



INSTALLATION & OPERATING INSTRUCTIONS

A1 Smart Starter User Manual
Digital Starter - Models 1A/2A/1B/2B

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CHAPTER 1: SAFETY & INTRODUCTION

1.1 Safety Instructions

- Read the user manual before operating the product.
- Installation and maintenance of the product must be carried out by trained and qualified person.
- Starter must be disconnected from mains power supply 5 minutes before opening the cover.
- Ensure that polarity, tightness and wire size are correct, before energizing the starter.
- Starter must be connected to earth using minimum 4.0 mm² wire and earth wire diameter should not be less than input power supply wires (refer regional safety standard specific to your location).
- Ensure the motor, starter and power specifications are matching.

1.2 Product Overview

Shakti's new world class A1 Smart Starter provides intelligent functions using electronics, more protection functions and wireless connectivity. Considering harsh environmental conditions, IP54 rated environmental protection is provided. A seven segment display has been used in the starter for convenient monitoring of the unit. Development of electronic circuitry provides opportunity to add voltage, current, power measurements along with communication which makes the starter smart. The inbuilt energy measurement, Bluetooth and GPRS connectivity make it a next generation starter.

The basic function of a Digital Starter is to start and stop the motor based on user requirement. It also protects motor from potential failure causes like overload, under voltage, over voltage, dry run, etc. The motors draw high current at startup, which is typically, 5 to 6 times of the full load current. DOL type starters monitors starting current whereas soft start version limits the starting current and gives soft start and stop.

There are four varieties of starter namely Model1A, Model1B, Model2A and Model2B. Model1A and Model1B operates on 230V three phase supply. Model2A and Model2B operates from 380 to 460V three phase supply. Both versions support 50Hz and 60Hz supply. Thus, these soft starters cover complete range of three phase motors from 1HP to 15HP.

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Specifications		3 PHASE				
		Model 1A / 2A				
Technical Data						
Output Power	0.5-1 hp	1.5-2 hp	3 hp	4.5-5.5 hp		
Rated Current (1A)	3	6	9	16 A		
Rated Current (2A)	2	4	6	11		
Nominal Input voltage	Model 1A -230V 50/60Hz, THREE PHASE Model 2A - 380V/415V/60V, 50-60 Hz THREE PHASE					
Protection Functions						
Dry Run	Programmable dry run setting. 30 min retry with Enable/Disable options					
Overload	Inverse thermal overload					
Transient Surge	4 kV 8/10 uS Surge Protection by MOVs					
Under Voltage	Model 1A -Trip 130 V, Recovery 140 V Model 2A -Trip 290 V, Recovery 300 V [380 VAC MOTOR] Trip 310 V, Recovery 320 V [415 VAC MOTOR] Trip 340 V, Recovery 350 V [460 VAC MOTOR]					
Over Voltage	Model 1A -Trip 280V, Recovery 270 V Model 2A -Trip 460V, Recovery 450 V [380 VAC MOTOR] Trip 425 V, Recovery 485 V [415 VAC MOTOR] Trip 470 V, Recovery 540 V [460 VAC MOTOR]					
Pump Stalled Trip	By Measuring Current					
Installation Data						
Working Temperature	-25°C to +55°C					
Working Humidity	20% to 90% RH, non-condensing					
Altitude	Up to 1000 m above sea level					
Degree of Protection	IP 54					
Type of Installation	Wall mount, Vertical					
Dimensions in mm (WxLxH)	430(L) X 245 (W) X 76(H)					
Weight	4 kg					
Special Functions						
3 Number of Dry-Contact Inputs	Programmable for Liquid level control, Pressure control					
Control Method	Manual/Auto/Remote					
Connectivity	GPRS and Bluetooth					
Energy measurement	Class 2					
Relay operation	DOL TYPE					
Delay between each restart	30 seconds					

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Specifications		3 PHASE				
		Model 1B / 2B				
Technical Data						
Output Power	7.5 hp	10 hp	12.5 hp	15 hp		
Rated Current (1B)	22.5 A	30 A	32 A	45 A		
Rated Current (2B)	15	20	25	30		
Nominal Input voltage	Model 1B -230V 50/60Hz, THREE PHASE Model 2B- 380V/415V/60V, 50-60 Hz THREE PHASE					
Protection Functions						
Dry Run	Programmable dry run setting. 30 min retry with Enable/Disable options					
Overload	Inverse thermal overload					
Transient Surge	4 kV 8/10 uS Surge Protection by MOVs					
Under Voltage	Model 1B -Trip 130 V, Recovery 140 V Model 2B-Trip 290 V, Recovery 300 V [380 VAC MOTOR] Trip 310 V, Recovery 320 V [415 VAC MOTOR] Trip 340 V, Recovery 350 V [460 VAC MOTOR]					
Over Voltage	Model 1B -Trip 280V, Recovery 270 V Model 2B-Trip 460V, Recovery 450 V [380 VAC MOTOR] Trip 425 V, Recovery 485 V [415 VAC MOTOR] Trip 470 V, Recovery 540 V [460 VAC MOTOR]					
Pump Stalled Trip	By Measuring Current					
Installation Data						
Working Temperature	-25°C to +55°C					
Working Humidity	20% to 90% RH, non-condensing					
Altitude	Up to 1000 m above sea level					
Degree of Protection	IP 54					
Type of Installation	Wall mount, Vertical					
Dimensions in mm (WxLxH)	465(L) X 295 (W) X 120(H)					
Weight	7kg					
Special Functions						
3 Number of Dry-Contact Inputs	Programmable for Liquid level control, Pressure control					
Control Method	Manual/Auto/Remote					
Connectivity	GPRS and Bluetooth					
Energy measurement	Class 2					
Relay operation	SOFT START TYPE					
Delay between each restart	30 seconds					

Table 1.1 Specification

* Power rating for indication only. Maximum motor current should be less than or equal to the rated current of starter

1.3 Package Contents

1.3.1 Inspection

Check the following items when unpacking the Digital Starter:

- Inspect the entire exterior of the Digital Starter to see if there are any scratches or other damage resulting from shipping.
- Ensure there is operation manual and warranty card in the packing box.
- Ensure the nameplate is correct as ordered.
- Ensure the optional parts are as per order, if ordered.

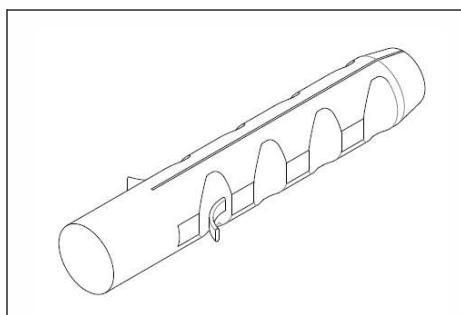
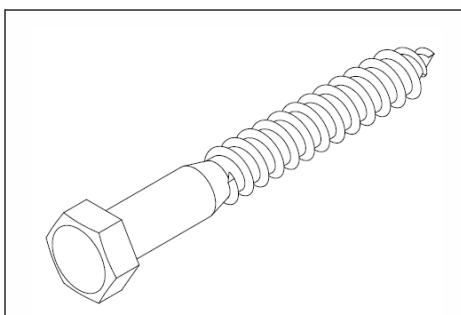
Caution: Never install or operate any Digital Starter which is damaged or has missing components. Doing so can result in injury.

Contact the customer care if there is any damage to the Digital Starter or the optional parts.

