

## SAFETY PRECAUTIONS

1. The device must be installed by a qualified person,
2. Disconnect all power before working on the device. Don't touch any terminal when the power is ON.
3. Verify correct terminal connection when wiring.
4. Don't dismantle or repair the device whether it operates normally, otherwise no responsibility is assumed by producer and seller.
5. Never use the device at the site which can be invaded by corrode gas, strong sunshine light and rain.
6. Clean the device with a dry cloth.
7. Fail to follow these instructions will result in serious injury or death.

## FEATURES

- Microcontroller based.
- Digit display for operating voltage and current value.
- Protect electrical device against over/under voltage, overcurrent, three phase asymmetry, incorrect phase sequence and overheat.
- Asynchronous and synchronous modes available.
- Parameters setting by keys.
- 1-63A adjustable.
- Minimum trip time for over and under voltage faults: 0.02s
- Minimum trip time for short circuit fault: 0.04s
- Inquiry of last fault and interior operating temperature by keys.
- Phase sequence protection and auto-reset function can be off.
- Reset to factory setting is available.
- 5 Module, DIN Rail mounting.

## TECHNICAL DATA

Rated supply voltage	AC 230V
Operation voltage range	3P+N: 65V~450V
Rated frequency	50/60Hz
Overvoltage(U>) setting range	220~300V
Overvoltage trip delay setting	To: 0s~5s
Undervoltage(U<) setting range	80~210V
Undervoltage trip delay setting	Tu: 0.1s~5.0s
Overcurrent setting range	1A~63A
Phase sequence setting	ON/OFF
Asymmetry setting range	20V~99V-OFF
Power on delay setting	TPon:1s~300s
Reclose delay setting	Troy:1s~600s
Overcurrent trip delay setting	Ta: 0s~600s
Trip delay for short circuit fault	Tsd: 0s*~5.0s
Continuous overcurrent times setting	OFF-1~20
Auto reclose setting	ON-OFF
Hysteresis	Overvoltage and asymmetry: 5V Undervoltage:3V
Overvoltage(U>) trip delay	<305V: To; ≥305V: 0.02s
Undervoltage(U<) trip delay	≥80V:Tu , <80V:0.02s
Overcurrent(I>) trip delay	Ir**>2Iset(max.90A):Tsd;Ir** ≤1.25Iset: Ta; 1.25Iset<Ir** ≤ 2Iset: 5s(Ta ≤ 5s)
Asymmetry trip delay	10s
Overheat setting range	70-80 /OFF
Overheat trip delay	1s~300s
Overheat hysteresis	10
Max.permissible current	90A
Current rating	63A
Voltage measurement accuracy	≤1%(over the whole range)
Rated insulation voltage	450V
Electrical life	10 <sup>4</sup>
Mechanical life	10 <sup>6</sup>
Terminal wire capacity/Torque	1~16mm <sup>2</sup> /2.5 Nm
Protection degree	IP20
Pollution degree	3
Altitude	≤ 2000m
Operating temperature	-20°C~55°C
Ambient temperature	-30°C~70°C

\* 0s is real 0.04s

\*\* Operating current value

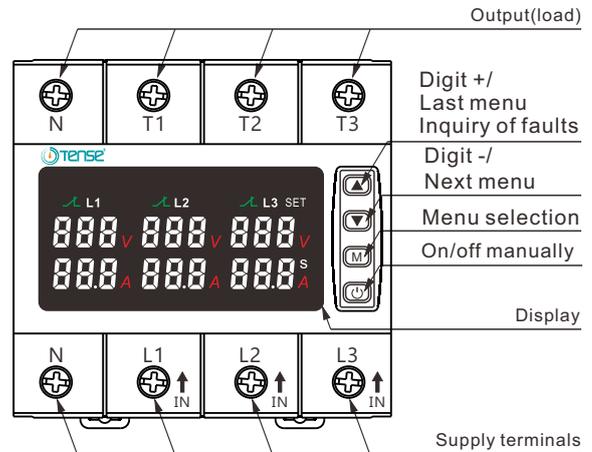
# GKE-63T



## Three-phase Over&Under Voltage Protection Relay

Please read complete instructions prior to installation and operation of the device.

