

Time relay -STR-F5 series

Catalogue



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Time relay -STR-F5 series

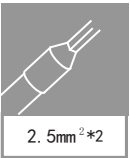
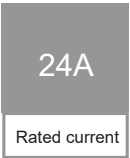
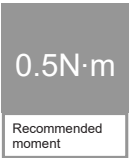
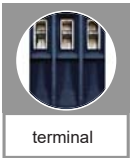
Product overview



Time relay STR-F5 series

Product application scenarios and features

- It is used in the three-phase inconsistency of power system and the motor energy storage loop to monitor the split phase operation and control the motor energy storage time respectively
- Supports power-on delay and power-off delay
- At both ends of the relay coil, when the power frequency AC voltage with RMS value of 220 volts is added, the relay contact does not operate reliably
- Starting power $\geq 5W$
- Relay starting voltage range: 55%~65%Un
- The time frame is flexible and adjustable: 50ms~100h
- It has the function of anti-vibration and anti-interference
- LED lights indicate the actual working status, which is conducive to debugging and fault diagnosis
- Mounting dimension : 22.5mm (L) ×88mm (W) ×102.1mm (H)
- Mounting method: rail mounting



Order information

Naming rules for STR-F5 series products

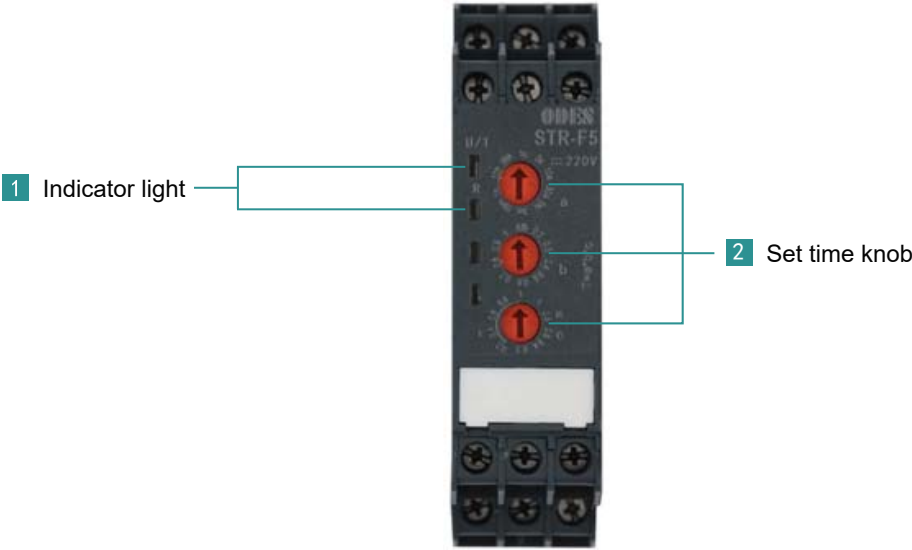
Typical model	STR-F5	/220VDC
Product series STR-F5=Anti-jamming time relay with power start		
Rated operating voltage 110VDC=110VDC 125VDC=125VDC 220VDC=220VDC		

STR-F5 series products conventional models

Conventional type	Rated voltage	Time frame	Output contact
STR-F5/220VDC	220VDC	0.05s~100h	2 c/o
STR-F5/125VDC	125VDC	0.05s~100h	2 c/o
STR-F5/110VDC	110VDC	0.05s~100h	2 c/o

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Man-machine interface



	Definition		Instructions
Indicator light	1	R	Red light: contact opening indicator light, when the relay action contact open often light
	2	U/T	Green light: operation indicator light, flashing when the product is in the timing state and the relay is not operating, the rest time on the power on constant light
Knob	3	range	Timing knob, range from 1s to 10h, the specific value is calculated according to the formula
	4	a	Timing knob, range from 0.05 to 1, the specific value is calculated according to the formula
	5	b	Timing/mode selection knob, ranging from 0.2 to 1, the specific value is calculated according to the formula mode selection: power on delay (E), power off delay (R)

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Product technical parameters and implementation standards

Unless otherwise specified, all data are rated at Ta = 25°C

Input loop - coil voltage rating

Rated voltage of DC coil	110VDC; 125VDC; 220VDC
Working mode	Power-on delay (E), Power-off delay (R)
Starting voltage range	55%~65%Un,Other customizable
Starting power	≥5W
Product power consumption	≤3W
Opening voltage	0~55% rated input voltage, the time relay must not operate
	55~65% rated input voltage, time relay can operate or not
	>65% rated input voltage, time relay certain action
Turn-off voltage	The input voltage drops to 50% of the rated voltage
	1. When the timing time has not reached the setting time, the timing should be stopped immediately; When the input voltage rises to at 65%Un, restart the clock. 2. When the setting time is up and the relay contact has been operated, the relay contact should return immediately

Timing loop

Set the time range	1) 0.05s~100h
Time error	Average error of any set value ≤ (0.2% set value +5ms)
Temporal consistency	Action consistency of any set point ≤ (0.2% set value +5ms)

