 11 ms (according to IEC 68-2-27)

FUNCTIONS

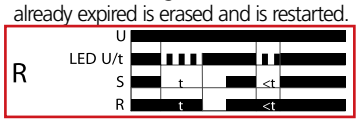
ON delay (E)

When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and is restarted when the supply voltage is next applied.



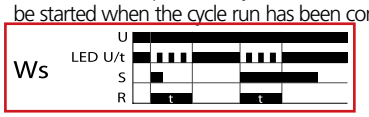
OFF delay (R)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted.



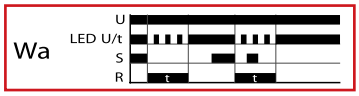
Single shot leading edge with control input (Ws)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (green LED U/t illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



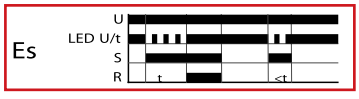
Single shot trailling edge with control input (Wa)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). Closing the control contact S has no influence on the condition of the output R. When the control contact is opened, the output relay switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated), the ouput relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



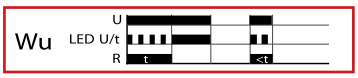
ON delay with control input (Es)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When teh control contact S is closed, the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired , the interval already expired is erased and is restarted with the next cycle.



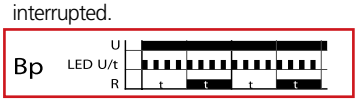
Single shot leading edge voltage controlled (Wu)

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated) the output relay switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interruted before the interval t has expired, the output relay switches into off-position. The interval already is erased and is restarted when the supply voltage is next applied.

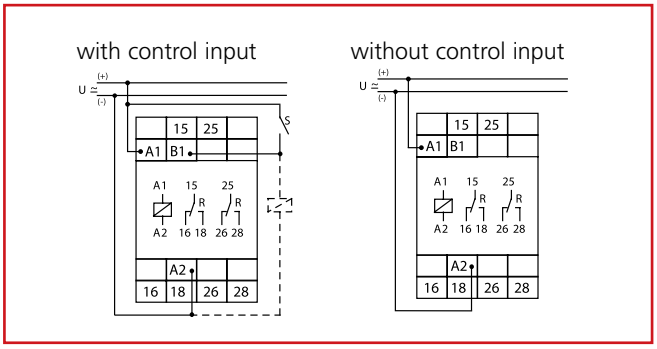


Flasher pause first (Bp)

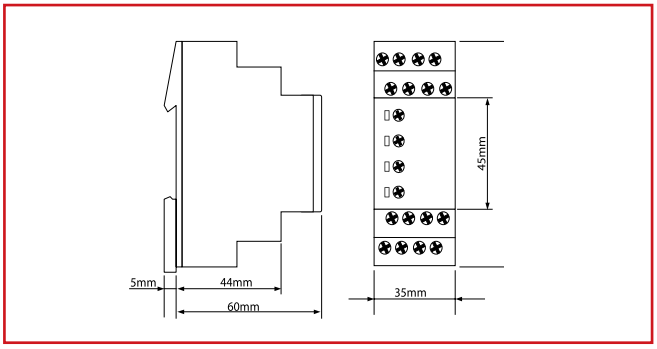
When the supply voltage U is applied, the set interval t begins (green LED U/t flashes). After the interval t has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated).
The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.



CONNECTIONS



DIMENSIONS



WEIGHT

Single packing: 106g

DESCRIPTION	ORDER NUMBER
Timerelay, multifunction, 12-240VAC, 2 change over, 8A/250V	ZR5MF025

TIMER ZR6MF052

- 16 functions
- 16 time ranges
- Connection of remote potentiometer possible
- Zoom voltage 24 to 240V AC/DC
- 2 change-over contacts
- Width 22.5 mm
- Industrial design

TECHNICAL DATA

1. Functions

1 delayed contact (terminals 15-16-18) and
1 instantaneous contact (terminals 25-26-28

E11	ON delay
R11	OFF delay with control contact
Es11	ON delay with control contact
Wu11	Single shot leading edge voltage controlled
Ws11	Single shot leading edge with control contact
Wa11	Single shot trailing edge with control contact
Bi11	Flasher pulse first
Bp11	Flasher pause first

2 delayed contacts

E20	ON delay
R20	OFF delay with control contact
Es20	ON delay with control contact
Wu20	Single shot leading edge voltage controlled
Ws20	Single shot leading edge with control contact
Wa20	Single shot trailing edge with control contact
Bi20	Flasher pulse first
Bp20	Flasher pause first

2. Time ranges

Time range	Adjustment range	
1s	50ms	1s
3s	150ms	3s
10s	500ms	10s
30s	1500ms	30s
1min	3s	1min
3min	9s	3min
10min	30s	10min
30min	90s	30min
1h	3min	1h
3h	9min	3h
10h	30min	10h
30h	90min	30h
1d	72min	1d
3d	216min	3d
10d	12h	10d
30d	36h	30d

3. Indicators

Green LED ON:	indication of supply voltage
Green LED flashes:	indication of time period
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 60715
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
- 1 x 0.5 bis 2.5 mm² with/without multicore cable end
- 1 x 4 mm² without multicore cable end
- 2 x 0.5 bis 1.5 mm² with/without multicore cable end
- 2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:

24 to 240V AC/DC	terminals A1-A2 (galvanically separated)

Tolerance:

24 to 240V DC	-20% to +25%
24 to 240V AC	-15% to +10%

Rated frequency:

24 to 240V AC	48 to 400Hz
48 to 240V AC	16 to 48Hz

Rated consumption:	4.5VA (1W)
Duration of operation:	100%
Reset time:	500ms
Wave form for AC:	Sinus
Residual ripple for DC:	10%
Drop-out voltage:	>15% of the supply voltage
Overvoltage category:	III (in accordance with IEC 60661-1)
Rated surge voltage:	4kV

6. Output circuit

2 potential free change-over contacts

Rated voltage:	250V AC
Switching capacity (distance <5mm):	750VA (3A / 250V AC)
Switching capacity (distance >5mm):	1250VA (5A / 250V AC)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical Life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Control contact

Activation:	bridge Y1-Y2
Potential free:	yes, basic isolation against input and output circuit
Loadable:	no
Control voltage:	max. 5V
Short circuit current:	max. 1mA
Line length:	max. 10m
Control pulse length:	min. 50ms

8. Remote potentiometer (not included)

The internal potentiometer is de-activated when a remote potentio-meter is connected!

Connections:	1MΩ potentiometer (type RONDO R2), terminals Z1-Y2
Line type:	twisted pair
Control voltage:	max. 5V
Short circuit current:	max. µA
Line length:	max. 5m

9. Accuracy

Base accuracy:	±1% (of maximum scale value) using 1MΩ remote potentiometer
Frequency response:	-
Adjustment accuracy:	≤5% (of maximum scale value) using 1MΩ remote potentiometer
Repetition accuracy:	<0.5% or ±5ms
Voltage influence:	-
Temperature influence:	≤0.01% / °C

10. Ambient conditions

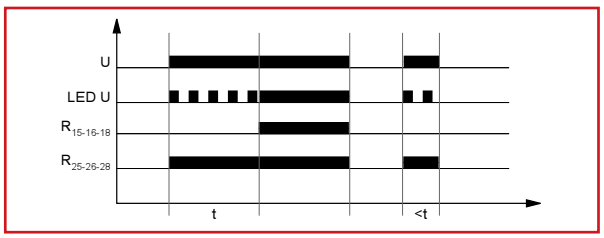
Ambient temperature:	-25 to +55°C (in accordance with IEC 60068-1) -25 to +40°C (in accordance with UL 508)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	3 (in accordance with IEC 60664-1)
Vibration resistance:	10 to 55Hz 0.35 mm (in accordance with IEC 60068-2-6)
Shock resistance:	15g 11ms (in accordance with IEC 60068-2-27)

FUNCTIONS

The internal potentiometer is de-activated when a remote-potentio-meter is connected !The function has to be set before connecting the relay to the supply voltage.

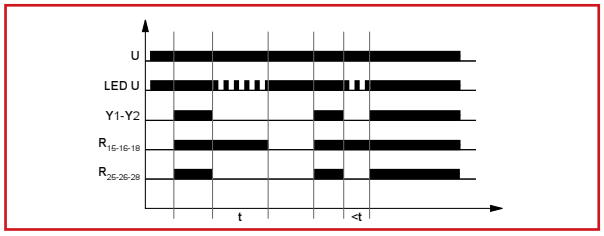
ON delay (E11)

When the supply voltage U is applied, the instantaneous contact switches into on-position and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the delayed contact switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and is restarted when the supply voltage is next applied.



OFF delay with control contact (R11)

The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, both contacts switch into on-position (yellow LED illuminated). If the control contact is opened, the instantaneous contact switches into off-position and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the delayed contact switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.

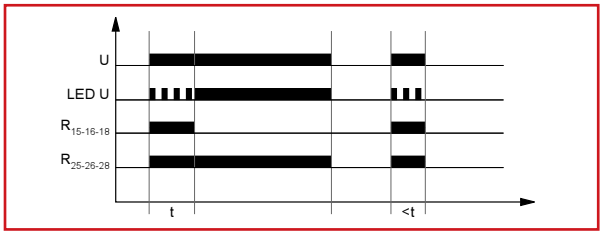


ON delay with control contact (Es11)

The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, the instantaneous contact switches into on-position and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the delayed contact switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again .If the control contact is opened before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.

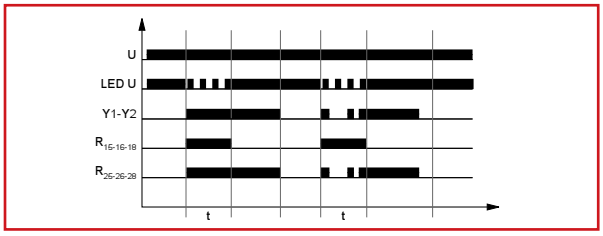
Single shot leading edge voltage controlled (Wu11)

When the supply voltage U is applied, both contacts switch into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the delayed contact switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the interval t has expired, the both contacts switch into off-position. The interval already expired is erased and is restarted when the supply voltage is next applied.



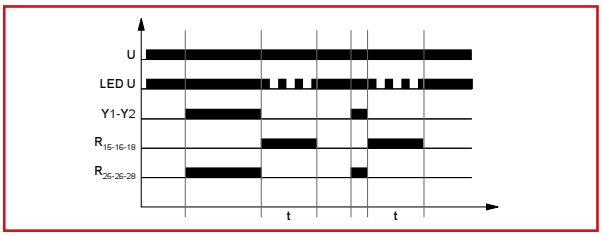
Single shot leading edge with control contact (Ws11)

The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, both contacts switch into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the delayed contact switches into off-position (yellow LED not illuminated). The instantaneous contact remains in on-position, until the control contact is opened again. During the interval, the control contact (and the instantaneous contact) can be operated any number of times.A further cycle can only be started when the cycle run has been completed.



Single shot trailing edge with control contact (Wa11)

The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed the instantaneous contact switches into on-position. When the control contact is opened, the instantaneous contact switches into off-position, the delayed contact switches into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated), the delayed contact switches into off-position (yellow LED not illuminated). During the interval, the control contact (and the instantaneous contact) can be operated any number of times. A further cycle can only be started when the cycle run has been completed.

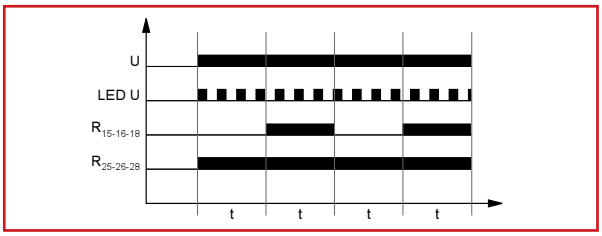


Flasher pulse first (Bi11)

When the supply voltage U is applied, the instantaneous contact and the delayed contact switch into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired, the delayed contact switches into off-position (yellow LED not illuminated) and the set interval t begins again. The delayed contact is triggered at a ratio of 1:1 until the supply voltage is interrupted.

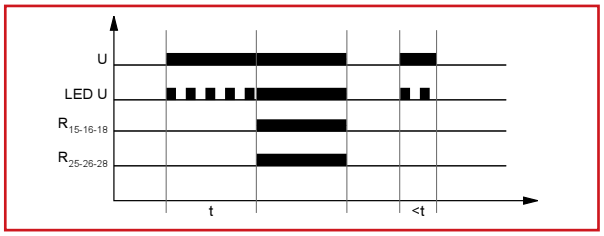
Flasher pause first (Bp11)

When the supply voltage U is applied, the instantaneous contact switches into on-position and the set interval t begins (green LED flashes). After the interval t has expired, the delayed contact switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the delayed contact switches into off-position (yellow LED not illuminated). The delayed contact is triggered at a ratio of 1:1 until the supply voltage is interrupted.



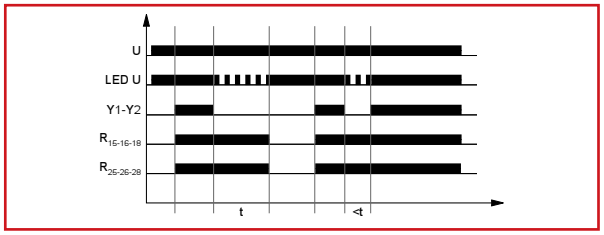
ON delay (E20)

When the supply voltage U is applied, the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the supply voltage is interrupted.If the supply voltage is interrupted before the expiry of the interval t, the interval already expired is erased and is restarted when the supply voltage is next applied.



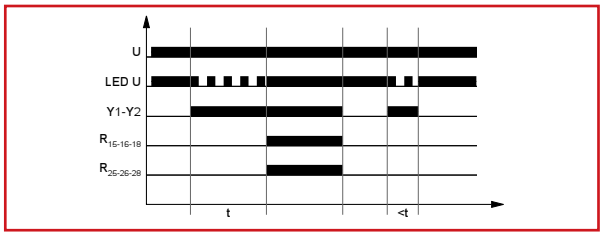
OFF delay with control contact (R20)

The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the output relay switches into off-position (yellow LED not illuminated). If the control contact is closed again before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.



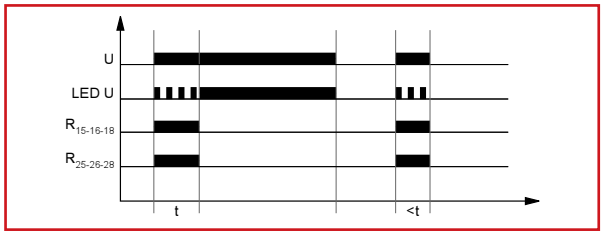
ON delay with control contact (Es20)

The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the output relay R switches into on-position (yellow LED illuminated). This status remains until the control contact is opened again. If the control contact is opened before the interval t has expired, the interval already expired is erased and is restarted with the next cycle.



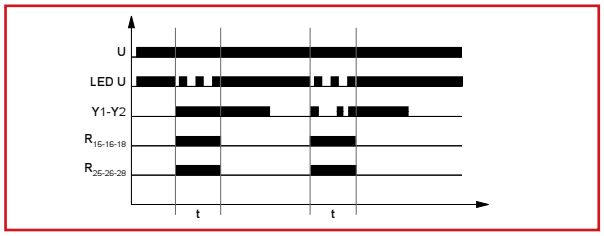
Single shot leading edge voltage controlled (Wu20)

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the output relay switches into off-position (yellow LED not illuminated). This status remains until the supply voltage is interrupted. If the supply voltage is interrupted before the interval t has expired, the output relay switches into off-position. The interval already expired is erased and is restarted when the supply voltage is next applied.



Single shot leading edge with control contact (Ws20)

The supply voltage U must be constantly applied to the device (green LED illuminated). When the control contact Y1-Y2 is closed, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated) the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.

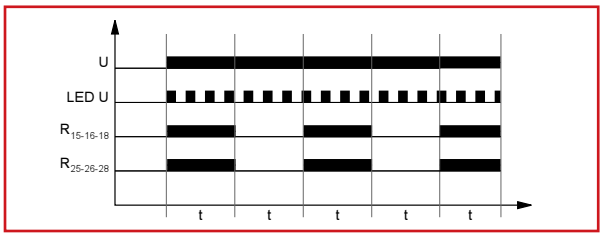


Single shot trailing edge with control contact (Wa20)

The supply voltage U must be constantly applied to the device (green LED illuminated). Closing the control contact Y1-Y2 has no influence on the condition of the output relay R. When the control contact is opened, the output relay switches into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired (green LED illuminated), the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.

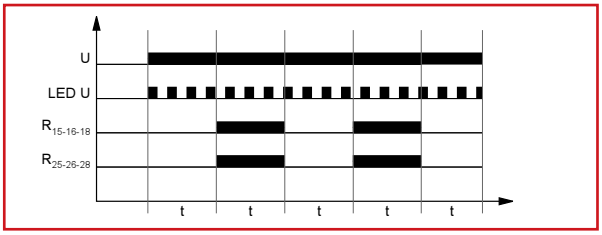
Flasher pulse first (Bi20)

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins (green LED flashes). After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t begins again. The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.

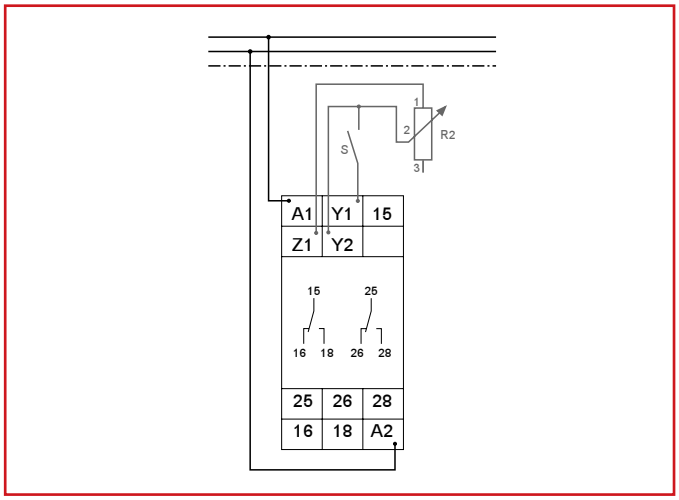


Flasher pause first (Bp20)

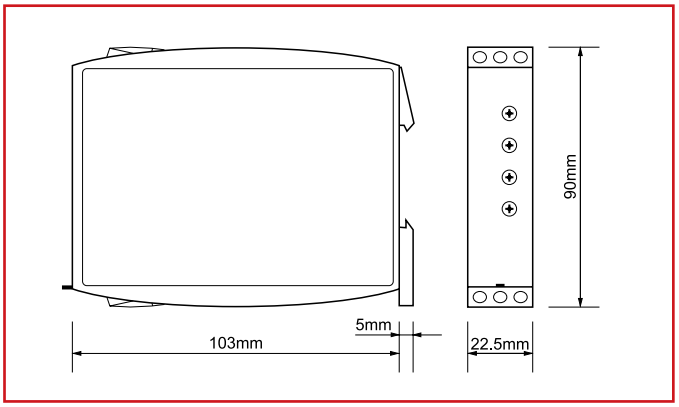
When the supply voltage U is applied, the set interval t begins (green LED flashes). After the interval t has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t begins again. After the interval t has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at a ratio of 1:1 until the supply voltage is interrupted.