### FRONT-FACE PANEL



Symbol	Function
	Output indication
L1/L2/L3	L1 phase/L2 phase/L3 phase
SET	Setting indication
V	Voltage
A	Current
S	Delay

### Operating Modes

**000** :Synchronous mode; In this mode the device works as a three phase voltage protector with N,L1,L2,L3 as single circuit

**0<sup>0</sup>0** :Asynchronous mode : In this mode the device works as three Individual single phase protectors which can be connected to three separate circuits. Also the device can identify & stop/trip/ reset each of the three circuits independently  
i.e "N - L1" & "N - L2" & "N - L3"

Technical parameter	Setting range	Step	Factory default
Overvoltage trip value	220V~300V	1V	250V
Overvoltage trip delay setting	0s~5.0s	0.1s	0.5s
Undervoltage trip value	80V~210V	1V	170V
Undervoltage trip delay setting	0.1s~5.0s	0.1s	0.5s
Overcurrent trip value	1A~63A	1A	63A
Overcurrent trip delay setting	0s~600s	1s	90s
Trip delay for short circuit fault	0s~5.0s	0.1s	0.2s
Power on delay setting	1s-300s	1s	5s
Reclose delay setting	1s~600s	1s	15s
Asymmetry trip value	20V~99V-OFF	1V	50V
Continuous overcurrent faults times	OFF-1~20	1	3
Overheat setting range	70-80 /OFF	1	70
Overheat trip delay setting	1s~300s	1s	10s
Operation mode	<b>000-0<sup>0</sup>0</b>		<b>000</b>
Phase sequence protection	ON-OFF		OFF
Auto reclose setting	ON-OFF		ON
Reset to factory default	ON/OFF		OFF

**000**:Synchronous mode; **0<sup>0</sup>0**:Asynchronous mode

# Main menu setting

● Long press can increase or decrease rapidly.

● The relay will automatically exit from the menu and not save the modified value if not pressing the keys for continuous 60s during setting.



**Asynchronous mode**

**IP- out** **000**

**L1- oU** **220→300**  
Press to activate the setting. Change the setting value by pressing keys and confirm with pressing again.

**L1- uU** **80→210**  
Press to set.

**L1- oL** **1→63**  
Press to set.

**L1- tA** **0→600**  
Press to set.

**L1- tP** **1→300**  
Press to set.

**L1- tR** **1→600**  
Press to set.

**L2- oU** **220→300**  
Press to set.

**L2- uU** **80→210**  
Press to set.

**L2- oL** **1→63**  
Press to set.

**L2- tA** **0→600**  
Press to set.

**L2- tP** **1→300**  
Press to set.

**L2- tR** **1→600**  
Press to set.

**L3- oU** **220→300**  
Press to set.

**L3- uU** **80→210**  
Press to set.

**L3- oL** **1→63**  
Press to set.

**L3- tA** **0→600**  
Press to set.

**L3- tP** **1→300**  
Press to set.

**L3- tR** **1→600**  
Press to set.

**IP- tO** **0→50**  
Press to set. 0: real 0.04s

**IP- tU** **0.1→5.0**  
Press to set. 0: real 0.04s

**IP- oC** **70→80→OFF**  
Press to set. OFF: the function is off.

**IP- tOC** **1→300**  
Press to set.

**IP- tSd** **0→50**  
Press to set.

**IP- tPr** **OFF→1→20**  
Press to set. OFF: the function is off.

**IP- rCY** **on**  
Press to set. OFF: the function is off; ON: the function is on.

**IP- rSt** **OFF**  
Press to set. OFF: the function is off; ON: the function is on.

**IP- End**

**Synchronous mode**

**3P- out** **000**

**3P- oU** **220→300**  
Press to set.

**3P- tO** **0→50**  
Press to set. 0: real 0.04s

**3P- uU** **80→210**  
Press to set.

**3P- tU** **0.1→5.0**  
Press to set.

**3P- oL** **1→63**  
Press to set.

**3P- tA** **0→600**  
Press to set.

**3P- tP** **1→300**  
Press to set.

**3P- tR** **1→600**  
Press to set.

**3P- ASY** **20→99→OFF**  
Press to set. OFF: the function is off.

**3P- PHS** **on→OFF**  
Press to set. OFF: the function is off; ON: the function is on.

**3P- oC** **70→80→OFF**  
Press to set. OFF: the function is off.

**3P- tOC** **1→300**  
Press to set.

**3P- tSd** **0→50**  
Press to set.

**3P- tPr** **OFF→1→20**  
Press to set. OFF: the function is off.

**3P- rCY** **on**  
Press to set. OFF: the function is off; ON: the function is on.

**3P- rSt** **OFF**  
Press to set. OFF: the function is off; ON: the function is on.

**3P- End**

● Start/reclose delay display(synchronous)



- Voltage operating values display on upper L1-L2-L3 and delay time flashes on the lower L3 during the counting of start/reclose delay; After the delay is over, the output relay closes.

● Start/reclose delay display(asynchronous)



- Voltage operating values display on upper L1-L2-L3 and delay time flashes on the lower L1-L2-L3 during the counting of start delay; After the delay is over, the output relay closes.

● U> faults display(synchronous)



- Voltage operating values display on upper L1-L2-L3 and synchronous overvoltage fault code display on the lower L2.

