ZELIO-TIME™ Timers
RE7, RE8, and RE9

Catalog
04

File 9050

CONTENTS

ZELIO-TIME™ Timers - RE7
Application Data

The RE7 timers, with only 23 catalog numbers, covers most timing applications.

These timers offer multi-range timing from 50 ms to 300 hours.

They are multi-voltage.

Three models combine several different functions: multifunction timers.

These products have a transparent cover on the front to avoid any involuntary intervention on the measurement. This cover can be sealed.

Application Data

Conforming to Standards		IEC 61812-1, EN 61812-1
Product Certifications		File E164353 CNN NKCR; File LR 89150 Guide 3211 07; GL
Ambient Air Temperature Around the Device	Storage	-40 to 185 °F (-40 to + 85 °C)
	Operation	-4 to 140 °F (-20 to + 60 °C)
Permissible Relative Humidity Range	Conforming to IEC 60721-3-3	15 to 85% Environmental Class 3K3
Vibration Resistance	Conforming to IEC 60068-2-6, 10 to 55 Hz	a = 0.35 ms
Shock Resistance	Conforming to IEC 60068-2-27	15 gn - 11 ms
Degree of Protection	Housing	IP 50
	Terminals	IP 20
Degree of Pollution	Conforming to IEC 60664-1	3 Ue = 300 V
Overvoltage Category	Conforming to IEC 60664-1	III Ue = 300 V
Rated Insulation Voltage Between contact circuit and power supply or between contact circuit and control inputs	Conforming to IEC	250 V
	Conforming to UL and CSA	300 V
Test Voltage for Insulation Tests	Dielectric test	UL and CSA 2200 Vac, IEC 2000 Vac
	Shock wave	4800 V
Voltage Limits	Power supply circuit	0.85-1.1 Uc
Disconnection Value	Power supply circuit	> 0.1 Uc
Mounting Position without Derating	In relation to the normal vertical mounting position	Any position
Connection Maximum Cross-Section	Stranded wire without cable end	2 # 14 AWG (2 x 2.5 mm^2)
	Stranded wire with cable end	2 # 16 AWG (2 x 1.5 mm^2)
Tightening Torque		4.5-9.9 lb-in (0.5-1.1 N●m)

Immunity from 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)
Rapid Transients	Conforming to IEC 61000-4-4	Level 3 (2 kV output power, 1 kV control)
Shock Waves	Conforming to IEC 61000-4-5	Level 3 (2 kV common mode, 1 kV differential mode)
Radiated and Conducted Emissions	CISPR11	Group 1 Class A
	CISPR22	Class A

Consumption

		24 Vac	48 Vac	110 Vac	240 Vac	24 Vdc	48 Vdc	110 Vdc	240 Vdc
		VA				W			
Consumption	RE7●●11BU	0.7	1.6	1.8	8.5	0.5	1.2	–	–
	RE7●●12BU and RE7●●13BU	1.2	2	2.8	12.5	0.8	1.6	–	–
	RE7●●●●MW ■	2	2.5	3.2	6	2	1	3.2	2

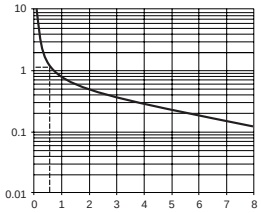
■ RE7RB●●MW: Peak current when switched on = 1 A/30 ms.

Time Delay Specifications

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 %/V
Influence of Temperature		< 0.07 %/°K
Immunity to Micro-Breaks		3 ms
Minimum Control Pulse		20 ms (except RE7RB1●MW: 1 s)
Reset Time		50 ms

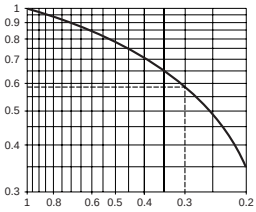
Curve 1 ■
AC Load

Electrical durability of contacts on resistive load in millions of operating cycles



Curve 2 ■

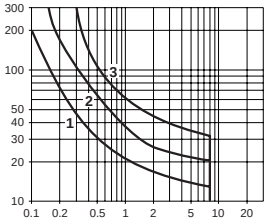
Reduction factor k for inductive loads (applies to values taken from the durability curve above)



Example:

An LC1F185 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.

DC Load ■
Load Limit Curve



1 L/R = 20 ms
2 L/R with load protection diode
3 Resistive load

Output Circuit Specifications

Mechanical Durability ■	In millions of operating cycles	20 (10 for RE7RB1●MW) ■		
Current Limit Ith		8 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 N/C contact	3 A	3 A	3 A
	AC-15 N/O contact	5 A	5 A	5 A
	DC-13 N/O contact	2 A	0.2 A	0.1 A
UL and CSA Current Ratings	Resistive Rating	5 A		
NEMA / UL B300	Inductive Rating	3600 VA Make Rating 360 VA Break Rating 5 A Carry		
Minimum Switching Power		12 V/10 mA ■		
Contact Material		Silver Nickel 90/10		

Remote Control Input Specifications

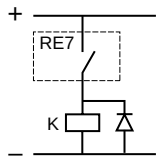
Signal Delivered by Y1-Z2, X1-Z2, X2-Z2 Control Inputs ⚠ No galvanic insulation between these inputs and the power supply	Switching current	< 1 mA
	Maximum distance	164 ft (50 m)
	Compatibility	3/4-wire PNP and NPN Telemecanique sensors or other sensors without an internal load
Potentiometer for Connection between terminals Z1-Z2, Z3-Z2	Type	Linear at ± 20 %
	Resistance	47 ± 20 % kΩ
	Power	0.2 W
	Maximum distance	82 ft (25 m) per shielded cable: shielding linked to terminal Z2

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.

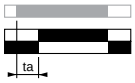
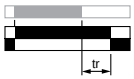
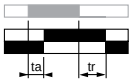
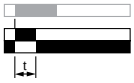
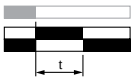
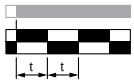
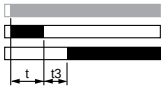
For cos φ = 0.3: k = 0.6

The electrical durability therefore becomes:
(1.5 x 10^6) operating cycles x 0.6 = 900,000 operating cycles.



■ The product life expressed above is based on average usage and normal operating conditions. Actual operating life will vary with conditions. The above statements are not intended to, nor shall they create any expressed or implied warranties as to product operation or life. For information on the listed warranty offered on this product, refer to the terms and conditions of sale found in the Digest.

Timing Functions

Operating Diagram	Operating Principle	
On-Delay Timer		
Supply Voltage Output Contact SPDT (C/O) 	Timing starts when the timer is energized. When the set time delay (ta) has elapsed, the output contact closes. When the timer is de-energized, the output 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 external contact (models with remote control).	
Off-Delay Timer		
Supply Voltage Output Contact SPDT (C/O) 	Energization of the timer or closing of the control contact (models with external control) causes the output contact to close instantaneously. Timing starts when the timer is de-energized or when the control contact opens. When the set time delay (tr) has elapsed, the output contact returns to its initial position. If the energization 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 Timer		
Supply Voltage Output Contact SPDT (C/O) 	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.
Interval Timer (Pulse On Energization)		
Supply Voltage Output Contact SPDT (C/O) 	Energization of the timer causes the output contact to close instantaneously and start the timing period. The output 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.	
Timer with Pulse On De-Energization or On Opening of a External Control Contact		
Supply Voltage Output Contacts SPDT (C/O) 	De-energization of the timer 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.	
Repeat Cycle Timer (Flashing Timer)		
Supply Voltage Output Contact SPDT (C/O) 	Energization of the timer starts the flashing period and causes the output timer to start the flashing cycle. When the timer is de-energized, the contact returns to its initial position.	**Symmetrical Flashing Timer** The timer flashes with a symmetrical On/Off pattern. **Asymmetrical Flashing Timer** The On and Off flashing timers are adjusted by 2 different potentiometers.
Timers for Star-Delta Starters		
Supply Voltage Output Contacts 	Energization of the timer 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.	

Additional Functions

External Control of Starting: Opening of an external contact connected to the timer starts the timing period. Closing of this contact resets the timer.

Partial External Control of Timing: Closing of an external contact connected to the timer allows the timing period to be interrupted. The time elapsed is memorized. Timing restarts as soon as the contact opens. This type of control enables the totalizing 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 Timer	See Page
	Solid State	RE9TA	32
	1 C/O	RE7TL OR RE8TA	8 or 24
	2 C/O	RE7TP	8
	1 C/O	RE7TM	8
	Solid State	RE9RA	32
	1 C/O	RE7RB11 or RE8RB	12 or 24
	2 C/O	RE7RL	12
	2 C/O	RE7RB13	12
	1 C/O	RE8RA	24
	1 C/O	RE7RA and RE7RM	12
	2 C/O	RE7MA13	10
	1 C/O	RE7MA11	10
	1 C/O	RE7MV	10
	1 C/O	RE7PE or RE8PE	14 or 26
	2 C/O	RE7PP	14
	1 C/O	RE8PT	26
	2 C/O	RE7PD	14
	1 C/O	RE7PM	14
	2 C/O	RE8PD	26
	1 C/O	RE7CL or RE8CL	16 or 24
	2 C/O	RE7CP	16
	1 C/O	RE7CV	16
	1 C/O	RE8YG	26
	2 C/O	RE7YA and RE7YR	18
	1 N/C + N/O	RE8YA	26
	Solid State	RE9MS	33
	1 C/O	RE7ML	6
	2 C/O	RE7MY13MW	6
	2 C/O	RE7MY13BU	6

■ Please consult your Regional Sales Office.

▲ 1C/O = SPDT =  2 C/O = DPDT = 

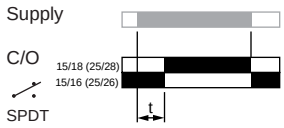
ZELIO-TIME™ Timers - RE7
Multi-function Timers - Selection

De-energized
Energized
Open
Closed

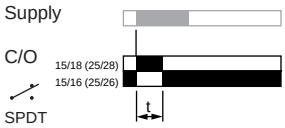
t: Adjustable Time Delay
t = t1 + t2 + t3
ta: Adjustable On-Delay
ts: Partial Stop Time
t3: Switching Time = 50 ms

Adjustable Time Delay from 0.05 s to 300 h in 10 Ranges (see setting procedure on the next page).

