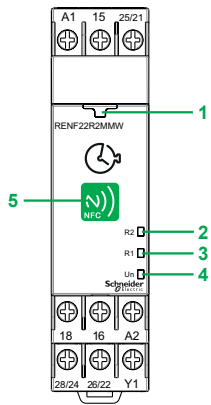




RENF22



### Presentation

The Zelio Time range offers simple-to-use innovative NFC timing relay which is enabled and controlled by the Near Field Communication technology available in present-day smartphones. The NFC timing relay is designed to time events in industrial automation systems by closing or opening contacts before, during, or after a set timing period.

The mobile app, Zelio NFC created for NFC timing relay is Android enabled and can be downloaded in your phone from Google Play.

NFC timing relay supports the following features:


- Efficiency in product selection and inventory management
- Time saving while setting the values
- Accuracy in timing scale
- Easiness in monitoring and testing
- Security with password protected settings

### Description

- 1 Pairing indication LED (Green)
- 2 Output 2 indication LED (Amber)
- 3 Output 1 indication LED (Amber)
- 4 Power supply indication LED (Green)
- 5 NFC antenna location

### NFC timing relay mobile application

To use NFC timing relay, an Android phone with NFC feature and Android firmware (version 4.1 and above) are required. The Zelio NFC app can be downloaded in the mobile with one of the following methods:

- Align the mobile phone NFC antenna to the product NFC antenna. This will take you to the Google Play page for downloading the app.
- Go to Google Play  and search for "Zelio NFC".
- Scan the below QR code to download the Zelio NFC app.



With Zelio NFC App installed in your mobile device, you can retrieve/configure and lock/unlock the product settings, and diagnose product status. All related timing function diagrams, wiring diagram and help contents can be obtained from the app.

*Note: The default function for NFC Timer product is Function A (Power on-delay) and T=3s.*



NFC timing relay with Smartphone mobile app

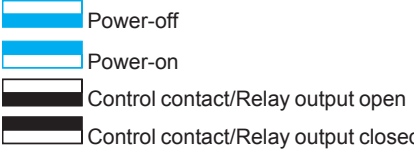
Definitions					
Functions					
Timing functions are identified by letters. The functions have to be selected correctly from the Zelio NFC app; refer to functional diagrams for connection.					
Main timing functions	Complementary functions (1)	Definitions			
A (2)		Power on-delay relay			
	Ac	On-delay and off-delay relay with control signal			
	At	Power on-delay relay with pause/summation control signal			
	Ad	Pulse delayed relay with control signal			
	Ah	Pulse delayed relay (single cycle) with control signal			
	Ak	Asymmetrical on-delay and off-delay relay with control signal			
B (2)		Interval relay (single shot) with control signal			
	Bw	Double interval relay with control signal			
C (2)		Off-delay relay with control signal			
D (2)		Symmetrical flashing relay (starting pulse-off)			
	Di (2)	Symmetrical flashing relay (starting pulse-on)			
	Dit	Symmetrical flashing relay (starting pulse-on) with pause/summation control signal			
	Dt	Symmetrical flashing relay (starting pulse-off) with pause/summation control signal			
H (2)		Interval relay			
	Ht	Interval relay with pause/summation control signal			
L (2)		Asymmetrical flashing relay (starting pulse-off)			
	Li (2)	Asymmetrical flashing relay (starting pulse-on)			
	Lit	Asymmetrical flashing relay (starting pulse-on) with pause/summation control signal			
	Lt	Asymmetrical flashing relay (starting pulse-off) with pause/summation control signal			
N		Safe-guard relay			
O		Delayed safe-guard relay			
P		Pulse delayed relay with fixed pulse length			
	Pt	Pulse delayed relay with fixed pulse length, pause/summation control signal			
Q	Qt	Star-delta relay (2 C/O outputs with split common)			
	Qtt	Star-delta relay (2 C/O outputs with split common) with pause/summation control signal			
T	TI	Bistable relay with control signal on			
	Tt	Retriggerable bistable relay with control signal on			
W		Interval relay with control signal off			
Selection table					
Functions	Timing range	Supply voltage	Type of output	Rated current	Relay
A, Ac, Ad, Ah, Ak, At B, Bw C D, Di, Dt, Dit H, Ht L, Li, Lt, Lit N O P, Pt Q, Qt, Qtt T, Tt W	0.1 s...999 h	≈ 24...240 V	2 relay output	8 A	RENF22R2MMW

(1) Complementary functions enhance the main timing functions. Example: **Ac**: timing after closing and opening of control contact.  
(2) The most commonly used timing functions.

