Electronic timers

Selection guide

RE7 : 4233062 - 4233189

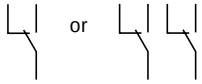
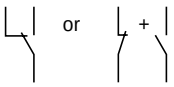
RE8 : 4233190 - 4233244

2

Applications	Electronic timers enable simple automation cycles to be set up using wired logic. They can also be used to complement the functions of PLCs.		
	Timers with solid state output reduce the amount of wiring required (wired in series). The durability of these timers is independent of the number of operating cycles.		

Enclosure type	Modular 17.5 mm	DIN, width 22.5 mm	
Timing range Number of ranges	1	1	2
Extreme values	Depending on model: 0.1…3 s 1…30 s 10…300 s 2…60 min	Depending on model: 0.1…10 s 0.3…30 s 3…300 s 40 s…60 min	0.1…10 s 3…300 s
Output circuit			
Control circuit voltage, depending on model	⎓ 24…240 V ∿ 24…240 V	⎓ 24…240 V ∿ 24…240 V	
Type	RE1	RE9	
Pages	2/5	2/8 and 2/9	

Relay outputs provide complete isolation between the supply circuit and the output.
It is possible to have several output circuits.

Universal: multi-voltage, multifunction, 7 or 10 timing ranges	Optimum 1 single timing range
	
7	10	1
0.05…1 s 0.15…3 s 0.5…10 s 1.5…30 s 5…100 s 15…300 s 1.5…10 min	0.05…1 s 0.15…3 s 0.5…10 s 1.5…30 s 5…100 s 15…300 s 1.5 …30 min 15…300 min 1.5…30 h 15…300 h	Depending on model: 0.05…0.5 s 0.05…15 s 0.1…3 s 0.1…10 s 0.3…30 s 3…300 s 20 s…30 min
		
⎓ or ∿ 24 V, 42…48 V, 24…240 V ∿ 110…240 V		⎓ 24 V ∿ 24 V, 110…130 V, 220…240 V, 380…415 V
RE7	Farnell Codes : 4233062 - 4233189	RE8	4233190 - 4233244

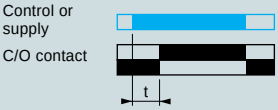
2/8 and 2/9

Functions and selection

Functions

Diagram | Operating principle

On-delay

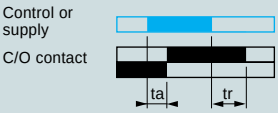


Timing starts when the relay is energised. When the set time delay (t) has elapsed, the output contact closes. When the relay is de-energised, the contact returns to its initial position. The output contact does not close if the duration of the control instruction is less than the set time delay.
Timing can also be started by opening of a control contact (models with external control).

Off-delay

Energisation of the relay or closing of the control contact (models with external control) causes the output relay to close instantaneously . Timing starts when the relay is de-energised or when the control contact opens. When the set time delay (t) has elapsed, the contact returns to its initial position. If the energisation time or closing time of the control contact is less than the minimum time specified, the timing period does not start.

On and Off-delay

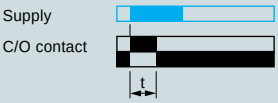


This function is a combination of the On and Off delay functions. The timing cycle must be controlled by an external contact.

Symmetrical
The On and Off delays are equal.

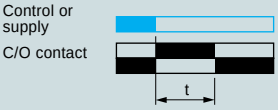
Asymmetrical
The On and Off delays are adjusted by 2 different potentiometers.

Timing relay with pulse on energisation



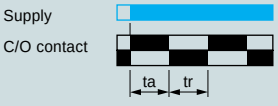
Energisation of the relay causes the output contact to close instantaneously and start the timing period. The contact returns to its initial position when the set time delay (t) has elapsed or if the supply is cut off before the end of the timing period.

Timing relay with pulse on de-energisation or on opening of a external control contact



De-energisation of the relay or opening of the external control contact (depending on model) causes the output contact to close instantaneously and start the timing period. When the set time delay (t) has elapsed, the contact returns to its initial position.

Flashing relay

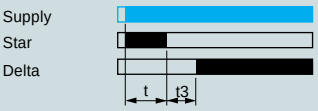


Energisation of the relay starts the flashing period and causes the output relay to start the flashing cycle. When the relay is de-energised, the contact returns to its initial position.

Symmetrical flashing relay
The On and Off flashing phases are identical.

Asymmetrical flashing relay
The On and Off flashing phases are adjusted by 2 different potentiometers (ta and tr).

Time delay relays for star-delta starters



Energisation of the relay causes the star contactor to close instantaneously and starts the timing period. When the set time delay (t) has elapsed, the star contactor returns to its initial position and the delta contactor closes, after a breaking time sufficient for the changeover.

Multifunction relays

On-delay - Pulse on energisation contact - Symmetrical flasher

Same functions as above +
Off-delay - Pulse on energisation contact with externally controlled start - Symmetrical flasher

Same functions as above +
Star Delta starting (External control of start of the timing period is not possible for the star delta starting function).

External control of starting: opening of an external contact connected to the relay starts the timing period. Closing of this contact resets the timer.
External control of partial stop of time delay: closing of an external contact connected to the relay allows the timing period to be interrupted. The time elapsed is memorised. Timing restarts as soon as the contact opens. This type of control enables the totalising function to be performed.
External adjustment of the time delay: one or more external potentiometers can be used for remote adjustment of the timing period or periods.

Output	**Multifunction relay**	See pages
Solid state	**RE9-TA**	2/12 and 2/13
1 C/O	**RE7-TL** or **RE8-TA**	RE7: 2/20 and 2/21, RE8: 2/38 and 2/39
2 C/O	**RE7-TP**	2/20 and 2/21
1 C/O	**RE7-TM**	2/20 and 2/21
Solid state	**RE9-RA**	2/12 and 2/13
1 C/O	**RE7-RB11** or **RE8-RB**	RE7: 2/24 and 2/25, RE8: 2/38 and 2/39
2 C/O	**RE7-RL**	2/24 and 2/25
2 C/O	**RE7-RB13**	2/24 and 2/25
1 C/O	**RE8-RA**	2/38 and 2/39
1 C/O	**RE7-RA** and **RE7-RM**	2/24 and 2/25
2 C/O	**RE7-MA13**	2/22 and 2/23
1 C/O	**RE7-MA11**	2/22 and 2/23
1 C/O	**RE7-MV**	2/22 and 2/23
1 C/O	**RE7-PE** or **RE8-PE**	RE7: 2/26 and 2/27, RE8: 2/40 to 2/41
2 C/O	**RE7-PP**	2/26 and 2/27
1 C/O	**RE8-PT**	2/40 and 2/41
2 C/O	**RE7-PD**	2/26 and 2/27
1 C/O	**RE7-PM**	2/26 and 2/27
1 C/O	**RE8-PD**	2/40 and 2/41
1 C/O	**RE7-CL** or **RE8-CL**	RE7: 2/28 and 2/29, RE8: 2/38 and 2/39
2 C/O	**RE7-CP**	2/28 and 2/29
1 C/O	**RE7-CV**	2/28 and 2/29
1 C/O	**RE8-YG**	2/40 and 2/41
2 C/O	**RE7-YA** and **RE7-YR**	2/30 and 2/31
1 N/C + N/O	**RE8-YA**	2/40 and 2/41

Output	**Multifunction relay**	See pages
Solid state	**RE9-MS**	2/14 and 2/15
1 C/O	**RE7-ML**	2/32 and 2/33
2 C/O	**RE7-MY13MW**	2/32 and 2/33
2 C/O	**RE7-MY13BU**	2/32 and 2/33

Zelio Time - timing relays

References :
pages 2/20 to 2/32
Dimensions :
page 2/34
Schemes :
pages 2/21 to 2/34
Setting-up :
pages 2/21 to 2/35

Relay output, width 22.5 mm, universal

General characteristics

Presentation

The RE7 range of relays, with only 23 references, covers all timing applications.

These relays offer multi-range timing from 50 ms to 300 h.

They are multi-voltage.

Three models combine several different functions: multifunction relays.

These products have a transparent, hinged flap on their front face to avoid any accidental alteration of the settings. This flap can be directly sealed.