All models

4 number hex head screw

4 numbers anchor /
expansion tube



CHAPTER 2: CONNECTION & INSTALLATION

2.1 Installation

⚠ WARNING

- Violation of these messages will cause severe injury or property damage.
- Untrained person should not work on any parts/systems of A1 Smart Starter.
- Only licensed person, who has been trained on design, installation, commissioning and operation of A1 Smart Starter, is permitted to operate / install this equipment.
- Input power cable must be connected tightly.
- Earth the equipment securely.
- Wait for 5 minutes after the power is switched off to install/service the A1 Smart Starter.
- The gauge of the grounding cable must be not be less than that of power supply cable.
- Use recommended circuit breaker for A1 Smart Starter input.
- Do not connect switch gears or capacitors in the A1 Smart Starter output.

2.1.1 Wall mount dimensions

Use the dimension given in the image to wall mount the Digital Starter.

Model 1A/2A

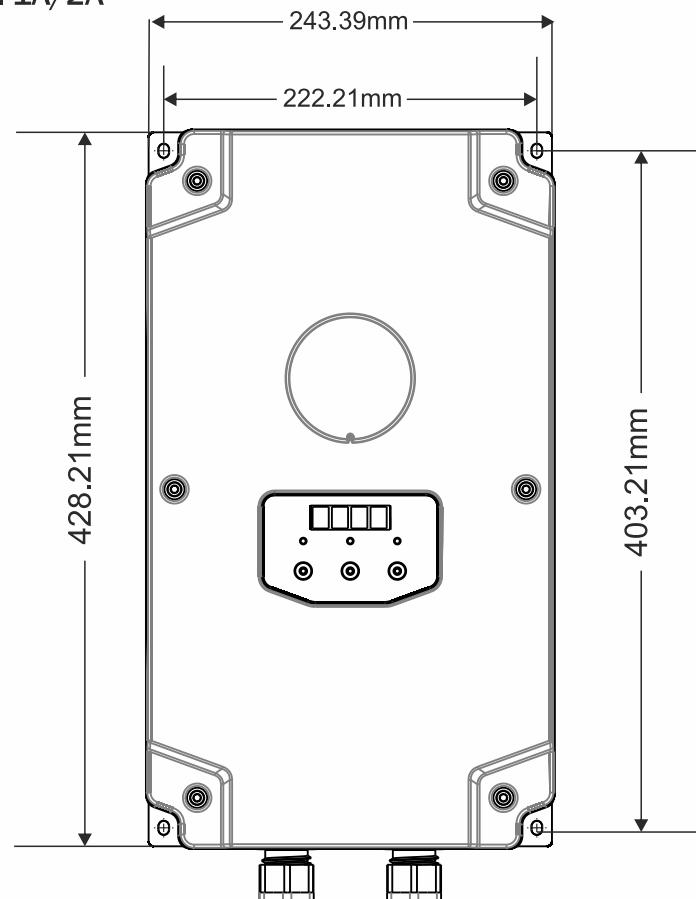


Fig 2.1: Mounting dimension for Model 1A/2A

Note: The dimensions are in mm and are not to scale.

Model 1B/2B

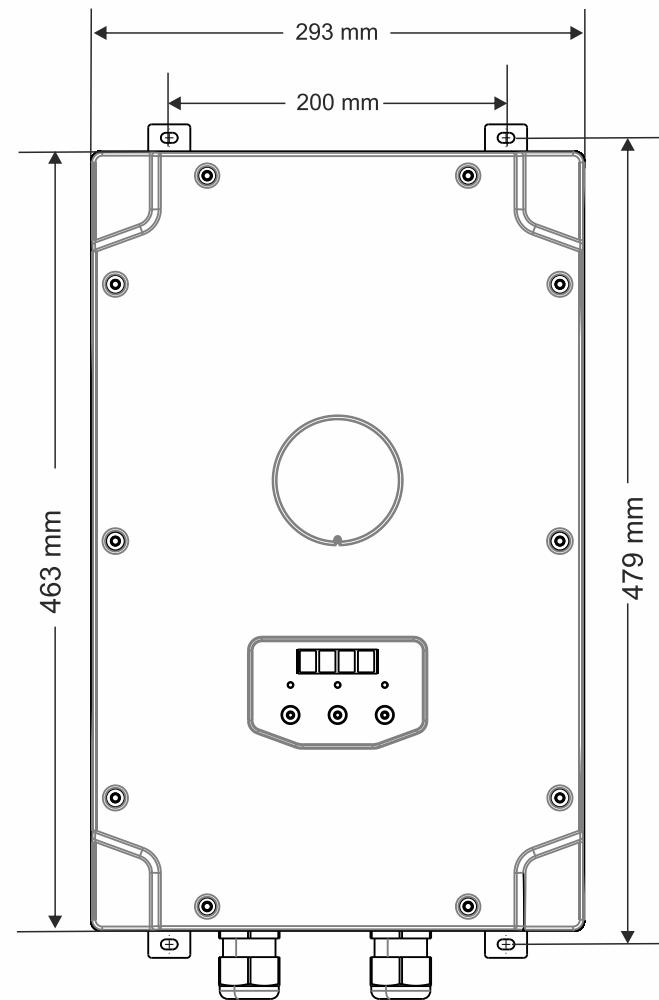


Fig 2.2: Mounting dimension for Model 1B/2B

Secure the wall mount brackets to the A1 smart Starter with 4 numbers of hex head screws for each model.

