

Voltage Relay-WY-30 Series

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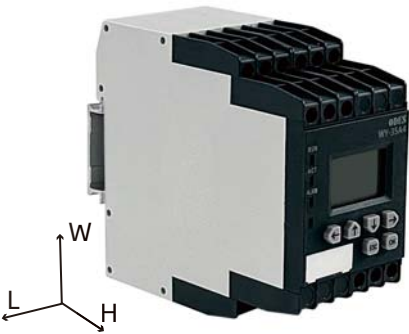


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Voltage Relay-WY-30 Series

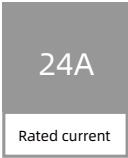
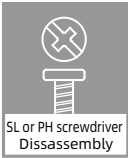
Product Overview



Voltage Relay-WY-30 Series

Product application scenarios and characteristics

- The WY-30 series voltage relay is a digital AC voltage relay with a time-delay function.
- It is used in the relay protection of generators, transformers, and transmission lines as a starting element for overvoltage protection or undervoltage lockout, as well as for zero-sequence voltage alarm or metering PT loss-of-voltage alarm, among other functions.
- Supports single-phase or three-phase voltage monitoring
- The overvoltage, undervoltage action values, and the action delay time are adjustable.
- The default measurement frequency is 50Hz, with 60Hz available upon customization.
- LEDs provide real-time indication of the product's operational status.
- The LCD displays the current input voltage value in real time.
- The product's terminal current-carrying component is made of copper alloy.
- Installation dimensions: ONGSP-45:45mm(L) x 88mm(W) x 102.1mm(H).
- Installation method: DIN35 rail mounting.
- Terminal characteristics:



Ordering Information

Naming rules for WY-30 series products

Typical model	WY	-3	5	A	4	-T	-1	/60Hz
Product Series WY=Digital voltage relay								
Measurement type 3=ONGSP-45								
Underpayment type 5=Undervoltage relay 1=Overvoltage relay								
Rated input excitation A=100VAC (Line voltage)/57. 7VAC (Phase voltage) C=400VAC (Line voltage)/220VAC (Phase voltage)								
Phase number 1=1 Phase; 4=3 Phase;								
Export logic No=action OR, return AND logic;T=action AND,return OR logic								
Upgrade code None=default standard functions 1=special custom serial number 2=special custom serial number								
Upgradecode None=50HZ; 60HZ=60HZ								

Voltage Relay-WY-30 Series

Ordering Information

WY-30 series regular model

Regular model	Rated input excitation	Underpayment type	Phase number	Action logic
WY-35A1	100VAC	Undervoltage relay	1 Phase	Action OR;return AND logic
WY-31A1	100VAC	Overvoltage relay	1 Phase	
WY-35A4	100VAC	Undervoltage relay	3 Phase	
WY-31A4	100VAC	Overvoltage relay	3 Phase	
WY-35C4	400VAC	Undervoltage relay	3 Phase	
WY-31C1	400VAC	Overvoltage relay	1 Phase	
WY-31C4	400VAC	Overvoltage relay	3 Phase	
WY-35C1	400VAC	Undervoltage relay	1 Phase	
WY-35A4-T	100VAC	Undervoltage relay	3 Phase	Action AND;return OR logic

Voltage Relay-WY-30 Series

Human-Machine Interface



	Definition		Explain
Pilot Lamp	1	RUN	Green, Normal Operation Indicator Light
	2	ACT	Red, Relay Operation Indicator Light
	3	ALARM	Red, Abnormal Indicator Light, Memory Read/Write Failure
Button	4	◀	Shift key, used for selecting digits to the left or right
	5	▲	Selection Button, used for selecting setpoint parameters and modifying each digit value of the setpoint parameters from 0 to 9
	6	▼	Selection Button, used for selecting setpoint parameters and modifying each digit value of the setpoint parameters from 0 to 9
	7	▶	Shift key, used for selecting digits to the left or right
	8	OK	Confirmation Button, used to confirm the selected operation
	9	ESC	Back Button

