

MAGNUM[®]

More Power, Better Controls

USER MANUAL

THREE PHASE MUK-1 DOL STARTER

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KALP CONTROLS

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INTRODUCTION

Dear Customer,

Congratulations on purchase of MAGNUM D.O.L MOTOR STARTER. Magnum Three Phase MUK-1 Direct On Line Motor Starter is a powerful controlling device for your pump/motor made with heavy duty components, which protects the pump/motor from hazards caused due to over-current and voltage.

Located in Bangalore, Kalp Controls commenced its operations in the year 2009. At Kalp Controls, we are focused on offering you heavy duty

1. Submersible Pump Panel - DOL & Star Delta
2. Open Well Pump Panel
3. Starters - DOL & Start Delta
4. Single Phasing Preventer & Auto Start Unit.
5. Spares like Contactor, Relay, Capacit or, Meters etc.

ABOUT MAGNUM DOL MOTOR STARTERS

Magnum DOL Starters are controlling devices for your Pumps/Motors. These are made from quality raw materials, enabling it to protect and control your motor consistently.

Functions

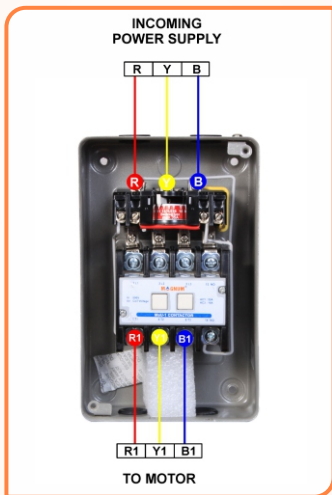
1. Switches your pump/ motor on and off.
2. Protects the pump from over-current.
3. Trips when there is a low voltage & persistent overload on the motor.
4. Ensures reliable performance in high ambient temperatures, humidity & under-voltage conditions.

Salient Features

1. Powder coated MS enclosure for complete corrosion resistance & sturdiness.
2. Rugged MaU Contactor with wide voltage band (250V to 440V).
3. Fitted with MaK-1 type relay for reliable overload protection.
4. Manual reset facility after overload protection.
5. A latch on the push button can be used to keep the stop button locked, thus preventing accidental starting.
6. Easy & quick mounting. Ergonomic design with aesthetic looks.
7. There is a provision for using an auxiliary contact block with configuration 1No + 1NC.

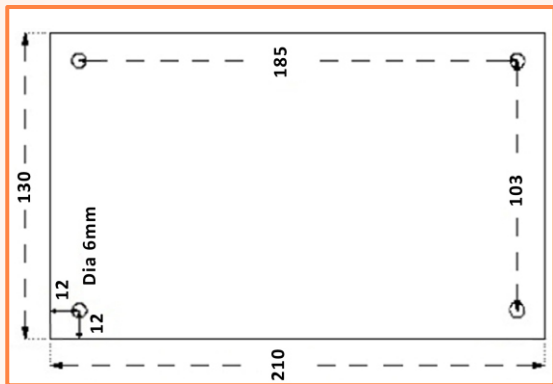
INSTALLATION INSTRUCTIONS

1. It is very important to ensure the current rating (power in H.P) of your motor and Control Panel are same.
 - Drill holes with the help of the given template.
 - Mount the controller tight and straight.
 - Starter to Motor Connection



- Connect the supply cables to the over load relay where terminals are marked as R, Y and B.
- Connect the motor cables to the contactor where terminals are marked as R1, Y1 and B1.

MOUNTING TEMPLATE (Not to scale)



SWITCHING AND OPERATING

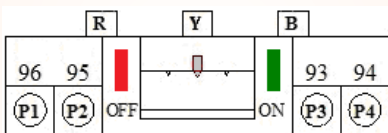
- Ensure the over load relay range matches to the ampere rating in your motor.

Switching On and Off

- Switch on the supply.
- To start the motor press the START (green) button for 3 - 4 seconds and immediately release the button after motor starts. **(Not more than 4 seconds) (Never attempt to press the green button when the motor is running)**
- The motor can be switched off by pressing STOP (Red) button.

- Rubber Bushes are provided near the connecting terminals. Just make holes in the rubber bushes for connection and don't remove it. They offer a degree of ingress protection.
- If the motor/pump switches off automatically, (may be due to over-current) please press the reset button (OFF) on the left side of overload relay inside the panel.

A) MaK-1 Controller:



