

KPM83L Line Protection & Monitoring Device User Manual



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2. Technical Parameters

2.1 Rated parameters

Rated DC voltage: 220V / 100V

Rated AC data: Phase voltage 100/3V

Zero-sequence voltage 100V

AC current 5A / 1A

Zero-sequence current 1A

Rated frequency 50Hz

Thermal stability: AC voltage loop Long term running 1.2Un

AC current loop Long term running 1.2In

1s 40In

Zero-sequence current loop Long term running 1A

1s 40A

2.2 Power consumption

AC voltage loop: < 1VA/phase(rated)

AC current loop: < 1VA/phase (5A); < 0.5VA/phase (1A)

Zero-sequence current loop: < 0.5VA

Protection power loop: < 12W (normal condition); < 15W(Under the protectionaction)

2.3 Environmental conditions

Working Environment:

Operating temperature: -25°C~+55°C. The wettest month's monthly average maximum relative humidity is 90%, while the monthly average minimum temperature of the month is 25 °C and no condensation in the surface, While the maximum temperature is +40 °C, the average maximum humidity does not exceed 50%

Storage Environment:

Storage temperature: -30°C ~ +75°C; Relative humidity: < 80%

Stored rain and snow proof indoors. Ambient air does not contain acidic, alkaline or erosive and explosive gas; no excitation is applied under the limit value, there is no irreversible change in the device. After the temperature is restored, the device should work normally.

Atmospheric pressure: (80kPa-110kPa <relative altitude <2km)

2. 4 EMC performance

Pulse group immunity: IEC61000-4-5, level 4

Can stand with of 1MHz and 100kHz damped oscillation wave pulse group leveling test according to G B/T14598. 13-1998 (the first half-wave voltage amplitude is 2. 5kV, the differential mode is 1kV)

Fast transient immunity: GB/T14598. 10-1997, level 3

Radiated electromagnetic field immunity: GB/T14598.9-1995, level 3

Electrostatic discharge: GB/T14598.14-1998-4.1, level 3

2.5 Electrical insulation performance

Insulation resistance: Using open circuit voltage 500V measurement instrument to test between each charged conductive circuit and ground (outer casing or exposed non-charged metal parts), between AC and DC circuit, between AC current circuit and AC voltage circuit, the instrument tests its insulation resistance value should not be less than 100MΩ.

Medium strength: The device communication loop and the 24V weak electric input and output terminal grounded can withstand the AC voltage of 50Hz and 500V (effective value). The test lasts for 1min without breakdown or flashover phenomenon; some of the charged conductive circuits are grounded separately (between the outer casing and the exposed non-charged metal parts), between the AC and the DC loop, between the AC current loop and the AC voltage loop, can withstand AC voltage of 50Hz, 2kV (effective value), and the test lasts for 1min without breakdown or flashover phenomenon.

Impulse voltage: the device communication loop and 24V weak electric input and output terminal grounded can withstand 1kV (peak) standard lightning wave impact test; its charged conductive terminals are respectively grounded, between AC and DC loop, between the AC voltage loop and AC current loop, it can withstand the 5kV (peak) standard lightning wave impact test.

