Kozuka™

catalog

Control Components

products catalogue


Kozuka
61F-GP-N
FLOATLESS LEVEL SWITCH
SOURCE: 220 VAC
POWER CONSUMPTION : 3.5VA Max
FREQ : 50/60 Hz
SECONDARY VOLTAGE : 8VAC
Kozuka
ON
PHASE CONTROLLER
TYPE: APR-4
R
S
T
Kozuka
KZ-5102
LIMIT SWITCH
Kozuka
KZ-8112
Kozuka
KB2-BE102
Kozuka
KB2-BV6
Kozuka
KB2-E22D/S

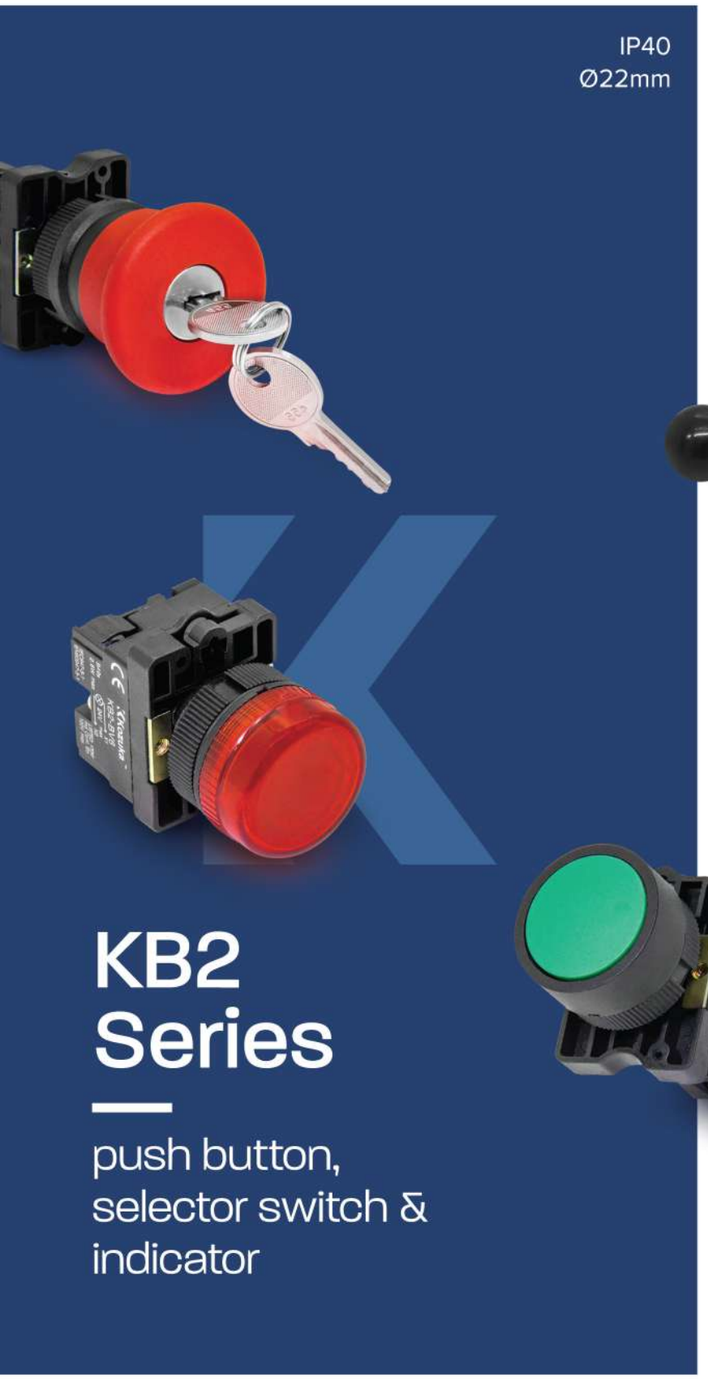
Content

KB2 Series

push button, selector switch & indicator

The KB2 series of push buttons are suitable for AC 50Hz or 60Hz, rated working voltage up to 380V and DC working voltage to 250V industrial control circuit, as an electromagnetic starter, contactor relay and other electrical circuit control.

Signal indicator adopts high-colour LED, long life, low energy consumption, small size and lightweight. It is an updated replacement for XD-type incandescent and xenon lamp. The lampshade is made of high-strength polycarbonate. It has good impact resistance and built-in rivet type wiring, which is safer and more convenient. This series of signal indicators are suitable for warning, accident and other indication signals in the lines of railway, electric power, telecommunications, machine tools, ships, textiles, printing, mining machinery and other equipment.



KB2 Series

push button, selector switch & indicator

Technical Parameters

Rated Insulation Voltage - Ui (V)	415				
Rated Conventional Thermal Current - Ith (A)	10				
Rated Operational Voltage - Ue (V)	-	380	250	240	125
Rated Conventional Thermal Current - Le (A)	AC-15	2.5	-	3	-
	DC-13	-	0.27	-	0.55

Push Button Enclosure Box

IP Degree of Protection	IP40
Cable Entry	knockout, suitable for PG 13.5 cable gland

Light Specification

Light Source	LED (light emitting diode)		
Rated Voltage	AC/DC 6V	AC/DC 12V	AC/DC 24V, 36V & 48V
	AC/DC 110V	AC/DC 220V	AC 380V
Life Span	≥50,000 hours		
Light Colour	○ ● ● ● ●		
Voltage Limit	0.85Ue ≤ U ≤ 1.1Ue		

Material

Model	head	base	contact	button
KB2-E Series	nylon	nylon	silver alloy	PBT

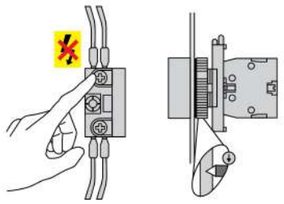
Environment Characteristic

Standards Compliant	GB 14048.5-2008, IEC60947-5-1
Operating Temperature	-25˚C ~ +55˚C
Vibration Resistance	<500Hz, amplitube about 1.0mm
Shock Resistance	≥10g
IP Degree of Protection	IP40

Contact Charateristic

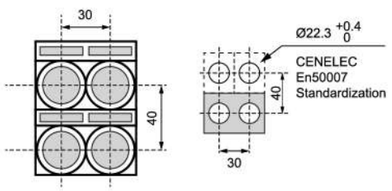
Contact Operation	slow break (NO/NC) ; break immediately (NC)
Contact Resistance	≤50mΩ
Mechanicnal Life	100,000 times onwords
Electrical Life	AC supply for 100,000 operating cycles
Short Circuit Protection	RT16-10A
Cabling Capacity	screw and capture cable clamp terminals : capacity minimum : 1 x 0.5mm² maximum : 2 x 1.5mm² / 1 x 2.5mm² with or without cable end

Push Button Features



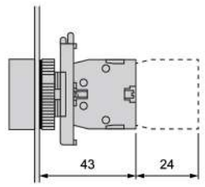
1.

- Comfortable press position and switch to turn operation
- Functional recognition
- Automatic connection to ground
- Anti-shock design



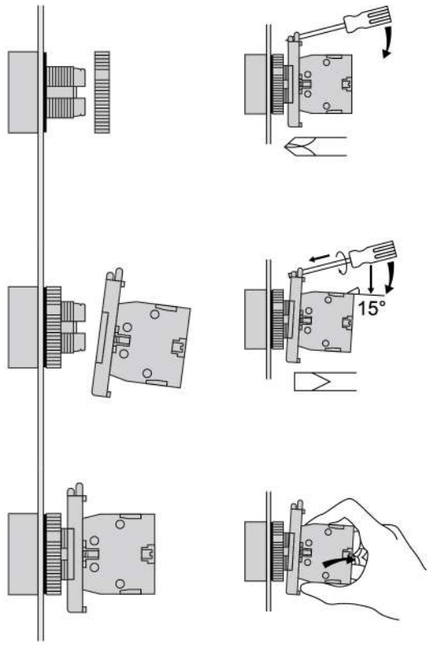
2.

- KB2-E series install front-panel thickness 1-6mm



3.

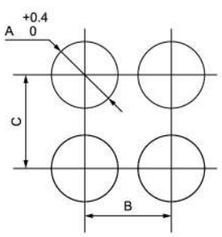
- The front-panel surface is minimum
- Install depth the most shallow

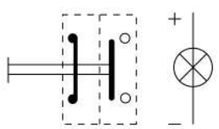


4.

- IP40 weatherproof protection
- Button head of install
- Rear end is fixed by a spiral ring
- Contact base cassette mounting
- No tools required
- Fast and firm

Mouting Hole Installation Size





1, 2 Normal Close NC

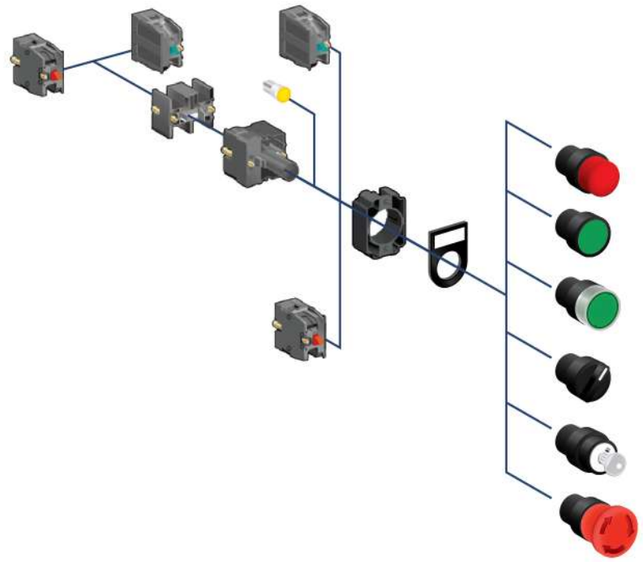
3, 4 Normal Open NO

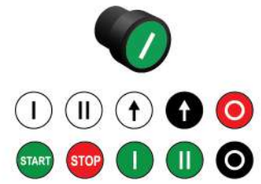
Type	A	B	C
Standard	Ø22.3	>50	>35
Rotation		>50	>35
Mushroom Head		>50	>42
Mushroom Head (Large)		>70	>70

1. Unit : mm
2. B&C refers to the min. product size

Product & Accessories

- KB2-E series products and accessories cart





5.

- A variety of marks for customizable buttons with function symbols

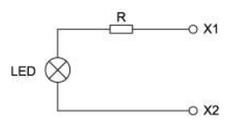
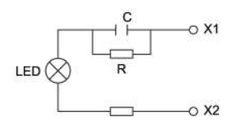
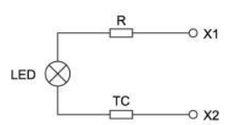
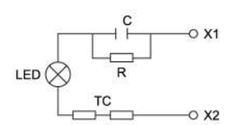
6.

- Name plate can be customized according to label size, shape, colour and text requirements

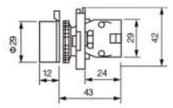
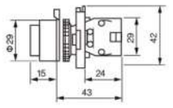
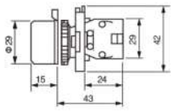
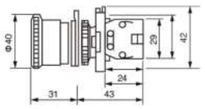
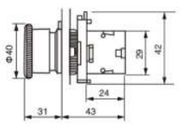
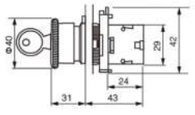
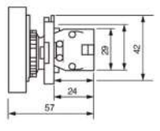
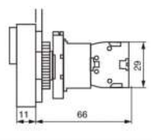
Indicator Features

- Lifespan : ≥30,000 Hours
- Voltage Fluctuations : ±20% (above 110V)
- Operational Frequency (AC) : 50~60Hz
- Comparative Tracking Index : CTI ≥100, flame-retardancy
- Insulation Resistance : Ui ≤60V5mΩ
- Dielectric Strength : 2.5KV (RMS), 1 min
- LED Colour : amber, red, green, yellow, and blue
- Brightness : ≥100cd/m2
- Rated Working Current : ≤20mA

Indicator Contact Circuits

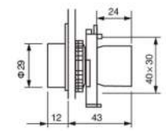
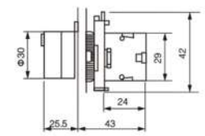
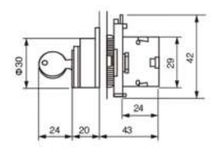
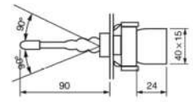
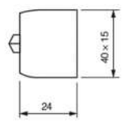
Standard Type	AC/DC Type Indicator		AC Type Indicator	
Resistance Type	AC/DC Type Indicator		AC Type Indicator	

Remarks : 1. AC/ DC type in resistor circuit, AC type in RC (resistor-capacitance) circuit.
2. Voltage 110V and above, AC/DC type temperature will rise more than AC type.
3. TC : threshold circuit

Product Picture	Description	Model	Colour	Contact	Structure Drawing
	Flush Push Button	KB2-EA11	○	1NO	
		KB2-EA21	●	1NO	
		KB2-EA31	●	1NO	
		KB2-EA42	●	1NC	
		KB2-EA51	●	1NO	
		KB2-EA61	●	1NO	
	Projecting Push Button	KB2-EL21	●	1NO	
		KB2-EL31	●	1NO	
		KB2-EL42	●	1NC	
		KB2-EL51	●	1NO	
		KB2-EL61	●	1NO	
	Silicone Booted Head Push Button	KB2-EP21	●	1NO	
		KB2-EP31	●	1NO	
		KB2-EP42	●	1NC	
		KB2-EP51	●	1NO	
		KB2-EP61	●	1NO	
	Mushroom Head Push Button Ø40mm	KB2-EC21	●	1NO	
		KB2-EC31	●	1NO	
		KB2-EC42	●	1NC	
		KB2-EC51	●	1NO	
		KB2-EC61	●	1NO	
	Emergency Stop Button Turn to Release	KB2-ES442	● Ø30mm	1NC	
		KB2-ES542	● Ø40mm	1NC	
		KB2-ES642	● Ø60mm	1NC	
	Emergency Push Button with Key Release Ø40mm	KB2-ES142	●	1NC	
	Double Headed Push Button	KB2-EL8325	● ●	1NO+1NC	
	Double Headed Push Button with Yellow Integral LED*	KB2-EL8365	● ● ●	1NO+1NC	

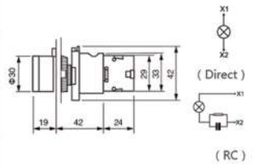
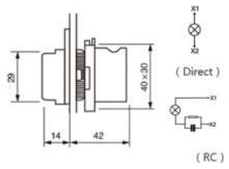
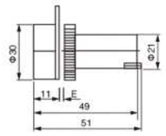
*Lamp Voltage : AC/DC 12V, 24V, 48V & 110V | Lamp Voltage : AC 220V & 380V

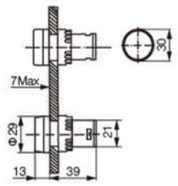
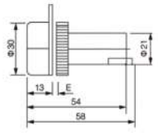
Remarks : ○ white | ● black | ● green | ● red | ● yellow | ● blue | red & green push button | red & green push button with yellow LED

