

Ultra-slim PCB Relays (EMR or SSR) 0.1 - 0.2 - 2 - 6 A



Bottling plant



Packaging machines



Labelling machines



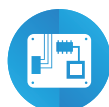
Road / tunnel lighting



Burners, boilers and furnaces



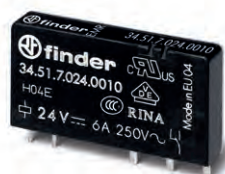
Timers and lighting controls



Electronic circuit boards



Programmable controllers



Ultra-slim 1 Pole - 6 A relay**Printed circuit mount**

- direct or via PCB socket

35 mm rail mount

- via screw, screwless or push-in terminal sockets

- 1 Pole changeover contacts or 1 Pole normally open contact
- Ultra slim (5 mm), package
- Sensitive DC coil - 170 mW (Dual AC/DC coil drive possible using 93 series sockets)
- UL Listing (certain relay/socket combinations)
- Cadmium Free contact materials
- 8/8 mm clearance/creepage distance
- 6 kV (1.2/50 μ s) insulation, coil-contacts

FOR UL RATINGS SEE:

"General technical information" page V

For outline drawing see page 9

Contact specification

Contact configuration

Copper side view

Copper side view

Rated current/
Maximum peak current

A

6/10

6/10

Rated voltage/
Maximum switching voltage

V AC

250/400

250/400

Rated load AC1

VA

1500

1500

Rated load AC15 (230 V AC)

VA

300

300

Single phase motor rating (230 V AC)

kW

0.185

0.185

Breaking capacity DC1: 30/110/220 V

A

6/0.2/0.12

6/0.2/0.12

Minimum switching load

mW (V/mA)

500 (12/10)

50 (5/2)

Standard contact material

AgNi

AgNi + Au

Coil specificationNominal voltage (U_N)

V AC (50/60 Hz)

—

—

V DC

5 - 12 - 24 - 48 - 60

5 - 12 - 24 - 48 - 60

Rated power AC/DC

VA (50 Hz)/W

—/0.17

—/0.17

Operating range

AC

—

—

DC

(0.7...1.5) U_N (0.7...1.5) U_N

Holding voltage

AC/DC

—/0.4 U_N —/0.4 U_N

Must drop-out voltage

AC/DC

—/0.05 U_N —/0.05 U_N **Technical data**

Mechanical life AC/DC

cycles

—/10 · 10⁶—/10 · 10⁶

Electrical life at rated load AC1

cycles

60 · 10³60 · 10³

Operate/release time

ms

5/3

5/3

Insulation between coil
and contacts (1.2/50 μ s)

kV

6 (8 mm)

6 (8 mm)

Dielectric strength
between open contacts

V AC

1000

1000

Ambient temperature range

°C

-40...+85

-40...+85

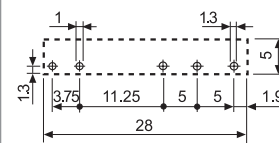
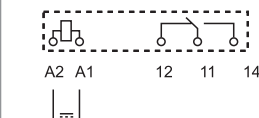
Environmental protection

RT II

RT II

Approvals (according to type)

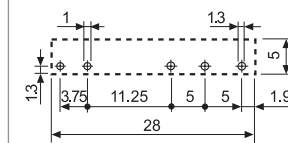
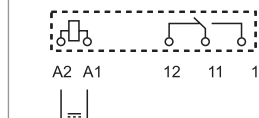
- 5 mm wide
- Low coil power
- PCB or 93 series sockets



Copper side view



- 5 mm wide
- Low coil power
- PCB or 93 series sockets
- Contact AgNi + Au



Copper side view

Ultra-slim Solid State Relays

Printed circuit mount

- direct or via PCB socket

35 mm rail mount

- via screw, screwless or push-in terminal sockets

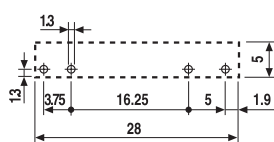
- Single circuit output switching options
 - 6 A, 24 V DC
 - 2 A, 240 V AC
- Silent, high speed switching with long electrical life
- Ultra slim (5 mm), package
- Sensitive DC Input circuits (Dual AC/DC input drive possible using 93 series sockets)
- UL Listing (certain relay/socket combinations)
- Wash tight: RT III
- 3000 V AC insulation, input-output

