



SPARES



Terminal Block



Terminal Block



Indicating Lamp Green



Indicating Lamp Red



Volt - Ammeter



SPPR Type Z5

Description	Catalogue No.	Std. Pkg. (Nos.)
Terminal Block 60 A - 6 way	CS94808 OOOO	10

Description	Catalogue No.	Std. Pkg. (Nos.)
Terminal Block 60 A - 3 way	CS94806 OOOO	10

Description	Catalogue No.	Std. Pkg. (Nos.)
Indicating Lamp Green 415 V	CS94812 DOOO	10

Description	Catalogue No.	Std. Pkg. (Nos.)
Indicating Lamp Red 415 V	CS94810 DOOO	10

Description	Catalogue No.	Std. Pkg. (Nos.)
Volt-Ammeter 500 V 30 A	CS94817 EOEO	1
Volt-Ammeter 500 V 60 A	CS94817 EOTO	1
Volt-Ammeter 500 V 30 A	CS94818 EOEO	Bulk Pack of 10
Volt-Ammeter 500 V 60 A	CS94818 EOTO	Bulk Pack of 10

- Features of type Z5
- Protection from Single Phasing
 - Protection from Negative phase Sequence
 - Protection from phase Voltage Unbalance (more than 50 V)
 - Protection from Frequency Fluctuation
 - Auto Restart (with 30 Sec ON delay)
 - Protection from Under Voltage (minimum 180 V)
 - SPPR ON indication
 - Total Bypass Mode

Description	Catalogue. No.	Std. Pkg. (Nos.)
360 V SPPR type Z5	CS94801 COOO	1
415 V SPPR type Z5	CS94801 DOOO	1
360 V SPPR type Z5	CS94802 COOO	Bulk Pack of 10
415 V SPPR type Z5	CS94802 DOOO	Bulk Pack of 10

Product improvement is a continuous process. For the latest information and special applications, please contact our office.



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SP 50432



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MUG10 & MUG20

Three Phase Submersible Pump Controllers

MUG10



MUG20



Features And Application Of MUG-10 & MUG-20 Pump Controllers

Features :

- Protection from Single Phasing
- Protection from Overload Conditions
- Protection from Phase Reversal
- Protection from Phase Unbalance 55 V (± 5 V)
- Rugged MU Contactor with moulded coil
- Wide band coil, Operates from -50% to +110% of rated coil voltage (e.g. 360 V coil operates from 180 V to 410 V)
- Indication of healthy supply connection

- Auto Restart (with 30 Sec ON delay)
- Power ON & Pump ON indication
- Unique Dual Voltmeter & Ammeter
- Easy replacement of spares
- Terminal block for easy termination

Range :

- MUG10 DOL - upto 10 HP
- MUG20 Star Delta - upto 20 HP

Typical Applications :

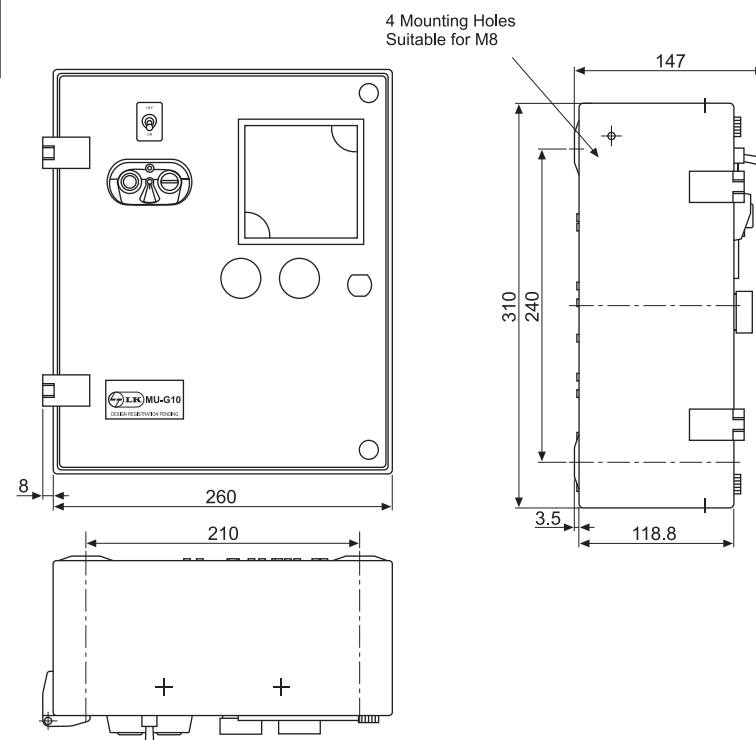
- Submersible water pumps
- Open well submersible pumps

Technical Details for MUG10 DOL Controller

Rating	10HP, 415 V 3ph
Contactor	MU1
Overload Relay	MU1 / Mu2
Coil Voltage	415 V, 360 V
Pick up Voltage	-50% to +110% Uc
Drop off Voltage	25% to 35% Uc
Measurement offered	Ammeter
	Voltmeter
Indicating Lamps	Supply ON (3ph)
	Pump ON
Rated Insulation Voltage	690 V
Rated Operational Voltage	415 V AC
Service Temperature	-5 °C to 55 °C
Conformity to Standard	IS 13947 (Part 4 / Sec1)
Terminal Capacity	16 sq. Mm with Lug
Degree of Protection	IP54
No. of full start	30 per Hour
Back up Operation	Type 2 with HF fuses