Working status indication

Green light	U/T indicator, flashing when the product is in the timing state, the rest of the time on the constant light
Red light	R indicator light, when the relay is always on

Output loop

Output form	2 c/o
Capacity of contact	8A@250VAC/30VDC(Resistive load)
Material of contact	AgNi 90/10

Electromagnetic compatibility

Electrostatic discharge	GB/T 17626. 2-2018	Class IV (15kV/ air discharge, 8kV/ contact discharge)
Electrical fast transients	GB/T 17626. 4-2018	Class IV ((±4kV to power supply, ±2kV to input/output, frequency 5kHz/100kHz))
Surge (shock)	GB/T 17626. 5-2019	Class IV (common mode 4kV, differential mode 2kV)

Isolation parameter

Resistance of insulation	GB/T 14598. 3-2006	The insulation resistance of each conductive circuit to the ground and between each conductive circuit is not less than 100MΩ AC 2kV, 1min, leakage current < 5mA 1.2/50us, ±5kV, 3 times
Strength of medium		
Voltage of impulse		

Vibration and collision

Vibration	GB/T 2423. 10-2019	Electrical and electronic products - Environmental testing - Part 2: Test methods - Fc vibration (sine)
Vibration response	GB/T 11287-2000	The acceleration amplitude is 10m/s²
Vibration endurance		The acceleration amplitude is 20m/s²
Impact	GB/T 2423. 5-2019	Electrical and electronic products - Environmental testing - Part 2 - Test methods - Test E a and guide shock
Response to impact	GB/T 14537-1993	The acceleration amplitude is 98m/s²
Impact durability		The acceleration amplitude is 294m/s²
Collision	GB/T 2423. 6-2019	Electrical and electronic products - Environmental testing - Part 2 - Test methods - Test E b and guidelines collision
Collision response	GB/T 11287-2002	The acceleration amplitude is 196m/s²

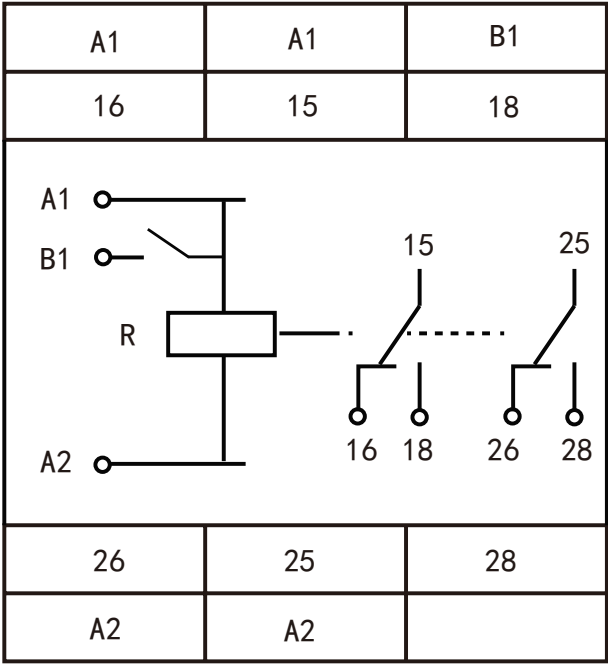
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Product technical parameters and implementation standards

Environmental data		
Work/storage	-25℃~70℃/-40℃~70℃	
Maximum operating humidity	93%RH@+40℃	
Low air pressure	GB/T 2423. 21-2008	25℃, 4500 meters above sea level
Flame retardant		
Flame retardant grade	UL94V-0 grade flame retardant (750℃, 30s)	

Product terminal definition

STR-F5 product terminal definition



Port Definition Description

Power on delay relay

- A1-A2: Power supply
- 15-16/18: First c/o contact
- 25-26/28: Second c/o contact

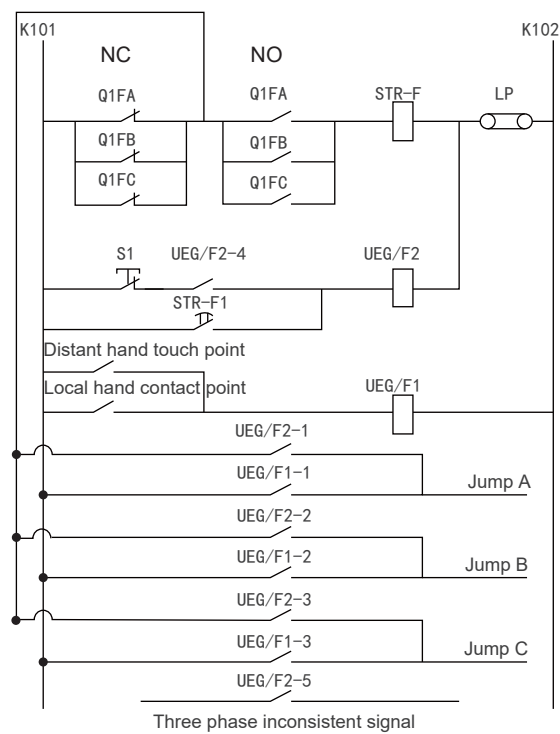
Power down delay relay

- A1-A2: Power supply
- B1-A2: Control input
- 15-16/18: First c/o contact
- 25-26/28: Second c/o contact