TECHNICAL SPECIFICATIONS

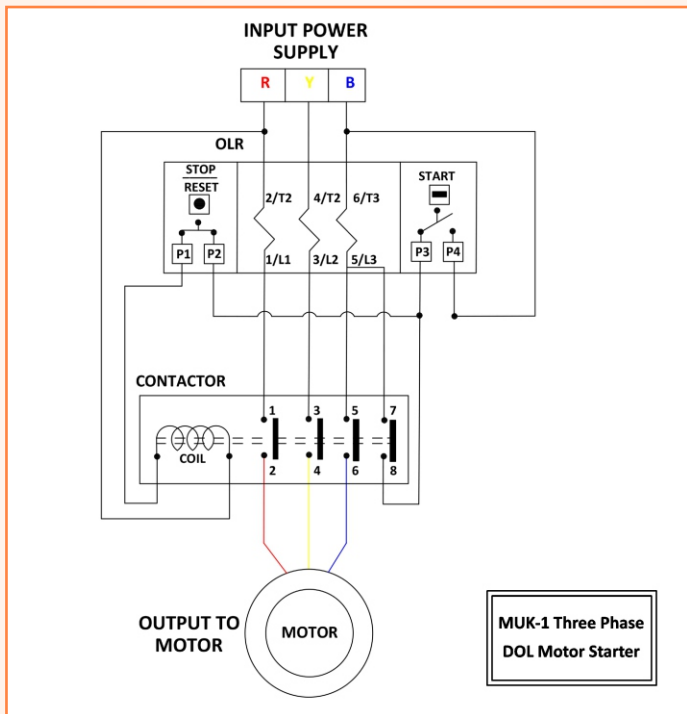
1. Power range : Up to 12.5 HP
2. Coil Voltage : 440 V
3. Operating Voltage : 70% to 110% of coil voltage
4. Pick up voltage : Minimum 70% of coil voltage
5. Drop off voltage : Below 50% of coil voltage
6. Contactor 4P : MaU (4P: 16/25/32/40A)
7. Relay 4P : MaK-1 4P

8. Area : (220 * 140 *120) mm
9. Net Weight : (1.6 - 1.8) Kg
10. Insulation Voltage Ac (Vi) : 660V
11. Frequency & Ambient Temperature : 50Hz & (-25°C to +55°C)
12. Terminal Capacity : 1 * 16 (mm)² or 2 * 10 (mm)²

Normal Configuration of MaU DOL Starters

Sl. No.	Power (HP)	Cat. No	Contactora	Relay Range (A)	Recommended Fuse/MCB (HRC) (A)
1	3	STUKH110	MaU-1	6-10	16
2	3	STUK110	MaU-1	6-10	16
3	5	STUK114	MaU-1	9-14	20
4	7.5	STUK118	MaU-1	11-18	25
5	7.5	STUK221	MaU-2	13-21	32
6	10	STUK232	MaU-2	20-32	40
7	10	STUK332	MaU-3	20-32	40

CIRCUIT DIAGRAM:



PRECAUTIONS & MAINTENANCE

- It's best that a qualified electrician installs the panel and repairs it in case of any problem.
- A dust free environment is vital for long run of the control Panel. It is very important to keep the control Panel away from water or moisture. In very humid places it is strongly recommended to keep it in a closed setting.
- The best way for prolonged life of the control Panel is to periodic inspection of the contactor contacts and keeping them free of dust and water.

TROUBLE SHOOTING

1) Contact Maintenance

Contact Tips are Alloys which have Silver Compositions. Depending upon the atmospheric conditions., that is Very Humid & Moisture Conditions, the contacts may have excessive tarnishing (Black Tarnish). Only during excessive tarnishing, do the following to clean the contact tips.,

- Rub the Contact Tips Lightly with Fine Emery Paper (Preferably Zero Size) **DO NOT FILE THE CONTACT**
- Remove small particles by rubbing with wet Cotton Cloth or with wet Clean cloth
- Remove the water on the contact tip surface with a dry, clean cloth. The Contact Tips should be completely Dry.

2) Humming and/or Chattering Noise

- Check the voltage supply., Voltage could be too low for operation that is less than 65% of rated operational voltage., Wait for stable voltage and then switch on
- Magnet Cores may be unclean due to either dirty environment or excessive Carbon Deposits., Clean them gently using Dry cloth., Be careful that you don't disturb the alignment of the Core
- Contact Tips may be unclean., Clean them as said above

3) Motor does not restart immediately after Tripping on Overload

- It takes a little time 2-4 minutes for Thermal Bimetals to Cool., Hence wait for 2-4 minutes for restarting after overload tripping.

4) If motor/pump does not start

- Reset the relay and then try starting again
- Ensure adequate supply voltage.
- Check the contacts of the contactor.

5) If motor draws excess current

- Absence of water or load in the pump.

SPARES AND ASSEMBLIES AVAILABLE FOR DOL STARTER

Part Description	Specification	Part No.
Magnum MaU Contactor 4P 415V	10A 16A 25A 32A 40A	CTU10 CTU16 CTU25 CTU32 CTU40
Magnum Coil 440V	MaU	CTU
MaU Spare Kit	16A 25A 32A 40A	KU16 KU25 KU32 KU40
MaK-1 Relay (4P)	(6-10) A (9-14) A (11-18) A (13-21) A (20-32) A	RTU10 RTU14 RTU21 RTU32 RTU42
DOL Button	MaK-1	BKD

Warranty Policy

1. This product carries a warranty, against manufacturing defects only for a period of **12 months** from the **date of** manufacturing.
2. The warranty is however subject to provision of proper usage, efficient maintenance and **does not cover** defects arising out of **fire accident, Voltage Surge, Inefficient maintenance, faulty operation and willful or accidental damage**. Warrant is not covered for charred or burnt components at all.
3. The company will not be liable for any consequential loss, injury or damages attributable to defect or failure of its products.
4. We believe in our products and hence provide you with product guarantee, should it prove to be defective due to faulty workmanship or otherwise, we will remedy the defect or replace the faulty parts or the whole product at our discretion, as soon as possible, free of cost.
5. This product is made from quality raw materials and skilled assemblers. We believe in our product and hence provide you with this warranty of 12 months.
6. Proof of purchase (Invoice) is to be produced to avail the warranty.