



A range of modular timers 5 - 8 A

Features include:

- One module (22.5 mm) wide
- Monofunction and multifunction versions available
- Time scales from 0.05s to 60h
- "1 delayed contact + 1 instantaneous contact" version available (type 87.02)
- LED indicator
- 35 mm rail (EN 50022) mounting
- Approvals (according to type): cUL, GL

INDUSTRIAL
APPLICATIONS



INDUSTRIAL
AUTOMATION



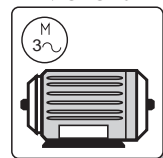
TOOLING
MACHINES



PLASTIC
MOULDING
MACHINES



ELECTRIC
MOTORS




87.61

87.91


MODULAR TIMERS 5 A

TYPE 87.61 1 CO (SPDT)

TYPE 87.62 2 CO (DPDT)

True OFF delay (power OFF) (BI) without auxiliary supply

- Functions: see page 33

- Ordering information: see page 36

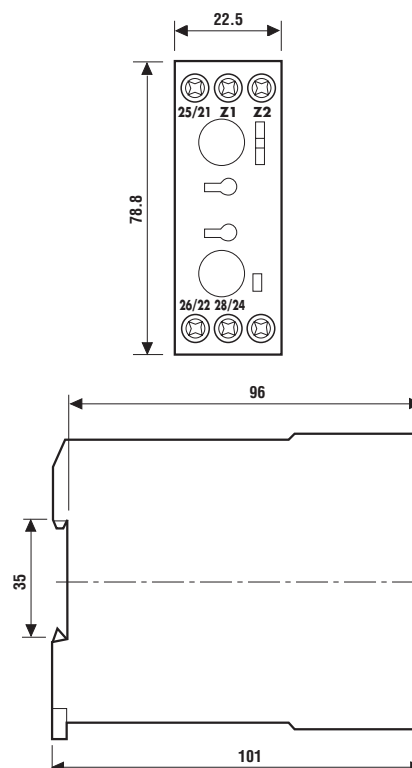
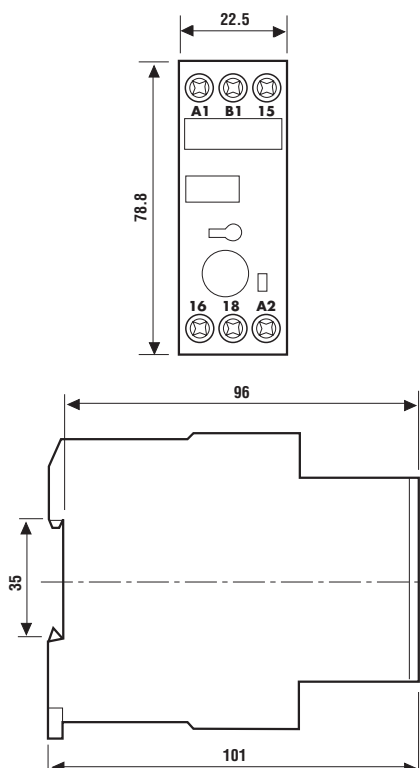
MODULAR TIMER 8 A

TYPE 87.91 1 CO (SPDT)

Asymmetrical recycler (LI, LE, PI, PE)

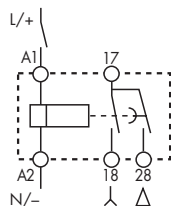
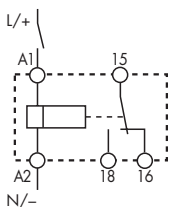
- Functions: see page 33

