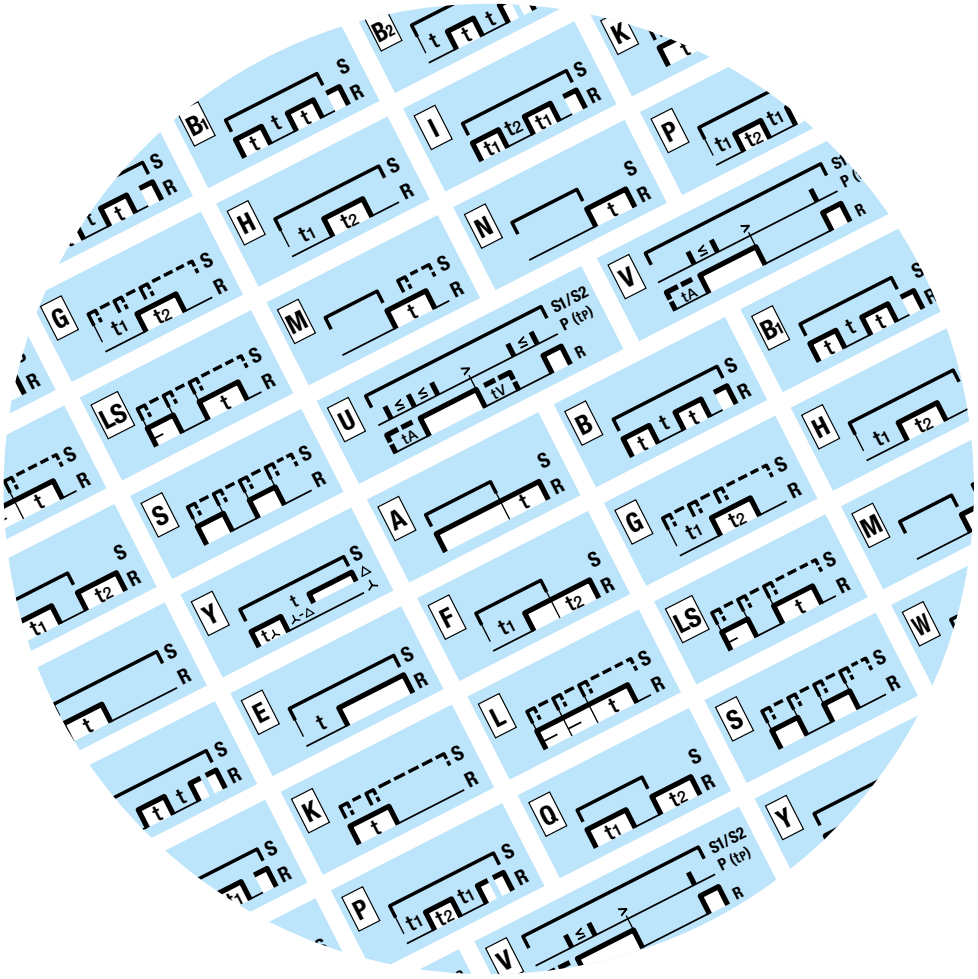
Time relays

Time functions



Multifunction time relays
CIM, AL, AM, CM, CPF, CRV, CSV

Star-Delta relays
CY1

Pluggable time relays & modules
C, C5x, C8x, CS, RS, CT

Time cubes
CT2, CT3

Delay functions

E **On delay**

S ⇒ R on with delay
S OFF **⇒ R** off

E – On delay

The function provides a delayed switching ON of the output.
When S switches ON, the time t starts.
After t expires, the output R switches ON.
If S switches OFF before t ends, R stays OFF.

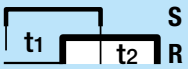
A **Off delay**

S ⇒ R on
S OFF **⇒ R** off with delay

A – Off delay

The function provides a delayed switching OFF of the output.
When S switches ON, the output R switches ON immediately.
When S switches OFF, the time t starts.
After t expires, the output R switches OFF.

F **On and off delay**



S ⇒ R on with delay (t_1)
S OFF **⇒ R** off with delay (t_2)

F – On and off delay

The function provides a delayed switching ON and a delayed switching OFF of the output.
When S switches ON, the on delay t_1 starts.
After t_1 expires, the output R switches ON.
When S switches OFF, the off delay t_2 starts.
After t_2 expires, the output R switches OFF.

Shot timing modes

W **One shot leading edge**

S ⇒ R on for **t**
S OFF **⇒ R** off
(pulse clipping)

W – One shot leading edge

The function provides a fixed output pulse on the leading edge of the trigger.
When S switches ON, the output R switches ON for time t.
After t expires, R switches OFF, independent of S.
When S switches OFF, R switches OFF.