### Functions

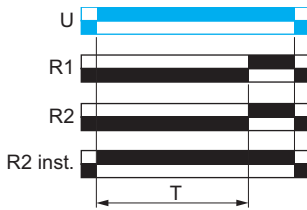
**U:** Supply  
**R1/R2:** 2 timed outputs  
**R2 inst.:** Second output is instantaneous if the instantaneous function is selected  
**T:** Timing period

**Y1:** Control contact  
**Ta:** Adjustable on-delay  
**Tr:** Adjustable off-delay

**Function diagram:**  


### Function A: Power on-delay relay

#### 2 outputs

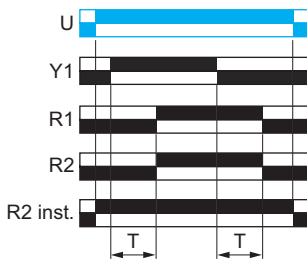


The timing period T begins on power-on.  
 At the end of this timing period, the output(s) R close(s).  
 The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

2 timed outputs (R1/R2) or 1 timed output (R1) and 1 instantaneous output (R2 inst.)

### Function Ac: On-delay and off-delay relay with control signal

#### 2 outputs

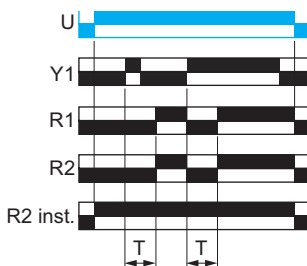


After power-on, and the closure of Y1 the timing period T starts.  
 At the end of this timing period, the output(s) R close(s).  
 When Y1 opens, the timing period T starts.  
 At the end of this timing period T, the output(s) R revert(s) to its/their initial position.  
 The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

2 timed outputs (R1/R2) or 1 timed output (R1) and 1 instantaneous output (R2 inst.).

### Function Ad: Pulse delayed relay with control signal

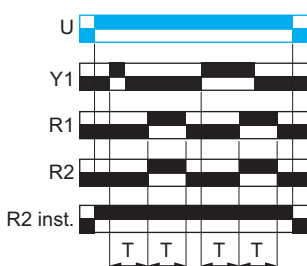
#### 2 outputs



After power-on, pulsing or maintaining Y1 starts the timing T.  
 At the end of this timing period T, the output(s) R close(s).  
 The output(s) R will revert to its/their initial position the next time Y1 is pulsed or maintained.  
 The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

### Function Ah: Pulse delayed relay (single cycle) with control signal

#### 2 outputs

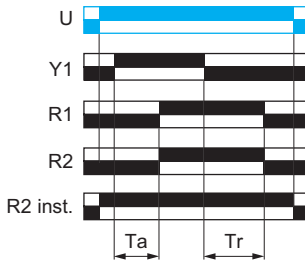


After power-on, pulsing or maintaining control contact Y1 starts the timing T.  
 A single cycle then starts with 2 timing periods T of equal duration (start with output(s) R in initial position).  
 The output(s) R closes (s) state at the end of the first timing period T and reverts to its/their initial position at the end of the second timing period T.  
 Control contact Y1 should be reset in order to re-start the single flashing cycle.  
 The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

### Functions (continued)

#### Function Ak: Asymmetrical on-delay and off-delay relay with control signal

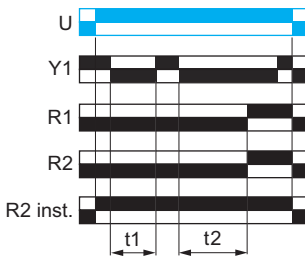
2 outputs



After power-on and the closure of control contact Y1, timing starts for a period  $T_a$ . At the end of this timing period  $T_a$ , the output R closes. A second timing period  $T_r$  starts when control contact Y1 re-opens. At the end of this timing period  $T_r$ , the output R reverts to its initial state. The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

