

Meta-MEC

Manual Motor Starters



Electric Equipment



Product Selection Guide

Quick selection table ... IEC rating



Frame			32AF																			
Type	Current adjustable type		MMS-32S										MMS-32H									
	Instantaneous type		-										MMS-32HI									
Breaking capacity			Standard										High breaking									
Handle Type			Toggle										Rotary									
Number of poles			3										3									
Rated operational voltage (Ue)			Up to 690V										Up to 690V									
Rated frequency			50/60 Hz										50/60 Hz									
Rated insulation voltage (Ui)			690V										690V									
Rated impulse voltage (Uimp)			6kV										6kV									
Utilization category	IEC 60 947-2 (Breaker)		Cat. A										Cat. A									
	IEC 60 947-4 (Motor starter)		AC 3										AC 3									
Mechanical endurance (Operating)			100,000										100,000									
Electrical endurance (Cycles)			100,000										100,000									
Max operating frequency per hour (Ope./h)			25										25									
Temperature compensation (Operation)			-20 ~ +60℃										-20 ~ +60℃									
Instantaneous short circuit release			13 × I _e max.										13 × I _e max.									
Overload protection			○										○									
Phase failure function			○										○									
Trip indicating function			×										×									
Test function			○										○									
Weight (g)			320										360									
Rated breaking capacity (kA)	Rated operational current (I _e)	Thermal release Adjustment range (A)	220V 240V 230V		415V 400V		460V 440V		525V 500V		690V 600V		220V 240V 230V		415V 400V		460V 440V		525V 500V		690V 600V	
			I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}
	0.16	0.1~0.16	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	0.25	0.16~0.25	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	0.4	0.25~0.4	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	0.63	0.4~0.63	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	1	0.63~1	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	1.6	1~1.6	100	100	100	100	100	100	100	100	3	3	100	100	100	100	100	100	100	100	100	100
	2.5	1.6~2.5	100	100	100	100	100	100	50	38	3	3	100	100	100	100	100	100	100	100	8	8
	4	2.5~4	100	100	100	100	50	38	15	11	3	3	100	100	100	100	100	100	100	100	8	8
	6	4~6	100	100	100	100	15	11	10	8	3	3	100	100	100	100	100	100	100	100	6	6
	8	5~8	100	100	100	100	15	11	10	8	3	3	100	100	100	100	50	38	50	38	6	6
	10	6~10	100	100	50	38	15	11	6	5	3	3	100	100	100	100	50	38	50	38	6	6
	13	9~13	100	100	50	38	10	8	6	5	3	3	100	100	100	100	50	38	42	32	6	6
	17	11~17	50	38	20	15	10	8	6	5	3	3	100	100	50	38	20	15	10	8	4	4
	22	14~22	40	30	15	11	8	6	6	5	3	3	100	100	50	38	20	15	10	8	4	4
	26	18~26	40	30	15	11	8	6	6	5	3	3	100	100	50	38	20	15	10	8	4	4
	32	22~32	30	22	15	11	6	4	5	4	3	3	100	100	50	38	20	15	10	8	4	4
	40	28~40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	50	34~50	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	63	45~63	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	75	55~75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	90	70~90	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	100	80~100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



63AF															100AF																								
MMS-63S					MMS-63H					MMS-100S					MMS-100H																								
-					MMS-63HI					-					MMS-100HI																								
Standard					High breaking					Standard					High breaking																								
Rotary					Rotary					Rotary					Rotary																								
3					3					3					3																								
Up to 690V					Up to 690V					Up to 690V					Up to 690V																								
50/60 Hz					50/60 Hz					50/60 Hz					50/60 Hz																								
1,000V					1,000V					1,000V					1,000V																								
8kV					8kV					8kV					8kV																								
Cat. A					Cat. A					Cat. A					Cat. A																								
AC 3					AC 3					AC 3					AC 3																								
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-20 ~ +60℃					-20 ~ +60℃					-20 ~ +60℃					-20 ~ +60℃																								
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1,000					1,000					2,200					2,200																								
220V 240V 230V	415V 400V	460V 440V	525V 500V	690V 600V	220V 240V 230V	415V 400V	460V 440V	525V 500V	690V 600V	220V 240V 230V	415V 400V	460V 440V	525V 500V	690V 600V	220V 240V 230V	415V 400V	460V 440V	525V 500V	690V 600V																				
I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}	I _{cu}	I _{cs}										
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100	100	100	100	15	12	10	8	4	3	100	100	100	100	50	38	50	38	6	5	-	-	-	-	-	-	-	-	-	-	-									
100	100	50	38	10	8	6	5	4	3	100	100	100	100	50	38	42	32	6	5	-	-	-	-	-	-	-	-	-	-	-									
100	100	25	19	10	8	6	5	4	3	100	100	50	50	50	38	12	9	5	5	100	100	50	38	40	30	25	19	10	8	100	100	100	100	50	38	35	27	12	9
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Product Selection Guide