Product Picture	Description	Model	Colour/ Function	Contact	Structure Drawing
	Mark Push Button	KB2-EA31511	●	1NO	
		KB2-EA12551	●	1NO	
		KB2-EA21551	●	1NC	
		KB2-EA41572	●	1NO	
		KB2-EA41612	● STOP	1NO	
	Selector Switch 2 Position	KB2-ED21	V	1NO	
	Selector Switch Spring Return 2 Position	KB2-ED41	◡	1NO	
	Selector Switch 3 Position	KB2-ED33	∨	2NO	
	Selector Switch Spring Return 3 Position	KB2-ED53	◡ ◡	2NO	
	Key Selector Switch 2 Position	KB2-EG21	V	1NO	
	Key Selector Switch Spring Return 2 Position	KB2-EG41	◡	1NO	
	Key Selector Switch 3 Position	KB2-EG33	∨	2NO	
	Key Selector Switch Spring Return 3 Position	KB2-EG53	◡ ◡	2NO	
	Key Selector Switch Spring Return 1-0-2 at "1"	KB2-EG73	∨	2NO	
	Monolever Switch 2 Position (Maintain Type)	KB2-PA12	Ø22mm	2NO	
	Monolever Switch Spring Return 2 Position	KB2-PA222		2NO	
	Monolever Switch 4 Position (Maintain Type)	KB2-PA14		2NO+2NC	
	Monolever Switch Spring Return 4 Position	KB2-PA24		2NO+2NC	
	Contact Block	KB2-BE101	-	1NO	
		KB2-BE102		1 NC	

Remarks : ● green surface white line | ↑ white surface black arrow | ↑ black surface white arrow | ○ red surface white ring | STOP red surface white stop text

V 2 positon stay put | ◡ 2 position spring return from right to left | ∨ 3 position stay put | ◡ ◡ 3 position spring return to center | ◡ ∨ 3 position spring return from left to center

Product Picture	Description	Model	Colour	Contact	Structure Drawing
	Illuminated Push Button with Integral LED (Ba9s Bulb)*	KB2-EW3361	green	1NO	
		KB2-EW3462	red	1NC	
		KB2-EW3561	yellow	1NO	
		KB2-EW3661	blue	1NO	
	Pilot Light with Intergral LED (Ba9s Bulb)*	KB2-EV63	green	Direct	
		KB2-EV64	red	Direct	
		KB2-EV65	yellow	Direct	
		KB2-EV66	blue	Direct	
	The Spring Type Push Button	KB2-EA131	green	1NO	
		KB2-EA142	red	1NC	

Product Picture	Description	Model	Colour	Structure Drawing
	LED Pilot Light**	KB2-E22D/S-A	amber	
		KB2-E22D/S-G	green	
		KB2-E22D/S-R	red	
		KB2-E22D/S-Y	yellow	
		KB2-E22D/S-B	blue	
	Buzzer with Flash Light**	KB2-E22SM	red	

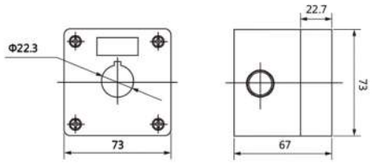
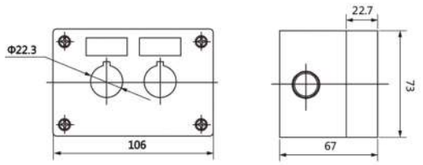
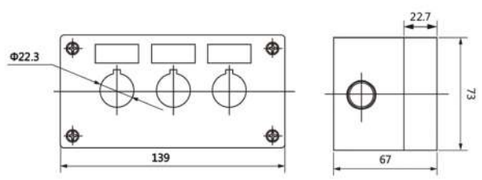
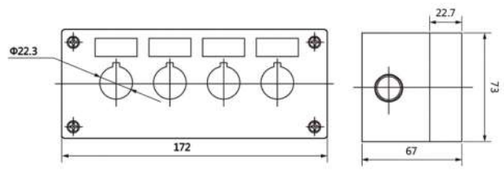
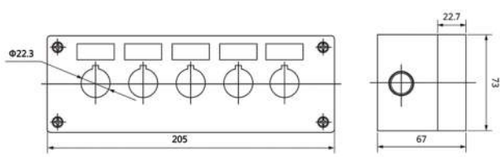
Product Picture	Description	Model	Function	Application Range
	Power Push Button Switch 2.2KW 500V	KBSN-315	ON / OFF	For widely used in mechine start / stop
	Power Push Button Switch 3.7KW 500V	KBSN-330		

*Lamp Voltage : AC/DC 12V, 24V, 48V & 110V | Lamp Voltage : AC 220V & 380V
**Lamp Voltage : AC/DC 12V, 24V, 48V & 110V | Lamp Voltage : AC 220V

Remarks : amber | black | green | red | yellow | blue | red OFF / black ON

Product Picture	Description	Model	Application Range
	Safety Protective Cover (Yellow)	F-03	For mushroom head push button Ø40mm
	Safety Protective Cover	F-04	For mushroom head and emergency push button
	Safety Protective Cover	F-05	For flush push button
	Emergency Stop Plate (PVC) (Yellow, Ø60mm)	F-07	For emergency push button
	Weatherproof Cap	F-08	For flush push button (IP67)
	Ba9s LED Bulb* (Red, Yellow, Blue, Green, White)	F-32	For all push button with Intergral LED (Ba9s bulb)*
	PVC Name Plate (Black)	F-11	For push button and pilot light
	Ø25mm - Ø22mm Reducer	F-12	For Ø25mm convert to Ø22mm size

*LED Bulb Voltage : AC/DC 12V, 24V, 48V & 110V | LED Bulb Voltage : AC 220V & 380V

Product Picture	Description	Model	Structure Drawing
	1 Hole PVC Enclosure Box	F-18	
	2 Holes PVC Enclosure Box	F-19	
	3 Holes PVC Enclosure Box	F-20	
	4 Holes PVC Enclosure Box	F-21	
	5 Holes PVC Enclosure Box	F-22	

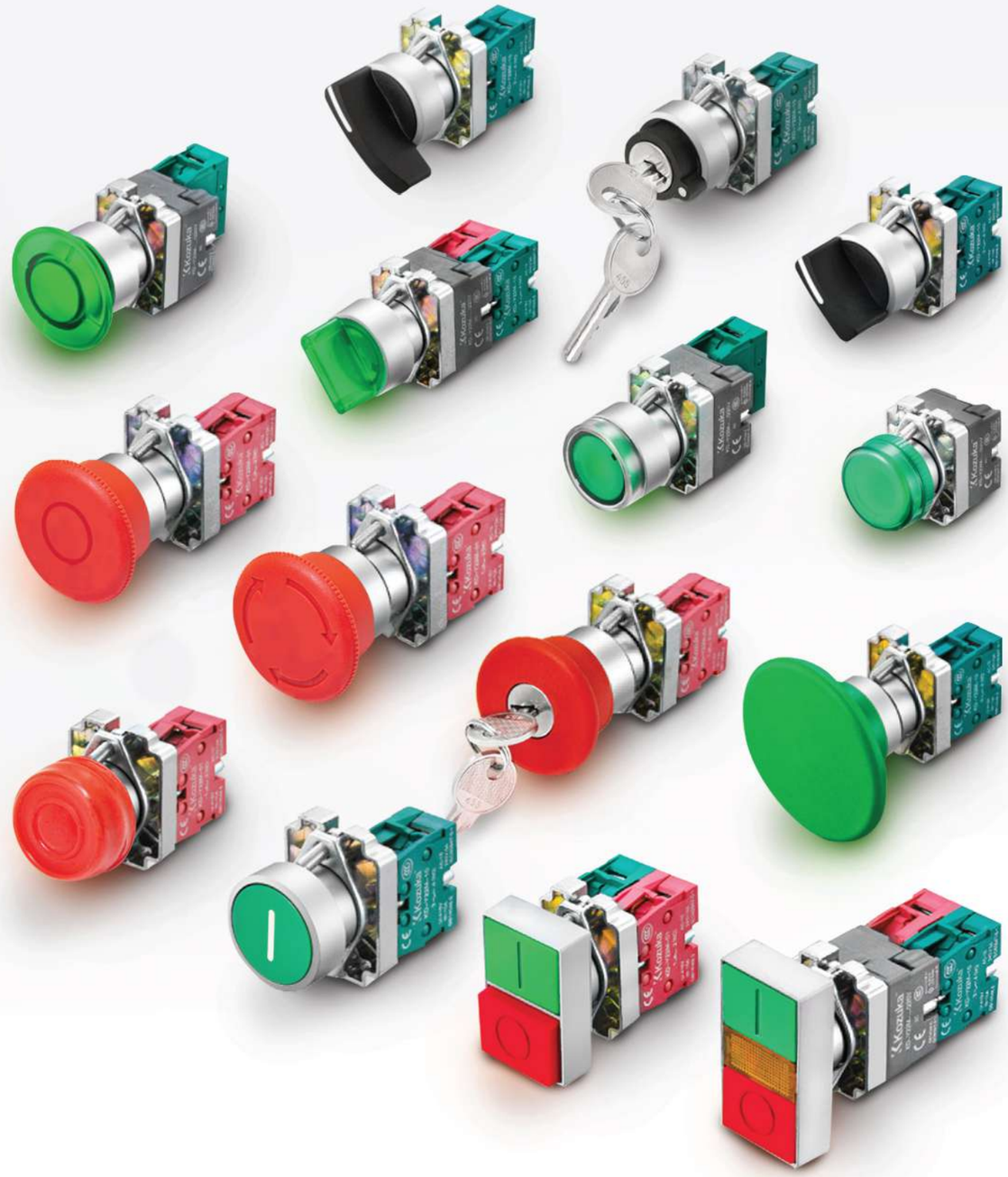
Product Picture	Model	Configuration	Plate / Button Marking
	KB2-B101H29	Green Flush - 1NO	Plate : START
	KB2-B102	Green Flush - 1NO	Button : —
	KB2-B103	Green Flush - 1NO	Button : START
	KB2-B111H29	Red Flush - 1NC	Plate : STOP
	KB2-B112	Red Flush - 1NC	Button :
	KB2-B184	Red Ø40mm Mushroom Head Push Button - 1NC	
	KB2-J174	Red Ø40mm Mushroom Head Push On, Turn to Release - 1NC	
	KB2-B211H29	Green Flush - 1NO, Red Flush - 1NC	Plate : START STOP
	KB2-B213	Green Flush - 1NO, Red Flush - 1NC	Button : —
	KB2-B215	Green Flush - 1NO, Red Flush - 1NC	Button : START STOP
	KB2-B222	White Flush - 1NO, Black Flush - 1NO	Button : ↑ ↑
	KB2-B211	Green Flush - 1NO Red Flush - 1NC	
	KB2-B341H29	Green Flush - 1NO, Red Flush-1NC, Green Flush - 1NO	Button : FORWARD, STOP, RETURN
	KB2-B339	Green Flush -1NO, Red Flush-1NC, Green Flush -1NO	Button : OPEN, STOP, CLOSE
	KB2-B324	Green Flush - 1NO, Red Flush - 1NC, Green Flush - 1NO	Button : — — —
	KB2-B334	White Flush - 1NO, Red Flush - 1NC, Black Flush - 1NO	Button : ↑ ↓
	KB2-B311H29	White Flush - 1NO, Red Flush- 1NC, Black Flush- 1NO	Button : → ←
	KB2-BJ311A	Black Flush - 1NO Black Flush - 1NO Red Ø30mm Mushroom Head Push On, Turn to Release	Button :

KD2 Series

matt series push button & selector switch

Matt titanium metal heads are more fashionable. Heavy duty metal head with IP65 protection. The quakeproof bolt carry terminals are hard and credibility to ensure that the machine life is up to 3,000,000 times and the LED indicator life is up to 50,000 hours.

Au PLT Contacts means pressing the position switch to operate, with function recognition and automatic grounding to ensure that the finger does not get an electric shock again.



Model & Description

• IP65 heavy duty (metal body)

KD2 - Y 1 2 3 4 /5

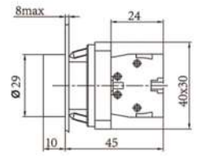
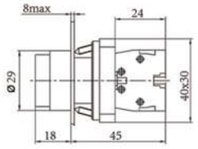
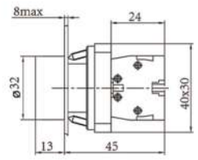
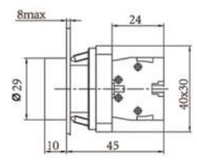
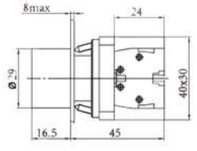
- Voltage
- Colour
- Contact terminal usually closed
- Contact terminal usually open
- Appearance styles of series
- Push button material (Y : matt metal)
- Product series

Model	Styles Interpretation
F	silicone booted push button
G	high flush push button
P	flush push button
T	projecting push button
ZP	take self locking push button
3S	double headed push button
3DS	double headed push button with integral LED (Ba9s bulb)
2DX	illuminated selector switches with integral LED (Ba9s bulb)
DP	illuminated flush push button with integral LED (Ba9s bulb)
DT	illuminated projecting push button with integral LED (Ba9s bulb)
DM	Ø40mm mushroom head push button with integral LED (Ba9s bulb)
4M	Ø40mm mushroom head push button
6M	Ø60mm mushroom head push button
4LM	Ø40mm push-pull mushroom head push button
6LM	Ø60mm push-pull mushroom head push button
YM	Ø40mm key release mushroom head push button
3ZM	Ø30mm turn to release mushroom head push button
4ZM	Ø40mm turn to release mushroom head push button
6ZM	Ø60mm turn to release mushroom head push button

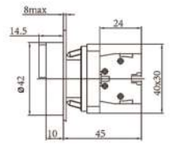
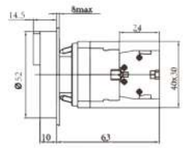
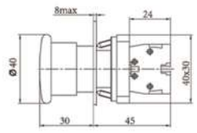
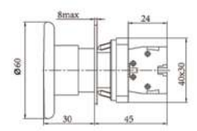
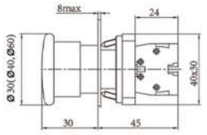
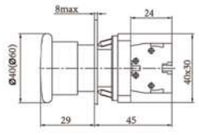
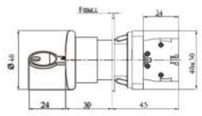
Model	Mark/ Function	Styles Interpretation
31B		green surface with white line marking push button
32B		green surface with double white line marking push button
33B	START	green surface with start text marking push button
22B		black surface with double white line marking push button
11B		white surface with black arrow marking push button
21B		black surface with white arrow marking push button
40B		red surface with white ring marking push button
44B	STOP	red surface with white stop text marking push button
2C		2 position long handle stay put
2X		2 position stay put
3X		3 position stay put
4X		2 position spring return from right to left
5X		3 position spring return to center
7X		3 position spring return from left to center
0Y		3 position key switch stay put
2Y		2 position key switch stay put
3Y		3 position key switch stay put
4Y		2 position key switch stay put
5Y		3 position key switch spring return to center
6Y		2 position key switch spring return to left
7Y		3 position key switch spring return from left to center
8Y		3 position key switch spring return from right to center

Product Picture	Model	Contact
	KD2-YZ10	1NO
	KD2-YZ01	1NC
	KD2-YZ20	2NO
	KD2-YZ02	2NC
• Contact Pedestal	KD2-YZ11	1NC+1NO

