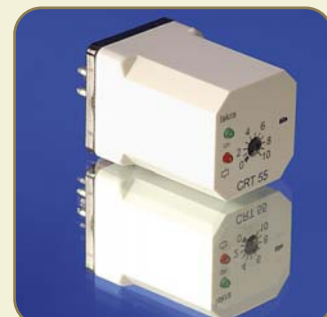


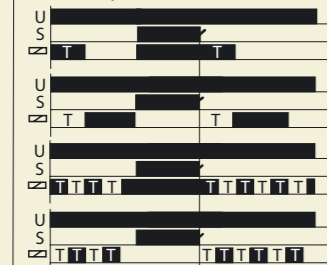
**CRT 5X/60**



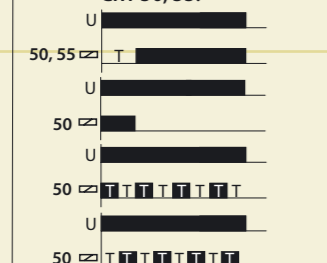
**CRT50/51/55/60**

One- or multifunction one- or multi-time time relay

**CRT 51,60:**



**CRT 50, 55:**



**NIVS**

Liquid level detector



**OTHER SPECIFICATIONS:**

- Operating voltage range: -15%, +10%
- Input resistance of trigger input S (TRE 701, 702, 703, 706): 100 kOhm
- Minimal duration of trigger pulse S: 50 ms
- Time setting repeatability over the whole temperature range: TRE 703/704/705/706/CRT < 2% TRE 701/702 < 1% TRD 2210/2220 < 0.5%
- Nominal time range tolerance: TRE 703/704/705/706/CRT: 25% TRE 701/702: 1% TRD 2210/2220: 0.5%
- Operating temperature: 0°C do +55°C (expansion to -20°C to +65°C is possible)

- Storing temperature: -25°C do +70°C
- Degree of protection: IP20
- Diameter of connection cable: ≤ 2.2mm
- Mechanical lifetime: > 10<sup>7</sup> switches
- Electrical lifetime: > 10<sup>8</sup> switches at nominal load
- Directives: 89/336/EEC, 93/68/EEC
- Standards: EN 60256-6, EN61010-1, EN61000-4
- Marking: CE

**FUNCTION DESCRIPTION**

**CRT 51,60:**  
 1: Pulse at power-on or at falling edge of control signal S.  
 2: Delay at power-on or at falling edge of control signal S.  
 3: Pulsation with starting pulse. Active signal S stops the pulsation.  
 4: Pulsation with starting pause. Active signal S stops the pulsation.  
 Control signal S (Y1-Y2) requires floating contact.  
**CRT 50:** Like above except that there is no external triggering (signal S). Function can be set by using BCD switches.  
**CRT 55:** It has one function only: pulse at power-on.

Voltage on electrodes: 24VAC  
 Sensitivity: 0 to 100 kOhm  
 One-level operating mode: electrodes EM and EO are connected.  
 Two-levels operating mode: electrodes EM, EO and EU are connected. The level floats between EO and EU.  
 Electrodes are galvanically isolated from power source.

**TIME RANGES**

**CRT 50,51,60:** 15s or 60s: Basic time is 15s or 60s, which is multiplied by 1,4,32 or 256 (selectable by BCD switch).  
**CRT 55:** One of the following time ranges should be ordered: sec: 3, 15, 60; min: 3, 15, 60; h: 3  
 \* Standard versions are bolded

**OPERATING VOLTAGES**

AC 110, 127, 230  
 DC 110, 127, 240  
 AC/DC 12, 24, 36, 42, 48, 60  
 \* Standard versions are bolded