Standard type

- Adjustable thermal release
- Magnetic release 13 I_e max.
- Trip class 10
- Protective function
 - phase-failure
 - short circuit
 - overload



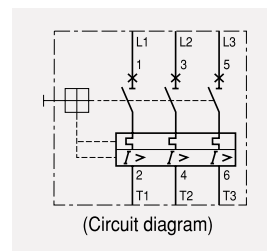
MMS-32S



MMS-63S



MMS-100S



Type	Rated operational current I _e [A]	Thermal release Adjustment range [A]	Magnetic release Operating current [A]	Switching of 3 phase AC motors, 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	460V	575V		
MMS-32S	0.16	0.1...0.16	2.1	-	0.02	-	-	-	-	100	100
	0.25	0.16...0.25	3.3	0.03	0.06	-	-	-	-	100	100
	0.4	0.25...0.4	5.2	0.06	0.09	-	-	-	-	100	100
	0.63	0.4...0.63	8.2	0.09	0.12	0.25	-	-	-	100	100
	1	0.63...1.0	13	0.12	0.25	0.55	-	1/2	1/2	100	100
	1.6	1.0...1.6	20.8	0.25	0.55	1.1	1/3	3/4	1	100	100
	2.5	1.6...2.5	32.5	0.37	0.75	1.5	1/2	1½	1½	100	100
	4	2.5...4.0	52	0.75	1.5	3	1	2	3	100	100
	6	4...6	78	1.5	2.2	4	1½	5	5	100	100
	8	5...8	104	1.5	3	5.5	2	5	5	100	100
	10	6...10	130	3	4	7.5	3	7½	10	50	38
	13	9...13	169	3	5.5	11	3	7½	10	50	38
	17	11...17	221	4	7.5	11	5	10	15	20	15
	22	14...22	286	4	7.5	15	7½	15	20	15	11
MMS-63S	26	18...26	338	5.5	11	18.5	7½	15	20	15	11
	32	22...32	416	7.5	15	22	10	20	30	15	11
	10	6~10	130	3	4	7.5	3	7½	10	100	100
	13	9~13	169	3	5.5	11	3	7½	10	50	38
	17	11~17	221	4	7.5	11	5	10	15	25	19
	22	14~22	286	4	7.5	15	7½	15	20	25	19
	26	18~26	338	5.5	11	18.5	10	20	25	25	19
	32	22~32	416	7.5	15	22	10	25	30	25	19
MMS-100S	40	28~40	520	7.5	18.5	30	15	30	40	25	19
	50	34~50	650	11	22	45	15	40	50	25	19
	63	45~63	819	15	30	55	20	50	60	25	19
	17	11~17	221	4	7.5	11	5	10	15	50	38
	22	14~22	286	4	7.5	15	7½	15	20	50	38
	26	18~26	338	5.5	11	18.5	10	20	25	50	38
	32	22~32	416	7.5	15	22	10	25	30	50	38
	40	28~40	520	7.5	18.5	30	15	30	40	50	38
	50	34~50	650	11	22	45	15	40	50	50	38
	63	45~63	819	15	30	55	20	50	60	50	38
	75	55~75	975	22	37	63	25	60	75	50	38
	90	70~90	1170	30	45	75	30	75	100	50	38
	100	80~100	1300	30	45	90	40	75	100	50	38

High breaking type

- Adjustable thermal release
- Magnetic release 13 Ie max.
- Trip class 10
- Protective function
 - phase-failure
 - short circuit
 - overload