Product Picture	Model	Contact
	KD2-YM10	1NO
	KD2-YM01	1NC
• Contact		

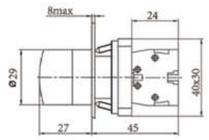
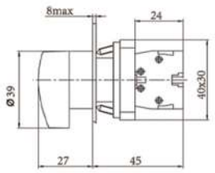
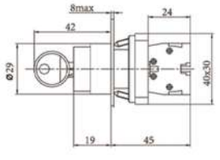
Head		Complete Unit				
Product Picture	Model	Product Picture	Model	Colour	Contact	Structure Drawing
	KD2-YT-PW		KD2-YP10W	○	1NO	
	KD2-YT-PB		KD2-YP10B	●	1NO	
	KD2-YT-PG		KD2-YP10G	●	1NO	
	KD2-YT-PR		KD2-YP01R	●	1NC	
	KD2-YT-PY		KD2-YP11Y	●	1NO+1NC	
	KD2-YT-PA		KD2-YP20A	●	2NO	
	KD2-YT-TW		KD2-YT10W	○	1NO	
	KD2-YT-TB		KD2-YT10B	●	1NO	
	KD2-YT-TG		KD2-YT10G	●	1NO	
	KD2-YT-TR		KD2-YT01R	●	1NC	
	KD2-YT-TY		KD2-YT11Y	●	1NO+1NC	
	KD2-YT-TA		KD2-YT20A	●	2NO	
	KD2-YT-FW		KD2-YF10W	○	1NO	
	KD2-YT-FB		KD2-YF10B	●	1NO	
	KD2-YT-FG		KD2-YF10G	●	1NO	
	KD2-YT-FR		KD2-YF01R	●	1NC	
	KD2-YT-FY		KD2-YF11Y	●	1NO+1NC	
	KD2-YT-FA		KD2-YF20A	●	2NO	
	KD2-YT-GW		KD2-YG10W	○	1NO	
	KD2-YT-GB		KD2-YG10B	●	1NO	
	KD2-YT-GG		KD2-YG10G	●	1NO	
	KD2-YT-GR		KD2-YG01R	●	1NC	
	KD2-YT-GY		KD2-YG11Y	●	1NO+1NC	
	KD2-YT-GA		KD2-YG20A	●	2NO	
	KD2-YT-31B		KD2-Y31B10	⊖	1NO	
	KD2-YT-32B		KD2-Y32B10	⊜	1NO	
	KD2-YT-33B		KD2-Y33B10	START	1NO	
	KD2-YT-22B		KD2-Y22B10	⊖	1NO	
	KD2-YT-11B		KD2-Y11B10	↑	1NO	
	KD2-YT-21B		KD2-Y21B10	↑	1NO	
	KD2-YT-40B		KD2-Y40B01	○	1NC	
	KD2-YT-44B		KD2-Y44B01	STOP	1NC	

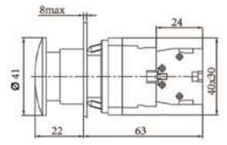
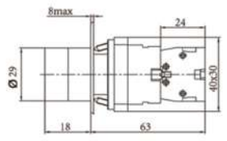
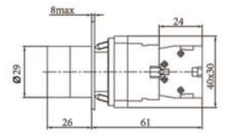
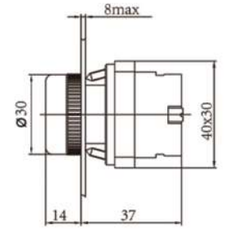
Remarks : ○ white | ● black | ● green | ● red | ● yellow | ● aqua blue

Head		Complete Unit				
Product Picture	Model	Product Picture	Model	Colour/ Function	Contact	Structure Drawing
	KD2-YT-3S		KD2-Y3S11		1NO+1NC	
	KD2-YT-3DS		KD2-Y3DS11*		1NO+1NC	
	KD2-YT-4MB		KD2-Y4M10B	●	1NO	
	KD2-YT-4MG		KD2-Y4M10G	●	1NO	
	KD2-YT-4MR		KD2-Y4M01R	●	1NC	
	KD2-YT-4MY		KD2-Y4M11Y	●	1NO+1NC	
	KD2-YT-4MA		KD2-Y4M20A	●	2NO	
			KD2-Y4M11G	●	1NO+1NC	
			KD2-Y4M11R	●	1NO+1NC	
	KD2-YT-6MB		KD2-Y6M10B	●	1NO	
	KD2-YT-6MG		KD2-Y6M10G	●	1NO	
	KD2-YT-6MR		KD2-Y6M01R	●	1NC	
			KD2-Y6M11G	●	1NO+1NC	
			KD2-Y6M11R	●	1NO+1NC	
	KD2-YT-3ZMR		KD2-Y3ZM01R	●	1NC	
	KD2-YT-4ZMR		KD2-Y3ZM11R	●	1NO+1NC	
	KD2-YT-4ZMB		KD2-Y4ZM01B	●	1NC	
	KD2-YT-4ZMG		KD2-Y4ZM10G	●	1NO	
	KD2-YT-6ZMR		KD2-Y4ZM11R	●	1NO+1NC	
	KD2-YT-6ZMB		KD2-Y4ZM01R	●	1NC	
	KD2-YT-6ZMG		KD2-Y6ZM11R	●	1NO+1NC	
	KD2-YT-4LM		KD2-Y4LM01	●	1NC	
	KD2-YT-6LM		KD2-Y4LM11	●	1NO+1NC	
			KD2-Y6LM01	●	1NC	
			KD2-Y6LM11	●	1NO+1NC	
	KD2-YT-YM		KD2-YM01	●	1NC	
			KD2-YM11	●	1NO+1NC	

*Lamp Voltage : AC/DC 12V, 24V, 48V & 110V | Lamp Voltage : AC220V & 380V

Remarks : ○ white | ● black | ● green | ● red | ● yellow | ● aqua blue | red & green push button | red & green push button with yellow LED

Head		Complete Unit				
Product Picture	Model	Product Picture	Model	Colour/ Function	Contact	Structure Drawing
	KD2-YT-2X		KD2-Y2X10		1NO	
			KD2-Y2X11		1N+1NC	
	KD2-YT-4X		KD2-Y4X10		1NO	
			KD2-Y4X11		1NO+1NC	
	KD2-YT-3X		KD2-Y3X20		2NO	
	KD2-YT-5X		KD2-Y5X20		2NO	
	KD2-YT-7X		KD2-Y7X20		2NO	
	KD2-YT-2C		KD2-Y2C10		1NO	
			KD2-Y2C11		1NO+1NC	
	KD2-YT-4C		KD2-Y4C10		1NO	
			KD2-Y4C11		1N+1NC	
	KD2-YT-3C		KD2-Y3C20		2NO	
	KD2-YT-5C		KD2-Y5C20		2NO	
	KD2-YT-7C		KD2-Y7C20		2NO	
	KD2-YT-2Y		KD2-Y2Y10		1NO	
			KD2-Y2Y11		1NO+1NC	
	KD2-YT-4Y		KD2-Y4Y10		1NO	
			KD2-Y4Y11		1NO+1NC	
	KD2-YT-6Y		KD2-Y6Y11		1NO+1NC	
	KD2-YT-3Y		KD2-Y3Y20		2NO	
	KD2-YT-5Y		KD2-Y5Y20		2NO	
	KD2-YT-0Y		KD2-Y0Y20		2NO	
	KD2-YT-7Y		KD2-Y7Y20		2NO	
	KD2-YT-8Y		KD2-Y8Y20		2NO	

Head		Complete Unit				
Product Picture	Model	Product Picture	Model	Colour/ Function	Contact	Structure Drawing
	KD2-YT-DMG		KD2-YDM10G*		1NO	
	KD2-YT-DMR		KD2-YDM01R*		1NC	
	KD2-YT-DPW		KD2-YDP10W*		1NO	
	KD2-YT-DPG		KD2-YDP10G*		1NO	
	KD2-YT-DPR		KD2-YDP01R*		1NC	
	KD2-YT-DPY		KD2-YDP10Y*		1NO	
	KD2-YT-DPA		KD2-YDP10A*		1NO	
	KD2-YT-2DXT		KD2-Y2DX10T*		1NO	
	KD2-YT-2DXG		KD2-Y2DX10G*		1NO	
	KD2-YT-2DXR		KD2-Y2DX01R*		1NC	
	KD2-YT-2DXY		KD2-Y2DX10Y*		1NO	
	KD2-YT-2DXA		KD2-Y2DX10A*		1NO	
	KD2-YT-DT		KD2-YDT*		Direct	
	KD2-YT-DG		KD2-YDG*		Direct	
	KD2-YT-DR		KD2-YDR*		Direct	
	KD2-YT-DY		KD2-YDY*		Direct	
	KD2-YT-DA		KD2-YDA*		Direct	

*Lamp Voltage : AC/DC 12V, 24V, 48V & 110V | Lamp Voltage : AC220V & 380V

Remarks : ○ white | ● black | ● green | ● red | ● yellow | ● aqua blue | ⊘ transparent

KZ Series

micro switch & limit switch

In electrical engineering, a limit switch is a switch operated by the motion of a machine part or presence of an object. They are used for controlling machinery as part of a control system, as a safety interlock, or to count objects passing a point.

Limit switches are widely used in mechanical equipment, automatic machine, instrument, electric motion tool, garage door, photocopiers, computer printers, convertible tops or microwave ovens to ensure internal components are in the correct position for operation and to prevent operation when access doors are opened.

1NO+1NC
10A
250V

KZ-6 Series

mini micro switch

Features

- It can be re-customized according to customer requirement
- Fast and accuracy
- Common terminal switching contact
- Shock resistance, heat resistance and high impact

Electrical Parameters

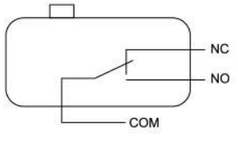
Contacts Shape	1a+1b
Contacts Material	silver alloy
Contacts Resistance	0.5mm
Insulation Resistance	100mΩ 500VDC
Contacts Resistance	max. 50mΩ (initial value)

Related Voltage (V)	Non-inductive Load (A)				Inductive Load (A)				Inrush Current (A)	
	Resistance Load		Lamp Load		Inductive Load		Motor Load			
	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC
125VAC	15	15	1.5	3	10	10	2	4	max. below 15	max. below 30
250VAC	10	15	1.0	2	6	10	1	3		
8VDC	10	15	1.5	4	8	10	2.5	6		
14VDC	5	15	1.5	5	4	10	2.5	6		
30VDC	2	10	1.0	4	1.5	6	1.5	4		
125VDC	0.5	0.6	0.1	0.1	0.05	0.6	0.05	0.1		
250VDC	0.25	0.3	0.05	0.05	0.03	0.3	0.04	0.05		

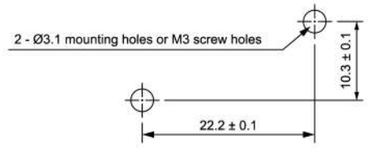
Characteristics

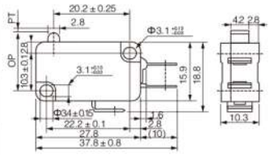
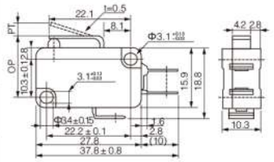
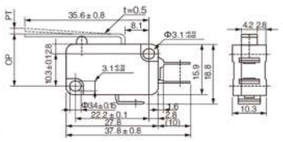
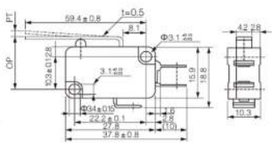
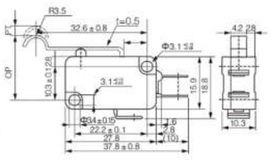
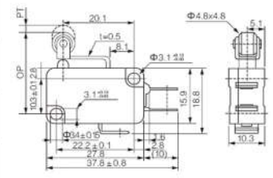
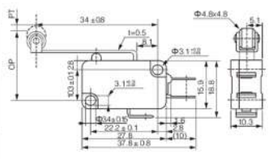
Operation Speed	0.1mm~1m/sec (button type)
Operation Frequency	mechanical : 600 operations/min ; electical : 30 operations/min
Contact Resistance	maximum 30mΩ (initial value)
Insulation Resistance	above 100mΩ (at DC500V)
Dielectric Strength	1,000VAC, 50/60Hz for 1 min between terminals of the same polarity
	2,000VAC ; 50/60Hz for 1 min between current-carrying and non-current-carring metal part
Vibration	action : 10-55Hz ; 1.5mm pairs swing
Shock	mechanical durable : 400m/sec^2 (about 40g's)
	malfunction : 100m/sec^2 (about 10g's)
Degree of Protection Against Electric Shock	class I
Proof Tracking Index (PTI)	250
Ambient Temperature	-25°C~80°C (with no icing)
Humidity	below 80%RH (about 5°C~35°C)
Life	mechanical : above 10,000,000 operations
	electrical : above 100,000 operations
Weight	about 6.2g (button type)

Contact Form



Installation Size



Product Picture	Description	Model	Operating Characteristics	Structure Drawing
	Mini Micro Switch (Pin Plunger)	KZ-6000	PT : Maximum 1.7mm OT : Minimum 0.8mm MD : Maximum 0.4mm OP : 14.7±0.6mm	
	Mini Micro Switch (Short Straight Lever)	KZ-6001	PT : Maximum 1.6mm OT : Minimum 0.8mm MD : Maximum 0.5mm OP : 15.3±0.8mm	
	Mini Micro Switch (Straight Lever)	KZ-6002	PT : Maximum 3.2mm OT : Minimum 1.2mm MD : Maximum 1.2mm OP : 15.3±1.2mm	
	Mini Micro Switch (Long Straight Lever)	KZ-6003	PT : Maximum 7.2mm OT : Minimum 2.2mm MD : Maximum 2.2mm OP : 15.3±2.6mm	
	Mini Micro Switch (Simulated R Lever)	KZ-6004	PT : Maximum 3.2mm OT : Minimum 1.2mm MD : Maximum 1.2mm OP : 18.5±1.2mm	
	Mini Micro Switch (Short Roller Lever)	KZ-6005	PT : Maximum 1.6mm OT : Minimum 0.8mm MD : Maximum 0.5mm OP : 20.7±0.8mm	
	Mini Micro Switch (Roller Lever)	KZ-6006	PT : Maximum 1.6mm OT : Minimum 0.8mm MD : Maximum 0.5mm OP : 20.7±0.8mm	

Remarks : PT (pretravel) | OT (over travel) | MD (movement differential) | OP (operating position)

Features

- A wide range of transmission mechanism, adjustable position of some products
- Fast operating speed, low voltage, maximum resistance to 20A impulse current
- Terminal protected by plastic which is anti-drip, dustproof and insulator
- Made from imported copper springs, which makes the switching smooth, stable, reliable and longer lifespan
- Small, the outer casing is made of reinforced plastic, impact resistant, widely used in household appliances, power tools & automation

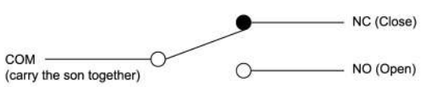
Electrical Parameters

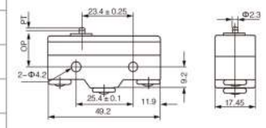
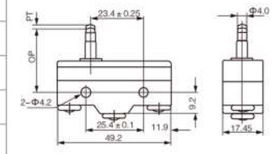
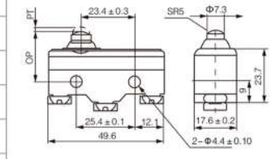
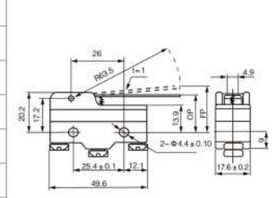
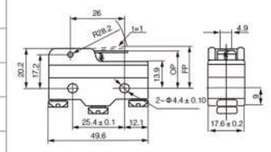
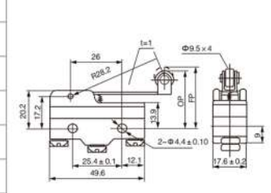
Related Voltage (V)	Non-inductive Load (A)				Inductive Load (A)				Inrush Current (A)	
	Resistance Load		Lamp Load		Inductive Load		Motor Load			
	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC
125VAC		15	1.5	3		15	2.5	5	max. below 15	max. below 30
250VAC		15	1.25	2.5		15	1.5	3		
500VAC		3	0.75	1.5		25	0.75	1.5		
8VDC		15	1.5	3		15	2.5	5		
14VDC		15	1.5	3		10	2.5	5		
30VDC		6(2)	1.5	3		5	2.5	5		
125VDC		0.4		0.4		0.05		0.05		
250VDC		0.2		0.2		0.03		0.03		

