

General-purpose Relays MK-S New Model

勝 特 力 材 料 886-3-5753170 胜特力电子(上海) 86-21-34970699 胜特力电子(深圳) 86-755-83298787

Http://www.100y.com.tw

General-purpose Relays Featuring Mechanical Indicator and Lockable Test Button

- Built-in operation indicator (mechanical and LED), and new models with lockable test button.
- Nameplate provided on models with lockable test button.
- RoHS Compliant.
- UL approval for most models. (UL approval pending for models with built-in LED indicators.)



Features

Two-way Action Test Button

Relay in Normal Operation



For Momentary Operation



Pull down the test button to the first position, then press the yellow button with an insulated tool to operate the contact.

For Lock Operation



Pull down the test button to the second position. (The contact is now in the locked position.)

Model Number Structure

■ Model Number Legend



1. Contact Form

2: DPDT

3: 3PDT

2. Terminals

P: Plug-in

3. Mechanical Indicator/Test Button

Blank: Mechanical indicator

I: Mechanical indicator and lockable test button

4. LED Indicator

Blank: Standard
N: LED indicator

5. Coil Polarity

Blank: Standard

1: Reverse polarity (DC coil only)

6. Surge Absorption

Blank: Standard

D: Surge absorber diode (DC coil only)
V: Surge absorber varistor (AC coil only)

7. Internal Connections

Blank: Standard

2 or 5: Non-standard connections (Refer to "Terminal Arrangement/Internal Connection".)

8. Rated Voltage

(Refer to "Coil Ratings".)

Ordering Information

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■ List of Models

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Туре	Termi- nals	Contact form	Internal connections (See note 3.)	With mechanical indicator	With mechanical indicator and lockable test button	Coil ratings	
Standard P Models	Plug-in	in DPDT	Standard	MKS2P	MKS2PI	AC/DC	
	4		Non-standard	MKS2P-2	MKS2PI-2		
		3PDT	Standard	MKS3P	MKS3PI		
	7	W.1	Non-Standard	MKS3P-2	MKS3PI-2		
	N	M M	1007. OM.TW	MKS3P-5	MKS3PI-5		
Models with	N	DPDT	Standard	MKS2PN(1)	MKS2PIN(1)	AC/DC	
LED Indicator	-1	TXV	Non-standard	MKS2PN(1)-2	MKS2PIN(1)-2		
(See note 2.)	L.M.	3PDT	Standard	MKS3PN(1)	MKS3PIN(1)		
	TV	N MM	Non-Standard	MKS3PN(1)-2	MKS3PIN(1)-2		
	LOL		IM: Inc. COM:	MKS3PN(1)-5	MKS3PIN(1)-5		
Models with	TW	TW	DPDT	Standard	MKS2P(1)-D	MKS2PI(1)-D	DC
Diode	TV	W W	Non-standard	MKS2P(1)-D-2	MKS2PI(1)-D-2		
(See note 2.)	M.T.	3PDT	Standard	MKS3P(1)-D	MKS3PI(1)-D		
W.100X.C			Non-Standard	MKS3P(1)-D-2	MKS3PI(1)-D-2		
	Obs		MAN M. TOUX CO.	MKS3P(1)-D-5	MKS3PI(1)-D-5		
Models with LED Indicator and Diode	COM.	DPDT	Standard	MKS2PN-D	MKS2PIN-D	DC	
	Mo		Non-standard	MKS2PN-D-2	MKS2PIN-D-2		
	$(C_{\Omega_{2n}})$	3PDT	Standard	MKS3PN-D	MKS3PIN-D		
	ST COI		OUT	Non-Standard	MKS3PN-D-2	MKS3PIN-D-2	N
	7.0	MIN	M 100 1.	MKS3PN-D-5	MKS3PIN-D-5	-×1	
Models with	NY.CL	DPDT	Standard	MKS2P-V	MKS2PI-V	AC	
Varistor	00X.C	COM	Non-standard	MKS2P-V-2	MKS2PI-V-2	TW	
		3PDT	Standard	MKS3P-V	MKS3PI-V	- 1	
MMM.			Non-S	Non-Standard	MKS3P-V-2	MKS3PI-V-2	LIN
	Jac	COM	I WWW.IO	MKS3P-V-5	MKS3PI-V-5	W	
Models with	vi 1003	DPDT	Standard	MKS2PN-V	MKS2PIN-V	AC	
LED Indicator	100		Non-standard	MKS2PN-V-2	MKS2PIN-V-2	MIN	
and Varistor	M. Inc	3PDT	Standard	MKS3PN-V	MKS3PIN-V	TW	
	100	10	Dr. COM.	Non-Standard	MKS3PN-V-2	MKS3PIN-V-2	OM
W	M Ass.	MY.CO.	TW WW	MKS3PN-V-5	MKS3PIN-V-5	TIME	