2.2 Connections

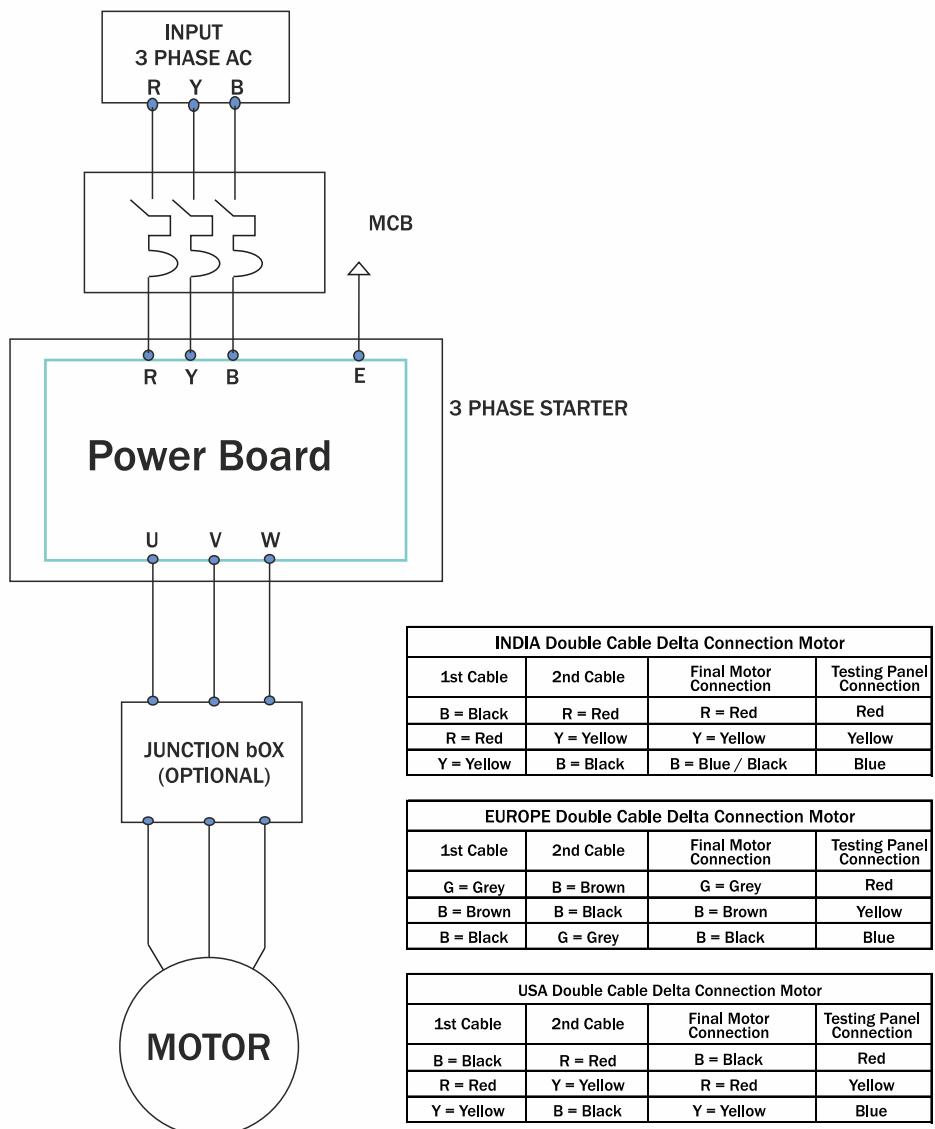


Fig 2.3 Connection Diagram

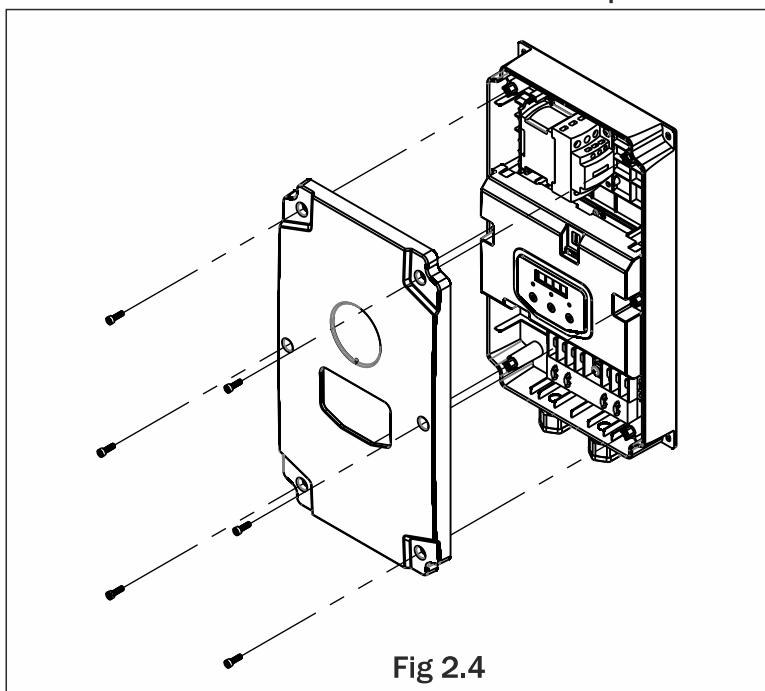
2.2.1 Steps for connection

1. Read and follow safety instructions.
2. Check the power supply compatibility.
3. Open front cover.
4. Do not disturb protective cover (warranty void).
5. Connect earthing wire to 'E' terminal of input terminal block.
6. Use minimum 4 mm² wire. The earthing wire size should not be less than power input wires. Connect earth wire directly to earth pit or main power earth bus-bar.
7. Connect motor windings in Delta.
8. Connect motor wires to U, V and W terminals.
9. Refer Motor 'Installation and Operating Instructions' for output wire size.
10. If intended wire size is higher than supported size of starter, use external junction box.
11. Connect input power supply to R, Y and B input terminal block.
12. Input wire size should be same as output wire.
13. To change motor direction, change the phase sequence of input or output.
14. Recommended MCB rating and reference part number (Schneider Electric make) for 3Phase models:
 - a. Model 1A: 3 pole, 32 A, Curve C MCB;
ref part number: A9N3P32C
 - b. Model 1B: 3 pole, 63 A, Curve C MCB;
ref part number: A9N3P63C
 - c. Model 2A: 3 pole, 16 A, Curve C MCB;
ref part number: A9N3P16C
 - d. Model 2B: 3 pole, 40 A, Curve C MCB;
ref part number: A9N3P40C