Characteristics

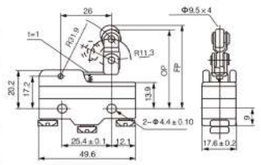
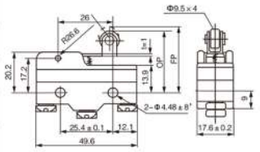
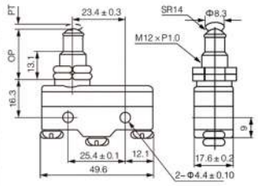
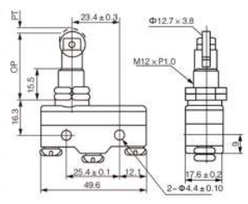
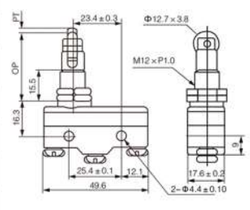
Operation Speed	0.01mm~1m/sec (lock type)
Operation Frequency	mechanical : 240 operations/min ; electrical : 20 operations/min
Contact Resistance	below 15mΩ (initial value)
Insulation Resistance	above 100mΩ (below 500VDC)
Dielectric Strength	1,000VAC ; 50/60Hz for 1 min between terminals of the same polarity
	1,500VAC ; 50/60Hz for 1 min between current-carrying and non-current-carring metal parts
	1,500VAC ; 50/60Hz for 1 min between each terminals and ground
Vibration	10-55Hz ; 1.5mm double amplitude
Shock	mechanical durable : 1,000m/sec^2 (about 100g's)
	malfunction : 300m/sec^2 (about 30g's)
Ambient Temperature	general purpose type : -25°C~+80°C ; sealed type : -15°C~+80°C
Humidity	general purpose type : above 85%RH ; sealed type : 95%RH
Life	mechanical : above 2,000,000 operations
	electrical : above 500,000 operations
Weight	about 60g

Contact Form



Product Picture	Description	Model	Operating Characteristics	Structure Drawing
	Micro Switch (Pin Plunger)	KZ-1300	OF : Maximum 350g RF : Maximum 114g PT : Minimum 0.4mm OT : Minimum 0.13mm MD : Maximum 0.05mm OP : 15.9±0.4mm FP : -	
	Micro Switch (Slim Reed Plunger)	KZ-1305	OF : Maximum 350g RF : Minimum 114g PT : Maximum 0.4mm OT : Minimum 1.6mm MD : Maximum 0.05mm OP : 28.2±0.5mm FP : -	
	Micro Switch (Short Reed Plunger)	KZ-1306	OF : Maximum 350g RF : Minimum 114g PT : Maximum 0.4mm OT : Minimum 1.6mm MD : Maximum 0.05mm OP : 21.5±0.5mm FP : -	
	Micro Switch (Hinge Lever)	KZ-1701	OF : Maximum 70g RF : Minimum 14g PT : Maximum 10mm OT : Minimum 5.6mm MD : Maximum 1.27mm OP : 19±0.8mm FP : 28.2mm	
	Micro Switch (Short Hinge Lever)	KZ-1702	OF : Maximum 160g RF : Minimum 28g PT : Maximum 5mm OT : Minimum 2mm MD : Maximum 1mm OP : 19±0.4mm FP : 24.8mm	
	Micro Switch (Long Hinge Roller Lever)	KZ-1703	OF : Maximum 100g RF : Minimum 22g PT : Maximum 7.1mm OT : Minimum 4mm MD : Maximum 1.02mm OP : 30.2±0.8mm FP : 36.5mm	

Remarks : OF (Operating Force) | RF (Releasing Force) | PT (pretravel) | OT (over travel) | MD (movement differential) | OP (operating position) | FP (Free Position)

Product Picture	Description	Model	Operating Characteristics	Structure Drawing
	Micro Switch (Short Hinge Roller Lever)	KZ-1704	OF : Maximum 160g RF : Minimum 42g PT : Maximum 2.7mm OT : Minimum 2.4mm MD : Maximum 0.5mm OP : 41.1±0.8mm FP : 43.6mm	
	Micro Switch (Unidirectional Hinge Roller Lever)	KZ-1743	OF : Maximum 160g RF : Minimum 42g PT : Maximum 2.7mm OT : Minimum 2.4mm MD : Maximum 0.5mm OP : 41.1±0.8mm FP : 43.6mm	
	Micro Switch (Panel Mount Plunger)	KZ-1307	OF : Maximum 350g RF : Minimum 114g PT : Maximum 0.4mm OT : Minimum 5.5mm MD : Maximum 0.05mm OP : 21.8±0.8mm FP : -	
	Micro Switch (Panel Mount Roller Plunger)	KZ-1308	OF : Maximum 350g RF : Minimum 114g PT : Maximum 0.4mm OT : Minimum 3.58mm MD : Maximum 0.05mm OP : 33.4±1.2mm FP : -	
	Micro Switch (Panel Mount Cross Roller Plunger)	KZ-1309	OF : Maximum 350g RF : Minimum 114g PT : Maximum 0.4mm OT : Minimum 3.58mm MD : Maximum 0.05mm OP : 33.4±1.2mm FP : -	
	Micro Switch (Protection Cap)	KZ-12	Material : PVC	

Remarks : OF (operating force) | RF (releasing force) | PT (pretravel) | OT (over travel) | MD (movement differential) | OP (operating position) | FP (free position)

Features

- Virous of actuators, the operation position is adjustable (KZ-7121)
- Outer shell covered with intensive plastic, waterproof and oilproof
- The mechanical strength is better than MM type of micro switch, bear hitting

Electrical Parameters

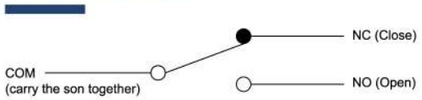
Related Voltage (V)	Resistance				Inductive			
	Resistance Load		Lamp Load		Inductive Load		Motor Load	
	NO	NC	NO	NC	NO	NC	NO	NC
125VAC		10	1.5	3		10	2.5	5
250VAC		10	1.25	2.5		10	1.5	3
480VAC		3	0.75	1.5		2.5	0.75	1.5
8VDC		10	1.5	3		6	5	6
14VDC		10	1.5	3		6	5	6
30VDC		8	1.5	3		6	2.5	5
125VDC		0.5		0.4		0.05		0.05
250VDC		0.25		0.2		0.03		0.03

*Notes :
1. Inductive load has a power factor of 0.4 min (AC) and a time constant of 7msec. max. (DC).
2. Lamp load has an inrush current of 10 times the steady-state current, while motor load has an inrush current of 6 times the steady-state current.

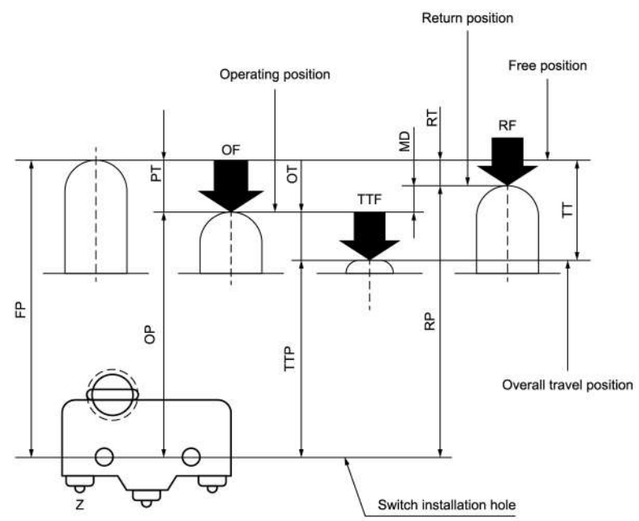
Characteristics

Operation Speed	0.5mm~50cm/sec (lock type)
Operation Frequency	mechanical : 120 operations/minute
Contact Resistance	maximum below 15mΩ (initial value)
Insulation Resistance	above 100MΩ (below 500VDC)
Dielectric Strength	1,000VAC ; 50/60Hz for 1 min between terminals of the same polarity
	1,500VAC ; 50/60Hz for 1 min between current-carrying and non-current-carring metal part
	1,500VAC ; 50/60Hz for 1 min between each terminals and ground
Vibration	action : 10-50Hz ; 1.5mm pairs swing
Shock	mechanical durable : 1,000m/sec^2 (about 100g's)
	malfunction : 300m/sec^2 (about 30g's)
Ambient Temperature	-10°C~+80°C
Humidity	<95%RH
Life	mechanical : above 1,000,000 operations (under rated OT)
	electrical : above 500,000 operations
Weight	about 60g
Degree of Protection	IP65

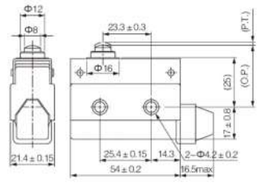
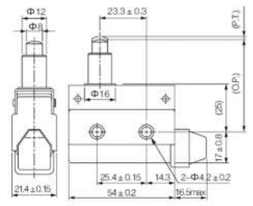
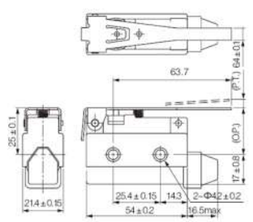
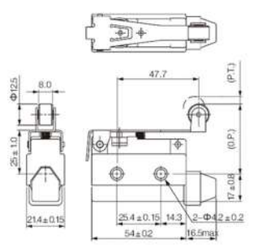
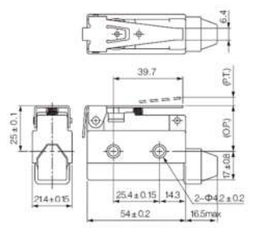
Contact Form



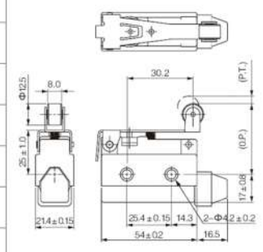
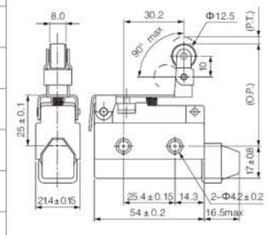
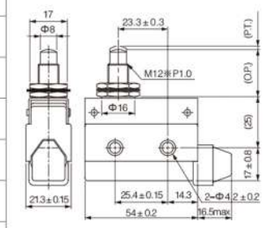
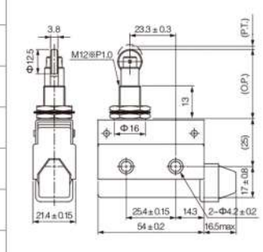
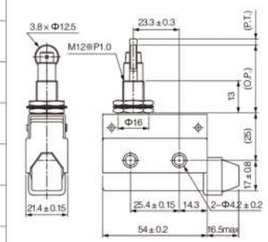
Operating Characteristics



Type	Name	Code	Unit	Deviation	Defination
Force	Operating Force	OF	N	Max.	The force required to cause contact snap-action. It is expressed terms of force applied to the actuator.
	Releasing Force	RF	N	Min.	The force to be applied to the actuator at the moment contact snaps back from operated position to unoperated position.
	Total Travel Force	TTF	N		Force applied to an actuator required to move from an operating position to a total travel position.
Travel	Pretravel	PT	mm, degree	Max.	Distance of the actuator movement from free position to operating position.
	Over Travel	OT	mm, degree	Min.	The distance which the actuator is permitted to travel after actuation without any damage to the switching mechanism.
	Movement Differential	MD	mm, degree	Max.	The distance from operating position to release position of the actuator.
Position	Total Travel	TT	mm, degree		The migration length or the move angle from the free position to total travel position of actuator.
	Free Position	FP	mm, degree		The actuator position when no external force is applied.
	Operating Position	OP	mm, degree	±	The position of the actuator when the traveling contacts snaps with the fixed contact.
	Releasing Position	RP	mm, degree		The position of the actuator when the traveling contact snaps back from operating position to its original position.
	Total Travel Position	TTP	mm, degree		The stopping position of the actuator after total travel.

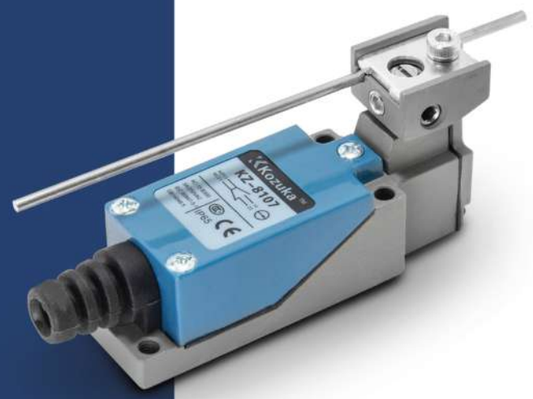
Product Picture	Description	Model	Operating Characteristics	Structure Drawing
	Micro Switch (Pin Plunger)	KZ-7100	OF : Maximum 600g RF : Minimum 100g PT : Maximum 2.0mm OT : Minimum 0.8mm MD : Maximum 0.8mm OP : 30.8±0.8mm FP : -	
	Micro Switch (Long Plunger)	KZ-7110	OF : Maximum 600g RF : Minimum 100g PT : Maximum 2.0mm OT : Minimum 5.0mm MD : Maximum 0.8mm OP : 44±1.2mm FP : -	
	Micro Switch (Hinge Lever)	KZ-7120	OF : Maximum 150g RF : Minimum 40g PT : Maximum 13.5mm OT : Minimum 4.0mm MD : Maximum 3.2mm OP : 25±1mm FP : 35mm	
	Micro Switch (Hinge Roller Lever)	KZ-7121	OF : Maximum 180g RF : Minimum 50g PT : Maximum 11.0mm OT : Minimum 3.0mm MD : Maximum 2.4mm OP : 40±1mm FP : -	
	Micro Switch (Short Hinge Lever)	KZ-7140	OF : Maximum 220g RF : Minimum 60g PT : Maximum 8.5mm OT : Minimum 2.5mm MD : Maximum 2.0mm OP : 25±1mm FP : 35mm	

Remarks : OF (operating force) | RF (releasing force) | PT (pretravel) | OT (over travel) | MD (movement differential) | OP (operating position) | FP (free position)

Product Picture	Description	Model	Operating Characteristics	Structure Drawing
	Micro Switch (Short Hinge Lever Roller)	KZ-7141	OF : Maximum 240g RF : Minimum 80g PT : Maximum 6.5mm OT : Minimum 2.0mm MD : Maximum 1.5mm OP : 40±1mm FP : 46mm	
	Micro Switch (Unidirectional Hinge Roller Lever)	KZ-7144	OF : Maximum 280g RF : Minimum 100g PT : Maximum 6.5mm OT : Minimum 2.0mm MD : Maximum 1.5mm OP : 50±1.2mm FP : 56mm	
	Micro Switch (Panel Mount Plunger)	KZ-7310	OF : Maximum 600g RF : Minimum 100g PT : Maximum 2.0mm OT : Minimum 6.0mm MD : Maximum 0.8mm OP : 21.8±1.2mm FP : -	
	Micro Switch (Panel Mount Roller Plunger)	KZ-7311	OF : Maximum 600g RF : Minimum 100g PT : Maximum 2.0mm OT : Minimum 6.0mm MD : Maximum 0.8mm OP : 33.3±1.2mm FP : -	
	Micro Switch (Panel Mount cross Roller Plunger)	KZ-7312	OF : Maximum 600g RF : Minimum 100g PT : Maximum 2.0mm OT : Minimum 6.0mm MD : Maximum 0.8mm OP : 33.3±1.2mm FP : -	

Remarks : OF (operating force) | RF (releasing force) | PT (pretravel) | OT (over travel) | MD (movement differential) | OP (operating position) | FP (free position)

1NO+1NC
10A
250V
IP65



KZ-8 Series

mini
limit switch

Features

- Double circuit type of limit switch
- Small volume, waterproof and oil-proof construction
- Smooth operation with greater OT
- Easy-to-wire circuit opening design
- Wide varity od actuators, easily use
- Build-in basic switch with double spring mechanism, longer mechanical life
- High rigid contruction, consists of intensive plastic and aluminum cast (head and cover snugly fit in box)

Electrical Parameters

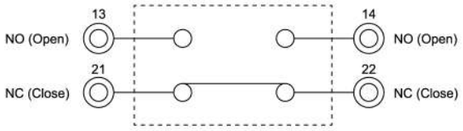
Related Voltage (V)	Non-inductive Load (A)				Inductive Load (A)				Inrush Current (A)	
	Resistance Load		Lamp Load		Inductive Load		Motor Load			
	NO	NC	NO	NC	NO	NC	NO	NC	NO	NC
125VAC	5	5	0.7	1.5	3	3	1	2	max. below 12	max. below 24
250VAC	5	5	0.5	1	3	3	0.8	1.5		
8VDC	5	5	3	3	4	5	3	3		
14VDC	5	5	3	3	4	3	3	3		
30VDC	5	5	3	3	4	3	3	3		
125VDC	0.4	0.4								
250VDC	0.2	0.2								

*Notes :
1. Inductive load has a power factor of 0.4 min (AC) and a time constant of 7msec. max. (DC).
2. Lamp load has an inrush current of 10 times the steady-state current, while motor load has an inrush current of 6 times the steady-state current.