Note:	 When ordering, add the rated voltage to the model number. Rated voltages are given in the coil in Example: MKS3P 24 VDC 	atings table in the specifications.
	Rated voltage	
	The DC coil comes in two types: standard coil polarity and reverse coil polarity. Refer to Terminal Arrangement and Internal Connections. Example: MKS2PIN1-2 24 VDC	

Example: MKS2PIN1-2 24 VDC - Reverse coil polarity

3. Refer to Terminal Arrangement and Internal Connections for non-standard internal connections. WWW.100Y.COM.T

■ List of Models (Order Separately)

Type	Model
8-pin	PF083A-E
11-pin	PF113A-E
8-pin	PF083A-D
11-pin	PF113A-D
113A-E)	PFC-A1
TION L	W.100 Y. COM. TY
	8-pin 11-pin 8-pin

Specifications

胜特力电子(上海) 86-21-34970699 胜特力电子(深圳) 86-755-83298787 ■ Ratings

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Coil Ratings

Rated voltage		Rated current		Coil resistance		Must release	Max. voltage	Power
		50 Hz	60 Hz	OVI	voltage	voltage	oxi	consumption
AC 6	6 V	443 mA	385 mA	3.1 Ω	80% max. of rated		age	Approx. 2.3 VA at 60 Hz Approx. 2.7 VA at 50 Hz
	12 V	221 mA	193 mA	13.7 Ω	voltage			
	24 V	110 mA	96.3 mA	48.4 Ω	WWW			
	100 V	26.6 mA	23.1 mA	760 Ω				
	110 V	24.2 mA	21.0 mA	932 Ω	MW.			
	200 V	13.3 mA	11.6 mA	3,160 Ω	Wire			
	220 V	12.1 mA	10.5 mA	3,550 Ω		W.100 1.	W.I	
	230 V	10.0 mA	11.5 mA	4,250 Ω	N WN	15% min. of rated voltage	OM.TW COM.TW COM.TW	Approx. 1.4 W
	240 V	11.0 mA	9.6 mA	4,480 Ω	XXI XXI			
DC	6 V	224 mA	VV	26.7 Ω				
	12 V	112 mA	MAG	107 Ω	TW			
	24 V	55.8 mA		430 Ω				
	48 V	28.1 mA	11	1,710 Ω	V:7.			
	100 V	13.5 mA	WW	7,390 Ω	WILL	WW 100		
	110 V	12.3 mA	-11	8,960 Ω	NI.	WW.	N.COM	V.

- Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C with tolerances of +15%/-20% for AC rated current and ±15% for DC coil resistance.
 - 2. Performance characteristic data are measured at a coil temperature of 23°C.
 - 3. The maximum voltage is one that is applicable instantaneously to the Relay coil at 23°C and not continuously.
 - 4. For DC-operated Relays with the LED indicator built-in, add an LED current of approx. 5 mA to the rated current.