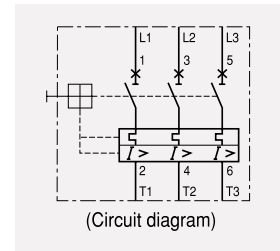
MMS-32H



MMS-63H



MMS-100H



Type	Rated operational current I _e [A]	Thermal release Adjustment range [A]	Magnetic release Operating current [A]	Switching of 3 phase AC motors, 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	460V	575V		
MMS-32H	0.16	0.1...0.16	2.1	-	0.02	-	-	-	-	100	100
	0.25	0.16...0.25	3.3	0.03	0.06	-	-	-	-	100	100
	0.4	0.25...0.4	5.2	0.06	0.09	-	-	-	-	100	100
	0.63	0.4...0.63	8.2	0.09	0.12	0.25	-	-	-	100	100
	1	0.63...1.0	13	0.12	0.25	0.55	-	1/2	1/2	100	100
	1.6	1.0...1.6	20.8	0.25	0.55	1.1	1/3	3/4	1	100	100
	2.5	1.6...2.5	32.5	0.37	0.75	1.5	1/2	1½	1½	100	100
	4	2.5...4.0	52	0.75	1.5	3	1	2	3	100	100
	6	4...6	78	1.5	2.2	4	1½	5	5	100	100
	8	5...8	104	1.5	3	5.5	2	5	5	100	100
	10	6...10	130	3	4	7.5	3	7½	10	100	100
	13	9...13	169	3	5.5	11	3	7½	10	100	100
	17	11...17	221	4	7.5	11	5	10	15	50	38
	22	14...22	286	4	7.5	15	7½	15	20	50	38
MMS-63H	26	18...26	338	5.5	11	18.5	7½	15	20	50	38
	32	22...32	416	7.5	15	22	10	20	30	50	38
	10	6~10	130	3	4	7.5	3	7½	10	100	100
	13	9~13	169	3	5.5	11	3	7½	10	100	100
	17	11~17	221	4	7.5	11	5	10	15	50	50
	22	14~22	286	4	7.5	15	7½	15	20	50	50
	26	18~26	338	5.5	11	18.5	10	20	25	50	50
	32	22~32	416	7.5	15	22	10	25	30	50	50
MMS-100H	40	28~40	520	7.5	18.5	30	15	30	40	50	50
	50	34~50	650	11	22	45	15	40	50	50	50
	63	45~63	819	15	30	55	20	50	60	50	50
	17	11~17	221	4	7.5	11	5	10	15	100	100
	22	14~22	286	4	7.5	15	7½	15	20	100	50
	26	18~26	338	5.5	11	18.5	10	20	25	100	50
	32	22~32	416	7.5	15	22	10	25	30	100	50
	40	28~40	520	7.5	18.5	30	15	30	40	100	50
	50	34~50	650	11	22	45	15	40	50	100	50
	63	45~63	819	15	30	55	20	50	60	100	50
MMS-100H	75	55~75	975	22	37	63	25	60	75	75	50
	90	70~90	1170	30	45	75	30	75	100	75	50
	100	80~100	1300	30	45	90	40	75	100	75	50

Product Selection Guide

Instantaneous type

- Without thermal releases
- Magnetic release 13 I_e max.
- Protective function
 - short circuit



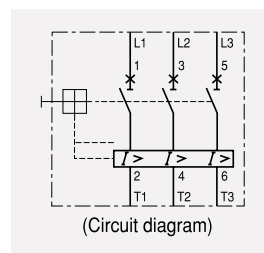
MMS-32HI



MMS-63HI

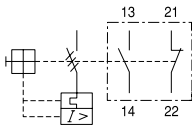
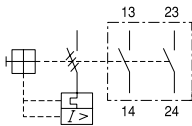
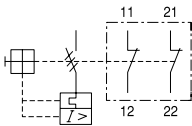
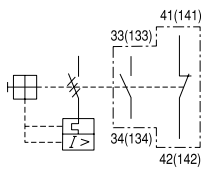
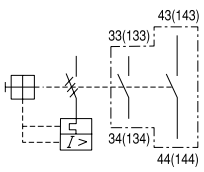
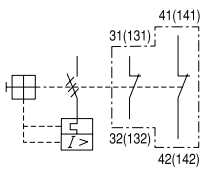
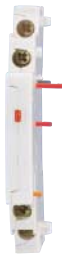
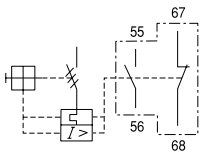
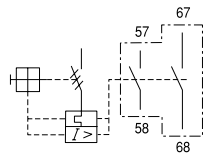
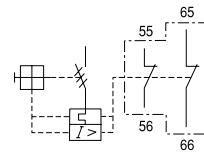
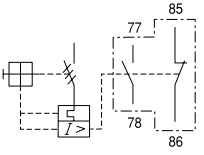
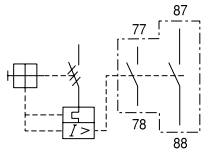
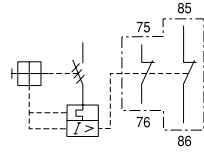