Environment

Conforming to standards			IEC 61812-1, EN 61812-1
Product approvals			CSA, GL pending, UL
CE marking			Zelio Time timing relays conform to European regulations relating to CE marking
Ambient air temperature around the device	Storage	**°C**	- 40…+ 85
	Operation	**°C**	- 20…+ 60
Permissible relative humidity range	Conforming to IEC 60721-3-3		15…85 % Environmental class 3K3
Vibration resistance	Conforming to IEC 6068-2-6, 10 to 55 Hz		a = 0.35 ms
Shock resistance	Conforming to IEC 6068-2-27		15 gn - 11 ms
Degree of protection	Casing		IP 50
	Terminals		IP 20
Degree of pollution	Conforming to IEC 60664-1		3
Overvoltage category	Conforming to IEC 60664-1		III
Rated insulation voltage Between contact circuit and power supply or between contact circuit and control inputs	Conforming to IEC	**V**	250
	Conforming to CSA	**V**	300
Test voltage for insulation tests	Dielectric test	**kV**	2.5
	Shock wave	**kV**	4.8
Voltage limits	Power supply circuit		0.85…1.1 Uc
Frequency limits	Power supply circuit	**Hz**	50/60 ± 5 %
Disconnection value	Power supply circuit		> 0.1 Uc
Mounting position without derating	In relation to normal vertical mounting plane		Any position
Connection Maximum c.s.a.	Flexible cable without cable end	**mm²**	2 x 2.5
	Flexible cable with cable end	**mm²**	2 x 1.5
Tightening torque		**N.m**	0.6…1.1

Immunity to electromagnetic interference (EMC) (Application class 2 conforming to EN 61812-1)

Electrostatic discharge	Conforming to IEC 61000-4-2		Level 3 (6 kV contact, 8 kV air)
Electromagnetic fields	Conforming to IEC 61000-4-3		Level 3 (10 V/m)
Fast transients	Conforming to IEC 61000-4-4		Level 3 (2 kV)
Shock waves	Conforming to IEC 61000-4-5		Level 3 (2 kV)
Radiated and conducted emissions	CISPR11		Group 1 class A
	CISPR22		Class A

Consumption

Average consumption			∿ 50/60 Hz					⎓			
			24 V	48 V	110 V	240 V		24 V	48 V	110 V	240 V
	RE7-●●11BU	**VA**	0.7	1.6	1.8	8.5	**W**	0.5	1.2	–	–
	RE7-●●12BU and RE7-●●13BU	**VA**	1.2	2	2.8	12.5	**W**	0.8	1.6	–	–
	RE7-●●●●MW (1)	**VA**	2	2.5	3.2	6	**W**	2	1	3.2	2

(1) RE7-RB●●MW: current peak on energisation = 1 A / 30 ms.

References :
pages 2/20 to 2/32
Dimensions :
page 2/34
Schemes :
pages 2/21 to 2/34
Setting-up :
pages 2/21 to 2/35

Relay output, width 22.5 mm, universal

General characteristics (continued)

Time delay characteristics

Setting accuracy	As % of the full scale value		± 10 %
Repeat accuracy			± 0.2 %
Influence of voltage	In the voltage range, 0.85...1.1 Un		< 0.2 %
Influence of temperature			< 0.07 %/°C
Immunity to micro-breaks		**ms**	3
Minimum control pulse		**ms**	20 (except **RE7-RB1●MW**: 1 s)
Reset time		**ms**	50

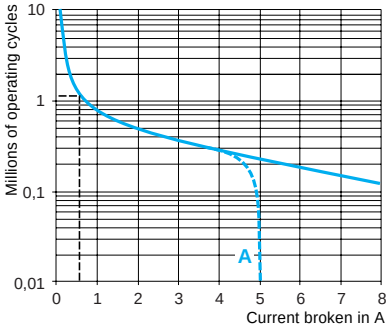
Output circuit characteristics

Maximum switching voltage		**V**	≂ 250		
Mechanical durability	In millions of operating cycles		20		
Current limit Ith		**A**	8 (except **RE7-RB●●MW**: 5 A)		
Rated operational limits at 70 °C			24 V	115 V	250 V
Conforming to IEC 60947-5-1/1991 and VDE 0660	AC-15	**A**	3	3	3
	DC-13	**A**	2	0.2	0.1
Minimum switching capacity			12 V/10 mA		
Contact material			Nickel Silver 90/10 (except **RE7-RB●●MU**: gold flashed silver alloy)		

Remote control input characteristics

Maximum voltage	Applicable to inputs Y1Z2, X1Z2, X2Z2	**V**	60
Signal delivered by Y1Z2, X1Z2, X2Z2 control inputs	Switching current	**mA**	< 1
	Maximum distance	**m**	50
⚠ No galvanic insulation between these inputs and the supply	Compatibility		3/4-wire PNP and NPN Telemecanique sensors or other sensors without an internal load
Potentiometer for connection between terminals Z1Z2, Z3Z2	Type		Linear at ± 20 %
	Resistance	**kΩ**	47 ± 20 %
	Power	**W**	0.2
	Maximum distance	**m**	25 by shielded cable: shielding linked to terminal Z2

a.c. load
Curve 1
Electrical durability of contacts on resistive load in millions of operating cycles



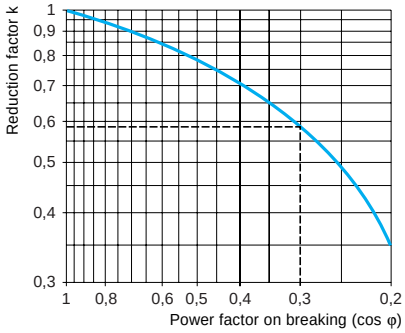
A **RE7-RB●●MW**

Example:

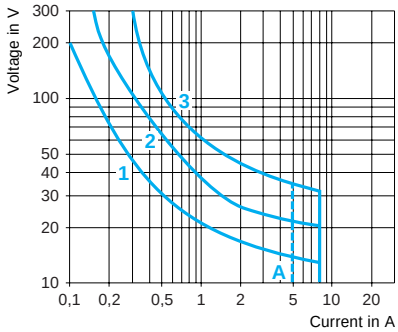
An LC1-F185 contactor supplied with 115 V/50 Hz for a consumption of 55 VA or a current consumption equal to 0.1 A and cos φ = 0.3
For 0.1 A, curve 1 indicates a durability of approximately 1.5 million operating cycles.
As the load is inductive, it is necessary to apply a reduction coefficient k to this number of cycles, as indicated by curve 2.

For cos φ = 0.3: k = 0.6
The electrical durability therefore becomes:
1.5 10^6 operating cycles x 0.6 = 900 000 operating cycles

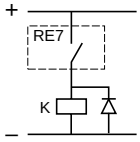
Curve 2
Reduction factor k for inductive loads (applies to values taken from the durability curve opposite)



d.c. load
Load limit curve



A **RE7-RB●●MW**
1 L/R = 20 ms
2 L/R with load protection diode
3 Resistive load



Relay output, width 22.5 mm, universal
On-delay relays

★ Available 2nd Quarter 2001

Functions, references

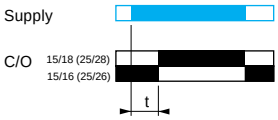
2

de-energised
energised
open
closed
t: adjustable On-delay

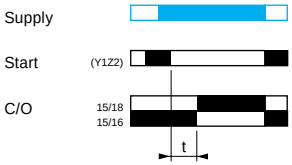
On-delay relays ⊠

Time delay adjustable from 0.05 s to 300 h in 10 ranges (see setting-up procedure on page opposite).