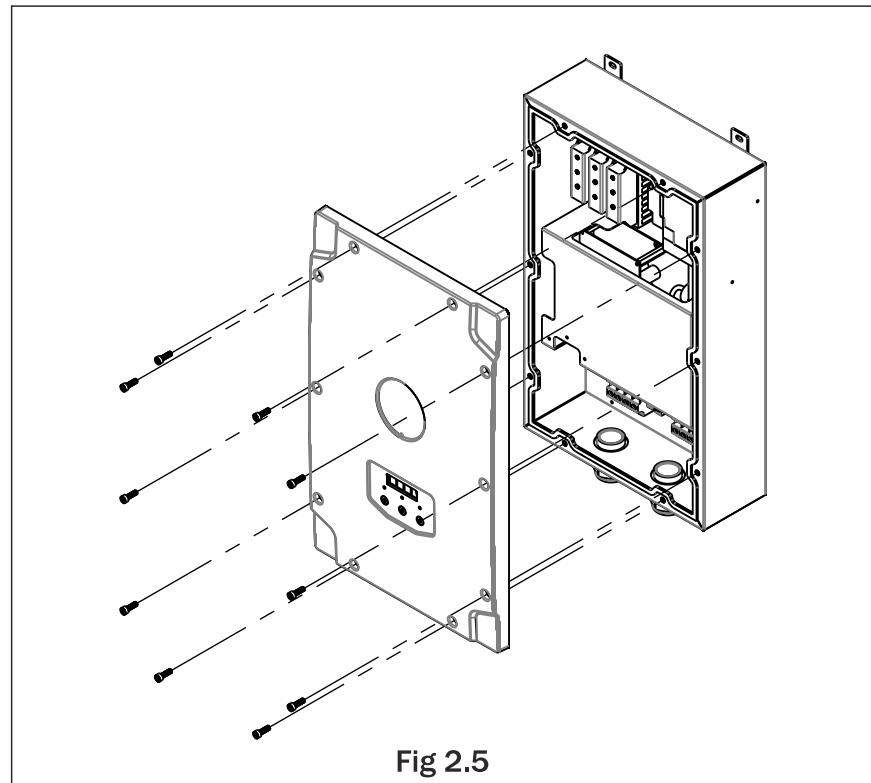
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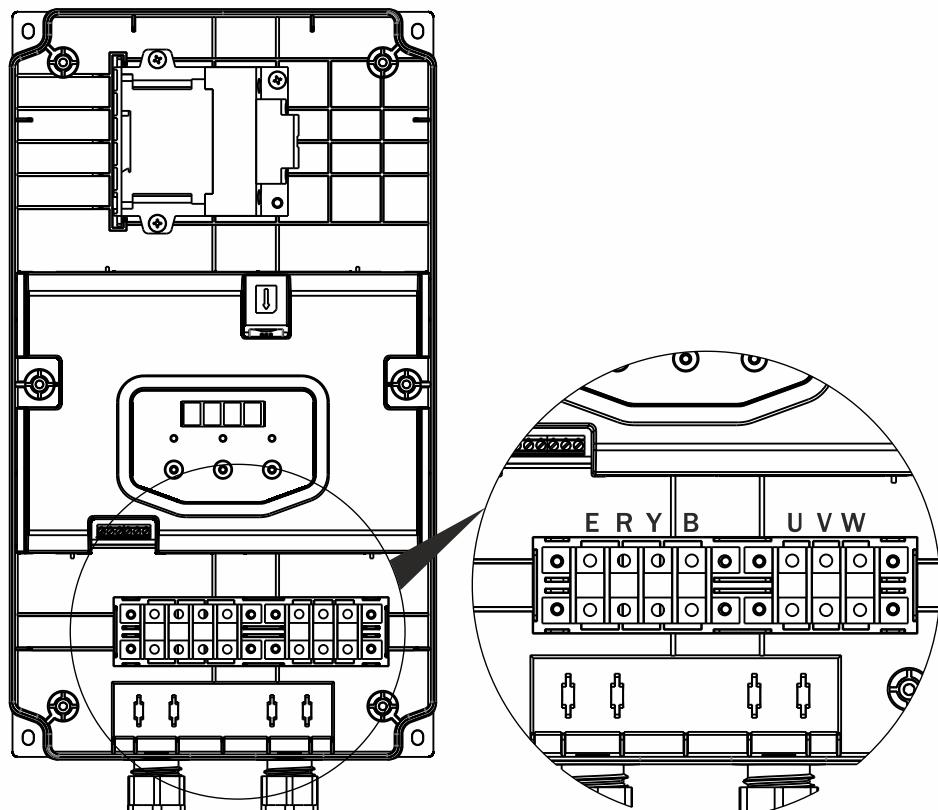
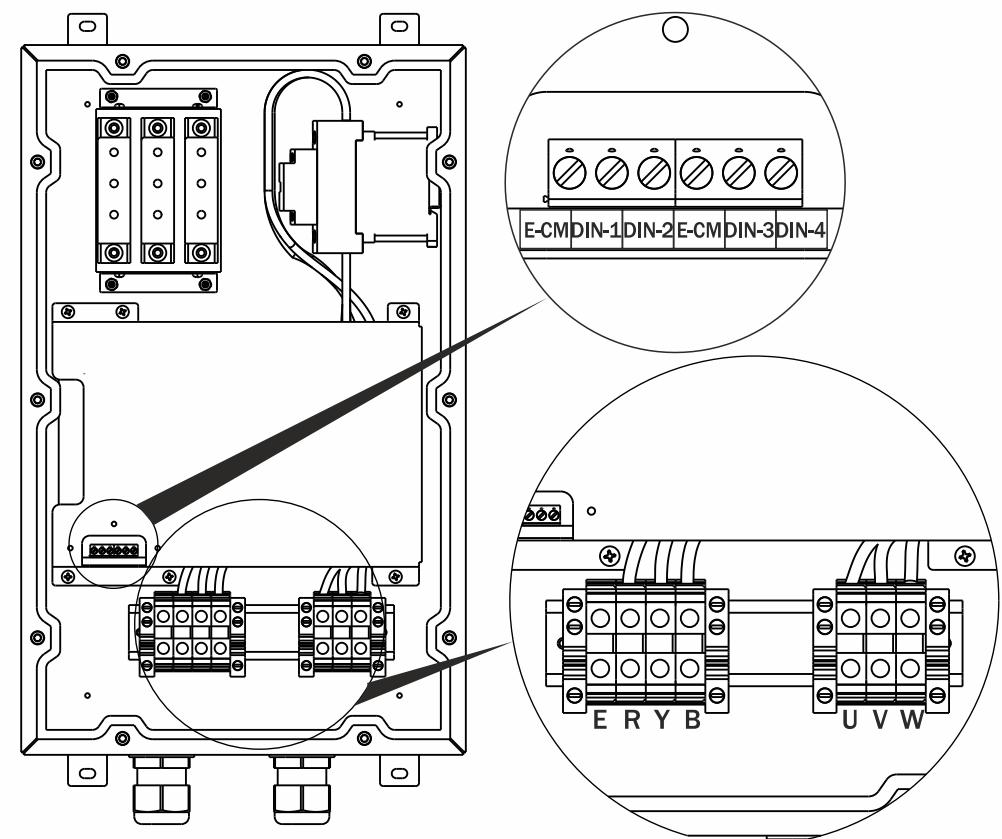
Power Input, Output and Capacitor connection Terminal Blocks	Model 1A	Model 1B	Model 2A	Model 2B
Tightening torque	3 Nm			
Screw thread	M4	M5	M4	M5
Stripping length	8 mm	12 mm	8 mm	12 mm
Conductor cross section stranded min.	1.5 mm ²	6 mm ²	1.5 mm ²	6 mm ²
Conductor cross section AWG/kcmil min.	24	10	24	10
Conductor cross section stranded max.	6 mm ²	16 mm ²	6 mm ²	16 mm ²
Conductor cross section AWG/kcmil max.	10	6	10	6

Table 2.1: Terminal Block Connection

Step 1: Remove top cover**Models 1: Loosen 6 screws and remove top cover**

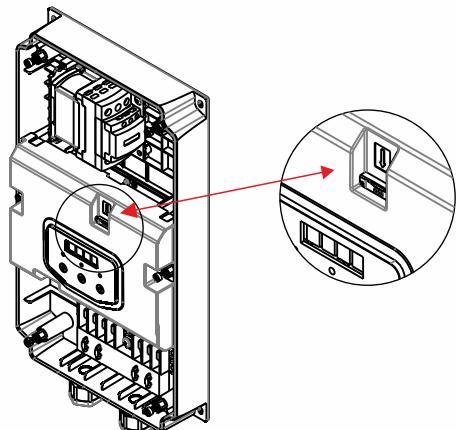
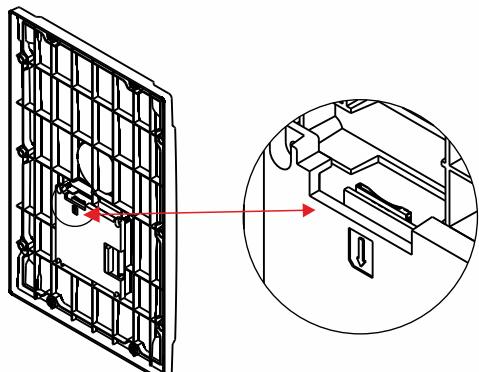
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**Models 2: Loosen 10 screws and remove top cover**

Step 2: Change input and output connections**Models 1A and 2A****Step 2: Change input and output connections****Model 1B/2B**

Step 3: Insert Sim Card

1. Remove the top cover. See "Remove top cover" for details.
2. Insert the working Sim card into the slot. Ensure that the Sim is inserted into the slot correctly.
3. Close the top cover after the Sim card is inserted.

Models 1A & 2A**Models 1B & 2B****Fig 2.9**

Note: Insert the Sim card only when the Digital Starter is in the power off condition

CHAPTER 3: OPERATION**CAUTION**

- Verify that there is no physical damage to the module and terminal blocks.
- Ensure proper connection of start/run capacitors as per the motor data.
- All the input and output connections are properly tightened with required torque levels.
- Display shows correct ID on start-up.
- SIM Card is inserted and is ready to send/receive data.
- Ensure that all the parameters are set correctly before starting the motor during first installation.

3.1 Operating Modes

The starter operates in automatic mode, manual mode and remote mode.

3.1.1 Automatic mode

Press Auto button for automatic mode selection. Selection of automatic mode is indicated by turning ON the Auto LED. In automatic mode the motor start and stop depends on sensor feedback. See "Dry Contacts" for details.