#### Function At: Power on-delay relay with pause/summation control signal

2 outputs

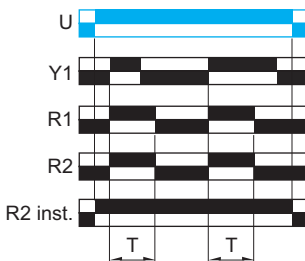


$$T = t_1 + t_2$$

After power-on, the timing period T starts. Timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value T, the output(s) R close(s). The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

#### Function B: Interval relay (single shot) with control signal

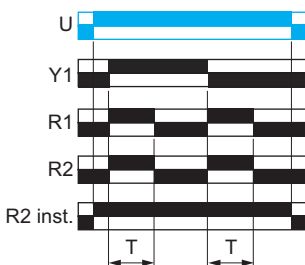
2 outputs



After power-on, pulsing or maintaining control contact Y1 starts the timing T. The output(s) R close(s) for the duration of the timing period T then revert(s) to its/their initial state. The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

#### Function Bw: Double interval relay with control signal

2 outputs

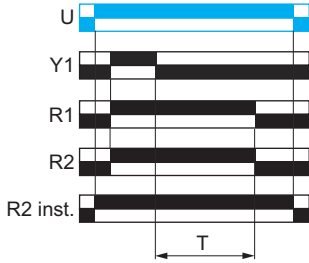


After power-on, transition of Y1 (either from open to closed or vice-versa) will cause the output(s) R to close(s) for the duration of the timing period T and then revert(s) to its/their initial state. The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

**Functions (continued)**

**Function C: Off-delay relay with control signal**

2 outputs

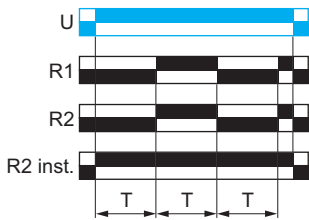


After power-on and closure of the control contact Y1, the output(s) R close(s). When control contact Y1 re-opens, timing T starts. At the end of the timing period, output(s) R revert(s) to its/their initial state. The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

2 timed outputs (R1/R2) or 1 timed output (R1) and 1 instantaneous output (R2 inst.)

**Function D: Symmetrical flashing relay (starting pulse-off)**

2 outputs

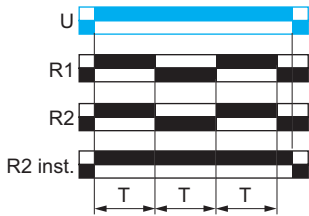


After power-on, repetitive cycle starts with 2 timing periods T of equal duration, with output(s) R changing state at the end of each timing period T. This cycle is repeated indefinitely until the power supply is removed. The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

2 timed outputs (R1/R2) or 1 timed output (R1) and 1 instantaneous output (R2 inst.)

**Function Di: Symmetrical flashing relay (starting pulse-on)**

2 outputs

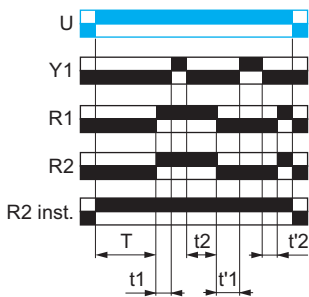


After power-on, repetitive cycle starts with 2 timing periods T of equal duration, with output(s) R changing state at the end of each timing period T. This cycle is repeated indefinitely until the power supply is removed. The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

2 timed outputs (R1/R2) or 1 timed output (R1) and 1 instantaneous output (R2 inst.)