Voltage Relay-WY-30 Series

Product Technical Parameters and Implementation Standards

If no special instructions are given, all data are rated data at T=25°C

Input Loop

Rated voltage	100VAC, 400VAC	Frequency	50Hz, 60Hz (customizable)
Overload capability of AC circuit	Can operate continuously at 1.2 times the rated voltage		

Input circuit - auxiliary power supply

Auxiliary power supply voltage range	DC 88~370V, AC 85~265V, 47~63Hz
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Output circuit - Relay contact output

Output form	2c/o	Contact materials	AgNi
Contact rated capacity (resistive load)	6A@250VAC/30VDC		

Product Parameters

Adjustment range of action delay	0~9999ms Or 0~9999s	Average error of underquantity or overquantity action delay	±(1% setting value +60ms)
Voltage setting range	(0.05~1)Un	Measurement voltage accuracy	±3%
Return coefficient	Overquantity return coefficient:0.9; Underquantity return coefficient:1.1 (Return coefficient is customizable)		

Protection class

Product protection class	Enclosure/Terminals	IP50/IP20
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Electromagnetic compatibility

Electrostatic Discharge (ESD) Immunity	IEC61000-4-2(GB/T 17626.2)	Level IV(±15kV Air Discharge, ±8kV Contact Discharge)
Electrical Fast Transient/Burst (EFT/B) Immunity	IEC61000-4-4(GB/T 17626.4)	Level IV (±4kV for Power Supply, Input, and Output)
Surge Immunity	IEC61000-4-5(GB/T 17626.5)	Level IV (±4kV Common Mode, ±2kV Differential Mode)
Power Frequency Magnetic Field Immunity	IEC61000-4-8(GB/T 17626.8)	Level V (Continuous:100A/m, Short-term: 1000A/m)
Pulsed Magnetic Field Immunity	IEC61000-4-9(GB/T 17626.9)	Level V (1000A/m)
Radio Frequency Conducted Disturbance Immunity	IEC61000-4-6(GB/T 17626.6)	Level III (10V)
Damped Oscillatory Wave Immunity	IEC61000-4-18(GB/T 17626.18)	Level V (±1kV Differential Mode, ±2.5kV Common Mode at 100kHz & 1MHz)

Applicable Standards

GB/T 50063-2017	Design Specifications for Electrical Measurement Instruments of Power Installations
DL/T 1075-2016	General Technical Requirements for Digital Protection and Control Devices
GB/T 14598.26-2015	Measuring Relays and Protection Devices

Product Power Consumption

Overall Product Power Consumption	≤5W
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Electrical Insulation Performance Test

Insulation Resistance	IEC 60255-5(GB/T 14598.3)	The insulation resistance between each conductive loop to ground and between each conductive loop shall be no less than 100MΩ
Dielectric Strength		AC 2kV, 1min, leakage current 5mA
Impulse Voltage		1.2/50μs, ±5kV 3 times

Vibration and Collision

Vibrates	IEC 60068-2-6(GB/T 2423.10)	Environmental Testing - Part 2: Test Methods, Test Fc: Vibration (Sine)
Vibration response		The acceleration is 10 m/s ²
Vibration endurance		The acceleration is 20 m/s ²
Impingement	IEC 60068-2-27(GB/T 2423.5)	Environmental Testing - Part 2: Test Methods, Test Ea and Guidelines: Shock
Shock response		The acceleration is 98 m/s ²
Impact durability		The acceleration is 294 m/s ²
Colliding	IEC 60068-2-27(GB/T 2423.5)	Environmental testing Part 2: Test methods Test Ea and guidelines: Shock
Collision response		The acceleration is 196 m/s ²

Environmental data

Ambient temperature	Work/Storage	-25°C~70°C/-40°C~70°C
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Flame retardant

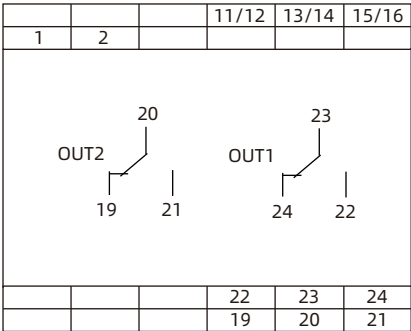
Flame retardant grade	IEC 60695-11-10(GB/T 5169.16-2017)	V-0
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Voltage Relay-WY-30 Series

