A timer is a control component which, after a preset time, energises an output contact.
The start of a timing cycle, single or repetitive, is produced by timer energisation or by maintained or pulse control contacts with, as a result, a large number of potential functions.
There are two types of presentation:

➜ DIN rail mounted
Product designed for mounting within a control panel.

➜ Panel-mounted
Product designed to be fitted on a panel in order to be accessible by the user.
There are two types of output:
Timed contacts dependent on the value of the set time.
Instantaneous contacts operating simultaneously with the energisation or de-energisation of the product in instantaneous fashion (excluding certain cases, for example: memory).

➜ Note:
Electro-mechanical timers with automatic reset are fitted with:
- either a standard clutch : during timing, the electro-clutch is energised
- or a reversed clutch : during timing the electro-clutch is de-energised.

Timers with manual reset require "manual" intervention for the commencement of a new cycle which involves resetting the timing selector.

Definitions

➜ Minimum control contact time
This is the minimum pulse time required to effect timing control.

➜ Reset time (or return)
This is the time required at the end of a cycle for resetting the timer to start a new cycle.

➜ Accuracy
This is the maximum difference between the selected and the actual timing of the cycle chosen.
It is expressed as a percentage of the maximum value of the timing range considered within normal operating parameters.

➜ Maximum operating current
This is the maximum uninterrupted current at which the timer may function permanently within normal operating parameters when the timer contact is closed.

➜ Thermal intensity
Current limit in continuous duty for a circuit with the highest possible level of current which a previously closed contact circuit can tolerate at all times in specified conditions.

➜ Contact rating
This is the value of the current that can be switched by a contact in certain specified conditions.

Insulation to standard VDE 110 group C, IEC 255.5 and IEC 664
Spécifications pour le dimensionnement des lignes de fuite et distance dans l'air du matériel électrique.

➜ Protection
To IEC 529: classification of the levels of protection obtained by casings, terminal
- against solid matter
- against liquids

➜ Protection from voltage surge
This protection is designed to eliminate voltage peaks generated by the industrial environment. It is generally provided by a varistor, the capacity of which is expressed in joules.
Example:
2 joules = 5000V x 400 A x 1µs
For circuits with strong electrical interference (over 2 joules) the user should ensure adequate protection.

➜ Electromagnetic compatibility
Electromagnetic compatibility tests measure the degree of immunity which a piece of equipment shows to various types of disturbance as defined in IEC standards.

Controls

➜ Quality control
Our products are quality controlled systematically during assembly and on completion. The overseeing of control checks in the workshop, the use of collected data and any resulting product assessments form the essential role of Quality Control.
All our products undergo a final check, either 100% or on a selective basis according to French standard X 06-022, which provides for a classification of possible defects in three groups : critical, major, minor.

➜ Note:
According to customer requirements and for certain product ranges which must meet particular requirements expressed in a specification, it is always possible to create or to modify a quality standard on the basis of a normal or special existing product and to vary the level of inspection. It can happen that the tolerance level is set at zero for certain parameters directly linked to the completion of a function for which total success must be assured: a defect is therefore fatal. Such specific requirements do, however, entail a significant increase in product costs.

FUNCTIONS

U : Supply
R : Output or load relay
T : Timing

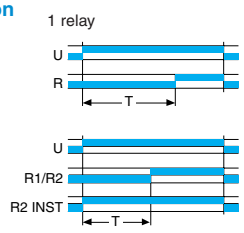
C (Y1) : Control contact
∞ : indefinite

➜ Function A : Delay on energisation

Single timing cycle which begins on energisation.

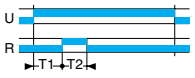
The output changes state after timing.

2 relays timed or
1 relay timed and 1 instantaneous



➜ Function Ab : One-shot cycle

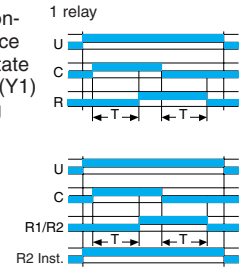
The output changes states at the end of the set time T1, for a period T2.
Both T1 and T2 independently adjustable.