- Ordering information: see page 36



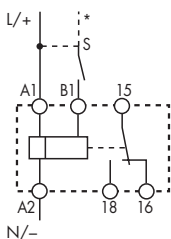
Functions

wiring diagram without external START



Functions

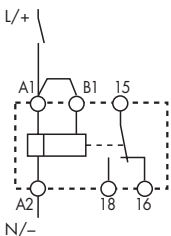
wiring diagram with external START



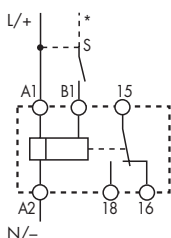
Asymmetrical recycler

Functions

wiring diagram without external START



wiring diagram with external START



Types		
87.11		(AI) ON delay. Apply power to timer. Contact transfers after preset time has elapsed. Reset occurs when power is removed.
87.21		(DI) ON pulse. Apply power to timer. Contact transfers immediately. After preset time has elapsed, contact returns to original position.
87.31		(SW) Symmetrical recycler: pulse start. Apply power to timer. First transfer of contact occurs as soon as power is applied. The timer now cycles between ON and OFF as long as power is applied. The ratio is 1:1 (time off = time on).
87.61 87.62		(BI) True OFF delay (power OFF). Apply power to timer ($T_{min} = 300ms$). Contact transfers immediately. Reset occurs when power is removed after preset time elapsed.
87.82		(SD) Star - delta. Apply power to timer. Closure of the star contact () occurs immediately. After preset time has elapsed the star contact () returns to the original position. After a fixed time of ~ 60 ms the delta contact (Δ) closed and remains in that position.
87.41		(BE) OFF delay: timing on START release (internal start). Power must be applied at all times to timer. On closure of normally open control Signal Switch , the output contact transfers and remains in that position. When the Signal Switch is reopened, the desired delay begins. After preset time has elapsed, the contact returns to the original position.
87.91	<div> </div> <div> </div>	<div> (LI) Asymmetrical recycler pulse start. Apply power to timer. First transfer of contact occurs as soon as power is applied. The timer now cycles between ON and OFF as long as power is applied. The cycles are not equal (time off = time on). </div> <div> (PI) Asymmetrical recycler pause start. Apply power to relay. First transfer of contact occurs as soon as power is applied. The timer now cycles between OFF and ON as long as power is applied. The cycles are not equal (time off = time on). </div>
	<div> </div> <div> </div>	<div> (LE) Asymmetrical recycler pulse start (external start). On closure of the normally open control Signal Switch the first transfer of contact occurs. The timer now cycles between ON and OFF. The cycles are not equal (time off = time on). </div> <div> (PE) Asymmetrical recycler pause start (external start). On closure of the normally open control Signal Switch the first transfer of contact occurs. The timer now cycles between OFF and ON. The cycles are not equal (time off = time on). </div>

TIME SCALES

Types: 87.01, 87.02, 87.11, 87.21, 87.41, 87.91

0.05 ÷ 1 s	0.15 ÷ 3 s	0.5 ÷ 10 s	
0.05 ÷ 1 min	0.15 ÷ 3 min	0.5 ÷ 10 min	
0.05 ÷ 1 h	0.15 ÷ 3 h	0.5 ÷ 10 h	3 ÷ 60 h

Type: 87.31

0.5 ÷ 10 s

Type: 87.82

0.05 ÷ 1 min

Types: 87.61
87.62

0.15 ÷ 2.5 s
0.5 ÷ 10 s
4 ÷ 80 s
30 s ÷ 10 min

TECHNICAL DATA

SUPPLY VOLTAGE (U _N)	AC: (24...240) V 50/60 Hz DC: (24...48) V (24...240) V AC (50/60 Hz)/DC (for 87.61 and 87.62 only)
OPERATING RANGE	AC: (0.85...1.1)U _N DC: (0.85...1.2)U _N
POWER CONSUMPTION	AC: 1.5 VA DC: 1.5 W
DIELECTRIC STRENGTH BETWEEN OPEN CONTACTS	2 kV AC
SURGE TEST (1.2/50 µs) BETWEEN COIL AND CONTACTS	6 kV
MECHANICAL LIFE	30 · 10 ⁶ cycles
PROTECTION CATEGORY	IP 20
DELAY SETTING	0.05s to 60h (± 1% for 87.61 and 87.62 only)
REPEATABILITY	± 0.2%
SETTING ACCURACY - FULL RANGE	± 5 %
RECOVERY TIME	≤ 50 ms
MINIMUM START PULSE DURATION	AC: 50 ms DC: 30ms 300 ms (for 87.61 and 87.62 only)
AMBIENT TEMPERATURE	(-20 ... +60)°C

