Contents

Miniature circuit breaker          HSM8 - 63
                                    HSM8N - 32
Self reset overvoltage            HSM8 - 63GQ
and undervoltage protector
Residual current                   HSM8L
circuito breaker                   HSM8NL - 32
CB accessories                    OF
                                    SD
                                    MX + OF
Disconnector                      HSM8D - 100
Time vs current curves and others
Type and its designation

Accessory code: OF = Aux. contact, SD=Alarm contact, MX + OF= Shunt trip, U = Undervoltage protection

Pole number
Rated current
Tripping type
Frame level
L: Residual current operation
N: Phase line + Neutral line (width 18mm)
NL: Phase line + Neutral line + Residual current operation (width 36mm)
D: Disconnector
Design serial No.
Moulded case
Hangshen Group, manufacturer
HSM8 - 63

Function
Used for protection against overload and short circuit, also with overvoltage protection. It will automatically switch off power if there is neutral line breakdown, neutral line and phase line wrong connected, single phase voltage fault due to three phase load seriously not balanced so as to protect electric consumed devices from damage.

Technical parameter
- Frequency: 50Hz
- Rated voltage: AC 230V / 400V
- Rated current: 6, 10, 16, 20, 25, 32, 40, 50, 63 A at 30℃
- Breaking capacity: 6000A if In ≤ 40A
  4000A if In ≥ 50A
- Endurance: 10000 (ON/OFF operations)
- Time - current curves shown in Table 2
- Instantaneous tripping: 5In~10In for C Type
  10In ~ 20In for D Type
- Overvoltage: 280V ± 10V
- Tripping curves shown in Fig. 2

Working and installation conditions
- Ambient temperature: -5 ℃ ~ +40 ℃
- Altitude above sea level: ≤ 2000 meters
- Relative humidity in air: ≤ 90%
- Pollution grade: II
- Places where there is no severe vibration and shock

Structure:
- Overload and short circuit protection
- Overvoltage protection (optional, for 2nd stage only)
- Up and down composite wiring terminals (connected with cable or current collective bar), wiring capacity: ≤ 25mm²

Installation: Standard guide rail TH 35 - 7.5
Incoming mode: Up entry regularly. Down entry should be noted when ordering.

Applied standard
IEC 60898 - 1 (GB 10963.1)

Ordering info
Please kindly note the following:
- Name and type (note U after type for overvoltage protection)
- Rated current
- Instantaneous tripping set current (C or D)
- Quantity
- For special specifications, please kindly contact us for discussion
Application

The self reset overvoltage and undervoltage protector is a new kind of protective apparatus developed as per "JGJT16-2008 Electrical Design Specification of Civil Buildings" and "JGJ242-2011 Electrical Design Specification of Civil Buildings" suitably used in single phase lighting circuit for overvoltage and undervoltage protection. When a single phase overvoltage occurs due to neutral line broken down, phase and neutral lines wrongly wired and three phase loads severely imbalanced, it will switch off power automatically to avoid electricity consumed equipment from damage. When the power voltage resumes OK, it will connect back to power automatically after a time delay.

Feature

- If power voltage resumes normal after overvoltage and undervoltage protected turned off, it will automatically be connected back to power to restore power supply without any artificial interference.
- With microprocessor-based control, it is accurate in voltage detection, precise in acting time and reliable in protection.
- With a self sustained relay for internally executive component, it is lower in power consumption at normal working. Therefore, it consumes power excessively low, saves energy and keeps friendly to environment.

Technical parameter

- Frequency: 50Hz
- Rated voltage: AC 230V
- Rated current: 20, 32, 40, 50, 63, 80A
- Undervoltage protection: 154V ± 5V
- Overvoltage protection: 280V ± 5V
- Protection time delay: 0.5s
- Making time delay: 180s ± 5s

Working and installation conditions

- Ambient temperature: -5°C ~ +40°C
- Altitude above sea level: ≤ 2000 meters
- Relative humidity in air: ≤ 90%
- Pollution grade: III
- Places where there is no severe vibration nor shock

Structure

- Wiring terminals with clip hoops for a crossing sectional area of ≤ 25mm² conductor
- Installed on TH35 Standard guide rail.

Ordering info

When ordering, please kindly specify the following:

- Name
- Rated current
- Quantity
- For special specifications, please kindly contact us for discussion
**HSM8L**

**Function**
This RCCB offers reliable protection against overload, short circuit and residual current fault in circuit. The RCCB with 30mA residual action current may be used for protection of person against indirect contacting electrical shock and of equipment against insulation damage fault as well as supplementary protection against direct contacting electrical shock. The RCCB with overvoltage protection is used as a protector against single phase overvoltage faults such as neutral line breakdown, neutral line and phase line wrongly connected and 3-phase severely imbalanced, which can switch off power source automatically to avoid damage of electricity consumed apparatus when in overvoltage fault.