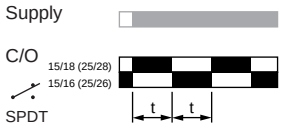
On-Delay Timer **RE7ML, MY**



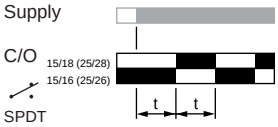
Interval Timer with Start on Energization **RE7ML, MY**



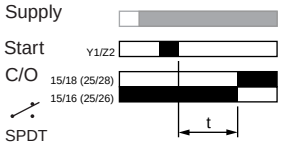
Repeat Cycle Timer with Start during the ON Period **RE7ML, MY**



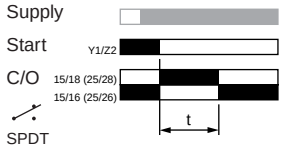
Repeat Cycle Timer with Start during the OFF Period **RE7ML, MY**



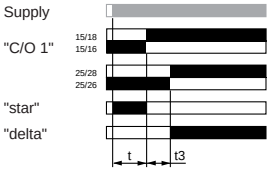
On-Delay Timer with start on opening of external control contact. **RE7ML, MY**



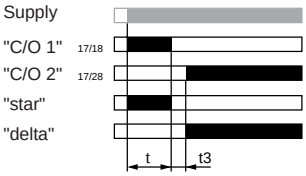
Interval Timer with Start on Opening of the External Control Contact **RE7ML, MY**



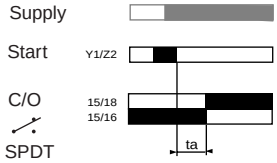
Timer for Star-Delta Starters with: Double On-Delay Timing **RE7MY**



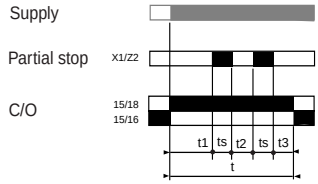
Changeover contact to star connection **RE7MY**



External control for start of time delay (example on On-delay function ■) **RE7ML, MY**



External control for partial stop of time delay (example on pulse on energization relay ■) **RE7ML, MY**



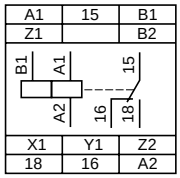
RE7MY

6 Function Timer

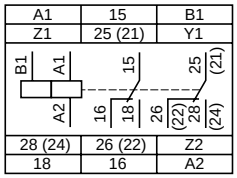
Function (see diagrams above)	Supply Voltages	Relay Output	Catalog Number	Weight lb (kg)
On-Delay Timer Off-Delay Timer Interval Timers -start on energization -start on opening of remote control contact Repeat Cycle Timer with start during the OFF period. Repeat Cycle Timer with start during the ON period External control possible for: -start of time delay -partial stop of time delay -adjustment of time delay ▲	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7ML11BU**	0.33 lb (0.150 kg)
8 Function Timer				
Same as 6 Function Timer ◆ plus Timer for star-delta starting -with double On-Delay timing -with changeover contact to star connection	24 Vdc or Vac 110-240 Vac	2 C/O DPDT	**RE7MY13BU**	0.33 lb (0.150 kg)
	24-240 Vdc or Vac	2 C/O DPDT	**RE7MY13MW**	0.33 lb (0.150 kg)

■ For use on other functions, please see the diagrams relating to the single function products.
▲ By external potentiometer, to be ordered separately (see page 3 for specifications). If external potentiometer is used, the internal potentiometer is automatically disconnected.
◆ Except control of partial stop of time delay for RE7MY13BU.

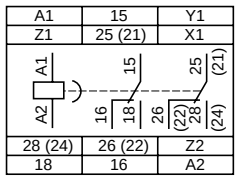
RE7ML11BU



RE7MY13BU

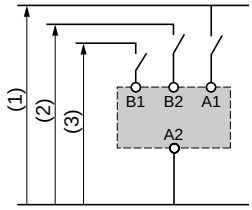


RE7MY13MW

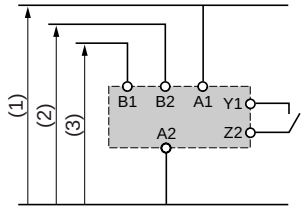


Recommended Wiring Diagrams

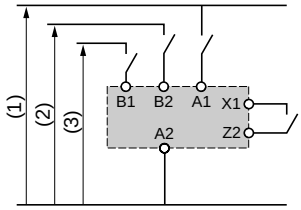
Start on Energization



Start by External Control

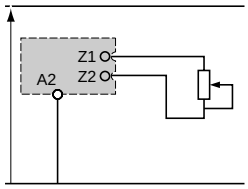


External Control of Partial Stop

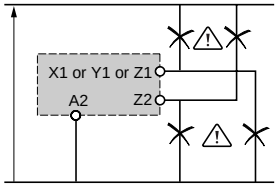


(1) 110-240 Vac: RE7ML11BU or RE7MY13BU, 24-240 Vdc or Vac: RE7MY13MW.
(2) 42-48 Vac or Vdc: RE7ML11BU.
(3) 24 Vac or Vdc: RE7ML11BU or RE7MY13BU.

Potentiometer Wiring

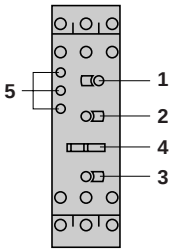


Wiring Precautions



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

SETTING PROCEDURE

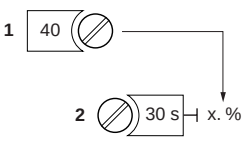


1. Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**.
2. 10-position timing range selector:

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	1-300 min	15-300 h

3. Switch for converting second time delay relay to instantaneous mode (depending on model).
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 energized.
   - — Yellow LED 2: on when 2nd relay is energized.

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**.

$$\text{Percentage of setpoint} = \frac{\text{Trequired} \times 100}{\text{Trange}}$$

$$\text{Trequired} = 12 \text{ Sec.} \qquad \text{Trange} = 30 \text{ Sec.} \qquad \frac{12 \times 100}{30} = 40\ \%$$

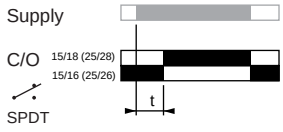
ZELIO-TIME™ Timers - RE7
On-Delay Timers - Selection

De-energized
Energized
Open
Closed

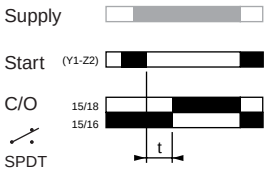
t: Adjustable On-Delay
t = t1 + t2 + t3

Timing Adjustable from 0.05 s to 300 h in 10 Ranges (see setting procedure on the next page).

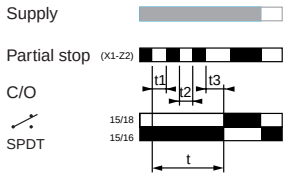
On-Delay Timer
Start on Energization **RE7TL,TM, TP**



External Control for Start of Time Delay **RE7TM**

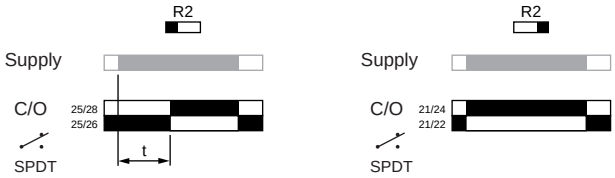


External Control for Partial Stop of Time Delay (for totalizing function) **RE7TM**



Conversion of Second Contact to Instantaneous Mode by Means of Switch R2 ▲

RE7TP13BU



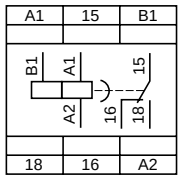
Functions (see diagrams above)	Supply Voltages	Relay Output	Catalog Number	Weight lb (kg)
On-Delay Timer	24 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7TL11BU**	0.33 lb (0.150 kg)
On-Delay Timer External control possible for: -start of time delay -partial stop of time delay -adjustment of time delay ■	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7TM11BU**	0.33 lb (0.150 kg)
On-Delay Timer ▲ Remote control possible for: -adjustment of time delay ■	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	2 C/O ▲ DPDT	**RE7TP13BU ▲**	0.33 lb (0.150 kg)

RE7T

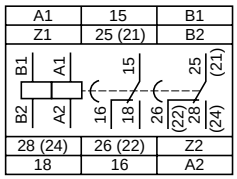
■ By external potentiometer, to be ordered separately (see page 3 for specifications). If external potentiometer is used, the internal potentiometer is automatically disconnected.

▲ A switch on the front face of the timer allows the second contact to be used in instantaneous mode.

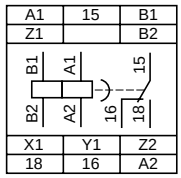
RE7TL11BU



RE7TP13BU

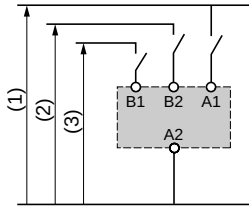


RE7TM11BU

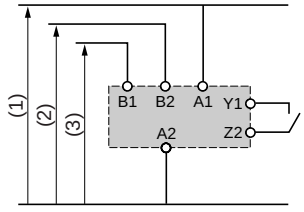


Recommended Wiring Diagrams

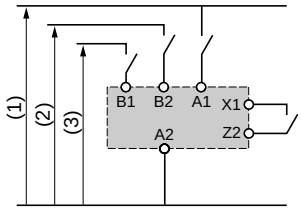
Start on Energization



Start by External Control

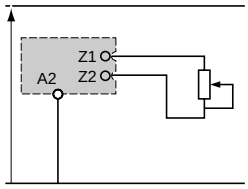


External Control Of Partial Stop

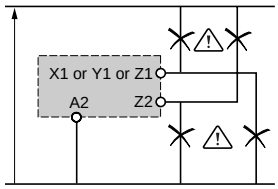


(1) 110-240 Vac.
(2) 42-48 Vac or Vdc.
(3) 24 Vac or Vdc.

Potentiometer Wiring

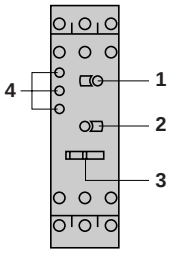


Wiring Precautions



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

SETTING PROCEDURE

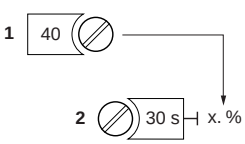


1. Potentiometer for fine adjustment of the time delay, graduated in % of range max. Setting **2**.
2. 10-position timing range selector:

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	1-300 min	15-300 h

3. Switch for converting second time delay relay to instantaneous mode (for RE7TP13BU).
4. LEDs, depending on the model:
   - — Green LED U/T: flashes during time delay period, permanently on outside the time delay period.
   - — Yellow LED R1: on when 1st relay is energized.
   - — Yellow LED R2: on when 2nd relay is energized.

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**.

$$\text{Percentage of setpoint} = \frac{\text{Trequired} \times 100}{\text{Trange}}$$

Trequired = 12 Sec.
Trange = 30 Sec.

$$\frac{12 \times 100}{30} = 40\ \%$$

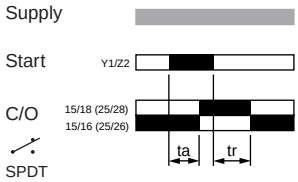
ZELIO-TIME™ Timers - RE7
On-Delay and Off-Delay Timers - Selection

De-energized
Energized
Open
Closed

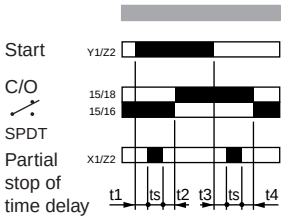
ta: Adjustable On-Delay
tr = Adjustable Off-Delay
ta = t1 + t2
tr = t3 + t4
ts: Partial Stop Time

Time Delay Adjustable from 0.05 s to 300 h in 10 Ranges (see setting procedure on the next page).

