



Manual Motor Starters



**SHAMROCK
CONTROLS**

MANUAL MOTOR STARTER

Salient Features & Versions

Salient Features

Sensitive to phase failure in compliance with EN 60947-4-1, IEC 947-4-1\

Reliable protection at overloads and short circuits

Simple and fast mounting by snap fitting on 35mm wide mounting rail in compliance with EN 50022; fixing with two screws in also possible

It is convenient also for mounting in an installation distribution box

Main application field : control (start-up, protection and switch-off) of A.C. electric motors with power up to 11 kW (380/400 V) or other consumers up to 25 A; it can also be used as the main switch according to EN 60204 standards

Numerous accessories make the application field wider and enable the fulfillment of the majority of user's demands

Versions

TCMS32 – with thermal and magnetic releases

TCMS32 - with thermal and magnetic releases or single-phase consumers

- Manual control:

START, STOP, push-buttons

Test of release function (TEST)

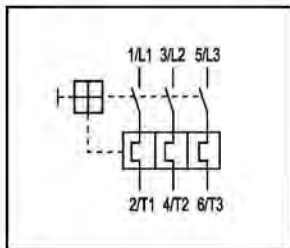
Automatic switch-off with thermal or magnetic release

- Control with under-voltage release or shunt release
- An auxiliary switch for side mounting or flush mounting used for indicating the switching state
- ON/OFF, push-buttons position unequivocally indicates the switching position of main circuit contacts



MANUAL MOTOR STARTER

Technical Data



TCMS32H & TCMS32L (MAIN CIRCUIT)

Designation of connection terminals				1 - L1; 3 - L2; 5 - L3; 2 - T1; 4 - T2; 6 - T3
Terminal capacity	rigid	S	mm ²	0.75 ... 10
	flexible			0.75 ... 6
Screw				with self-lifting clamp, protected against falling out
Screw head				PZ2
Tightening torque			Nm	2.0
Max. operational voltage		U _e	V	690
Setting range			A	0.1 - 0.16
				0.16 - 0.25
				0.25 - 0.4; 0.4 - 0.63; 0.63 - 1;
				1 - 1.6; 1.6 - 2.5; 2.5 - 4;
				4 - 6.3; 6.3 - 10; 10 - 14; 13 - 18; 17-23; 20-27; 25-32
No. of poles				3
Operating current of thermal overload release		I		1.05 I _r < I = 1.20 I _r I _r ... set value
Sensitivity to phase failure				yes
Operating current of magnetic overload release		I		11 I _n < I = 13 I _n ± 20 % I _n ... upper setting limit
Power dissipation on pole at load with I _n		P	W	2 - 2.5
Utilization category	acc. to IEC/EN 60947-4-1 acc. to IEC/EN 60947-2			AC-3 A
Trip class acc. to IEC/EN 60947-4-1				10

Auxiliary Circuit Data

Side Auxiliary contact block

Rated insulation voltage	U _i	V	500
Thermal current	I _{th}	A	5
Electrical rating acc. to IEC/EN 60947-5-1			
B300 AC-15	U _e	V	240
I _e	A	1.5	
R300 DC-13	U _e	V	250
I _e	A	0.1	
Terminal capacity	S	mm ²	0.75 ... 2.5
Tightening torque		Nm	1

Front Auxiliary contact block

Rated insulation voltage	U _i	V	300
Thermal current	I _{th}	A	1
Electrical rating acc. to IEC/EN 60947-5-1			
B300 AC-15	U _e	V	240
I _e	A	1.5	
R300 DC-13	U _e	V	125
I _e	A	0.22	
Terminal capacity	S	mm ²	0.75 ... 2.5
Tightening torque		Nm	1

UVT / Shunt Release

Control voltages	U _c	V	24 ... 600
Rated frequency	f	Hz	50 or 60
Terminal capacity	S	mm ²	0.75 ... 2.5
Tightening torque		Nm	1

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Technical Data



Selection Chart for Motor Protection (as per UL)

