


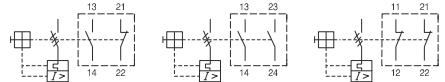

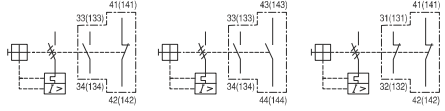

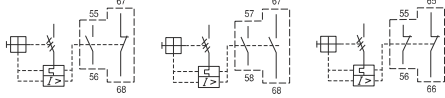

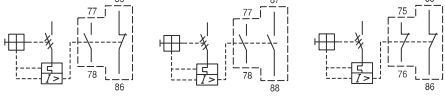
Short Circuit Protection for Motor Controller

- Without thermal releases
- Magnetic release 13 x le max
- Protective function
 - Short Circuit



Type	Rated operational current I _n [A]	Thermal release Adjustment range [A]	Magnetic release Operating current [A]	Switching of 3 phase AC motor, AC-2, AC-3						400 / 415V	
				3-phase [kW] (50 / 60Hz)			3-phase [HP] (60Hz)			I _{cu} [kA]	I _{cs} [kA]
				230V	400V	690V	230V	480V	575V		
TCMS-32HI (Standard)	0.16	-	2.1	-	0.02	-	-	-	-	100	100
	0.25	-	3.3	0.03	0.06	-	-	-	-	100	100
	0.4	-	5.2	0.06	0.09	-	-	-	-	100	100
	0.63	-	8.2	0.09	0.12	0.25	-	-	-	100	100
	1	-	13	0.12	0.25	0.55	-	1/2	1/2	100	100
	1.6	-	20.8	0.25	0.55	1.1	1/3	3/4	1	100	100
	2.5	-	32.5	0.37	0.75	1.5	1/2	1.5	1.5	100	100
	4	-	52	0.75	1.5	3	1	2	3	100	100
	6	-	78	1.5	2.2	4	1.5	5	5	100	100
	8	-	104	1.5	3	5.5	2	5	5	100	100
	10	-	130	3	4	7.5	3	7.5	10	100	100
	13	-	169	3	5.5	11	3	7.5	10	100	100
	17	-	221	4	7.5	11	5	10	15	50	38
TCMS-63HI (High Break)	22	-	286	4	7.5	15	7.5	15	20	50	38
	26	-	338	5.5	11	18.5	7.5	15	20	50	38
	32	-	416	7.5	15	22	10	20	30	50	38
	10	-	130	3	4	7.5	3	7.5	10	100	100
	13	-	169	3	5.5	11	3	7.5	10	100	100
	17	-	221	4	7.5	11	5	10	15	50	50
	22	-	286	4	7.5	15	7.5	15	20	50	50
	26	-	338	5.5	11	18.5	10	20	25	50	50
	32	-	416	7.5	15	22	10	25	30	50	50
	40	-	520	7.5	18.5	30	15	30	40	50	50
TCMS-100HI (High Break)	50	-	650	11	22	45	15	40	50	50	50
	63	-	819	15	30	55	20	50	60	50	50
	17	-	221	4	7.5	11	5	10	15	100	100
	22	-	286	4	7.5	15	7.5	15	20	100	50
	26	-	338	5.5	11	18.5	10	20	25	100	50
	32	-	416	7.5	15	22	10	25	30	100	50
	40	-	520	7.5	18.5	30	15	30	40	100	50
	50	-	650	11	22	45	15	40	50	100	50
	63	-	819	15	30	55	20	50	60	100	50
	75	-	975	22	37	63	25	60	75	75	50
90	-	1170	30	45	75	30	75	100	75	50	
100	-	1300	30	45	90	40	75	100	75	50	

Accessories (Electrical Auxiliaries)