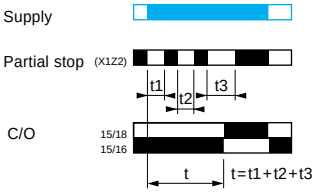
On-delay relay ⊠ Start on energisation RE7-TL, TM, TP



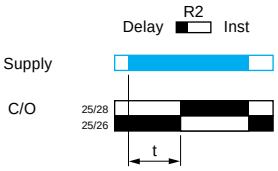
External control for start of time delay RE7-TM

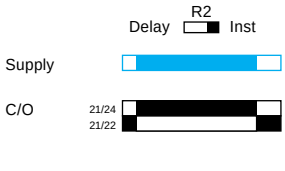


External control for partial stop of time delay (for totalising function) **RE7-TM**



Conversion of second changeover contact to instantaneous mode by means of switch R2 RE7-TP13BU





RE7- T

Functions (see diagrams above)	Supply voltages	Relay output	Reference	Weight kg
On-delay relay	⎓ or ∿ 24 V ∿ 110…240 V	1 C/O	**RE7-TL11BU**	0.150
On-delay relay External control possible for: - start of time delay - partial stop of time delay - adjustment of time delay (1)	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	1 C/O	**RE7-TM11BU**	0.150
On-delay relay Remote control possible for: - adjustment of time delay (1)	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	2 C/O (2)	**RE7-TP13BU**	0.150

(1) By external potentiometer, to be ordered separately. If external potentiometer is fitted, the internal potentiometer is automatically disconnected.
(2) A switch on the front face of the relay allows the second changeover contact to be used in instantaneous mode.

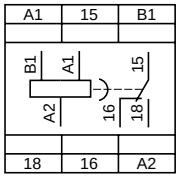
Relay output, width 22.5 mm, universal
On-delay relays

Schemes, setting-up

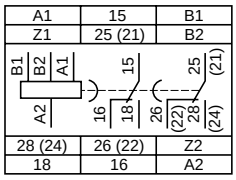
Schemes

Terminal blocks

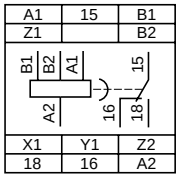
RE7-TL11BU



RE7-TP13BU

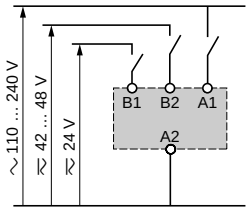


RE7-TM11BU

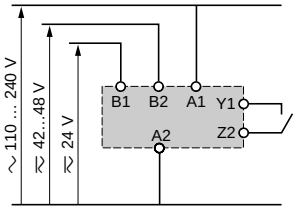


Recommended application schemes

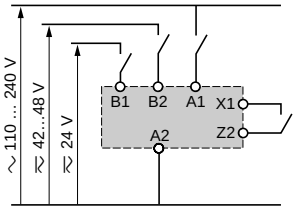
Start on energisation



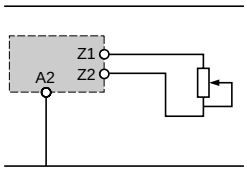
Start by external contact



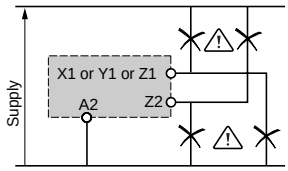
External control of partial stop



Potentiometer wiring

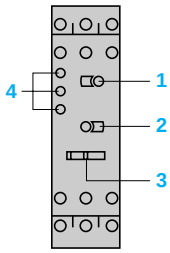


Wiring precautions



⚠ No galvanic insulation between supply terminals A1, A2, B1, B2 and control inputs X1, Y1, Z1, Z2.

Setting-up



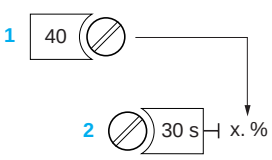
1 Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**.

2 10-position timing range selector:

0.05…1 s	0.5…10 s	5…100 s	1.5…30 min	1.5…30 h
0.15…3 s	1.5…30 s	15…300 s	15…300 min	15…300 h

3 Switch for converting the second C/O contact to instantaneous mode (for RE7-TP13BU).

4 LEDs, depending on the model:
- Green LED U/T: flashes during the time delay period, permanently on outside the time delay period.
- Yellow LED R1: on when the 1st relay is energised.
- Yellow LED R2: on when the 2nd relay is energised.



Adjustment of the time delay

- Select the timing range immediately greater than the time required, using selector switch **2**.

Example: time required 12 s; range selected 30 s.

- Using potentiometer **1** display the required time value as a % of value **2**.

$$\mathbf{1} = \frac{t \times 100}{\mathbf{2}} \quad \text{i.e.} \quad \frac{12 \times 100}{30} = 40$$

Characteristics :
pages 2/18 and 2/19
Dimensions :
page 2/34
Schemes :
page 2/34
Setting-up :
page 2/35

Relay output, width 22.5 mm, universal
On-delay and Off-delay relays

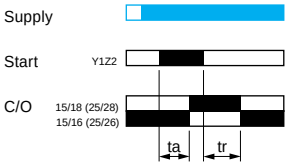
Functions, references

★ Available 2nd Quarter 2001

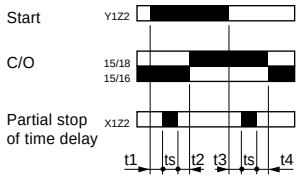
On-delay and Off-delay relays ✉ , ■

Time delay adjustable from 0.05 s to 300 h in 10 ranges (see setting-up procedure on page opposite).

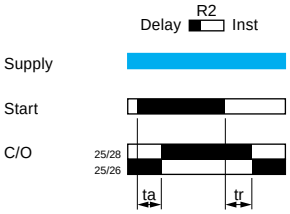
External control for start of time delay RE7-MA and MV

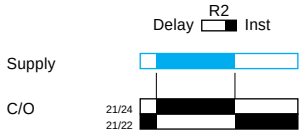


Remote control for partial stop of time delay RE7-MA11BU and MV11BU



Conversion of second changeover contact to instantaneous mode by means of switch R2 RE7-MA13BU





- de-energised
- energised
- open
- closed

ta : adjustable On-delay
tr: adjustable Off-delay
ta = t1 + t2
tr = t3 + t4
ts: partial stop time

RE7-M

Functions (see diagrams above)	Supply voltages	Relay output	Reference	Weight kg
Symmetrical relays: On and Off delay times are equal.				
On-delay and Off-delay relay External control possible for - partial stop of time delay - adjustment of time delay (1) Start control via external contact only	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	1 C/O	**RE7-MA11BU**	0.150
On-delay and Off-delay relay Start control via external contact only	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	2 C/O (2)	**RE7-MA13BU**	0.150
Asymmetrical relays: On and Off delay times are adjusted separately.				
On-delay and Off-delay relay External control possible for - partial stop of time delay - adjustment of time delays (1) Start control via external contact only	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	1 C/O	**RE7-MV11BU**	0.150

(1) By external potentiometer(s), to be ordered separately. If external potentiometer(s) is/are fitted, the internal potentiometer(s) is/are automatically disconnected.
(2) A switch on the front face of the relay allows the second changeover contact to be used in instantaneous mode.

Relay output, width 22.5 mm, universal
On-delay and Off-delay relays

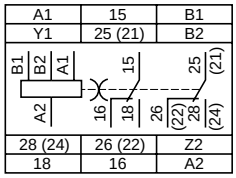
Schemes, setting-up

Characteristics :
pages 2/18 and 2/19
References :
page 2/22
Dimensions :
page 2/34

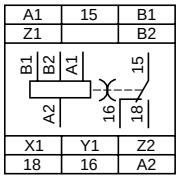
Schemes

Terminal blocks

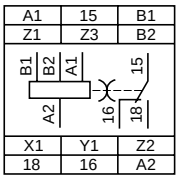
RE7-MA13BU



RE7-MA11BU

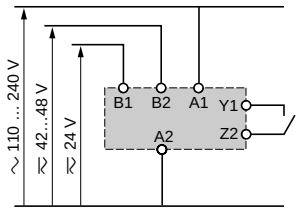


RE7-MV11BU

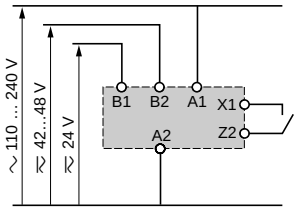


Recommended application schemes (for other schemes, see page 2/34)