3.1.2 Manual mode

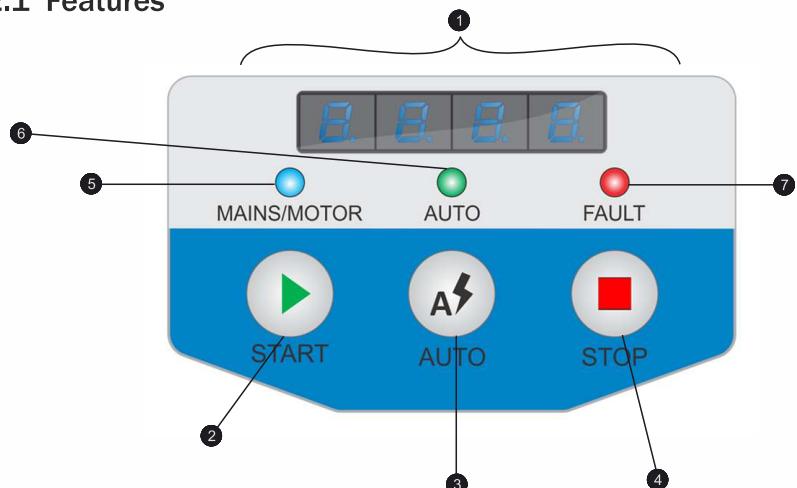
When starter is powered up and system is healthy, press Auto button to disable automatic mode. Auto LED turns OFF indicating that the starter is working in manual mode. In manual mode starter can be controlled manually by pressing START and STOP buttons.

3.1.3 Remote mode

The remote mode is an additional feature of the starter which enables user to control using mobile application. See mobile app for details.

3.2 Display

3.2.1 Features



①	Four digit seven segment display
②	Start button: Press this button to start the motor in the Manual mode.
③	Auto button: Press this button to toggle between Auto and Manual modes.
④	Stop button: Press this button to stop the motor in the Manual mode.
⑤	Mains/Motor LED: Yellow LED On - Frequency and Voltage OK Yellow LED Flashes Fast - Under/Over Voltage fault. Yellow LED Flashes Slow - Frequency fault. Green LED On- Motor Runs at normal mode
⑥	Auto LED: Green LED On - Auto mode enabled Green LED Off - Manual mode
⑦	Fault LED: Red LED On - Temperature or SCR or Relay fault Red LED Blinking - Dry run or Communication error. Red LED Off - No fault.

Fig 3.1

3.2.2 Four digit seven segment display

Seven Segment Display indicates the input voltage and output current during running.

It also indicates starter type during power ON and fault status.

Power ON	
3-Phase SKU1A Model	3-Phase SKU1B Model
3Ph 4	3Ph 5
3-Phase SKU2A Model	3-Phase SKU2B Model
3Ph 6	3Ph 7

Table 3.1 Indication of starter type during power ON and fault status.

Motor Starter Condition	Display
When in READY Mode, and RUN command is not available	234U ↗ RdY
When motor is running, display alternates between voltage and current. Voltage for 3 seconds and Current for 2 seconds.	234U ↗ 32 A

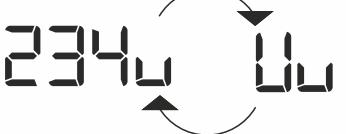
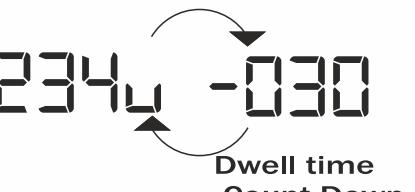
Motor Starter Condition	Display
Under fault conditions the display alternates between input voltage and actual fault.	
In case starter is waiting for minimum dwell time / fault recovery time before next start, a countdown will be displayed before entering ready. START operation is prevented until countdown is completed.	

Table 3.2 Seven segment display indicates the input voltage & output current during running

Display	Description	Display	Description
234U	Input Voltage	32 A	Rated Current
-030	Recovery Time	0U	Under Voltage
0U	Over Voltage	0C	Over Current
OL	Over Load Fault	Fr	Frequency Error
ld	SKUID Error	dry	Dry Run

Display	Description	Display	Description
SEr	Sensor Error	UFPI	Temperature Error - HS
OTP	Temperature Error - AMB	EFL	Earth Fault
Ety	Water Empty	Linn	Start Limit
rTC	RTC Error	UbAL	Voltage Unbalance
IbAL	Current Unbalance	SSF	Soft Start Fail
Ouf	Water Overflow	Conn	Communication Warning

Table 3.3 Display & its Description

3.2.3 Alarms and Indicators

Display	Alarm	Description
UU	Under Voltage Fault	If the Mains input voltage is less than set under voltage limit, starter trips with the alarm. This fault resets if the Mains voltage recovers from under voltage level.
0U	Over Voltage Fault	If the Mains input voltage is more than set over voltage limit, starter trips with the alarm. This fault resets if the Mains voltage recovers from over voltage level.
0C	Over Current Fault	If the actual motor current to the pump motor, goes beyond safe level starter trips with this alarm. Reset the alarm by pressing STOP button on the Digital Starter.

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Display	Alarm	Description
OL	Over Load Fault	Thermal Overload functionality prevents motor over load. If the current drawn by motor exceeds set value for certain time, starter trips with Overload alarm based on actual overload level. Higher the loading, starter trips faster.
Fr	Frequency Error	Mains frequency is sensed by the starter and in case Mains frequency deviates from set 50 Hz / 60 Hz, by ± 2.5 Hz, Frequency alarm is set. Alarm is automatically reset in case Mains frequency is within the ± 2.0 Hz range.
Id	Model ID Fault	Digital Starter module configuration is wrongly set. Module rating mismatch Error.
dry	Dry Run Warning	In Auto/Manual mode of operation, if the active power drawn by motor is less than the set Dry Run power value, alarm is set in 10 seconds. Alarm recovery depends on recovery time set value.
SER	Sensor Error Warning	In Auto mode, if the connected sensors are wrongly configured or if there is sensor feedback error. This alarm is not set in Manual mode of operation.
dtPi	Device Temperature Error	Device temperature error occurs when the device temperature exceeds 90 °C. Alarm recovers if the temperature drops below 75 °C after 1 minute.

Display	Alarm	Description
dtP	Module ambient temperature Error	Module ambient temperature has exceeded 90 °C. Alarm recovers if the temperature Error drops below 75 °C after 1 minute.
EFLT	Earth Fault	In Auto/Manual mode of operation, if there is a difference in Line current to Neutral current. Press the STOP key to reset the alarm.
ETy	Empty Warning	In Auto mode, if the connector sensors indicate water level empty. This alarm is automatically reset in case the sensors indicate water availability.
Linn	Start Limit	If number of restarts per hour cross set limit, starter trip with this alarm. Automatically resets after permissible time.
rtC	RTC Error	Internal real time clock error. Automatically reset with proper RTC functionality.

UBAL	Alarm Voltage Unbalance	Description If the Mains input voltage unbalance is greater than set limit, starter trips with this alarm. This fault resets if the Mains voltage recovers from unbalance voltage.
IBAL	Current Unbalance	If the output current unbalance is greater than set limit, starter trips with this alarm. Press the STOP key to reset the alarm.
SSF	Soft Start Fail	If motor failed to pick up speed during soft start period, starter will trip with this alarm. Press the STOP key to reset the alarm.
Ouf	Overflow Warning	This is a warning message in Auto mode if the connected sensors indicate overflow. Alarm resets if the overflow condition is recovered.
Conn	Communication Error	There is communication error. This is a warning message. The pump motor can be manually started/ stopped with this alarm condition.

Table 3.4 Alarm & Description

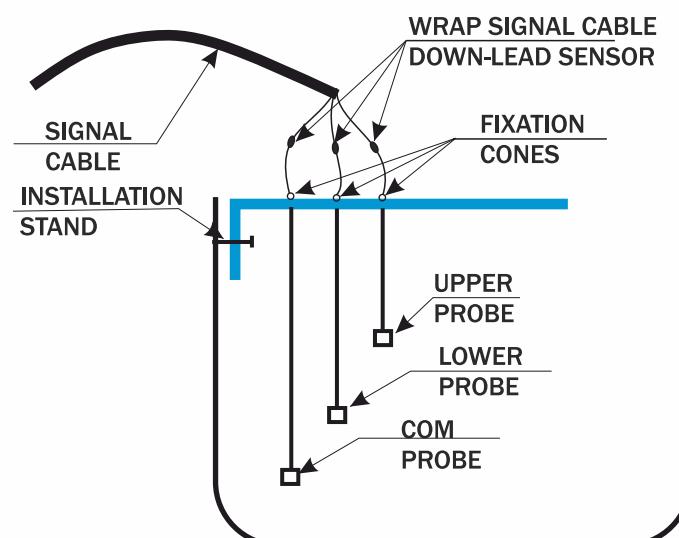
CHAPTER 4: Sensing Unit**4.1 Dry Contacts**

The starter has four feedback interface terminals.

