- 16 switchable functions
- 14 switchable time ranges 125 ms-30h
- remote potentiometer terminal
- Two changover contacts
- choice of 2 delayed contacts or 1 delayed and 1 instantaneous contact
- 19 supply voltages selected via tele plug-in modules
- potential-free control contact

## Technical Data:

**Supply voltages:**
(can be selected with plug-in power supply)
See plug-in mains units below
Nominal consumption:
2X: 12 ... 440 V AC / 2 VA,
24 V AC/DC / 1 VA, 36 V AC/DC / 1,5 VA
42 V AC/DC / 1,5 VA, 48 V AC/DC / 1,7 VA,
6 ... 110 V DC / 2 W
3V: 12 ... 440 V AC / 4 VA,
24 V AC/DC / 2 VA, 36 V AC/DC / 3 VA
42 V AC/DC / 3,5 VA, 48 V AC/DC / 4 VA,
6 ... 220 V DC / 3 W
Permissible voltage range 0.85 to 1,1 $U_N$
Frequency range 48-63 Hz
Duty cycle 100% IEC class 1c
**Environmental conditions:**
Permissible ambient temperature -25°C to +55°C
Class of application HVF to DIN 40040
**Accuracy:**
Repetition accuracy under constant condition
(as % of full range) ≤ 0,5%
Effect of voltage in the range of 0.85 to 1,1 $U_N$ ≤0,5%
Accuracy of adjustment ≤ 5%
Effect of temperature ≤ 0,1% / °C
Reset time~ 100ms max.
**Mechanical data//specifications:**
Enclosure in self-extinguishing plastic with plug-in power supply
Type of protection IP 40
VDE 0435: Test voltage 2000 VAC
VDE 0110: Group B 380 V AC, Group C 250 V AC
**Dimensions and standards:**
2X: 75 x 22,5 x 98 mm (h x b x d)
3V: 75 x 35 x 109 mm (h x b x d)
X: Mounting on DIN rails to DIN 46277/3 (European standard EN 50 0222)
Connection via terminals up to 4 mm² with protection against accidental contact. Type of protection IP20 Contact protection to VDE 0106 and VBG 4
Terminal arrangement and connection markings to DIN 46 199
V: Mounting and connection via 11-pin screw or soldered plug.
Fixing via retaining clip BU 351. Pin arrangement and connection markings to IEC 67-1-18a
**Output stage:**
2-pole changeover on 1 delayed and 1 instantaneous change over

| | | |
|---|---|---|
| Max. switching voltage: | 2X: 250 V AC | 3V: 380 V AC, 250 V DC |
| Continuous current: | 2X: max. 5A | 3V: max. 8A |
| Switching capacity: | 2X:1000 VA | 3V: 1500 VA |

Contact life: 230 V AC, 5 A resistive ≥ $3.10^5$ switching operations.
Mechanical life > $30.10^6$ switching operations.

| Plug-in power supply modules for model 2X | Plug-in power supply modules models 3V and 4X |
|---|---|
| **4 power supplies NT2-...V AC/DC for alternating and direct voltage:** 24 V (1 VA), 36 V (1,5 VA), 42 V ( 1,5 VA), 48 V (1,7 VA) | **4 power supplies NT3-... V AC/DC for alternating and direct voltage:** 24 V (2 VA), 36 V (3 VA), 42 V (3,5 VA), 48 V (4 VA) |
| **9 transformers TR2-...V AC for alternating voltage** 12V, 24V, 42V, 48V, 110V, 127V, 230V, 400V, 440V | **9 transformers TR3-...V AC for alternating voltage** 12V, 24V, 42V, 48V, 110V, 127V, 230V, 400V, 440V |
| **4 switched power supplies SN2-...V DC for direct voltage** residual ripple 10% permissible voltage range in brackets 6V (4,8-7,8V), 12V (8,5-16V), 60V (40-85V), 110V (75-160V) | **6 switched power supplies SN3-...V DC for direct voltage** max. residual ripple 10% permissible voltage range in brackets 6 V (5,1 - 6,6 V), 12 V (10,2 - 15 V), 60 V (40 - 85 V), 110 V (75 - 145 V) 125 V (85 - 165 V), 220 V (45 -285 V) |