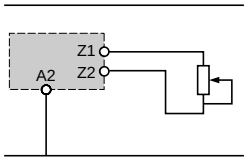
Start by external control



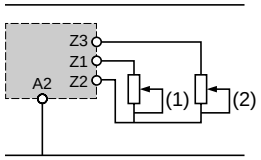
External control of partial stop



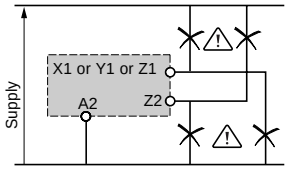
Potentiometer wiring
for symmetrical relay
RE7-MA



Potentiometer wiring
for asymmetrical relays
RE7-MV11BU



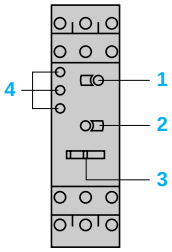
Wiring precautions



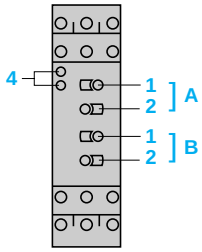
⚠ No galvanic insulation between supply terminals A1, A2, B1, B2 and control inputs X1, Y1, Z1, Z2.
(1) On-delay adjustment
(2) Off-delay adjustment

Setting-up procedure

Symmetrical timing relay



Asymmetrical timing relay



1 Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**

2 10-position timing range selector :

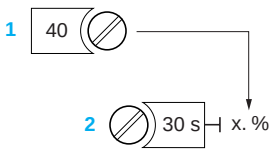
0.05…1 s	0.5…10 s	5…100 s	1.5…30 min	1.5…30 h
0.15…3 s	1.5…30 s	15…300 s	15…300 min	15…300 h

A On-delay adjustment (ta).

B Off-delay adjustment (tr).

3 Switch for converting the second changeover contct to instantaneous mode (RE7-MA13BU).

4 LEDs, depending on the model :
- Green LED: flashes during the time delay period, permanently on outside the time delay period
- Yellow LED 1: on when the 1st relay is energised
- Yellow LED 2: on when the 2nd relay is energised



Adjustment of the time delay

- Select the timing range value immediately greater than the time required using selector switch **2**.

Example: required time 12 s; range selected 30 s.

- Using potentiometer **1** display the required time as a % of value **2**.

$$\mathbf{1} = \frac{t \times 100}{\mathbf{2}} \quad \text{i.e.} \quad \frac{12 \times 100}{30} = 40$$

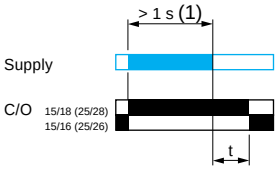
Relay output, width 22.5 mm, universal
Off-delay relays

Functions, references

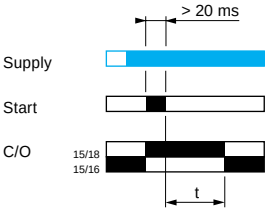
★ Available 2nd Quarter 2001

Off-delay relays ■

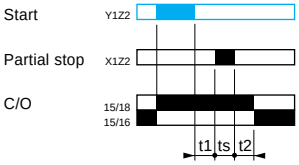
Off-delay relays
RE7-RB



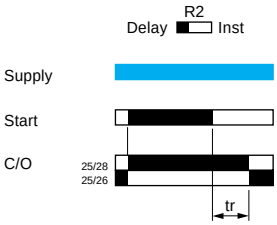
External control for start of time delay
RE7-RA, RM

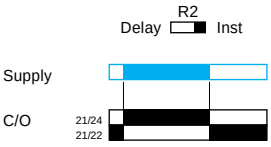


Remote control for partial stop of time delay
RE7-RA, RM



Conversion of second changeover contact to instantaneous mode by means of switch R2
RE7-RL13BU





de-energised
energised
open
closed
t: adjustable Off-delay
t = t1 + t2
t : partial stop time

RE7-R

Functions (see diagrams above)	Supply voltages	Relay output	Reference	Weight kg
On de-energisation, adjustable from 0.05 s to 10 min in 7 ranges (see setting-up procedure on page opposite).				
Off-delay relay	⎓ or ∿ 24…240 V	1 C/O	**RE7-RB11MW** (1)	0.150
Off-delay relay Remote control possible for: - adjustment of time delay (2)	⎓ or ∿ 24…240 V	2 C/O	**RE7-RB13MW** (1)	0.150
On opening of external control contact, adjustable from 0.05 s to 300 h in 10 ranges (see setting-up procedure on page opposite).				
Off-delay relay External control possible for: - partial stop of time delay - adjustment of time delay (2)	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	1 C/O	**RE7-RA11BU**	0.150
On opening of low level external control contact, adjustable from 0.05 s to 300 h in 10 ranges (see setting-up procedure on page opposite).				
Off-delay relay External control possible for: - partial stop of time delay - adjustment of time delay (2)	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	1 C/O	**RE7-RM11BU**	0.150
Off-delay relay	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	2 C/O (3)	**RE7-RL13BU**	0.150

(1) If the device has been stored, de-energised, for more than a month, it must be energised for about 15 seconds to activate it. Subsequently, a time of > 1 s is enough to activate the time delay.
⚠ If this time is not complied with, the relay will remain energised indefinitely.
(2) By external potentiometer, to be ordered separately. If external potentiometer is fitted, the internal potentiometer is automatically disconnected.
(3) A switch on the front face of the relay allows the second changeover contact to be used in instantaneous mode.

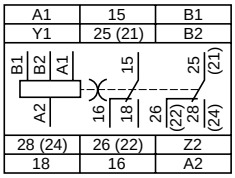
Relay output, width 22.5 mm, universal
Off-delay relays

Schemes, setting-up

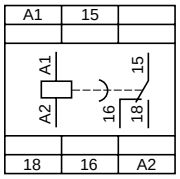
Schemes

Terminal blocks

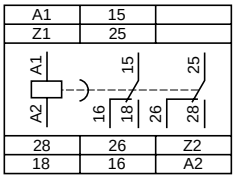
RE7-RL13BU



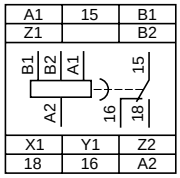
RE7-RB11MW



RE7-RB13MW



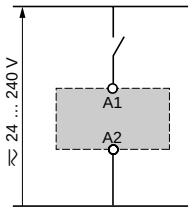
RE7-RM11BU and **RE7-RA11BU**



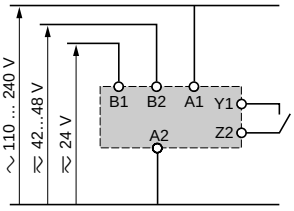
Recommended application schemes

Start on de-energisation

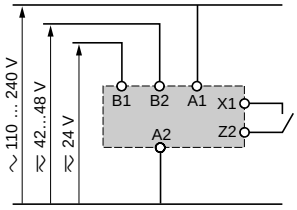
RE7-RB



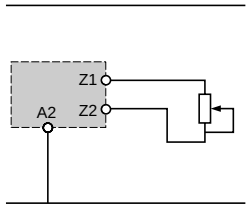
Start by low level external control
RE7-RM and **RL**



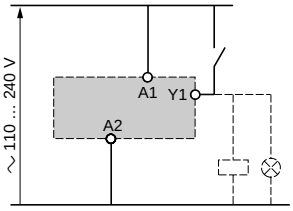
Remote control of partial stop
RE7-RA and **RM**

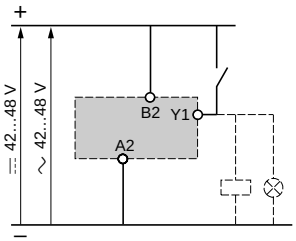


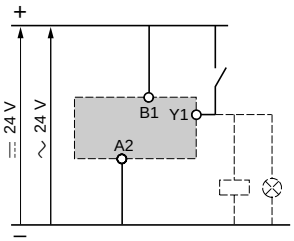
Potentiometer wiring



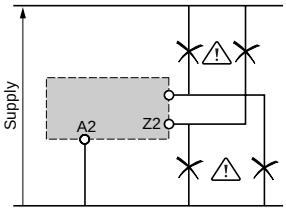
Start by external control
RE7-RA





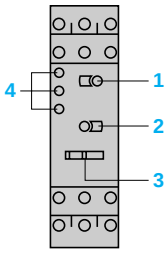


Wiring precautions
RE7-RM and **RL**



⚠ No galvanic insulation between supply terminals A1, A2, B1, B2 and control inputs X1, Y1, Z1, Z2.

