

# MAGNUM<sup>®</sup>

More Power, Better Controls

## USER MANUAL

### SINGLE PHASE SUBMERSIBLE PUMP PANEL - COMPACT

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## KALP CONTROLS

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## INTRODUCTION

**Dear Customer,**

Congratulations on purchase of MAGNUM Submersible Pump Panel - COMPACT. This is made with heavy duty components, which protects your pump from hazards caused due to over-current.

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

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

## ABOUT MAGNUM SINGLE PHASE COMPACT PANEL:

Magnum submersible control panels are controlling devices for your submersible pumps. These are made from quality raw materials, enabling it to protect and control your motor consistently.

### **Functions :**

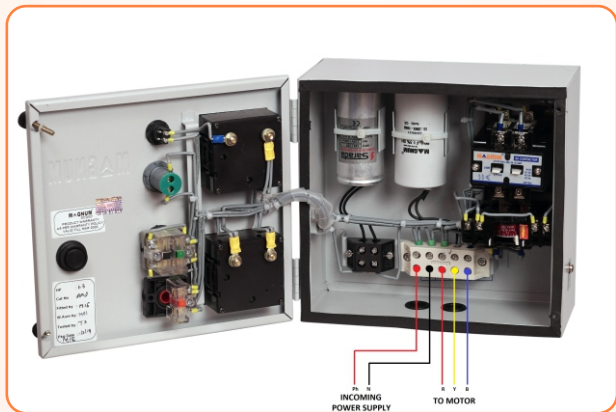
1. Switches your pump/motor on and off.
2. Protects the pump from over current.
3. Provides extra torque when the pump is being started.
4. Maintains torque level while the pump is running.
5. Indication of current drawn by the motor.
6. Indication of voltage supplied to the panel.

### **Salient Features :**

1. Powder coated MS enclosure for complete corrosion resistance & sturdiness.
2. Rugged MaCH/MaU contactor with wide voltage band (140-240V).
3. Fitted with MaK-1/MaU type relay for reliable overload protection.
4. Easy & quick mounting.
5. Ergonomic design with aesthetic looks.
6. No screw protrusion from the panel, hence additional safety from water, dust, corrosion and electric shock.

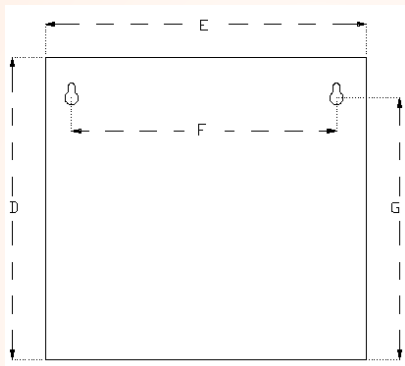
## INSTALLATION INSTRUCTIONS:

1. This Control Panel is designed to run only a Single-Phase Submersible Pump.
2. It is very important to ensure the current rating (power in H.P) of your motor and Control Panel are same.
3. Drill holes as per the given Mounting Templates.
4. Control Panel to Submersible Pump connection,



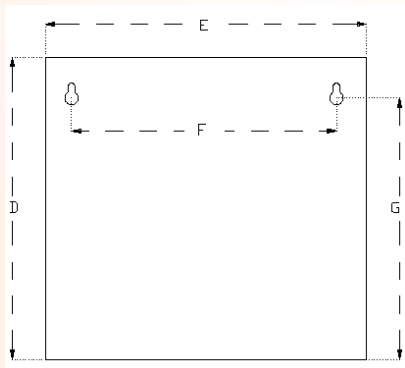
- i. Connect the incoming power supply to P and N terminals of the connector as shown in the above picture.
- ii. Connect the motor cable Red to R of the connector, Yellow to Y of the connector and Blue to B of the connector.

### MOUNTING TEMPLATE: (Not to scale) (UPTO 3 HP)



D	231 mm
E	243 mm
F	185 mm
G	204 mm

### MOUNTING TEMPLATE: (Not to scale) (FOR 5 HP)



D	261 mm
E	372 mm
F	313 mm
G	235 mm

## SWITCHING AND OPERATING:

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

### Switching On and Off:

1. Switch on the supply.
2. Press the PNO button to read incoming voltage and only when voltage is in the range of 170V to 240V, try to start the motor.
3. To start the motor, press the START (Green) button for 3 - 4 seconds and immediately releases the button after motor starts. **(Not more than 4 seconds) (Never attempt to press the green button when the motor is running)**
4. Then green indicator will glow (On condition of the motor).
5. You can now read the ammeter for motor current.
6. The motor can be switched off by pressing STOP (Red) button.
7. 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.