CONNECTIONS



DIMENSIONS



DESCRIPTION	ORDER NUMBER
Timerelay, multifunction, 2 change over, 24-240V AC/DC, industrial design	ZR6MF052

TIMER ZR5B0011

SCHRACK-INFO

- Asymmetric flasher
- 7 time ranges
- Wide input voltage range
- 1 change over contact
- Width 17,5 mm
- Installation design

TECHNICAL DATA

1. Functions

Ip Asymmetric flasher pause first
Ii Asymmetric flasher pulse first (A1-B1 bridged)

2. Time ranges

Time range	Adjustment range	
1 s	50 ms	1 s
10 s	500 ms	10 s
1 min	3 s	1 min
10 min	30 s	10 min
1 h	3 min	1 h
10 h	30 min	10 h
100 h	5 h	100 h

3. Indicators

Green LED U/t ON: indication of supply voltage
Green LED U/t slow flashing: indication of time period t1
Green LED U/t fast flashing: indication of time period t2
Yellow LED R ON/OFF: indication of relay output

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1 Nm
Terminal capacity:
1 x 0.5 to 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5mm ² flexible without multicore cable end

5. Input circuit

Supply voltage: Terminals A1(+)-A2
Type ZR5B0011
12-240 V AC/DC: 12 to 240 V AC/DC
Tolerance: 12 V-10% to 240 V+10%
Rated consumption: 4 VA (1.5 W)
Rated frequency: AC 48 to 63 Hz
Duty cycle: 100%
Reset time: 100 ms
Residual ripple for DC: 10%
Drop-out voltage: >30% of minimum rated supply voltage
Overvoltage category: III (according to IEC 60664-1)
Rated surge voltage: 4 kV

6. Output circuit

1 potential free change over contact
Rated voltage: 250 V AC
Switching capacity: 2000 VA (8 A / 250 V)
Fusing: 8 A fast acting
Mechanical life: 20 x 10^6 operations
Electrical life: 2 x 10^5 operations at 1000 VA resistive load
Switching frequency: max. 60/min at 100 VA resistive load
max. 6/min at 1000 VA resistive load
(according to IEC 947-5-1)
Overvoltage category: III. (according to IEC 60664-1)
Rated surge voltage: 4 kV

7. Control input

Input not potential free: Terminals A1-B1
Loadable: yes
Max. line length: 10 m
Trigger level (sensitivity): automatic adaption to supply voltage
Min. control pulse length: DC 50 ms / AC 100 ms

8. Accuracy

Base accuracy: ±1% of maximum scale value
Adjustment accuracy: <5% of maximum scale value
Repetition accuracy: <0.5% or ±5 ms
Voltage influence: -
Temperature influence: ≤0.01% / °C

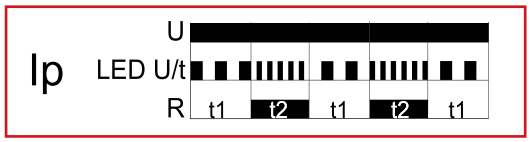
9. Ambient conditions

Ambient temperature: -25 to +55 °C (according to IEC 68-1)
Storage temperature: -25 to +70 °C
Transport temperature: -25 to +70 °C
Relative humidity: 15% to 85% (according to IEC 721-3-3 class 3K3)
Pollution degree: 2, if built in 3 (according to IEC 664-1)
Vibration resistance: 10 to 55 Hz 0.35 mm (according to IEC 68-2-6)
Shock resistance: 15 g 11 ms (according to IEC 68-2-27)

FUNCTIONS

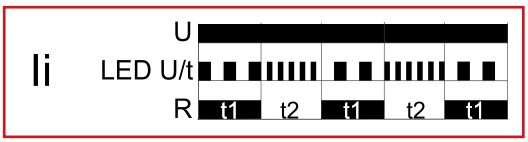
Asymmetric flasher pause first (Ip)
When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated).

The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.

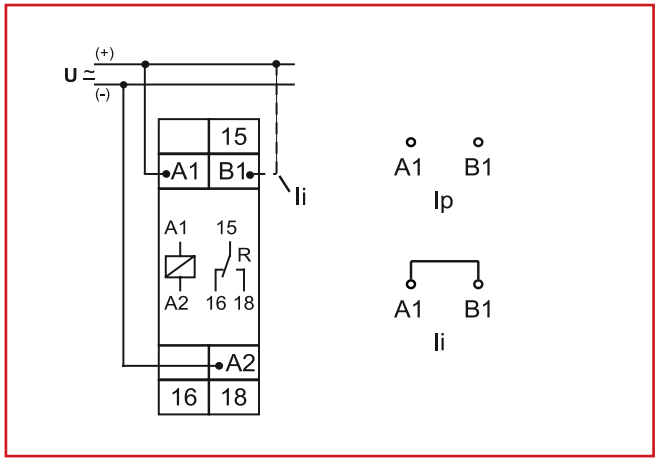


Asymmetric flasher pulse first (Ii)
When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into on-position (yellow LED illuminated).

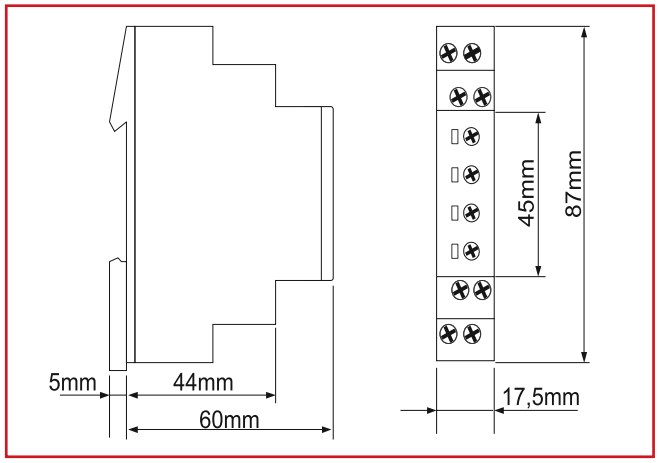
The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted



CONNECTIONS



DIMENSIONS



WEIGHT

Single packing:	72 g
Package 10 pcs:	670 g per Package

DESCRIPTION	ORDER NUMBER
Timerelay, 12-240VAC, 1 change over, 8A/250V	ZR5B0011

TIMER ZR5B0025

SCHRACK-INFO

- Asymmetric flasher, 2-time multifu
- 7 Time ranges
- Wide input voltage range
- 2 change-over contacts
- Width 35 mm
- Installation design

TECHNICAL DATA

1. Functions
The function has to be set before connecting the relay to the supply voltage.

Ip	Asymmetric flasher pause first
Ii	Asymmetric flasher pulse first
ER	ON delay and OFF delay with control contact
EWu	ON delay single shot leading edge voltage controlled
EWs	ON delay single shot leading edge with control contact
WsWa	Single shot leading and single shot trailling edge with control contact
Wt	Pulse sequence monitoring

2. Time ranges

Time range	Adjustment range	
1 s	50 ms	1 s
10 s	500 ms	10 s
1 min	3 s	1 min
10 min	30 s	10 min
1 h	3 min	1 h
10 h	30 min	10 h
100 h	5 h	100 h

3. Indicators

Green LED U/t ON:	indication of supply voltage
Green LED U/t slow flashing:	indication of time period t1
Green LED U/t fast flashing:	indication of time period t2
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mouted on DIN-rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1 Nm
Terminal capacity:
1 x 0.5 to 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	terminals A1(+) - A2
Types ZR5B0025	
12-240 V AC/DC:	12 to 240 V AC/DC
Tolerance:	12 V-10% to 240 V+10%
Rated frequency:	48 to 63 Hz
Rated consumption:	6 VA (2 W)
Duration of operation:	100%
Reset time:	100 ms
Residual ripple of DC:	-
Drop-out voltage:	>30% of the supply voltage

Overvoltage category: III (according to IEC 60664-1)
Rated surge voltage: 4kV

6. Output circuit
2 potential free change over contacts

Rated voltage:	250 V AC
Switching capacity:	2000 VA (8 A / 250 V)
Fusing:	8 A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000 VA resistive load
Switching frequency:	max. 60/min at 100 VA resistive load max. 6/min at 1000 VA resistive load (according to IEC 947-5-1)
Overvoltage category:	III (according to IEC 60664-1)
Rated surge:	4 kV

7. Control input

Input not potential free:	terminals A1-B1
Loadable:	yes
Max. line length:	10 m
Trigger level (sensitivity):	automatic adaption to supply voltage
Max. control pulse length:	DC 50 ms / AC 100 ms

8. Accuracy

Base accuracy:	±1% of maximum scale value
Adjusting accuracy:	≤5% of maximum scale value
Repetition accuracy:	<0.5% or ±5 ms
Voltage influence:	-
Temperature influence:	≤0.01% / °C

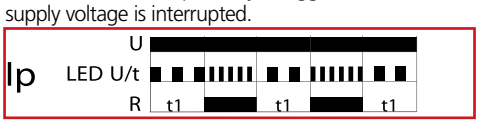
9. Ambient conditions

Ambient temperature:	-25 to +55 °C (according to IEC 68-1)
Storage temperature:	-25 to +70 °C
Transport temperature:	-25 to +70 °C
Relative humidity:	15% to 85% (according to IEC 721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (according to IEC 664-1)
Vibration resistance:	10 to 55 Hz 0.35 mm (according to IEC 68-2-6)
Shock resistance:	15 g 11 ms (according to IEC 68-2-27)

FUNCTIONS

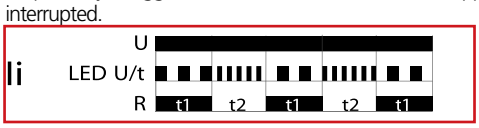
Asymmetric flasher pause first (Ip)

When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.



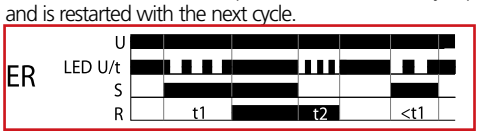
Asymmetric flasher pulse first (Ii)

When the supply voltage U is applied, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay switches into off-position (yellow LED not illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into on-position (yellow LED illuminated). The output relay is triggered at the ratio of t1:t2 until the supply voltage is interrupted.



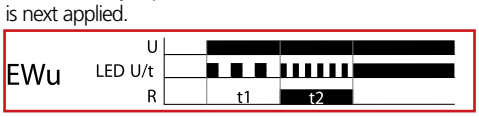
ON delay and OFF delay with control contact (ER)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated). If the control contact is opened, the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). If the control contact is opened before the interval t1 has expired, the interval already expired is erased and is restarted with the next cycle.



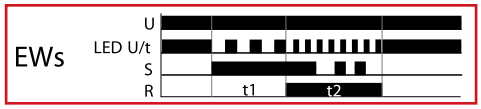
ON delay and single shot leading edge voltage controlled (EWu)

When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated). If the supply voltage is interrupted before the interval t1+t2 has expired, the interval already expired is erased and is restarted when the supply voltage is next applied.



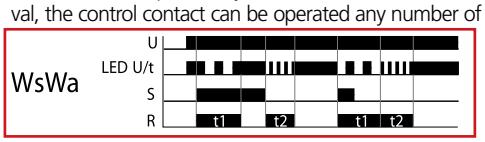
ON delay and single shot leading edge with control contact (EWs)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired, the output relay switches into off-position (yellow LED not illuminated).
During the interval, the control contact can be operated any number of times. A further cycle can only be started when the cycle run has been completed.



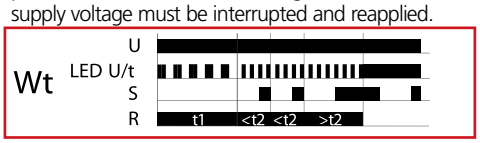
Single shot leading and single shot trailing edge with control contact (WsWa)

The supply voltage U must be constantly applied to the device (green LED U/t illuminated). When the control contact S is closed, the output relay R switches into on-position (yellow LED illuminated) and the set interval t1 begins (green LED U/t flashes slowly). After the interval t1 has expired, the output relay R switches into off-position (yellow LED not illuminated). If the control contact is opened, the output relay again switches into on-position (yellow LED illuminated) and the set interval t2 begins (green LED U/t flashes fast). After the interval t2 has expired the output relay switches into off-position (yellow LED not illuminated). During the interval, the control contact can be operated any number of times.

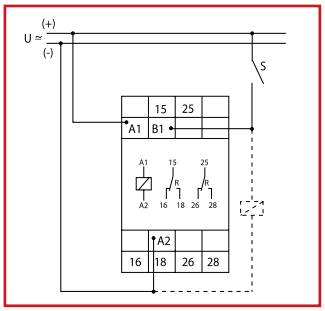


Pulse sequence monitoring (Wt)

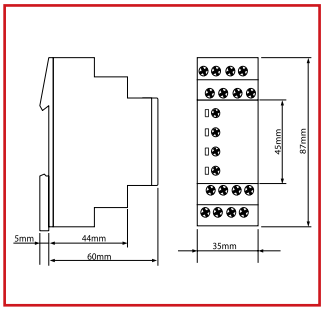
When the supply voltage U is applied, the set interval t1 begins (green LED U/t flashes slowly) and the output relay R switches into on-position (yellow LED illuminated) After the interval t1 has expired, the set interval t2 begins (green LED U/t flashes fast). So that the output relay R remains in on-position, the control contact S must be closed and opened again within the set interval t2. If this does not happen, the output relay R switches into off-position (yellow LED not illuminated) and all further pulses at the control contact are ignored. To restart the function the supply voltage must be interrupted and reapplied.



CONNECTIONS



DIMENSIONS



WEIGHT

Single packing: 106g

DESCRIPTION	ORDER NUMBER
Timerelay, 7 functions, 12-240VAC, 2 change over, 8A/250V	ZR5B0025

TIMER ZR5SD025

SCHRACK-INFO

- Star-Delta start up
- 2 change-over contacts
- Wide input voltage ran
- Width 35 mm
- Installation design

TECHNICAL DATA

1. Functions
S Star-delta start up

2. Time ranges
Start-up time

Time range	Adjustment range	
10 s	500 ms	10 s
30 s	1500 ms	30 s
1 min	3 s	1 min
3 min	9 s	3 min

Transit time (fixed)
40 ms
60 ms
80 ms
100 ms

3. Indicators

Green LED U/t ON:	indication of supply voltage delta-contactor in on-position (terminals 25-28)
Green LED U/t flashes:	indication of time period star time
Yellow LED R ON/OFF:	indication of star contactor (terminals 15-18)

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1 Nm
Terminal capacity:
1 x 0.5 to 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	terminals A1(+)-A2
Type ZR5SD025	12 to 240 V AC/DC
Tolerance:	12 V-10% to 240 V+10%
Rated consumption:	4 VA (1.5 W)
Rated frequency:	AC 48 to 63Hz
Duty cycle:	100%
Reset time:	100 ms
Residual ripple of DC:	10%
Drop-out voltage:	>30% of the supply voltage
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4 kV

6. Output circuit
2 potential free change over contacts

Rated surge:	250 V AC
Switching capacity:	2000 VA (8 A / 250 V)
Fusing:	8 A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000 VA resistive load
Switching frequency:	max. 60/min at 100 VA resistive load max. 6/min at 1000 VA resistive load (according to IEC 947-5-1)
Overvoltage category:	III. (according to IEC 60664-1)
Rated surge voltage:	4 kV

7. Accuracy

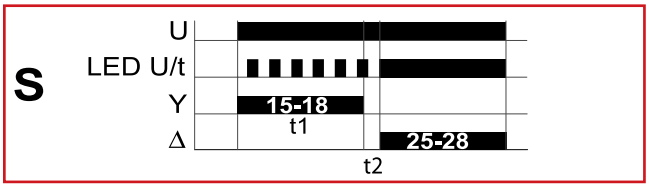
Base accuracy:	±1% of maximum scale value
Adjustment accuracy:	<5% of maximum scale value
Repetition accuracy:	<0.5% or ±5 ms
Voltage influence:	-
Temperature influence:	≤0.01% / °C

8. Ambient conditions

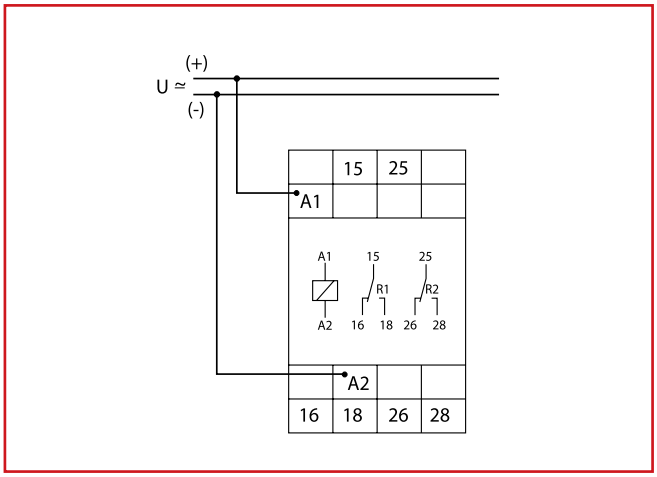
Ambient temperature:	-25 to +55 °C (according to IEC 68-1)
Storage temperature:	-25 to +70 °C
Transport temperature:	-25 to +70 °C
Relative humidity:	15% to 85% (according to IEC 721-3-3 Klasse 3K3)
Pollution degree:	2, if built in 3 (according to IEC 664-1)
Vibration resistance:	10 to 55 Hz 0.35 mm (according to IEC 68-2-6)
Shock resistance:	15 g 11 ms (according to IEC 68-2-27)

FUNCTIONS

Star-delta start up
When the supply voltage U is applied, the star-contact switches into on-position (yellow LED illuminated) and the set star-time t1 begins (green LED U/t flashes). After the interval t1 has expired (green LED U/t illuminated), the star-contact switches into off-position (yellow LED not illuminated) and the set transit-time t2 begins. After the interval t2 has expired, the contact for the delta-contactor switches into on-position. To restart the function, the supply voltage must be interrupted and reapplied.



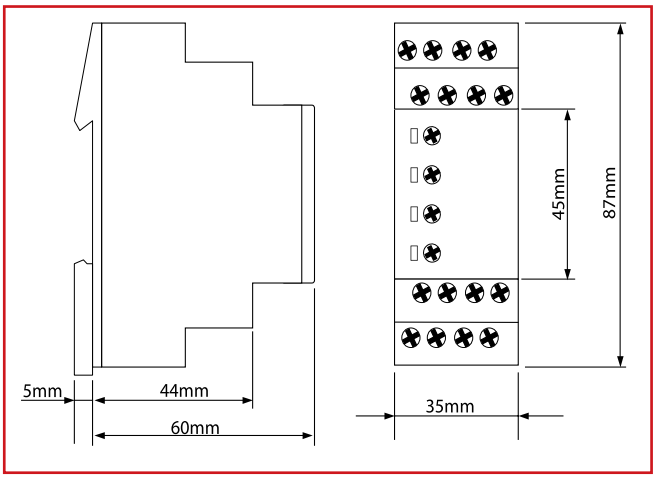
CONNECTIONS



GEWICHT

Single packing: 106 g

DIMENSIONS



DESCRIPTION	ORDER NUMBER
Star-Delta-relay, 12-240VAC, 2 change over	ZR5SD025

TIMER ZR6SD052

- Star-Delta start-up
- Supply voltage selectable via power modules
- 2 change-over contacts
- Width 22.5 mm
- Industrial design

TECHNICAL DATA

1. Functions

S	Star-Delta start-up

2. Zeitbereiche

Start-up time

Time range	Adjustment range	
10s	500ms	1s
3s	1500ms	30s
1min	3s	1min
3min	9s	3min

Transit time

Time range (fixed)

- 40ms
- 60ms
- 80ms
- 100ms

3. Indicators

Green LED ON:	indication of supply voltage delta-contactor in on-position (terminals 25-28)
Green LED flashes:	indication of star-time
Yellow LED ON/OFF:	indication of star-contactor (terminals 15-18)

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 50022

Mounting position:	any

Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20

Tightening torque:	max. 1Nm

Terminal capacity:

- 1 x 0.5 bis 2.5 mm² with/without multicore cable end
- 1 x 4 mm² without multicore cable end
- 2 x 0.5 bis 1.5 mm² with/without multicore cable end
- 2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:

12 to 400V AC	terminals A1-A2 (galvanically separated) selectable via power modules TR2
Tolerance:	according to specification of power module
Rated frequency:	according to specification of power module
Rated consumption:	2VA (1.5W)
Duration of operation:	100%
Reset time:	100ms
Residual ripple for DC:	-
Drop-out voltage:	>30% of the supply voltage
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

6. Output circuit

2 potential free change-over contacts

Rated voltage:	250V AC
Schaltleistung:	750VA (3A / 250V AC)

If the *distance* between the devices is *less than 5mm*!