**Function Dt: Symmetrical flashing relay (starting pulse-off) with pause/summation control signal**

2 outputs



After power-on, output(s) R start(s) at its/their initial state for timing period T and the timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value T, the output(s) R close(s). The output(s) R will remain in the closed state for the same timing period T and the timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value T, the output(s) R revert(s) to its/their initial state. This cycle is repeated indefinitely until the power supply is removed. The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

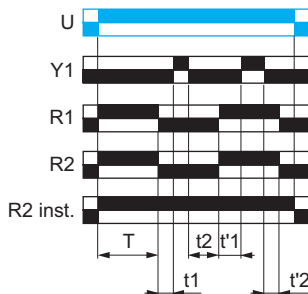
$$T = t_1 + t_2 + \dots$$

$$T = t'_1 + t'_2 + \dots$$

### Functions (continued)

#### Function Dit : Symmetrical flashing relay (starting pulse-on) with pause/summation control signal

2 outputs



$$T = t_1 + t_2 + \dots$$

$$T = t'_1 + t'_2 + \dots$$

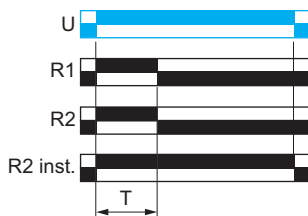
After power-on, output(s) R start(s) when output(s) R close(s) for timing period T and the timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value T, the output(s) revert(s) to its/their initial state.

The output(s) R will remain in this initial state for the same timing period T and the timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value T, the output(s) R close(s). This cycle is repeated indefinitely until the power supply is removed.

The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

#### Function H: Interval relay

2 outputs



2 timed outputs (R1/R2) or 1 timed output (R1) and 1 instantaneous output (R2 inst.)

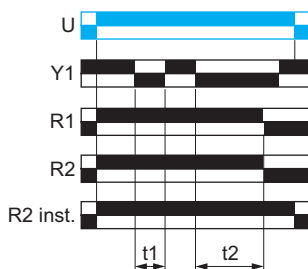
After power-on, timing period T starts and the output(s) R close(s).

At the end of the timing period T, output(s) R revert(s) to its/their initial state.

The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

#### Function Ht: Interval relay with pause/summation control signal

2 outputs



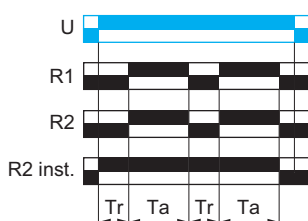
$$T = t_1 + t_2 + \dots$$

After power-on, output(s) R close(s) and timing period T starts, the timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value T, the output(s) R revert(s) to its/their initial state.

The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

#### Function L: Asymmetrical flashing relay (starting pulse-off)

2 outputs



After power-on, repetitive cycle consisting of 2, independently adjustable timing periods  $T_a$  and  $T_r$  starts.

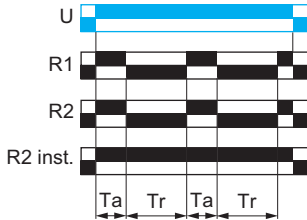
Each timing period corresponds to a different state of the output R.

This cycle is repeated indefinitely until the power supply is removed. The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

### Functions (continued)

#### Function Li: Asymmetrical flashing relay (starting pulse-on)

2 outputs



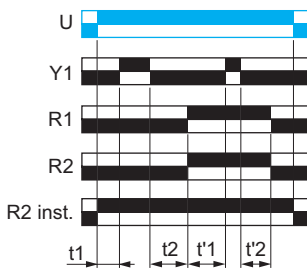
After power-on, repetitive cycle consisting of 2, independently adjustable timing periods  $T_a$  and  $T_r$  starts.

Each timing period corresponds to a different state of the output R.

This cycle is repeated indefinitely until the power supply is removed. The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

#### Function Lt: Asymmetrical flashing relay (starting pulse-off) with pause/summation control signal

2 outputs



After power-on, output(s) R start(s) at its/their initial state for timing duration  $T_r$  and the timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value  $T_r$ , the output(s) R close(s).

The output(s) R will remain at its close state for timing duration  $T_a$ , and the timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value  $T_a$ , then output(s) R reverts to its/their initial state.

This cycle is repeated indefinitely until the power supply is removed.