NEW 34.81.7.xxx.9024


- 6 A, 24 V DC output switching
- PCB or 93 series sockets



input output

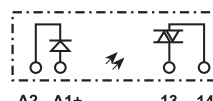


Copper side view

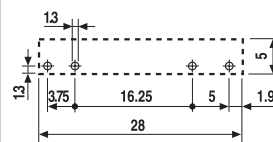
34.81.7.xxx.8240



- 2 A, 240 V AC output switching
- Zero crossing switching
- PCB or 93 series sockets



input output



Copper side view

For outline drawing see page 9

Output circuit

Contact configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/ Maximum peak current (10 ms)	A	6/50	2/80
Rated switching voltage	V	24 DC	240 AC (50/60 Hz)
Switching voltage range	V	(1.5...33)DC	(12...275)AC
Maximum blocking voltage	V	33	—
Repetitive peak off-state voltage	V _{pk}	—	800
Rated load DC13	W	36	—
Rated load AC15	VA	—	300
Minimum switching current	mA	1	35
Max. "OFF-state" leakage current	mA	0.001	1.5
Max. "ON-state" voltage drop	V	0.4	1.6

Supply specification

Nominal voltage (U _N)	V DC	5	12	24	60	5	12	24	60
Rated power	W	0.035	0.085	0.17	0.21	0.06	0.085	0.17	0.21
Operating range	V DC	35...12	8...17	16...30	35...72	35...10	8...17	16...30	35...72
Control current	mA	7	7	7	3.5	12	7	7	3.5
Release voltage	V DC	4	4	10	20	1	4	10	20

Technical data

Electrical life at rated load	cycles	> 10 ⁶	> 10 ⁶
Operate/release time	ms	0.02/0.2	11/11
Insulation between input and output (1.2/50μs)	kV	4	4
Ambient temperature range	°C	-20...+70*	-20...+50*
Environmental protection		RT III	RT III

Approvals (according to type)



* Note: all technical data relates to using the relay directly on PCB or PCB socket type 93.11.

If the relay is used with 35 mm rail socket types 93.01 and 93.51, refer to the technical data of 38 Series; if used with types 93.60, 93.61, 93.62, 93.63, 93.64, 93.65, 93.66, 93.67, 93.68 and 93.69, refer to the technical data of the MasterINTERFACE 39 Series. See L34 diagrams page 8

Ultra-slim Solid State Relays**Printed circuit mount**

- direct or via PCB socket

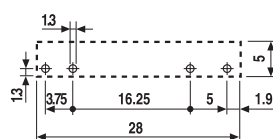
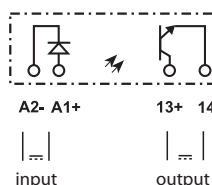
35 mm rail mount

- via screw, screwless or push-in terminal sockets

- Single circuit output switching options
 - 0.1 A, 48 V DC
 - 0.2 A, 220 V DC
- Silent, high speed switching with long electrical life
- Ultra slim (5 mm), package
- Sensitive DC Input circuits (Dual AC/DC input drive possible using 93 series sockets)
- UL Listing (certain relay/socket combinations)
- Wash tight: RT III
- 3000 V AC insulation, input-output

34.81.7.xxx.7048**NEW****34.81.7.xxx.7220**

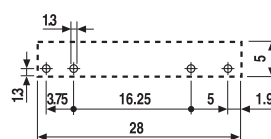
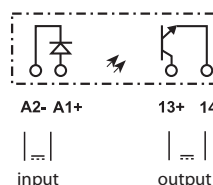
- 100 mA, 48 V DC output switching
- PCB or 93 series sockets



Copper side view



- 200 mA, 110/220 V DC output switching
- PCB or 93 series sockets



Copper side view

For outline drawing see page 9

Output circuit

Contact configuration		1 NO (SPST-NO)	1 NO (SPST-NO)
Rated current/Maximum peak current (10 ms)	A	0.1/0.5	0.2/10
Rated switching voltage	V	48 DC	220 DC
Switching voltage range	V	(1.5...53)DC	(90...256)DC
Maximum blocking voltage	V	53	256
Rated load DC13	W	2.4	44
Minimum switching current	mA	0.05	0.05
Max. "OFF-state" leakage current	mA	0.001	0.001
Max. "ON-state" voltage drop	V	1	0.4