Product Terminal Definition

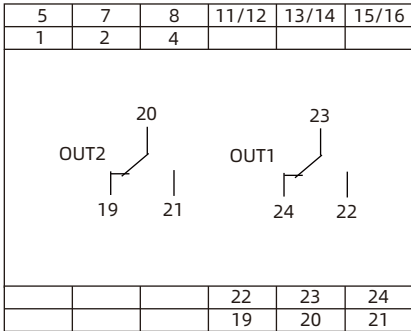
Terminal Definitions for WY-30 Series Products

WY-30 series 1 phase



1(Ua) and 2(Ua') are single-phase voltage inputs, where 1(Ua) is positive(+) and 2(Ua') is negative(-). OUT1 and OUT2 are relay outputs. 11/12(+KM) is the positive power supply, 15/16(-KM) is the negative power supply. 13/14 (GND) is the auxiliary power supply ground.

WY-30 series 3 phase

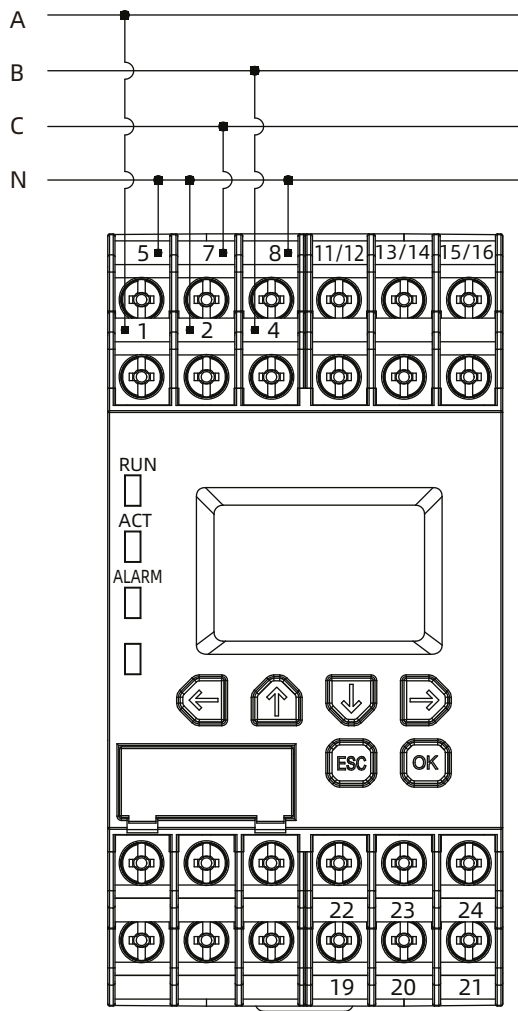


1(Ua) and 2(Ua') are single-phase voltage inputs, where 1(Ua) is positive(+) and 2(Ua') is negative(-). 4(Ub) and 5(Ub') are two-phase voltage inputs, where 4(Ub) is positive(+) and 5(Ub') is negative (-). 7(Uc) and 8(Uc') are three-phase voltage inputs, where 7(Uc) is positive(+) and 8(Uc') is negative(-). OUT1 and OUT2 are relay outputs. 11/12(+KM) is the positive power supply, 15/16(-KM) is the negative power supply. 13/14 (GND) is the auxiliary power supply ground.