Model	Description	Connection diagram
 <p>TFX...</p>	<p>Auxiliary Switch</p> <ul style="list-style-type: none"> Front mounting 2-pole One front mounting module per circuit breaker 	<p>1NO1NC 2NO 2NC</p> 
 <p>TLX...</p>	<p>Auxiliary Switch</p> <ul style="list-style-type: none"> Side mounting on the left 2-pole One side mounting module per circuit breaker 	<p>1NO1NC 2NO 2NC</p> 
 <p>TLA...</p>	<p>Any Trip Alarm Switch</p> <ul style="list-style-type: none"> Operates in case of trip Side mounting on the left 2-pole Set LA first in case of using LX together (! MS-63 can not accept LX and LA together) 	
 <p>TAM...</p>	<p>Magnetic Trip Alarm Switch</p> <ul style="list-style-type: none"> Operates in case of instantaneous trip Side mounting on the left 2-pole Set LAM first in case of using LX together 	

Accessories (Electrical Auxiliaries)

Model	Description	Connection diagram	
TRS...	Shunt release <ul style="list-style-type: none"> Side mounting on the right One side mounting module per circuit breaker. Can not use with TRU or TRUX 		110- 127 Hz 220-230V 50Hz 415-440V 50Hz
TRU...	Undervoltage release <ul style="list-style-type: none"> Side mounting on the right One side mounting module per circuit breaker. Can not use with TRU or TRUX 		110- 127V 50Hz 220-230V 50Hz 415-440V 50Hz
TRX...	Undervoltage release with Switch <ul style="list-style-type: none"> Side mounting on the right Include 2NO Auxiliary contact One side mounting module per circuit breaker. Can not use with TRU or TRUX Can not attach to TCMS-32S 		110- 127V 50Hz 220-230V 50Hz 415-440V 50Hz



E-Handle (Rotary-type)

TCMS E-Handle is a Rotary-type Handle accessory which can be attached to the front to control and verify the ON, TRIP, OFF condition of Manual Motor Starters under the situation of closing panel.

- Application Model: TCMS-32H/HI, TCMS-63S/H/HI, TCMS-100S/H/HI
- Operation temp.: -20~ +60°C
- Degree of protection: Ip65
- Material of insulation: Plastic (PA66)
- CE and UL certified
- Locking device: Lockable in on/off position

Type	Application MMS	Remarks
MEH-32	TCMS-32H, 32HI	Length of shaft: 115 or 315mm
MEH-63	TCMS-63S, 63H, 63HI	
MEH-100	TCMS-100S, 100H, 100HI	

Phase Bus

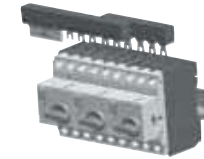
It is a device for a parallel connection with power terminals in the circuit lined up by TCMS, and it can provides the solution "Simple wiring" and "Compact wiring space".

- Application Model : TCMS-32, 63
- Safety Cover built-in
- CE and UL certified
- RoHS compliance

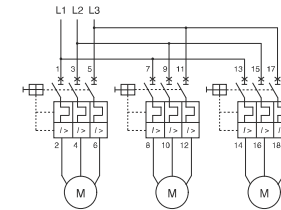
Type	Application MMS	Number of Terminals	Rated current	Safety cover attached
PB-322	TCMS-32S, 32H, 32HI	2	63A	PBPC-32 (32for S, H)
PB-323		3		
PB-632	TCMS-63S, 63H, 63HI	2	108A	PBPC-63
PB-633		3		



Phase Bus



Diagram



Enclosure

Case cover of TCMS enclosure is specifically designed with dust-proof and corrosive-proof structure. Therefore, it is the optimum product to use in dusty areas such as cement plants, cotton mills as well as in the presence of corrosive gas or liquid (excl. explosive, flammable gas) such as fertilizer, refinery, and plating plant.

- Application Model: TCMS - 32H / HI
- CE and UL certified
- Material of insulation: Plastic (ABS)
- Operation temperature : -20~ +60°C
- Degree of protection: Ip65

Type	Application TCMS	Remarks
EPH-32	TCMS-32H, 32HI	Surface mount



Dial Cover

Dial cover is used to protect the set value from the operation that is not intended.