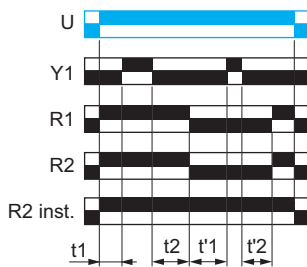
The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

$$T_r = t_1 + t_2 + \dots$$

$$T_a = t'_1 + t'_2 + \dots$$

#### Function Lit: Asymmetrical flashing relay (starting pulse-on) with pause/summation control signal

2 outputs



After power-on, output(s) R close(s) for timing duration  $T_a$  and the timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value  $T_a$ , the output(s) R revert(s) to its/their initial state.

The output(s) R will remain at its initial state for timing duration  $T_r$ , the timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value  $T_r$ , then output(s) R close(s).

This cycle is repeated indefinitely until the power supply is removed.

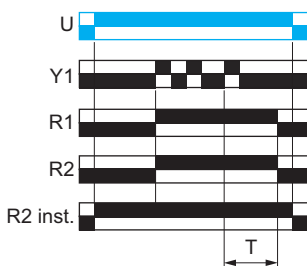
The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

$$T_a = t_1 + t_2 + \dots$$

$$T_r = t'_1 + t'_2 + \dots$$

#### Function N: Safe-guard relay

2 outputs



After power-on and an initial control pulse Y1, the output(s) R close(s) and starts the timing T.

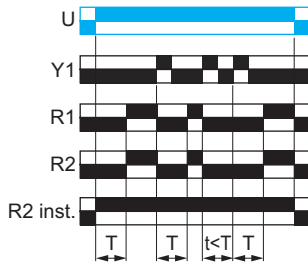
If the interval between 2 Y1 control pulses is greater than the set timing period T, timing elapses normally and the output(s) R close(s) at the end of the timing period.

If the interval is not greater than the set timing period, the output(s) R remain(s) closed until this condition is met.

### Functions (continued)

#### Function O: Delayed safe-guard relay

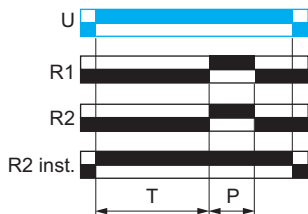
2 outputs



An initial timing period  $T$  starts on power-on. At the end of this timing period, the output(s)  $R$  close(s).  
 When there is a control pulse  $Y1$ , the output(s)  $R$  revert(s) to its/their initial state and remain(s) in that state until the interval between two control pulses is less than the value of the set timing period  $T$ . Otherwise, the output(s)  $R$  close(s) at the end of the timing period  $T$ .  
 The second output ( $R2$ ) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

#### Function P: Pulse delayed relay with fixed pulse length

2 outputs

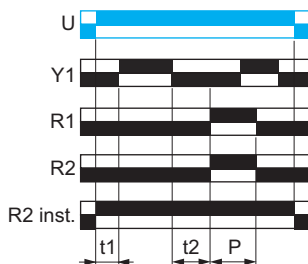


$P = 500 \text{ ms}$

The timing period  $T$  starts on power-on.  
 At the end of this period, the output(s)  $R$  close(s) for a fixed time  $P$  and then revert(s) to its/their initial state.  
 The second output ( $R2$ ) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

#### Function Pt: Pulse delayed relay with fixed pulse length, pause/summation control signal

2 outputs

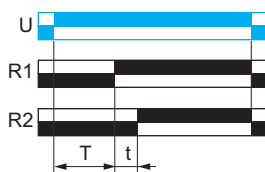


$T = t1 + t2 + \dots$   
 $P = 500 \text{ ms}$

After power-on, timing period  $T$  starts (it can be interrupted by operating control contact  $Y1$ ).  
 When the cumulative total time elapsed reaches the preset value  $T$ , the output(s)  $R$  close(s) for a fixed time  $P$  then revert(s) to its/their initial state.  
 The second output ( $R2$ ) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

#### Function Qt: Star-delta relay (2 C/O outputs with split common)

2 outputs



$t = 20, 30, \dots \text{ms}$

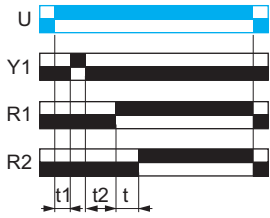
After power-on, the outputs  $R1$  and  $R2$  initialize at its/their initial state such that they close the star contactor and the main contactor and the timing  $T$  starts (Star connection time duration starts).  
 At the end of the timing period  $T$ , the output  $R1$  closes such that it opens the star contactor and starts transition time  $t$ .  
 At the end of the transition time, the output  $R2$  closes such that it closes the delta contactor.