Voltage Relay-WY-30 Series

Application Wiring Schematic Diagram

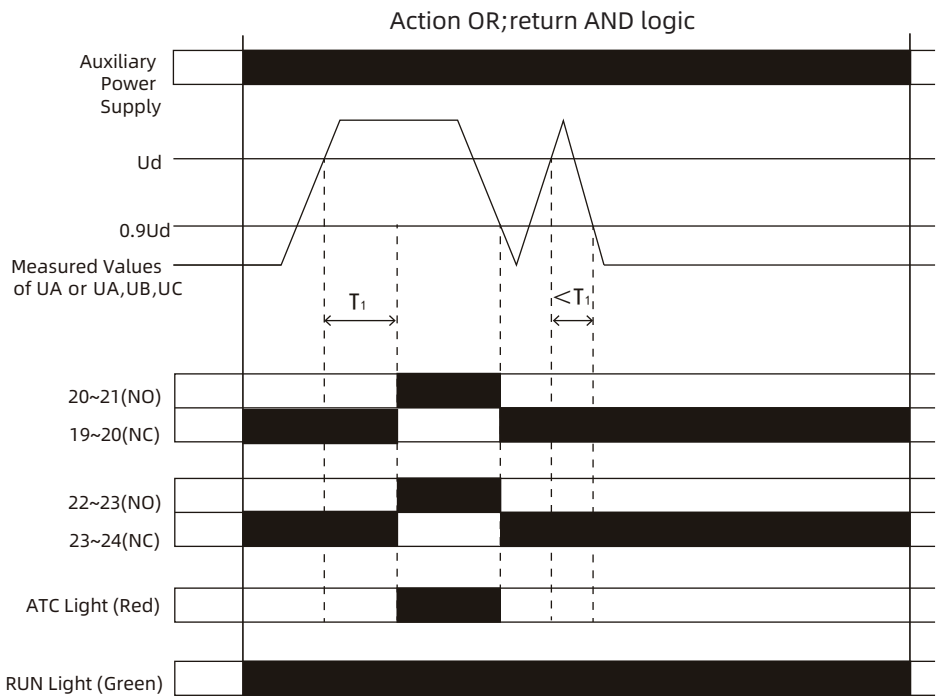
Wiring Diagram of the WY-30 Series Voltage Relay



Voltage Relay-WY-30 Series

Product Function Logic

Timing Diagram of the WY-31 Series Product,where T1 is the overaction delay time of the relay.

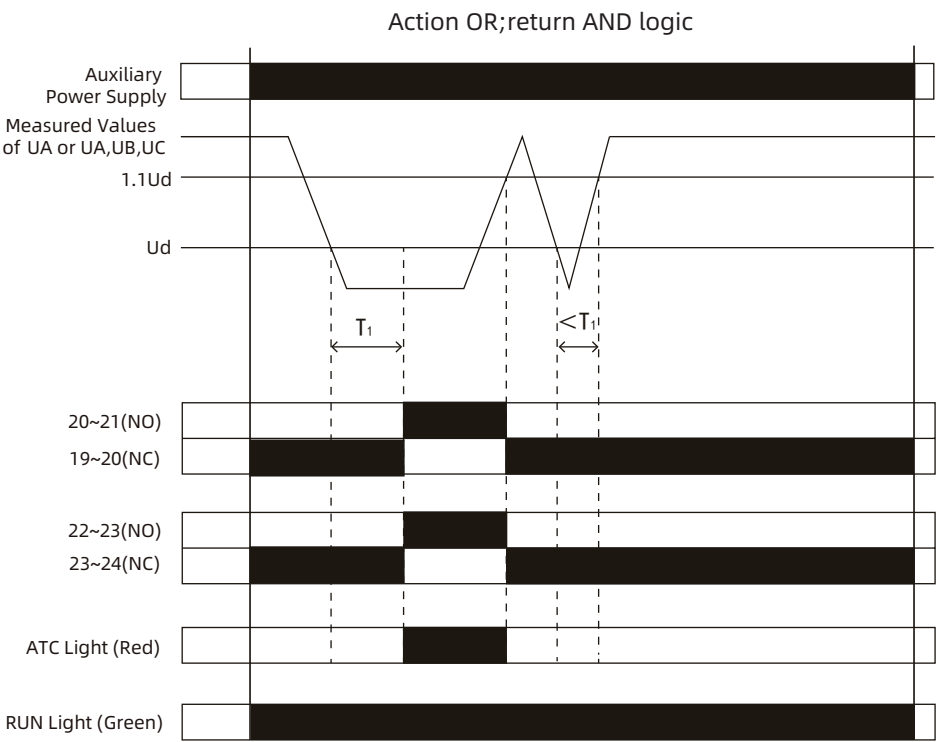


For WY-31xx overaction products:

(1) For products with single-phase input:When the measured voltage > the set overaction voltage U_d , the product starts the overaction delay timing. If the measured voltage remains > $0.9U_d$ after the set delay time T_1 , the relay operates, and the ACT light turns on. If the set delay time T_1 has not ended and the measured voltage < $0.9U_d$, the relay resets, and the ACT light turns off.