External Control for Start of Time Delay **RE7MA** and **MV**

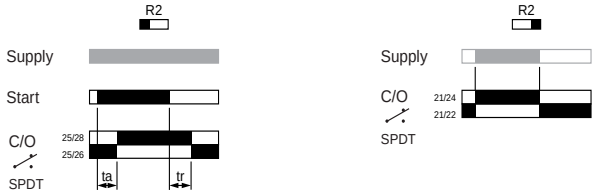


Remote Control for Partial Stop of Time Delay **RE7MA11BU** and **MV11BU**



Conversion of Second Timing Relay to Instantaneous Mode by Means of Switch R2 ▲

RE7MA13BU



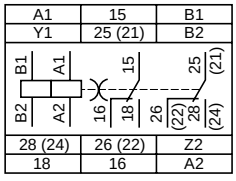
RE7M

Functions (see diagrams above)	Supply Voltages	Relay Output	Catalog Number	Weight lb (kg)
Symmetrical Timers: On and Off delay times are equal.				
On-Delay and Off-Delay Timer External control possible for: -partial stop of time delay -adjustment of time delay ■ Start control via external contact only	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7MA11BU**	0.33 lb (0.150 kg)
On-Delay and Off-Delay Timer ▲ Start control via external contact only	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	2 C/O ▲ DPDT	**RE7MA13BU**	0.33 lb (0.150 kg)
Asymmetrical Timers: On and Off delay times are adjusted separately.				
On-Delay and Off-Delay Timer External control possible for: -partial stop of time delay -adjustment of time delay ■ Start control via external contact only	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7MV11BU**	0.33 lb (0.150 kg)

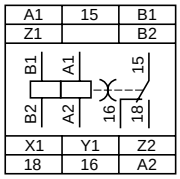
■ By external potentiometer, to be ordered separately (see page 3 for specifications). If external potentiometer is used, the internal potentiometer is automatically disconnected.

▲ A switch on the front face of the timer allows the second contact to be used in instantaneous mode.

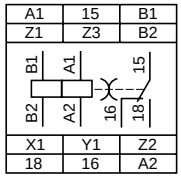
RE7MA13



RE7MA11BU

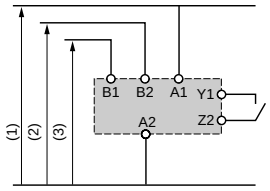


RE7MV11BU

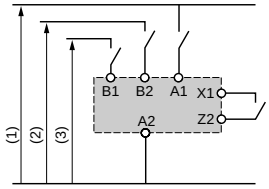


Recommended Wiring Diagrams (for dimensions, see page 20)

Start by External Control

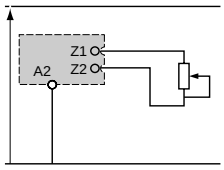


External Control of Partial Stop

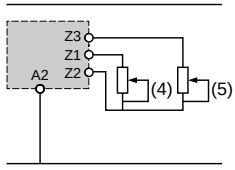


(1) 110-240 Vac. (2) 42-48 Vac or Vdc. (3) 24 Vac or Vdc.

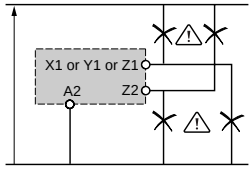
Potentiometer Wiring for Symmetrical Timer
RE7MA11BU



Potentiometer Wiring for Asymmetrical Timer
RE7MV11BU



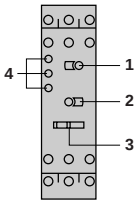
Wiring Precautions



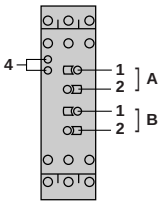
⚠ No galvanic insulation between supply terminals A1, A2, B1, B2 and control inputs X1, Y1, Z1, Z2.

(4) Off-Delay adjustment (contact 15/16 closed).

(5) On-Delay adjustment (contact 15/18 closed).



Symmetrical Timing Relay



Asymmetrical Timing Relay

SETTING 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	1-300 min	15-300 h

   A = Adjustable On-Delay (ta).

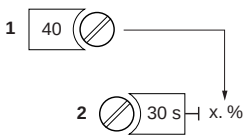
   B = Adjustable Off-Delay (tr).
3. Switch for converting second time delay relay to instantaneous mode (RE7MA13BU).
4. LEDs, depending on the model:

   — Green LED: flashes during the time delay period, permanently on outside the time delay period.

   — Yellow LED 1: on when 1st relay is energized.

   — Yellow LED 2: on when 2nd relay is energized.

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**.

$$\text{Percentage of setpoint} = \frac{\text{Trequired} \times 100}{\text{Trange}}$$

Trequired = 12 Sec. Trange = 30 Sec.

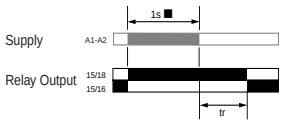
$$\frac{12 \times 100}{30} = 40\ \%$$

ZELIO-TIME™ Timers - RE7
Off-Delay Timers - Selection

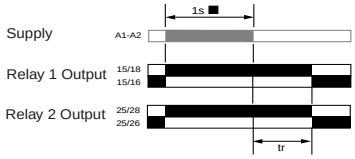
De-energized
Energized
Open
Closed

tr: Adjustable Off-Delay
tr = t1 + t2
ts: Partial Stop Time

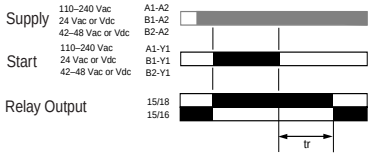
RE7RB11MW



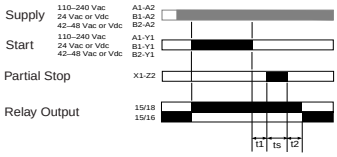
RE7RB13MW



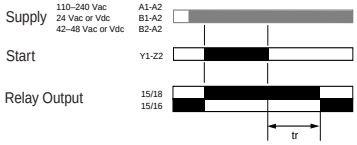
Partial Stop Not Wired
RE7RA11BU



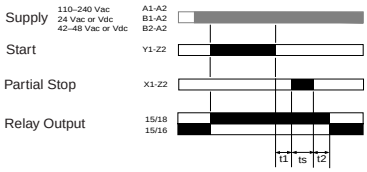
Partial Stop Wired
RE7RA11BU



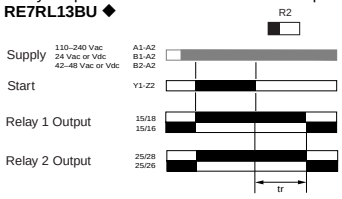
Partial Stop Not Wired
RE7RM11BU



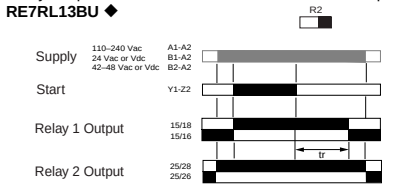
Partial Stop Wired
RE7RM11BU



Relay Output Time Switch Set for Timed Output
RE7RL13BU ◆



Relay Output Time Switch Set for Instantaneous Output
RE7RL13BU ◆



RE7R

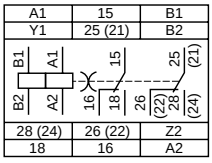
Functions	Supply Voltages	Relay Output	Catalog Number	Weight lb (kg)
On De-energization, Adjustable from 0.05 s to 10 min, in 7 Ranges (see setting procedure on next page).				
Off-Delay Timer (Times without power.)	24-240 Vdc or Vac	1 C/O SPDT	**RE7RB11MW ■**	0.33 lb (0.150 kg)
Off-Delay Timer (Times without power.) Remote control possible for: -adjustment of time delay ▲ (Terminals Z1 and Z2)	24-240 Vdc or Vac	2 C/O DPDT	**RE7RB13MW ■**	0.33 lb (0.150 kg)
On Opening of External Control Contact, Adjustable from 0.05 s to 300 h, in 10 Ranges (see setting procedure on next page).				
Off-Delay Timer External control possible for: -partial stop of time delay (Terminals X1 and Z2) -adjustment of time delay ▲ (Terminals Z1 and Z2)	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7RA11BU**	0.33 lb (0.150 kg)
On opening of Low Level External Control Contact, Adjustable from 0.05 s to 300 h, in 10 Ranges (see setting procedure on next page).				
Off-Delay Timer External control possible for: -partial stop of time delay (Terminals X1 and Z2) -adjustment of time delay ▲ (Terminals Z1 and Z2)	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7RM11BU**	0.33 lb (0.150 kg)
Off-Delay Timer ◆	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	2 C/O ◆ DPDT	**RE7RL13BU**	0.33 lb (0.150 kg)

■ If the device has been stored, de-energized, for more than a month, it must be energized 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 energized indefinitely.

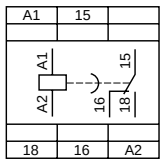
▲ By external potentiometer, to be ordered separately (see page 3 for specifications). If external potentiometer is used, the internal potentiometer is automatically disconnected.

◆ A switch on the front face of the timer allows the second contact to be used in instantaneous mode.

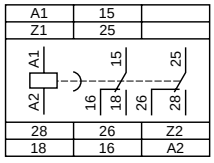
RE7RL13BU



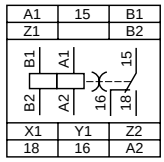
RE7RB11MW



RE7RB13MW



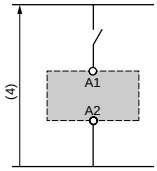
RE7RM11BU & RE7RA11BU



Recommended Wiring Diagrams

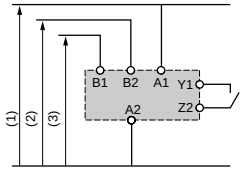
Start on Energization

RE7RB

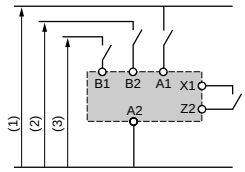


Start by Low Level External Control

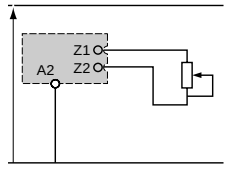
RE7RM and RL



Remote Control of Partial Stop

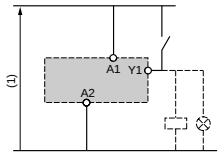


Potentiometer Wiring



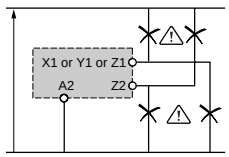
Start by External Control

RE7RA



Wiring Precautions

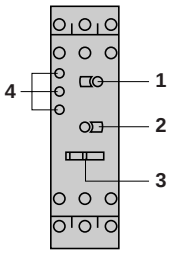
RE7RM and RL



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

(1) 110-240 Vac. (3) 24 Vac or Vdc.
(2) 42-48 Vac or Vdc. (4) 24-240 Vdc or Vac.