Setting-up procedure



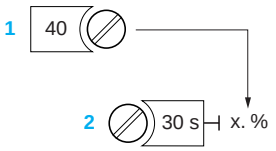
1 Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**.

2 Timing range selector:

- 10-position (RE7-RA, RM, RL)	0.05…1 s	0.5…10 s	5…100 s	1.5…30 min	1.5…30 h
	0.15…3.s	1.5…30 s	15…300 s	15…300 min	15…300 h
- 7-position (RE7-RB)	0.05…1 s	0.5…10 s	5…100 s	1.5…10 min	
	0.15…3.s	1.5…30 s	15…300 s		

3 Switch for converting the second changeover contact to instantaneous mode (RE7-RL13BU).

4 LEDs, depending on the model:
- Green LED U/T: flashes during the time delay period, permanently on outside the time delay period.
- Yellow LED R1: on when 1st relay is energised.
- Yellow LED R2: on when 2nd relay is energised.
- RE7-RB●●MW: the green LED does not flash during the time delay period and there is only one yellow LED (R).



Adjustment of the time delay

- Select the timing range immediately greater than the time required, using selector switch **2**.

Example: required time 12 s; range selected 30 s.

- Using potentiometer **1** display the required time value as a % of value **2**.

$$1 = \frac{t \times 100}{2} \quad \text{i.e.} \quad \frac{12 \times 100}{30} = 40$$

Characteristics :
pages 2/18 and 2/19
Dimensions :
page 2/34
Schemes :
page 2/34
Setting-up :
page 2/35

Relay output, width 22.5 mm, universal
Pulse on energisation relays

Functions, references

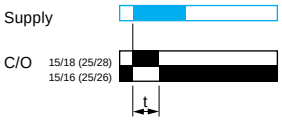
★ Available 2nd Quarter 2001

de-energised
energised
open
closed
t: pulse time
ts: partial stop time

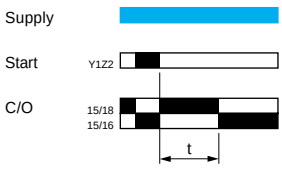
Pulse on energisation relays

Time delay adjustable from 0.05 s to 300 h in 10 ranges (see setting-up procedure on page opposite)

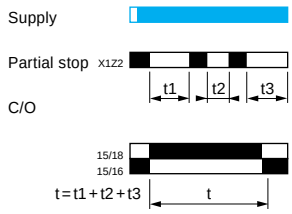
Pulse on energisation relay
Start on energisation
RE7-PE, PP



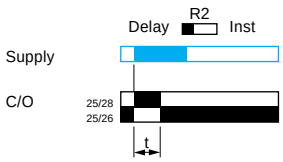
Start on opening of external control contact
RE7-PM, PD

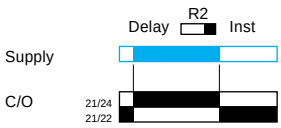


External control for partial stop of time delay
(for totalising function)
RE7-PM

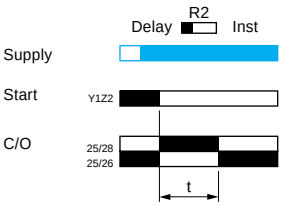


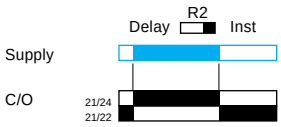
Conversion of second changeover contact to instantaneous mode by means of switch R2
RE7-PP





RE7-PD





RE7-P

Functions (see diagrams above)	Supply voltages	Relay output	Reference	Weight kg
Start on energisation 1 ⊓ ⊠				
Pulse on energisation relay	⎓ or ∿ 24 V ∿ 110…240 V	1 C/O	**RE7-PE11BU**	0.150
Pulse on energisation relay External control possible for - adjustment of time delay (2)	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110 …240 V	2 C/O (1)	**RE7-PP13BU**	0.150
Start on opening of external control contact 1 ⊓ ■				
Pulse on energisation relay External control possible for - partial stop of time delay - adjustment of time delay (2)	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	1 C/O	**RE7-PM11BU**	0.150
Pulse on energisation relays	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	2 C/O (1)	**RE7-PD13BU**	0.150

(1) A switch on the front face of the relay allows the second changeover contact to be used in instantaneous mode.
(2) By external potentiometer, to be ordered separately. If external potentiometer is fitted, the internal potentiometer is automatically disconnected.

Relay output, width 22.5 mm, universal
Pulse on energisation relays

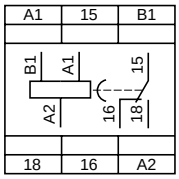
Schemes, setting-up

Characteristics :
pages 2/18 and 2/19
References :
page 2/26
Dimensions :
page 2/34

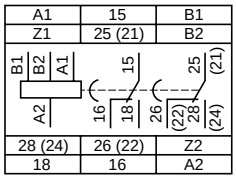
Schemes

Terminal blocks

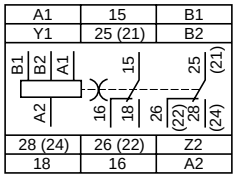
RE7-PE11BU



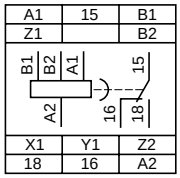
RE7-PP13BU



RE7-PD13BU

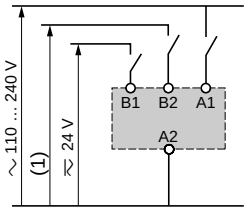


RE7-PM11BU

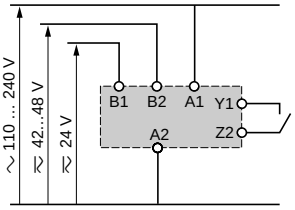


Recommended application schemes (for other schemes, see page 2/34)

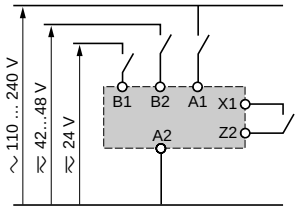
Start on energisation
RE7-PE, PP



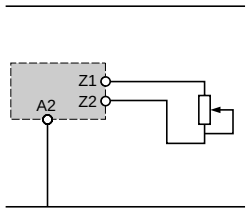
Start by external contact
RE7-PM, PD



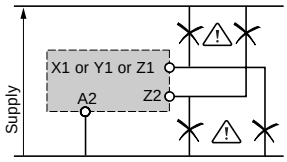
External control of partial stop



Potentiometer wiring

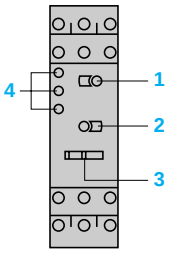


Wiring precautions



⚠ No galvanic insulation between supply terminals A1, A2, B1, B2 and control inputs X1, Y1, Z1, Z2.
(1) ⎓ or ~ 42...48 V: RE7-PP.

Setting-up procedure



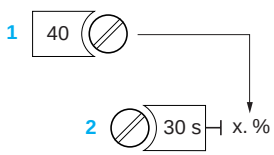
1 Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**.

2 10-position timing range selector :

0.05…1 s	0.5…10 s	5…100 s	1.5…30 min	1.5…30 h
0.15…3 s	1.5…30 s	15…300 s	15…300 min	15…300 h

3 Switch for converting the second changeover contact to instantaneous mode (RE7-PP13BU and PD13BU).

4 LEDs, depending on the model:
- Green LED: flashes during the time delay period (except for the first 2 timing ranges), permanently on outside the time delay period
- Yellow LED 1: on when 1st relay is energised
- Yellow LED 2: on when 2nd relay is energised



Adjustment of the time delay

- Select the timing range immediately greater than the time required using selector switch **2**.

Example: required time 12 s; range selected 30 s.