Switching capacity:	1250VA (5A / 250V AC)

If the *distance* between the devices is *greater than 5mm*!

Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical Life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 60/min bei 100VA resistive load max. 6/min bei 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Accuracy

Base accuracy:	±1% (of maximum scale value)
Frequency response:	-
Adjustment accuracy:	≤5% (of maximum scale value)
Repetition accuracy:	<0.5% or ±5ms
Voltage influence:	-
emperature influence:	≤0.01% / °C

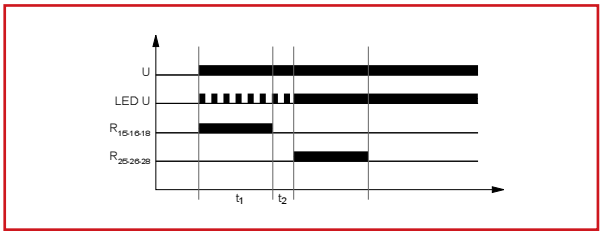
8. Ambient conditions

Ambient temperature:	-25 to +55°C (in accordance with IEC 60068-1) -25 to +40°C (in accordance with UL 508)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	3 (in accordance with IEC 60664-1)
Vibration resistance:	10 to 55Hz 0.35mm (in accordance with IEC 60068-2-6)
Shock resistance:	15g 11ms (in accordance with IEC 60068-2-27)

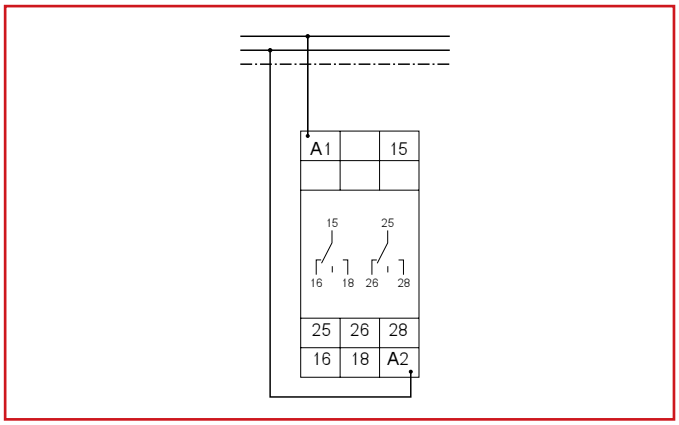
FUNCTIONS

Star-Delta start-up (S)

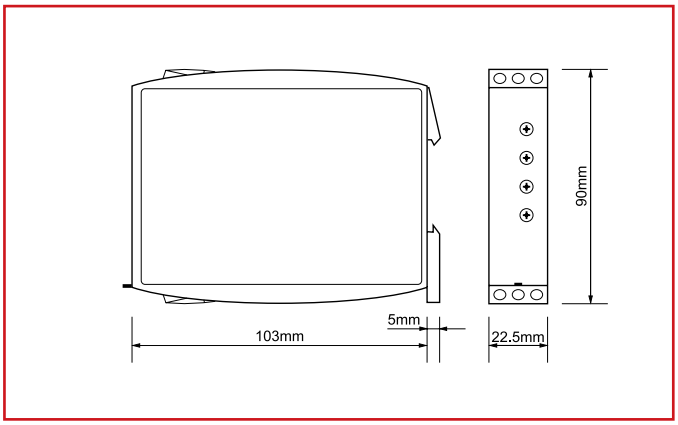
When the supply voltage U is applied, the star-contact switches into on-position (yellow LED illuminated) and the set star-time t1 begins (green LED flashing). After the interval t1 has expired (green LED il-luminated) the star-contact switches into off-posi-tion (yellow LED not illuminated) and the set transit-time t2 begins. After the interval t2 has expired the delta-contact switch-es into on-position. To restart the function the supply voltage must be interrupted and re-applied.



CONNECTIONS



CONNECTIONS



DESCRIPTION	ORDER NUMBER
Star-Delta-Timer, 2 change over, industrial design	ZR6SD052

EMERGENCY LIGHT TEST RELAY ZR5RT011

- Timer for automatic test of emergency lights
- Integrated test key
- 1 change over contact
- Width 17.5 mm
- Installation design

TECHNICAL DATA

1. Functions

Ws	Single shot leading edge with control contact

2. Time ranges

Time range	reversible between 10min, 30min, 60min, 90min, 2h and 3h

3. Indicators

Green LED U/t ON:	indication of supply voltage
Green LED U/t flashes:	indication of time period t
Green LED U/t flashes fast:	abort of time period t
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP 40
Mounted on DIN-rail TS 35 according to EN 60715

Mounting position:	any

Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20

Tightening torque:	max. 1Nm

Terminal capacity:
- 1 x 0.5 to 2.5 mm² with/without multicore cable end
- 1 x 4 mm² without multicore cable end
- 2 x 0.5 to 1.5 mm² with/without multicore cable end
- 2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	230V AC
Terminals:	L-N
Tolerance:	-15% to +10%
Rated frequency:	48 to 63Hz
Rated consumption:	2VA (1.0W)
Duty cycle:	100%
Reset time:	500ms
Ripple and noise at DC:	-
Drop out voltage:	>30% of supply voltage
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

6. Output circuit

1 change over contact

NORMALLY OPEN CONTACT

Terminals:	L-18
Rated voltage:	250V AC
Switching capacity:	1250VA (5A / 250V AC)

NORMALLY CLOSED CONTACT

Terminals:	L-16
Rated voltage:	250V AC
Switching capacity:	2500VA (10A / 250V AC)

If the distance between the devices is less than 5mm!

Switching capacity:	4000VA (16A / 250V AC)

If the distance between the devices is greater than 5mm!

Start-up peak (20ms):	80A
Mechanical life:	30 x 10^6 operations
Electrical life:	
Resistive load:	10^5 operations at 16A 250V
Lamp load:	80.000 operations at 1000W 250V

7. Accuracy

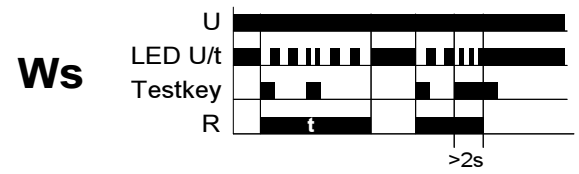
Base accuracy:	±5%
Adjustment accuracy:	-
Repetition accuracy:	<2%
Voltage influence:	-
Temperature influence:	≤1%

8. Ambient conditions

Ambient temperature:	-25 to +55°C
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (in accordance with IEC 60664-1)

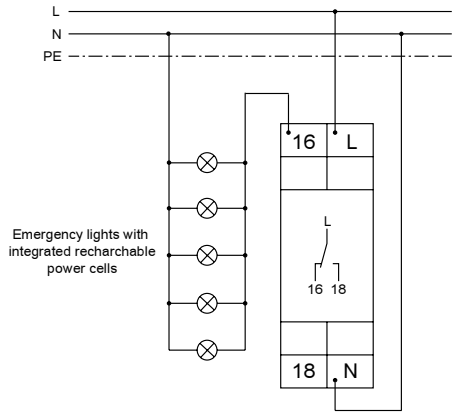
FUNCTIONS

Single shot leading edge with control contact (Ws)
The supply voltage U must be constantly to the device (green LED U/t illuminated). Pressing the integrated test key forces the output relay R to switch into on-position (yellow LED illuminated), so the emergency ligths are disconnected from the mains and the set interval t begins (green LED U/t flashes). After the interval t has expired (green LED U/t illuminated), the output relay R switches into off-position (yellow LED not illuminated) and the emergency lights are reconnected to the mains. During the interval, the test key can be operated any number of times. Prolonged pressure on the test key (>2s) aborts the running test interval (green LED U/t flashes fast) and a further cycle can be started.

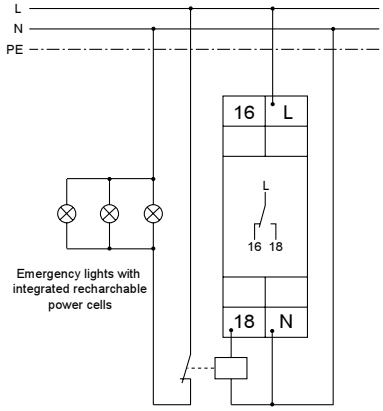


CONNECTIONS

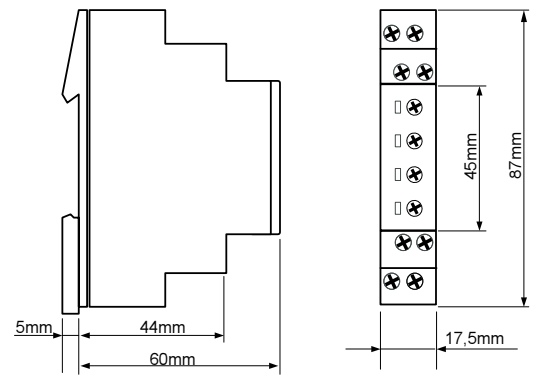
Direct connection of emergency lights (I < 16A)



Switching emergency lights with contactor (I > 16A)

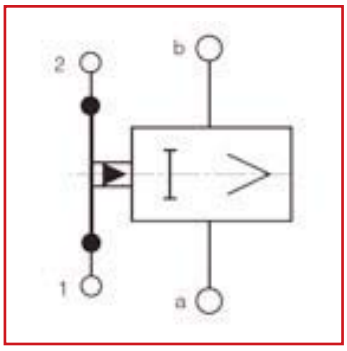


DIMENSIONS



DESCRIPTION	ORDER NUMBER
Emergency light tester	ZR5RT011

LOAD DROP DOWN RELAY BZ601000



SCHRACK INFO

- For reduction of the necessary cross section of a line with big consumers
- Also for electronically regulated instantaneous water heater
- Assembly on DIN-rail according to DIN EN 50 052 or mounting plate

TECHNICAL DATA

Rated current range AC	6,7…39 A
Rated power range for load at 230 V AC	1,5…9 kW
Rated power range for load at AC 3~230/400 V	4,6…27 kW
Operating power consumption	0,5…4 VA
Tripping current	≤ 5,7 A AC
Maximum continuous current	43 A AC
Thermal continuos load at 40°C	2,5 W
Connection (a and b) screw terminal; wire cross section	2,5…16 mm^2
Contact	1 NC
Rated current at 250 V AC	1 A
Contact material	silver plated
Maximum switching voltage	400 V AC
Maximum switching capacity	250 VA
Peak inrush current	5 A
Electrical life at rated load	10^5 operations
Mechanical life	10 x 10^6 operations
Duty cycle	100%
Max. switching frequency	1800 operations/hour at rated load
Max. operating temperature	40°C
Opening time/closing time	10…20 ms/≥ 20 ms
Contact resistance	ca. 3 mΩ
Test voltage: contact/winding	2500 V AC
Insulation class acc. to VDE 0110	C/250 V
Protection degree housing	IP 40
Connection (1 and 2)	Schraubklemmen
Wire cross section (1 and 2)	0,75…4 mm^2
Weight	ca. 90 g

DESCRIPTION	ORDER NUMBERS
Load drop down relay 6,7 – 39 A 400V-AC	BZ601000

MONITORING RELAYS UR5U1011

SCHRACK-INFO

- AC/DC voltage monitoring in 1-phase mains
- Undervoltage monitoring
- 1 change over contact
- Width 17.5 mm
- Installation design

TECHNICAL DATA

1. Functions
AC/DC undervoltage monitoring in 1-phase mains with adjustable threshold and xed hysteresis.

UNDER	Undervoltage monitoring

2. Time ranges

	Adjustment range
Tripping delay (Delay):	-

3. Indicators

Green LED ON/OFF:	indication of supply voltage
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
- 1 x 0.5 to 2.5mm² with/without multicore cable end
- 1 x 4mm² without multicore cable end
- 2 x 0.5 to 1.5mm² with/without multicore cable end
- 2 x 2.5mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	(= measuring voltage)
Terminals:	
230V AC	E-F3
24V AC	E-F2 (distance > 5mm)
24V DC	E-F1(+)
Rated voltage Un:	see table ordering information or printing on the unit
Tolerance:	-25% to +20% of Un
Rated consumption:	
230V AC	10VA (0.6W)
24V AC	1.3VA (0.8W)
24V DC	0.6W
Rated frequency:	AC 48 to 63Hz
Duration of operation:	100%
Reset time:	500ms
Wave form:	DC, AC Sinus
Hold-up time:	-
Drop-out voltage:	>60% of supply voltage
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4kV

6. Output circuit
1 potential free change over contact

Rated voltage:	250V AC
Switching capacity:	1250VA (5A / 250V)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (according to IEC 947-5-1)
Overvoltage category:	III. (according to IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Measuring variable:	DC or AC Sinus, 48 to 63Hz
Measuring input:	(= supply voltage)
Terminals:	
230V AC	E-F3
24V AC	E-F2 Distance between the devices musst be greater than 5mm!
24V DC	E-F1(+)
Overload capacity:	120% of Un
Input resistance:	-
Switching threshold Us:	see table ordering information or printing on the unit
Hysteresis H:	see table ordering information or printing on the unit
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4kV

8. Accuracy

Base accuracy:	±5% of rated value
Adjustment accuracy:	±5% of rated value
Repetition accuracy:	≤2% of rated value
Voltage influence:	-
Temperature influence:	0,05% / °C

9. Ambient conditions

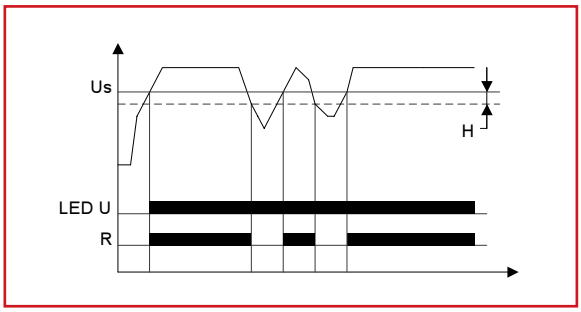
Ambient temperature:	-25 to +55°C (according to IEC 68-1)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (according to IEC 721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (according to IEC 664-1)
Vibration resistance:	10 to 55 Hz 0.35mm (according to IEC 68-2-6)
Shock resistance:	15g 11ms (according to IEC 68-2-27)

10. Weight

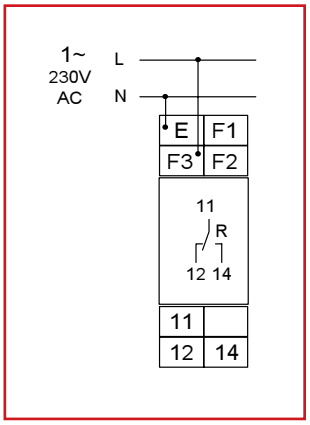
Single packing:	74g
Package of 10pcs:	676g per Package

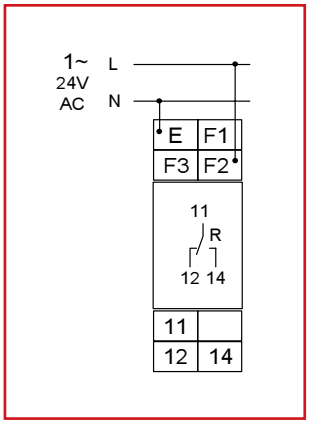
FUNCTIONS

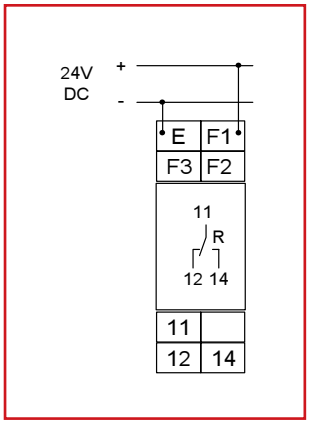
The supply voltage U must be constantly applied to the device (green LED illuminated).
The output relay R switches into on-position (yellow LED illuminated) when the measured voltage U exceeds the value adjusted at the Us-regulator. The output relay R switches into off-position (yellow LED not illuminated) when the measured value for the voltage falls below the set value by more than the fixed hysteresis.



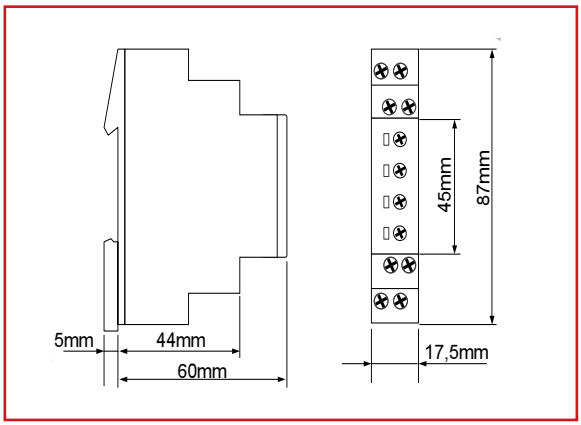
CONNECTIONS







DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Monitoring relay, 1 change over, 1 phase, AC/DC	UR5U1011

MONITORING RELAYS UR6U1052

- AC/DC voltage monitoring in 1-phase mains
- Multifunction
- 16.6 to 400 Hz
- Fault latch
- Zoom voltage 24 to 240V AC/DC
- 2 change-over contacts
- Width 22.5 mm
- Industrial design

TECHNICAL DATA

1. Functions

AC/DC voltage monitoring in 1-phase mains with adjustable thresholds, timing for start-up suppression and tripping delay separately adjustable and the following functions (selectable by means of rotary switch)

OVER	Overvoltage monitoring
OVER+LATCH	Overvoltage monitoring with fault latch
UNDER	Undervoltage monitoring
UNDER+LATCH	Undervoltage monitoring with fault latch
WIN	Monitoring the window between Min and Max
WIN+LATCH	Monitoring the window between Min and Max with fault latch

2. Time ranges

	Adjustment range	
Start-up suppression time:	0s	10s
Tripping delay:	0.1s	10s

3. Indicators

Green LED ON:	indication of supply voltage
Green LED flashes:	indication of start-up suppression time
Yellow LED ON/OFF:	indication of relay output
Red LED ON/OFF:	indication of failure of the corresponding threshold
Red LED flashes:	indication of tripping delay of the corresponding threshold

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 60715
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required),IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
- 1 x 0.5 bis 2.5 mm² with/without multicore cable end
- 1 x 4 mm² without multicore cable end
- 2 x 0.5 bis 1.5 mm² with/without multicore cable end
- 2 x 2.5 mm² flexible without multicore cable end

5. Versorgungskreis

Supply voltage:	
24 to 240V AC/DC	terminals A1-A2 (galvanically separated)
Tolerance:	
24 to 240V DC	-20% to +25%
24 to 240V AC	-15% to +10%
Rated frequency:	
24 to 240V AC	48 to 400Hz
48 to 240V AC	16 to 48Hz
Rated consumption:	4.5VA (1W)
Duration of operation:	100%
Reset time:	500ms
Wave form for AC:	Sinus
Residual ripple for DC:	10%
Drop-out voltage:	>15% of the supply voltage
Overvoltage category:	III (in accordance with IEC 60661-1)
Rated surge voltage:	4kV

6. Output circuit

2 potential free change-over contacts

Rated voltage:	250V AC
Switching capacity (distance <5 mm):	750VA (3A / 250V AC)
Switching capacity (distance >5 mm):	1250VA (5A / 250V AC)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Fusing:	max. 20A (in accordance with UL 508)
Measured variable:	DC or AC Sinus (16.6 to 400Hz)
Input:	
30V AC/DC	terminals E-F1(+)
60V AC/DC	terminals E-F2(+)
300V AC/DC	terminals E-F3(+)
Overload capacity:	
30V AC/DC	$100V_{eff}$
60V AC/DC	$150V_{eff}$
300V AC/DC	$440V_{eff}$
Input resistance:	
30V AC/DC	47Ω
60V AC/DC	100Ω
300V AC/DC	470Ω
Switching threshold:	
Max	10% to 100% von U_N
Min	5% to 95% von U_N
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

8. Accuracy

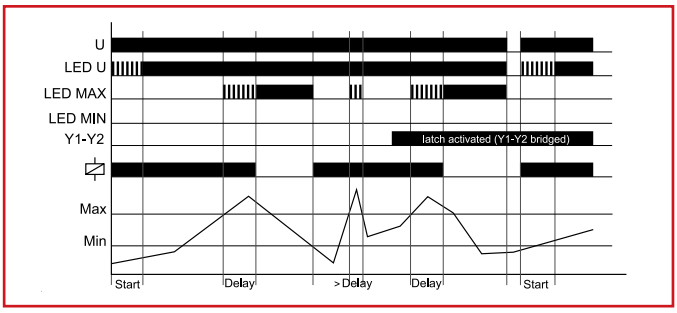
Base accuracy:	±5% (of maximum scale value)
Frequency response:	-10% to +5% (at 16.6 to 400Hz)
Adjustment accuracy:	≤5% (of maximum scale value)
Repetition accuracy:	≤2%
Voltage influence:	≤0.5%
Temperature influence:	≤0.1% / °C

9. Ambient conditions

Ambient temperature:	-25 to +55°C (in accordance with IEC 60068-1) -25 to +40°C (in accordance with UL 508)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	3 (in accordance with IEC 60664-1)
Vibration resistance:	10 to 55Hz 0.35 mm (in accordance with IEC 60068-2-6)
Shock resistance:	15g 11ms (in accordance with IEC 60068-2-27)

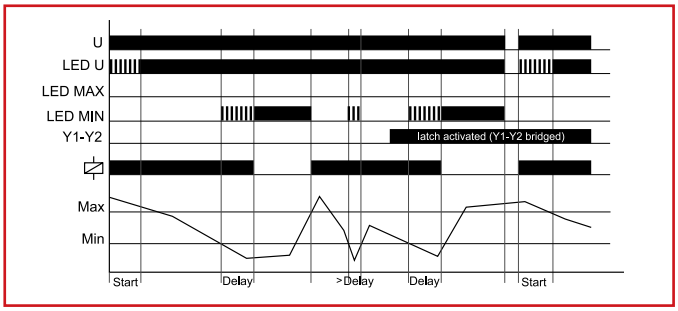
FUNCTIONS

When the supply voltage U is applied, the output relays switch into on-position (yellow LED illuminated) and the set interval of the start-up suppression (START) begins (green LED U flashes). Changes of the measured voltage during this period do not affect the state of the output relay. After the interval has expired the green LED is illumi-nated steadily.For all the functions the LEDs MIN and MAX are flashing alternating, when the minimum value for the measured voltage was chosen to be greater than the max-imum value.