(2) For products with three-phase input:When the measured voltage of any phase > the set overaction voltage U_d , the product starts the action delay timing. If the measured voltage remains > $0.9U_d$ after the set delay time T_1 , the relay operates, and the ACT light turns on. If the set delay time T_1 has not ended and the measured voltage of all three phases < $0.9U_d$, the relay resets, and the ACT light turns off.

Timing Diagram of the WY-35 Series Product, where T1 is the underaction delay time of the relay.



For WY-35xx underaction products:

(1) For products with single-phase input: When the measured voltage < the set underaction voltage U_d , the product starts the underaction delay timing. If the measured voltage remains < $1.1U_d$ after the set delay time T_1 , the relay operates, and the ACT light turns on. If the set delay time T_1 has not ended and the measured voltage > $1.1U_d$, the relay resets, and the ACT light turns off.

(2) For products with three-phase input: When the measured voltage of any phase < the set underaction voltage U_d , the product starts the action delay timing. If the measured voltage remains < $1.1U_d$ after the set delay time T_1 , the relay operates, and the ACT light turns on. If the set delay time T_1 has not ended and the measured voltage of all three phases > $1.1U_d$, the relay resets, and the ACT light turns off.

Action AND;return OR logic:

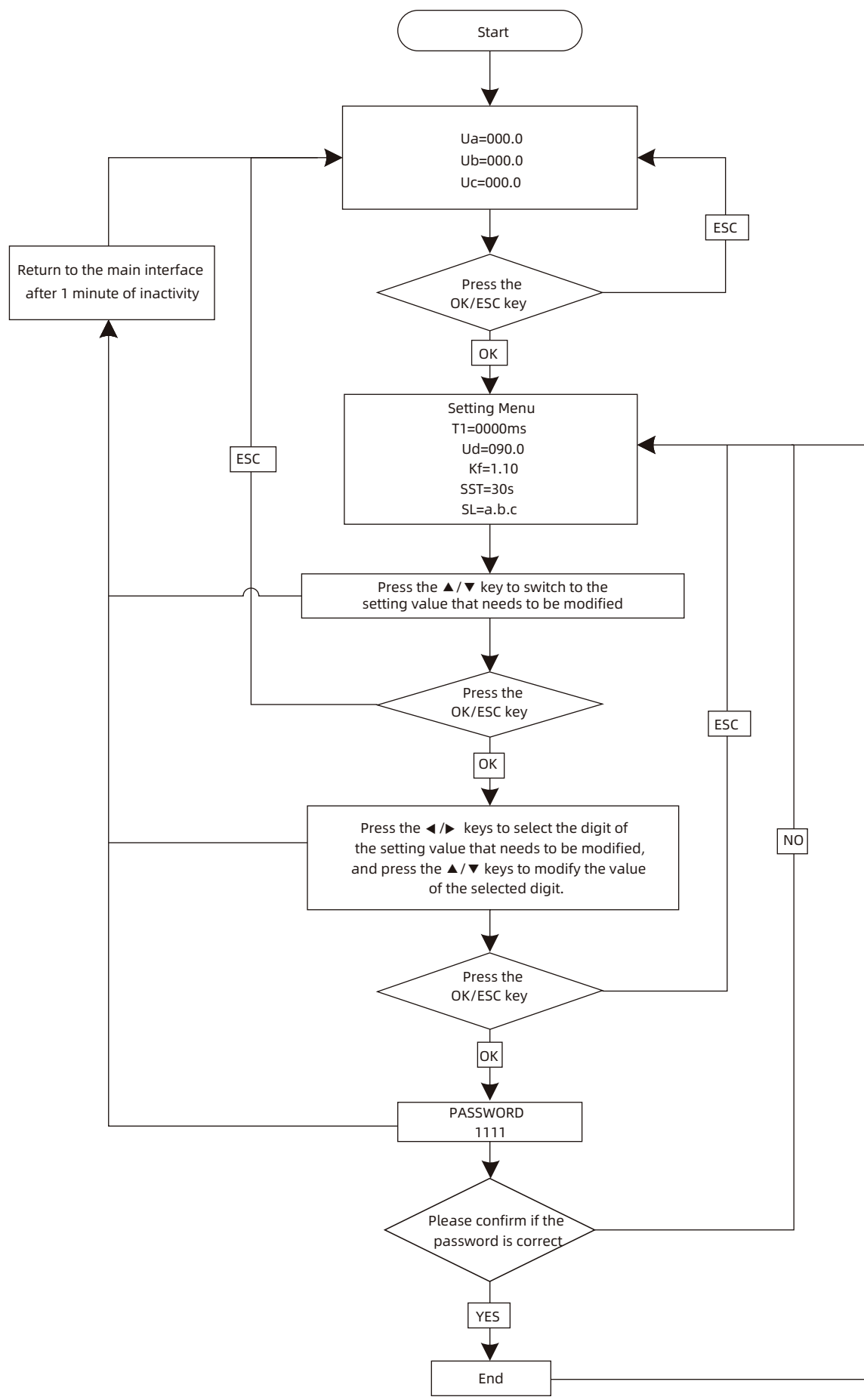
1、For the WY-31XX overvoltage actuation product, if all three-phase measurement values exceed the set voltage U_d , the unit initiates a time delay count. Upon timeout, the relay operates. The relay resets when any one-phase measurement value drops below $0.9U_d$.