230V AC

**OUTPUT CONTACTS**

6A/250V

6A/250V

**MOUNTING**

PANEL PLUG, CRT60 11-POLES, CRTSX-8-POLES

DIN EN 50022, 35mm RAIL

**DIMENSIONS (HxWxD)**

35x35x72

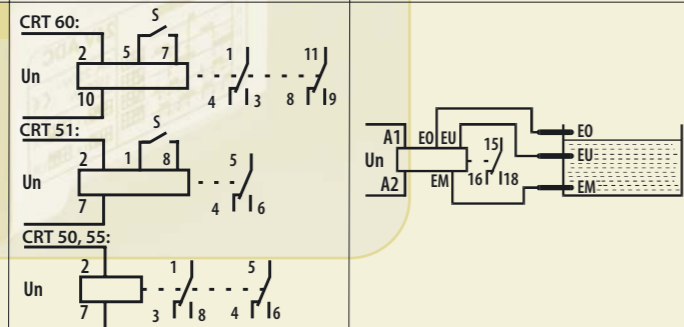
73x45x121

**ORDERING DATA**

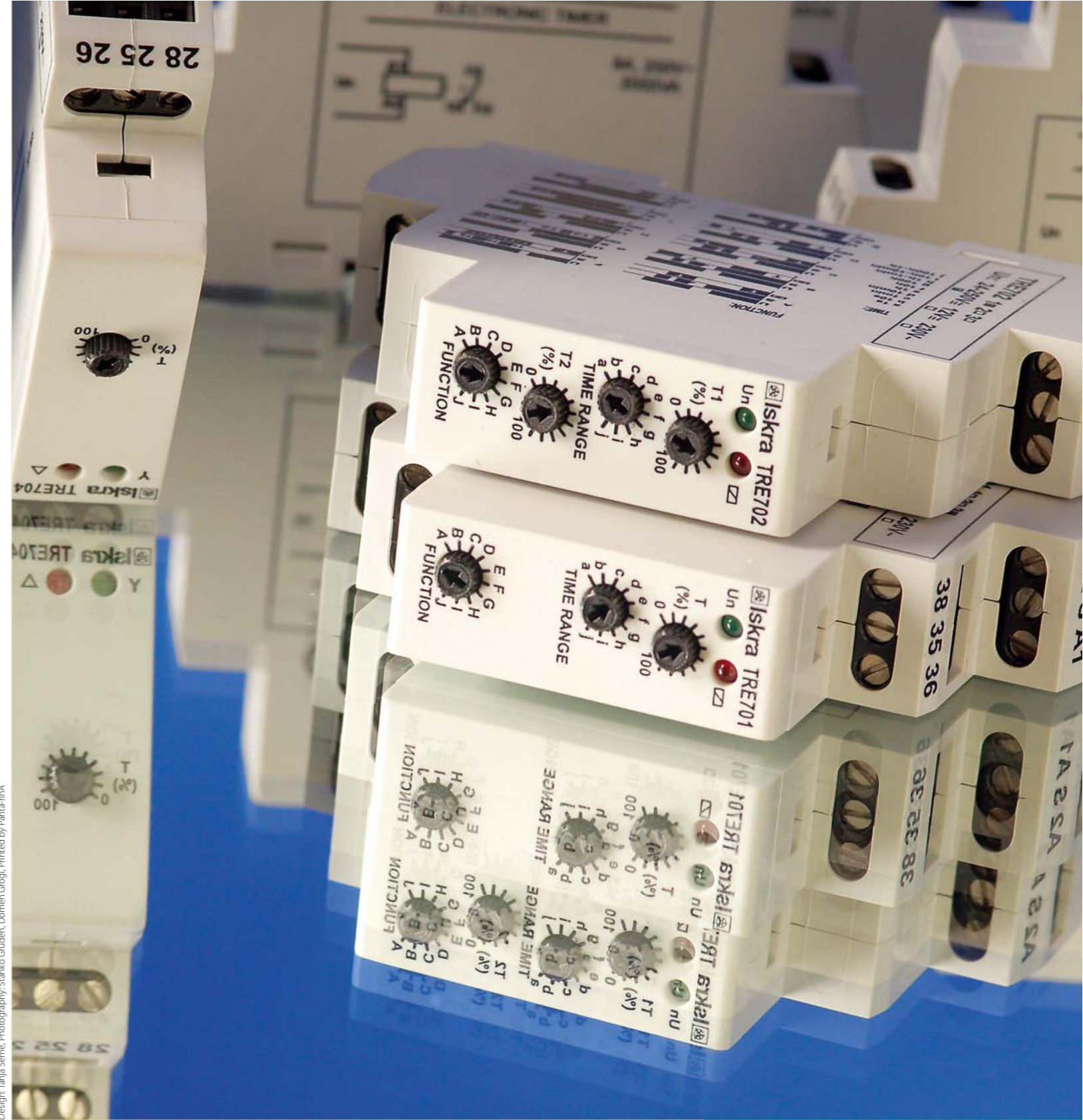
**CRT50/51/60 230VAC A**  
 Relay type:   
 Op. voltage:   
 Time range: A=15s, B=60s  
**CRT55 230VAC 3min**  
 Op. voltage:   
 Time range: 3min