Supply specification

Nominal voltage (U _N)	V DC	24	60	24	60
Rated power	W	0.17	0.21	0.17	0.21
Operating range	V DC	16...30	35...72	16...30	35...72
Control current	mA	7	3.5	7	3.5
Release voltage	V DC	10	20	10	20

Technical data

Electrical life at rated load	cycles	> 10 ⁶	> 10 ⁶
Operate/release time	ms	0.03/0.6	0.4/2.2
Insulation between input and output (1.2/50μs)	kV	4	4
Ambient temperature range	°C	-20...+70*	-20...+70*
Environmental protection		RT III	RT III

Approvals (according to type)

* Note: all technical data relates to using the relay directly on PCB or PCB socket type 93.11.

If the relay is used with 35 mm rail socket types 93.01 and 93.51, refer to the technical data of 38 Series; if used with types 93.60, 93.61, 93.62, 93.63, 93.64, 93.65, 93.66, 93.67, 93.68 and 93.69, refer to the technical data of the MasterINTERFACE 39 Series.

Ordering information

Electromechanical relay (EMR)

A Example: 34 series Ultra-Slim electromechanical relay, 1 CO (SPDT) 6 A contacts, 24 V sensitive DC coil.

3	4	.	5	1	.	7	.	0	2	4	.	0	0	1	0				
Series			Type			No. of poles			Coil version			Coil voltage							
34			5 = Electromechanical type			1 = 1 pole, 6 A			7 = Sensitive DC			See coil specifications							
												A: Contact material		B: Contact circuit		C: Options		D: Special versions	
												0 = Standard AgNi 4 = AgSnO ₂ 5 = AgNi + Au		0 = CO (SPDT) 3 = NO (SPST)		1 = None		0 = Flux proof (RT II) 9 = Flat version	

Selecting features and options: only combinations in the same row are possible.

Preferred selections for best availability are shown in **bold**.

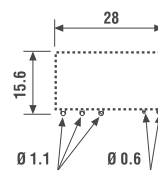
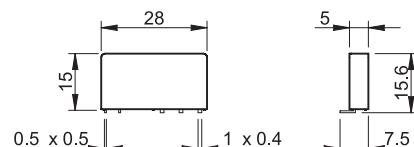
Type	Coil version	A	B	C	D
34.51	sens. DC	0 - 4 - 5	0 - 3	1	0
34.51	sens. DC	0 - 4 - 5	0	1	9

Solid state relay (SSR)

Example: 34 series solid state relay, 6 A 24 V DC output, 24 V DC supply.

3	4	.	8	1	.	7	.	0	2	4	.	9	0	2	4
Series			Type			Output			Input circuit			Output circuit			
34			8 = SSR type			1 = 1 NO (SPST-NO)			See input specifications			9024 = 6 A - 24 V DC 7048 = 0.1 A - 48 V DC 7220 = 0.2 A - 220 V DC 8240 = 2 A - 240 V AC			

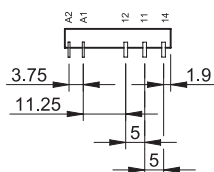
Flat pack version



Copper side view

Option = 34.51.7xxx.x019

Environmental protection RT I



Electromechanical relay

A

Technical data

Insulation according to EN 61810-1

Nominal voltage of supply system	V AC	230/400	
Rated insulation voltage	V AC	250	400
Pollution degree		3	2

Insulation between coil and contact set

Type of insulation		Reinforced	
Overvoltage category		III	
Rated impulse voltage	kV (1.2/50 µs)	6	
Dielectric strength	V AC	4000	

Insulation between open contacts

Type of disconnection		Micro-disconnection	
Dielectric strength	V AC/kV (1.2/50 µs)	1000/1.5	

Insulation between coil terminals

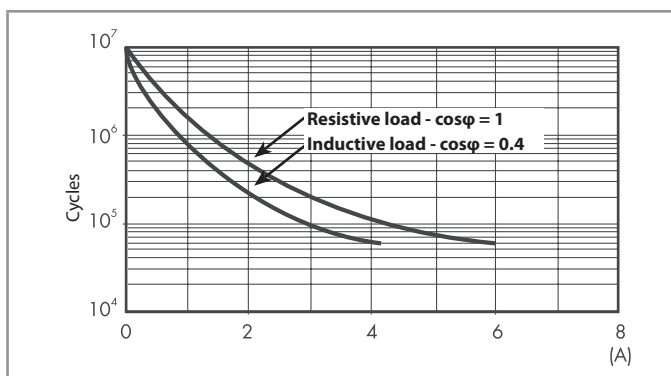
Rated impulse voltage (surge) differential mode (according to EN 61000-4-5)	kV(1.2/50 µs)	2	
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Other data