CONTACT SPECIFICATIONS

	87.01/02/11/21/31/41/82/91	87.61/62
RATED CURRENT	8 A	5 A
MAX PEAK CURRENT	30 A	10 A
RATED VOLTAGE	250 V AC	250 V AC
MAX SWITCHING VOLTAGE	440 V AC	440 V AC
NOMINAL RATE IN AC1	2,000 VA	1,250 VA
ELECTRICAL LIFE IN AC1	100 · 10 ³ cycles	100 · 10 ³ cycles
BREAKING CAPACITY IN DC1: 30/110/220 V	8/0.5/0.2	5/0.5/0.2
CONTACT MATERIAL	AgCdO	AgCdO
MINIMUM SWITCHING LOAD	300 mW (10 V/5 mA)	300 mW (10 V/5 mA)

Type	Function Code	Function	Time scales										
			s	s	s	min	min	min	h	h	h	h	
			0.05	0.15	0.5	0.05	0.15	0.5	0.05	0.15	0.5	3	
			1	3	10	1	3	10	1	3	10	60	
87.01/ 87.02	AI	ON delay	•	•	•	•	•	•	•	•	•	•	
	BE	OFF delay: timing on START release (internal start)	•	•	•	•	•	•	•	•	•	•	
	CE	ON and OFF delay (external start)	•	•	•	•	•	•	•	•	•	•	
	DI	ON pulse	•	•	•	•	•	•	•	•	•	•	
	DE	ON pulse: timing on START pulse	•	•	•	•	•	•	•	•	•	•	
	EE	OFF pulse: timing on START release	•	•	•	•	•	•	•	•	•	•	
	GI	Fixed pulse (0,5s) delayed	•	•	•	•	•	•	•	•	•	•	
	SW	Symmetrical recycler: pulse start	•	•	•	•	•	•	•	•	•	•	
	ON	Permanently ON											
	OFF	Permanently OFF											
87.11	AI	ON delay	•	•	•	•	•	•	•	•	•	•	
87.21	DI	ON pulse	•	•	•	•	•	•	•	•	•	•	
87.31	SW	Symmetrical recycler: pulse start			•								
87.41	BE	OFF delay: timing on START release (internal start)	•	•	•	•	•	•	•	•	•	•	
87.61	BI	True OFF delay (power OFF)		0.15 2.5	•	0.07 1.3	•						
87.62		True OFF delay (power OFF)											
87.82	SD	Star - delta T _U = (50...65) ms				•							
87.91	–	Asymmetrical recycler:											
	LI	Asymmetrical recycler pulse start	•	•	•	•	•	•	•	•	•	•	
	LE	Asymmetrical recycler pulse start (external start)	•	•	•	•	•	•	•	•	•	•	
	PI	Asymmetrical recycler pause start	•	•	•	•	•	•	•	•	•	•	
	PE	Asymmetrical recycler pause start (external start)	•	•	•	•	•	•	•	•	•	•	

ORDERING INFORMATION

Example: 87 series 8 A multi-function timer, 1 CO contact, with (24 ... 240) V AC (50/60)Hz and (24...48) V DC supply.

8 7 **0** **1** **0** **2 4 0** **0** **0** **0** **0**

Series

No. of contact

1 = 1 CO
2 = 2 CO for
87.02, 87.62
2 = 2 NO for 87.82

Supply version

0 = AC (50/60 Hz)/DC

Supply voltage

240 = { 24...48 V DC
24...240 V AC
240 = 24...240 V AC/DC (for 87.61 and 87.62 only)

Type

0 = Multi-function (AI, BE, CE, DI, DE, EE, GI, SW, ON, OFF)
1 = ON delay (AI)
2 = ON pulse (DI)
3 = Symmetrical recycler: pulse start (SW)
4 = OFF delay: timing on START release (internal start) (BE)
6 = True OFF delay (power OFF) (BI)
8 = Star - delta (SD)
9 = Asymmetrical recycler (LI, LE, PI, PE)