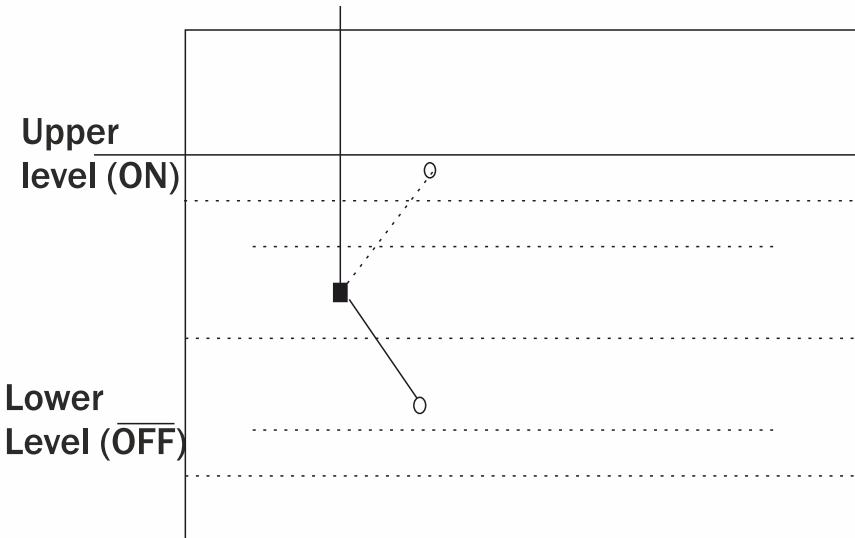
- a. Di1
- b. Di2
- c. Di3
- d. Di4

Based on Sensor mode parameter selection the inputs can be configured to interface:

1. Float Switch
2. Pressure Switch
3. Water Level Sensor

4.2 Sensor mode description**Liquid Probe Installation**

Note: In the event of high risk of electric storms (lightning) or when liquid medium in well or tank or sump is dirty, it is recommended to use float switch.

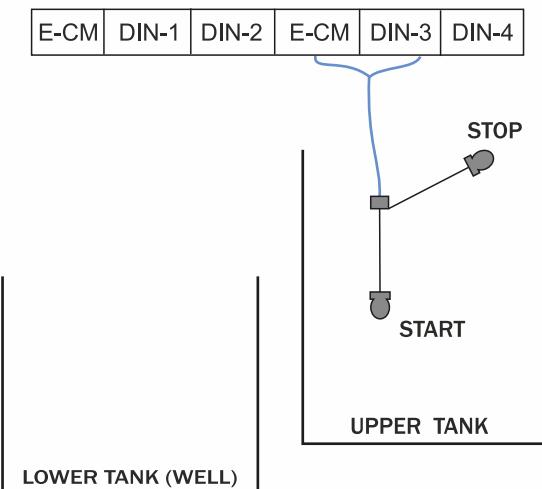


Float Switch Installation

Note: Do not encase sensor leads, float switch wire or signal cables in metal pipes. Use PVC or PE tubing to encase.

Note:

- Float and Pressure switched are assumed to be potential free.
- Float switch conducts [closed contacts] when in lower position and contact opens in upper position.
- Pressure switch conducts when pressure is low and opens when pressure reaches set value.
- All inputs are Active Low.
- Do not connect direct current [DC] type sensors.

**4.2.1 Sensor mode 0:
No sensor interface**
**4.2.2 Sensor mode 1:
Single Float switch used for Upper Tank filling**


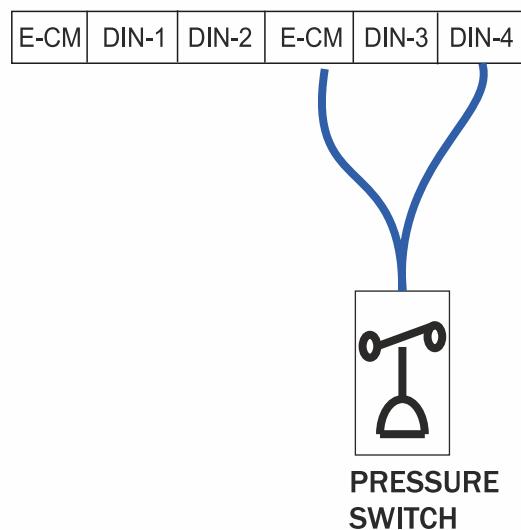
- E-CM: Common probe
- DIN-3: Lower probe
- DIN-4: Upper probe

Tank Condition	Contact Condition	Action
Water reached upper limit	Open	Pump turns OFF
Water reached lower limit	Close	Pump turns ON

Table 4.1

4.2.3 Sensor mode 2:

Single Pressure switch used for pressure booster.



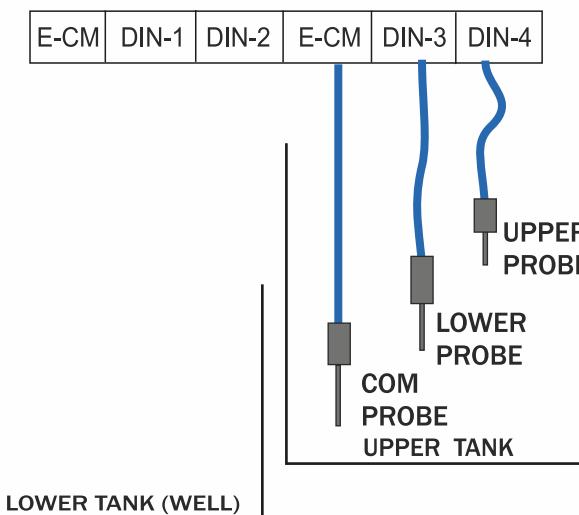
- E-CM: Pressure switch common
- DIN4: Pressure switch input

Pressure Condition	Contact Condition	Action
Pressure has reached set value	Open	Pump turns OFF
Pressure is less than set value	Close	Pump turns ON

Table 4.2

4.2.4 Sensor mode 3:

Upper tank filling using Liquid sensor probes

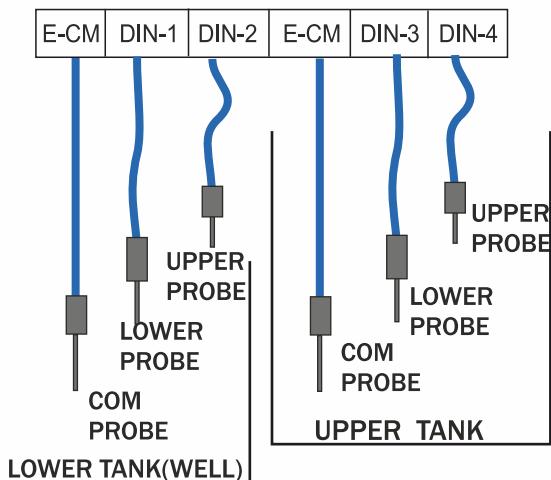


- E-CM: Common probe
- DIN-3: Lower probe
- DIN-4: Upper probe

Tank Condition	Action
Water level lower than lower probe	Pump turns ON
Water level above lower probe and below upper probe	Previous state
Water level above upper probe	Pump turns OFF