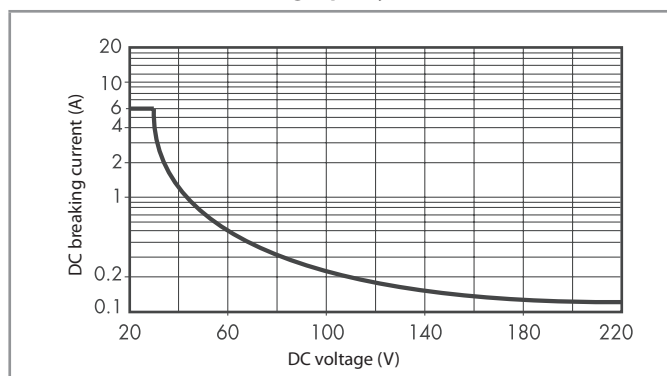
Bounce time: NO/NC	ms	1/6	
Vibration resistance (5...55)Hz: NO/NC	g	10/5	
Shock resistance	g	20/14	
Power lost to the environment	without contact current	W	0.2
	with rated current	W	0.5
Recommended distance between relays mounted on PCB	mm	≥ 5	

Contact specification

F 34 - Electrical life (AC) v contact current



H 34 - Maximum DC1 breaking capacity



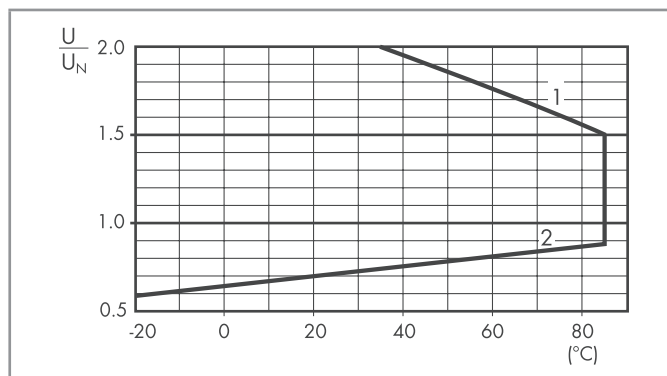
- When switching a resistive load (DC1) having voltage and current values under the curve, an electrical life of $\geq 60 \cdot 10^3$ can be expected.
 - In the case of DC13 loads, the connection of a diode in parallel with the load will permit a similar electrical life as for a DC1 load.
- Note: the release time for the load will be increased.

Coil specifications

DC coil data

Nominal voltage	Coil code	Operating range		Resistance	Rated coil consumption
U_N		U_{min}	U_{max}	R	I at U_N
V		V	V	Ω	mA
5	7.005	3.5	7.5	130	38.4
12	7.012	8.4	18	840	14.2
24	7.024	16.8	36	3350	7.1
48	7.048	33.6	72	12300	3.9
60	7.060	42	90	19700	3

R 34 - DC coil operating range v ambient temperature



- 1 - Max. permitted coil voltage.
2 - Min. pick-up voltage with coil at ambient temperature.

Solid state relay

Technical data

Insulation			Dielectric strength	Impulse (1.2/50 µs)
Between input and output			3000 V AC	4 kV
EMC specifications		Reference standard		
Electrostatic discharge	contact discharge	EN 61000-4-2	4 kV	
	air discharge	EN 61000-4-2	8 kV	
Radiated electromagnetic field (80...1000 MHz)		EN 61000-4-3	10 V/m	
Fast transients on supply terminals (burst 5/50 ns, 5 and 100 kHz)		EN 61000-4-4	2 kV	
Voltage pulses on supply terminals (surge 1.2/50 µs)	common mode	EN 61000-4-5	0.7 kV	
	differential mode	EN 61000-4-5	0.7 kV*	
Radio-frequency common mode voltage (0.15...230 MHz)		EN 61000-4-6	10 V	
Other data				
Power lost to the environment	without output current	W	0.15	
	with rated current	W	0.4	