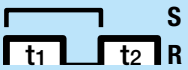
N **One shot trailing edge**

S OFF **⇒ R** on for **t**
S on for **t ⇒ R** off

N – One shot trailing edge

The function provides a fixed output pulse on the trailing edge of the trigger.
When S switches ON, R does not change.
When S switches OFF, the output R switches ON for t.
After t expires, R switches OFF.

Q **One shot leading and trailing edge**



S ⇒ R on for t_1
S OFF **⇒ R** on for t_2
S OFF off for **t1 ⇒ R** off

Q – One shot leading and trailing edge

The function provides fixed output pulses on both the leading and trailing edges of the trigger.
When S switches ON, the output R switches ON for t1.
After t1 expires, R switches OFF.
When S switches OFF, the output R switches ON again for t2.
After t2 expires, R switches OFF.

Puls shaping

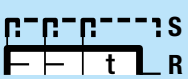
K **Puls shaping**

S (pulse or continuous contact)
⇒ R on for **t**
S no influence on **R** and **t**

K – Pulse shaping

The function provides a fixed output pulse independent of the input duration.
When S switches ON (pulse or continuous), the output R switches ON for t.
During t, S has no influence on R.
After t expires, R switches OFF.

L **Pulse shaping,** retrigger (subsequ.time operation from 0)



S (pulse or continuous contact)
⇒ R on for **t**
S on for **t** = t_{RESET}

L – Pulse shaping, retrigger

The function provides a fixed output pulse that restarts when retriggered.
When S switches ON, the output R switches ON for t.
If S triggers again during t, the time t restarts from zero.
After the final t expires, R switches OFF.

M **Puls shaping**

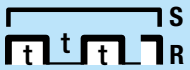
S OFF **⇒ R** on for **t**
S no influence on **R** and **t**

M – Puls shaping

The function provides a fixed output pulse after S switches OFF.
When S switches ON, R remains OFF.
When S switches OFF, the output R switches ON for t.
After t expires, R switches OFF.

Blinker functions

B **Blinker,** pulse start

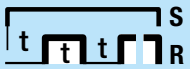


S ⇒ R on/off periodically according to **t**
SOFF ⇒ **R** off

B1 **Blinker,** pulse start, trailing pulse

S ⇒ R on/off periodically according to **t**
SOFF: last pulse = **t**

B2 **Blinker,** interval start



S ⇒ R after **t** on/off periodically according to **t**
SOFF ⇒ **R** off

B – Indicator, pulse start
The function provides periodic ON and OFF switching starting with an ON pulse.
When S switches ON, the output R switches ON for time t, then switches OFF for time t.
R switches ON and OFF periodically until S switches OFF. R switches OFF with S.

B1 – Indicator, pulse start, trailing pulse
The function provides periodic ON and OFF switching starting with an ON pulse and ending with a trailing pulse.
The output R switches ON for time t, then switches OFF for time t.
R switches ON and OFF periodically until S switches OFF.
When S switches OFF, the output R switches ON once more for t, then R switches OFF.

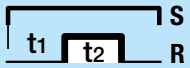
B2 – Indicator, interval start
The function provides periodic ON and OFF switching starting with an OFF interval.
When S switches ON, the output R remains OFF for t, then R switches ON for time t.
R switches ON and OFF periodically until S switches OFF. R switches OFF with S.

Delayed pulse

G **On delay single shot**

S (pulse or continuous contact) ⇒ **R** after **t1** on for **t2**
S ▬ no influence on **R** and **t**

H **On delay single shot**



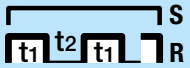
S ⇒ R after **t1** on for **t2**
SOFF ⇒ **R** off

G – On delay single shot
The function provides an output pulse after a delay.
When S switches ON, the delay t_1 starts.
After t_1 expires, the output R switches ON for t_2.
After t_2 expires, R switches OFF.
During t_2, S has no influence on R.

H – On delay single shot
When S switches ON, the delay t_1 starts.
After t_1 expires, the output R switches ON for t_2.
After t_2 expires, R switches OFF.
When S switches OFF, R switches OFF

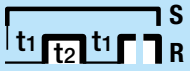
Repeat cycle timer

I **Repeat cycle timer,** pulse start



S ⇒ R on/off periodically according to **t1** and **t2**
SOFF ⇒ **R** off

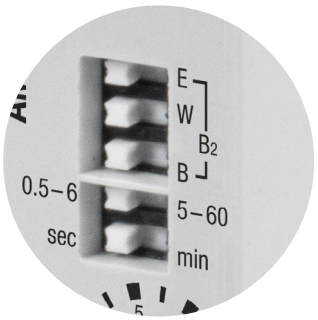
P **Repeat cycle timer,** interval start **C55, CT1:** t2/t1