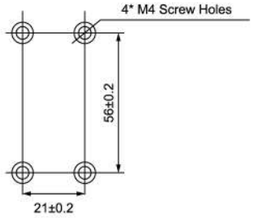
Characteristics

Operation Speed	0.5mm~50cm/sec (lock style)
Operation Frequency	mechanical : 120 operations/min, electical : 30 operations/min
Contact Resistance	maximum below 25MΩ (initial value)
Insulation Resistance	above 100MΩ (below 500VDC)
Dielectric Strength	1,000VAC ; 50/60Hz for 1 min between terminals of the same polarity
	1,500VAC ; 50/60Hz for 1 min between current-carrying and non-current-carring metal parts
	1,500VAC ; 50/60Hz for 1 min between each terminals and ground
Vibration	10-50Hz ; 1.5mm pairs swing
Shock	mechanical durable : 1,000m/sec^2 (about 100g's)
	malfunction : 300m/sec^2 (about 30g's)
Ambient Temperature	action : -5°C~+65°C
Humidity	below <95%RH
Life	mechanical : above 1,000,000 operations
	electrical : above 500,000 operations
Weight	about 130g~190g
Degree of Protection	IP65

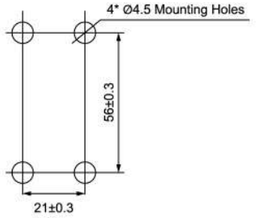
Circuit Diagram



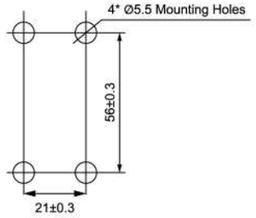
Installation Size



Front panel mounting
(panel holes are not penetrated):
use screws not exceeding 15mm



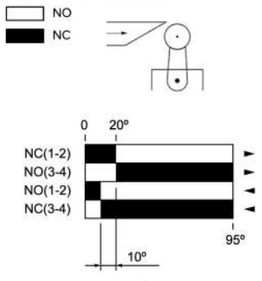
Front panel mounting
(panel holes are not penetrated) :
panel thickness not exceeding 5mm



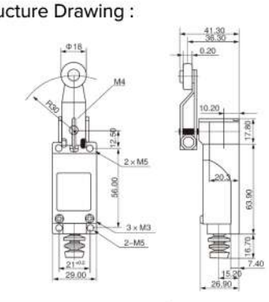
After the panel is installed :
select screw with the
panel thickness +8mm or less

Model	Description	Working Force	Release Force	Operating Frequency	Trigger Speed
KZ-8104	Mini Limit Switch (Roller Arm)	6N	0.5N	120 time/min	1.3 m/s

Installation Code :

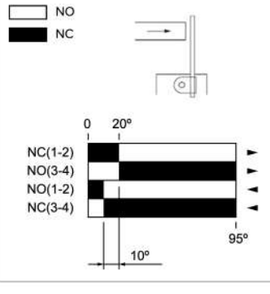


Structure Drawing :

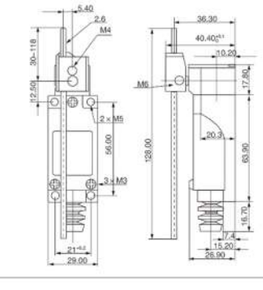


KZ-8107	Mini Limit Switch (Adjustable Rod Lever)	6N	0.5N	120 time/min	1.3 m/s

Installation Code :

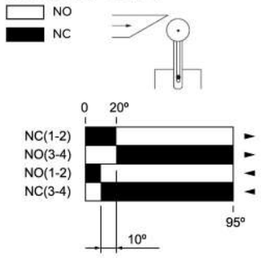


Structure Drawing :

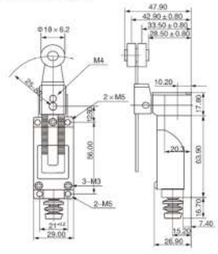


Model	Description	Working Force	Release Force	Operating Frequency	Trigger Speed
KZ-8108	Mini Limit Switch (Adjustable Roller Arm)	6N	0.5N	120 time/min	1.3 m/s

Installation Code :

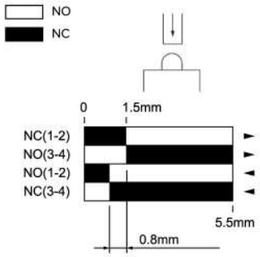


Structure Drawing :

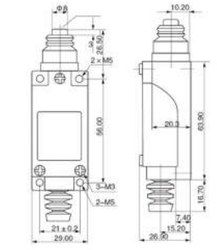


KZ-8111	Mini Limit Switch (Push Plunger)	9N	1.5N	120 time/min	0.25 m/s

Installation Code :

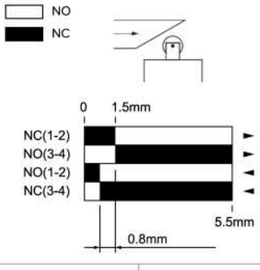


Structure Drawing :

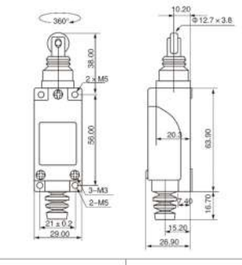


KZ-8112	Mini Limit Switch (Roller Plunger)	9N	1.5N	120 time/min	0.25 m/s

Installation Code :

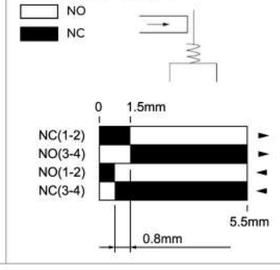


Structure Drawing :

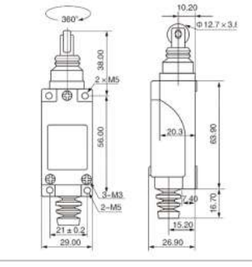


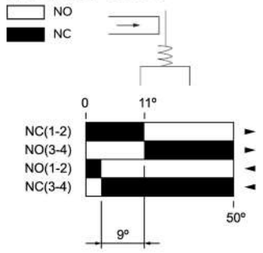
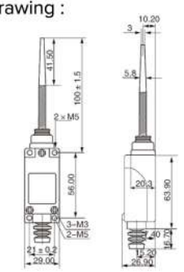
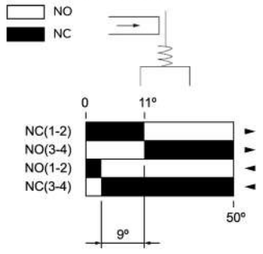
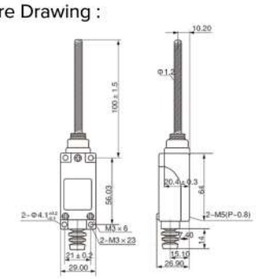
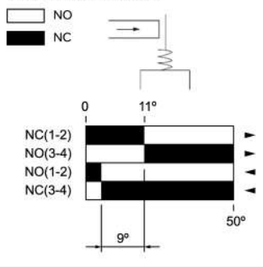
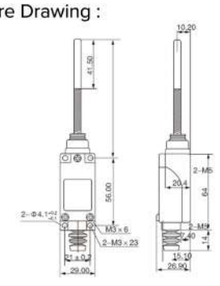
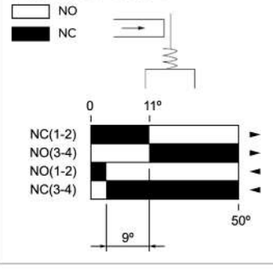
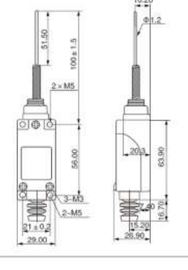
KZ-8122	Mini Limit Switch (Cross Roller Plunger)	9N	1.5N	120 time/min	0.25 m/s

Installation Code :



Structure Drawing :



Model	Description	Working Force	Release Force	Operating Frequency	Trigger Speed
KZ-8166	Mini Limit Switch (Thermo Plastic End Flexible Rod)	0.9N	0.04N	120 time/min	1.3 m/s
		Installation Code : 		Structure Drawing : 	
KZ-8167	Mini Limit Switch (Metal Spring Rod)	0.9N	0.04N	120 time/min	1.3 m/s
		Installation Code : 		Structure Drawing : 	
KZ-8168	Mini Limit Switch (Metal End Flexible Spring Rod)	0.9N	0.04N	120 time/min	1.3 m/s
		Installation Code : 		Structure Drawing : 	
KZ-8169	Mini Limit Switch (Cat Whisker)	0.9N	0.04N	120 time/min	1.3 m/s
		Installation Code : 		Structure Drawing : 	

Features

- High mechanical strength
- Selective M2 x 1.5 cable gland
- Strong aluminium cast outer shell
- Structure preventing oil, water and pressure
- Double-circuit type of limit switch is widely used
- Various of actuators is taken convenience for using
- Built-in contact stand design with double-spring for long mechanical life
- Indicating plate with setting position is installed in it, so it is easy to maintain

Electrical Parameters

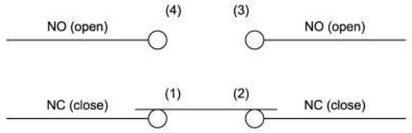
Related Voltage (V)	Resistance				Inductive			
	Resistance Load		Lamp Load		Inductive Load		Motor Load	
	NO	NC	NO	NC	NO	NC	NO	NC
125VAC	10		1.5	3	10		2.0	5
250VAC	5		1	2	5		1.0	3
480VAC	3		0.8	1.5	3		0.8	1.3
600VAC	1		0.5	1	1.5		0.5	1
8VDC	10		3	6	10		6	
14VDC	10		3	6	10		6	
30VDC	6		3	4	6		4	
125VDC	0.8		0.2	0.2	0.8		0.2	
250VDC	0.4		0.1	0.1	0.4		0.1	

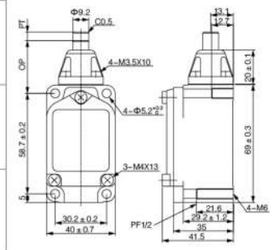
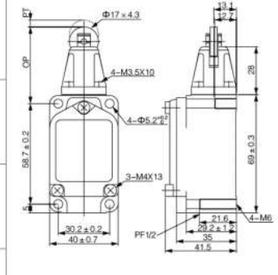
*Notes :
1. Inductive load has a power factor of 0.4 min (AC) and a time constant of 7msec. max. (DC).
2. Lamp load has an inrush current of 10 times the steady-state current, while motor load has an inrush current of 6 times the steady-state current.

Characteristics

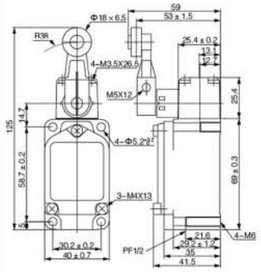
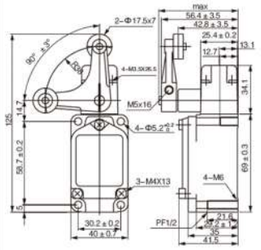
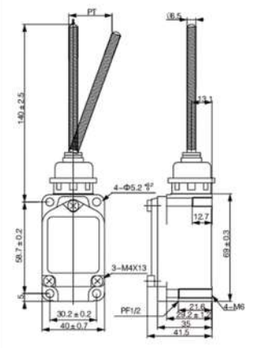
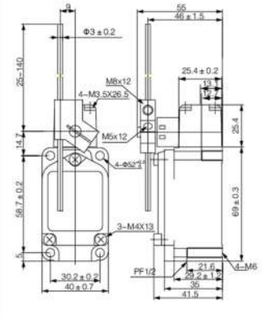
Operation Speed	1mm~2m/sec
Operation Frequency	mechanical : 120 operations/min ; electical : 30 operations/min
Contact Resistance	below 15mΩ (initial value)
Insulation Resistance	above 100mΩmin (below 500VDC)
Dielectric Strength	1,000VAC ; 50/60Hz for 1 min between terminals of the same polarity
	1,500VAC ; 50/60Hz for 1 min between current-carrying and non-current-carring metal parts
	1,500VAC ; 50/60Hz for 1 min between each terminals and ground
Vibration	10-55Hz ; 1.5mm double amplitude
Shock	mechanical durable : 1,000m/sec^2 (about 100g's)
	malfunction : 300m/sec^2 (about 30g's)
Ambient Temperature	action : -10°C~+80°C (with no icing)
Humidity	below <95%RH
Life	mechanical : above 1,000,000 operations (under rated OT)
	electrical : above 500,000 operations
Weight	about 275g
Degree of Protection	IP65

Contact Form

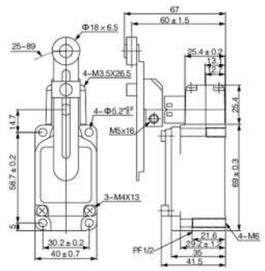
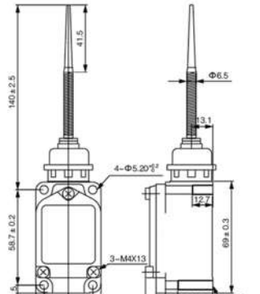
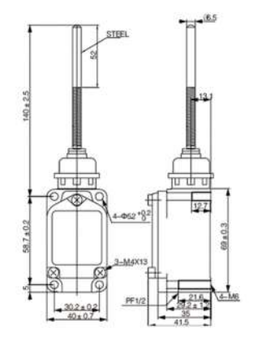
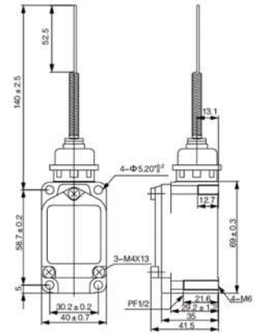