SETTING PROCEDURE



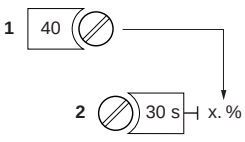
1. Potentiometer for fine adjustment of the time delay, graduated in % of range max. Setting **2**.
2. Timing range selector:

10-position timing range selector (RE7RA, 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	1-300 min	15-300 h
7-position timing range selector (RE7RB):				
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 second time delay relay to instantaneous mode (for RE7RL13BU).
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 energized.
— Yellow LED R2: on when 2nd relay is energized.
— RE7RB●●MW: The green LED does not flash during the time delay period and there's no yellow LED's.

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**.

$$\text{Percentage of setpoint} = \frac{\text{Trequired} \times 100}{\text{Trange}}$$

Trequired = 12 Sec.
Trange = 30 Sec.

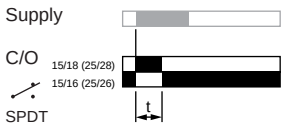
$$\frac{12 \times 100}{30} = 40\ \%$$

De-energized
Energized
Open
Closed

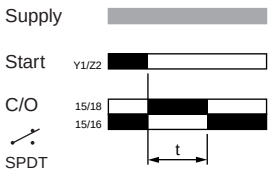
t: pulse time
t = t1 + t2 + t3
ts: Partial Stop Time

Time Delay Adjustable from 0.05 s to 300 h in 10 Ranges (see setting procedure on the next page).

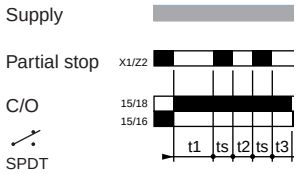
Interval Timers
Start on Energization **RE7PE, PP**



Start on Opening of External Control Contact
RE7PM, PD

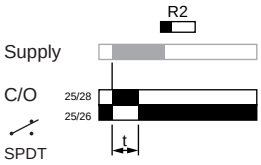


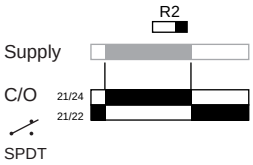
External Control for Partial Stop of Time Delay
RE7PM



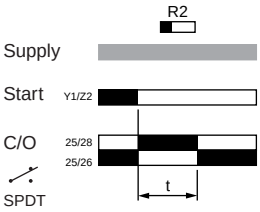
Conversion of Second Timing Relay to Instantaneous Mode by Means of Switch R2

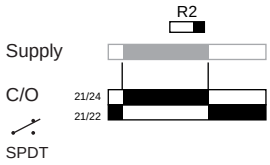
RE7PP





RE7PD



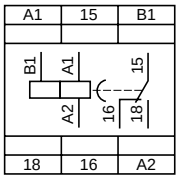


Functions	Supply Voltages	Relay Output	Catalog Number	Weight lb (kg)
Start on Energization ⎍ ⊠				
Interval Timer	24 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7PE11BU**	0.33 lb (0.150 kg)
Interval Timer ■ External control possible for: -adjustment of time delay ▲	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	2 C/O ■ DPDT	**RE7PP13BU**	0.33 lb (0.150 kg)
Start on Opening of External Control Contact ⎍ ■				
Interval Timer External control possible for: -partial stop of time delay -adjustment of time delay ▲	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7PM11BU**	0.33 lb (0.150 kg)
Interval Timer ■	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	2 C/O ■ DPDT	**RE7PD13BU**	0.33 lb (0.150 kg)

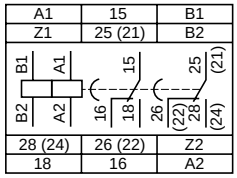
RE7P

■ A switch on the front face of the timer allows the second contact to be used in instantaneous mode.
▲ By external potentiometer, to be ordered separately (see page 3 for specifications). If external potentiometer is used, the internal potentiometer is automatically disconnected.

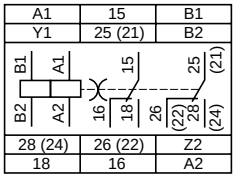
RE7PE11BU



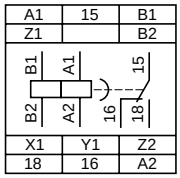
RE7PP13BU



RE7PD13BU

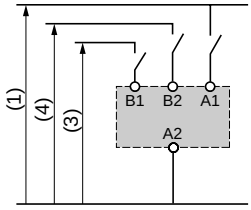


RE7PM11BU

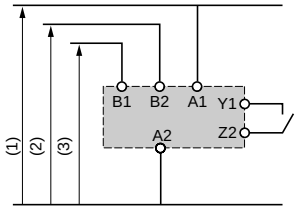


Recommended Wiring Diagrams (for dimensions see page 20)

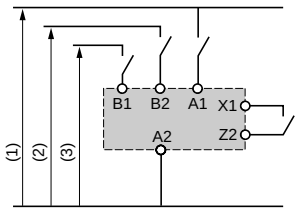
Start on Energization
RE7PE, PP



Start by External Control
RE7PM, PD

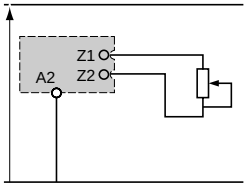


External Control of Partial Stop

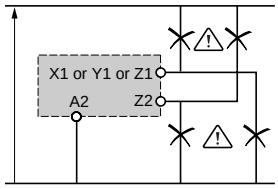


(1) 110-240 Vac.
(2) 42-48 Vac or Vdc.
(3) 24 Vac or Vdc.
(4) 42-48 Vdc or Vac: RE7PP.

Potentiometer Wiring

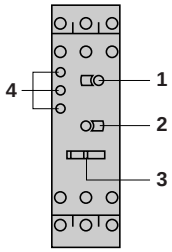


Wiring Precautions



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

SETTING PROCEDURE

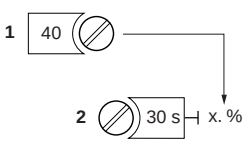


1. Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**.
2. 10-position timing range selector:

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	1-300 min	15-300 h

3. Switch for converting second time delay relay to instantaneous mode (depending on model).
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 energized.
   - — Yellow LED 2: on when 2nd relay is energized.

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**.

$$\text{Percentage of setpoint} = \frac{\text{Trequired} \times 100}{\text{Trange}}$$

Trequired = 12 Sec.
Trange = 30 Sec.

$$\frac{12 \times 100}{30} = 40\ \%$$

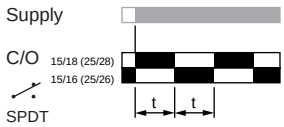
ZELIO-TIME™ Timers - RE7
Repeat Cycle Timers - Selection

De-energized
Energized
Open
Closed

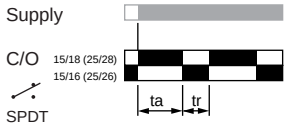
t, t1 and t2: Adjustable Time Delays
ts: Partial Stop Time
t: flashing time
ta: Adjustable On-Delay
tr: Adjustable Off-Delay
ta = t1 + t2
tr = t3 + t4

Time Delay Adjustable from 0.05 s to 300 h in 10 Ranges (see setting procedure on the next page).

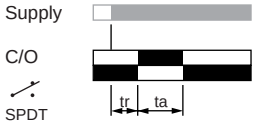
Symmetrical Repeat Cycle Timer
RE7CL, CP



Asymmetrical Repeat Cycle Timer
Start during the ON period **RE7CV**

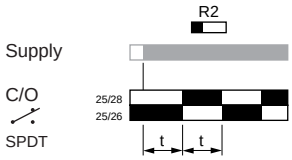


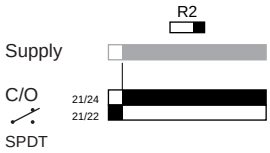
Start during the OFF period
RE7CV



External Control for Partial Stop of Time Delay
RE7CV

Conversion of Second Time Delay Relay to Instantaneous Mode by Means of Switch R2 ■
RE7CP



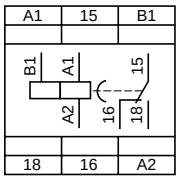


RE7C

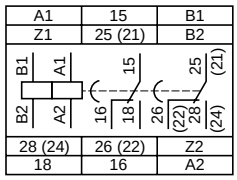
Functions (see diagrams above)	Supply Voltages	Relay Output	Catalog Number	Weight lb (kg)
Symmetrical Relays with Start during OFF Period ⎍ ■				
Repeat Cycle Timer	24 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7CL11BU**	0.33 lb (0.150 kg)
Repeat Cycle Timer ■ External control possible for: -adjustment of time delay ▲	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	2 C/O ■ DPDT	**RE7CP13BU**	0.33 lb (0.150 kg)
Asymmetrical, with Separate Adjustment of On-Delay and Off-Delay ⎍ ■ ⎍ ⊠				
Repeat Cycle Timer External control possible for: -start period -adjustment of time delays ▲ -partial stop	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	1 C/O SPDT	**RE7CV11BU**	0.33 lb (0.150 kg)

■ A switch on the front face of the timer allows the second contact to be used in instantaneous mode.
▲ By external potentiometer, to be ordered separately (see page 3 for specifications). If external potentiometer is used, the internal potentiometer is automatically disconnected.

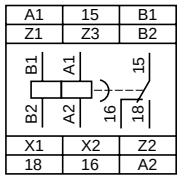
RE7CL11BU



RE7CP13BU

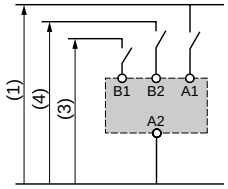


RE7CV11BU



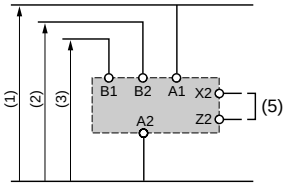
Recommended Wiring Diagrams

Start on Energization



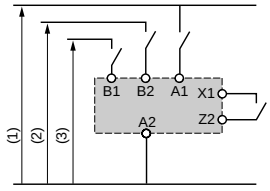
Start Period Selection

RE7CV



External Control of Partial Stop

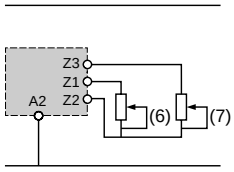
RE7CP



(1) 110-240 Vac.
(2) 42-48 Vac or Vdc.
(3) 24 Vac or Vdc.
(4) 42-48 Vdc or Vac: RE7CP13BU
(5) Start during ON period: X2-Z2 connected.
Start during OFF period: X2-Z2 connected.

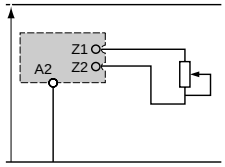
Potentiometer Wiring

RE7CV

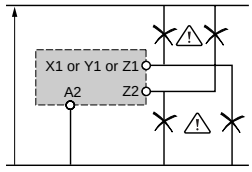


Potentiometer Wiring

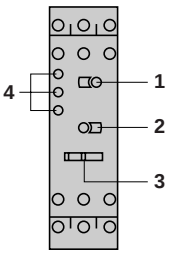
RE7CP



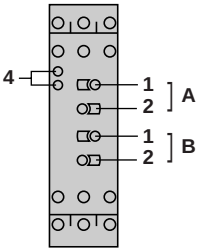
Wiring Precautions



⚠ No galvanic insulation between supply terminals A1, A2, B1, B2 and control inputs X1, Y1, Z1, Z2.
(6) Off-Delay adjustment (contact 15/16 closed). (7) On-Delay adjustment (contact 15/18 closed).



