DOL Starter
3TW7291-1A

For dependable service, it is of utmost importance that instructions given below are followed for selection, inspection, installation, commissioning, operation, and maintenance.

Raja® DOL Starter (Self reset)

Selection of Starter

- Refer Table A for recommended selection of 3TW72 starters.
- Recommended Submersible pump rating 5.5kW/7.5HP Max.

Table A: kW/HP Rating, thermal overload relay range & fuse rating, Coil Voltage, Maximum full load current for different types of motors.

Danger
Hazardous voltage can cause death or serious injury. Disconnect power before working on equipment.

Warning
Automatic Motor Restart. Can cause death, serious injury or property damage. Do not use automatic reset mode when unexpected automatic restart of the motor can cause injury to persons or damage to equipment. Reliable functioning of the equipment is only ensured with certified components. Commissioning and maintenance by qualified personnel only.

NOTICE
This product has been designed for environment A. Use of this product in environment B may cause unwanted electromagnetic disturbances in which case the user may require to take adequate mitigation measures.

Fig. 1: DOL Starter

Fig. 2: Starter Inside View
Installation:
• Remove the Front cover.
• Fix the starter housing vertically on a rigid surface free from vibrations.
• Remove the rubber Grommets for incoming and outgoing cable Connections. (Fig. 2)
• Connect incoming and outgoing cables as follows: (Fig. 2)
  – Select correct size of cable from Table-A.
  – Remove approx. 10mm of insulation.
  – Pass the cable through proper cable gland to avoid ingress of material.
  – Connect the cables and tighten the screws firmly. (Terminal Screws: M4, Tightening Torque: 80-110 Ncm)
  – Set the overload relay scale (Fig. 2) using proper screw driver as per the procedure given below.
  – Set the relay to rated current mentioned on motor name plate.
  – Press green button of the contact block (Fig. 2) to start the motor and wait till it reaches to normal speed. Reduce the relay settings till it trips.
  – Set the relay at slightly higher value.
  – Allow a reset time approx 4min. and relay resets on its own.
  – Restart the motor. If the relay does not trip, consider the relay as properly set. If it trips, set it at little higher value and recheck.
  – Press the red knob (Fig. 2) on the overload relay to stop the motor
  – Fix the front cover. Torque for the Instrument Head Screws is 80 to 140 N-cm.
  – Switch ‘OFF’ the starter by pressing the red push button (marked ‘O’) (Fig. 1) on the starter cover.
• Reset Operation
  – If the overload relay trips, it resets automatically. (*Allow a reset time of approx. 4 min.)

Maintenance:
• Switch off the starter and disconnect the main supply by switching the main switch before doing any maintenance.
• Keep the interior dust free.
• Re-tighten the terminal screws from time to time.
• No maintenance is needed for overload relay. Please do not open the relay.
• Replace the contactors / contacts of the contactors if they were severely pitted or when only 40% of the original contact tips remains.
• Replacement of overload Relay
  I. Disconnect the motor wires connected to the relay terminals.
  II. Loosen the outgoing terminals screws of the contactor (Fig. 3)
  III. Disengage the relay terminals & hook from contactor
  IV. Take the overload relay of same range
  V. Connect & tighten the relay terminals (L1 L2 L3) to the contactor terminals (T1 T2 T3)
  VI. Ensure that the relay hook (Fig.3) is engaged in the slot of the contactor and slide the relay inwards till the cover is flush with contactor ribs.
  VII. Reconnect the disconnected motor wires to relay and check the correctness of the starter wiring by referring to the wiring diagram.