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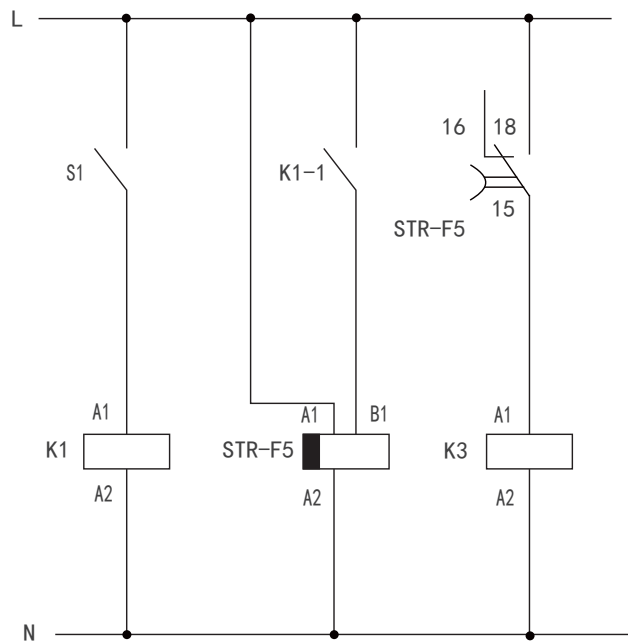
Application wiring schematic diagram

STR-F5 principle wiring diagram 1



STR-F: Three-phase inconsistent time relay
UEG/F1: Three-phase inconsistent outlet relay
UEG/F2: Three-phase inconsistent Protection Outlet Relay
(new)LP: three-phase inconsistent protection input platen
S1: The Reset button

STR-F5 principle wiring diagram 2



Time relay -STR-F5 series

Product functional logic

Working principle of anti-interference power-on delay time relay:

According to the actual situation of the power system, the relay delays according to the set time after the product A1-A2 is powered on. After the delay time arrives, the relay contact acts. After the product is powered off, the relay contact returns to the initial state.

Anti-ac misoperation loop: when the effective value of 220V AC voltage is added to both ends of the relay coil, the output contact of the relay will not work reliably;

Power starting loop: only when the input power is $\geq 5W$, the product can be started normally, which improves the anti-interference ability and reliability of the product and effectively prevents misoperation.

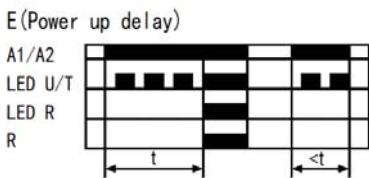
Working principle of anti-interference power down delay time relay:

According to the actual situation of the power system, the relay contact acts after the power on of the product A1-A2-B1. After the power off of the product B1, the delay is carried out according to the set time. After the delay time arrives, the relay contact returns to the initial state.

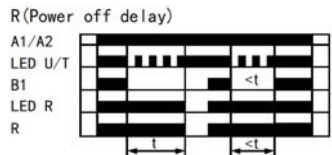
Anti-ac misoperation loop: when the effective value of 220V AC voltage is added to both ends of the relay coil, the output contact of the relay will not work reliably;

Power starting loop: only when the input power is $\geq 5W$, the product can be started normally, which improves the anti-interference ability and reliability of the product and effectively prevents misoperation.

Function diagram



Power-on delay (E) timing diagram



Power down delay (R) timing diagram

Legend Description	Connection terminal identification	LED lamp function
Control supply voltage is not energized /relay is not operating	Relay contact: R First c/o contact: 15-16/18 Second c/o contact: 25-26/28	Red LED R: bright = output relay action; Off = Output relay reset
Control power supply voltage on /relay action	Supply voltage terminals: A1-A2	Green LED U/T: bright = normal operation of the product; Blinks = the product is timed and the relay is inactive

Product operation instructions

Adjust the three knobs a, b and c according to the time calculation formula on the time relay panel of the selected model, and set the time to be set;

According to the wiring schematic diagram of the product, A1 and A2 are connected to + and - of the power supply. 15-18/25-28 are normally open contacts, and 15-16/25-26 are normally closed contacts.

Take STR-F5/220VDC power-on delay time relay as an example:

After a delay of 10s, 15-18/25-28 switches from normally open to normally closed, and 15-16/25-26 switches from normally closed to normally open;

According to the setting time formula of STR-F5/220VDC: $T = \text{range} \times a \times b$, set range=10, a=1, b=1(E), so that the setting time of 10s is completed; After connecting the power-on delay relay according to the terminal definition, pass the voltage of $> 65\%U_n$ to the power-on delay time relay, the green U/T lamp flashes, and the red R lamp goes off. After a delay of 10s, the green U/T lamp is always on, and the red R lamp is always on. 15-18/25-28 switches from normally open to normally closed, and 15-16/25-26 switches from normally closed to normally open.

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Product installation size drawing(mm)