Product Picture	Description	Model	Operating Characteristics	Structure Drawing
	Limit Switch (Push Plunger)	KZ-5101	OF : Maximum 2720g RF : Minimum 910g PT : Maximum 1.7mm OT : Minimum 6.4mm MD : Maximum 1mm TTF: - OP : 34±2.8mm	
	Limit Switch (Roller Plunger)	KZ-5102	OF : Maximum 2720g RF : Minimum 910g PT : Maximum 1.7mm OT : Minimum 5.6mm MD : Maximum 1mm TTF: - TT : Minimum 6.5±0.8mm	

Remarks : OF (operating force) | RF (releasing force) | PT (pretravel) | OT (over travel) | MD (movement differential) | TTF (total travel force) | TT (total travel)

Product Picture	Description	Model	Operating Characteristics	Structure Drawing
	Limit Switch (Roller Arm)	KZ-5104	OF : Maximum 1360g RF : Minimum 227g PT : Maximum 20° OT : Minimum 30° MD : Maximum 12° TTF: Maximum 2720g TT : Minimum 50°	
	Limit Switch (Double Roller Arm)	KZ-5105	OF : Maximum 1200g RF : - PT : Maximum 55° OT : Minimum 35° MD : - TTF: - OP : 90±10°	
	Limit Switch (Metal Spring Rod)	KZ-5106	OF : Maximum 150g RF : - PT : Maximum 28mm OT : - MD : - TTF: - TT : -	
	Limit Switch (Adjustable Rod Lever)	KZ-5107	OF : Maximum 142g RF : Minimum 28g PT : Maximum 20° OT : Minimum 30° MD : Maximum 12° TTF: Maximum 200g TT : Minimum 50°	

Remarks : OF (operating force) | RF (releasing force) | PT (pretravel) | OT (over travel) | MD (movement differential) | TTF (total travel force) | OP (operating position) | TT (total travel)

Product Picture	Description	Model	Operating Characteristics	Structure Drawing
	Limit Switch (Adjustable Roller Arm)	KZ-5108	OF : Maximum 1360g RF : Minimum 227g PT : Maximum 20° OT : Minimum 30° MD : Maximum 12° TTF: Maximum 2720g TT : Minimum 50°	
	Limit Switch (Thermo Plastic End Flexible Spring Rod)	KZ-5166	OF : Maximum 120g RF : - PT : Maximum 28mm OT : - MD : - TTF: - OP : -	
	Limit Switch (Metal End Flexible Spring Rod)	KZ-5168	OF : Maximum 80g RF : - PT : Maximum 28mm OT : - MD : - TTF: - OP : -	
	Limit Switch (Cat Whisker)	KZ-5169	OF : Maximum 29g RF : - PT : Maximum 28mm OT : - MD : - TTF: - OP : -	

Remarks : OF (operating force) | RF (releasing force) | PT (pretravel) | OT (over travel) | MD (movement differential) | TTF (total travel force) | OP (operating position) | TT (total travel)

Industrial Automation

timer
floatless relay &
three-phase relay

The electronic industrial timers are used in the industries to control the process/operation with specified time interval of repetitive nature. It is basically a time-clock with an arrangement for on/ off operation/process at a predetermined specified time-intervals.

Floatless relays are versatile and compact floatless relays that are suitable for pumping system control and level alarm annunciations. Standard units are housed in DIN enclosures and can be configured as controller for water supply or drainage control system.

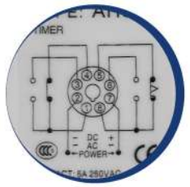
A three-phase relay, also called a phase failure relay, is an economical investment that is simple to install. A three-phase relay protects against damage caused by phase loss as well as other three-phase fault conditions.

240VAC
50/60Hz
8 PIN

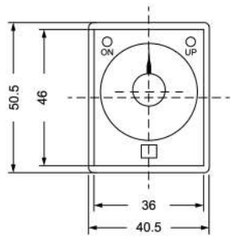
Single Range

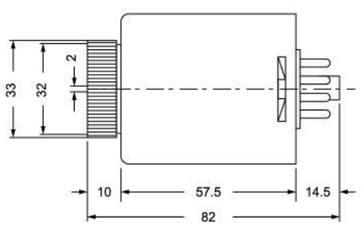
AH3-2 &
AH3-3

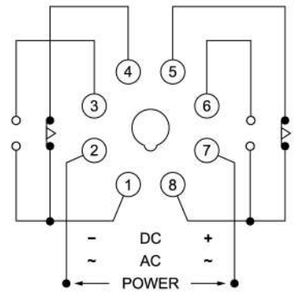
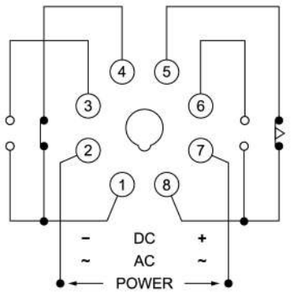
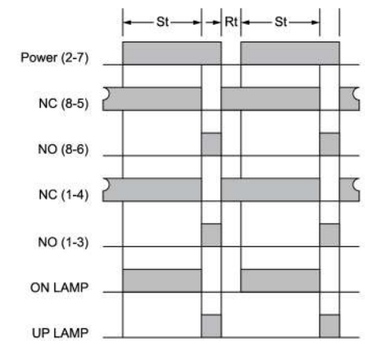
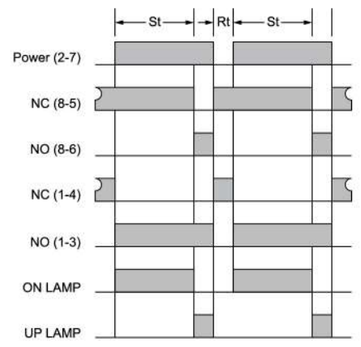
Details



Dimensions





Model		AH3-2	AH3-3
Mounting & Socket	Surface(-N)	PF085A & SH-3	
	Flush(-Y)	Y-40 & US-08 / Y-40 & P3G-08	
Time Range		6sec, 10sec, 30sec, 60sec	
		6min, 10min, 30min, 60min	
Rated Voltage		AC: 240V ; 50/60Hz	
Indicator Operating		ON-UP two indicator lamp	
Contact	Single Contact		5A
	Double Contact	5A	
	Instant Contact		5A
Life	Mechanical	5×10^6 times	
	Electrical	10^5 times	
Accuracy	Repeat Error	±1% max.	
	Setting Error	±10% max.	
	Voltage Error	±1% max.	
	Temp. Error	±2% max.	
Reset Time		0.1sec max.	
Consumed Power		2VA	
Ambient Temperature		-10°C~+55°C	
Ambient Humidity		45~85%RH	
Dimensions (H x W x D)		50.5mm x 40.5mm x 82mm	
Connection Diagrams			
Timing Chart		 St : set time Rt : resetting time	 St : set time Rt : resetting time

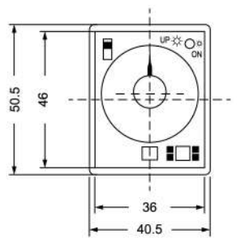
240VAC
50/60Hz
8 PIN

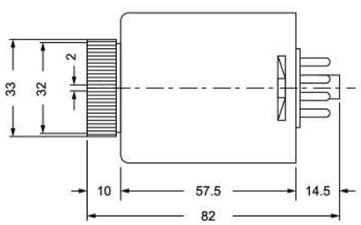
Multi Range

AH3-NC &
AH3-ND

Details

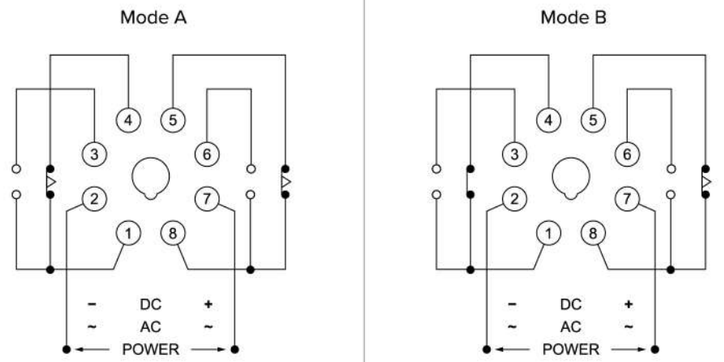
Dimensions



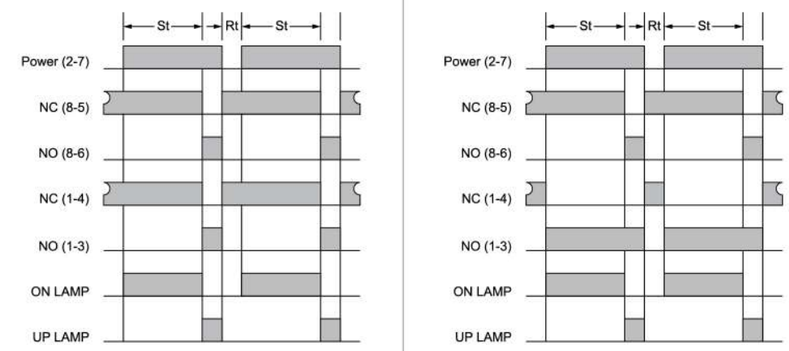


Model		AH3-NC	AH3-ND
Mounting & Socket	Surface(-N)	PF085A & SH-3	
	Flush(-Y)	Y-40 & US-08 / Y-40 & P3G-08	
Timer Range		6sec, 60sec, 6min, 60min	1min, 10min, 1hour, 10hrs
Rated Voltage		AC: 240V ; 50/60Hz	
Indicator Operating		ON-green ; UP-red	
Contact	Mode A	double contact	
	Mode B	single contact + instant contact	
Life	Mechanical	5×10^6 times	
	Electrical	10^5 times	
Accuracy	Repeat Error	±1% max.	
	Setting Error	±10% max.	
	Voltage Error	±1% max.	
	Temp. Error	±2% max.	
Reset Time		0.1sec max.	
Consumed Power		2VA	
Ambient Temperature		-10°C~+55°C	
Ambient Humidity		45~85%RH	
Dimensions (H x W x D)		50.5mm x 40.5mm x 82mm	

Connection Diagrams



Timing Chart



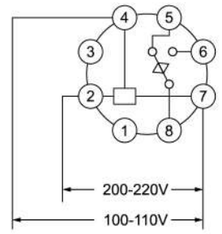
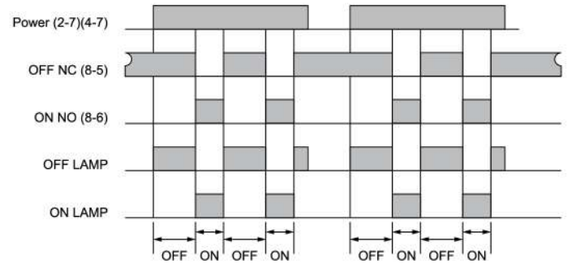
St : set time
Rt : resetting time

St : set time
Rt : resetting time

240VAC
50/60Hz
8 PIN

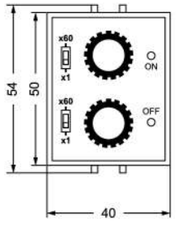
Multi Range

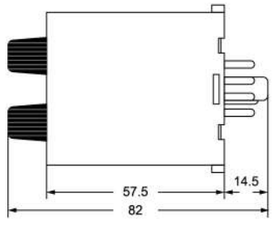
ST3PR twin timer

Model		ST3PR-10s	ST3PR-60s
Time Range		10sec / 10min	60sec / 60min
Rated Voltage		AC:240V ; 50/60Hz	
Indicator Operating		OFF-ON operating	
Contact		5A single contact	
Life	Mechanical	5×10^6 times	
	Electrical	10^5 times	
Reset Time		0.2sec max.	
Consumed Power		2VA	
Ambient Temperature		-10°C~+55°C	
Ambient Humidity		45~85%RH	
Dimensions (H x W x D)		50mm x 40mm x 82mm	
Connection Diagrams			
Timing Chart			

Details

Dimensions





240VAC
50/60Hz
8 PIN

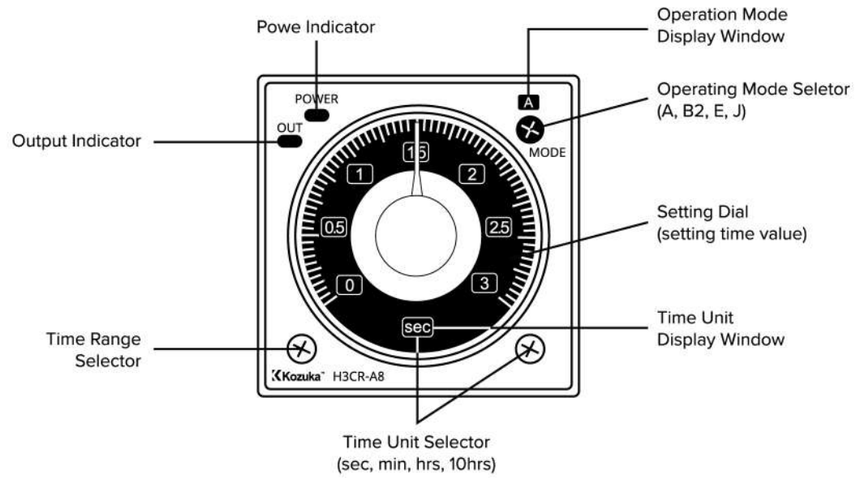
Multi Range

H3CR-A8

Features

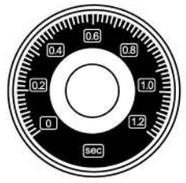
- Short body design
- 8 feild-selectable operating mode
- Wide operating voltage range