3 ph - Three Phase 1 ph - Phase	Horsepower (HP)					Setting Range	Type
	115 V	200 V	230 V	460	575 V		
3 ph		-	-	-	-	0.1...0.16	TCMS32H0.16
1 ph		-	-	-	-		
3 ph		-	-	-	-	0.16...0.25	TCMS32H0.25
1 ph		-	-	-	-		
3 ph		-	-	-	-	0.25...0.4	TCMS32H0.40
1 ph		-	-	-	-		
3 ph		-	-	-	-	0.4...0.63	TCMS32H0.63
1 ph		-	-	-	-		
3 ph		-	-	-	0.5	0.63...1	TCMS32H1.0
1 ph		-	-	-	-		
3 ph		-	-	0.75	0.75	1...1.6	TCMS32H1.60
1 ph		-	0.1	-	-		
3 ph		0.5	0.5	1	1.5	1.6...2.5	TCMS32H2.50
1 ph		0.16	0.16	0.5	0.5		
3 ph	0.5	0.75	0.75	2	3	2.5...4	TCMS32H4
1 ph	0.125	0.25	0.3	1	1.5		
3 ph	0.75	1	1.5	3	5	4...6.3	TCMS32H6.30
1 ph	0.25	0.50	0.5	2	2		
3 ph	1	2	3	5	7.5	6.3...10	TCMS32H10
1 ph	0.5	1	1.5	3	3		
3 ph	2	3	5	10	10	10...16	TCMS32H13
1 ph	1	2	2	5	7.5		
3 ph	3	5	5	10	15	16...20	TCMS32H17
1 ph	1.5	3	3	5	10		
3 ph	3	5	7.5	15	20	20...25	TCMS32H22
1 ph	2	3	3	7.5	10		
3 ph	3	5	7.5	15	20	20...25	TCMS32H26
1 ph	2	3	3	7.5	10		
3 ph	3	5	7.5	15	20	20...25	TCMS32H32
1 ph	2	3	3	7.5	10		

TCMS32 Motor Protection Switches, Rated ultimate short-circuit breaking capacity I_{cu} and max. back-up fuses if prospective short-circuit I_{sc} exceeds I_{cu}

Type	Operating current of short circuit release (A)	Rated ultimate short-circuit breaking capacity I_{cu} (kA)				Max. back-up fuse if $I_{sc} > I_{cu}$ (gL) (A)							
		230 V I_{cu}	400 V I_{cu}	500 V I_{cu}	690 V I_{cu}	230 V	400 V	500 V	690 V				
TCMS32H0.16	2	100	100	100	100	No back-up fuse required							
TCMS32H0.25	3	100	100	100	100								
TCMS32H0.40	5	100	100	100	100								
TCMS32H0.63	8	100	100	100	100								
TCMS32H1.0	12	100	100	100	100								
TCMS32H1.60	20	100	100	100	100								
TCMS32H2.50	33	100	100	100	5					16			
TCMS32H4	44	100	100	100	3					25			
TCMS32H6.30	75	100	100	6	3					35			
TCMS32H10	120	100	100	6	3					50			
TCMS32H13	160	25	25	6	3	80	63	50	50				
TCMS32H17	230	25	25	6	3	80	63	50	50				
TCMS32H22	270	25	25	4	3	80	80	50	50				
TCMS32H26	360	25	25	4	3	80	80	50	50				
TCMS32H32	400	25	25	4	3	80	80	50	50				

Note:
 TCMS32XH $I_{cu} = 100\% I_{cs}$
 TCMS32H $I_{cu} = 50\% I_{cs}$

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Selection Chart & Tripping Curves



Selection Chart for Motor Protection (as per IEC)

Standard Motor Power					Setting Range	Type
Three Phase						
220 V 230 V 240 V	380 V 400 V 415 V	440 V	500 V	660 V 690 V		
kW	A					
				0.06	0.1...0.16	TCMS32H0.16
	0.06	0.06	0.06...0.09	0.06...0.12	0.16...0.25	TCMS32H0.25
0.06	0.09	0.12	0.09...0.12	0.18	0.25...0.4	TCMS32H0.40
0.09	0.12...0.18	0.18	0.18	0.25	0.4...0.63	TCMS32H0.63
0.09...0.12	0.18...0.25	0.25...0.37	0.25...0.37	0.37...0.55	0.63...1	TCMS32H1.0
0.18...0.25	0.37...0.55	0.37...0.55	0.55...0.75	0.75...1.1	1...1.6	TCMS32H1.60
0.37	0.75	0.75...1.1	1.1	1.5	1.6...2.5	TCMS32H2.50
0.55...0.75	1.1...1.5	1.5	1.5...2.2	2.2...3	2.5...4	TCMS32H4
1.1...1.5	2.2	2.2...3	2.2...3	4	4...6.3	TCMS32H6.30
1.5...2.2	3...4	4	4...5.5	5.5...7.5	6.3...10	TCMS32H10
2.2...3	5.5	5.5...7.5	5.5...7.5	9...11	9...14	TCMS32H13
4	7.5	7.5...9	9...11	15	13...18	TCMS32H17
5.5	9...11	11	11	15...18.5	17...23	TCMS32H22
5.5...7.5	11	11	15	18.5...22	20...27	TCMS32H26
7.5	15	15	18.5	22	25...32	TCMS32H32