Symmetrical Timing Relay



Asymmetrical Timing Relay

SETTING PROCEDURE

1. Potentiometer for fine adjustment of the time delay in % of range max. setting **2**.
2. 10-position timing range selector:

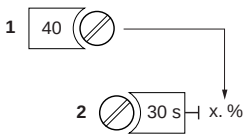
0.05-1 s	0.5-10 s	5-100 s	1.5-30 min	1.5-30 h
0.15-3 s	1.5-30 s	15-300 s	1-300 min	15-300 h

   A = Adjustable On-Delay (ta).

   B = Adjustable Off-Delay (tr).
3. Switch for converting second time delay relay to instantaneous mode (RE7CP13BU).
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 energized.
   — Yellow LED 2: on when 2nd relay is energized.

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**.

$$\text{Percentage of setpoint} = \frac{\text{Trequired} \times 100}{\text{Trange}}$$

Trequired = 12 Sec.
Trange = 30 Sec.

$$\frac{12 \times 100}{30} = 40\ \%$$

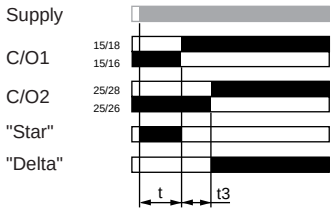
ZELIO-TIME™ Timers - RE7
Star-Delta Timer - Selection

De-energized
Energized
Open
Closed

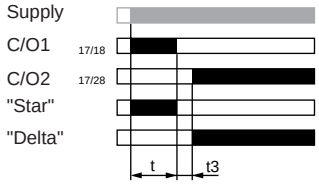
t: Adjustable Time Delay (Star)
t3: Switching Time = 50 ms

Time Delay Adjustable from 0.05 s to 300 h in 10 Ranges (see setting procedure on the next page).

Timer for "Star-Delta" Starters with Double On-Delay ■
RE7YA



With Interval Contact for Star Operation ■
RE7YR

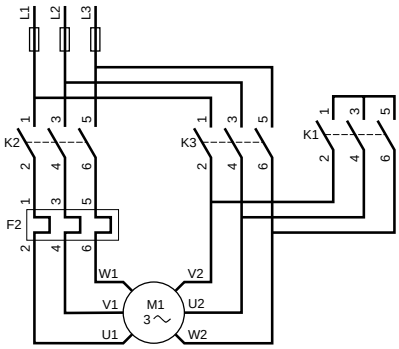


RE7Y

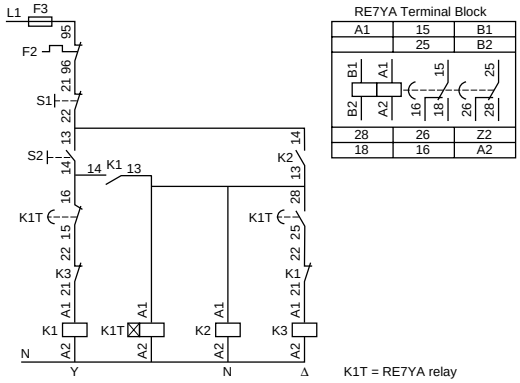
Functions (see diagrams above)	Supply Voltages	Relay Output	Catalog Number	Weight lb (kg)
With Double On-Delay	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	2 C/O DPDT	**RE7YA12BU**	0.33 lb (0.150 kg)
With Interval Contacts for Star Operation	24 Vdc or Vac 42-48 Vdc or Vac 110-240 Vac	2 C/O with common point DPDT	**RE7YR12BU**	0.33 lb (0.150 kg)

■ Adjustable time delay for "star" operation and fixed (50 ms) for the changeover from "star" to delta" operation in order to ensure sufficient breaking time.

Power Wiring
RE7YA12BU

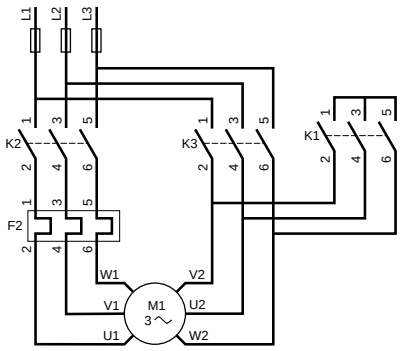


Control Wiring
"Star-Delta function with double On-Delay timing

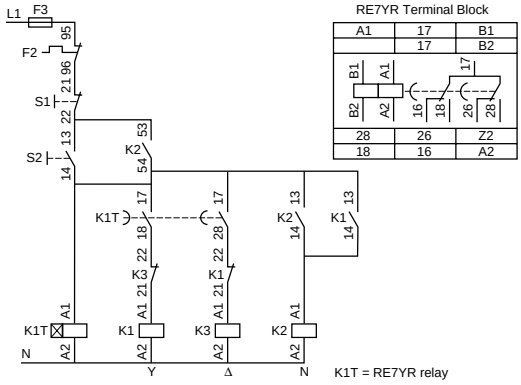


K1T = RE7YA relay

Power Wiring
RE7YR12BU

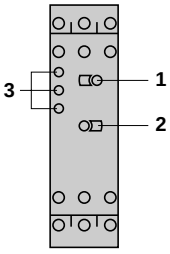


Control Wiring "Star-Delta" function with interval contact for "Star" operation



K1T = RE7YR relay

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



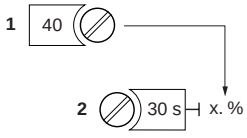
SETTING PROCEDURE

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	1-300 min	15-300 h

3. 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 energized.
   - — Yellow LED 2: on when 2nd relay is energized.

Adjustment of the Time Delay

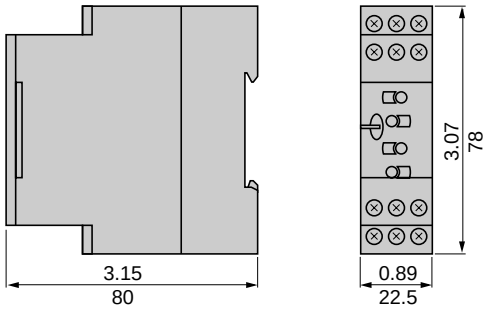


- — Select the timing range immediately greater than the time required, using selector switch **2**.
- — Example: required time 12 s; range selected 30 s.
- — Using potentiometer **1** display the required timing value as a % of value **2**.

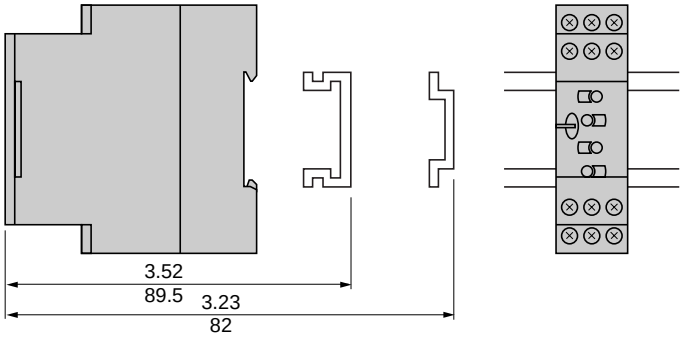
$$\text{Percentage of setpoint} = \frac{\text{Trequired} \times 100}{\text{Trange}}$$

Trequired = 12 Sec.
Trange = 30 Sec.

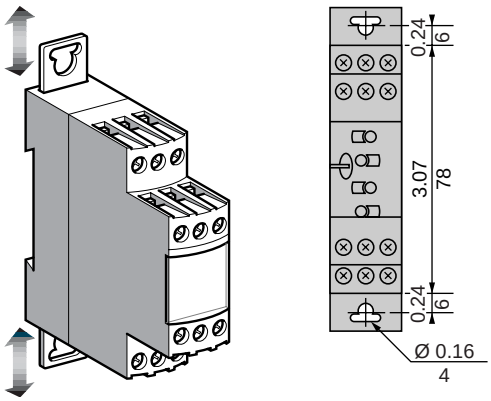
$$\frac{12 \times 100}{30} = 40\ \%$$



Rail Mounting

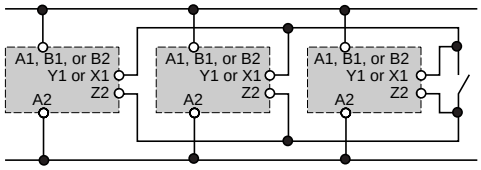


Direct Panel Mounting

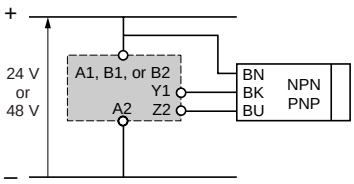


Dual Dimensions = $\frac{\text{in}}{\text{mm}}$

Control of Several Timers with a Single External Control Contact



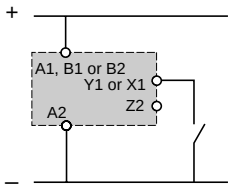
Connection of Telemecanique 3-wire NPN or PNP sensor

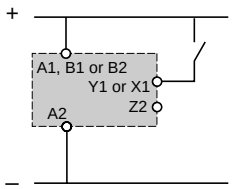


It is advisable to follow the recommended wiring diagrams detailed above and on previous pages. However, the connections below are possible if the restrictions given are taken into account.

Connection of an External Control Contact without using Terminal Z2:

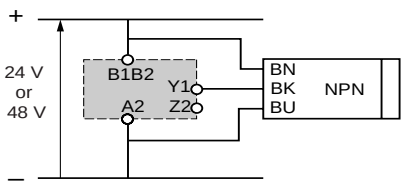
- Possible on all RE7 timers with external control option except RE7RA11BU
- Vdc supply only

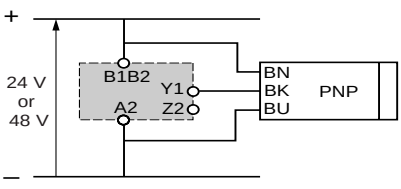




Connection of Telemecanique 3-wire NPN or PNP Sensor without using Terminal Z2:

- Only possible on timer RE7●●●●BU
- Vdc supply only





The RE8 range of timers are designed for simple and repetitive applications, providing basic functions.