* For 34.81.7.005... = 0.3 kV ; for 34.81.7.012... = 0.5 kV

Input specification

Input data - DC types

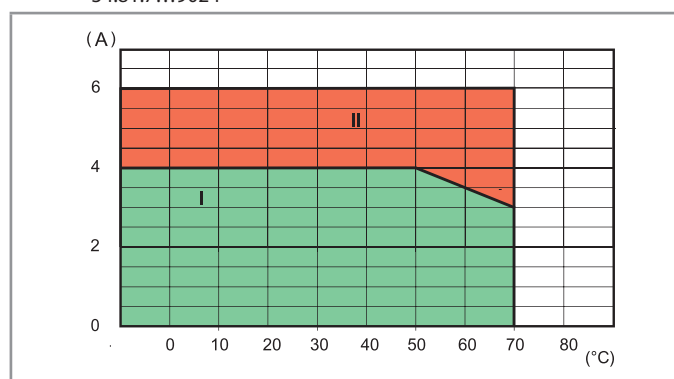
Nominal voltage U_N	Input code	Operating range		Release voltage	Impedance	Control current I at U_N
V		U_{min}	U_{max}	V	Ω	mA
5	7.005	3.5	12*	1	715	7*
12	7.012	8	17	4	1715	7
24	7.024	16	30	10	3430	7
60	7.060	35	72	20	17000	3.5

* For 34.81.7.005.8240: $U_{MAX} = 10\text{ V}$, I @ 5 V = 12 mA

Output specification

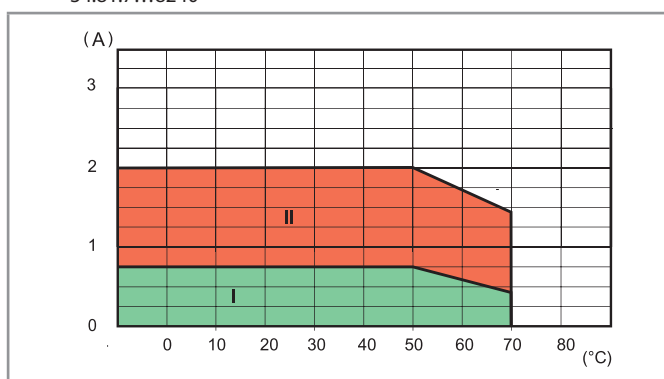
L 34-1 - Output DC current v ambient temperature

34.81.7...9024



L 34 - Output AC current v ambient temperature

34.81.7...8240



I: SSR installed on 93 series sockets as a group (without gap between sockets)

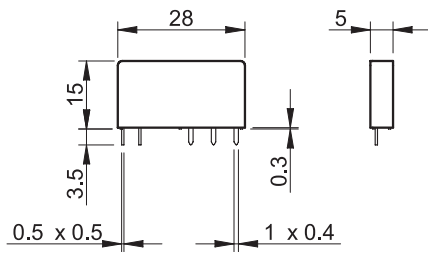
II: SSR installed individually in free air, or with a gap $\geq 9\text{ mm}$, which implies a not significant influence from nearby components

Max recommended switching frequency (Cycles/Hour, with 50% Duty-cycle) at ambient temperature 50°C, single mounting

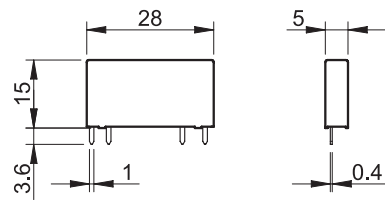
Load	34.81.7xxx.9024	34.81.7xxx.8240	34.81.7xxx.7048	34.81.7xxx.7220
24 V 6 A DC1	180 000	—	—	—
24 V 3 A DC L/R = 10 ms	5000	—	—	—
24 V 2 A DC L/R = 40 ms	3600	—	—	—
24 V 1 A DC L/R = 40 ms	6500	—	—	—
24 V 0.8 A DC L/R = 40 ms	9000	—	—	—
24 V 1.5 A DC L/R = 80 ms	3250	—	—	—
230 V 2 A AC1	—	60 000	—	—
230 V 1.25 A AC15	—	3600	—	—
48 V 0.1 A DC1	—	—	60 000	—
220 V 0.2 A DC1	—	—	—	60 000

Outline drawings

Type 34.51



Type 34.81



A