

## 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.  
Table A: kW/HP Rating, Contactor MLFB's, thermal overload relay range & fuse rating, Coil Voltage, Maximum full load current for different types of motors.
- Recommended Submersible pump rating 5.5kW/7.5HP Max.

### Installation, Operation & Maintenance Instructions

Please read and understand these instructions before installing, operating, or maintaining the equipment. Keep for future reference

	<p><b>Danger</b> Hazardous voltage can cause death or serious injury. Disconnect power before working on equipment.</p>
	<p><b>Warning</b> <b>Automatic Motor Restart.</b> <b>Can cause death, serious injury or property damage.</b> 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.</p>
<p><b>NOTICE</b> 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.</p>	

IS/IEC 60947-4-1

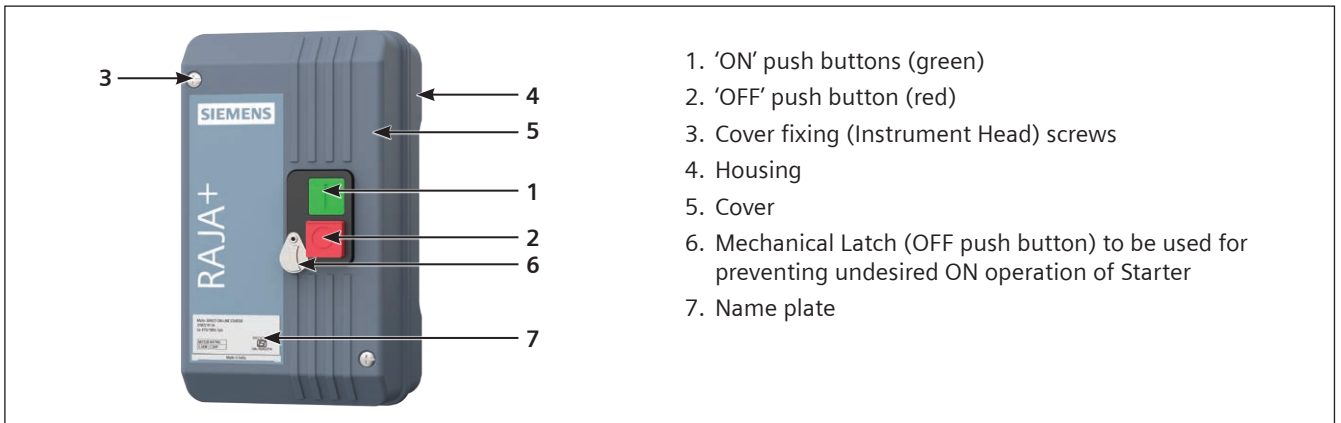


Fig. 1: DOL Starter

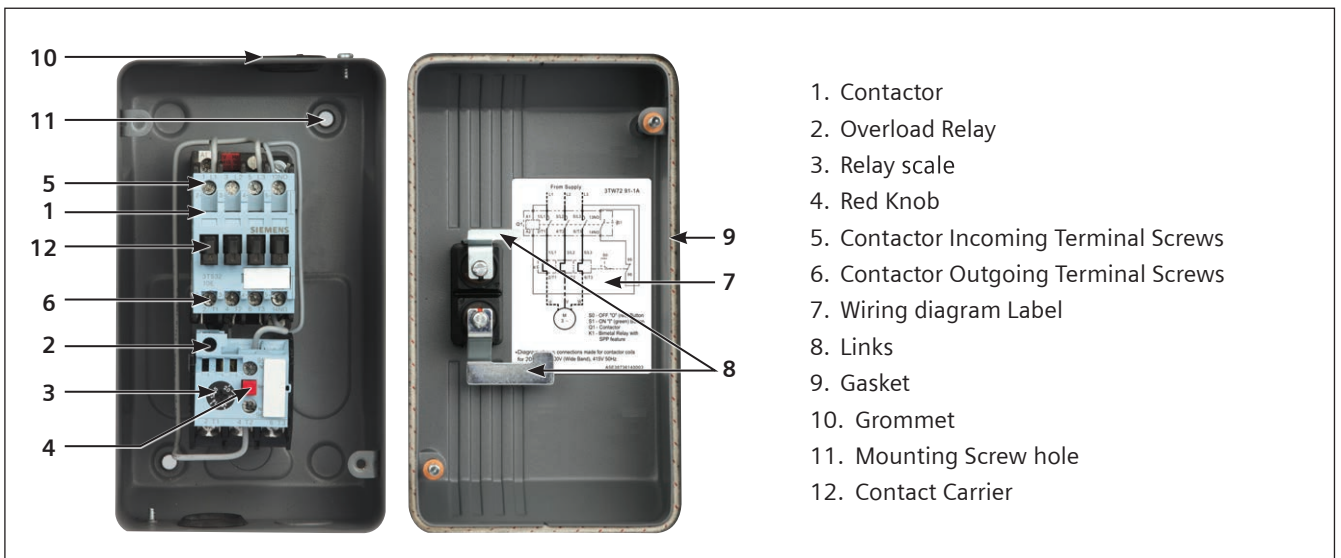


Fig. 2: Starter Inside View

**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 the contact carrier (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.

**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.

- 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 as necessary.
- 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.

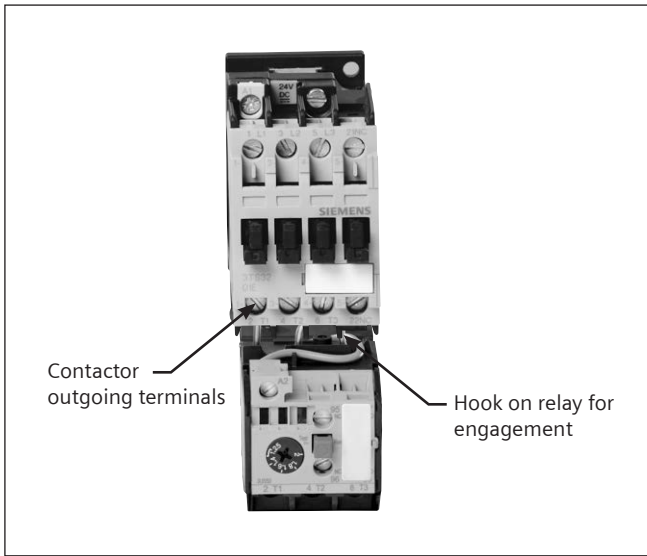
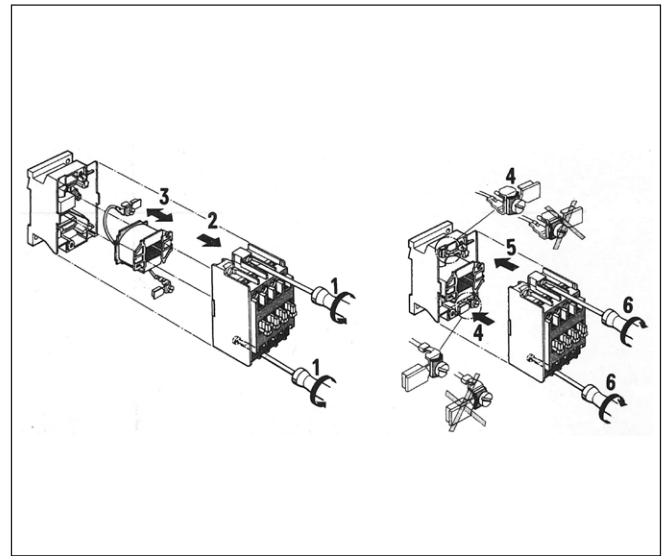


Fig. 3: Contactor – Relay Connection



Replacement of coil

Table A:

Motor Rating At 415V 3ph 50Hz		Starter Type	Contactor	Relay 3UW51		Back-up Fuse Rating		Cu Cable (mm <sup>2</sup> ) size	Max. Full Load Current (Amp)		
HP	kW			Range	Code ##	HRC type 3NA 7	Rewirable		3Ph, 415V, 4P Squirrel Cage IS 8789:1996 Table 4	3Ph, 415V, 2P Submersible motor IS 9283:1995 Table 2	1Ph, 240V, CSIR or Split-Phase IS 996-1979 Table 9
0.33	0.25	3TW72 91-1A* 64	3TS3010-0A##08KA0	0.63-1	0J	2A	36 SWG	1	-	-	3.8
0.75	0.55	3TW72 91-1A* 66	3TS3010-0A##08KA0	1-1.6	1A	6A	34 SWG	1	1.7	-	7
1	0.75	3TW72 91-1A* 68	3TS3010-0A##08KA0	1.6-2.5	1C	6A	27 SWG	1	2.2	-	7
1.5	1.1	3TW72 91-1A* 69	3TS3010-0A##08KA0	2-3.2	1D	10A	26 SWG	1	2.9	3.25	13
2	1.5	3TW72 91-1A* 71	3TS3010-0A##08KA0	3.2-5	1F	16A	25 SWG	1	3.8	4.5	18
3	2.2	3TW72 91-1A* 72	3TS3010-0A##08KA0	4-6.3	1G	16A	24 SWG	1.5	5.1	6.5	-
5	3.7	3TW72 91-1A* 74	3TS3010-0A##08KA0	6.3-10	1J	16A	21 SWG	1.5	8.1	10	-
7.5	5.5	3TW72 91-1A* 75	3TS3210-0A##08KA0	8-12.5	1K	25A	19 SWG	1.5	11.4	14.5	-
7.5	5.5	3TW72 91-1A* 77	3TS3210-0A##08KA0	10-16	2A	25A	18 SWG	2.5	-	-	-
10	7.5	3TW72 91-1A* 78	3TS3210-0A##08KA0	12.5-20	2B	32A	18 SWG	4	15.4	19.5	-

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

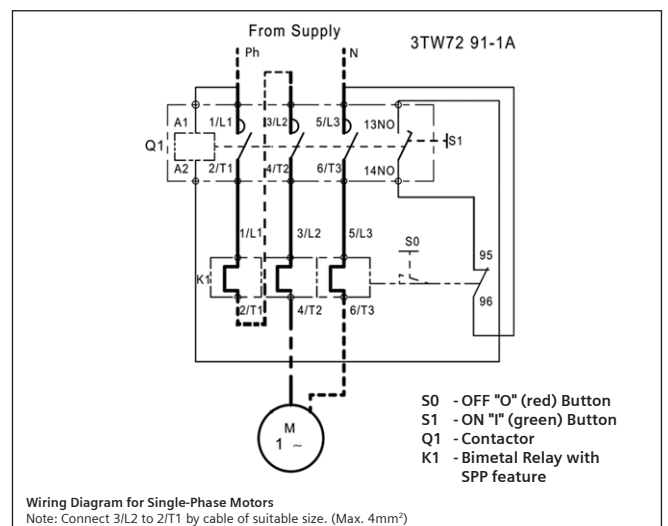
## Code for operating coil voltage, 50 Hz (Z6 for 200-400V, R0 for 415V)