It is supplied as standard for all TCMS

- Application Model: TCMS-32, 63, 100 (All types)

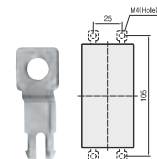


Insulation Barrier

Insulation barrier is used to enlarge the creepage distance and clearance to meet therequirement of UL.

- Application Model : TCMS-100

Type	Application TCMS
TIB100	TCMS-100S, 100H, 100HI



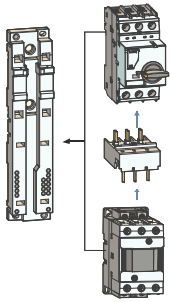
Screw mounting holder

32AF TCMS is only for DIN rail mountable by itself. Screw mounting holder is used to mount TCS on a panel by screws.

- Application Model : TCMS-32

Type	Application TCMS	Remarks
TMP 32	TCMS-32S, 32H, 32HI	For M4 screw

Accessories (Electrical Auxiliaries)



Direct adaptor and Mounting unit

Direct adaptor, DA

Direct adaptor is used to connect TCMS directly with a contactor

Mounting unit, MU

This device is attached module to connect joined TCMS with a contactor

- Application Model: TCMS+contactor TCJM06-16 / TPJM06-16 Mini contactor

Type		Combine Devices	
Direct adaptor	Mounting Unit	TCMS	MC
TDA-32SA	MU-45	TCMS-32S	Mini MC TCIM06-16
TDA-32HA		TCMS-32H, 32HI	
TDA-32SD		TCMS-32S	Mini MC TDIM06-16
TDA-32HD		TCMS-32H, 32HI	

Terminals

	TCMS32S	TCMS32H	TCMS63S, 63H	TCMS100S, 100H
Conformity to standards	IEC60947 UL508, UL508 Type E			
Approvals	CE, UL			
Terminal parts				
Screwdriver				
Single-core	1,conductor [mm] / [AWG] 1...10 / 18...8	1...10 / 18...8	0,75...35 / 18...2	2,5...70 / 12...2/0
2,conductor [mm] / [AWG]	1...6 / 18...10	1...6 / 18...10	0,75...25 / 18...4	2,5...50 / 12...1/0
Standard	1,conductor [mm] / [AWG] 1...6 / 18...10	1...6 / 18...10	0,75...35 / 18...2	2,5...70 / 12...2/0
2,conductor [mm] / [AWG]	1...6 / 18...10	1...6 / 18...10	0,75...25 / 18...4	2,5...50 / 12...1/0
Flexible	1,conductor [mm] / [AWG] 1...6 / 18...10	1...6 / 18...10	0,75...25 / 18...4	2,5...50 / 12...1/0
2,conductor [mm] / [AWG]	0,75...4 / 18...10	0,75...4 / 18...10	0,75...16 / 18...6	2,5...35 / 10...2
Tightening torque [Nm] / [lb-in]	0,5...2,5 / 7...22	0,8...2,5 / 7...22	3...4,5 / 26...39	4...6 / 35...53

Power consumption

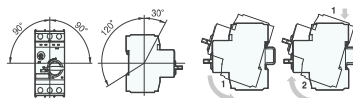
	TCMS32S	TCMS32H	TCMS63S, 63H	TCMS100S, 100H
Total power loss Pv				
Circuit breaker at rated load operating temperature [W]	I _n = 0,16-1,6A : 4,4 I _n = 2,5-26A : 7,4 I _n = 32A : 4,0	I _n = 0,16-1,6A : 4,4 I _n = 2,5-26A : 7,4 I _n = 32A : 4,0	I _n = 10-22A : 10,2 I _n = 26-63A : 9,7	I _n = 17-32A : 15 I _n = 40-63A : 21,8 I _n = 75-100A : 17,8