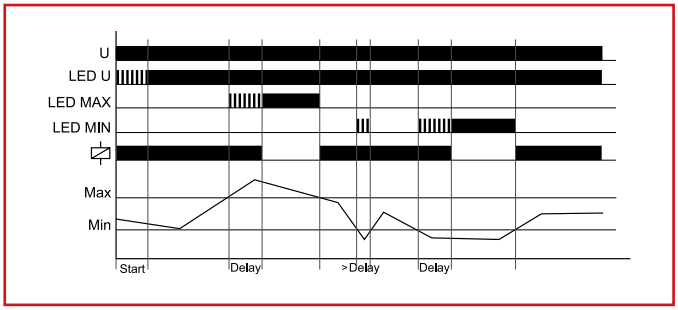
Overvoltage monitoring (OVER, OVER+LATCH)
When the measured voltage exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured voltage falls below the value adjusted at the MIN-regulator (red LED MAX not illuminated). If the fault latch is activated (OVER+LATCH) and the measured voltage remains above the MAX-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured voltage falls below the value adjusted at the MIN-regulator. After resetting the failure (inter-rupting and re-applying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

Undervoltage monitoring (UNDER, UNDER+LATCH)
When the measured voltage falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured voltage exceeds the value adjusted at the MAX-regulator.If the fault latch is activated (UNDER+LATCH) and the measured volt-age remains below the MIN-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured volt-age exceeds the value adjusted at the MAX-regulator. After reset-ting the failure (interrupting and re-applying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

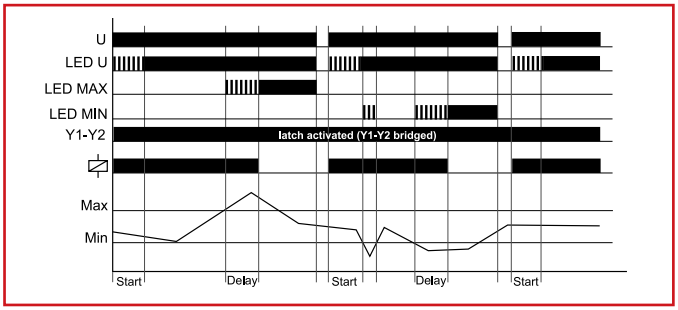


Window function (WIN, WIN+LATCH)

The output relays switch into on-position (yellow LED illuminated) when the measured voltage exceeds the value adjusted at the MIN-regulator. When the measured voltage exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated) when the measured voltage falls below the value adjusted at the MAX-regulator (red LED MAX not illuminated). When the measured voltage falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins again (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated).

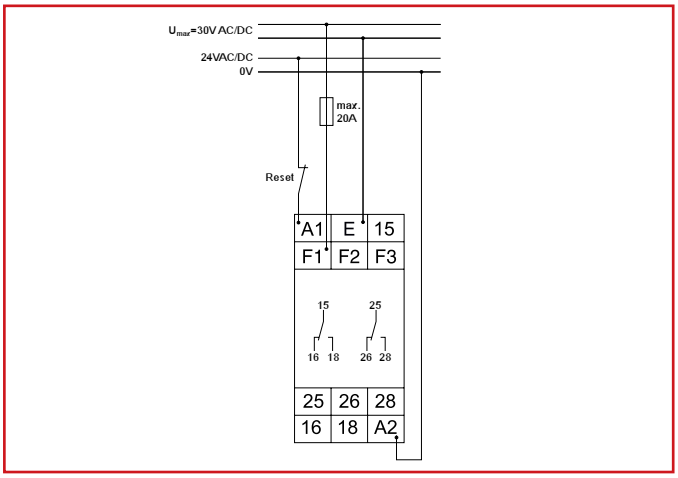


If the fault latch is activated (WIN+LATCH) and the measured voltage remains below the MIN-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured voltage exceeds the value adjusted at the MIN-regulator. If the measured voltage remains above the MAX-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured voltage falls below the value adjusted at the MAX-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

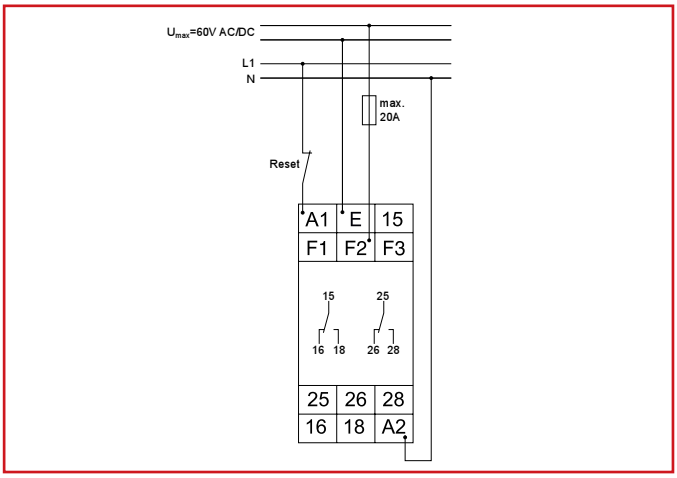


CONNECTIONS

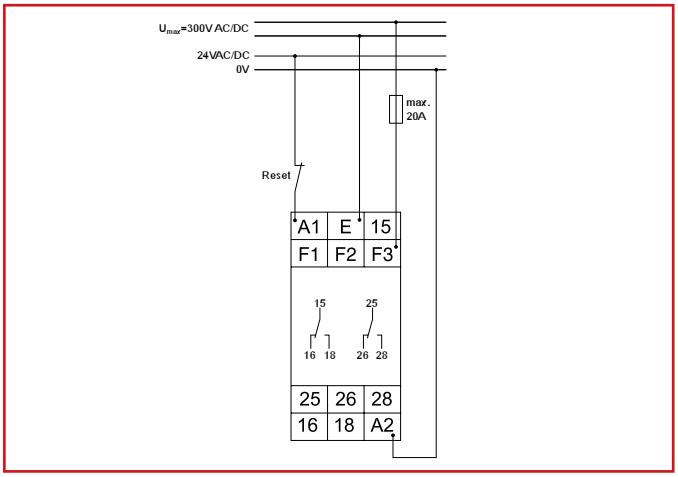
Range 30V, supply voltage 24V AC/DC and fault latch



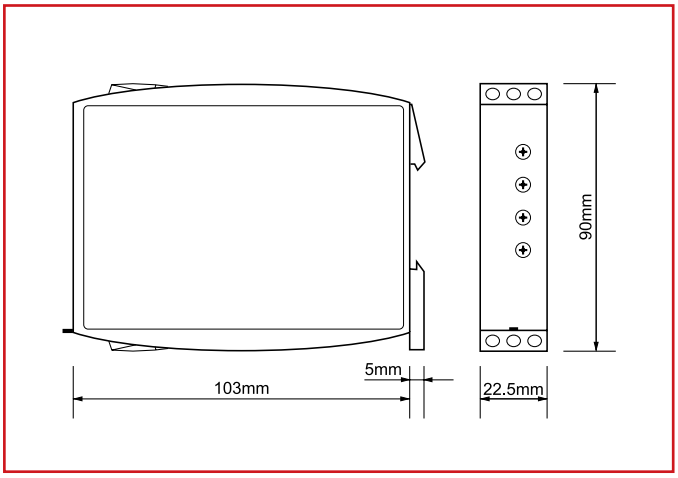
Range 60V, supply voltage 230V AC and fault latch



Range 300V, supply voltage 24V AC/DC and fault latch



DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Voltage monitoring relay, 2 change over, 1 phase, 24-240V AC/DC, industrial design	UR6U1052

MONITORING RELAYS UR5U3011

SCHRACK-INFO

- Undervoltage monitoring
- Supply voltage = measured voltage
- 1 change over contact
- Width 17.5 mm
- Installation design

TECHNICAL DATA

1. Functions
Undervoltage monitoring in 3-phase mains (each phase against the neutral wire) with fixed or variable threshold voltage US and fixed hysteresis.

2. Time range

	Adjustment range
Tripping delay:	fixed, approx. 200ms

3. Indicators

Green LED L1 ON/OFF:	indication of supply voltage L1-N
Green LED L2 ON/OFF:	indication of supply voltage L2-N
Green LED L3 ON/OFF:	indication of supply voltage L3-N
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 60715

Mounting position:	any

Shockproof terminal connection according to VBG 4 (PZ1 required)

IP rating:	IP20
Tightening torque:	max. 1Nm

Terminal capacity:
1 x 0.5 to 2.5mm² with/without multicore cable end
1 x 4mm² without multicore cable end
2 x 0.5 to 1.5mm² with/without multicore cable end
2 x 2.5mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	(= measured voltage)
Terminals:	N-L1-L2-L3
Rated voltage U_N:	400 / 230V
Tolerance:	-30% to +10% of UN
Rated consumption:	
UR5U3011:	8VA (0,8W)
Rated frequency:	AC 48 to 63Hz
Duty cycle:	100%
Reset time:	500ms
Hold-up time:	-
Drop out voltage:	determined by undervoltage detection (see measured circuit)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

6. Output circuit
1 potential free change over contact

Rated voltage:	250V AC
Switching capacity:	1250VA (5A / 250V)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000V resistive load
Switching frequency:	max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Measuring variable:	AC sinus, 48 to 63Hz
Measuring input:	(= supply voltage)
Terminals:	N-L1-L2-L3
Overload capacity:	determined by tolerance specified for supply voltage
Input resistance:	-
Switching threshold US:	see table ordering information or printing on the unit
Hysteresis H:	approx. 5%
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

8. Accuracy

Base accuracy:	±5% of nominal value
Adjustment accuracy:	-
Repetition accuracy:	≤2%
Voltage influence:	-
Temperature influence:	≤0,05%/°C

9. Ambient conditions

Ambient conditions:	-25 to +55°C
Storage temperatur:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in acc. with IEC 60721-3-3 class 3K3)
Pollution degree:	2, if built-in 3 (in acc. with IEC 60664-1)

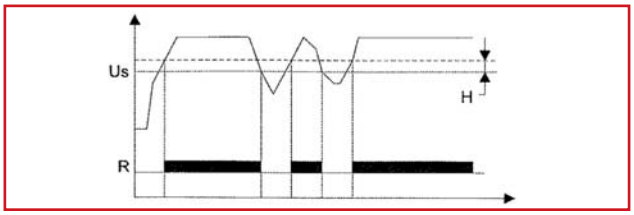
10. Weight

Single packing:	72g
Packing of 10pcs:	670g per package

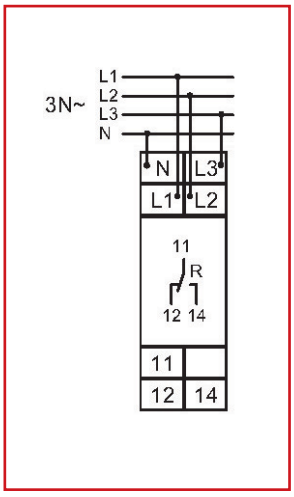
FUNCTIONS

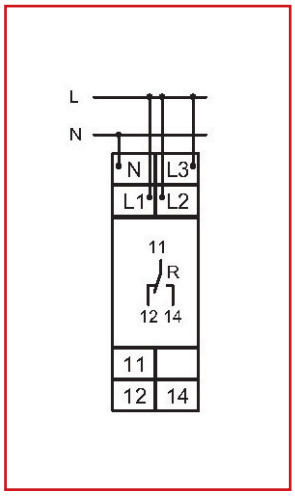
Undervoltage monitoring for 3-phase AC mains with variable threshold voltage US and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single or 2-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1, L2 and L3. A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold US relay.

Undervoltage monitoring
The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exeeds the fixed threshold US by more than the fixed hysteresis H. When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).

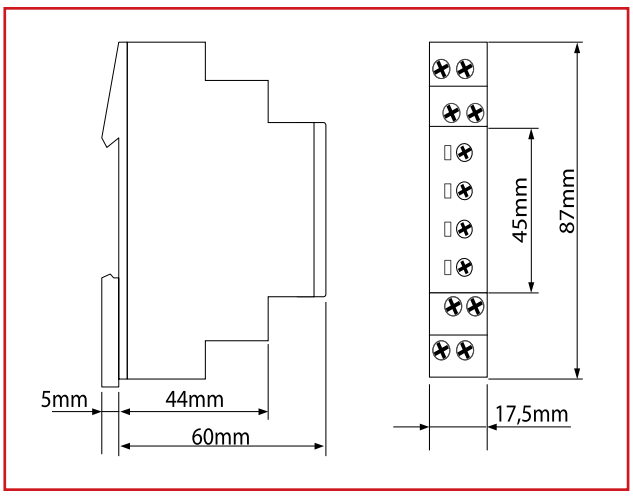


CONNECTIONS





DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Undervoltage monitoring relay, 1 change over, 3 phases	UR5U3011

MONITORING RELAYS UR6U3052

- Voltage monitoring in 3-phase mains
- Multifunction
- Monitoring of phase sequence and phase failure
- Monitoring of asymmetry selectable
- Connection of neutral wire optional
- Detection of loss of neutral wire
- Zoom voltage 24 to 240V AC/DC
- 2 change-over contacts
- Width 22.5mm
- Industrial design

TECHNICAL DATA

1. Functions

Voltage monitoring in 3-phase mains with adjustable thresholds, adjustable tripping delay, monitoring of phase sequence and phase failure, monitoring of asymmetry with adjustable threshold and the following functions (selectable by means of rotary switch)

UNDER	Undervoltage monitoring
UNDER+SEQ	Undervoltage monitoring and monitoring of phase sequence
WIN	Monitoring of window between Min and Max
WIN+SEQ	Monitoring the window between Min and Max and monitoring of phase sequence

2. Time ranges

	Adjustment range	
Start-up suppression time:	-	
Tripping delay:	0.1s	10s

3. Indicators

Red LED ON/OFF:	indication of failure of the corresponding threshold
Red LED flashes:	indication of tripping delay of the corresponding threshold
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 60715
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
- 1 x 0.5 to 2.5 mm² with/without multicore cable end
- 1 x 4 mm² without multicore cable end
- 2 x 0.5 to 1.5 mm² with/without multicore cable end
- 2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	
24 to 240V AC/DC	terminals A1-A2 (galvanically separated)
Tolerance:	
24 to 240V DC	-20% to +25%
24 to 240V AC	-15% to +10%
Rated frequency:	
24 to 240V AC	48 to 400Hz
48 to 240V AC	16 to 48Hz
Rated consumption:	4.5VA (1W)
Duration of operation:	100%
Reset time:	500ms
Wave form for AC:	Sinus
Residual ripple for DC:	10%
Drop-out voltage:	>15% of the supply voltage
Overvoltage category:	III (in accordance with IEC 60661-1)
Rated surge voltage:	4kV

6. Output circuit

2 potential free change-over contacts

Rated voltage:	250V AC
Switching capacity (distance <5 mm):	750VA (3A / 250V AC)
Switching capacity (distance >5 mm):	1250VA (5A / 250V AC)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Fusing:	max. 20A (in accordance with UL 508)
Measured variable:	AC Sinus (48 to 63Hz)
Input:	
3(N)~ 400/230V	terminals (N)-L1-L2-L3
Overload capacity:	
3(N)~ 400/230V	3(N)~600/346V
Input resistance:	
3(N)~ 400/230V	1MΩ
Switching threshold	
Max:	-20% to +30% of UN
Min:	-30% to +20% of UN
Asymmetry:	5% to 25%
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

8. Accuracy

Base accuracy:	±5% (of maximum scale value)
Frequency response:	-
Adjustment accuracy:	≤5% (of maximum scale value)
Repetition accuracy:	≤2%
Voltage influence:	≤0.5%
Temperature influence:	≤0.1% / °C

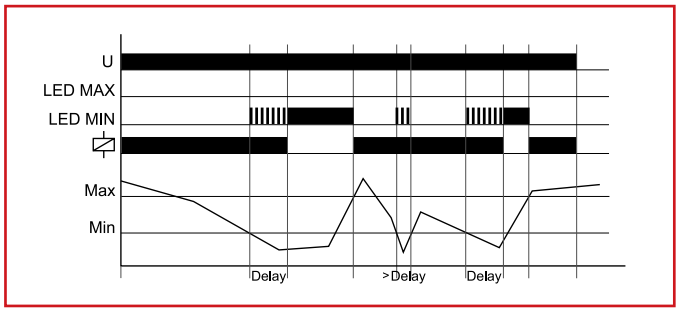
9. Ambient conditions

Ambient temperature:	-25 to +55°C (in accordance with IEC 60068-1) -25 to +40°C (in accordance with UL 508)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	3 (in accordance with IEC 60664-1)
Vibration resistance:	10 to 55Hz 0.35mm (in accordance with IEC 60068-2-6)
Shock resistance:	15g 11ms (in accordance with IEC 60068-2-27)

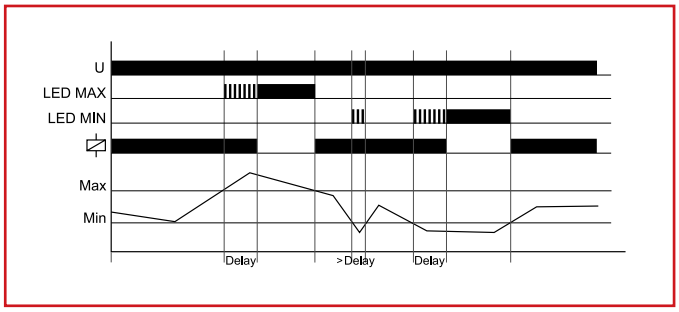
FUNCTIONS

For all the functions the LEDs MIN and MAX are flashing alternating, when the minimum value for the measured voltage was chosen to be greater than the maximum value. If a failure already exists when the device is activated, the output relays remain in off-position and the LED for the corresponding threshold is illuminated.