## Types:

M2X11
M3V11

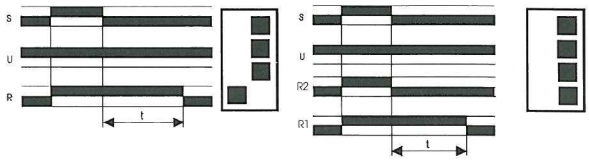
## Accessories:

| | |
|---|---|
| Plug-in base TVE 12 | Remote potentiometerR2 |
| Retaining clipBU 351 | Fascia surround FR 35 |
| Mounting plate MP | |

## R20 off-delay

R11 off-delay with instant contact

### Funktion diagrams and selection:

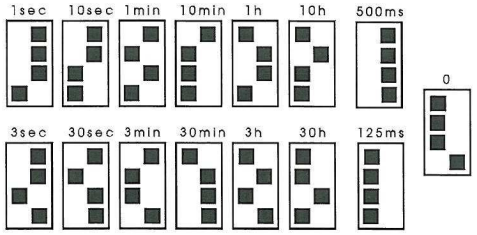



### Description of function:

Input voltage U must be applied continuously to the unit. When control contact S is closed, output relay R energises immediately. If control contact S is opened, set time t begins to run.
When time t has elapsed, output relay R returns to the off-position. If control contact S is closed again before the expiry of time t, the time already elapsed is cancelled out, and re-starts from zero on the next cycle

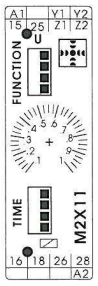
Input voltage U must be applied continuously to the unit. When control contact S is closed, both output relays R1 and R2 operate immediately. If control contact S is opened, output relay R2 is released and set time t begins to run. When time t has elapsed, output relay R1 returns to the off-position.
If control contact S is re-closed before the expiry of time t, relay R2 again energises, the time already elapsed is cancelled, re-starting from zero on the next cycle.

### Selection of time ranges:

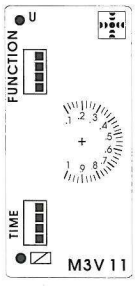



### Front view

*M2X11*

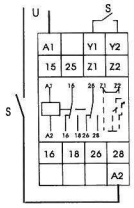



*M3V11*

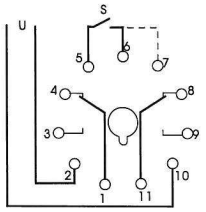


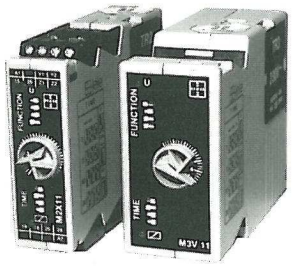

### Connection:

*M2X11*



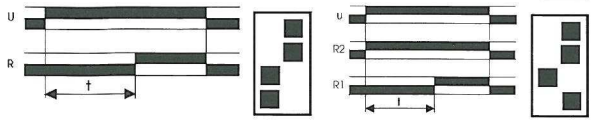

*M3V11*





## E20 on-delay

### Funktion diagrams and selection:




### Description of function:

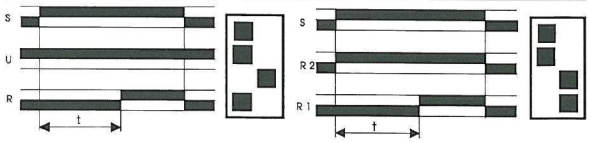
When input voltage U is applied, the set time t begins to run. When time t has elapsed, output relay R energises and remains operative until the input voltage U is removed from the unit. If the input voltage U is removed from the unit before time t has elapsed, the time already elapsed is cancelled and re-starts from zero on the next cycle.

## E11 on-delay with instant contact

When the input voltage U is applied, the output relay R2 energises immediately and the set time t begins to run. On expiry of time t output relay R1 energises. Both relays remain in operation until the input voltage U is removed from the unit. If the input voltage U is removed from the unit before time t has elapsed, the time already elapsed is cancelled and re-starts from zero on the next cycle.

## E(S)20 on-delay with control contact

### Funktion diagrams and selection:



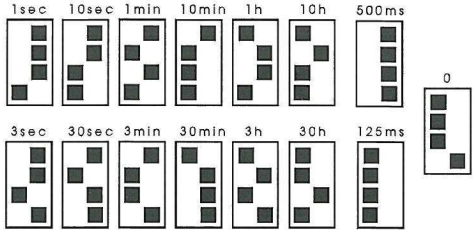

### Description of function:

Input voltage U must be applied continuously to the unit. When control contact S is closed, the set time t begins to run. When time t has elapsed, output relay R energises. It remains on as long as control contact S is closed.