Mounting

35mm DIN rail for TCMS32-63

35mm or 75mm DIN rail for TCMS100

- use 15mm depth for 35mm DIN rail



Operating positions

DIN rail mounting

Environment

Ambient air temperature

storage: - 50...+ 80 °C

operation: - 20...+ 60 °C

Ambient temperature compensation : - 20...+ 60 °C

Maximum operating altitude: 2000m

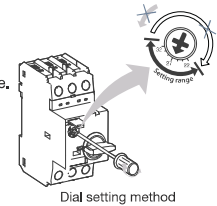
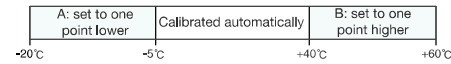
Protection degree: IP20

Shock resistance: 25g

Vibration resistance: 5-150Hz

Caution for thermal adjustments

- Keep the setting range as shown below.
- Moving counterclockwise out of the setting range may cause the damage of the device.
- Calibration by ambient air temperature




Dial setting method

In case of using out of the standard air temperature range (-5°C--+40°C) it needs to be calibrated by one point

Auxiliaries

	Auxiliary contacts for front mounting T FX...	Auxiliary contacts for left side mounting T LX...	Alarm switch for left side mounting T LA...
Rated thermal current / th at 40 °C ambient temperature [A]	5	10	10
at 60 °C ambient temperature [A]	3	6	6
Contact class coordination according to NEMA (UL/CSA-Standards)	AC A600 DC Q300	A600 Q300	A600 Q300
Back-up fuses gG, gL [A]	16	16	16
Rated supply current [A]	-	24	24
AC-15: [A]	-	3	6
DC-13: [A]	24	220	24
[A]	1	0,1	2
Weight (g)	16	30	40
Terminal parts			
Screwdriver			Pozidriv size 2
Single-core	1,conductor [mm] / [AWG] 0,5...2,5 / 20...14		0,5...2,5 / 20...14
2,conductor [mm] / [AWG]	-		0,5...2,5 / 20...14
Standard	1,conductor [mm] / [AWG] 0,5...4 / 20...10		0,5...4 / 20...10
2,conductor [mm] / [AWG]	0,75...2,5 / 18...14		0,75...2,5 / 18...14
Tightening torque [Nm] / [lb-in]	0,8...1,2 / 7...10		0,8...1,2 / 7...10

General Data

	Undervoltage release for right side mounting TRU...	Undervoltage release with 2 auxiliary contacts for right side mounting TRUX...	Shunt release for right side mounting TRS...
Actuating voltage			
Pull-in	0,7...1,1 × Us	0,85...1,1 × Us	0,85...1,1 × Us
Drop-out		0,7...0,35 × Us	0,7...0,35 × Us
Rated control voltage			
min.:	24V 50Hz / 28V 60Hz	24V 50Hz / 28V 60Hz	24V 50Hz / 28V 60Hz
max.:	415-440V 50Hz / 460-480V 60Hz	415-440V 50Hz / 460-480V 60Hz	415-440V 50Hz / 460-480V 60Hz
Coil rating			
Pull-in	8,5VA, 6W	8,5VA, 6W	8,5VA, 6W
Hold	3VA, 1,2W	3VA, 1,2W	3VA, 1,2W
Opening time (ms)	-	20	20
Weight (g)	18	30	40
Terminal parts			
Screwdriver		Pozidriv size 2	
Single-core	1.conductor [mm] / [AWG]	0,5...2,5 / 20...14	
	2.conductor [mm] / [AWG]	0,5...2,5 / 20...14	
Standard	1.conductor [mm] / [AWG]	0,5...4 / 20...10	
	2.conductor [mm] / [AWG]	0,75...2,5 / 18...14	
Tightening torque	[Nm] / [lb-in]	0,8...1,2 / 7...10	

Installation of auxiliaries

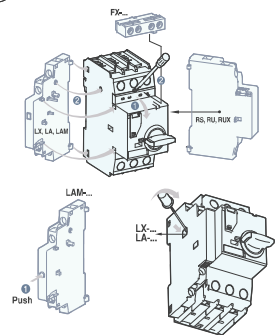
Be sure to turn off the main switch of TCMS before any other action.