Nomenclature



Details

Operation Mode



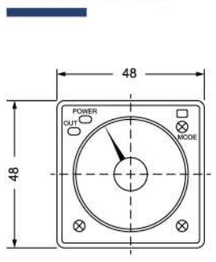
Time Range 1.2

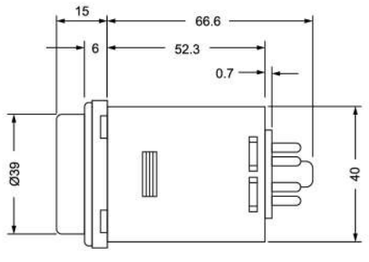
Time Range 3

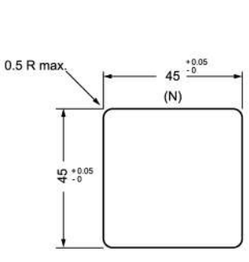
Time Range 12

Time Range 30

Dimensions

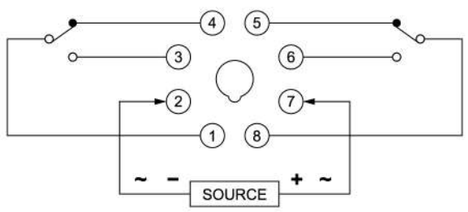






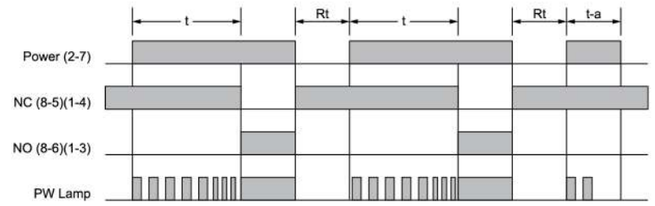
Model

H3CR-A8

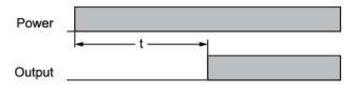
Mounting & Socket	Surface(-N)	P2CF-08 / P2CF-11
	Flush(-Y)	Y-50 & US-08 / Y50 & P3G-08 / Y-50 & US-11
Time Range		1.2sec - 300hrs
Rated Voltage		DC:12V~48V
		AC:100V~240V ; 50/60Hz
Indicator Operating		power-green, output-red
Contact		5A double contact
Operating Mode	A	signal ON delay
	B2	flicker ON start
	E	signal ON interval
	J	one-shot output
Life	Mechanical	5 x 10^6 times
	Electrical	10^5 times
Accuracy	Repeat Error	±0.3% max.
	Setting Error	±5% max.
	Voltage Error	±0.5% max.
	Temp. Error	±2% max.
Reset Time		0.1sec max.
Consumed Power		3VA
Insulation Resistance		100 minutes (at 500VDC)
Dielectric Strength		2000VAC ; 50/60Hz for 1 minute between current-carring metal parts and exposed non-current-caring metal parts
		2000VAC ; 50/60Hz for 1 minute between control output terminal and operating circuit
		1000VAC ; 50/60Hz for 1 minute between not located next to each others
Ambient Temperature		-10°C~+55°C
Ambient Humidity		45~85%RH
Degree of Protection		IP40 (panel surface)
Dimensions (H x W x D)		48mm x 48mm x 68mm
Connection Diagrams		

Timing Chart

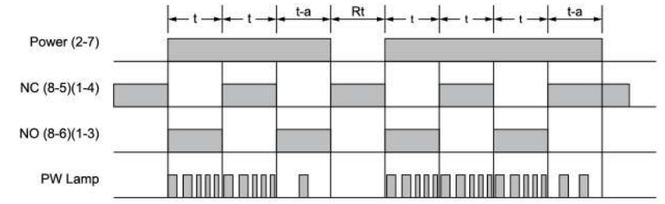
Mode A :
Signal ON-Delay



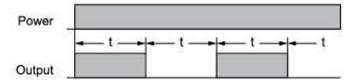
Basic Operation :



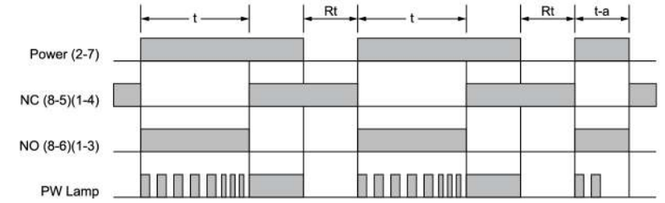
Mode B2 :
Flicker ON Start



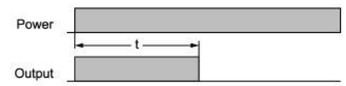
Basic Operation :



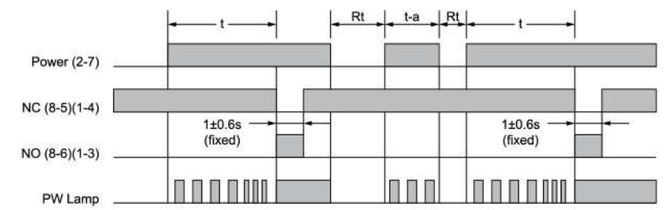
Mode E :
Signal ON Interval



Basic Operation :



Mode J :
One-shot Output



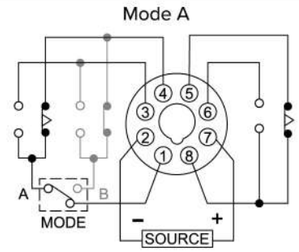
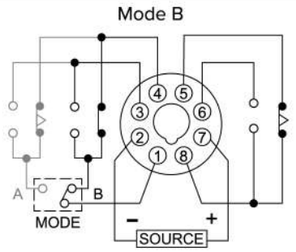
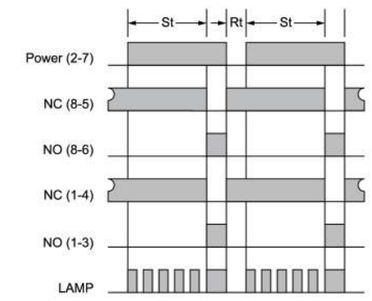
Basic Operation :

3 Digit
240VAC
50/60Hz
8 PIN

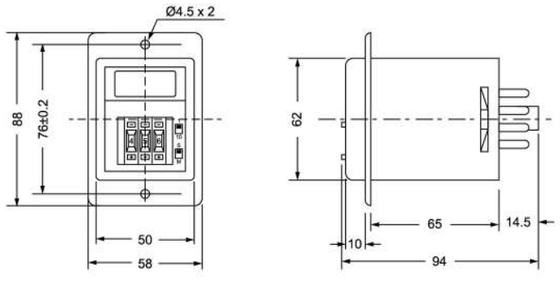
Multi Range

ASY-3SM
digital timer

Details

Model		ASY-3SM
Flush Mounting(-Y)		US-08 / P3G-08
Time Range		99.9sec, 999sec, 99.9min, 999min
Rated Voltage		AC:240V ; 50/60Hz
Indicator Operating		7-segment digital display with LED
Contact		5A
Life	Mechanical	5×10^6 times
	Electrical	10^5 times
Repeat Accurancy		±0.3%
Setting Error		±0.5%
Reset Time		0.2sec max.
Consumed Power		2VA
Ambient Temperature		-10°C~+55°C
Ambient Humidity		45~85%RH
Dimensions (H x W x D)		88mm x 58mm x 94mm
Connection Diagrams		Mode A:  Mode B: 
Timing Chart		 St : set time Rt : resetting time

Dimensions

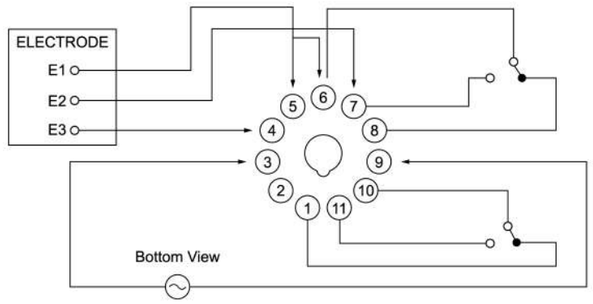


220VAC
50/60Hz
11 PIN

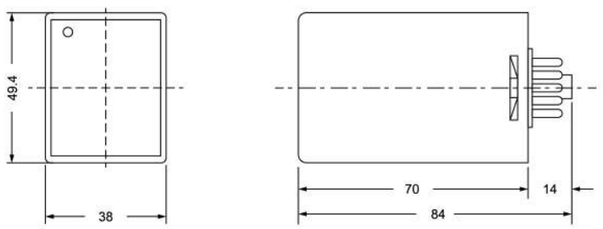
Floatless Level Switch

61F-GP-N

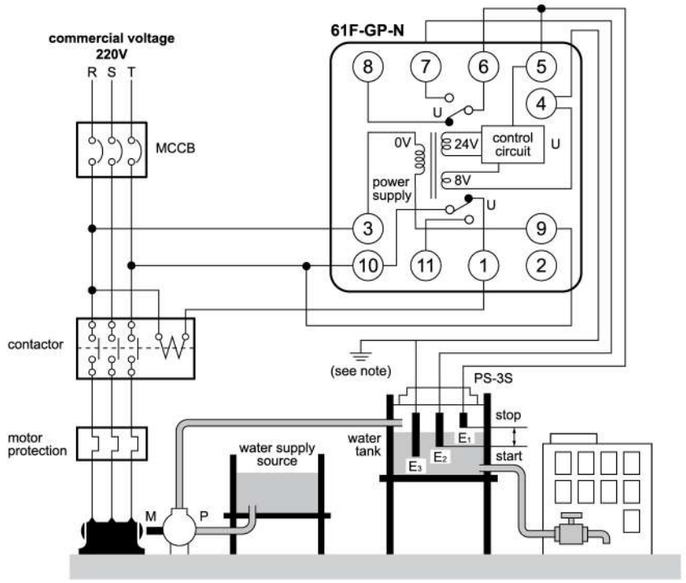
Details

Model		61F-GP-N
Socket Type		PF085A & SH-3
Sensing Mode	General	61F-GP-N
	High Sensing	61F-GP-NH
	Long Distance	61F-GP-NL
	Low Density	61F-GP-ND
Rated Voltage		AC:220V ; 50/60Hz
Indicator Operating		power on
Operating Voltage		85~110% of rated voltage
Second Voltage		8VAC (except high sensing 24VAC)
Operate Resistance		4KΩ min. (general)
Release Resistance		15KΩ min. (general)
Response Time	Operate	80ms max.
	Release	160ms max.
Contact Rating		5A ; 250VAC (resistive load)
Length of Cable		1Km max. (general)
Life	Mechanical	5×10^6 times min.
	Electrical	10^5 times min.
Insulation Resistance		100MΩ (DC 500V) min.
Dielectric Strength		1500VAC ; 50/60Hz ; for 1 minute
Consumed Power		3.2VA
Ambient Temperature		-10°C~+55°C
Ambient Humidity		45~85%RH
Dimensions (H x W x D)		49.4mm x 38mm x 84mm
Connection Diagrams		

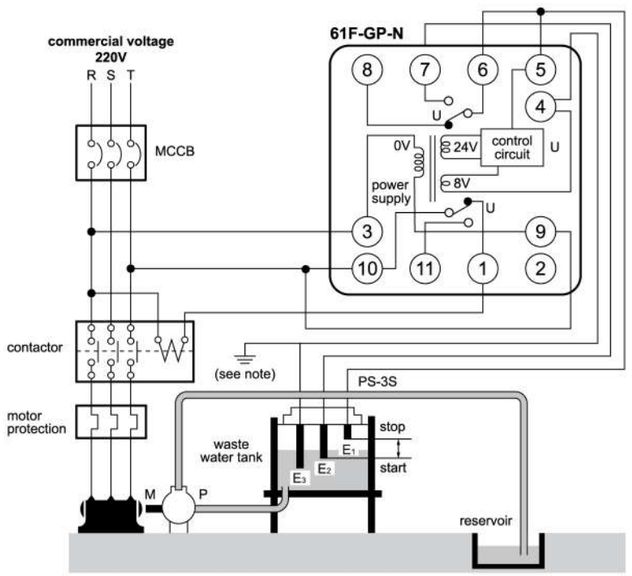
Dimensions



Automatic Water Supply Control*



Automatic Drainage Control*



Note : 1. Be sure to ground the common electrode E3 (the longest electrode).
- connection sockets
- PF113A (front-connecting)
- PL11 (rear-connecting)

2. Connect terminal 1 to the contactor's coil terminal.

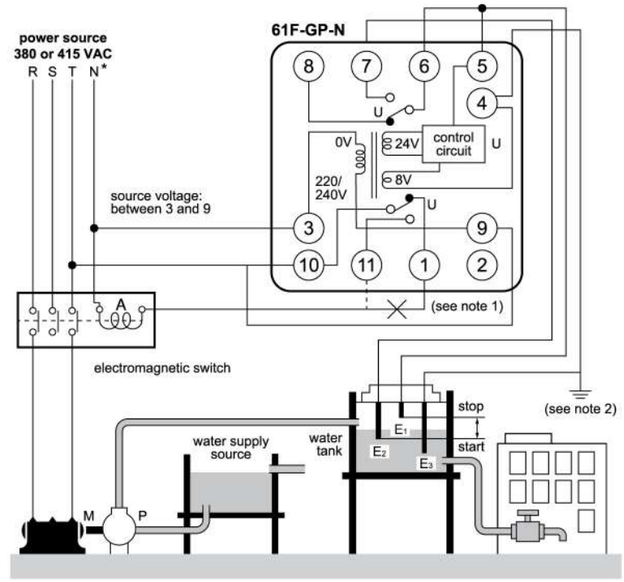
3. The power supply depends on the specification of the model.

* The connection diagrams are for reference purposes only.

Connection with Three-phase Four-line Circuit*

When supplying power from N-phase to the controller in three-phase four-line circuit, refer to the following diagrams.

- **Line voltage (R-S, S-T, or R-T)**
  380 or 415 VAC
- **Phase voltage (N-R, N-S, or N-T)**
  220 or 240 VAC

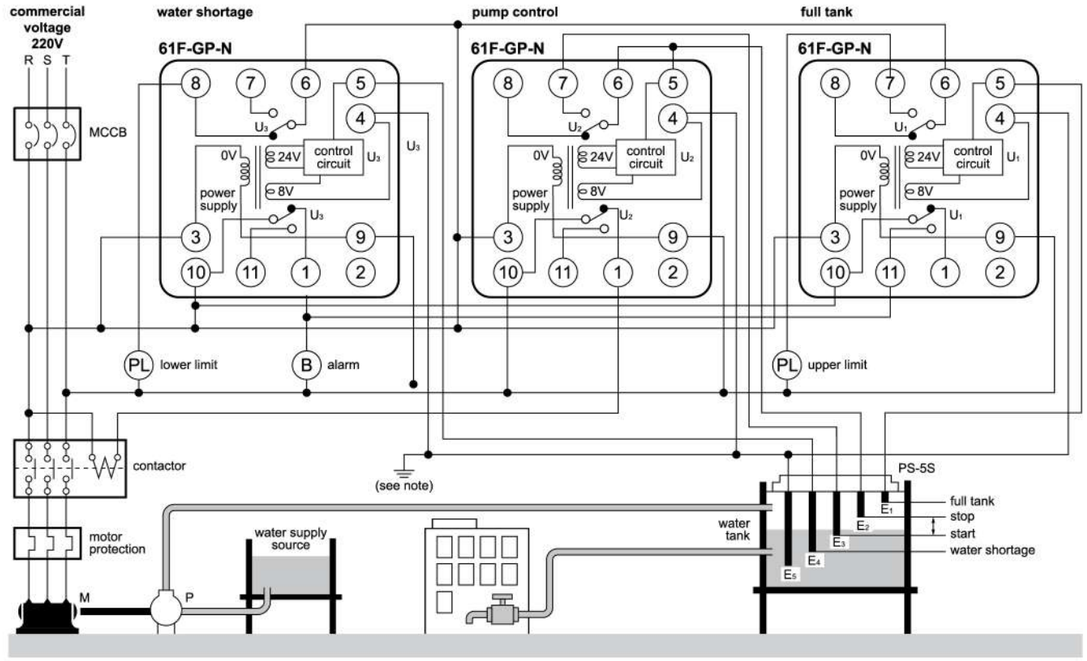


Note : 1. The diagram shows the connections for the water supply. When draining, change the connection from terminal 1 to terminal 11.

2. Be sure to ground terminal 4.

Replacing 61F-G3N Functions*

Automatic water supply control with abnormal water increase and water shortage alarms.



Note : The power supply phases (terminals 3 to 9) can be matched to use the same ground for the common electrode (the longest electrode, terminal 4).

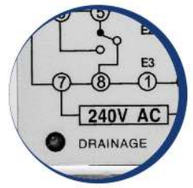
* The connection diagrams are for reference purposes only.