## E(S)11 on-delay withcontrol/ contact/instant contact

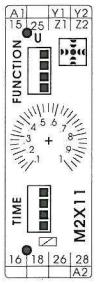
Input voltage U must be applied continuously to the unit. When the control contact S is closed the output relay R2 energises and the set time t begins to run. On expiry of time t output relay R1 also energises. Both relays remain in operation as long as the control contact S is closed.
If the control contact is opened before time t has elapsed, relay R2 returns to the off-position, the time already elapsed is cancelled and re-starts at zero when the control contact closes again.

### Selection of time ranges:

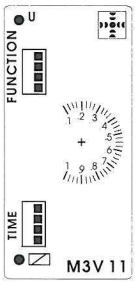



### Front view

*M2X11*

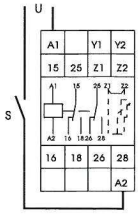



*M3V11*

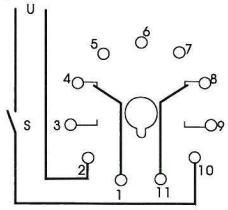



### Connection:

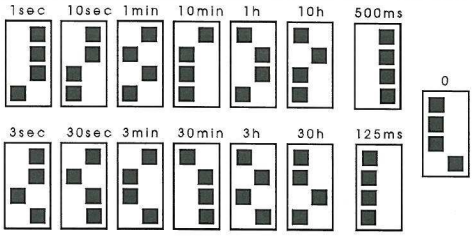
*M2X11*




*M3V11*

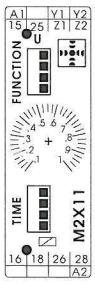



### Selection of time ranges:

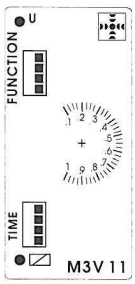



### Front view

*M2X11*

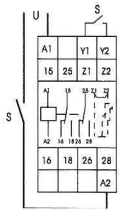



*M3V11*

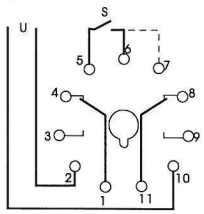



### Connection:

*M2X11*



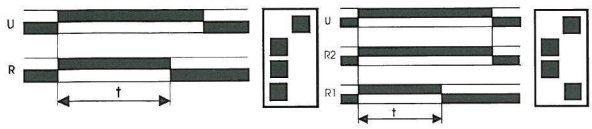

*M3V11*



## eW(U)20 leading edge

## eW(U)11 leading edge with instant contact

### Function diagrams and selection:

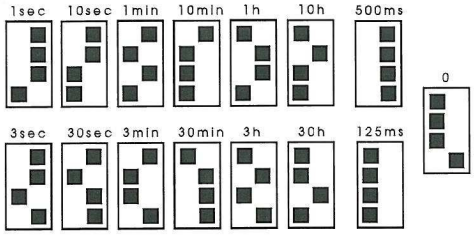



### Description of function:

When input voltage U is applied output relay R energises immediately and set time t begins to run. When time t has elapsed, output relay R returns to the off-position.
The input voltage U must be applied for a longer period than the set time t, for the function to be fully executed.
This function can also be used as pulse shortening. If the input voltage U is removed from the unit before time t has elapsed, the time already elapsed is cancelled and re-starts from zero on the next cycle.

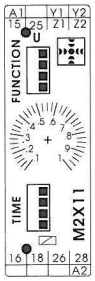
When the input voltage U is applied, both output relays R operate immediately. Output relay R1 remains in operation for the set time t and subsequently returns to the off-position. Output relay R2 only resets when the input voltage U is removed from the unit. The input voltage U must be applied to the unit for longer than time t, for the function to be fully executed. If the input voltage U is removed from the unit before time t has elapsed, both output relays return to the off-position and the time re-starts from zero on the next cycle.