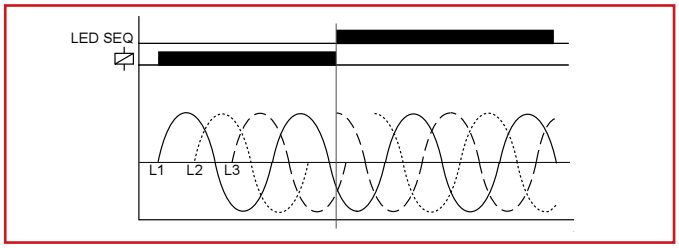
Under voltage monitoring (UNDER, UNDER+SEQ)
When the measured voltage (mean value of phase-to-phase voltages) falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured voltage exceeds the value adjusted at the MAX-regulator.



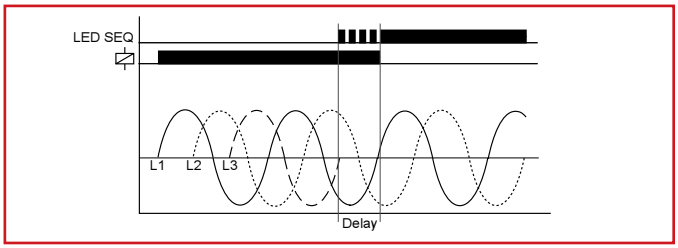
Window function (WIN, WIN+SEQ)
The output relays switch into on-position (yellow LED illuminated) when the measured voltage (mean value of phase-to-phase voltages) exceeds the value adjusted at the MIN-regulator. When the measured voltage exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated) when the measured voltage falls below the value adjusted at the MAX-regulator (red LED MAX not illuminated). When the measured voltage falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins again (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated).



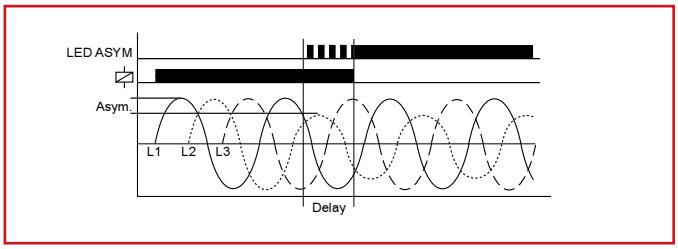
Phase sequence monitoring (SEQ)
Phase sequence monitoring is selectable for all functions. If a change in phase sequence is detected (red LED SEQ illuminated), the output relays switch into off-position immediately (yellow LED not illuminated).



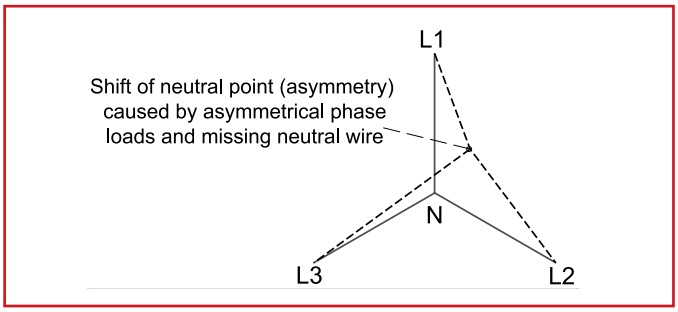
Phase failure monitoring (SEQ)
If one of the phase voltages fails, the set interval of the tripping delay (DELAY) begins (red LED SEQ flashes). After the interval has expired (red LED SEQ illuminated), the output relays switch into off-position (yellow LED not illuminated). Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection but can be monitored by using a proper value for the asymmetry.



Asymmetry monitoring
If the asymmetry of the phase-to-phase voltages exceeds the value set at the ASYM-regulator, the set interval of the tripping delay (DELAY) begins (red LED ASYM flashes). After the interval has expired (red LED ASYM illuminated), the output relays switch into off-position (yellow LED not illuminated). If the neutral wire is connected to the device, the asymmetry of the phase voltages referred to the neutral wire (Y-voltage) is monitored also. In that case both values of the asymmetry are evaluated and if one of the values exceeds the value set at the ASYM-regulator, the set interval of the tripping delay (DELAY) begins (red LED ASYM flashes). After the interval has expired (red LED ASYM illuminated), the output relays switch into off-position (yellow LED not illuminated).

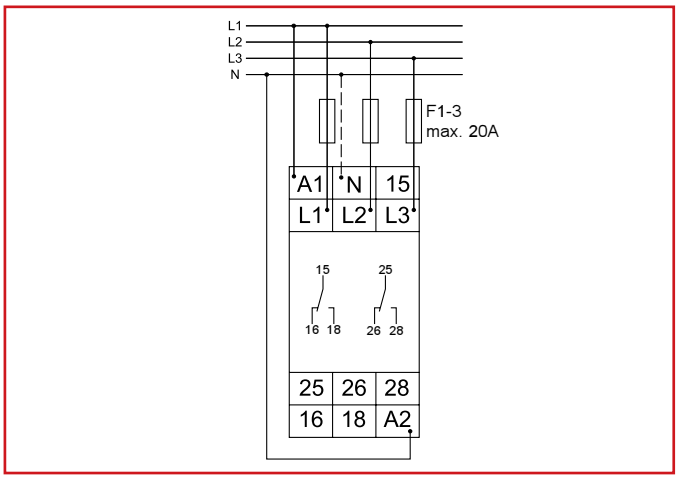


Loss of neutral wire by means of evaluation of asymmetry
A break of the neutral wire between power line and machinery is detected as soon as asymmetry between phase-to-phase voltage and neutral wire occurs. If the asymmetry exceeds the value set at the ASYM-regulator, the set interval of the tripping delay (DELAY) begins (red LED ASYM flashes). After the interval has expired (red LED ASYM illuminated), the output relays switch into off-position (yellow LED not illuminated). A break of the neutral wire between our device and the machinery can not be detected.

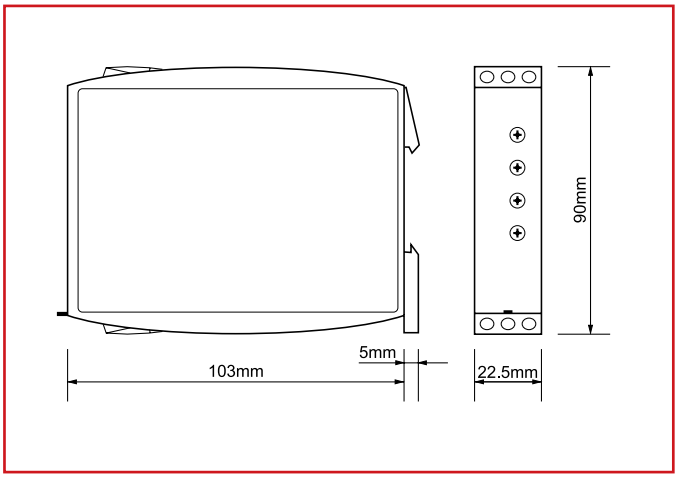


CONNECTIONS

24-240V, supply voltage 230V AC



DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Monitoring relay, 2 change over, 3 phases, 24-240V AC/DC, industrial design	UR6U3052

MONITORING RELAYS UR5U3N11

- Undervoltage monitoring
- 1 change over contact
- Installation design

TECHNICAL DATA

1. Functions
Undervoltage monitoring in 3-phase mains (each phase against the neutral wire) with fixed threshold voltage US and fixed hysteresis.

2. Time range
Adjustment range
Tripping delay: fixed, approx. 200ms

3. Indicators
Yellow LED ON/OFF: indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 60715
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
- 1 x 0.5 to 2.5 mm² with/without multicore cable end
- 1 x 4 mm² without multicore cable end
- 2 x 0.5 bis 1.5 mm² with/without multicore cable end
- 2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	(= measured voltage)
Terminals:	N-L1-L2-L3
Tolerance:	-30% to +15% of U_N
Rated voltage U_N:	3N~400/230V
Rated consumption:	5VA (0,6W)
Rated frequency:	AC 48 to 63Hz
Duty cycle:	100%
Reset time:	500ms
Hold-up time:	–
Drop out voltage:	determined by undervoltage detection (see measured circuit)
Overvoltage category:	III (in acc. with IEC 60661-1)
Rated surge voltage:	4kV

6. Output circuit
1 potential free change over contact

Rated voltage:	250V AC
Switching capacity:	1250VA (5A / 250V)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 6/min at 100VA resistive load (in acc. with IEC 60947-5-1)
Overvoltage category:	III (in acc. with IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Measuring variable:	AC sinus, 48 to 63Hz
Measuring input:	(= supply voltage)
Terminals:	N-L1-L2-L3
Overload capacity:	determined by tolerance specified for supply voltage
Input resistance:	–
Switching threshold U_S:	fixed 195,5V (L-N)
Hysteresis H:	approx. 5%
Overvoltage category:	III (in acc. with IEC 60664-1)
Rated surge voltage:	4kV

8. Accuracy

Base accuracy:	≤5% of nominal value
Adjustment accuracy:	–
Repetition accuracy:	≤2%
Voltage influence:	–
Temperature influence:	≤0,05% / °C

9. Ambient conditions

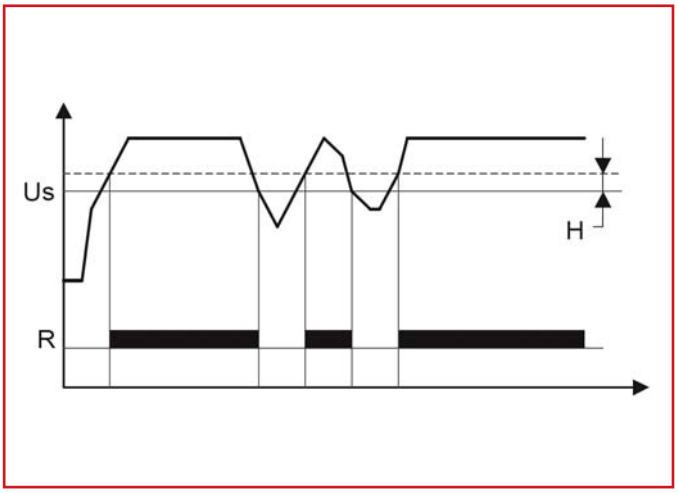
Ambient conditions:	-25 to +55°C
Storage temperatur:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in acc. with IEC 60721-3-3 class 3K3)
Pollution degree:	2, if built-in 3 (in acc. with IEC 60664-1)

10. Weight
Single packing: 72g

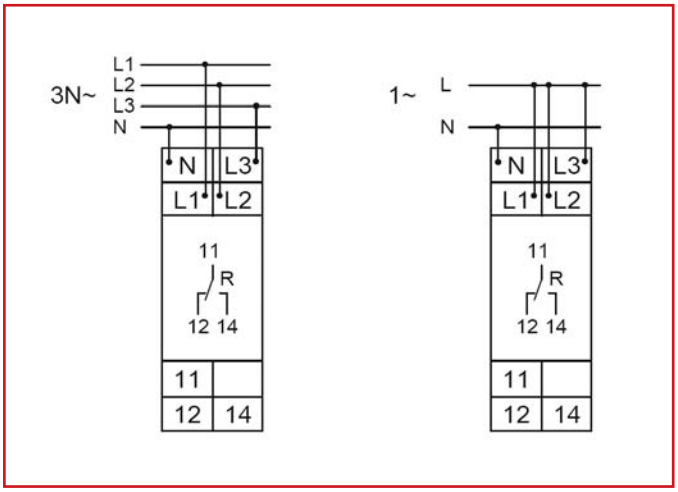
FUNCTIONS

Undervoltage monitoring for 3-phase AC mains with fixed threshold voltage U_S and fixed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single or 2-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1, L2 and L3. A phase failure can not be detected, if the reverse voltage coming from the load exceeds the threshold U_S.

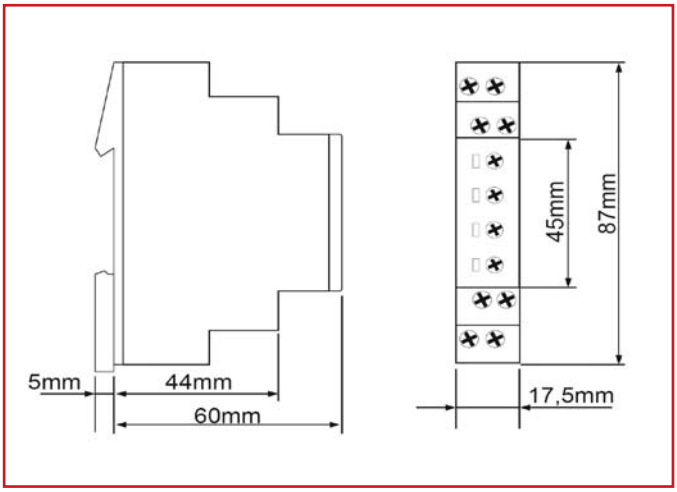
Undervoltage monitoring
The output relay R switches into on-position (yellow LED illuminated), when the measuring voltage of all connected phases exeeds the fixed threshold U_S by more than the fixed hysteresis H. When the voltage of one of the connected phases (L1, L2 or L3) falls below the fixed threshold, the output relay R switches into off-position again (yellow LED not illuminated).



CONNECTIONS



DIMENSIONS



DESCRIPTION	ORDER NUMBER
Voltage-monitoringrelay 3-phase to neutral, fixe Us=195,5V	UR5U3N11

MONITORING RELAYS URU20301

SCHRACK-INFO

- Voltage monitoring in 3-phase mains
- Undervoltage monitoring
- ON delay
- Supply voltage = measuring voltage
- 1 change over contact
- Width 17.5 mm
- Installation design

TECHNICAL DATA

1. Functions
Undervoltage monitoring in 3-phase mains (each phase against the neutral wire) with adjustable ON delay, fixed threshold and fixed hysteresis.

2. Time ranges

	Adjustment range
Tripping delay:	fixed, approx. 200ms
ON delay t:	5min to 15min

3. Indicators

Green LED U/t ON:	all 3 tensions are allright
Green LED U/t flashes:	indication of time period
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection accordting to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
1 x 0.5 bis 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	(= measured voltage)
Terminals:	N-L1-L2-L3
Rated voltage U_N:	3N~400/230V
Tolerance:	-30% to +30% of U_N
Rated consumption:	6 VA (0,8 W)
Rated frequency:	48 to 63 Hz
Duty cycle:	100%
Reset time:	500 ms
Hold-up time:	-
Drop out voltage:	determined by undervoltage detection (see measuring circuit)
Overvoltage category:	III (in acc. with IEC 60664-1)
Rated surge voltage:	4 kV

6. Output circuit
1 potential free change-over contact

Rated voltage:	250V AC
Switching capacity:	1250VA (5A / 250V)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Measuring variable:	AC sinus, 48 to 63 Hz
Measuring input:	(=supply voltage)
Terminals:	N- L1- L2- L3
Overload capacity:	determined by tolerance specified for supply voltage
Input resistance:	-
Switching threshold U_S:	fixed 165V (L-N)
Hysteresis H:	approx. 5%
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

8. Accuracy

Base accuracy:	±5% of rated value
Adjustment accuracy:	≤5% of maximum scale value
Repetition accuracy:	±2%
Voltage influence:	-
Temperature influence:	≤1%

9. Ambient conditions

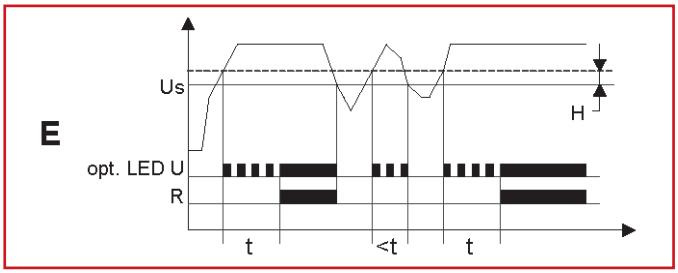
Ambient temperature:	-25 to +55°C
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (in acc. with IEC 60664-1)

10. Weight
Single packing: 72g

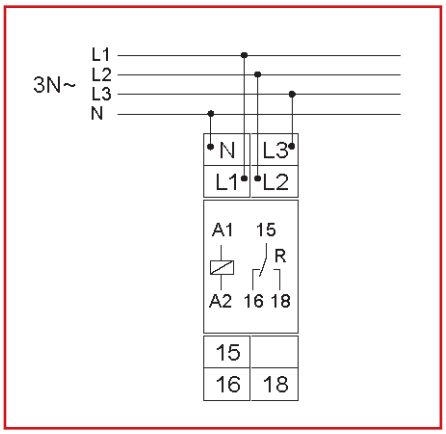
FUNCTIONS

Undervoltage monitoring for 3-phase mains with fi xed threshold voltage and fi xed hysteresis. All measuring inputs (L1, L2 and L3) must be connected to phase voltage. If single or 2-phase monitoring is required, unused input terminals (L) must be connected to mains voltage to have proper L-N voltage on the terminals L1, L2 and L3. If there is a reverse voltage on account of a consumer, which exeeds the fi xed threshold, detection of phase failure isn't possible.

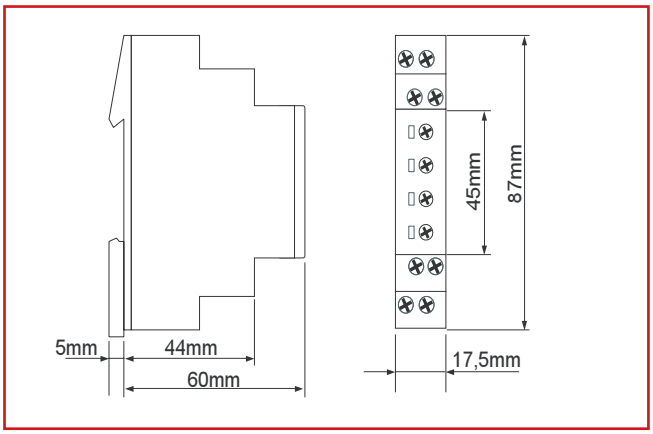
Undervoltage monitoring with ON delay (Option E)
When the voltage of all connected phases exeeds the fixed threshold by more than the fixed hysteresis, the set interval t begins (green LED U/t flashes). After the set interval t has expired, the output relay R switches into on-position (yellow LED R illuminated, green LED U/t illuminated). When the voltage of one of the connected phases falls below the fixed threshold, the output relay R switches into off-position (yellow LED R not illuminated, green LED U/t not illuminated).