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Accessories



Auxiliary Switch

Reference	Contacts
Side	
TCHS01	1NC
TCHS10	1NO
TCHS11	1NO + 1NC
TCHS20	2NO
Front	
TCHSV10	1NO
TCHSV01	1NC
Trip Indication contact block	
TCHRS10	1NO
TCHRS01	1NC

Enclosure (IP 55)

Reference	Type
TCMSHO	Surface Mounted
TCMSFP	Flush Mounted

Emergency Stop Button

Reference	Type
TCES-T	Emergency Stop - Red

Lamp

Reference	Type
TCSS1*	Signal Lamp - White
TCSS3*	Signal Lamp - Green
TCSS4*	Signal Lamp - Red

Voltage Releases

Reference	Type
TCMSUR...	Under Voltage Release (24-600V AC)
TCMSAR...	Short Release (24-600V AC)

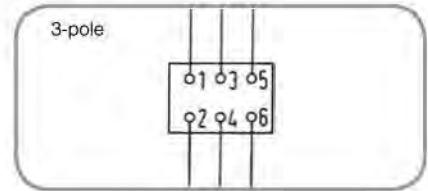
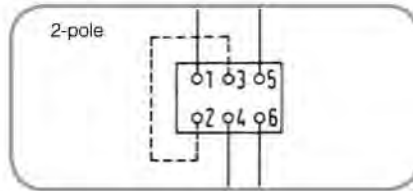
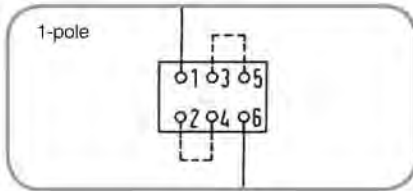
F: 110V AC, P: 230V AC, U: 24V AC, A: 42V AC