**TECHNICAL SPECIFICATIONS:**

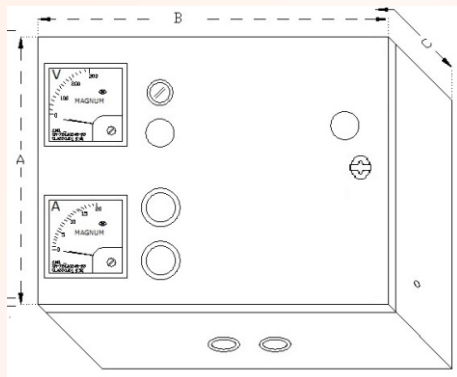
1. Power range : 0.5/1/1.5/2/3/5 HP
2. Coil Voltage : 220 V
3. Operating Voltage : 70% to 110% of coil voltage
4. Pick up voltage : Minimum 70% of coil voltage
5. Drop off voltage : Below 50% of coil voltage
6. Contactor : MaCH (2P: 10 to 40A)  
MaU-3 (4P: 32A)
7. Relay : MaK-1 2P/ MaU 4P
8. Area : for MaCHK-1 = (231\*243\*129) mm  
. for MaU = (261 \* 372 \* 147) mm
9. Net Weight : for MaCHK-1 = 3.5 – 3.55 KG  
. for MaU = 6.5 – 6.8 Kilo grams
10. Frequency : 50Hz
11. Insulation Voltage Ac (Vi) : 660V
12. Ambient Temperature : -25°C to +55°C
13. Terminal Capacity : 1 \* 16 (mm)<sup>2</sup> or 2 \* 10 (mm)<sup>2</sup>



### Normal Configuration of the Panel :

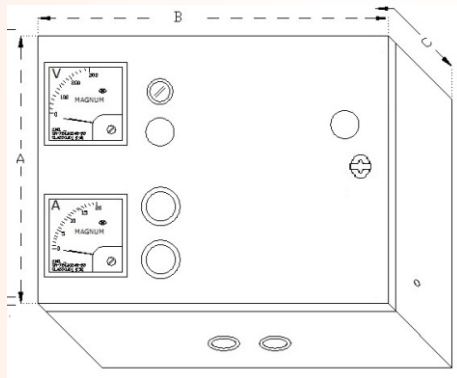
Power (HP)	Catalogue No.		Relay Range (A)		Recommended Fuse / MCB (HRC) (A)
	MaCHK-1 Type	MaU Type	MaK-1 Type	MaU-2 Type	
0.5	PSCH	NA	2.5-4	NA	4
1	PSC1	NA	6-10	NA	10
1.5	PSC1H	NA	9-14	NA	16
2	PSC2	NA	13-21	NA	20
3	PSC3	PSU3	20-32	20-32	25
5	NA	PSU5	NA	28-42	40