Spare list

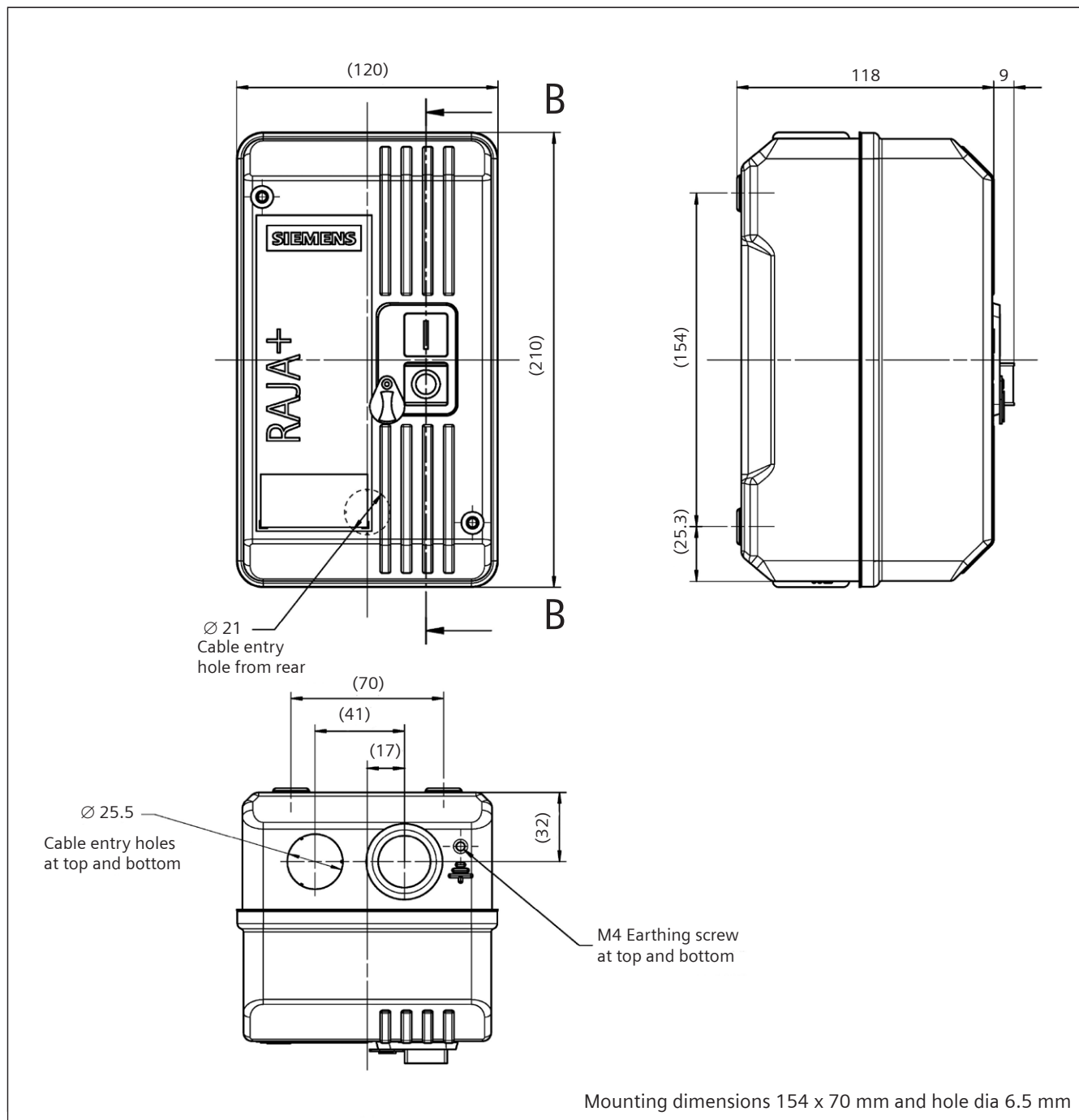
Sr. No.	Description	Order No.
1	Contactor for 200-400V	3TS30-10-0AZ608K-A0
2	Contactor for 200-400V	3TS32-10-0AZ608K-A0
3	Contactor for 415V	3TS30-10-0AR008K-A0
4	Contactor for 415V	3TS32-10-0AR008K-A0
5	Relay	3UW51 02-##
6	Coil for 200-400V	3TY7 403-0AZ6
7	Coil for 415V	3TY7 403-0ARO
8	'ON' &'OFF' Push Button	#

# – contact sales

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



**Dimensional Drawing**  
Raja Direct On-Line Starter



### 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.