● U> faults display(asynchronous)



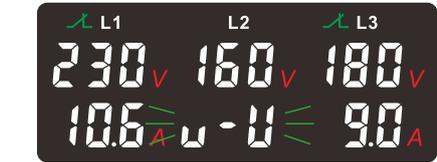
- Voltage operating values display on upper L1-L2-L3 and asynchronous over voltage fault code display on the lower L1-L2-L3

● U< faults display(synchronous)



- Voltage operating values display on upper L1-L2-L3 and synchronous undervoltage fault code display on the lower L2.

● U< faults display(asynchronous)



- Voltage operating values display on upper L1-L2-L3 and asynchronous under voltage fault code display on the lower L1-L2-L3

● I> faults display(synchronous)



- Voltage operating values display on upper L1-L2-L3 and synchronous overcurrent fault code display on the lower L2.

● I> faults display(asynchronous)



- Voltage operating values display on upper L1-L2-L3 and synchronous overcurrent faults code display on the lower L1-L2-L3

● Display of continuous I> faults(synchronous)

Display for continuous overcurrent faults after reset/start delay is over. overcurrent faults times is more than preset times.



- Disconnect the overload device
- Start the relay after reclose manually.

● Display of continuous I> faults(asynchronous)

Display for continuous overcurrent faults after reset/start delay is over. overcurrent faults times is more than preset times.



- Disconnect the overload device
- Start the relay after reclose manually.

● Display of phase sequence fault



- Display L1-L3-L2 when phase sequence fault occurs. User can change the position of L2 and L3 after disconnected supply.

● Display of asymmetry fault(only synchronous)



- Voltage operating values display on upper L1-L2-L3 and asymmetry fault code display on lower L2.

### ● Reclose manually (Auto reclose is off)



- Auto reclose function is off.
- The device will begin counting of start/reclose delay after reclose for faults.

### ● Inquiry of faults



- Display the last fault value and flash.
- Exit from display after 3s.

### ● Switch on/off manually



- Press the key for more than 0.5s

### ● Inquiry of interior operating temperature



- Display of the interior operating temperature and flash.
- The device will return to operation state after displayed the temperature for 3s.

### ● Display for overheat fault

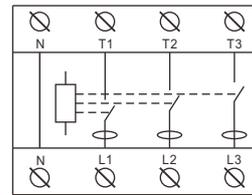


- This function is available for both asynchronous and synchronous modes

### OPERATING INSTRUCTIONS

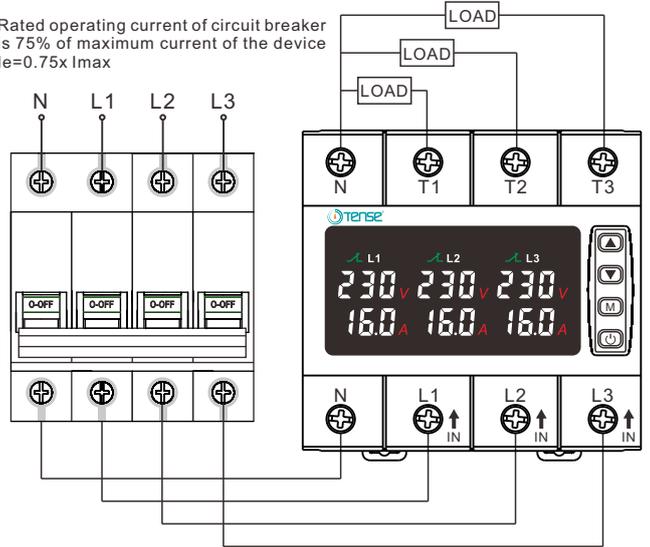
- If a voltage fault was detected when the power on delay is counting, the fault indication symbol lights up and counting stops. The device will re-start counting of the delay after returned to normal state.
- The operating voltage and current values will be displayed on screen when the relay is operating normally. If a voltage, current or temperature fault was detected, the output relay opens and fault indication symbol lights up.
- Voltage fault(auto-reclose is ON): if input voltage was detected to have returned to **Hys** after tripped for voltage faults, the device will reclose automatically and begin the counting of reclose delay.
- Current fault(auto-reclose is ON): After the device tripped for current faults, it will reclose automatically and begin the counting of reclose delay.
- Overheat fault(auto-reclose is ON): if temperature was detected to have returned to **Hys** after tripped for overheat fault, the device will reclose automatically and begin the counting of reclose delay.
- When the device is used for motor protection (like air conditioner), user can adjust the short circuit trip delay **Tsd** to avoid the instant tripping which caused by that the start current of motor is higher than  $2 \cdot I_{set}$ .

### SYMBOL



### WIRING DIAGRAM

Rated operating current of circuit breaker is 75% of maximum current of the device  
 $I_e = 0.75 \times I_{max}$



### DIMENSIONS