TCMS-32S/H/II

To install TFX remove the cover first.

- 2 each of TLX can be installed together.
- Only one of auxiliaries among TRU, TRS and TRUX can be mounted on the right side of TCMS.
- Do not give trip signal to TRS longer than 10 sec.
- Refer to the possible combination chart for the mounting of TLX, TLA and TLAM on left side of TCMS.

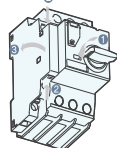


- Push the trip button before installation of TLAM

- Remove the indicated part in the fig. before the additional installation of TLX

Separation of auxiliaries from TCMS

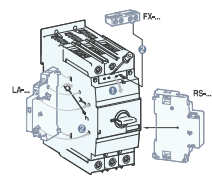
- Be sure to turn off the main switch of TCMS before the separation.
- Push softly the separation button on the side of the auxiliary and pull it.



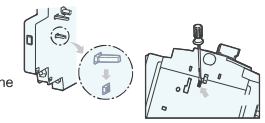
TCMS-63, 100S/H/II

To install TFX remove the cover ① first.

- 2 each of TLX can be installed together. (only 1 each for TCMS-63)
- Only one of auxiliaries among TRU, TRS and TRUX can be mounted on the right side of TCMS.
- Do not give trip signal to TRS longer than 10 sec.
- Refer to the possible combination chart for the mounting of TLX, TLA and TLAM on left side of TCMS.



- Remove the indicated part of TCMS-63 and TCMS 100 as shown in the fig. before the installation of TLA



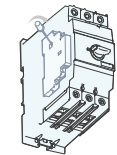
- Do not install TLA in the status of TRIP of TCMS-100



- Remove the indicated part as shown in the above fig. before the additional installation of TLX

Separation of auxiliaries from TCMS

- Be sure to turn off the main switch of TCMS before the separation.
- Push softly the separation button on the side of the auxiliary and pull it.

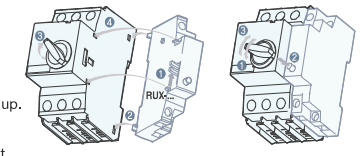


Installation of auxiliaries

How to Install and reset TRUX

Installing

1. Check if the trip button of TRUX is "UP". If not, push the side lever ① to come it up.
2. Fit the both lower hooks ② into the TCMS.
3. Rotate the handle of TCMS to the 20 to 30 degree ③ to ON direction and keep it.
4. Fit the both upper hooks ④ into the TCMS
5. Input power to the TRUX
6. Turn ON the handle of TCMS

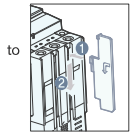


Resetting

The trip button of TRUX does not come "UP" in the event of tripping due to undervoltage. To turn ON the TCMS after the tripping

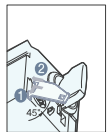
- ① Turn OFF the TCMS and check if the trip button of TRUX comes "UP"
- ② Push the trip button
- ③ Turn ON the TCMS

Insulation barrier



*Only for TCMS-100

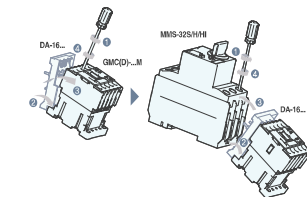
Dial cover



*For all TCMS

Combination with mini contactors

Adaptor	TCMS	+ Contactor Model
TDA-16SA	TCMS-32S	+ TCI 06-16
TDA-16SD	TCMS-32S	+ TCI 06-16
TDA-16HA	TCMS-32H	+ TCI 06-16
TDA-16HD	TCMS-32H	+ TCI 06-16



Installation of auxiliaries

Please read this chart completely before installing the auxiliaries. Improper combination can cause electric failure or accident.