240VAC
50/60Hz
8 PIN

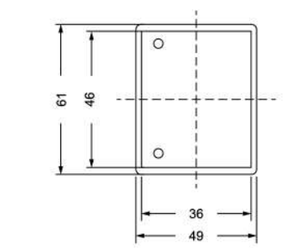
Floatless Relay

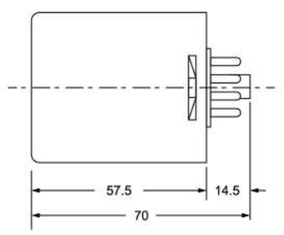
AFS-1

Details



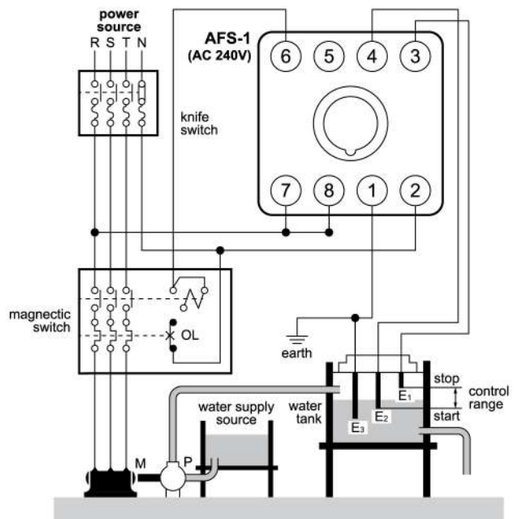
Dimensions



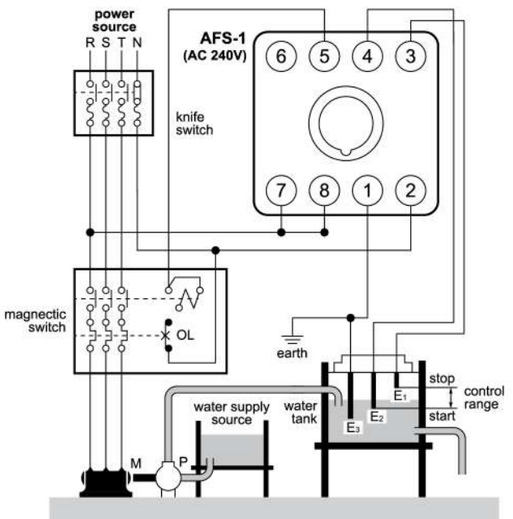


Model		AFS-1
Socket Type		PF085A & FH-3
Sensing Mode	General	AFS-1
	High Sensing	AFS-1Y
	Long Distance	AFS-1L
	Low Density	AFS-1D
	Two Line	AFS-GR
Rated Voltage		AC:240V ; 50/60Hz
Indicator Operating		two LED's use for two status
Operating Voltage		85~110% of rated voltage
Second Voltage		8VAC (except high sensing 24VAC)
Operate Resistance		4KΩ min. (general)
Release Resistance		15KΩ min. (general)
Response Time	Operate	80ms max.
	Release	160ms max.
Contact Rating		5A ; 250VAC (resistive load)
Length of Cable		1Km max. (general)
Life	Mechanical	5 x 10^6 times min.
	Electrical	10^5 times min.
Insulation Resistance		100MΩ (DC 500V) min.
Dielectric Strength		1500VAC ; 50/60Hz ; for 1 minute
Consumed Power		3.2VA
Ambient Temperature		-10°C~+55°C
Ambient Humidity		45~85%RH
Dimensions (H x W x D)		61mm x 49mm x 70mm

Water-supply Running*



Drainage Running*



* The connection diagrams are for reference purposes only.

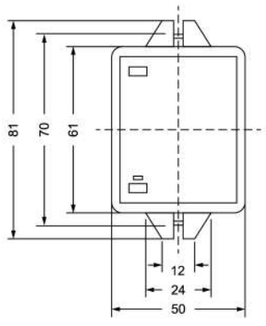
240VAC
50/60Hz
8 PIN

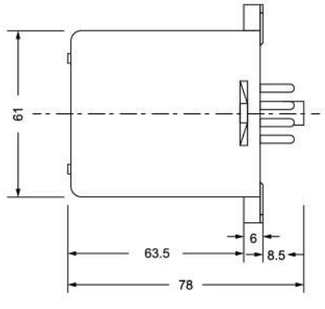
Floatless Relay

AFR-1

Details

Dimensions

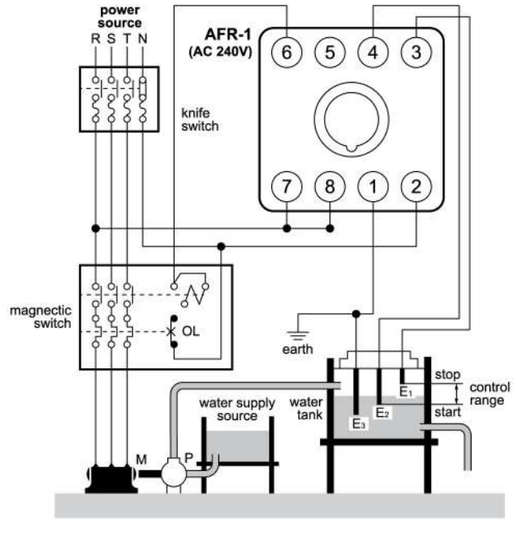




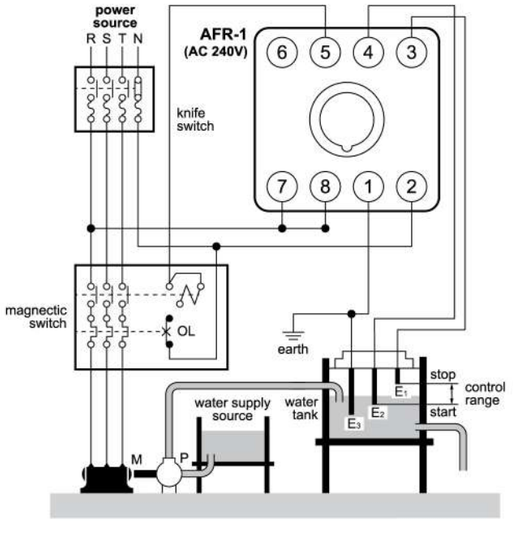
Model AFS-1

Socket Type		8PFA
Sensing Mode	General	AFR-1
	High Sensing	AFR-1H
	Long Distance	AFR-1L
	Low Density	AFR-1D
Rated Voltage		AC:240V ; 50/60Hz
Indicator Operating		two LED's use for two status
Operating Voltage		85~110% of rated voltage
Second Voltage		8VAC (except high sensing 24VAC)
Operate Resistance		4KΩ min. (general)
Release Resistance		15KΩ min. (general)
Response Time	Operate	80ms max.
	Release	160ms max.
Contact Rating		5A ; 250VAC (resistive load)
Length of Cable		1Km max. (general)
Life	Mechanical	5×10^6 times min.
	Electrical	10^5 times min.
Insulation Resistance		100MΩ (DC 500V) min.
Dielectric Strength		1500VAC ; 50/60Hz ; for 1 minute
Consumed Power		3.2VA
Ambient Temperature		-10°C~+55°C
Ambient Humidity		45~85%RH
Dimensions (H x W x D)		81mm x 50mm x 78mm

Water-supply Running*



Drainage Running*



* The connection diagrams are for reference purposes only.

415VAC
50/60Hz
8 PIN

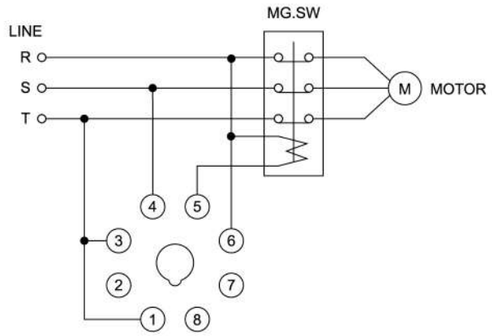
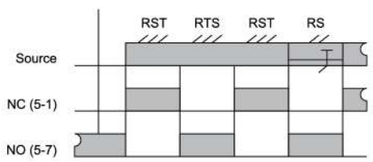
Phase Reversal

APR-3

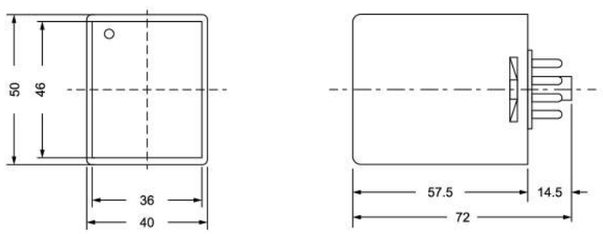
Details

Functions

- With 3 phases voltage detecting to protector reversal relay
- Assure the sequence of 3 phases power source to protect motor rev
- The output relay is energized when the phase suquence is correct and is denergized when the phase sequence is wrong or one phase is lost

Model		APR-3
Socket Type		PH085A & SH-3
Rated Voltage		AC:415V ; 50/60Hz
Indicator Operating		power on
Output Contact		5A single contact
Life	Mechanical	5 x 10^6 times
	Electrical	10^5 times
Reset Time		3sec
Consumed Power		2VA
Ambient Temperature		-10°C~+55°C
Ambient Humidity		45~85% RH
Dimensions (H x W x D)		50mm x 40mm x 57.5mm
Connection Diagrams		
Timing Chart		

Dimensions



415VAC
50/60Hz
8 PIN

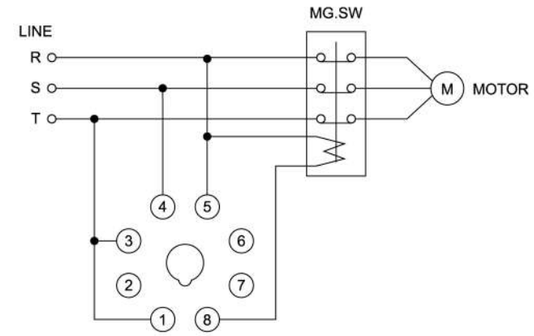
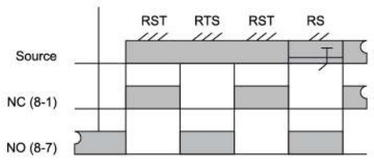
Phase Controller

APR-4

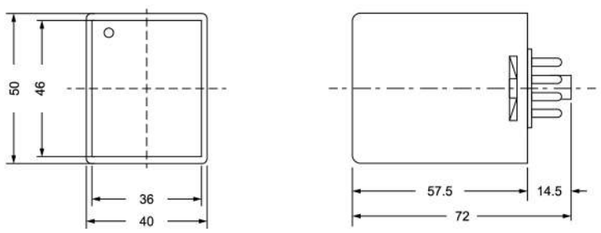
Details

Functions

- With 3 phases voltage detecting to protector reversal relay
- Assure the sequence of 3 phases power source to protect motor rev
- The output relay is energized when the phase suquence is correct and is denergized when the phase sequence is wrong or one phase is lost

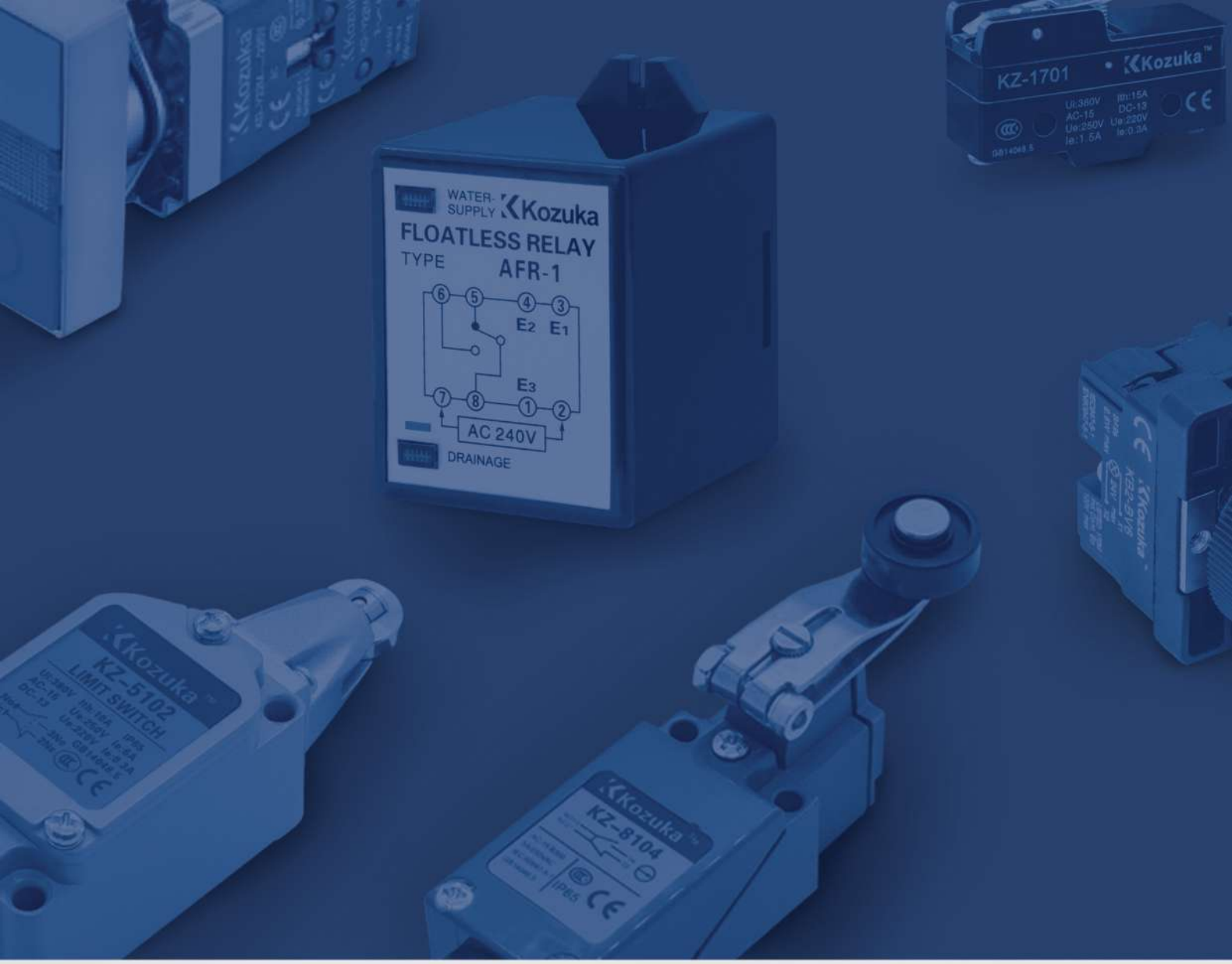
Model		APR-4
Socket Type		PH085A & SH-3
Rated Voltage		AC:415V ; 50/60Hz
Indicator Operating		power on
Output Contact		5A single contact
Life	Mechanical	5×10^6 times
	Electrical	10^5 times
Reset Time		3sec
Consumed Power		2VA
Ambient Temperature		-10°C~+55°C
Ambient Humidity		45~85% RH
Dimensions (H x W x D)		50mm x 40mm x 57.5mm
Connection Diagrams		
Timing Chart		

Dimensions



Note


Kozuka
61F-GP-N
FLOATLESS LEVEL SWITCH
SOURCE: 220 VAC
POWER CONSUMPTION: 3.5VA Max
FREQ.: 50/60 Hz
SECONDARY VOLTAGE: 8VAC
Kozuka
KZ-5102
LIMIT SWITCH
Kozuka
KB2-BE102
Kozuka
KB2-BV6
Kozuka
KB2-BE102
Kozuka
KB2-BE102



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