Contact Ratings

Load	TW	Resistive load (cosφ = 1)	Inductive load (cos ϕ = 0.4)	
Contact mechanism	1.1	Single AgSnIn		
Contact material	TW			
Rated load	NO	10 A, 250 VAC 10A, 30 VDC	7 A, 250 VAC	
	NC	5 A, 250 VAC 5 A, 30 VDC	LOON COM.TW	
Rated carry current	TIME	10 A		
Max. switching voltage	COm	250 VAC, 250 VDC		
Max. switching current	· com.,	10 A		
Max. switching power	NO	2,500 VA/300 W	M 1001.	
	NC	1,250 VA/150 W	A. Co.	

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■ Characteristics

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Contact resistance	100 m Ω max.	Http://www.100y.com.tw			
Operate time	AC: 20 ms max. DC: 30 ms max.	MM.100 r. COM:11			
Release time	20 ms max.(40 ms max. for built-in Diode Relays)				
Max. operating frequency	Mechanical: 18,000 operations/h Electrical: 1,800 operations/h (under rated load)				
Insulation resistance	100 MΩ min. (at 500 VDC)	M. 1001.			
Dielectric strength	2,500 VAC 50/60 Hz for 1 min between coil and contacts 1,000 VAC 50/60 Hz for 1 min between contacts of same polarity and terminals of the same polarity 2,500 VAC 50/60 Hz for 1 min between current-carrying parts, non-current-carrying parts, and opposite polarity				
Insulation method	Basic insulation	MAN WAS CONTRACTOR			
Impulse withstand voltage	4.5 kV between coil and contacts (with $1.2 \times 50~\mu s$ impulse wave) 3.0 kV between contacts of different polarity (with $1.2 \times 50~\mu s$ impulse wave)				
Pollution degree	3 N. 100 COM.				
Rated insulation voltage	250 V				
Vibration resistance	Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude (1.5-mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 0.5-mm single amplitude (1.0-mm double amplitude)				
Shock resistance	Destruction: 1,000 m/s² (approx. 100 G) Malfunction: 100 m/s² (approx. 10 G)				
Endurance	Mechanical: 5,000,000 operations min. (at 18,000 operations/h under rated load) Electrical: 100,000 operations h. (at 1,800 operations/h under rated load)				
Failure rate P level (reference value)	10 mA at 1 VDC				
Ambient temperature Operating: -40 to 60°C (with no icing or condensation)					
Ambient humidity	TW WWW. 100X. COLITY				
Weight	Approx. 90 g				

- Note: 1. The values given above are initial values.
 - **2.** P level: $\lambda_{60} = 0.1 \times 10^{-6}$ /operation
 - **3.** Ambient temperature of models with LED indicator is –25 to 60°C.

■ Approved Standards UL508 (File No. E41515)

Coil ratings	-x1 10	Operations	
6 to 110 VDC 6 to 240 VAC	contact	10 A, 250 V AC 50/60 Hz (Resistive) 10 A, 30 V DC (Resistive) 7 A, 250 V AC 50/60 Hz (General Use)	6,000
	N.C. contact	5 A, 250 V AC 50/60 Hz (Resistive) 5 A, 30 V DC (Resistive) 7 A, 250 V AC 50/60 Hz (General Use)	6,000

CSA Standard: CSA Certification by

us: CSA C22.2 No. 14

Note: Applications have been submitted for UL and CSA certification for models with built-in LED indicators.

IEC Standard/TUV Certification: IEC61810-1 (Certification No. R50104853)

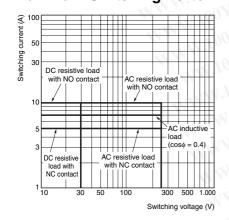
Coil ratings	In	Operations	
100, 110 VDC 6, 12, 24, 100,		10 A, 250 V AC 50/60 Hz (Resistive) 10 A, 30 V DC (Resistive) 7 A, 250 V AC 50/60 Hz (General Use)	100,000
110, 200, 220, 240 VAC	contact	5 A, 250 V AC 50/60 Hz (Resistive) 5 A, 30 V DC (Resistive) 7 A, 250 V AC 50/60 Hz (General Use)	100,000

Note: When Relays are mounted on the PF083A-E or PF113A-E, the maximum carrying current is 9 A.