2.6 Mechanical properties

Vibration response: IEC255-21-1:1998, level 1

Vibration durability: IEC255-21-1:1998, level 1

Impact response: IEC 255-21-2, level 1

Impact durability: IEC 255-21-2, level 1

Collision: IEC 255-21-2, level 1

2.7 Measurement accuracy

Analog value measurement error $\leq \pm 0.2\%$

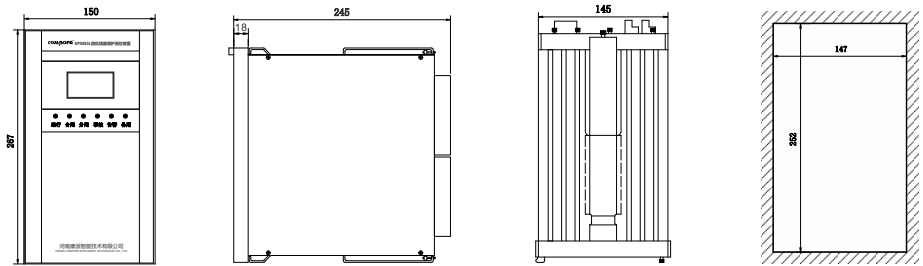
Power measurement error $\leq 0.5\%$

Digital input voltage 220V resolution is no more than 2ms

Pulse input voltage 24V pulse width is not less than 10ms

3. Device structure and operation description

3.1 Shape and opening size



3.2 Button indication

The human-computer interaction interface provides management functions and external communication functions for the device. The KPM83 series microcomputer integrated protection and control device adopts a 128*64 LCD screen with backlight to provide a friendly man-machine operation interface.

Device appearance as below:



- ▲-- Cursor turn up or menu turn up increase
- ▼-- Cursor turn down or menu turn down
- ◀-- Cursor move left
- ▶-- Cursor move right
- +-- Letters & numbers
- -- Letters & numbers

Confirmation – Present interface confirmation

Exit – Exit current interface

Reset – reset signal of accident and alarm

Backup – Used for internal debugging

Note: There are 6 LED indicators on the panel, which are

Operation--Work status indicator, the device will flash continuously during normal operation, otherwise it will continue to light (green)

Switching-in – Lights up when the circuit breaker is in the closed position (red)

Switching-off—Lights up when the circuit breaker is in the sub-position (green)

Accident--Lights up when the monitored system has a fault signal (red)

Alarm -- Lights up when the monitored system has an alarm signal (red)

Alternate--reserved for other devices

| | |
|---------------|---|
| OV Pro | ▲ |
| LV Pro | |
| Low Fre LS | |
| Power Dir | ▼ |

| | |
|------------------|---|
| PT DisCon | ▲ |
| Other | |

'Other' includes as shown below, like setting PT CT ratio:

| | | |
|----------|-------|---|
| PT Ratio | 00100 | |
| CT Ratio | 00200 | ▼ |

| | | |
|----------------|---------|---|
| Zero Se CT Var | 00100 | ▲ |
| Audio Ret T | 0015.0S | ▼ |

| | |
|-----------|---|
| Start Rec | ▲ |
|-----------|---|

4. System management includes:

The system parameter is used to correct the measurement quantity; The address parameter is the local address of the device in communication; The password modification is used to confirm the operation authority of the device. It can be debugged by the technician with the operation authority, or press the enter key to save after the setting the parameters fixed value according to the setting table, the initial password is 000000. The communication parameters are used to set the communication baud rate; the time setting is used to modify the real-time clock of the device itself; the remote signal parameter is used to set each switch value function definition and the acquisition mode setting in the digital input circuit; the operation parameter is used to select the display mode of the device;