## PANEL DIMENSIONS: (FOR 3 HP)



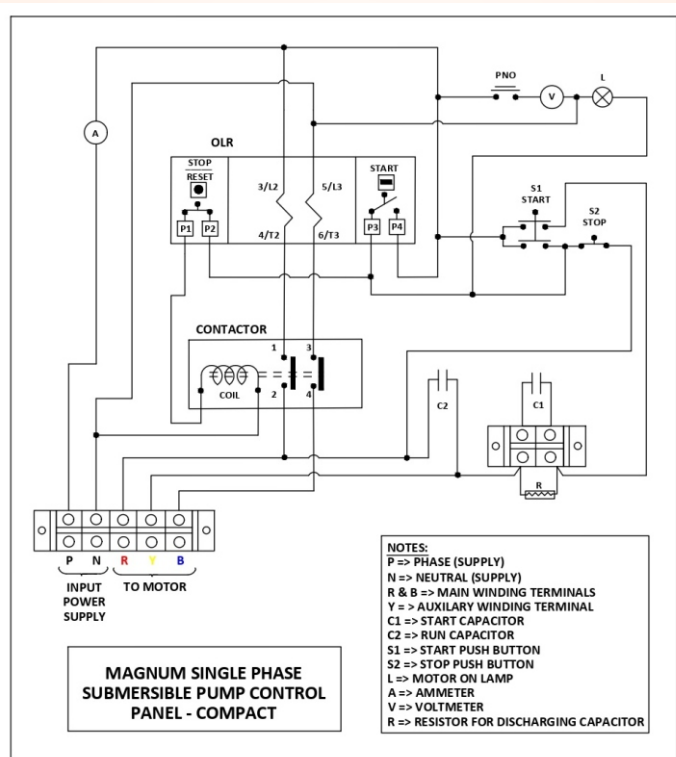
A (mm)	231
B (mm)	243
C (mm)	129

## PANEL DIMENSIONS: (FOR 3 HP)

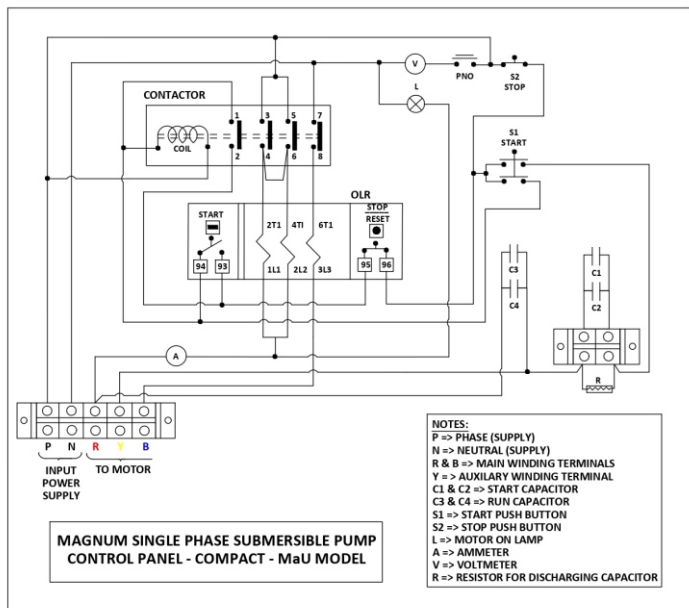


A (mm)	261
B (mm)	372
C (mm)	147

## CIRCUIT DIAGRAM: (UPTO 3 HP) MaCHK-1 Models



## CIRCUIT DIAGRAM: (FOR 5 HP) MaU Models



## PRECAUTIONS & MAINTENANCE:

1. It's best that a qualified electrician installs the panel and repairs it in case of any problem.
2. 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.
3. 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. If motor/pump does not start:
  - Reset the relay and then try starting again
  - Ensure adequate supply voltage.
  - Check the start capacitor, it might have burnt.
  - Check the contacts of the contactor.
2. If motor draws excess current:
  - Absence of water or load in the pump.
3. If motor trips after sometime:
  - Ensure that the relay range and setting is correct.

## SPARES AND ASSEMBLIES AVAILABLE FOR THIS PANEL:

Part Description	Specification	Cat. No.
Magnum MaCH Contactor 2P 220V	10A 16A 25A 40A	C2C10 C2C16 C2C25 C2C40
Magnum MaU-3 Contactor	32A	CSU32
Magnum SR-72 Ammeter Magnum SR-72 Voltmeter	0-30 A 0-500 V	AM723 AM725
Magnum Coil	MaCH 220V	CSC
Magnum MaCH Spare Kit Set for 2P Contactor	10A 16A 25A 40A	K2C10 K2C16 K2C25 K2C40
MaK-1 Relay 2P	2.5-4A 6-10 A 9-14 A 13-21 A 20-32 A	RSK4 RSK10 RSK14 RSK21 RSK32
MaU-2 Relay 3P	20-32A 28-42A	RTU32 RTU42

Magnum Start Capacitor	100-120 $\mu$ f 120-150 $\mu$ f 150-200 $\mu$ f 200-250 $\mu$ f	CS120 CS150 CS200 CS250
Magnum Run Capacitor	36 $\mu$ f 50 $\mu$ f 72 $\mu$ f 100 $\mu$ f	CR36 CR50 CR72 CR100
Connector 30A/2W Close Type Connector 30A/5W Close Type	30A 30A	CBC32 CPC35
LED	Green	ISL22G
Start Button Button P NO Stop Button MaK-1 Relay Reset Button	Hi + Low Green Low Red	BSTA BPN BSTO BKR

## 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**. Warranty 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.