Each relay has:

— A single timing range

— A SPDT output relay

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

Environment

Conforming to Standards		IEC 61812-1, EN 61812-1
Product Approvals		File E164353 CNN NKCR File LR 89150 Guide 3211 07 GL
CE Marking		Zelio Time Timer conforms to European regulations relating to CE Marking
Ambient Air Temperature around the Device	Storage	-40 to 185 °F (-40 to + 85 °C)
	Operation	-4 to 140 °F (-20 to + 60 °C)
Permissible Relative Humidity Range	Conforming to IEC 60721-3-3	15-85 % Environmental Class 3K3
Vibration Resistance	Conforming to IEC 60068-2-6, 10 to 55 Hz	a = 0.35 ms
Shock Resistance	Conforming to IEC 60068-2-27	15 gn - 11 ms
Degree of Protection	Housing	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	Conforming to IEC	250 V
	Conforming to UL and CSA	300 V
Test Voltage for Insulation Tests	Dielectric test	UL and CSA 2200 V, IEC 2000 V
	Shock wave	4.8 kV
Voltage Limits	Power supply circuit	0.9-1.1 Uc
Frequency Limits	Power supply circuit	50/60 ± 5 % Hz
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.	Stranded wire without cable end	2 # 14 AWG (2 x 2.5 mm^2)
	Stranded with cable end	2 # 16 AWG (2 x 1.5 mm^2)
Tightening Torque		4.5-9.9 lb-in (0.6-1.1 N•m)

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

		24 Vac	110 Vac	240 Vac	380 Vac	415 Vac	24 Vdc
Consumption	RE8TA, RA, CL, PE, PU, PT	0.7 VA	1.8 VA	8.5 VA	–	–	0.5 W
	RE8YG, RB	0.9 VA	2.5 VA	13 VA	–	–	0.5 W
	RE8YA	0.9 VA	2.5 VA	13 VA	8 VA	9 VA	0.7 W

Time Delay Specifications

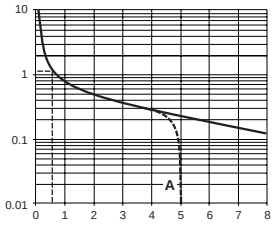
Setting Accuracy	As % of the full scale value	± 20 %
Repeat Accuracy		< 1 %
Influence of Voltage	In the voltage range, 0.9-1.1 Un	< 2.5 %
Influence of Temperature		< 0.2 % / °C
Immunity to Micro-Breaks		3 ms
Minimum Control Pulse		26 ms (except **RE8YG**: 60 ms)
Reset Time		50 ms

Output Circuit Specifications

Maximum Switching Voltage		250 Vac/Vdc		
Mechanical Durability ■	In millions of operating cycles	20 ■		
Current Limit Ith		8 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	3 A	3 A	3 A
	DC-13	2 A	0.2 A	0.1 A
UL and CSA Current Ratings	Resistive Rating	5 A		
NEMA / UL B300	Inductive Rating	3600 VA Make Rating 360 VA Break Rating 5 A Carry		
Minimum Switching Capacity		12 V/10 mA ■		
Contact Material		Nickel Silver 90/10		

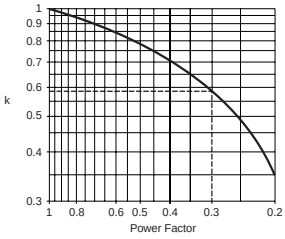
Curve 1 ■
AC Load

Electrical durability of contacts on resistive load in millions of operating cycles

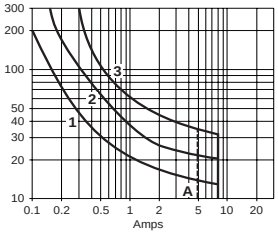


Curve 2 ■

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



DC Load ■
Load Limit Curve



A RE8RB●●BUTQ

1 L/R = 20 ms

2 L/R with load protection diode

3 Resistive load

Remote Control Input Specifications

Signal delivered by control input Y1 ⚠ No galvanic insulation between this input and the power supply	No-load voltage	Supply voltage
	Switching current	< 10 mA
	Maximum distance	164 ft (50 m)
	Compatibility	2-wire sensors with leakage current < 1 mA

Example:

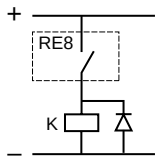
An LC1F185 contactor supplied with 115 V/50 Hz for a consumption of 55 VA or a current consumption equal to 0.1 A and cos φ = 0.3.

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.



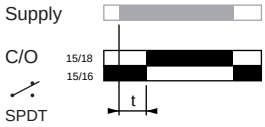
■ The product life expressed above is based on average usage and normal operating conditions. Actual operating life will vary with conditions. The above statements are not intended to, nor shall they create any expressed or implied warranties as to product operation or life. For information on the listed warranty offered on this product, refer to the terms and conditions of sale found in the Digest.

ZELIO-TIME™ Timers - RE8
On-Delay Timers - Selection

De-energized
Energized
Open
Closed
t: Adjustable On-Delay

RE8TA

On-Delay Timers
Start on Energization **RE8TA**

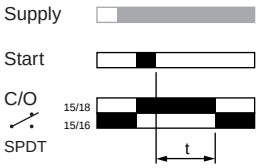


Relay Output	Supply Voltages	Timing Range ■	Catalog Number	Standard Pack Quantity ◆	Weight lb (kg)
1 C/O SPDT	24 Vdc or Vac 110-240 Vac	0.1-3 s	**RE8TA61BUTQ**	10	0.24 lb (0.110 kg)
		0.1-10 s	**RE8TA11BUTQ** ▲	10	0.24 lb (0.110 kg)
		0.3-30 s	**RE8TA31BUTQ** ▲	10	0.24 lb (0.110 kg)
		3-300 s	**RE8TA21BUTQ** ▲	10	0.24 lb (0.110 kg)
		20 s-30 min	**RE8TA41BUTQ**	10	0.24 lb (0.110 kg)

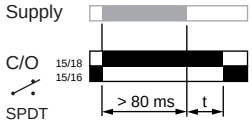
Off-Delay Timers

De-energized
Energized
Open
Closed
t: Adjustable Off-Delay

Off-Delay Timer
With Control Contact **RE8RA**



Self-Powered **RE8RB**

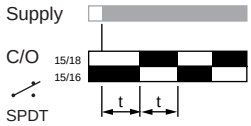


Relay Output	Supply Voltages	Timing Range ■	Catalog Number	Standard Pack Quantity ◆	Weight lb (kg)
Control Contact					
1 C/O SPDT	24 Vdc or Vac	0.1-10 s	**RE8RA11BTQ** ▲	10	0.24 lb (0.110 kg)
		0.3-30 s	**RE8RA31BTQ**	10	0.24 lb (0.110 kg)
		3-300s	**RE8RA21BTQ** ▲	10	0.24 lb (0.110 kg)
	110-240 Vac	0.1-10 s	**RE8RA11FUTQ** ▲	10	0.24 lb (0.110 kg)
		0.3-30 s	**RE8RA31FUTQ**	10	0.24 lb (0.110 kg)
		3-300 s	**RE8RA21FUTQ** ▲	10	0.24 lb (0.110 kg)
		20 s-30 min	**RE8RA41FUTQ**	10	0.24 lb (0.110 kg)
Self-Powered					
1 C/O SPDT	24 Vdc or Vac 110-240 Vac	0.05-0.5 s	**RE8RB51BUTQ**	10	0.24 lb (0.110 kg)
		0.1-10 s	**RE8RB11BUTQ**	10	0.24 lb (0.110 kg)
		0.3-30 s	**RE8RB31BUTQ**	10	0.24 lb (0.110 kg)

Repeat Cycle Timer

De-energized
Energized
Open
Closed
t: Flashing Time

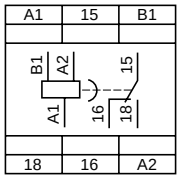
Symmetrical RE8CL



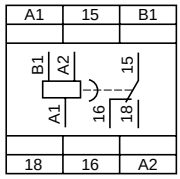
Relay Output	Supply Voltages	Timing Range ■	Catalog Number	Standard Pack Quantity ◆	Weight lb (kg)
1 C/O SPDT	24 Vdc or Vac 110-240 Vac	0.1-10 s	**RE8CL11BUTQ**	10	0.24 lb (0.110 kg)

■ For easier adjustment, it is preferable to set the time delay between the maximum value in the range and one tenth of this value. Example: RE8TA11BUTQ timing range 0.1-10 s, recommended use 1-10 s.
▲ Also available in pack of one; delete TQ from the end of the catalog number. Example: RE8TA11BU.
◆ Orders must specify standard pack quantity or multiples of that quantity.

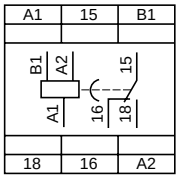
RE8TA,CL



RE8RA

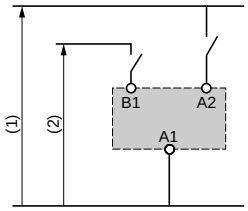


RE8RB

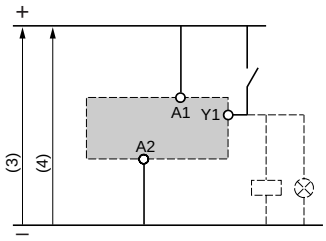


Recommended Wiring Diagrams

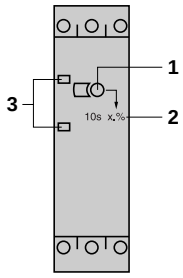
RE8TA, RB, CL



RE8RA



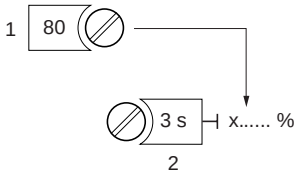
(1) 110-240 Vac.
(2) 24 Vdc or Vac.
(3) 24 Vdc.
(4) 24 Vac or 110-240 Vac.