Table 4.3

4.2.5 Sensor mode 4:
Upper tank filling and lower tank monitoring using Liquid sensor probes



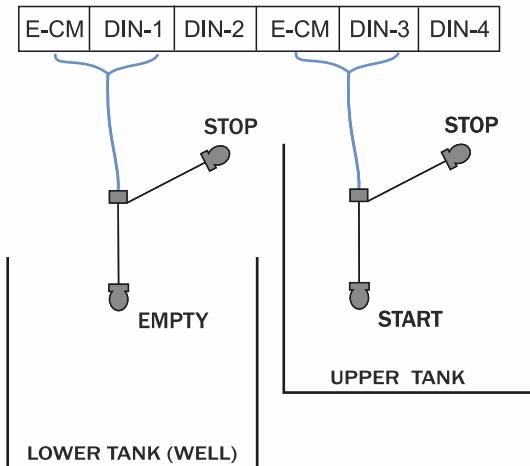
- E-CM: Lower tank (well) Common probe
- DIN-1: Lower tank (well) Lower probe
- DIN-2: Lower tank (well) Upper probe
- E-CM: Upper tank Common probe
- DIN-3: Uppertank Lower probe
- DIN-4: Uppertank Upper Probe

Lower Tank (Well)	Upper Tank	Action
Water level above lower probe and below upper probe	Water level lower than lower probe	Pump turns ON
	Water level above lower below upper probe	Previous state
	Water level above upper probe	Pump turns OFF

Lower Tank (Well)	Upper Tank	Action
Water level above upper probe	Water level lower than lower probe	Pump turns ON + Overflow warning
	Water level above lower below upper probe	Previous state + Overflow warning
	Water level above upper probe	Pump turns OFF + Overflow warning
Water level lower than lower probe	Water level lower than lower probe	Pump Turns OFF + Empty Warning
	Water level above lower below upper probe	
	Water level above upper probe	

Table 4.4

4.2.6 Sensor mode 5:
Upper tank filling and lower tank monitoring using two Float switches

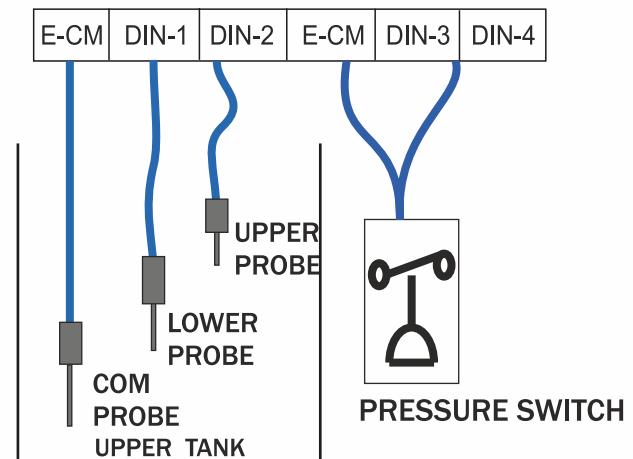


- E-CM: Lower tank (well)Float Switch common
- DIN-1: Lower tank (well) Float Switch input
- E-CM: Upper tank Float Switch common
- DIN-3: Upper tank Float Switch input

Lower Tank (Well)	Lower Tank (Well) Float Switch Contact	Upper Tank	Upper Tank Float Switch Contact	Action
Water reached upper limit	Open	Water reached upper limit	Open	Pump turns OFF + Overflow Warning
		Water reached lower limit	Close	Pump turns ON + Overflow Warning
Water reached lower limit	Close	Water reached upper limit	Open	Pump turns OFF + Empty Warning
		Water reached lower limit	Close	

Table 4.5

4.2.7 Sensor mode 6:
Lower tank monitoring using Liquid sensor probes for pressure booster



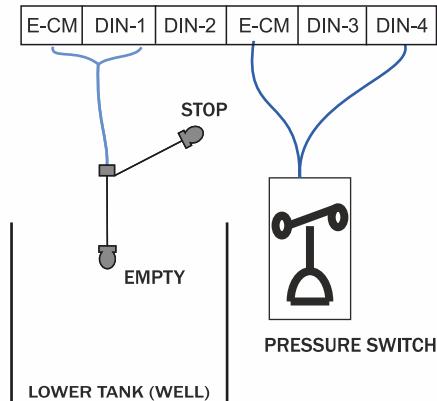
- E-CM: Liquid sensor probe common (in Lower tank)
- DIN-1: Lower probe (in Lower tank)
- DIN-2: Upper probe (in Lower tank)
- E-CM: Pressure switch common
- DIN-4: Pressure switch input

Lower Tank Water Level	Pressure Condition	Pressure Switch Contact	Action
Water level above lower probe and below upper probe	Pressure reached set value	Open	Pump turns OFF
	Pressure less than set value	Close	Pump turns ON

Lower Tank Water Level	Pressure Condition	Pressure Switch Contact Condition	Action
Water level above upper probe	Pressure reached set value	Open	Pump turns OFF + Overflow warning
	Pressure less than set value	Close	Pump turns ON + Overflow warning
Water level lower than lower probe	Pressure reached set value	Open	Pump turns OFF + Empty Warning
	Pressure less than set value	Close	Pump turns OFF + Empty Warning

Table 4.6

4.2.8 Sensor mode 7: Lower tank monitoring using Float switch for pressure booster

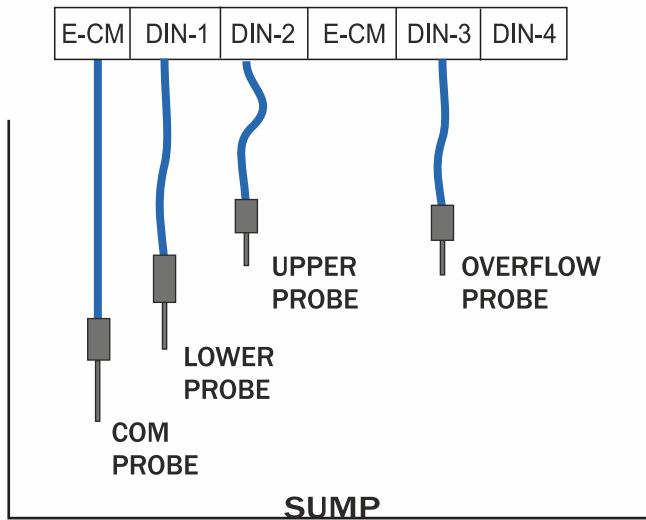


- E-CM: Float switch common
- DIN-1: Float switch input
- E-CM: Pressure switch common
- DIN-4: Pressure switch input

Lower Tank (Well)	Lower Tank (Well) Float Switch Contact	Pressure Condition	Pressure Switch Contact Condition	Action
Water reached upper limit	Open	Pressure reached set value	Open	Pump turns OFF + Overflow Warning
		Pressure less than set value	Close	Pump turns ON + Overflow Warning
Water reached lower limit	Close	Pressure reached set value	Open	Pump turns OFF + Empty Warning
		Pressure less than set value	Close	