CONNECTIONS



DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Voltage monitoring relay, on delay, 1 change over, 3 phases	URU20301

MONITORING RELAYS UR5I1011

SCHRACK-INFO

- AC current monitoring in 1-phase mains
- 1 change over contact
- Width 17.5 mm
- Installation design

TECHNICAL DATA

1. Functions
AC current monitoring in 1-phase mains with adjustable threshold and fixed hysteresis.

2. Time ranges

	Adjustment range
Tripping delay (Delay):	-

3. Indicators

Green LED ON:	indication of supply voltage
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required),
IP rating IP20
Tightening torque: max. 1 Nm
Terminal capacity:
1 x 0.5 to 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	230 V AC
Terminals:	Li-N
Tolerance:	-15% to +15% of Un
Rated consumption:	5 VA (0,8 W)
Rated frequency:	AC 48 to 63 Hz
Duty cycle:	100%
Reset time:	500 ms
Wave form:	Sinus
Hold-up time:	-
Drop out voltage:	>20% of rated voltage
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4 kV

6. Output circuit
1 potential free change over contact

Rated voltage:	250 V AC
Switching capacity:	1250 VA (5 A / 250 V AC)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000 VA resistive load
Switching frequency:	max. 60/min at 100 VA resistive load max. 6/min at 1000 VA resistive load (according to IEC 947-5-1)
Overvoltage category:	III. (according to IEC 60664-1)
Rated surge voltage:	4 kV

7. Measuring circuit

Measuring variable:	AC sinus, 48 to 63 Hz
Measuring input:	5A AC
Terminals:	Li, Lk
Overload capacity:	7A (ex 5A - distance > 5mm)
Starting current:	
1s	40A
3s	20A
Input resistance:	10 mΩ
Switching threshold Is:	10% to 100% of In
Hysteresis H:	fixed 10%
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4 kV

8. Accuracy

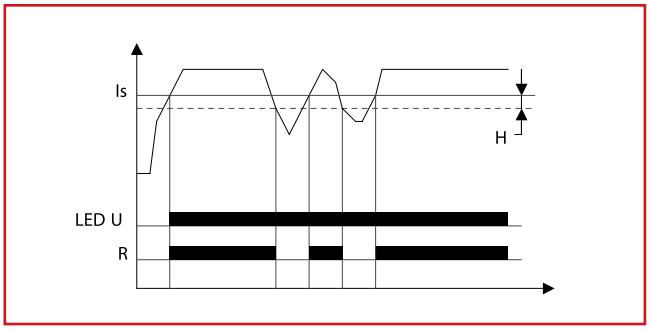
Base accuracy:	±5% of maximum scale value
Adjustment accuracy:	≤5% of maximum scale value
Repetition accuracy:	±2%
Voltage influence:	-
Temperature influence:	≤0.05% / °C

9. Ambient conditions

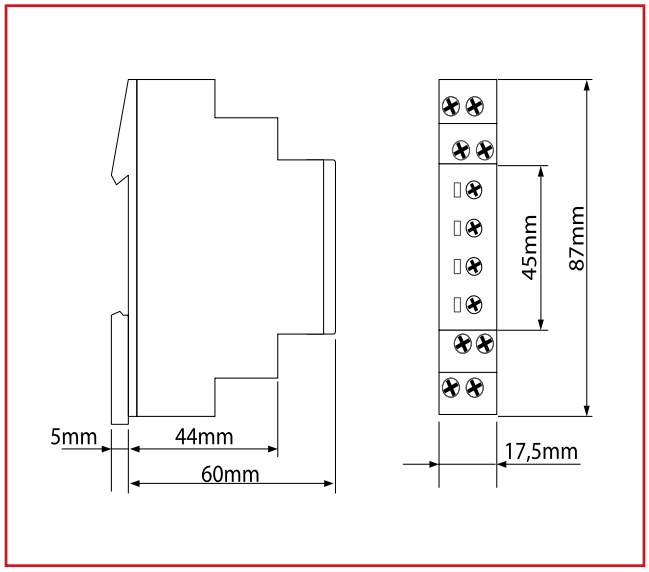
Ambient temperature:	-25 to +55 °C (according to IEC 68-1)
Storage temperature:	-25 to +70 °C
Transport temperature:	-25 to +70 °C
Relative humidity:	15% to 85% (according to IEC 721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (according to IEC 664-1)
Vibration resistance:	10 to 55 Hz 0.35 mm (according to IEC 68-2-6)
Shock resistance:	15 g 11 ms (according to IEC 68-2-27)

FUNCTIONS

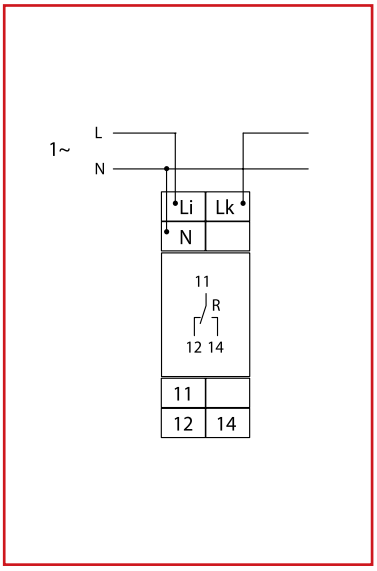
The supply voltage U must be constantly applied to the device (green LED illuminated). The output relay R switches into on-position (yellow LED illuminated) when the measured current exceeds the value adjusted at the Is regulator. The output relay R switches into off-position (yellow LED not illuminated) when the measured value for the current falls below the set value by more than the fixed hysteresis.



DIMENSIONS



CONNECTIONS



WEIGHT

Single packing: 70g

DESCRIPTION	ORDER NUMBER
Current monitoring relay, 1 change over, 1 phase	UR5I1011

MONITORING RELAYS UR6I1052

- AC/DC current monitoring in 1-phase mains
- Multifunction
- 16.6 to 400Hz
- Fault latch
- Zoom voltage 24 to 240V AC/DC
- 2 change-over contacts
- Width 22.5mm
- Industrial design

TECHNICAL DATA

1. Functions

AC/DC current monitoring in 1-phase mains with adjustable thresholds, timing for start-up suppression and tripping delay separately adjustable and the following functions (selectable by means of rotary switch)

OVER	Overcurrent monitoring
OVER+LATCH	Overcurrent monitoring with fault latch
UNDER	Undercurrent monitoring
UNDER+LATCH	Undercurrent monitoring with fault latch
WIN	Monitoring the window between Min and Max
WIN+LATCH	Monitoring the window between Min and Max with fault latch

2. Time ranges

	Adjustment range	
Start-up suppression time:	0s	10s
Tripping delay:	0.1s	10s

3. Indicators

Green LED ON:	indication of supply voltage
Green LED flashes:	indication of start-up suppression time
Yellow LED ON/OFF:	indication of relay output
Red LED ON/OFF:	indication of failure of the corresponding threshold
Red LED flashes:	indication of tripping delay of the corresponding threshold

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 60715
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
- 1 x 0.5 to 2.5 mm² with/without multicore cable end
- 1 x 4 mm² without multicore cable end
- 2 x 0.5 to 1.5 mm² with/without multicore cable end
- 2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	
24 to 240V AC/DC	terminals A1-A2 (galvanically separated)
Tolerance:	
24 to 240V DC	-20% to +25%
24 to 240V AC	-15% to +10%
Rated frequency:	
24 to 240V AC	48 to 400Hz
48 to 240V AC	16 to 48Hz
Rated consumption:	4.5VA (1W)
Duration of operation:	100%
Reset time:	500ms
Wave form for AC:	Sinus
Residual ripple for DC:	10%
Drop-out voltage:	>15% of the supply voltage
Overvoltage category:	III (in accordance with IEC 60661-1)
Rated surge voltage:	4kV

6. Output circuit

2 potential free change-over contacts

Rated voltage:	250V AC
Switching capacity (distance <5 mm):	750VA (3A / 250V AC)
Switching capacity (distance > 5mm):	1250VA (5A / 250V AC)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Measured variable:	DC or AC Sinus (16.6 to 400Hz)
Input:	
20mA AC/DC	terminals K-I1(+)
1A AC/DC	terminals K-I2(+)
5A AC/DC	terminals K-I3(+)
Overload capacity:	
20mA AC/DC	250mA
1A AC/DC	3A
5A AC/DC	10A
Input resistance:	
20mA AC/DC	2.7Ω
1A AC/DC	47mΩ
5A AC/DC	10mΩ
Switching threshold:	
Max	10% to 100% of IN
Min	5% to 95% of IN
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

8. Accuracy

Base accuracy:	±5% (of maximum scale value)
Frequency response:	-10% to +5% (16.6 to 400Hz)
Adjustment accuracy:	" 5% (of maximum scale value)
Repetition accuracy:	" 2%
Voltage influence:	-
Temperature influence:	" 0.1% / °C

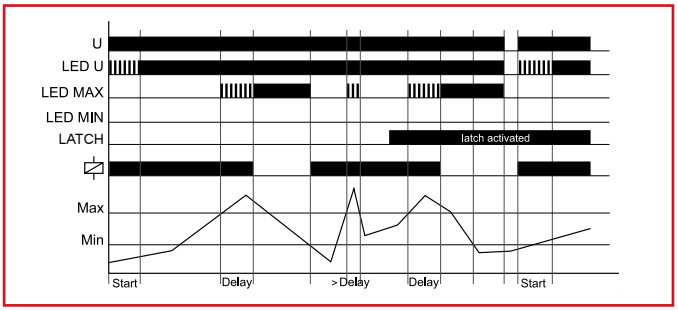
9. Ambient conditions

Ambient temperature:	-25 to +55°C (in accordance with IEC 60068-1) -25 to +40°C (in accordance with UL 508)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	3 (in accordance with IEC 60664-1)
Vibration resistance:	10 to 55Hz 0.35mm (in accordance with IEC 60068-2-6)
Shock resistance:	15g 11ms (in accordance with IEC 60068-2-27)

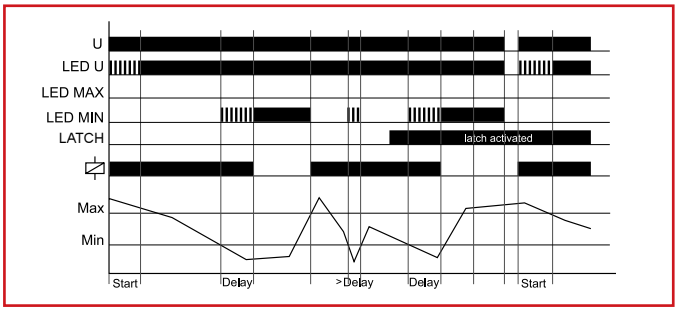
FUNCTIONS

When the supply voltage U is applied, the output relays switch into on-position (yellow LED illuminated) and the set interval of the startup suppression (START) begins (green LED U flashes). Changes of the measured current during this period do not affect the state of the output relay. After the interval has expired the green LED is illuminated steadily. For all the functions the LEDs MIN and MAX are flashing alternating, when the minimum value for the measured current was chosen to be greater than the maximum value

Overcurrent monitoring (OVER, OVER+LATCH)
When the measured current exceeds the value adjusted at the MAXregulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured current falls below the value adjusted at the MIN-regulator (red LED MAX not illuminated). If the fault latch is activated (OVER+LATCH) and the measured current remains above the MAX-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured current falls below the value adjusted at the MIN-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

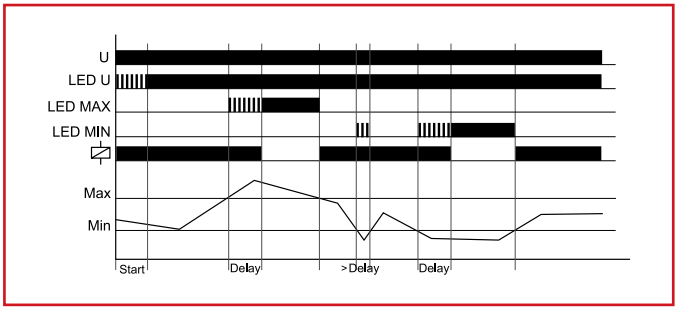


Undercurrent monitoring (UNDER, UNDER+LATCH)
When the measured current falls below the value adjusted at the MIN-regulator, the set interval of the tripping delay (DELAY) begins (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated), when the measured current exceeds the value adjusted at the MAX-regulator. If the fault latch is activated (UNDER+LATCH) and the measured current remains below the MIN-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured current exceeds the value adjusted at the MAX-regulator. After resetting the failure (interrupting and re-applying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

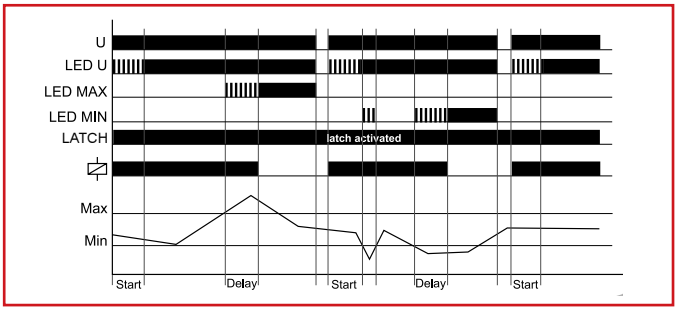


Window function (WIN, WIN+LATCH)

The output relays switch into on-position (yellow LED illuminated) when the measured current exceeds the value adjusted at the MINregulator. When the measured current exceeds the value adjusted at the MAX-regulator, the set interval of the tripping delay (DELAY) begins (red LED MAX flashes). After the interval has expired (red LED MAX illuminated), the output relays switch into off-position (yellow LED not illuminated). The output relays again switch into on-position (yellow LED illuminated) when the measured current falls below the value adjusted at the MAX-regulator (red LED MAX not illuminated). When the measured current falls below the value adjusted at the MINregulator, the set interval of the tripping delay (DELAY) begins again (red LED MIN flashes). After the interval has expired (red LED MIN illuminated), the output relays switch into off-position (yellow LED not illuminated).

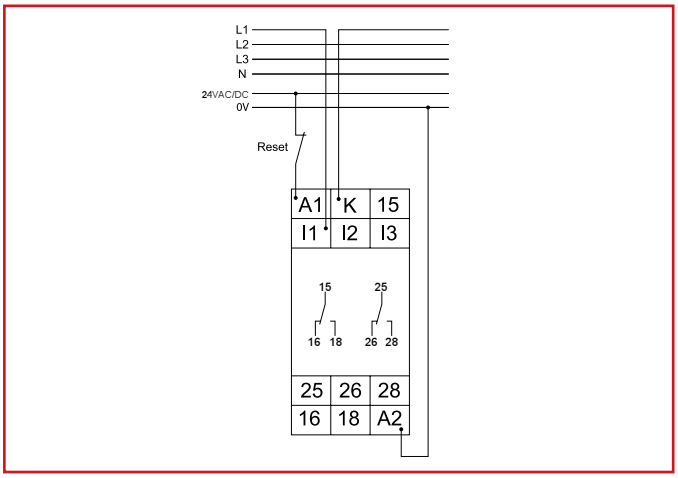


If the fault latch is activated (WIN+LATCH) and the measured current remains below the MIN-value longer than the set interval of the tripping delay, the output relays remain in the off-position even if the measured current exceeds the value adjusted at the MIN-regulator. If the measured current remains above the MAX-value longer than the set interval of the tripping delay, the output relays remain in the offposition even if the measured current falls below the value adjusted at the MAX-regulator. After resetting the failure (interrupting and reapplying the supply voltage), the output relays switch into on-position and a new measuring cycle begins with the set interval of the start-up suppression (START).

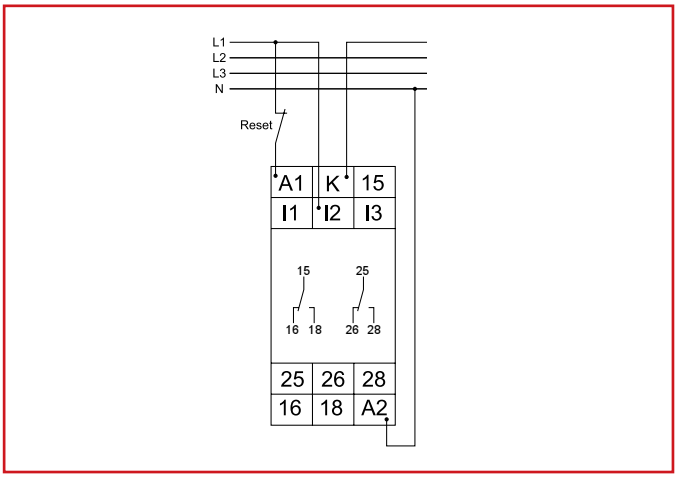


CONNECTIONS

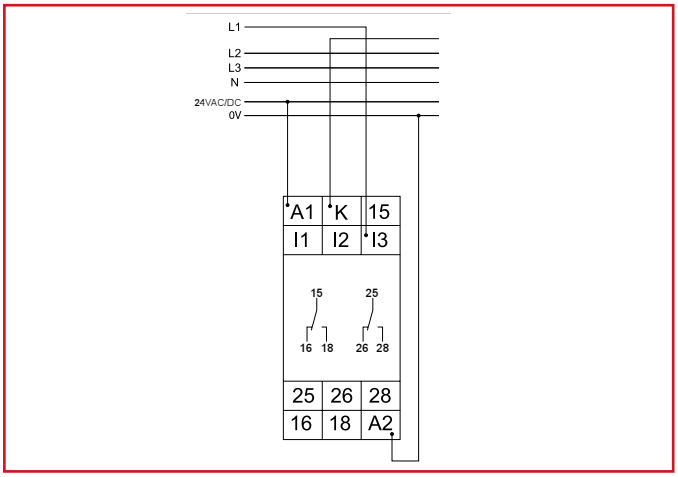
Range 20mA, supply voltage 24V AC/DC and fault latch



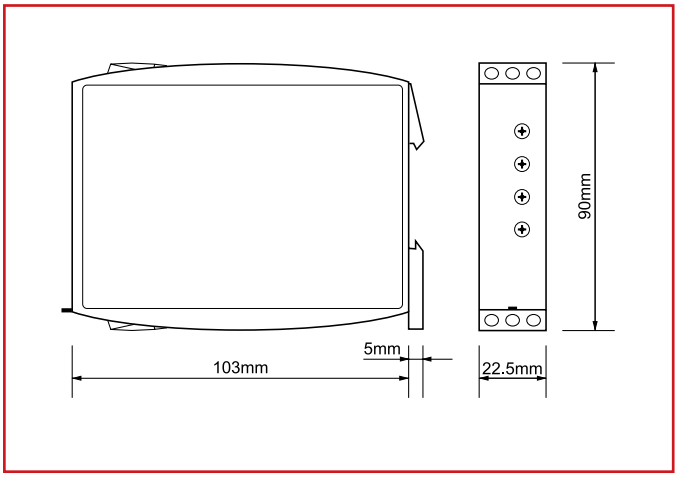
Range 1A, supply voltage 230V AC and fault latch



Range 5A, supply voltage 24V AC/DC without fault latch



DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Current monitoring relay, 2 change over, 1 phase, 24-240V AC/DC	UR6I1052

MONITORING RELAYS UR5P3011

SCHRACK-INFO

- Output relay
- 1 potential free change over contact

TECHNICAL DATA

1. Functions
Monitoring of phase sequence, phase failure and asymmetry with adjustable asymmetry, connection of neutral wire optional.