SETTING PROCEDURE

1. Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**.
2. Marking of maximum time delay value.
3. LEDs, depending on the model:
   — Yellow LED: illuminates when the output relay is energized.
   — Yellow LED: illuminates when the RE8 is energized

Adjustment of the Time Delay



— The maximum value of the timing range is printed on the product, **2**.
— Example: RE8TA61BUTQ; maximum time delay: 3 s.
— Time required 2.4 s; using potentiometer **1** set the value of the time delay required as a % of value **2**:

$$\text{Percentage of setpoint} = \frac{\text{Trequired} \times 100}{\text{Trange}}$$

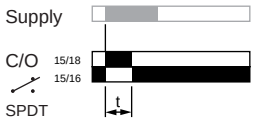
$$\text{Trequired} = 2.4 \text{ Sec.} \qquad \text{Trange} = 3 \text{ Sec.}$$

$$\frac{2.4 \times 100}{3} = 80\ \%$$

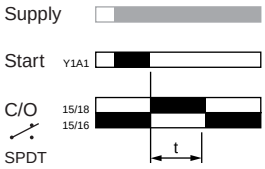
Interval Timers

De-energized
Energized
Open
Closed
t: Pulse Time

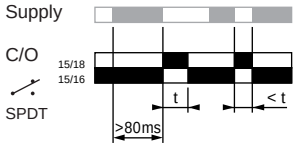
Start on Energization **RE8PE**



Start on Opening of External Control Contact **RE8PD**



Start on De-Energization **RE8PT**



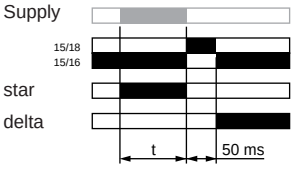
RE8PE

Relay Output	Supply Voltages	Timing Range ■	Catalog Number	Standard Pack Quantity ◆	Weight lb (kg)
On Energization					
1 C/O  SPDT	24 Vdc or Vac 110-240 Vac	0.1-10 s	**RE8PE11BUTQ**	10	0.24 lb (0.110 kg)
		0.3-30 s	**RE8PE31BUTQ**	10	0.24 lb (0.110 kg)
		3-300 s	**RE8PE21BUTQ**	10	0.24 lb (0.110 kg)
By Control Contact					
1 C/O  SPDT	24 Vdc or Vac	0.1-10 s	**RE8PD11BTQ**	10	0.24 lb (0.110 kg)
		0.3-30 s	**RE8PD31BTQ**	10	0.24 lb (0.110 kg)
		3-300s	**RE8PD21BTQ**	10	0.24 lb (0.110 kg)
	110-240 Vac	0.1-10 s	**RE8PD11FUTQ**	10	0.24 lb (0.110 kg)
		0.3-30 s	**RE8PD31FUTQ**	10	0.24 lb (0.110 kg)
		3-300 s	**RE8PD21FUTQ**	10	0.24 lb (0.110 kg)
On De-Energization					
1 C/O  SPDT	24 Vdc or Vac 110-240 Vac	0.05-1 s	**RE8PT01BUTQ**	10	0.05 lb (0.110 kg)

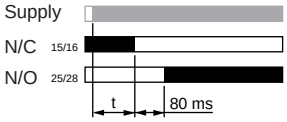
Timers for Star-Delta Starters

De-energized
Energized
Open
Closed
t: Adjustable Time Delay (Star)

With Contact for Switching to Star Connection RE8YG ▲



With Double On-Delay Period RE8YA



Relay Output	Supply Voltages	Timing Range ■	Catalog Number	Standard Pack Quantity ◆	Weight lb (kg)
1 C/O  SPDT	24 Vdc or Vac 110-240 Vac	0.1-10 s	**RE8YG11BUTQ**	10	0.24 lb (0.110 kg)
		0.3-30 s	**RE8YG31BUTQ**	10	0.24 lb (0.110 kg)
		3-300 s	**RE8YG21BUTQ**	10	0.24 lb (0.110 kg)
1 N/C + 1 N//O 	24 Vdc or Vac	0.3-30 s	**RE8YA32BTQ**	10	0.24 lb (0.110 kg)
	100-240 Vac	0.3-30 s	**RE8YA32FUTQ**	10	0.24 lb (0.110 kg)
	380-415 Vac	0.3-30 s	**RE8YA32QTQ**	10	0.24 lb (0.110 kg)

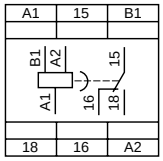
■ For easier adjustment, it is preferable to set the time delay between the maximum value in the range and one tenth of this value. Example: RE8PE11BUTQ timing range 0.1-10 s, recommended use 1-10 s.

▲ Correct operation of the star-delta starter is only possible if the wiring diagram on page 27 is strictly followed.

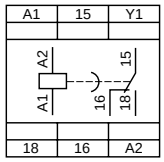
◆ Orders must specify standard pack quantity or multiples of that quantity.

WIRING

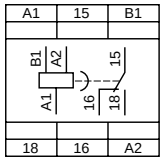
RE8TPE



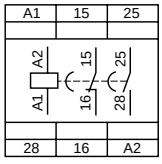
RE8PD



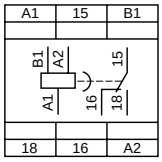
RE8PT



RE8YA



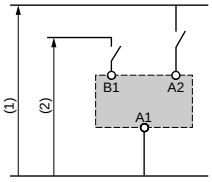
RE8YG



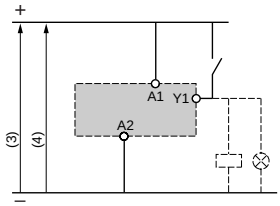
Recommended Wiring Diagrams

Interval Timers

RE8PE, PT



RE8PD

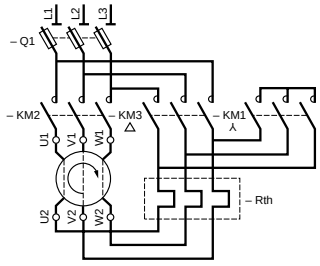


(1) 110-240 Vac.
(2) 24 Vdc or Vac.

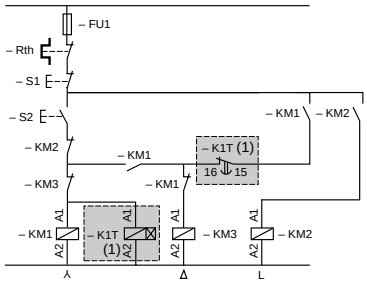
(3) 24 Vdc.
(4) 24 Vac or 110-240 Vac.

Timers for Star-Delta Starters

RE8YG, RE8YA

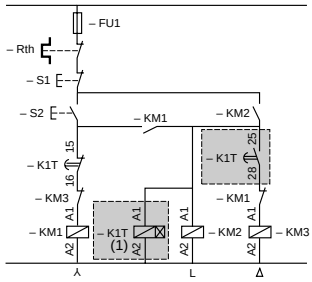


RE8YG

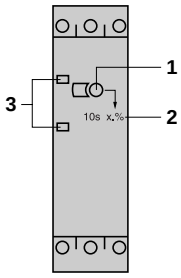


(1) K1T: RE8YG●1●●TQ

RE8YA



(1) K1T: RE8YA32●●TQ



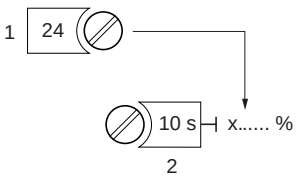
NOTE: Correct operation of the Star-Delta Starter associated with the RE8YG is only possible if the wiring diagram is strictly followed.

SETTING PROCEDURE

1. Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**.
2. Marking of maximum time delay value.
3. LEDs, depending on the model:
   — Yellow LED: illuminates when the output relay is energized.
   — Yellow LED: illuminates when the RE8 is energized

Adjustment of the Time Delay

— The maximum value of the timing range is printed on the product, **2**.
— Example: RE8PE11BUTQ; maximum time delay: 10 s.
— Time required 2.4 s; using potentiometer **1** set the value of the time delay required as a % of value **2**:

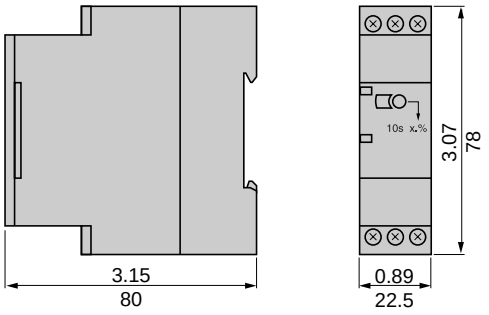


$$\text{Percentage of setpoint} = \frac{\text{Trequired} \times 100}{\text{Trange}}$$

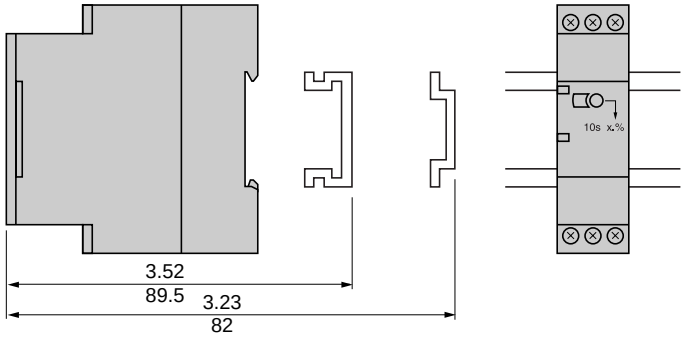
Trequired = 2.4 Sec.
Trange = 3 Sec.

$$\frac{2.4 \times 100}{10} = 24\ \%$$

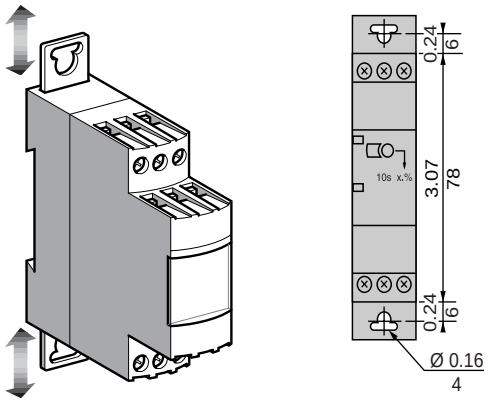
ZELIO-TIME™ Timers - RE8
Dimensions



Rail Mounting

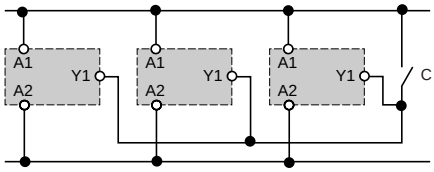


Direct Panel Mounting



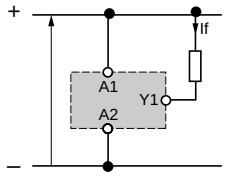
Dual Dimensions = $\frac{\text{in}}{\text{mm}}$

Control of Several Timers with a Single External Control Contact
RE8RA, PD



The external control contact C may be an electronic control device, for example a 2-wire sensor. In this case A1-A2 = 24 Vdc and the control device can only control up to a maximum of 4 timers.

Connection of 2-Wire VDC Sensor



Leakage current (open state) if < 1 mA.

ZELIO-TIME™ Timers - RE9
Application Data

The RE9 range of timers is designed for simple, repetitive applications with short and intensive cycles because their solid state output relays provides very high electrical durability.

Each product has a single timing range.

Each relay has a wide voltage range from 24 to 240 V.