* 230V, 240V, 400V available

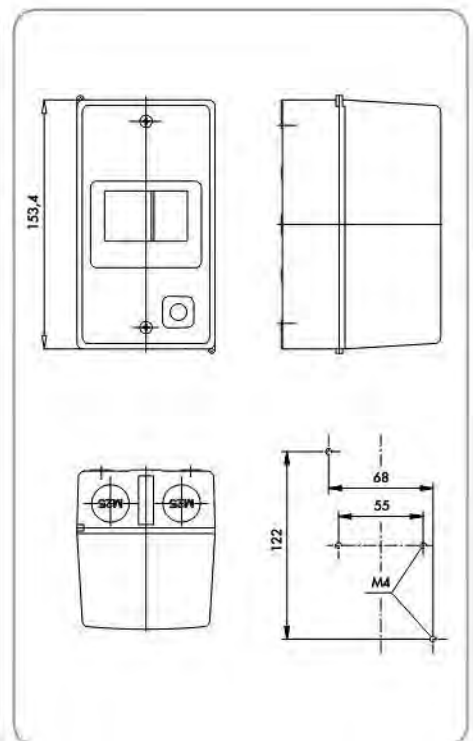
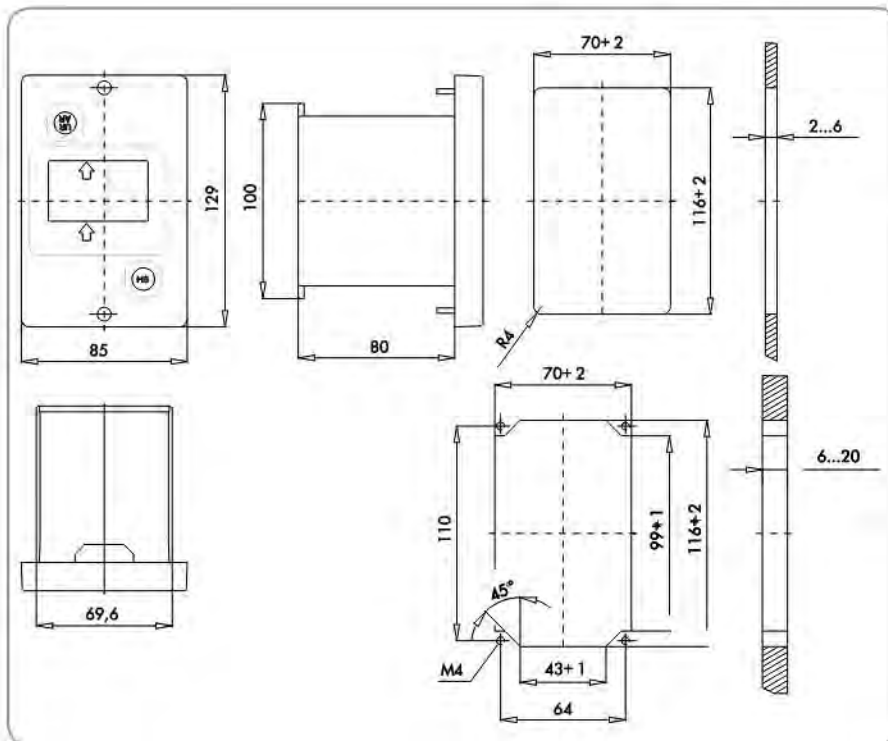
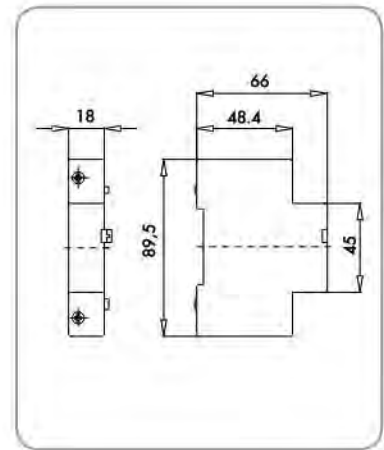
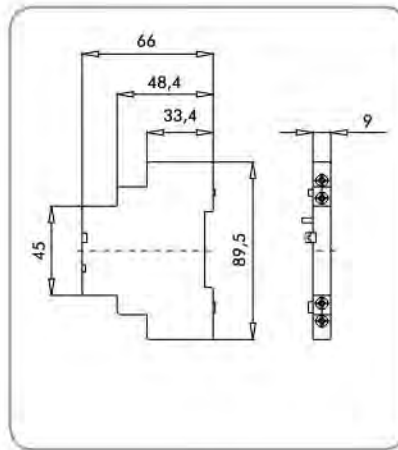
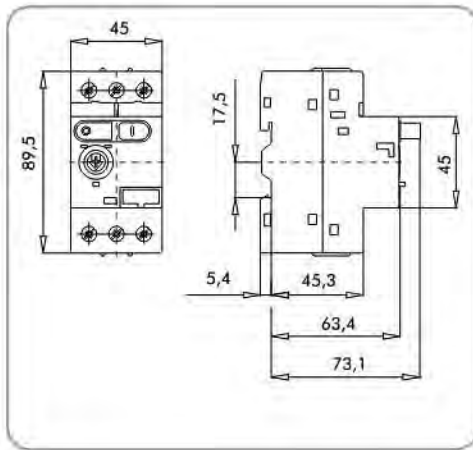
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Dimensions

CONNECTION DIAGRAM



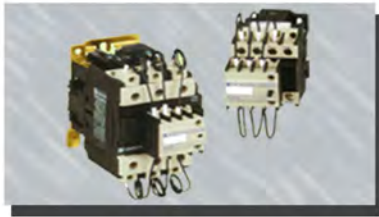
DIMENSIONS



Ordering Data

TCMS25 with the setting range 2.5 - 4.0A: TCMS25308

The same switch with under-voltage release for control voltage 380V with an auxiliary switch with two NO contacts, built in the enclosure, with an emergency stop push-button and a green signal lamp for 230V: TCMS25308-U 380-20-EF-TCNAT-SS3 230



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