MMS-100HI



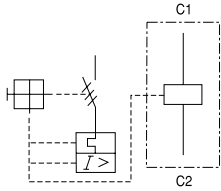
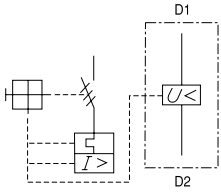
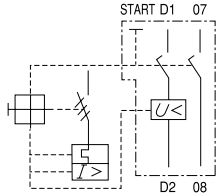
Type	Rated operational current I _e [A]	Thermal release Adjustment range [A]	Magnetic release Operating current [A]	Switching of 3 phase AC motors, AC-2, AC-3						400/415V	
				3-phase [kW] (50/60Hz)			3-phase [HP] (60Hz)			I _{cu} [kA]	I _{cs} [kA]
				230V	400V	690V	230V	460V	575V		
MMS-32HI	0.16	-	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	1½	1½	100	100
	4	-	52	0.75	1.5	3	1	2	3	100	100
	6	-	78	1.5	2.2	4	1½	5	5	100	100
	8	-	104	1.5	3	5.5	2	5	5	100	100
	10	-	130	3	4	7.5	3	7½	10	100	100
	13	-	169	3	5.5	11	3	7½	10	100	100
	17	-	221	4	7.5	11	5	10	15	50	38
	22	-	286	4	7.5	15	7½	15	20	50	38
MMS-63HI	26	-	338	5.5	11	18.5	7½	15	20	50	38
	32	-	416	7.5	15	22	10	20	30	50	38
	10	-	130	3	4	7.5	3	7½	10	100	100
	13	-	169	3	5.5	11	3	7½	10	100	100
	17	-	221	4	7.5	11	5	10	15	50	50
	22	-	286	4	7.5	15	7½	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
MMS-100HI	40	-	520	7.5	18.5	30	15	30	40	50	50
	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	7½	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
MMS-100HI	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

Type	Description	Connection diagram		
FX... 	Auxiliary Switch • Front mounting • 2-pole • One front mounting module per circuit breaker	1NO1NC 	2NO 	2NC 
LX... 	Auxiliary Switch • Side mounting on the left • 2-pole • One side mounting module per circuit breaker	1NO1NC 	2NO 	2NC 
LA... 	Any Trip Alarm Switch • Operates in case of trip • Side mounting on the left • 2-pole • Set LA first in case of using LX together (MMS-63 can not accept LX and LA together)			
LAM... 	Magnetic Trip Alarm Switch • Operates in case of instantaneous trip • Side mounting on the left • 2-pole • Set LAM first in case of using LX together			

Product Selection Guide

Accessories

Type	Description	Connection diagram	
RS... 	Shunt release - Side mounting on the right - One side mounting module per circuit breaker. - Can not use with RU or RUX		24V 50Hz / 28V 60Hz 110V 50Hz / 120V 60Hz 200V 50Hz / 200~220V 60Hz 220~230V 50Hz / 240~260V 60Hz 240V 50Hz / 277V 60Hz 380~400V 50Hz / 440~460V 60Hz 415~440V 50Hz / 460~480V 60Hz
RU... 	Undervoltage release - Side mounting on the right - One side mounting module per circuit breaker. - Can not use with RU or RUX		24V 50Hz / 28V 60Hz 110V 50Hz / 120V 60Hz 200V 50Hz / 200~220V 60Hz 220~230V 50Hz / 240~260V 60Hz 240V 50Hz / 277V 60Hz 380~400V 50Hz / 440~460V 60Hz 415~440V 50Hz / 460~480V 60Hz
RUX... 	Undervoltage release with Switch - Side mounting on the right - Include 2NO Auxiliary contact - One side mounting module per circuit breaker. - Can not use with RU or RUX - Can not attach to MMS-32S		24V 50Hz / 28V 60Hz 110V 50Hz / 120V 60Hz 200V 50Hz / 200~220V 60Hz 220~230V 50Hz / 240~260V 60Hz 240V 50Hz / 277V 60Hz 380~400V 50Hz / 440~460V 60Hz 415~440V 50Hz / 460~480V 60Hz

● Others

Type	Description	Applied Type
IB100 	Insulation barriers Insulation barriers with increased creepage distances and clearances for UL.	for MMS-100
	Dial cover to protect the set value from the operation that is not intended	for all type MMS
	Direct adaptor to connect directly with a contactor	for contactors

● Phase-bus

Phase-bus devices, Type PB, followed by MMS-32 and 63
These devices are insulated bus-bar system for feeding several modular circuit breakers on standard mounting rails.