- Using potentiometer **1** display the required time as a % of value **2**.

$$\mathbf{1} = \frac{t \times 100}{\mathbf{2}} \quad \text{i.e.} \quad \frac{12 \times 100}{30} = 40$$

Characteristics :
pages 2/18 and 2/19
Dimensions :
page 2/34
Schemes :
page 2/34
Setting-up :
page 2/35

Relay output, width 22.5 mm, universal
Flashing relays

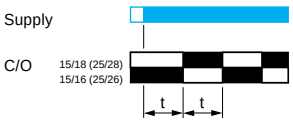
Functions, references

★ Available 2nd Quarter 2001

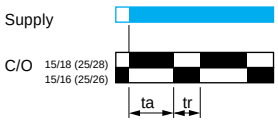
Flashing relays

Time delay adjustable from 0.05 s to 300 h in 10 ranges (see setting-up procedure on page opposite).

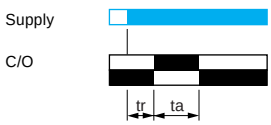
Symmetrical flashing relay
RE7-CL, CP



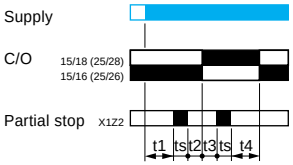
Asymmetrical flashing relay
Start during the ON period
RE7-CV (X2Z2 linked)



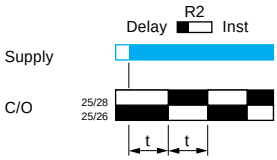
Start during the OFF period
RE7-CV (X2Z2 not linked)

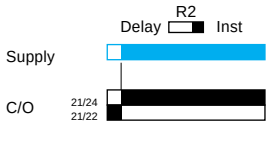


External control for
partial stop of time delay
RE7-CV



Conversion of second changeover contact
to instantaneous mode by means of switch R2
RE7-CP





de-energised
energised
open
closed
t, t1 and t2 : adjustable time delays
ts: partial stop time
t : flashing time
ta: On-delay period
tr: Off-delay period
ta = t1 + t2
tr = t3 + t4

RE7-C

Functions (see diagrams above)	Supply voltages	Relay output	Reference	Weight kg
Symmetrical relays with start during OFF period				
Flashing relay	⎓ or ∿ 24 V ∿ 110 … 240 V	1 C/O	**RE7-CL11BU**	0.150
Flashing relay External control possible for - adjustment of time delay (2)	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	2 C/O (1)	**RE7-CP13BU**	0.150
Asymmetrical relay with separate adjustment of On-delay and Off-delay				
Flashing relay External control possible for - start period - adjustment of time delays (2) - partial stop	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	1 C/O	**RE7-CV11BU**	0.150

(1) A switch on the front face of the relay allows the second changeover contact to be used in instantaneous mode.
(2) By external potentiometers, to be ordered separately. If external potentiometers are fitted, the internal potentiometers are automatically disconnected.

Relay output, width 22.5 mm, universal
Flashing relays

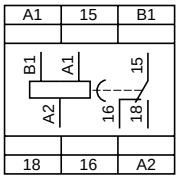
Schemes, setting-up

Characteristics :
pages 2/18 and 2/19
References :
page 2/28
Dimensions :
page 2/34

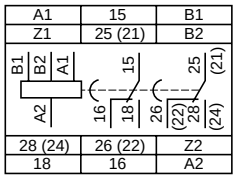
Schemes

Terminal blocks

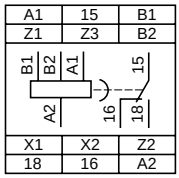
RE7-CL11BU



RE7-CP13BU

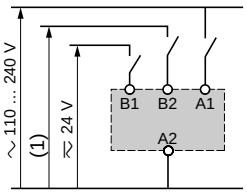


RE7-CV11BU

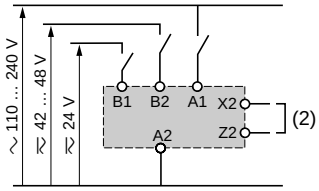


Recommended application schemes (for other schemes: see page 2/34)

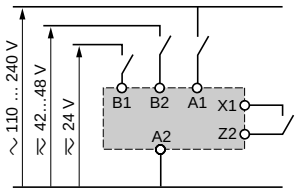
Start on energisation



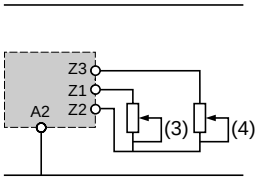
Start period selection
RE7-CV



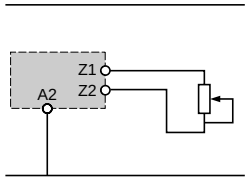
External control of partial stop
RE7-CV



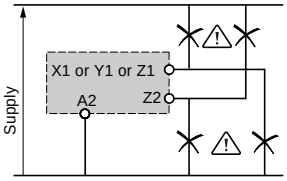
Potentiometer wiring
RE7-CV



Potentiometer wiring
RE7-CP



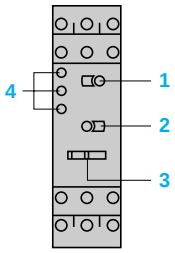
Wiring precautions



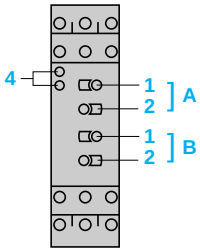
⚠ No galvanic insulation between supply terminals A1, A2, B1, B2 and control inputs X1, Y1, Z1, Z2.
(1) ⎓ or ~ 42...48 V: RE7-CP13BU and RE7-CV11BU.
(2) Start during ON period: X2Z2 connected. Start during OFF period: X2-Z2 not linked.
(3) Off-delay adjustment (tr) (contact 15/16 closed).
(4) On-delay adjustment (ta) (contact 15/18 closed).

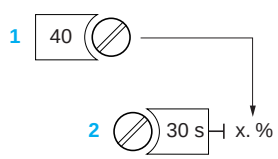
Setting-up procedure

Symmetrical flashing relay



Asymmetrical flashing relay





1 Potentiometer for fine adjustment of the time delay in % of range max. setting **2**.

2 10-position timing range selector :

0.05…1 s	0.5…10 s	5…100 s	15…300 min	1.5…30 h
0.15…3 s	1.5…30 s	15…300 s	1.5…30 min	15…300 h

A Adjustable On-delay (ta).

B Adjustable Off-delay (tr).

3 Switch for converting the second changeover contact to instantaneous mode (RE7-CP13BU).

4 LEDs, depending on the model :
- Green LED: flashes during the time delay period, permanently on outside the time delay period
- Yellow LED 1: on when 1st relay is energised
- Yellow LED 2: on when 2nd relay is energised

Adjustment of the time delay

- Select the timing range immediately greater than the time required using selector switch **2**.

Example: required time 12 s; range selected 30 s.

- Using potentiometer **1** display the required time as a % of value **2**.

$$\mathbf{1} = \frac{t \times 100}{\mathbf{2}} \quad \text{i.e.} \quad \frac{12 \times 100}{30} = 40$$

Characteristics :
pages 2/18 and 2/19
Dimensions :
page 2/34
Schemes :
page 2/34
Setting-up :
page 2/35

Relay output, width 22.5 mm, universal
Timing relays for star-delta starting

Functions, references

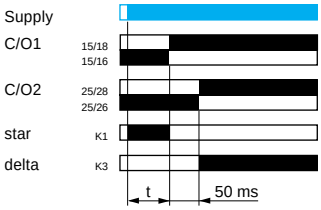
★ Available 2nd Quarter 2001

Timing relays for star-delta starters (1)

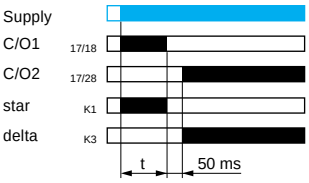
Time delay adjustable from 0.05 s to 300 h in 10 ranges (see setting-up procedure on page opposite).