➜ Function Ac : Timing after closing and opening of control contact

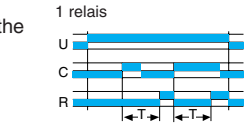
After energisation, closure of the control contact causes the timing period T to commence and output relay R (or the load) changes state at the end of this interval. When contact C (Y1) opens, relay R resets after a second timing period T.

2 relays timed or
1 relay timed and 1 instantaneous



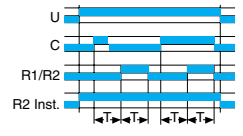
➜ Function Ad : Delay on energisation by switch (not resettable)

After power-up, pressing or holding down the switch starts timing. At the end of timing, the output is energised. The output will be reset the next time the switch is pressed or held down.



➜ Function Ah : Flashing single cycle by switch (not resettable)

After power-up, pressing or holding down the switch starts timing. At the end of timing,the output is energised. At the end of this second timing, the output falls back to its initial value.

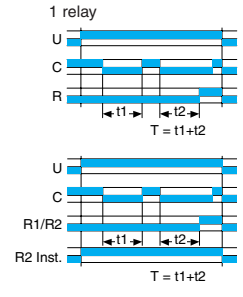


➜ Function At : Timing on energisation with memory

Provides a cumulative time for contact opening.

The output changes states at the end of the set time.

2 relays timed or
1 relay timed and 1 instantaneous

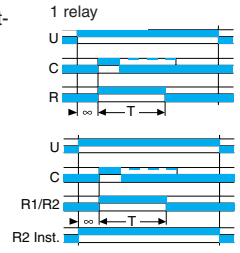


➜ Function B : Timing on impulse one shot On pulse (with constant supply)

After energisation; a pulse (≥ 50 ms) or a maintained control contact will cause the output to change state which reverts to the rest position at the end of timing.

N.B. : this process enables shortening or lengthening of a signal.

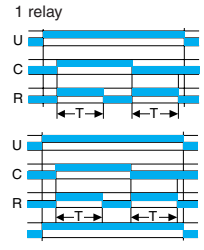
2 relays timed or
1 relay timed and 1 instantaneous



➜ Function Bw : Pulse output (adjustable)

A output relay R (or the load) changes state, and remains in the changed-over state for the timing period, both when control contact C (Y1) closes and when it opens.

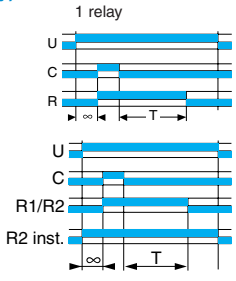
2 relays timed or
1 relay timed and 1 instantaneous



➜ Function C : Timing after impulse Delay OFF (with constant supply)

After energisation, once the control contact is closed the output state changes.
Timing will only begin on the re-opening of this control contact (one shot).
Relay R returns to its initial position at the end of the timing period.

2 relays timed or
1 relay timed and 1 instantaneous



➜ Function D ou Di : Flip-flop

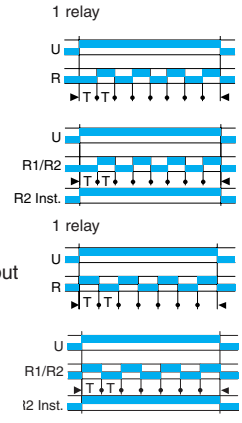
Repetitive cycle which switches the output alternately between the rest and operating position for equal time bases.
T1 + T2 = T total

Function D: the cycle begins with the output in rest position. Pause start.

2 relays timed or
1 relay timed and 1 instantaneous

Function Di: the cycle begins with the output in the operating position. Pulse start.

2 relays timed or
1 relay timed and 1 instantaneous

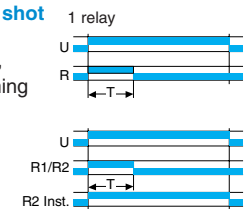


➜ Function H : Timing on energisation Interval timer - one shot

On energisation, the output changes state, remains in that state for the duration of timing and resets at the end of the single cycle.