NIVS 230V

**CONNECTION DIAGRAM**



Design: Tanja Šeme, Photography: Stanko Gruden, Domen Gödigi, Printed by Panta-ina



**Time relays**



Iskra TELA, d. d.



**Iskra TELA, d. d.**  
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 Phone: ++386 1 4769 864  
 Fax: ++386 1 4769 882  
 info@iskra-tela.si  
 www.iskra-tela.si



**RELAY FAMILY**  
Type of relay

**TRE 701**  
Multifunction multi-time time relay

**TRE 702**  
Multifunction multi-time T1-T2 time relay

**TRE 703**  
One-function one-time time relay

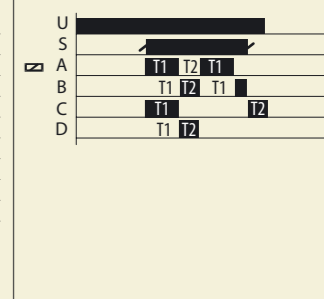
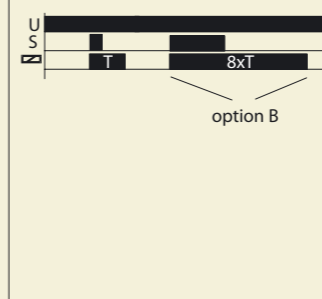
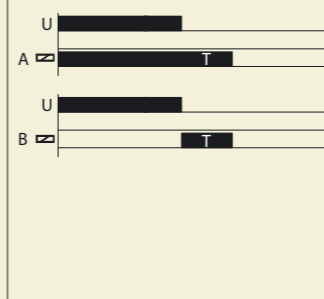
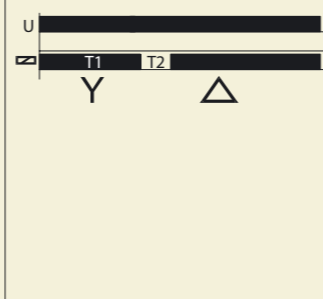
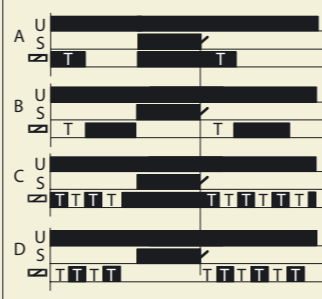
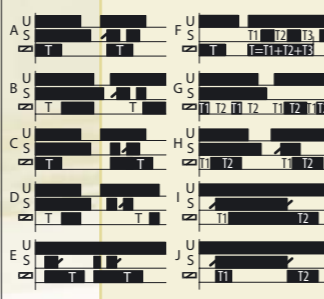
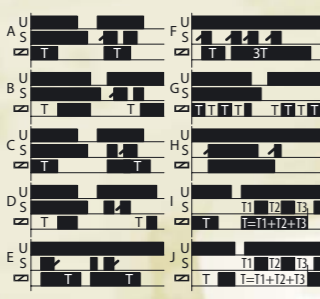
**TRE 704**  
Star-delta switch