Ordering Details for MUG10 DOL Controller

Type	Pump Rating at 415 V, 3ph, 50 Hz		With Relay range A	Catalogue No.		Std. Pkg. (Nos.)
	HP	KW		Coil Voltage 360 V	Coil Voltage 415 V	
MUG-10 DOL	3	2.2	4 - 6.5	SS95983 COTO	SS95983 DOTO	1
	5	3.7	6 - 10	SS95983 COVO	SS95983 DOVO	1
	7.5	5.5	9 - 14	SS95983 COAO	SS95983 DOAO	1
	10	7.5	13 - 21	SS95983 COCO	SS95983 DOCO	1
MUG-10N-DOL (With MN relay)	5	3.7	6 - 10	SS96562 COVO	SS96562 DOVO	1
	7.5	5.5	9 - 15	SS96562 COBO	SS96562 DOBO	1
MUG-10H-DOL (Heavy duty)	10	7.5	20 - 32	SS95974 COEO	SS95974 DOEO	1
	10	7.5	28 - 42	SS95974 COFO	SS95974 DOFO	1



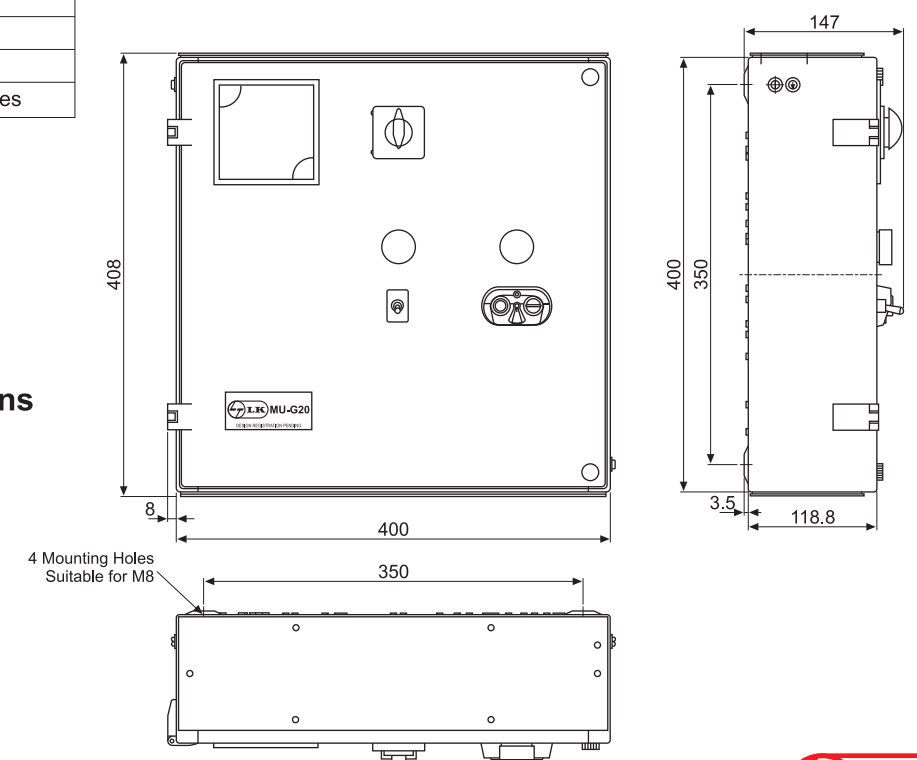
MUG10 Overall Dimensions

Technical Details for MUG20 Star Delta Controller

Rating	20HP, 415 V 3ph
Contactor	MU1
Overload Relay	MU2
Coil Voltage	415 V, 360 V
Pick up Voltage	-50% to +110% Uc
Drop off Voltage	25% to 35% Uc
Measurement offered	Ammeter
	Voltmeter (with selector switch)
Indicating Lamps	Supply ON (3ph)
	Pump ON
Rated Insulation Voltage	690 V
Rated Operational Voltage	415 V AC
Service Temperature	-5 °C to 55 °C
Conformity to Standard	IS 13947(Part 4/Sec1)
Terminal Capacity	16 sq.mm with Lug
Degree of Protection	IP54
No. of full start	30 per Hour
Back up Operation	Type 2 with HF fuses

Ordering Details for MUG20 Star Delta Controller

Type	Pump Rating at 415 V, 3ph, 50 Hz		With Relay range A	Catalogue No.		Std. Pkg. (Nos.)
	HP	KW		Coil Voltage 360 V	Coil Voltage 415 V	
MUG-20 Star-Delta	15	11	9 - 14	SS95984 COAO	SS95984 DOAO	1
	20	15	13 - 21	SS95984 COCO	SS95984 DOCO	1
MUG-20H Star-Delta (Heavy duty)	20	15	20 - 32	SS95975 COEO	SS95975 DOEO	1
	20	15	28 - 42	SS95975 COFO	SS95975 DOFO	1



MUG20 Overall Dimensions

Note: All Dimensions are in mm