Operation:
• ON/OFF Operation
  – Rotate the Latch away from OFF push button
  – Switch ‘ON’ the starter by pressing the green push button (marked ‘I’) (Fig. 1) on the starter cover.
Replacement of coil

Fig. 3: Contactor – Relay Connection

Table A:

<table>
<thead>
<tr>
<th>Motor Rating At 415V 3ph 50Hz</th>
<th>Starter Type</th>
<th>Relay 3UW51</th>
<th>Back-up Fuse Rating</th>
<th>Max. Full Load Current (Amp)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP</td>
<td>kW</td>
<td>Range</td>
<td>Code ##</td>
<td>HRC type 3NA</td>
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<tr>
<td>0.33</td>
<td>0.25</td>
<td>0.63-1</td>
<td>OJ</td>
<td>2A</td>
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<tr>
<td>0.75</td>
<td>0.55</td>
<td>1-1.6</td>
<td>1A</td>
<td>6A</td>
</tr>
<tr>
<td>1</td>
<td>0.75</td>
<td>1.6-2.5</td>
<td>1C</td>
<td>6A</td>
</tr>
<tr>
<td>1.5</td>
<td>1.1</td>
<td>2-3.2</td>
<td>1D</td>
<td>10A</td>
</tr>
<tr>
<td>2</td>
<td>1.5</td>
<td>3.2-5</td>
<td>1F</td>
<td>16A</td>
</tr>
<tr>
<td>3</td>
<td>3.7</td>
<td>4.6-3</td>
<td>1G</td>
<td>16A</td>
</tr>
<tr>
<td>5</td>
<td>3.7</td>
<td>6.3-10</td>
<td>1J</td>
<td>16A</td>
</tr>
<tr>
<td>7.5</td>
<td>5.5</td>
<td>8-12.5</td>
<td>1K</td>
<td>25A</td>
</tr>
<tr>
<td>7.5</td>
<td>5.5</td>
<td>10-16</td>
<td>2A</td>
<td>25A</td>
</tr>
<tr>
<td>10</td>
<td>7.5</td>
<td>12.5-20</td>
<td>2B</td>
<td>32A</td>
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</table>

* Code for operating coil voltage, 50 Hz (B for 200-400V, W for 415V)

Spare list

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<tr>
<th>Sr. No.</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Contactor for 200-400V</td>
<td>3TS30-10-0AZ608K</td>
</tr>
<tr>
<td>2</td>
<td>Contactor for 200-400V</td>
<td>3TS32-10-0AZ608K</td>
</tr>
<tr>
<td>3</td>
<td>Contactor for 415V</td>
<td>3TS30-10-0AR008K</td>
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<tr>
<td>4</td>
<td>Contactor for 415V</td>
<td>3TS32-10-0AR008K</td>
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<td>5</td>
<td>Relay</td>
<td>3UW51 02-##</td>
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<td>6</td>
<td>Coil for 200-400V</td>
<td>3TY7 403-0AZ6</td>
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<tr>
<td>7</td>
<td>Coil for 415V</td>
<td>3TY7 403-0AR0</td>
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<tr>
<td>8</td>
<td>1NO Contact Block</td>
<td>3SB54200B</td>
</tr>
<tr>
<td>9</td>
<td>'ON' &amp; 'OFF' Push Button</td>
<td>#</td>
</tr>
</tbody>
</table>

Raja+ Direct-on-line Starter
(For Single Phase connection)

Wiring Diagram for Single-Phase Motors
Note: Connect 3L2 to 2T1 by cable of suitable size. (Max. 4mm²)
Dimensional Drawing
Raja Direct On-Line Starter

Dimensional Drawing
Raja Direct On-Line Starter

Siemens Ltd.

Order No. A5E41695269000A-AB

Product development is a continuous process. Consequently the data indicated in this Leaflet is subject to change without prior notice. For latest issue contact our sales offices.

Disposal

Siemens products are environment friendly, which predominantly consist of recyclable materials.
For disposals we recommend disassembling and separation into following materials:
METALS: Segregate into Ferrous types for recycling through authorized dealer.

PLASTICS: Segregate as per material type for recycling through authorized dealer. Because of the long lifetime of Siemens Products the disposal guidelines may be replaced by other national regulations when taking the product out of service. The local customer care service is available at any time to answer disposal-related questions.

Mounting dimensions 154 x 70 mm and hole dia 6.5 mm

Customer Care Toll free no. 1800 220 987
Email: ics.india@siemens.com

Siemens Ltd.