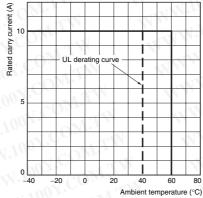
Engineering Data

■ Reference Data

Maximum Switching Power



Rated Carry Current vs. Ambient Rated Temperature

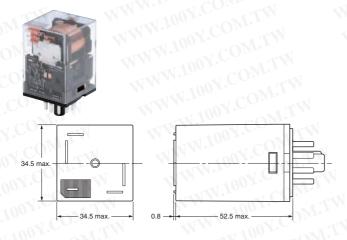


Note: The lower limit of the ambient operating temperature for models with built-in operation indicators is -25 °C.

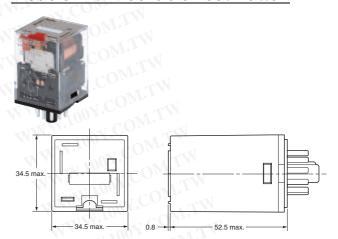
Dimensions

Note: All units are in millimeters unless otherwise indicated.

Models without Test Button



Models with Lockable Test Button



Sockets

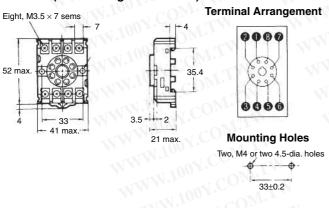
See below for Socket dimensions.

Socket	Surface-mounting Socket (for track or screw mounting)				
	Finger-pr	.D.M., -201			
Maximum carry current	10 A	5 A			
2 poles	PF083A-E	PF083A-D	PF083A		
3 poles	PF113A-E	PF113A-E-D	PF113A		
	11000				
			O State		
	COST		1007		

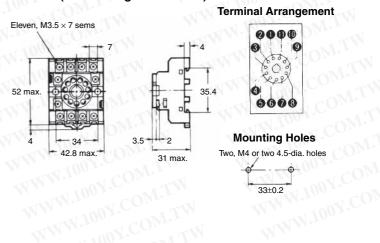
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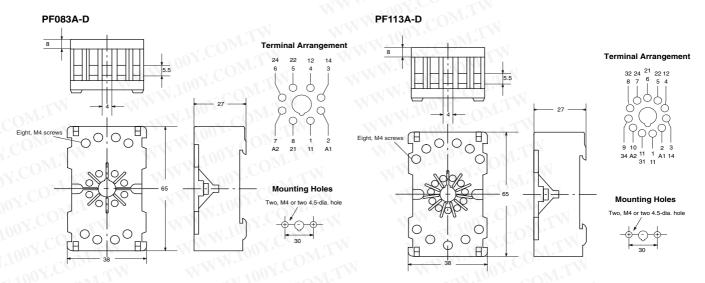
Note: Use the Surface-mounting Sockets (i.e., finger-protection models) with "-E" at the end of the model number. When using the PF083A and PF113A, be sure not to exceed the Socket's maximum carry current of 5 A. Using at a current exceeding 5 A may lead to burning. Round terminals cannot be used for finger-protection models. Use Y-shaped terminals.

PF083A-E (Conforming to EN 50022)

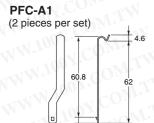


PF113A-E (Conforming to EN 50022)





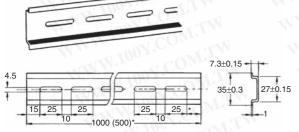
Hold-down Clips



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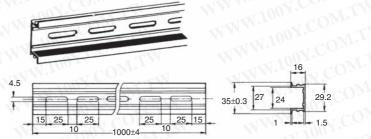
Mounting Tracks

PFP-100N, PFP-50N (Conforming to EN 50022)



^{*} This dimension applies to the PFP-50N Mounting Track.

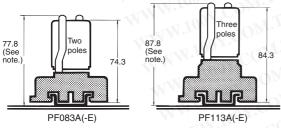
PFP-100N2 (Conforming to EN 50022)



 $^\star\,$ A total of twelve 25 \times 4.5 elliptic holes is provided with six holes cut from each track end at a pitch of 10 mm.