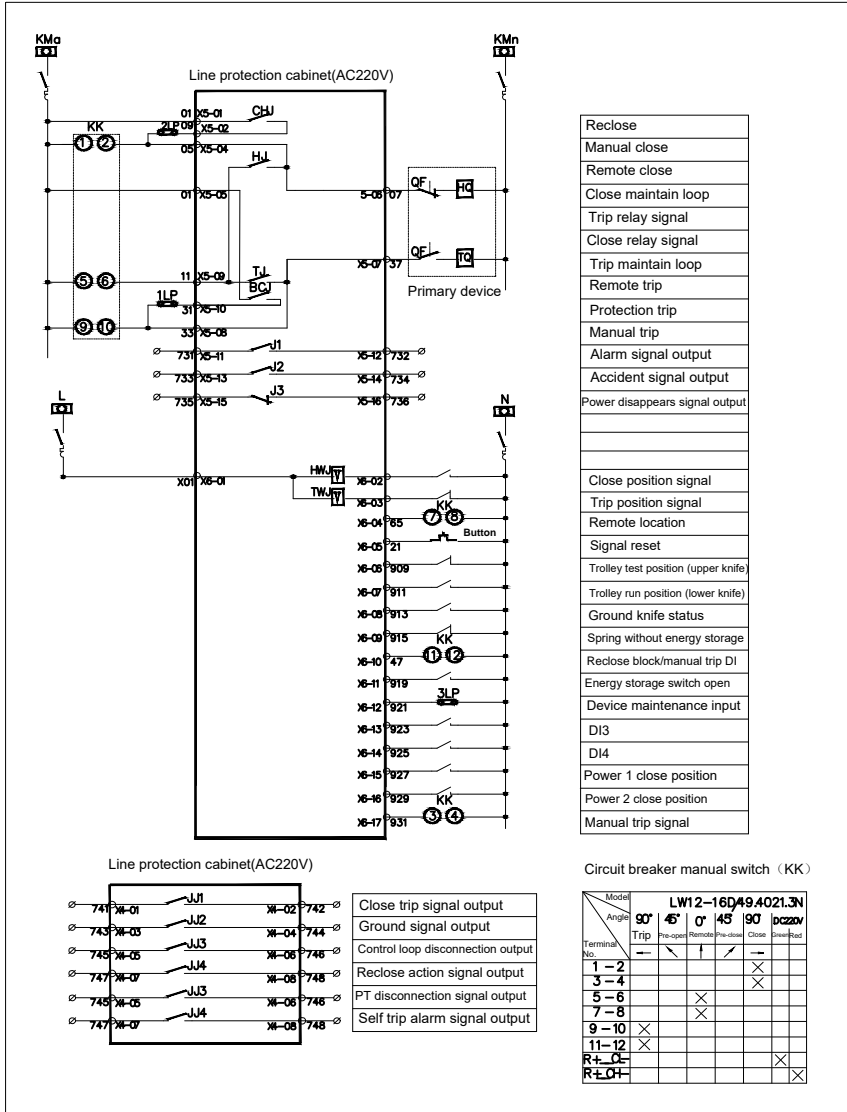
| | | |
|--------------|-------------|---|
| Coeff | PARA | |
| Address | PARA | |
| Link | PARA | |
| Modify | password | ▼ |

Set up time ▲
Telesignalling parameter
Operating parameter

5. The switch control mainly controls several devices connected to protection device by the control circuit:

Internal circuit breaker

Internal circuit breaker
Status: Open
Control: Close



| |
|-------------------------------------|
| Reclose |
| Manual close |
| Remote close |
| Close maintain loop |
| Trip relay signal |
| Close relay signal |
| Trip maintain loop |
| Remote trip |
| Protection trip |
| Manual trip |
| Alarm signal output |
| Accident signal output |
| Power disappears signal output |
| |
| |
| Close position signal |
| Trip position signal |
| Remote location |
| Signal reset |
| Trolley test position (upper knife) |
| Trolley run position (lower knife) |
| Ground knife status |
| Spring without energy storage |
| Reclose block/manual trip DI |
| Energy storage switch open |
| Device maintenance input |
| DI3 |
| DI4 |
| Power 1 close position |
| Power 2 close position |
| Manual trip signal |

Circuit breaker manual switch (KK)

| | | | | | | | |
|--------------|-------|--------------------|-----|----|-----|-----|------|
| Model | | LW12-16D49.4021.3N | | | | | |
| Angle | | 90° | 45° | 0° | 45° | 90° | 180° |
| Trip | | — | — | — | — | — | — |
| Terminal No. | 1-2 | | | | | | |
| | 3-4 | | | | | | |
| | 5-6 | | | | | | |
| | 7-8 | | | | | | |
| | 9-10 | X | | | | | |
| | 11-12 | X | | | | | |
| | R+ DC | | | | | | X |
| | R+ CH | | | | | | X |

Note:

1. Remote position means the control through the internal processing of the protection device. The processing is not through the protection device is in-place.
2. This circuit diagram is in AC operation. If it is DC operation, please specify when ordering.

Fig 9: KPM83L microcomputer line protection measure and control device control principle (AC without anti-trip)