### Selection of time ranges:

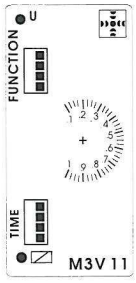



### Front view:

*M2X11*

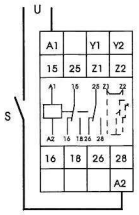



*M3V11*

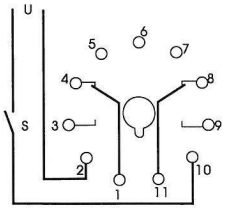



### Connection:

*M2X11*



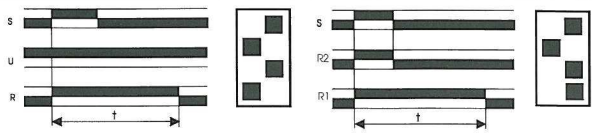

*M3V11*




## eW(S)20 leading edge pulse start

## eW(S)11 leading edge pulse start/ instant contact

### Function diagrams and selection:

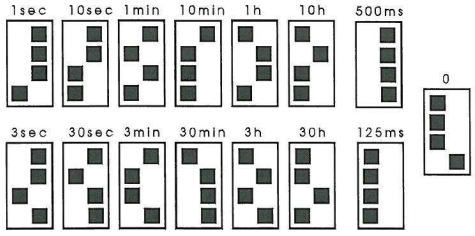



### Description of function:

Input voltage U must be applied continuously to the unit. When control contact S is closed, output relay R energises immediately and set time t begins to run. When time t has elapsed, output relay R returns to the off-position.
Control contact S can be switched at will during time t. Another cycle can only be started when the run-down is completed. If the input voltage U is removed from the unit before time t has elapsed, the time already elapsed is cancelled and re-starts from zero on the next cycle.

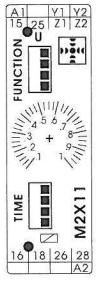
The input voltage U must be applied continuously to the unit. When control contact S is closed, both output relays R1 and R2 operate immediately and the set time t begins to run. On expiry of time t, output relay R1 returns to the off-position.
The control contact S can be switched at will during time t, with output relay R2 synchronously edge-triggering between on and off-positions. Another timing cycle for R1 can only be started when the current cycle is completed. If the input voltage U is removed from the unit before time t has elapsed, both relays are released, the time already elapsed is cancelled and re-starts from zero on the next cycle.

### Selection of time ranges:

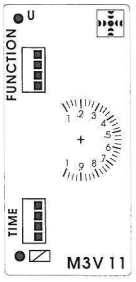



### Front view:

*M2X11*

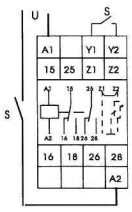



*M3V11*

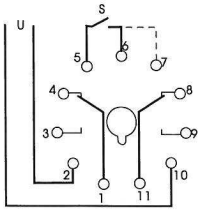



### Connection:

*M2X11*



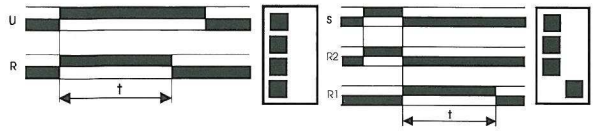

*M3V11*



## aW20 trailing edge

## aW11 trailing edge with instant contact

### Function diagrams and selection:

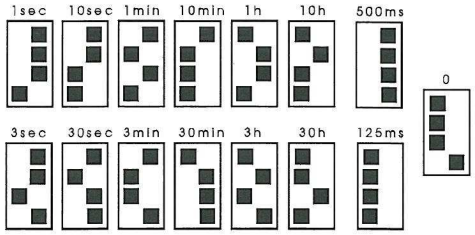



### Description of function:

Input voltage U must be applied continuously to the unit. Closing the control contact has no effect on the unit. If the control contact is opened, output relay R energises immediately and the set time t begins to run.
When time t has elapsed, the output relay R returns to the off-position. Until time t has fully expired, repeat opening of the control contact has no effect. This function can thus be used to extend an interruption.

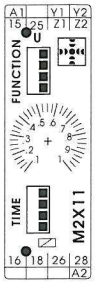
The input voltage U must be applied continuously to the unit. When control contact S is closed, output relay R2 energises immediately. Output relay R1 stays in the off-position. If control contact S is opened, output relay R2 re-sets. Output relay R1 energises and the set time t begins to run. When time t has elapsed, output relay R returns to the off-position. Until time t is fully expired, repeat opening of the control contact has no effect on R1.