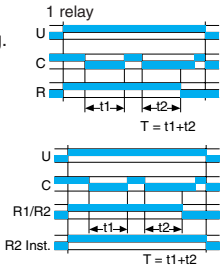
N.B. This is complementary to function A.

2 relays timed or
1 relay timed and 1 instantaneous



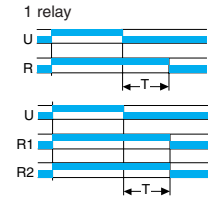
➜ Function Ht : Delay on energisation with memory

Provides a cumulative time for contact opening. On energisation, the output changes state, remains in that state for the duration of timing and resets at the end of the single cycle.



➜ Function K : Delay on de-energisation - True delay OFF

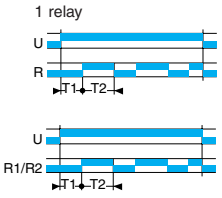
On energisation, the output changes state. On de-energisation timing commences and the output only returns to the reset condition after timing.



➜ Function L : Cyclic timing - Asymmetrical recycler

Repetitive cycle comprising 2 independent adjustable time bases. Each time base corresponds alternately to a different output state.

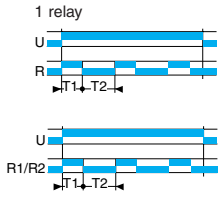
N.B. : The cycle starts with the output in the rest position.



➜ Function Li : Cyclic timing - Asymmetrical recycler

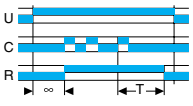
Repetitive cycle comprising 2 independent adjustable time bases. Each time base corresponds alternately to a different output state.

N.B. : The cycle starts with the output in the operating position.



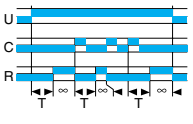
➜ Function N : "Safe-guard"

At the first control pulse the output is energised.
To complete the timing the interval between the two control pulses must be greater than the timing set.



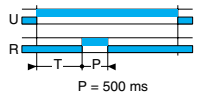
➜ Function O : "Delayed safe-guard"

On energisation, a first timing sequence occurs and the output changes state.
With the closing of the control contact, the output resets and the timing starts, with the output being activated after timing.
For the timing to be completed, the interval between the closing of two control contacts must be greater than the timing set.



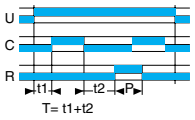
➜ Function P : Delayed fixed-length pulse

Timing begins on energisation. At the end of the timing period output relay R (or the load) changes state for a period of approx. 500 milliseconds.



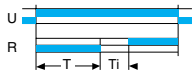
➜ Function Pt : Impulse counter (delay on)

Calculates the total opening time of a contact. At the end of timing, the output is energised for approximately 500 ms.



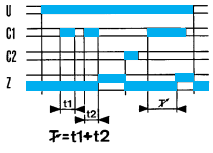
➜ Function Q : "Star-delta"

At the end of timing, the output is not energised. It remains "open" (not conducting) and will only change state after the fixed time of Ti has elapsed.
Dwell time selectable

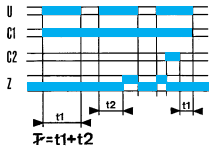


➜ Function T : Timing on energisation with memory

a - energisation by control signal
The timer sums the times for which the control contact is closed (C1).
Reset is by the reset signal (C2) only.

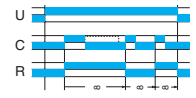


b - energisation by supply voltage
The timer sums the times for which the supply voltage (U) is on.
Reset is by the reset signal (C2) only



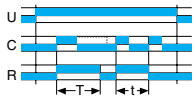
➜ Function T : Impulse relay

After power-up, pressing or holding down the switch closes the relay. Pressing the switch a second time opens the relay.



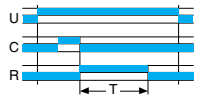
➜ Function Tt : Timed impulse relay

After power-up, pressing or holding down the switch closes the relay and starts timing. The relay opens at the end of timing or when the switch is pressed a second time.



➜ Function W : Timing after pulse on control contact

After energisation, if the control contact opens it causes output relay R (or the load) to change state and timing to start. At the end of the timing period, relay R resets to its original state.



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