2、For the WY-35XX undervoltage actuation product, if all three-phase measurement values are below the set voltage U_d , the unit initiates a time delay count. Upon timeout, the relay operates. The relay resets when any one-phase measurement value exceeds $1.1U_d$.

Voltage Relay-WY-30 Series

Display Module Interface Content and Interface Display

Logic Diagram



Voltage Relay-WY-30 Series

Product Operation Instructions

Setting Parameter Configuration

1. Under the normal operation interface, press the OK key to enter the user setting menu (Setting Menu).

In this interface, there are 4 adjustable setting values: T1, Ud, Kf, and SST. The meanings of each setting parameter are as follows:

(1) T1 = 0000ms or T1 = 0000s: Delay Time Setting Value

Set the delay time of the device. (Default value: 0000ms. Setting range: up to 9999s. The time unit (ms/s) can be selected using the up/down keys).

(2) Ud = 000.0V: Operating Voltage Setting Value

Set the overvoltage or undervoltage operating voltage value of the product. (Default value: 0.9Un, where Un is the rated excitation voltage of the device.

For example, if Un is 100V, the default setting value is 90V. The operating voltage setting range is (0.05~1)Un).

(3) Kf = 0.90: Voltage Return Coefficient

Set the voltage return coefficient. (Default value: Undervoltage return coefficient is 1.1, overvoltage return coefficient is 0.9).

(4) SST = 30s: LCD Screen Sleep Time

Set the LCD screen sleep time of the product. (Default value: 30s. Other options: 1Min, 2Min, 3Min. Maximum setting range: 3Min).

(5) SL = a.b.c: Measurement Voltage Type Selection

If the voltages connected to the terminals Ua, Ua', Ub, Ub', Uc, Uc' are phase voltages, select a.b.c for SL. If the voltages connected to the terminals Ua, Ua', Ub, Ub', Uc, Uc' are line voltages, select ab.bc.ca for SL. (Default value: a.b.c. Other options: ab.bc.ca, 1.2.3).

2. In the Setting Menu Interface:

When the cursor stops at T1, press the OK key to select and enter a specific digit of the T1 setting value.

In the T1 setting value, there are 4 digits, and each digit can cycle between 0-9.

Press the up key to increase the value of the current digit by 1.

Press the down key to decrease the value of the current digit by 1.

Press the right key or left key to move the modification digit to the right or left, respectively. (Each press of the right key moves the digit one place to the right).

After confirming the T1 setting value modification, press the OK key to enter the PASSWORD interface for saving the setting value.

In this interface, use the left/right keys to move the cursor to the position of the 4-digit password.

Use the up/down keys to set each digit of the password to 1.

After entering the password "1111," press the OK key again to save the T1 setting value to memory.