The range has 9 catalog numbers with 3 model types:

— RE9TA: On-Delay

— RE9RA: Off-Delay

— RE9MS: Multifunction

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

Environment

Conforming to Standards		IEC 61812-1, EN 61812-1
Product Approvals		File E164353 CNN NKCR File LR 89150 Guide 3211 07 GL
CE Marking		Zelio Time Timer conforms to European regulations relating to CE Marking
Ambient Air Temperature around the Device	Storage	-40 to 185 °F (-40 to + 85 °C)
	Operation	-4 to 140 °F (-20 to + 60 °C)
Permissible Relative Humidity Range	Conforming to IEC 60721-3-3	15-85 % Environmental Class 3K3
Vibration Resistance	Conforming to IEC 60068-2-6, 10 to 55 Hz	a = 0.35 ms
Shock Resistance	Conforming to IEC 60068-2-27	15 gn - 11 ms
Degree of Protection	Housing	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	Conforming to IEC	250 V
	Conforming to CSA	300 V
Test Voltage for Insulation Tests	Dielectric test	2.5 kV
	Shock wave	4.8 kV
Voltage Limits	Power supply circuit	0.9-1.1 Uc
Frequency Limits	Power supply circuit	50/60 ± 5 % Hz
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.	Stranded wire without cable end	2 # 14 AWG (2 x 2.5 mm^2)
	Stranded with cable end	2 # 16 AWG (2 x 1.5 mm^2)
Tightening Torque		4.5-9.9 lb-in (0.6-1.1 N●m)

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

Power Supply Specifications

Type of Timer		RE9TA On-Delay	RE9RA Off-Delay	RE9MS Multifunction
Supply Voltage		24-240 Vdc or Vac	24-240 Vac	24-240 Vdc or Vac See Page 33.
Voltage Limits	Power supply circuit	0.85-1.1 Un		
Frequency		50-60 ± 5 % Hz		
Control Contact	Mechanical only	In series	Between Y2 and A2	In series
Maximum Length of Connecting Cable	From contact to RE9	–	65.6 ft (20 m)	–
Control Input Consumption	Input Y2	–	5 mA	–

Time Delay Specifications

Setting Accuracy		< ± 20 %		
Repeat Accuracy		< 1 %		
Minimum Reset Time	After the time delay period	100 ms		
Minimum Switching Time		–	40	–
Maximum Immunity to Micro-Breaks	During the time delay period	100 ms	2 ms	70 ms
	After the time delay period	2 ms	–	2 ms
Temperature Drift		≤0.1 % / °C		

Switching Specifications (Solid State Type)

Maximum Continuous Current	At ambient temperature: 20 °C	0.7 A (minimum 10 mA)		
UL Maximum Inductive Ratings	Make 7.0 Amp @ 250 Vac Break 0.7 Amp @ 250 Vac Carry 0.7 Amp @ 250 Vac			
	Make 0.7 Amp @ 250 Vdc Break 0.7 Amp @ 250 Vdc			
Maximum Overload Current	VDE 0435 part. 303, 4.8.3/Class II	15 A for 10 ms		
Maximum Voltage Drop	Closed state	At 0.7 A: 3 V		
Leakage Current	Open state	≤6 mA	≤1 mA	≤6mA
Maximum Dissipated Power		2.5 W	4 W	2.5 W
Derating	For temperature > 20 °C	None (mA)		
Electrical Durability	In millions of operating cycles	> 100		

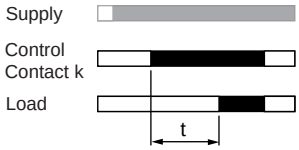
RE9MS at 60 °C maximum current: up to 48 V/400 mA, from 48 to 240 V/300 mA.

On-Delay Timers

De-energized
Energized
Open
Closed

t: Adjustable On-Delay

RE9TA

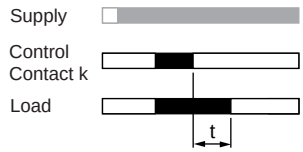


Power Supply Circuit	Function	Timing Range ■	Catalog Number	Weight lb (kg)
24-240 Vac or Vdc	On-Delay	0.1-10 s	**RE9TA11MW**	0.24 lb (0.110 kg)
		0.3-30 s	**RE9TA31MW**	0.24 lb (0.110 kg)
		3-300 s	**RE9TA21MW**	0.24 lb (0.110 kg)
		40 s - 60 min	**RE9TA51MW**	0.24 lb (0.110 kg)

Off-Delay Timers

De-energized
Energized
Open
Closed

t: Adjustable Off-Delay



Power Supply Circuit	Function	Timing Range ■	Catalog Number	Weight lb (kg)
24-240 Vac	Off-Delay	0.1-10 s	**RE9RA11MW7**	0.24 lb (0.110 kg)
		0.3-30 s	**RE9RA31MW7**	0.24 lb (0.110 kg)
		3-300 s	**RE9RA21MW7**	0.24 lb (0.110 kg)
		40 s - 60 min	**RE9RA51MW7**	0.24 lb (0.110 kg)

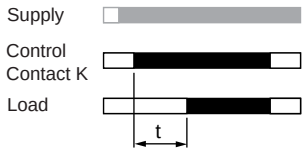
■ For easier adjustment, it is preferable to set the time delay between the maximum value in the range and one tenth of this value. Example: RE9TA11MW timing range 0.1-10 s, recommended use 1-10 s.

De-energized
Energized
Open
Closed
t: Time Delay

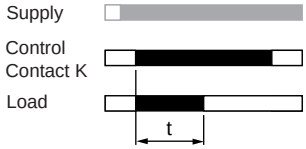
RE9MS

Multifunction Timers ⊠ 1⎍⊠ ⎍⊠ ⎍■

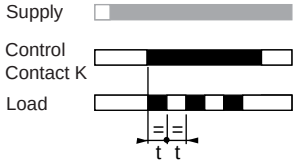
On-Delay ⊠



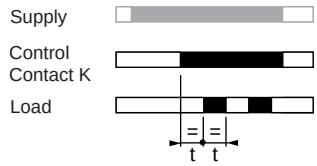
Interval ⎍⊠



Repeat Cycle ⎍⊠
Start on Energization of the Load

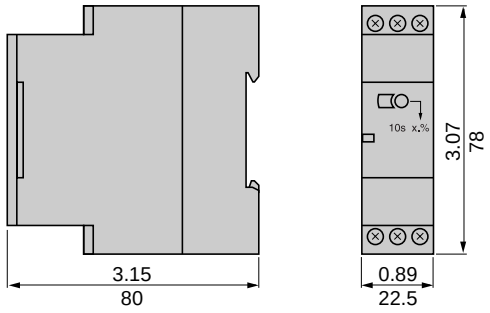


Repeat Cycle ⎍■
Start on De-Energization of the Load

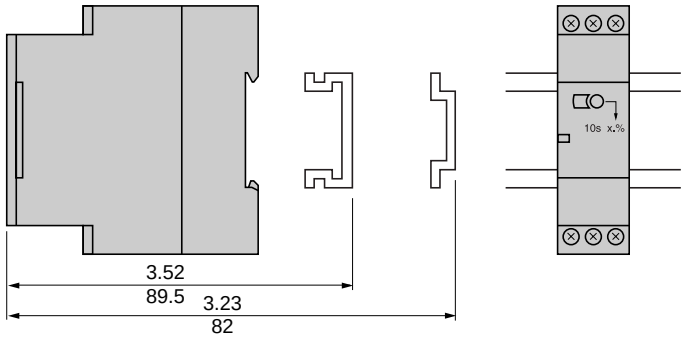


Power Supply Circuit	Function	Timing Range ■	Catalog Number	Weight lb (kg)
24-240 Vac or Vdc	On-Delay ⊠	0.3-30 s and 0.1-10 s	**RE9MS21MW**	0.24 lb (0.110 kg)
24-240 Vac	Interval ⎍⊠			
24-240 Vac	Repeat Cycle Start on energization of the load. ⎍⊠			
24-240 Vac	Repeat Cycle Start on de-energization of the load. ⎍■			

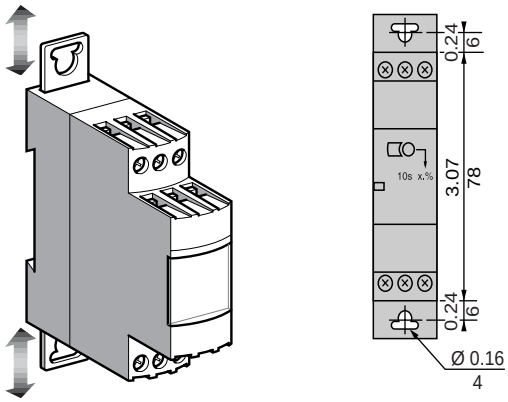
■ For easier adjustment, it is preferable to set the time delay between the maximum value in the range and one tenth of this value. Example: RE9MS21MW timing range 3-30 s, recommended use 30-300 s.



Rail Mounting

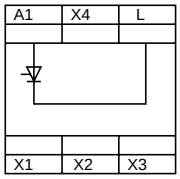


Direct Panel Mounting



Dual Dimensions = $\frac{\text{in}}{\text{mm}}$

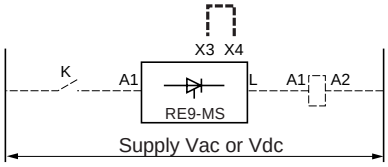
RE9MS



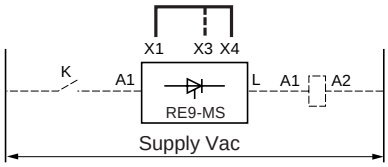
Recommended Wiring Diagrams

RE9MS

On-Delay



Interval

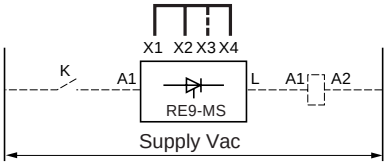


Link to be made between terminals X1 and X4.

Selection of Timing Range

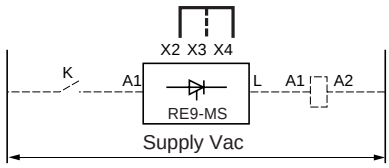
X3-X4 not linked: range 3-300s (factory configuration).
X3-X4 linked: range 0.1-10 s.

Repeat Cycle
Start on Energization of the Load

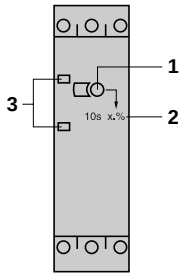


Link to be made between terminals X2 and X4 on one side and X1 and X2 on the other side.

Repeat Cycle
Start on De-Energization of the Load



Link to be made between terminals X2 and X4.



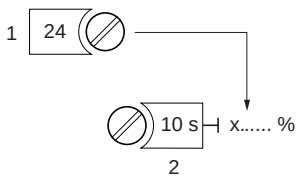
NOTE: For supply voltages greater than 30 V, the rated voltage of the load is equal to the supply voltage. For a supply voltage of 24 V, the voltage drop within the RE9 timer must be taken into account (about 3 V); a coil with a nominal voltage of 21 V must therefore be selected for the load.

SETTING PROCEDURE

1. Potentiometer for fine adjustment of the time delay, graduated in % of range max. setting **2**.
2. Marking of maximum time delay value.
3. LEDs, depending on the model:
   — Yellow LED: flashes during the time delay period; permanently on outside the time delay period.

Adjustment of the Time Delay

— The maximum value of the timing range is printed on the product, **2**.
— Example: RE9MS21MW; maximum time delay: 10 s (X3-X4 linked).
— Time required 2.4 s; using potentiometer **1** set the value of the time delay required as a % of value **2**:



$$\text{Percentage of setpoint} = \frac{\text{Trequired} \times 100}{\text{Trange}}$$

Trequired = 2.4 Sec.
Trange = 3 Sec.

$$\frac{2.4 \times 100}{10} = 24\ \%$$

Schneider Electric USA
8001 Highway 64 East
Knightdale, NC 27545
1-888-SquareD
(1-888-778-2733)
www.us.squared.com

Schneider Electric Canada
19 Waterman Avenue,
M4B 1 Y2
Toronto, Ontario
1-800-565-6699
www.schneider-electric.ca

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