**Structure**
It is of modularly setup structure made of a residual current operation protector and an HSM8 MCB. If rated current \( \leq 32A \), breaking capacity is 6000A whereas rated current \( \geq 40A \), the breaking capacity is 4000A.

**Technical parameter**
- Instantaneous tripping: 5In ~ 10In for Type C
  10In ~ 20In for Type D
- Tripping curves shown in Fig. 2
- The breaking time \( \leq 0.1s \) if overvoltage comes to 280V \( \pm 10V \)
- Wiring terminals with clip hoops

<table>
<thead>
<tr>
<th>Rated current In (A)</th>
<th>For crossing section of conductor</th>
</tr>
</thead>
<tbody>
<tr>
<td>6,10,16,20,25,32</td>
<td>(&lt;10)</td>
</tr>
<tr>
<td>40, 50, 63</td>
<td>(&lt;25)</td>
</tr>
</tbody>
</table>

- Applied standard: IEC 61009-1 (GB16917.1)
- Overalls and installation dimensions shown in figure.
- Installed on standard guide rail TH35 - 7.5

**Ordering info**
When ordering, please kindly specify the following:
- Name, type and connecting mode
- Rated current
- Instantaneous tripping type
- Quantity
- For special specifications, please kindly contact us for discussion

Note: For regular supply, the product does not have overvoltage protection. If customers need this function, notification should be made. Single pole double wire and double pole double wire will be offered in this way.
HSM8N - 32

Function
Suitable for protection of circuit and motor against overload and short circuit.

Technical parameter
- Frequency: 50Hz
- Rated voltage: AC 230V
- Rated current: 6, 10, 16, 20A at 30°C
- Breaking capacity: 4500A
- Endurance: 10000 (ON/OFF operations)
- Time-current curves shown in Table 1
- Instantaneous tripping: 5In ~ 10In for Type C
  10In ~ 20In for Type D
- Tripping curves shown in Fig. 1
- Humid and heat proof: Class II at 55°C and relative humidity 95%
- Wiring terminals with clip hoops for a crossing sectional area of ≤ 10mm² conductor
- Overalls and installation dimensions in figure
- Installed on TH35-7.5 Standard guide rail
- Applied standard IEC 60898-1 (GB 10963.1)

HSM8NL - 32

Function
This RCCB offers reliable protection against overload, short circuit and residual current fault in circuit. The RCCB with 30mA residual operation current may be used for protection of a person against indirect contacting electrical shock and of equipment against insulation damage fault as well as supplementary protection against direct contacting electrical shock for persons. The RCCB with overvoltage protection is used as a protector against single phase overvoltage faults such as neutral line broken down, neutral line and phase line wrongly connected and 3-phase severely imbalanced, which can switch off power source automatically to avoid damage of electricity consumed apparatus when in overvoltage fault.

Technical parameter
- Frequency: 50Hz
- Rated voltage: AC 230V
- Rated current: 6, 10, 16, 20A at 30°C
- Breaking capacity: 4500A
- Overvoltage: 280 ± 10V
- Endurance: 10000 (ON/OFF)
- Time-current curves shown in Table 2
- Tripping curves shown in Fig. 2
- Wiring terminals with clip hoops for a crossing sectional area of ≤ 10mm² conductor
- Overalls and installation dimensions in figure
- Installed on TH35-7.5 Standard guide rail
- Applied standard IEC 61009-1 (GB 16917.1)

Ordering info
When ordering, please kindly specify the following:
- Name and type
- Instantaneous tripping type
- Instantaneous tripping type
- Quantity

Note: For regular supply, the product does not have overvoltage protection. If customers need this function, notification should be made when ordering.
CB Accessories

OF Auxiliary contact

Application
● Mounted on left side of HSMB MCB
● Indication of ON/OFF status of MCB

Technical parameter
Rated working current
AC 230V 6A  AC 400V 3A
DC 24V 6A  DC 48V 2A
DC 110V 1A  DC 220V 0.4A

Width: 9mm

SD Alarming contact

Application
● Mounted on left side of HSMB MCB
● Indication of tripping status of MCB due to fault

Technical parameter
Rated working current
AC 230V 6A  AC 400V 3A
DC 24V 6A  DC 48V 2A
DC 110V 1A  DC 220V 0.4A

Width: 9mm

MX + OF Shunt trip

Application
● Mounted on right side of HSMB MCB
● For remote control of MCB tripping
● Indication of ON/OFF of MCB

Technical parameter
● Control voltage
  AC 230V / 400V
  DC 24V / 48V

Width: 18mm

Note:
1. As the transfer contacts of MX + OF Shunt trip are active, the application of such contacts as passive ones to connect to weak current modules is not allowed.
2. When the control circuit power of MX + OF Shunt trip is DC 24V, there are two schemes:
   Scheme 1: DC 24V Shunt trip is directly used with max. length of copper conductor 100m for 1.5mm² and 150m for 2.5mm², the minimum supply power at trip terminals being 50W.
   Scheme 2: DC 24V intermediate relay is used to control AC230V or AC400V Shunt trip. The contact capacity of the relay is not less than 1A. The control circuit is shown in left diagram.