**Functions (continued)**

**Function Qtt : Star-delta relay (2 C/O outputs with split common) with pause/summation control signal**

2 outputs

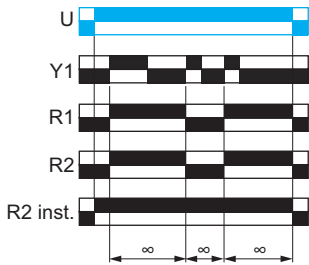


$T = t_1 + t_2 + \dots$   
 $t = 20, 30, \dots \text{ms}$

After power-on, the outputs R1 and R2 initialize at its/their initial state such that they close the star contactor and the main contactor and the timing T starts (star connection timing period starts).  
 During star connection time, the timing can be interrupted/paused each time Y1 closes. When the cumulative total time elapsed reaches the preset value T, output R1 closes such that it opens the star contactor and starts transition time t.  
 At the end of the transition time, output R2 closes such that it closes the delta contactor.

**Function TI: Bistable relay with control signal on**

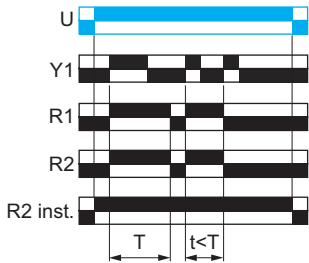
2 outputs



After power-on and closure of Y1, the output(s) R close(s). The subsequent closure of Y1 causes the output(s) R to revert(s) to its/their initial state. This cycle is repeated indefinitely until the power supply is removed.  
 The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

**Function Tt: Retriggerable bistable relay with control signal on**

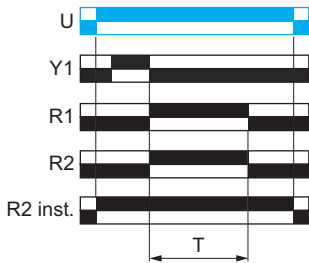
2 outputs



After power-on and closure of Y1, the output(s) R close(s) and the timing T starts.  
 If the interval between 2 consecutive closures of Y1 is greater than the preset value T, the output(s) R will toggle from its/their present state at the end of the timing period.  
 If the interval between 2 consecutive closures of Y1 is less than the preset value T, the output(s) R toggle from its/their present state as soon as Y1 closes without completing duration T.  
 The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

**Function W: Interval relay with control signal off**

2 outputs



After power-on and closure of contact Y1, followed by opening of the control contact Y1, the output(s) R close(s) for a timing period T.  
 At the end of this timing period the output(s) revert to its/their initial state.  
 The second output (R2) can be either timed (when set to "TIMED") or instantaneous (when set to "INST").

2 timed outputs (R1/R2) or 1 timed output (R1) and 1 instantaneous output (R2 inst.)

### 2 C/O contacts

- Multifunction
- Multiple timing ranges
- Multivoltage
- 2 relay outputs: 8 A - 250 V
- Screw terminals
- State indication by LED
- Option of supplying a load in parallel
- 3-wire sensor control option



RENF22R2MMW

### References

#### Multifunction

Timing ranges	Functions	No. of relay outputs	Voltages	Reference	Weight
			V		kg/lb
0.1 s to 999 h	A, Ac, Ad, Ah, Ak, At B, Bw C D, Di, Dt, Dit H, Ht L, Li, Lt, Lit N O P, Pt Qt, Qtt Tl, Tt W	2	≈ 24...240	RENF22R2MMW	0.0904/ 0.1993