2. Time ranges

Tripping delay:	fixed, approx. 100 ms

3. Indicators

Green LED ON:	indication of supply voltage
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 50022

Mounting position:	any
Tightening torque:	max. 1Nm

Terminal capacity:
1 x 0.5 bis 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	(= measured voltage)
Terminals:	(N)-L1-L2-L3
Rated voltage U_n:	3(N)~400/230V AC
Tolerance:	-30% to +30% of U_n
Rated consumption:	8 VA (0,8 W)
Rated frequency:	AC 48 to 63 Hz
Duty cycle:	100%
Reset time:	500 ms
Hold-up time:	-
Drop out voltage:	>20% of the supply voltage
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4 kV

6. Output circuit
1 potential free change-over contact

Rated voltage:	250V AC
Switching capacity:	1250VA (5A / 250V)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (according to IEC 60947-5-1)
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Measuring variable:	3(N)~, sinus, 48 to 63 Hz
Measuring input:	(=supply voltage)
Terminals:	(N)- L1- L2- L3
Overload capacity:	determined by tolerance specified for supply voltage
Input resistance:	-
Asymmetry:	5% to 25% adjustable, or disengageable
Overvoltage category:	III (according to IEC 60664-1)
Rated surge voltage:	4 kV

8. Accuracy

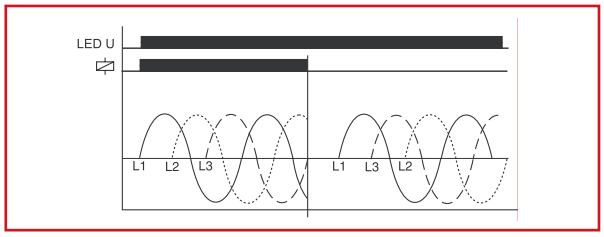
Base accuracy:	±5% of maximum scale value
Adjustment accuracy:	≤5% of maximum scale value
Repetition accuracy:	±2%
Voltage influence:	-
Temperature influence:	≤0.05% / ° C

9. Ambient conditions

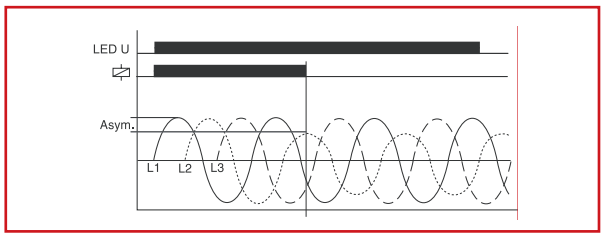
Ambient temperature:	-25 to +55°C (acc. to IEC 60068-1)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (acc. to IEC 60721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (acc. to IEC 60664-1)
Vibration resistance:	10 to 55Hz 0.35 mm (according to IEC 60068-2-6)
Shock resistance:	15g 11ms (acc. to IEC 60068-2-27)

FUNCTIONS

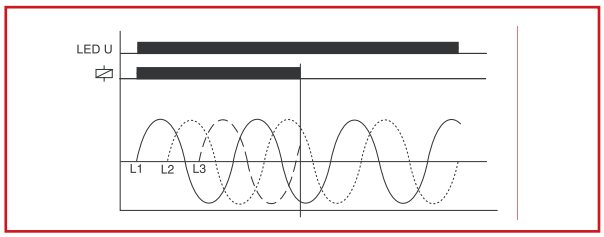
Phase sequence monitoring
When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relay switches into on-position (yellow LED illuminated). When the phase sequence changes, the output relay switches into off-position (yellow LED not illuminated).



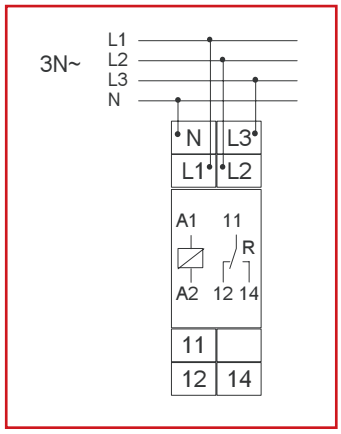
Asymmetry monitoring
The output relay R switches into off-position (yellow LED not illuminated) when the asymmetry exceeds the value set at the ASYM-regulator. Reverse voltages of a consumer (e.g. a motor which continues to run on two phases only) do not effect the disconnection.



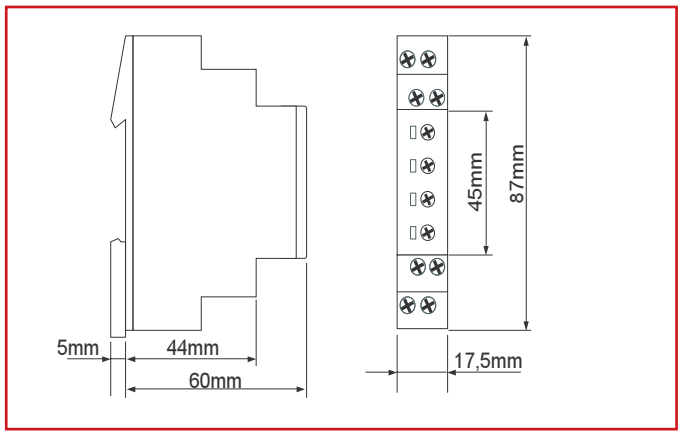
Phase failure monitoring
The output relay switches into off-position (yellow LED not illuminated), when one of the three phases fails.



CONNECTIONS



DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Phase-monitoring relay, 17,5 x 87 x 65 mm	UR5P3011

MONITORING RELAYS UR6P3052

- Voltage monitoring in 3-phase mains
- Monitoring of phase sequence and phase failure
- Detection of reverse voltage
- Connection of neutral wire optional
- Supply voltage = measuring voltage
- 2 change-over contacts
- Width 22.5 mm
- Industrial design

TECHNICAL DATA

1. Functions
Monitoring of phase sequence, phase failure and detection of return voltage (by means of evaluating the asymmetry)

2. Time ranges

	Adjustment range
Start-up suppression time:	fixed, max. 500ms
Tripping delay:	fixed, max. 350ms

3. Indicators

Green LED ON:	indication of supply voltage
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 60715
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
1 x 0.5 bis 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 bis 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit
Supply voltage:
3(N)~ 400/230V terminals (N)-L1-L2-L3 (= measuring voltage)
Tolerance:
3(N)~ 400/230V 3(N)~ 342 to 457V
Rated frequency: 48 to 63Hz
Rated consumption:
3(N)~ 400/230V 9VA
Duration of operation: 100%
Reset time: 500ms
Residual ripple for DC: -
Drop-out voltage: >20% of the supply voltage
Overvoltage category: III (in accordance with IEC 60664-1)
Rated surge voltage: 4kV

6. Output circuit
2 potential free change-over contacts
Rated voltage: 250V AC
Switching capacity (distance <5 mm): 750VA (3A / 250V)
Switching capacity (distance >5 mm): 1250VA (5A / 250V)
Fusing: 5A fast acting
Mechanical life: 20 x 10^6 operations
Electrical life: 2 x 10^5 operations at 1000VA resistive load
Switching frequency: max. 60/min at 100VA resistive load
max. 60/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category: III (in accordance with IEC 60664-1)
Rated surge voltage: 4kV

7. Measuring circuit
Measured variable: AC Sinus, (48 to 63Hz)
Input:
3(N)~ 400/230V terminals (N)-L1-L2-L3 (= supply voltage)
Overload capacity:
3(N)~ 400/230V 3(N)~ 457/264V
Input resistance:
3(N)~ 400/230V 15kΩ
Asymmetry: fixed, typ. 30%
Overvoltage category: III (according to IEC 60664-1)
Rated surge voltage: 4kV

8. Accuracy

Base accuracy:	-
Frequency response:	-
Adjustment accuracy:	-
Repetition accuracy:	-
Voltage influence:	-
Temperature influence:	-

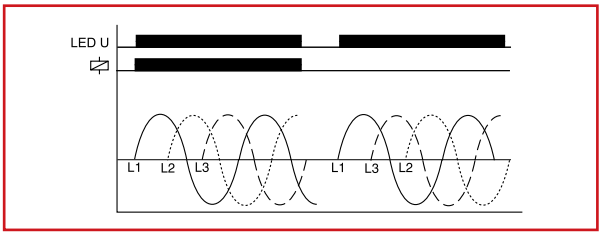
9. Ambient conditions

Ambient temperature:	-25 to +55°C (in accordance with IEC 60068-1) -25 to +40°C (in accordance with UL 508)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	3 (in accordance with IEC 60664-1)
Vibration resistance:	10 to 55Hz 0.35 mm (in accordance with IEC 60068-2-6)
Shock resistance:	15g 11ms (in accordance with IEC 60068-2-27)

FUNCTIONS

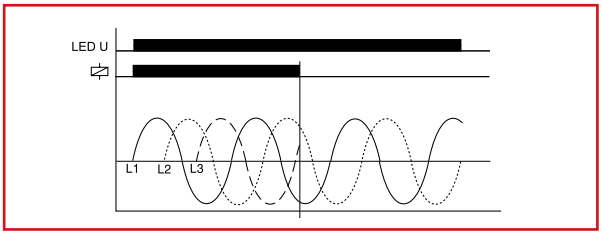
Phase sequence monitoring

When all the phases are connected in the correct sequence and the measured asymmetry is less than the fixed value, the output relays switch into on-position (yellow LED illuminated). When the phase sequence changes, the output relays switch into off-position (yellow LED not illuminated).



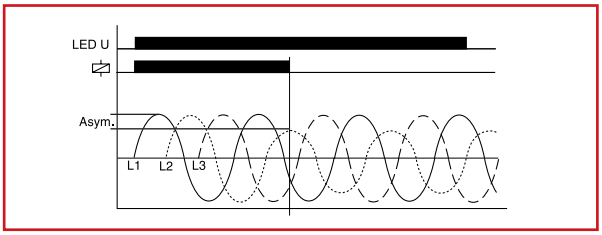
Phase failure monitoring

When one of the three phases fails, the output relays switch into off-position (yellow LED not illuminated).

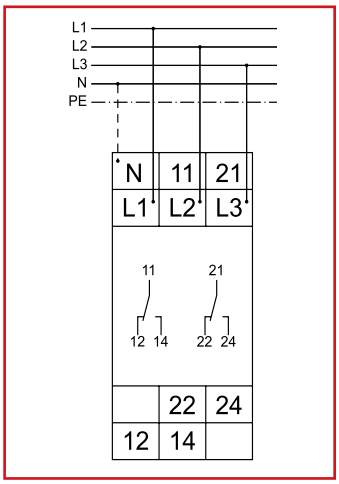


Detection of reverse voltage (by means of evaluation of asymmetry)

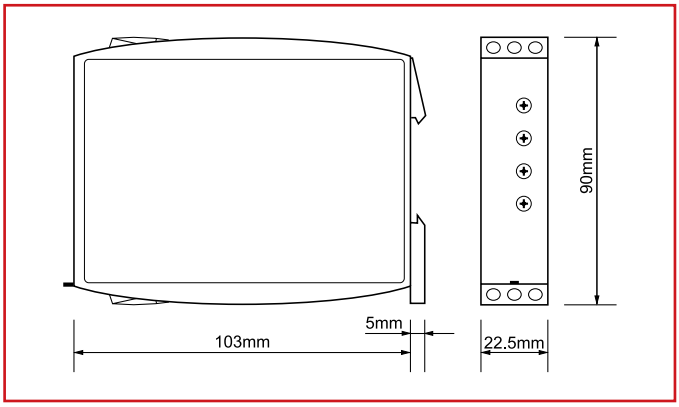
The output relays switch into off-position (yellow LED not illuminated) when the asymmetry between the phase voltages exceeds the fixed value of the asymmetry. An asymmetry caused by the reverse voltage of a consumer (e.g. a motor which continues to run on two phases only) does not effect the disconnection.



CONNECTIONS



DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Voltage monitoring relay, 2 change over, 3 phases, industrial design	UR6P3052

MONITORING RELAYS UR5R1021

SCHRACK-INFO

- Tripping unit for temperature monitoring of the motor winding with and without short circuit monitoring of the thermistor line (selectable by means of terminals)
- Optional evaluation of one thermal contact
- Test function with integrated reset key
- Rated isolated voltage on the sensor circuit up to 690V
- 1 change over contact
- Width 35mm
- Installation design

TECHNICAL DATA

1. Functions

Temperature monitoring of the motor winding (max. 6 PTC) with fault latch for temperature sensors in accordance with DIN 44081, short circuit monitoring of the thermistor line (selectable by means of terminals), integrated test/reset key.

2. Time ranges

	Adjustment range
Start-up suppression time (Start):	-
Tripping delay (Delay):	-

3. Indicators

Green LED ON:	indication of supply voltage
Red LED ON/OFF:	indication of failure

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
1 x 0.5 to 2.5mm² with/without mulitcore cable end
1 x 4mm² without mulitcore cable end
2 x 0.5 to 1.5mm² with/without mulitcore cable end
2 x 2.5mm² flexible without mulitcore cable end

5. Input voltage

Supply voltage:	230V AC
Terminals:	A1-A2
Rated voltage Un:	see table ordering information or printing on the unit
Tolerance:	-15% to +10% of Un
Rated consumption:	1,3VA (1W)
Rated frequency:	AC 48 to 63Hz
Duty cycle:	100%
Reset time:	250ms
Residual ripple for DC:	50ms
Drop-out voltage:	>30% of the supply voltage
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

6. Output circuit

1 potential free change over contact

Terminals:	11-12-14
Rated voltage:	250V AC
Switching capacity:	1250VA AC1 B300/P300 (in accordance with IEC 60947-5-1); therm. constant current 5A
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category	III. (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

7. Measuring circuit

Terminals:	T1-T2 or T1-T3
Initial resistance:	<1.5kΩ
Response value (relay in off-position):	≥3.6kΩ
Release value (relay in on-position):	≤1.65kΩ
Disconnection (short circuit thermistor):	yes at T1-T2 no at T1-T3
Measuring voltage T1-T2:	≤7.5V at R ≤4.0kΩ (in accordance with EN 60947-8)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

8. Control contact R

Function:	connection of an external reset key
Loadable:	no
Line length R1-R2:	max. 10m (twisted pair)
Control pulse length:	min. 50ms
Reset:	potential free normally open contact, terminals R1-R2

Note: The terminals R2-T2 are internal af liated with each other!!

9. Accuracy

Base accuracy:	±5%
Adjustment accuracy	-
Repetition accuracy:	≤1%
Voltage influence:	-
Temperature influence:	≤0.15% / °C

10. Ambient conditions

Ambient temperature:	-25 to +55°C
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (in accordance with IEC 60664-1)

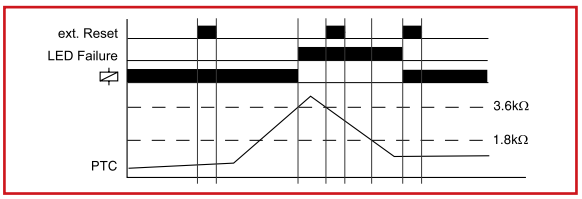
11. Weight

Single packing: 137,20g

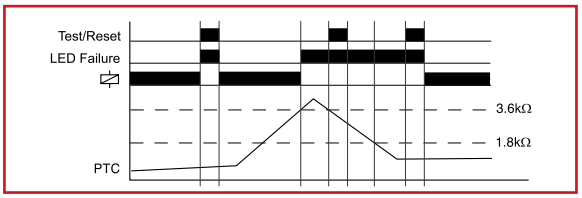
FUNCTIONS

Temperature monitoring of the motor winding with fault latch
If the supply voltage U is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than 3.6kΩ (standard temperature of the motor), the output relay switches into on-position.
Pressing the test/reset key under this conditions forces the output relay to switch into off-position. It remains in state as long as the test/reset key is pressed and thus the switching function can be checked in case of fault. The test function is not effective by using an external reset key.
When the comulative resistance of the PTC-circuit exceeds 3.6kΩ (at least one of the PTCs has reached the cut-off temperature), the output relay switches into off-position (red LED illuminated).
The output relay switches into on-position again (red LED not illuminated), if the cumulative resistance drops below 1.65kΩ by cooling down of the PTC and either a reset key (internal or external) was pressed or the supply voltage was disconnected and re-applied.

Application of an external Reset

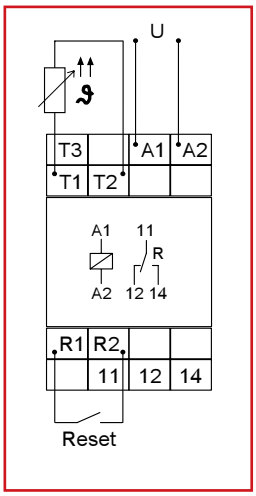


Application of internal Test/Reset - key

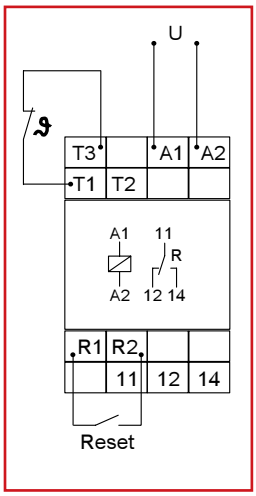


CONNECTIONS

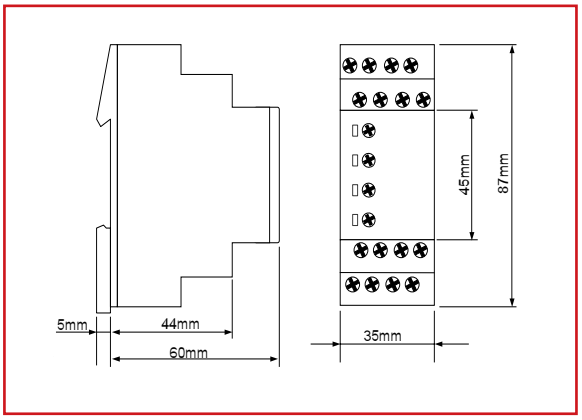
Monitoring
Temperature sensor



Monitoring
Thermal contact



DIMENSIONS



Note:
Only one of this circuit versions (either monitoring of the temperature sensor or monitoring of the thermal contact) can be executed!!

DESCRIPTION	ORDER NUMBERS
Thermistor monitoring relay, 1 change over, input 230V	UR5R1021

MONITORING RELAYS UR6R1052

- Temperature monitoring of the motor winding
- Zoom voltage 24 to 240V AC/DC
- 2 change-over contacts
- External reset key connectable
- Width 22.5mm
- Industrial design

TECHNICAL DATA

1. Functions
Temperature monitoring of the motor winding (max. 6 PTC) with fault latch, for temperature probes in accordance with DIN 44081
Test function with integrated test/reset key

2. Time ranges

	Adjustment range
Start-up suppression time:	-
Tripping delay:	-

3. Indicators

Green LED ON:	indication of supply voltage
Red LED ON/OFF:	indication of failure

4. Mechanical design
Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-Rail TS 35 according to EN 60715

Mounting position:	any

Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20

Tightening torque:	max. 1Nm

Terminal capacity:
1 x 0.5 to 2.5 mm² with/without multicore cable end
1 x 4 mm² without multicore cable end
2 x 0.5 to 1.5 mm² with/without multicore cable end
2 x 2.5 mm² flexible without multicore cable end

5. Input circuit

Supply voltage:	
24 to 240V AC/DC	terminals A1-A2 (galvanically separated)
Tolerance:	
24 to 240V DC	-20% to +25%
24 to 240V AC	-15% to +10%
Rated frequency:	
24 to 240V AC	48 to 400Hz
48 to 240V AC	16 to 48Hz
Rated consumption:	4.5VA (1W)
Duration of operation:	100%
Reset time:	500ms
Wave form for AC:	Sinus
Residual ripple for DC:	10%
Drop-out voltage:	>15% of the supply voltage
Overvoltage category:	III (in accordance with IEC 60661-1)
Rated surge voltage:	4kV

6. Output circuit
2 potential free change-over contacts

Rated voltage:	250V AC
Switching capacity (distance <5 mm):	750VA (3A / 250V AC)
Switching capacity (distance >5 mm):	1250VA (5A / 250V AC)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Input:	terminals T1-T2
Initial resistance:	<1.5kΩ
Response value (relay in off-position):	" 3.6kΩ
Release value (relay in on-position):	" 1.8kΩ
Disconnection (short circuit thermistor):	no
Measuring voltage T1-T2:	" 2.5V DC at R " 4.0ksΩ (in accordance with DIN VDE 0660 part 302)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

8. Control contact R

Function:	external reset key
Loadable:	no
Line length R-T2:	max. 10m (twisted pair)
Control pulse length:	-
Reset:	potential free normally open contact, terminals R-T2

9. Accuracy

Base accuracy:	±10% (of maximum scale value)
Frequency response:	-
Adjustment accuracy:	-
Repetition accuracy:	" 1%
Voltage influence:	" 2.2%

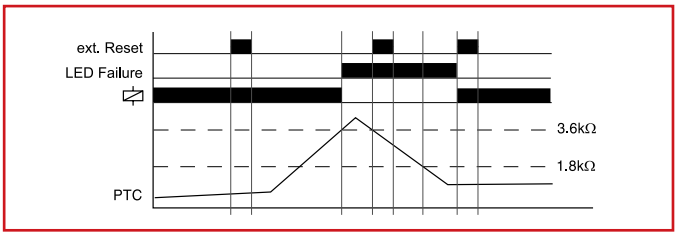
Temperature influence:	" 0.1% / °C

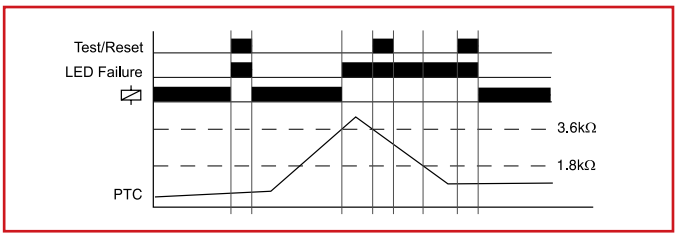
10. Ambient conditions

Ambient temperature:	-25 to +55°C (in accordance with IEC 60068-1) -25 to +40°C (in accordance with UL 508)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	3 (in accordance with IEC 60664-1)
Vibration resistance:	10 to 55Hz 0.35mm (in accordance with IEC 60068-2-6)
Shock resistance:	15g 11ms (in accordance with IEC 60068-2-27)

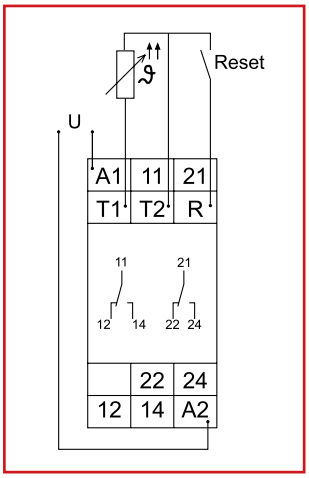
FUNCTIONS

If the supply voltage U is applied (green LED illuminated) and the cumulative resistance of the PTC-circuit is less than 3.6kΩ (standard temperature of the motor), the output relays switch into on-position. Pressing the test/reset key under this conditions forces the output relays to switch into off-position. They remain in this state as long as the test/reset key is pressed and thus the switching function can be checked in case of fault. The test function is not effective using an external reset key. When the cumulative resistance of the PTC-circuit exceeds 3.6kΩ (at least one of the PTCs has reached the cut-off temperature), the output relays switch into off-position (red LED illuminated). The output relays again switch into on-position (red LED not illuminated), if the cumulative resistance drops below 1.8kΩ by cooling down of the PTC and either a reset key (internal or external) was pressed or the supply voltage was disconnected and re-applied.