The above accessories are supplied with HSM8 MCB in a coordinative way.
HSM8D - 100

Function
It is mainly used in terminal apparatus as a general switch suitably in distribution and control circuit to control a variety of motors, small power apparatus, lighting and others.

Feature
● Transparent window to show disconnected points clearly/
● Wrong closing operation preventing latch device.

Technical parameter
● Frequency: 50Hz
● Rated voltage: AC 230V / 400V
● Rated current: 32, 40, 50, 63, 80, 100A
● Rated On/Off capacity: 1.1Ie, 3Ie, cos φ =0.65
● Rated short time withstand current: 20Ie, duration 1s, cos φ =0.50
● Rated short circuit making capacity: 30Ie
● Application category: AC - 22A
● Wiring terminals with clip hoops for a crossing sectional area of ≤ 50mm² conductor
● Applied standard: IEC 60947-3 (GB14048.3)
● Overalls and installation dimensions in figure
● Installed on TH35-7.5 Standard guide rail

Ordering info
When ordering, please kindly specify the following:
● Name, type and pole number
● Rated current
● Quantity
● For special specifications, please kindly contact us for discussion

Unit: mm
IEC 60898 - 1 (GB 10963.1)

Time vs current acting characteristics

<table>
<thead>
<tr>
<th>Instantaneous tripping</th>
<th>Rated current In A</th>
<th>Initial status</th>
<th>Test current A</th>
<th>Limited time t for tripping or intact</th>
<th>Nominal ambient temperature</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>C, D ≤ 63</td>
<td>Cold</td>
<td>1.13 In</td>
<td>t ≤ 1h</td>
<td>Intact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C, D ≤ 63</td>
<td>Perform right after previous test</td>
<td>1.45 In</td>
<td>t &lt; 1h</td>
<td>Tripped</td>
<td>30°C ~ 35°C</td>
<td>Current rises smoothly to the specified within 5s</td>
</tr>
<tr>
<td>C, D ≤ 32 &gt; 32</td>
<td>Cold</td>
<td>2.55 In</td>
<td>1s &lt; t &lt; 60s</td>
<td>Tripped</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>S &lt; t &lt; 120s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C All values</td>
<td>Cold</td>
<td>5 In</td>
<td>t ≤ 0.1s</td>
<td>Intact</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D 10 In</td>
<td>10 In</td>
<td>t &lt; 0.1s</td>
<td>Tripped</td>
<td>Aux. switch closed for energizing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C All values</td>
<td>Cold</td>
<td>10 In</td>
<td>t &lt; 0.1s</td>
<td>Tripped</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D 20 In</td>
<td>20 In</td>
<td>t &lt; 0.1s</td>
<td>Tripped</td>
<td>Aux. switch closed for energizing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: For multiple-pole protected circuit breaker, it should be tripped at exerted following current within specified time from cold status of one pole: 1.1 × 1.45In for two protected poles 2-pole CB, and 1.2 × 1.45In for 2-pole and 3-pole CB.

Tripping characteristics curves

![Fig. 1](image-url)
Installing guide rail: TH35 - 7.5 in compliance with GB / T 19334

Nominal crossing sectional area of conductor for corresponding current

<table>
<thead>
<tr>
<th>Rated current In (A)</th>
<th>Nominal crossing sectional area (mm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1, 3, 6</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>1.5</td>
</tr>
<tr>
<td>16, 20</td>
<td>2.5</td>
</tr>
<tr>
<td>25</td>
<td>4</td>
</tr>
<tr>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>40, 50</td>
<td>10</td>
</tr>
<tr>
<td>63</td>
<td>16</td>
</tr>
</tbody>
</table>

Wiring for HSM8 / 3P

Note: 1. The nominal crossing sectional area of conductor corresponding to rated current is a reference crossing sectional area when the conductor is laid out nakedly at an ambient temperature of 30°C. If the conductor is laid out in other way, appropriate degrading coefficient should be considered;

2. If the circuit breaker is mounted in an enclosed case, proper degrading coefficient should be considered. If the enclosure is metal, the degrading coefficient may be selected 0.8 and total moulded case, 0.7.

Normal type writings for ordering:

Example: If you are to order 300 sets of 3-pole 4-wire HSM8L Residual Current Circuit Breakers with rated current 32A, Type C instantaneous tripping mode and residual acting current 30mA, you are supposed to write on the order sheet like this:

HSM8L - 32 / C32A / 3P + M,  300 nos in all