Table 4.7

4.2.9 Sensor mode 8: Using Liquid sensor probes in Sump for Overflow detection

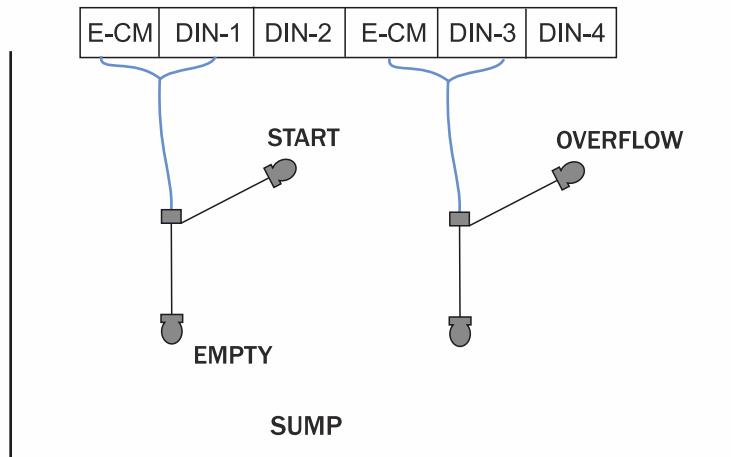


- E-CM: Common probe
- DIN-1: Lower probe
- DIN-2: Upper probe
- DIN-3: Overflow Probe

Water Level In The Sump	Status	Action
Below lower probe	Sump empty	Pump turns OFF + Empty Warning
Above lower probe and below upper probe	Sump filled half	Previous Status
Above upper probe and below over-flow probe	Sump full	Pump turns ON
Above over-flow probe	Sump over-flow	Pump turns ON and Overflow Warning

Table 4.8

4.2.10 Sensor mode 9: Using two Float switches in Sump for Overflow detection



- E-CM: Lower Float Switch common
- DIN-1: Lower Float Switch input
- COM: Upper Float Switch (over flow detection) common
- DIN-3: Upper Float Switch (over flow detection) input

Water Level in Sump	Lower Float Switch Contact	Upper (Over-Flow) Float Switch Contact	Status	Action
Below lower limit	Close	Close	Sump empty	Pump turns OFF + Empty Warning
Above lower limit	Open	Close	Sump filled half	Pump turns ON
Reached upper limit	Open	Open	Sump full	Pump turns ON + Overflow Warning

Table 4.9

INSTALLATION & OPERATING INSTRUCTIONS



Dry-contact terminal block details

Dry-contact Terminal Block	Model 1A	Model 1B	Model 2A	Model 2B
TB Part number	MKDSN 1,5/ 3-5,08 or equivalent			
Tightening torque, min.	0.5 Nm			
Tightening torque max.	0.6 Nm			
Screw thread	M3			
Stripping length	6 mm			
Conductor cross section stranded min.	0.14 mm ²			
Conductor cross section AWG/kcmil min.	26			
Conductor cross section stranded max.	1.5 mm ²			
Conductor cross section AWG/kcmil max.	16			

Mobile application installation and operation procedure is given on website.

Go directly from <http://solar10.shaktisolarrrms.com> or from Shakti official website.



INSTALLATION & OPERATING INSTRUCTIONS

Troubleshooting

Display	Description	Fault Clearing Method	Fault Reset
Uu	Under Voltage Fault. Input voltage Low.	Fault automatically clears when input voltage become healthy. If fault not cleared contact customer care.	Automatic
Ou	Over Voltage Fault. Input voltage High.	Fault automatically clears when input voltage become healthy. If fault not cleared contact customer care.	Automatic
OC	Over Current Fault. Fault may occur due to pump jam, motor problem or use of oversized pump set.	Press STOP button to reset the fault. If fault not cleared contact customer care.	Manual
OL	Over Load Fault. Fault may occur due to pump jam, motor problem or use of oversized pump set.	Press STOP button to reset the fault. If fault not cleared contact customer care.	Manual
Fr	Frequency Error. Input supply frequency out of range.	Select input frequency 50 Hz or 60 Hz. Fault automatically clears when input supply become healthy. If fault not cleared contact customer care.	Automatic
Id	Model ID Fault. Module rating mismatch error.	Module configuration is wrongly set.	Contact customer care.
dry	Dry run fault	Wait for 30 min to 1 hour for the water to recharge in case of pump system. If fault not cleared contact customer care.	Automatic Time depends on set value.

INSTALLATION & OPERATING INSTRUCTIONS
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Display	Description	Fault Clearing Method	Fault Reset
SEr	Water level Sensor error. Water lever sensors are wrongly configured.	Configure the water level sensors as per recommendation and select respective mode or run in the manual mode. If fault not cleared contact customer care.	Automatic
OePI	Device Over Temperature Fault. Over temperature may occur due to frequent restart or high ambient temperature.	Fault automatically clears when device temperature reaches healthy level. If fault not cleared contact customer care.	Automatic
OeP	Over Temperature inside module. Over temperature may occur due to frequent restart or high ambient temperature	Fault automatically clears when device temperature reaches healthy level. If fault not cleared contact customer care.	Automatic
EFL	Earth leakage fault Earth leakage due to faulty output cable or motor.	Press STOP button to reset the fault. If fault not cleared contact customer care.	Manual
Eey	Empty warning	Automatically resets when water level goes above empty level. Check the configuration of sensors.	Automatic
Out	Overflow warning	Automatically resets when water level goes below overflow level. Check the configuration of sensors.	Automatic
Conn	Communication Error This is communication error warning message.	Clears when communication is established. If fault not cleared contact customer care.	Automatic

Display	Description	Fault Clearing Method	Fault Reset
UbAl	Voltage Unbalance. Input voltage unbalance. Fault may occur due to input loose connection.	Automatically resets if the Mains voltage recovers from unbalance voltage.	Automatic
ibAl	Current Unbalance. Fault may occur due to loose connection or faulty motor.	Press the STOP key to reset the alarm. If fault not cleared contact customer care.	Manual
ssf	Soft start fail Fault may occur due to pump jam, motor problem or use of oversized pump set.	Press STOP button to reset the fault. If fault not cleared contact customer care.	Manual
Linn	Start Limit More number of reset per hour.	Automatically resets after permissible time.	Automatic
rte	RTC Error Internal real time clock error.	Automatically reset with proper RTC functionality. If fault not cleared contact customer care.	Automatic

WARRANTY CERTIFICATE

Dear Customer. Congratulation. for purchasing our product.

Pump and Motor are warranted against defects in workmanship and material under normal use, service & specified duty conditions. We provide one time warranty service for twelve months from the date of purchase by the first user. Shakti Pumps (India) Limited warrants this product to be free from damage/ defects in material and workmanship under normal use and service for Twelve Months from the date of purchase by the first user. The user shall produce valid and original copy of invoice for availing warranty. The user shall carry defective pump set to nearest authorized service center.

This warranty does not cover any loss or damage/ defect of any nature resulting from wrong product selection/ improper installation or installation by unauthorized/ untrained person/ sandy condition/ dry running and improper use of the pump sets. The warranty also does not cover consequential losses/ damages arising due to failure of pump/ motor. No warranty will be provided on mechanical seal, rubber parts, fasteners, cables in pump. motor / pump sets. Our obligation is limited t to recycling or repairing or replacing product/ parts ex •factory. Equipment for repairs should be returned free of cost to us. The forgoing is subject to the provision that the user does not open the unit and make any change or repair without prior approval of authorized service center during the warranty period. This warranty excludes every condition whether statutory or otherwise, whatsoever not herein expressly set out.

WARRANTY CARD

Customer to fill following details

Name :
 Address :
 City/Village :
 District :
 State :
 Country :
 Pin Code :
 Mobile no. :
 Email id :

Information on Device:

Model no :
 Serial no. :
 Invoice no. :
 Commissioning date :
 Fault date and time :
 Message related to fault on display :
 Brief fault description and photo of display :
 Sign :
 Date :
 Place :

Installer to fill following details

Modules Used :
 Modules per string :
 Number of strings :
 Dealer license Number :
 Company :
 City/Village :
 State :
 Country :
 Pin Code :
 Mobile no. :
 Email id :
 Sign :
 Date :
 Place:

INSTALLATION & OPERATING INSTRUCTIONS

BOOK-POST

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