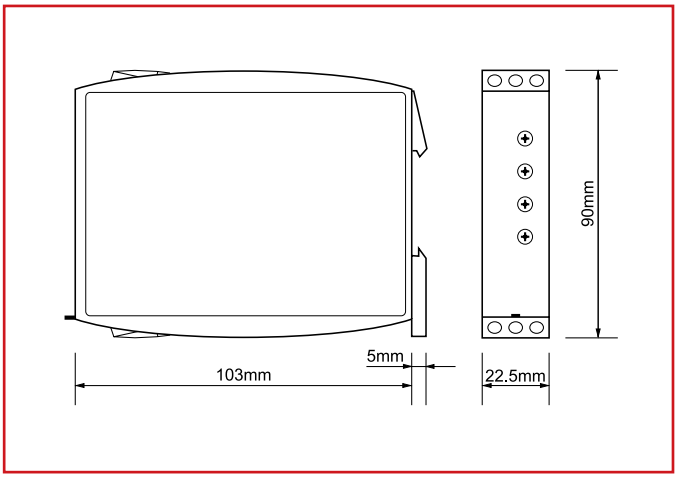




CONNECTIONS



DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Temperature monitoring relay, 2 change over, 24-240V AC/DC, industrial design	UR6R1052

MONITORING RELAYS UR5L1021

SCHRACK-INFO

- Level monitoring of conductive liquids
- Multifunction
- Secure isolation of the measuring circuit
- 1 change over contact
- Width 35mm
- Installation design

TECHNICAL DATA

1. Functions

Level monitoring of conductive liquid, timing for tripping delay and turn-off delay seperatly adjustable and the following functions (selectable by means of rotary switch):

Pump up	pump up or minimum monitoring
Pump down	pump down or maximum monitoring

2. Time ranges

	Adjustment range
Tripping delay (Delay ON):	0.5s to 10s
Turn-off delay (Delay OFF):	0.5s to 10s

3. Indicators

Green LED ON:	indication of supply voltage
Yellow LED ON/OFF:	indication of output relay

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40
Mounted on DIN-rail TS 35 according to EN 50022
Mounting position: any
Shockproof terminal connection according to VBG 4 (PZ1 required), IP rating IP20
Tightening torque: max. 1Nm
Terminal capacity:
- 1 x 0.5 to 2.5mm² with/without multicore cable end
- 1 x 4mm² without multicore cable end
- 2 x 0.5 to 1.5mm² with/without multicore cable end
- 2 x 2.5mm² flexible without multicore cable end

5. Input circuit

Terminals:	A1-A2
Rated voltage Un:	see table ordering information or printing on the unit
Tolerance:	-15% of +10% of Un
Rated consumption:	2VA (1.0W)
Rated frequency:	AC 48 to 63Hz
Duty cycle:	100%
Reset time:	500ms
Hold-up time:	-
Drop-out voltage:	>30% of supply voltage
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

6. Output circuit

1 potential free change over contact

Rated voltage:	250V AC
Switching capacity:	1250VA AC1 B300/P300 (in accordance with IEC 60947-5-1) therm. constant current 5A
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 operations
Electrical life:	2 x 10^5 operations at 1000VA resistive load
Switching frequency:	max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III. (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

7. Measuring circuit

Measuring input:	conductive probes (Type SK1, SK2, SK3)
Terminals:	E1-E2-E3
Sensitivity:	0,25 to 100kΩ (4mS to 10µS)
Sensor voltage:	12V AC
Sensor current:	max. 7mA
Wiring distance (capacity of cable 100nF/km):	
	max. 1000m (set value <50%)
	max. 100m (set value 100%)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

8. Accuracy

Base accuracy:	-
Adjusting accuracy:	-
Repetition accuracy:	-
Voltage influence:	-
Temperature influence:	-

9. Ambient conditions

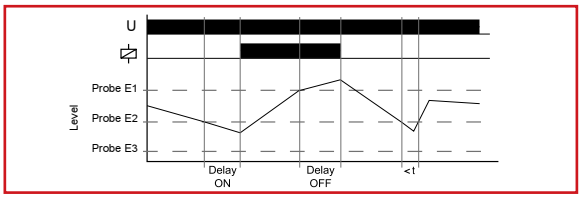
Ambient temperature:	-25 to +55°C
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	2, if built in 3 (in accordance with IEC 60664-1)

10. Weight

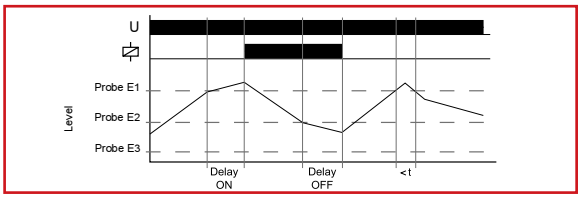
Single packing: 140g

FUNCTIONS

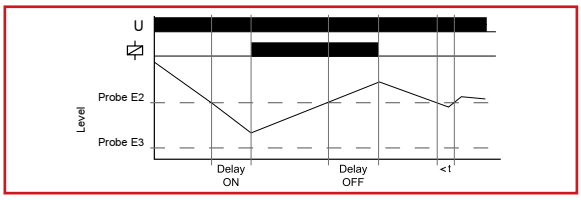
Pump up
Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3.
When the air-fluid level falls below the minimum probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated).
When the air-fluid level again rises above the maximum probe E1, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).



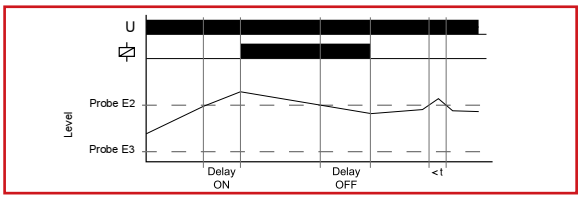
Pump down
Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3.
When the maximum probe E1 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level falls below the minimum probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval, the output relays R switches into off-position (yellow LED not illuminated).



Minimum monitoring (Pump up)
Connection the probe rods E2 and E3 (bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3.
When the air-fluid level falls below the probe E2 the set interval of tripping delay (Delay ON) begins. After the expiration of the interval, the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level again rises above the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).



Maximum monitoring (Pump down)
Connection of probe rods E2 and E3 (bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3.
When the probe E2 gets moistened the set interval of tripping delay (Delay ON) begins. After the expiration of the interval the output relays R switches into on-position (yellow LED illuminated). When the air-fluid level sinks below the probe E2, the set interval of turn-off delay (Delay OFF) begins. After the expiration of the interval the output relays R switches into off-position (yellow LED not illuminated).



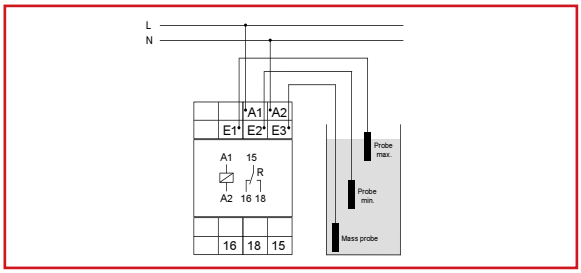
Note

Use cables with low capacity for wiring the probes especially with extended wiring length.

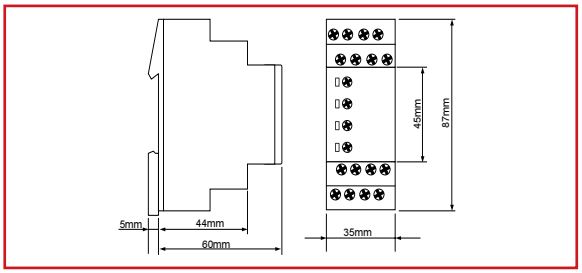
Following processes are suggested for the adjustment:

- The existent time delay should be to minimum (0,5s).
- The function selector switch must be in position pump down.
- Turn the sensitivity controller slowly clockwise from min to max until the relais switches into on-position. (probes must be in dipped state)
- The moistened probes should be taken out of the liquid to control if the relais switches into off-position.
  If the relais doesn't switch into off-position, turn the sensitivity controller slightly back to min. (counter clockwise)
- Set the existent time delay to desired value to fade out a short term moisten the probes by waves in the liquid.
- Set the function selector switch to desired position. (either pump up or pump down)

CONNECTIONS



DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Level monitoring relay, 1 change over	UR5L1021
Probe	URL91010

MONITORING RELAYS UR6L1052

- Level monitoring of conductive liquids
- Multifunction
- Secure isolation of the measuring circuit
- 2 change-over contacts
- Width 22.5 mm
- Industrial design

TECHNICAL DATA

1. Functions

Level monitoring of conductive liquid, timing for tripping delay and turn-off delay separately adjustable and the following functions (selectable by means of rotary switch)

Pump up	pump up or minimum monitoring
Pump down	pump down or maximum monitoring

2. Time ranges

	Adjustment range	
Tripping delay (Delay ON):	0.5s	10s
Turn-off delay (Delay OFF):	0.5s	10s

3. Indicators

Green LED ON:	indication of supply voltage
Yellow LED ON/OFF:	indication of relay output

4. Mechanical design

Self-extinguishing plastic housing, IP rating IP40Mounted on DIN-Rail TS 35 according to EN 60715

Mounting position:	any
Shockproof terminal connection	according to VBG 4 (PZ1 required),IP rating IP20
Tightening torque:	max. 1Nm

Terminal capacity:

- 1 x 0.5 to 2.5 mm² with/without multicore cable end
- 1 x 4 mm² without multicore cable end
- 2 x 0.5 to 1.5 mm² with/without multicore cable end
- 2 x 2.5 mm² flexible without multicorecable end

5. Input circuit

Supply voltage:

230V AC	terminals A1-A2

Tolerance:

230V AC	-15% to +15%

Rated frequency:	48 to 63Hz

Rated consumption:

230V AC	2VA (1.5W)

Duration of operation:	100%
Reset time:	500ms
Residual ripple for DC:	-
Drop-out voltage:	>30% of the supply voltage
Overvoltage category:	III (in acc. with IEC 60664-1)
Rated surge voltage:	4kV

6. Output circuit

2 potential free change-over contacts

Rated voltage:	250V AC
Switching capacity (distance <5 mm):	750VA (3A / 250V)
Switching capacity (distance >5 mm):	1250VA (5A / 250V)
Fusing:	5A fast acting
Mechanical life:	20 x 10^6 Operations
Elektrische Lebensdauer:	2 x 10^5 Operations at 1000VA resistive load
Switching frequency:	max. 60/min at 100VA resistive load max. 6/min at 1000VA resistive load (in accordance with IEC 60947-5-1)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	4kV

7. Measuring circuit

Input:	conductive probes (type SK1, SK2, SK3) terminals E1-E2-E3
Sensitivity:	0.25 to 100kΩ (4mS to 1µS)
Sensor voltage:	12V AC
Sensor current:	max. 7mA
Wiring distance (capacity of cable 100nF/km)	
	max. 1000m (set value <50%)
	max. 100m (set value 100%)
Overvoltage category:	III (in accordance with IEC 60664-1)
Rated surge voltage:	6kV

8. Accuracy

Adjustment accuracy:	-
Repetition accuracy:	-
Voltage influence:	-
Temperature influence:	-

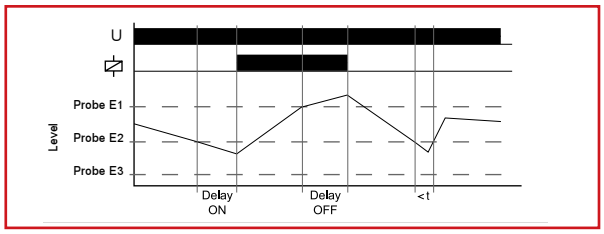
9. Ambient conditions

Ambient temperature:	-25 to +55°C (in acc. with IEC 60068-1) -25 to +40°C (in acc. with UL 508)
Storage temperature:	-25 to +70°C
Transport temperature:	-25 to +70°C
Relative humidity:	15% to 85% (in accordance with IEC 60721-3-3 class 3K3)
Pollution degree:	3 (in acc. with IEC 60664-1)
Vibration resistance:	10 to 55Hz 0.35 mm (in acc. with IEC 60068-2-6)
Shock resistance:	15g 11ms (in acc. with IEC 60068-2-27)

FUNCTIONS

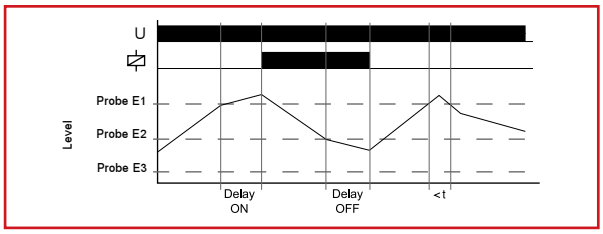
Pump up

Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3.When the air-fluid level falls below the minimum probe E2 the set interval of the tripping delay (DELAY ON) begins. After the expiration of the interval the output relays switch into on-position (yellow LED illuminated). When the air-fluid level again rises above the maximum probe E1, the set interval of the turn-off delay (DELAY OFF) begins. After the expira-tion of the interval the output relays switch into off-position (yellow LED not illuminated).



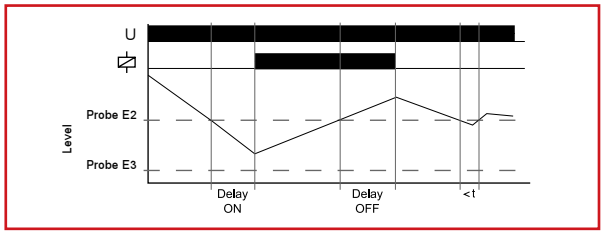
Pump down

Connection of the probe rods E1, E2 and E3. Alternatively the electrically conducting container can be connected in lieu of the test probe E3.When the maximum probe E1 gets moistened the set interval of the trip-ping delay (DELAY ON) begins. After the expiration of the interval the output relays switch into on-position (yellow LED illuminated). When the air-fluid level falls below the minimum probe E2, the set interval of the turn-off delay (DELAY OFF) begins. After the expiration of the interval the output relays switch into off-position (yellow LED not illuminated).



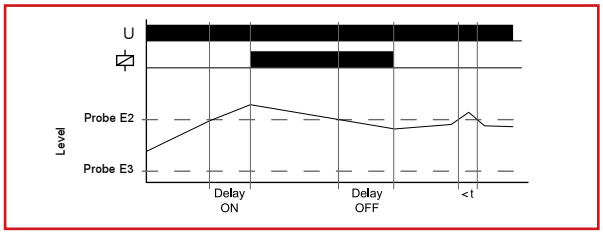
Minimum monitoring (Pump up)

Connection of probe rods E2 and E3 (Bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the air-fluid level falls below the probe E2 the set interval of the tripping delay (DELAY ON) begins. After the expiration of the interval the output relays switch into on-position (yellow LED illuminated). When the air-fluid level again rises above the probe E2, the set interval of the turn-off delay (DELAY OFF) begins. After the expiration of the interval the out-put relays switch into off-position (yellow LED not illuminated).



Maximum monitoring (Pump down)

Connection of probe rods E2 and E3 (Bridge E1-E3). Alternatively the electrically conducting container can be connected in lieu of the test probe E3. When the probe E2 gets moistened the set interval of the tripping delay (DELAY ON) begins. After the expiration of the interval the output relays switch into on-position (yellow LED illuminated). When the air-fluid level sinks below the probe E2, the set interval of the turn-off delay (DELAY OFF) begins. After the expiration of the interval the output relays switch into off-position (yellow LED not illuminated).

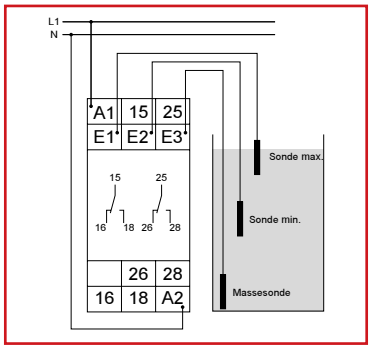


NOTE

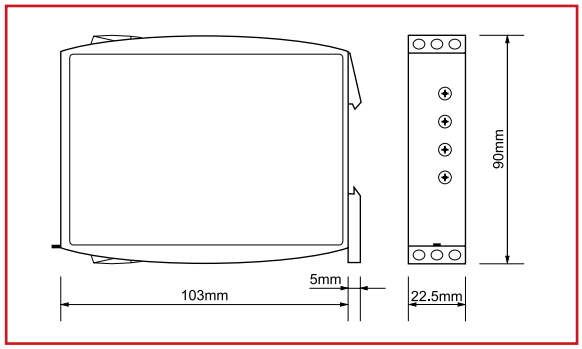
Use cables with low capacity for wiring the probes especially with extended wiring length.
Following processes are suggested for the adjustment:

- The existent time delay should be to minimum (0,5s).
- The function selector switch must be in position pump down.
- Turn the sensitivity controller slowly clockwise from min to max until the relais switch into on-position. (probes must be in dipped state)
- The moistened probes should be taken out of the liquid to control if the relais switch into off-position. If the relais doesn't switch into off-position, turn the sensitivity controller slightly back to min. (counter clockwise)
- Set the existent time delay to desired value to fade out a short term moisten the probes by waves in the liquid.
- Set the function selector switch to desired position (either pump up or pump down)

CONNECTIONS



DIMENSIONS



DESCRIPTION	ORDER NUMBERS
Level monitoring relay, 2 change over	UR6L1052
Probe	URL91010

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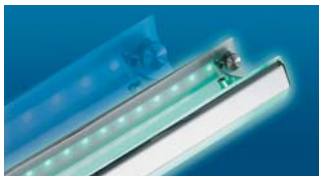

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