Mounting Height with Sockets

Surface-mounting Sockets



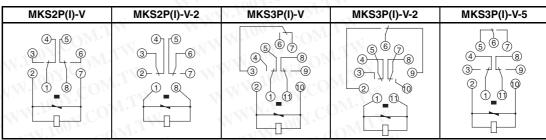
Note: PF083A(-E) and PF113A(-E) allow either track or screw mounting.

Terminal Arrangement/Internal Connection (Bottom View)

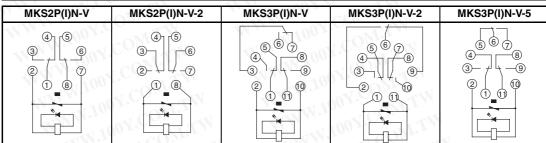
Standard Models MKS2P(I) MKS2P(I)-2 MKS3P(I) MKS3P(I)-2 MKS3P(I)-5 (AC/DC Coil) (4)₁ (5) \$ 6 7 8 567 (§ ® <u>7</u> 1 8 1 1 1 Models with MKS3P(I)N MKS3P(I)N-2 MKS3P(I)N-5 MKS2P(I)N MKS2P(I)N-2 **LED Indicator** (AC Coil) 6 6 7 **5 6 7** 3 1 1 8 1 Models with Diode MKS2P(I)N MKS3P(I)N-2 MKS2P(I)N-2 MKS3P(I)N MKS3P(I)N-5 (DC Coil: **Standard Polarity)** Models with MKS2P(I)N1 MKS2P(I)N1-2 MKS3P(I)N1 MKS3P(I)N1-2 MKS3P(I)N1-5 **LED Indicator and** Dlode (5) (6) (7) (4) (1) (1) 567 567 (DC Coil: **Reverse Polarity)** 1 8 ①_① ① (-) (+)**Standard Models** MKS2P(I)-D MKS2P(I)-D-2 MKS3P(I)-D MKS3P(I)-D-2 MKS3P(I)-D-5 (DC Coil: (5) (6) (7) (3) (3) (4) Standard Polarity) (5) (6) (7) (4) (8) (5) (6) (7) (8) (8) 4 -9 3-1 8 0_0 (+) (-) **Models with Diode** MKS2P(I)1-D MKS2P(I)1-D-2 MKS3P(I)1-D MKS3P(I)1-D-2 MKS3P(I)1-D-5 (DC Coil: 5 6 7 (5 6 7 8 **Reverse Polarity**) **6 7** 4 3 1 9 1 8 0_0 (-) (+) Models with MKS2P(I)N-D MKS2P(I)N-D-2 MKS3P(I)N-D MKS3P(I)N-D-2 MKS3P(I)N-D-5 **LED** indicator 5 6 7 (DC Coil) (5) (6) (7) (4) (1) 勝 特 力 材 料 886-3-5753170 1 胜特力电子(上海) 86-21-34970699

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Models with Varistor (AC Coil)



Models with LED indicator and Varistor (AC Coil)



Safety Precautions

■ Safety Precautions for Correct Use

Installation

Mount the MK-S with the marking at the bottom.

Handling

Check the coil polarity of models with built-in diodes and wire them correctly (DC operation coil).

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Test Button

Do not use the test button for any purpose other than testing. Be sure not to touch the test button accidentally as this will turn the contacts ON. Before using the test button, confirm that circuits, the load, and any other connected item will operate safely.

Check that the test button is released before turning ON relay circuits.

If the test button is pulled out too forcefully, it may bypass the momentary testing position and go straight into the locked position.

Use an insulated tool when you operate the test button.

Models with test buttons or LED indicators fulfill the requirements for reinforced insulation between live parts and the front of cover only when the Relay is in a complete condition, i.e. with the nameplate, nameplate frame, test button, and slider in place. If any of these parts are removed, only the requirements for basic insulation are fulfilled.