Timing relays for star-delta starters

With double On-delay
RE7-YA



With contact for switching to star connection
RE7-YR



de-energised
energised
open
closed
t: adjustable time delay (star)

RE7-Y

Functions (see diagrams below)	Supply voltages	Output relay	Reference	Weight kg
With double On-delay	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	2 C/O	**RE7-YA12BU**	0.150
With contact for switching to star connection	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	2 C/O with common point	**RE7-YR12BU**	0.150

(1) Adjustable time delay for operation in star connection and and fixed (50 ms) for switching from star to delta connection to ensure sufficient breaking time.

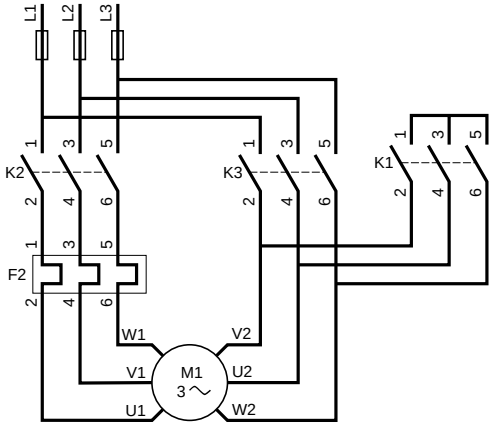
Relay output, width 22.5 mm, universal
Timing relays for star-delta starting

Schemes, setting-up

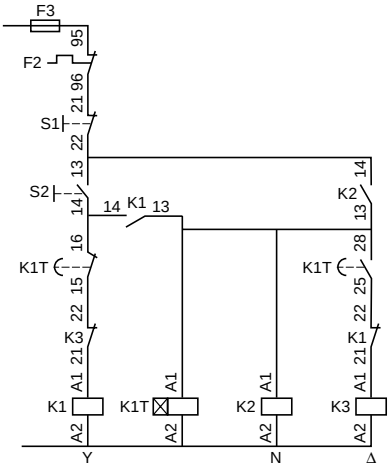
Characteristics :
pages 2/18 and 2/19
References :
page 2/30
Dimensions :
page 2/34

Schemes (Star-delta starter application)

Power scheme
RE7-YA12BU



Control schemes
Star-delta function with double On-delay timing

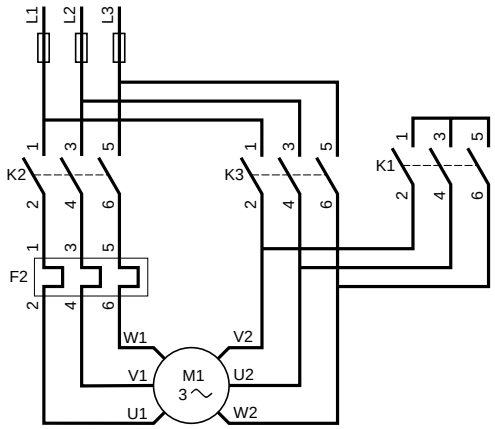


Terminal block RE7-YA

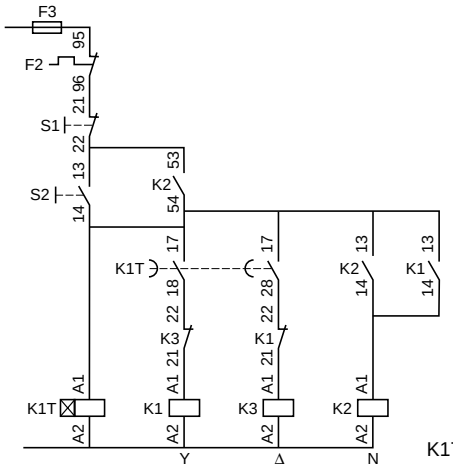
A1	15	B1
	25	B2
28	26	Z2
18	16	A2

K1T = RE7-YA relay

Power scheme
RE7-YR12BU



Control schemes
Star-delta function with contact for switching to star connection



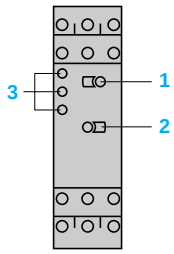
Terminal block RE7-YR

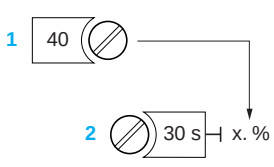
A1	17	B1
	17	B2
28	26	Z2
18	16	A2

K1T = Relay RE7-YR

⚠ No galvanic insulation between supply terminals A1, A2, B1, B2 and supply terminal Z2.
This terminal must therefore never be used (factory setting).

Setting-up procedure





1 Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**.

2 10-position timing range selector :

0.05…1 s	0.5…10 s	5…100 s	1.5…30 min	1.5…30 h
0.15…3 s	1.5…30 s	15…300 s	15…300 min	15…300 h

3 LEDs, depending on model :
- Green LED: flashes during the time delay period (except the first 2 timing ranges), permanently on outside the time delay period
- Yellow LED 1: on when 1st relay is energised
- Yellow LED 2: on when 2nd relay is energised

Adjustment of the time delay

- Select the timing range immediately greater than the time required using selector switch **2**.

Example: required time 12 s; range selected 30 s.

- Using potentiometer **1** display the required time as a % of value **2**.

$$\mathbf{1} = \frac{t \times 100}{\mathbf{2}} \quad \text{i.e.} \quad \frac{12 \times 100}{30} = 40$$

Zelio Time - timing relays

Relay output, width 22.5 mm, universal
Multifunction relays

★ Available 2nd Quarter 2001

Functions, references

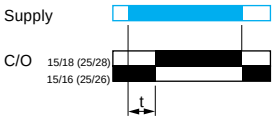
Multifunction relays

2

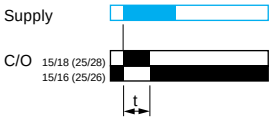
de-energised
energised
open
closed
t: adjustable time delay
t = t1 + t2 + t3
ts: partial stop time

Adjustable time delay from 0.05 s to 300 h in 10 ranges (see setting-up procedure on page opposite).

On-delay relay
RE7-ML, MY

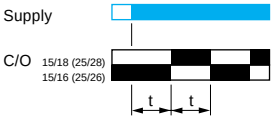


Pulse on energisation relay with start on energisation
RE7-ML, MY

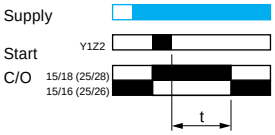


Flashing relay with start during the ON period
RE7-ML, MY

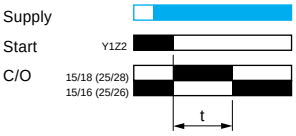
Flashing relay with start during the OFF period
RE7-ML, MY



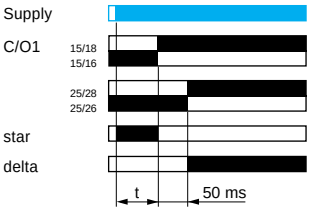
Off-delay relay
RE7-ML, MY



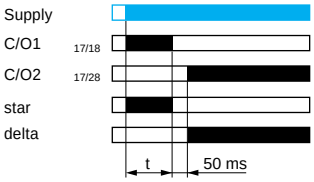
Pulse on energisation relay with start on opening of the external control contact
RE7-ML, MY



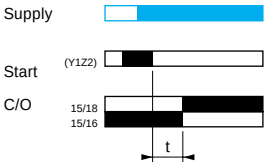
Relay for star-delta starters with: double On-delay timing
RE7-MY



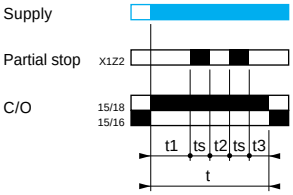
contact for switching to star connection RE7-MY



External control for start of time delay
(example on On-delay function) (1)
RE7-ML, MY



External control for partial stop of time delay
(example on pulse on energisation relay) (1)
RE7-ML, MY



RE7-MY

6 function relay

Functions (see diagrams above)	Supply voltages	Relay output	Reference	Weight kg
On-delay relay **Off-delay relay** **Pulse on energisation relay** - start on energisation - start on opening of remote control contact **Flashing relay with start during the OFF period** **Flashing relay with start during the ON period** External control possible for: - start of time delay - partial stop of time delay - adjustment of time delay (2)	⎓ or ∿ 24 V ⎓ or ∿ 42…48 V ∿ 110…240 V	1 C/O	**RE7-ML11BU**	0.150

8 function relay

As for 6 function relay (3) + **Relay for star-delta starting** - with double On-delay timing - with contact for switching to star connection	⎓ or ∿ 24 V ∿ 110 …240 V	2 C/O (4)	**RE7-MY13BU**	0.150
	⎓ or ∿ 24…240 V	2 C/O (4)	**RE7-MY13MW**	0.150

(1) For use on other functions, please see the diagrams relating to the single function products.
(2) By external potentiometer, to be ordered separately. If external potentiometer is fitted, the internal potentiometer is automatically disconnected.
(3) Except control of partial stop of time delay for RE7-MY13BU.
(4) A switch on the front face of the relay allows the second changeover contact to be used in instantaneous mode.