**TRE 705**  
Bistable relay with delayed off state

**TRE 706**  
Staircase switch

**TRD 2210**  
Multifunction multi-time digital time relay

**TRD 2220**  
Multifunction multi-time T1-T2 digital time relay



**FUNCTION DESCRIPTION**

A: Pulse after power-on or after rising edge of trigger pulse S.  
 B: Delay after power-on or after rising edge of trigger pulse S.  
 C: Pulse after power-on or after rising edge of trigger pulse S. Retriggerable.  
 D: Delay after power-on or after rising edge of trigger pulse S. Retriggerable.  
 E: The first edge of trigger pulse S turns relay on while the second edge starts counting down till relay off.  
 F: Each rising edge of trigger S appends additional period T to the time of on-state.  
 G: Pulsating operating with starting pulse or pause which depends on state of trigger S at power-on.  
 H: Bi-stable operating. Each rising edge of trigger S swaps the relay into opposite state.  
 I: Prolonged pulse after power-on. The presence of trigger S temporarily stops the counting.  
 J: Prolonged pause after power-on. The presence of trigger S temporarily stops the counting.  
 If you want to activate the functions A to D at power-on the signal S must be active at the same time.  
 Function can be set by rotary switch.

A to F: Like TRE701.  
 G: Pulsating operating with non-equal pulse-pause rate. A starting pulse or pause which depends on state of trigger S at power-on.  
 H: After the rising edge of trigger S, the device waits until period T1, then relay is activated (if the trigger S is still present). Then, after period T2, it is deactivated.  
 I: After the rising edge of trigger S, device waits for period T1, then the relay is activated (if the trigger S is still present). At the falling edge of trigger S, the second counting starts and when it reaches T2 the relay is deactivated.  
 J: Rising edge of trigger S activates relay for period T1. Then relay is deactivated. The falling edge of trigger S the activates the relay for period T2.  
 If you want to activate the functions A to D at power-on the signal S must be active at the same time.  
 Function can be set by rotary switch.

A: Pulse after power-on or after falling edge of trigger pulse S.  
 B: Delay after power-on or after rising edge of trigger pulse S.  
 C: Pulsating operating with starting pulse.  
 D: Pulsating operating with starting pause.  
 One of these specific functions can be ordered.

After power-on, the Y relay is activated for period T. Then it is deactivated and after additional 100ms the Δ relay is activated

A: At power-on, the relay is activated. At power-off, it remains activated for period T.  
 B: The relay is activated at power-off and it remains activated for period T.

Trigger pulse S activates the relay for period T. If the trigger pulse is active more than 6 seconds then the period T is prolonged by factor 8 (option B). Retriggerable (additional presence of trigger S during period T restarts the counting).  
 Number of bulb-lamps: (<1mA): 10 min.

A Rising edge of signal S activates a counting down until after period T the relay becomes activated. It stays activated until signal S disappears.  
 B Rising edge of signal S activates the relay. It deactivates after period T.  
 C The relay is activated when signal S appears. The falling edge of signal S starts counting down until after the period T1 relay is deactivated.  
 D The relay is activated at falling edge of signal S and remains activated for period T.  
 E Pulsation with starting pulse.  
 F Pulsating with starting pulse.  
 G The relay is activated at rising edge of signal S and remains activated for period T. It is activated again at falling edge of signal S for period T.  
 H Rising edge of signal S starts counting for period T. Then the relay is activated remains activated for period T.  
 Function has to be set by BCD switch. Triggering signal S requires floating contact Y1-Y2.

A: Rising edge of signal S begins pulsating with starting pulse.  
 B: Rising edge of control signal S starts pulsating with starting pulse.  
 C: Rising edge of signal S activates the relay. It stays activated for period T1. Then the falling edge of signal S activates the relay for period T2.  
 D: Rising edge of signal S activates a count down until the relay becomes activated after period T1. The relay stays activated for period T2.  
 Function has to be set by BCD switch. Triggering signal S requires floating contact Y1-Y2.