The display interface will return to the Setting Menu, with the cursor still on the T1 setting value.

If no other setting values need to be modified, press the OK key to return to the normal operation interface.

If other setting values need to be modified, use the up/down keys to move the cursor to the desired setting value, then press the OK key to select and modify it.

3. In the Setting Menu Interface:

Use the up/down keys to select the setting value to be modified.

When the cursor stops at the operating voltage setting value (Ud), press the OK key to select and enter a specific digit of the Ud setting value.

In the Ud setting value, there are 4 digits, and each digit can cycle between 0-9. The modification operation is the same as for T1.

Ud Setting Value Saving:

After confirming the Ud setting value modification, press the OK key to enter the PASSWORD interface for saving the setting value. The remaining operations are the same as for saving the T1 setting value.

4. In the Setting Menu Interface:

Use the up/down keys to select the setting value to be modified.

When the cursor stops at the Kf setting value, press the OK key to select and enter a specific digit of the Kf setting value.

In the Kf setting value, there are 3 digits, and each digit can cycle between 0-9. The modification operation is the same as for T1.

Kf Setting Value Saving:

The saving operation is the same as for T1.

5. In the Setting Menu Interface:

Use the up/down keys to select the setting value to be modified.

When the cursor stops at the SST setting value, press the OK key to select and enter the first digit of the SST setting value.

In the SST setting value, only one digit can be modified. Use the up/down keys to select the screen sleep time from 30s, 1Min, 2Min, or 3Min.

SST Setting Value Saving:

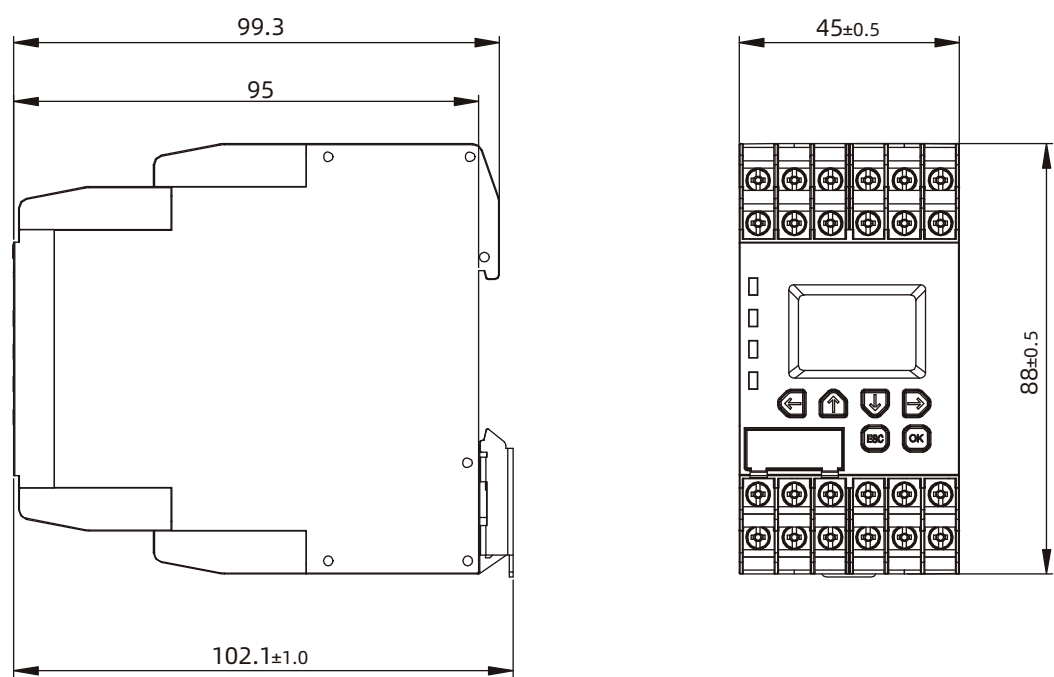
The saving operation is the same as for T1.

6. During the Setting Process:

If there is no operation for 1 minute, the system will automatically exit the setting interface and return to the normal operation interface without saving the data.

Voltage Relay-WY-30 Series

Product Installation Dimension Drawing (mm)



ONGSP-45