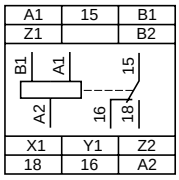
Relay output, width 22.5 mm, universal
Multifunction relays

Schemes, setting-up

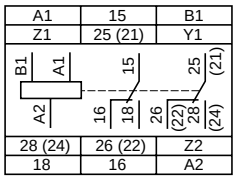
Schemes

Terminal blocks

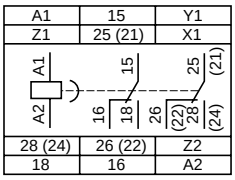
RE7-ML11BU



RE7-MY13BU

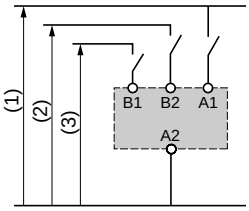


RE7-MY13MW

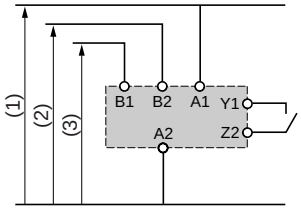


Recommended application schemes

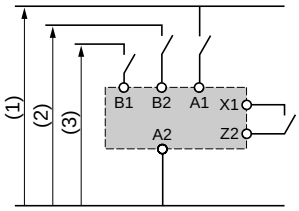
Start on energisation



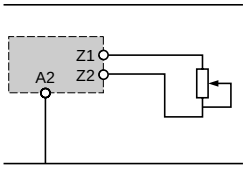
Start by external control



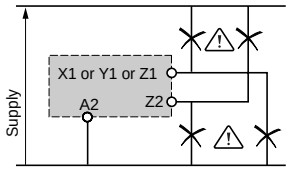
External control of partial stop



Potentiometer wiring

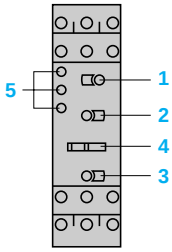


Wiring precautions



⚠ No galvanic insulation between supply terminals A1, A2, B1, B2 and control inputs X1, Y1, Z1, Z2.
(1) ∿ 110…240 V: RE7-ML11BU or RE7-MY13BU, ⎓ or ∿ 24…240 V: RE7-MY13MW.
(2) ∿ or ⎓ 42…48 V: RE7-ML11BU.
(3) ∿ or ⎓ 24 V: RE7-ML11BU or RE7-MY13BU.

Setting-up procedure



1 Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**.

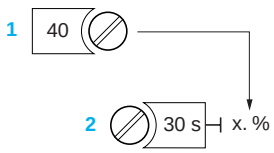
2 10-position timing range selector:

0.05…1 s	5…100 s	15…300 min
0.15…3 s	15…300 s	1.5…30 h
0.5…10 s	1.5…30 min	15…300 h
1.5…30 s		

3 10-position function selector switch (positions which are not used have no marking; the output relay(s) stay(s) in the Off position, whatever the control instructions are).

4 Switch for converting the second changeover contact to instantaneous mode (depending on model).

5 LEDs, depending on the model:
- Green LED: flashes during the time delay period (except for the first 2 timing ranges), permanently on outside the time delay period.
- Yellow LED 1: on when 1st relay is energised.
- Yellow LED 2: on when 2nd relay is energised.



Adjustment of the time delay

- Select the timing range immediately greater than the time required, using selector switch **2**.

Example: required time 12 s; range selected 30 s.

- Using potentiometer **1** display the required timing value as a % of value **2**.

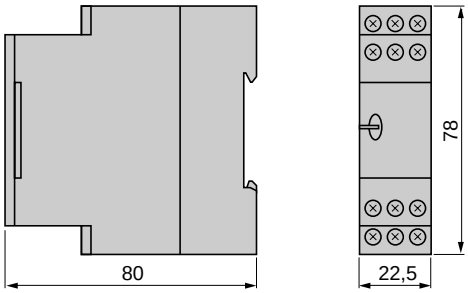
$$\mathbf{1} = \frac{t \times 100}{\mathbf{2}} \quad \text{i.e.} \quad \frac{12 \times 100}{30} = 40$$

Relay output, width 22.5 mm, universal

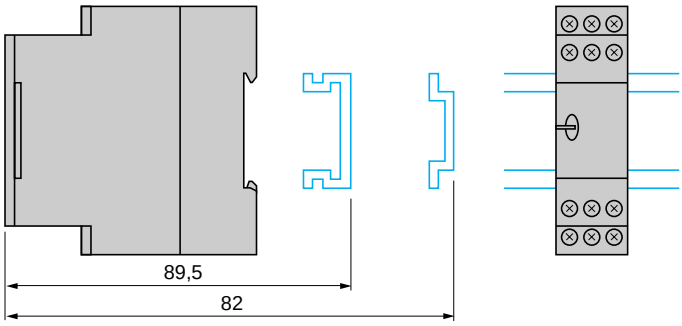
Characteristics :
pages 2/18 and 2/19
References :
pages 2/20 to 2/32
Setting-up :
page 2/35

Dimensions, mounting

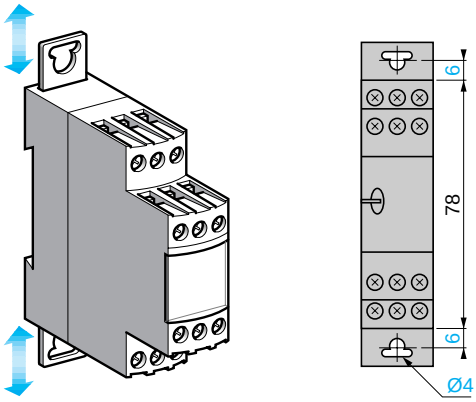
RE7
Dimensions



Rail mounting



Screw fixing



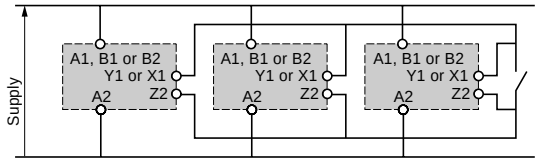
Characteristics :
pages 2/18 and 2/19
References :
pages 2/20 to 2/32
Dimensions :
page 2/34
Schemes :
pages 2/21 to 2/34

Relay output, width 22.5 mm, universal

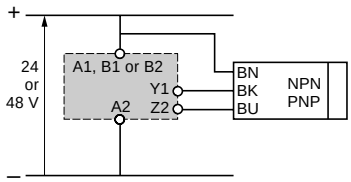
Schemes

Schemes

Control of several relays with a single external control contact



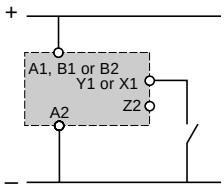
Connection of Telemecanique 3-wire NPN or PNP sensor

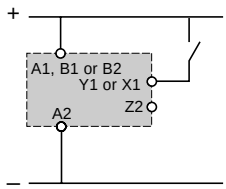


It is advisable to follow the recommended wiring schemes detailed above and on previous pages. However, the connections below are possible if the restrictions given are taken into account.

Connection of an external control contact without using terminal Z2:

- possible on all RE7 relays with external control option except RE7-RA11BU
- d.c. supply only





Connection of a Telemecanique 3-wire NPN or PNP sensor without using terminal Z2:

- only possible on relay RE7-●●●●BU
- d.c. supply only