**TIME RANGES**

s: 1,10; min: 1,10; h: 1,10,100,500  
 ON, OFF  
 Time ranges are selectable by rotary switch.  
 Time within the selected time range can be fine tuned within the range from 10% to 100%.

s: 1,10; min: 1,10; h: 1,10,100,  
 T1-T2: 1h-1min; 10h-10min; 100h-1h  
 By using T1-T2 selections it is possible to reach highly asymmetric T1-T2 time functions.  
 Time ranges are selectable by rotary switch.  
 Time within the selected time range can be fine tuned within the range from 10% to 100%.

s: 3,15; min: 1,3,15; h: 1,3  
 One of the specific time ranges above must be selected.  
 Time can be fine tuned within the range from 5% to 100%.

10, 30, 60, 120, 600s  
 One of time ranges above can be supplied.  
 Time can be fine tuned within the range from 5% to 100%.

3, 10, 30, 60, 120, 300s  
 One of time ranges above can be supplied.  
 Time can be fine tuned within the range from 5% to 100%.

30sec-10min, ON, OFF  
 Time can be fine tuned within the range from 5% to 100%.  
 Option B: like above, possibility of prolonged operation is added (4-80 minutes).

0.01s-100h  
 Time can be set by using BCD switches.

0.1s-24h  
 Time can be set by using BCD switches.

**OPERATING VOLTAGES**

24-240V AC/DC, 12V AC/DC, 230V AC

24-240V AC/DC, 12V AC/DC, 230V AC

24-240V AC/DC, 12V AC/DC, 230V AC

24-240V AC/DC, 12V AC/DC, 230V AC

24-240V AC/DC, 12V AC/DC

230V AC

24-240V AC/DC, 12V AC/DC, 230V AC

24-240V AC/DC, 12V AC/DC, 230V AC

**OUTPUT CONTACTS**

1 do 3 x 8A/250V

1 do 3 x 8A/250V

1 do 3 x 8A/250V

2 x 8A/250V

6A/250V

16A/250V

6A/250V

6A/250V

**MOUNTING**

DIN EN 50022, 35mm RAIL

DIN EN 50022, 35mm RAIL

DIN EN 50022, 35mm RAIL

DIN EN 50022, 35mm RAIL

DIN EN 50022, 35mm RAIL

DIN EN 50022, 35mm RAIL

DIN EN 50022, 35mm RAIL

DIN EN 50022, 35mm RAIL

**DIMENSIONS (HxWxD)**

90x17.6x64

90x17.6x64

90x17.6x64

90x17.6x64

90x17.6x64

90x17.6x64

73x45x121

73x45x121

**ORDERING DATA**

**TRE701 2 24-240V**  
 Number of contacts: 1,2 or 3  
 Op. voltage: 24-240V, 12V, 230V  
 Combination with 3 contacts and 230 VAC operating voltage is not available.

**TRE702 2 24-240V**  
 Number of contacts: 1,2 or 3  
 Op. voltage: 24-240V, 12V, 230V  
 Combination with 3 contacts and 230 VAC operating voltage is not available.

**TRE703 2 24-240V A 1h**  
 Number of contacts: 1,2 or 3  
 Op. voltage: 24-240V, 12V, 230V  
 Function: A,B,C or D  
 Time range: 1s  
 Combination with 3 contacts and 230 VAC operating voltage is not available.

**TRE704 24-240V 100s**  
 Op. voltage: 24-240V, 12V, 230V  
 Time range: 100s

**TRE705 2 24-240V A 100s**  
 Number of contacts: 1,2 or 3  
 Op. voltage: 24-240V, 12V  
 Function: A or B  
 Time range: 100s

**TRE706 A**  
 A: basic version  
 B: prolonged operation

**TRD 2210 230V**  
 Op. voltage: 24-240V, 12V, 230V

**TRD 2220 230V**  
 Op. voltage: 24-240V, 12V, 230V

**CONNECTION DIAGRAM**