### Selection of time ranges:

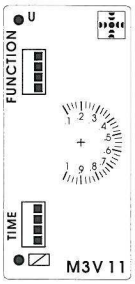



### Front view:

*M2X11*

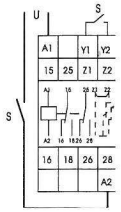



*M3V11*

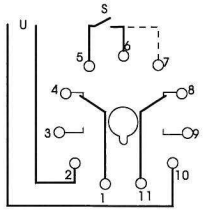



### Connection:

*M2X11*



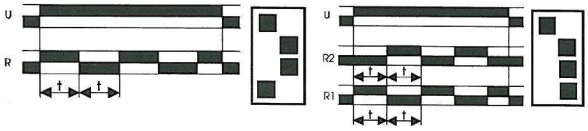

*M3V11*




## Bi20 flasher pulse start

## Bi11 flasher pulse start with instant contact

### Function diagrams and selection:

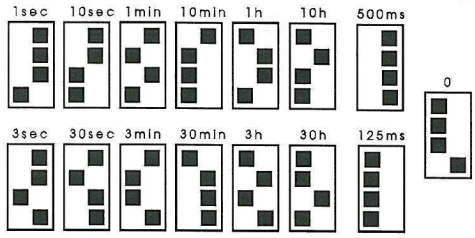



### Description of function:

When the input voltage U is applied, the output relay R energises immediately and the set time t begins to run. Then the output relay R resets and remains switched off for time t. The output relay continues operating at the pulse-pause ratio of 1:1 for as long as the input voltage is applied to the unit.

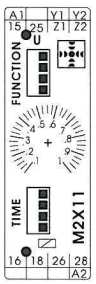
When the input voltage U is applied, the output relay R1 energises immediately and the set time t begins to run. Then the output relay R1 resets and the output relay R2 energises for time t. Both output relays continue operating at the pulse-pause ratio of 1:1 for as long as the input voltage is applied to the unit.

### Selection of time ranges:

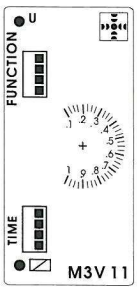



### Front view:

*M2X11*

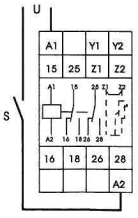



*M3V11*

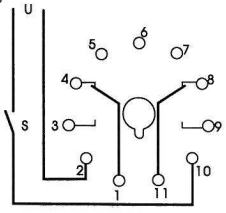



### Connection:

*M2X11*

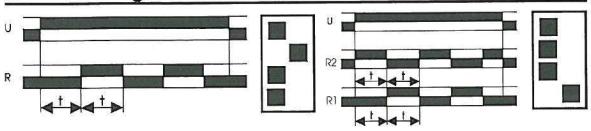



*M3V11*



| Bp 20 flasher pause first | Bp11 flasher pause first with instnt contact |
|---|---|

## Function diagrams and selection:

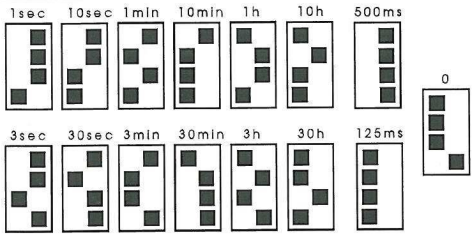



## Description of function:

When the input voltage U is applied , the set time t begins running. Then the output relay R comes into operation and stays on for time t. The output relay continues operating at a pulse-pause ratio of 1:1 for as long as the input voltage is applied to the unit.

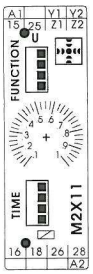
When the input voltage U is applied, the output relay R2 energises immediately and the set time t begins to run. Then the output relay R resets and output relay R1 energises and remains on for time t. Both output relay scontinue operating at a pulse-pause ratio of 1:1 for as long as the input voltage is applied to the unit.

## Selection of time ranges:

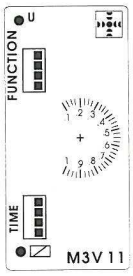



## Front view:

*M2X11*

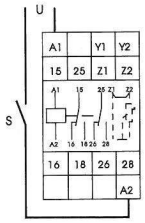



*M3V11*




## Connections:

*M2X11*




*M3V11*