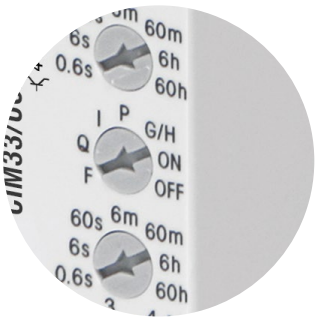


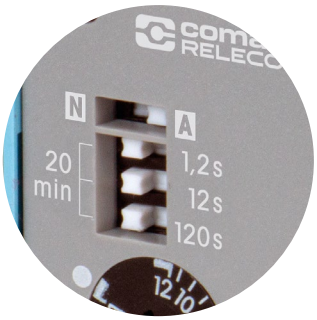
S ⇒ R after **t1** (**t2**) on/off periodically according to **t2** and **t1**
SOFF ⇒ **R** off

I – Repeat cycle timer, pulse start
The function provides periodic ON and OFF switching starting with an ON pulse.
When S switches ON, the output R switches ON for t_1.
After t_1 expires, R switches OFF for t_2.
Afterwards R switches ON and OFF periodically according to t_1 and t_2.
When S switches OFF, R switches OFF.

P – Repeat cycle timer, interval start
The function provides periodic ON and OFF switching starting with an OFF interval.
When S switches ON, the delay t_1 starts, and R remains OFF for t_1.
After t_1 expires, the output R switches ON for t_2.
Afterwards R switches ON and OFF periodically according to t_1 and t_2.
When S switches OFF, R switches OFF.

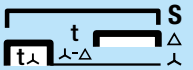






Special functions

Y **Star-delta timer**

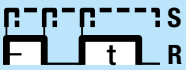


S ⇒ **⅄ on for t**⅄
⅄OFF ⇒ Δ on with delay for **t**⅄-Δ
S OFF ⇒ Δ off

S **Step-on / Step-off switch**

S ⇒ **R** on/off

LS **Step-switching** (staircase lighting timer), with time lapse



S ⇒ **R** on and starts **t**
S on for **t** ⇒ **R** off

Y - Star–delta timer

The function provides automatic switching from star operation to delta operation.
When S switches ON, the time t starts, and the star output R switches ON.
After t expires, the star output switches OFF and the delta output switches ON.
When S switches OFF, both outputs switch OFF.

S - Step-on / Step-off switch

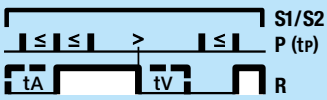
The function provides stepwise switching with each activation of the trigger.
Each time S switches, the output R changes state for time t.
The trigger has no time-dependent influence.

LS - Step-switching (staircase lighting timer)

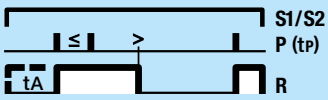
The function provides timed activation with optional stop and reset control.
When S is triggered, the time t starts, and the output R switches ON.
When S is triggered again, the time t stops and R switches OFF.
WhenS is triggered again, the time t resets and starts again immediately.
When t expires, the output R switches OFF.

Pulse sequence monitoring

U



V



S1/S2 = Monitoring start
P = Pulse sequence
tP = Pulse separation

≤: Pulse separation is **smaller** than the time **tP**
>: Pulse separation is **larger** than the time **tP**

Start with **S1** = **without** start-up short-out **tA**
Start with **S2** = start-up short-out **tA**

tV = settable alarm delay
delay (**tA** = **tV**)

U – Pulse sequence monitoring

The function provides monitoring of pulse separation and triggers an alarm if pulses are too close together. If the separation becomes smaller than the set time tP, an alarm output is activated after an additional delay tV.
The monitoring starts with S1 or S2.
If the pulse separation of P is smaller than tP, an alarm output is activated after the alarm delay tV.
If the pulse separation is larger than tP, no alarm is triggered.
The start-up behaviour depends on the selected input S1 (Monitoring begins immediately with the first pulse. There is no suppression of alarm monitoring during start-up.) or S2 (Monitoring begins after the short-out time tA to prevent false alarms during system start-up)

V – Pulse sequence monitoring

The function provides monitoring of pulse separation and triggers an alarm if pulses are too far apart.
The monitoring starts with S1 or S2.
If the pulse separation of P is larger than tP, an alarm output is activated after the alarm delay tV.
If the pulse separation is smaller than tP, no alarm is triggered.
The start-up behaviour depends on the selected input S1 (without start-up short-out tA) or S2 (with start-up short-out tA).

Stop / Reset

t STOP **S**STOP interrupts **t** (**t**-addition)

t RESET **S**RESET reset **t**
t restarts immediately

T **t** is stopped ⇒ **R** on/off

T **Test**

S = Triggering
R = Output circuit
⇒ = switches…

ON OFF

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