Type	Model	Description	Applied type
Phase-bus	PB-322	For a parallel circuit 32AF	MMS-32S, 32H, 32HI
	PB-632	For a parallel circuit 63AF	MMS-63S, 32H, 32HI

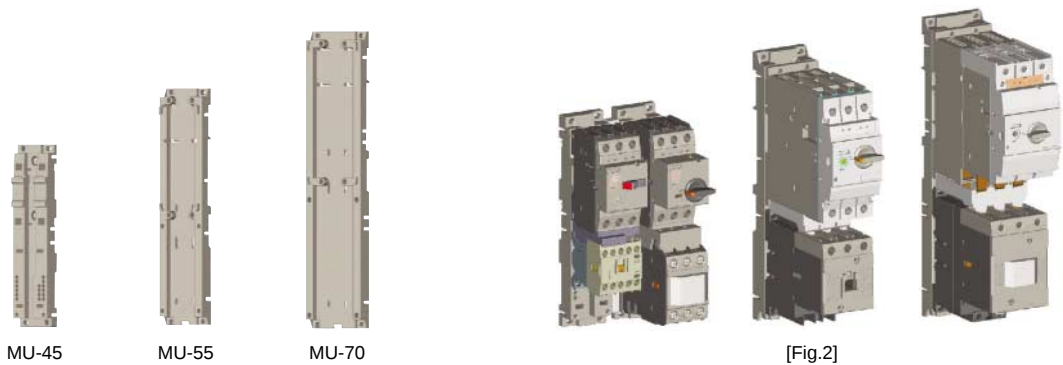


Fig.1

● Mounting Unit

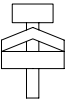
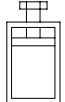
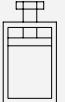
Phase-bus devices, Type MU, followed by MMS-32, 63 and 100
These devices are attached module to connect joined Manual Motor Starter with Contactor.

Type	Model	Description	Applied type
Mounting unit	MU-45	Width 45mm	MMS-32S/H/HI+MC-9~32 or GMC(D)-M
	MU-55	Width 55mm	MMS-63S/H/HI+MC-35~63
	MU-70	Width 70mm	MMS-100S/H/HI+MC-65~95



[Fig.2]

● Terminals

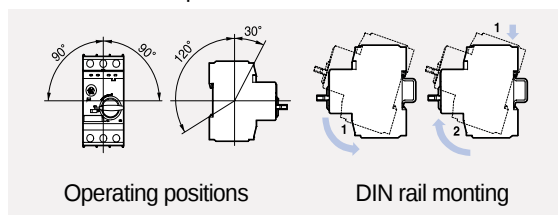
			MMS32S	MMS32H	MMS63S, 63H	MMS100S, 100H
Conformity to standards			IEC60947 UL508, UL508 Type E			
Approvals			CE, UL			
Terminal parts						
Screwdriver						
Single-core	1.conductor	[mm] / [AWG]	1...10 / 18...8	1...10 / 18...8	0.75...35 / 18...2	2.5...70 / 12...2/0
	2.conductor	[mm] / [AWG]	1...6 / 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]	0.8...2.5 / 7...22	0.8...2.5 / 7...22	3...4.5 / 26...39	4...6 / 35...53

● Power consumption

		MMS32S	MMS32H	MMS63S, 63H	MMS100S, 100H
Total power loss P_v					
Circuit breaker at rated load	[W]	$I_n = 0.16\text{--}1.6\text{A} : 4.4$	$I_n = 0.16\text{--}1.6\text{A} : 4.4$	$I_n = 10\text{--}22\text{A} : 10.2$	$I_n = 17\text{--}32\text{A} : 15$
operating temperature		$I_n = 2.5\text{--}26\text{A} : 7.4$	$I_n = 2.5\text{--}26\text{A} : 7.4$	$I_n = 26\text{--}63\text{A} : 9.7$	$I_n = 40\text{--}63\text{A} : 21.8$
		$I_n = 32\text{A} : 4.0$	$I_n = 32\text{A} : 4.0$		$I_n = 75\text{--}100\text{A} : 17.8$

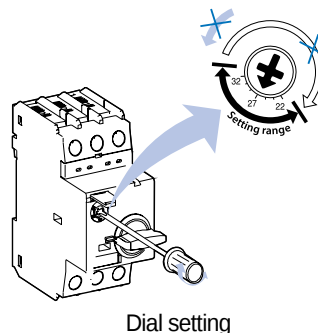
● Mounting

35mm DIN rail for MMS32–63
35mm or 75mm DIN rail for MMS100
- use 15mm depth for 35mm DIN rail



● Current setting

Do not rotate the dial out of the setting range as shown below



● 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

● Auxiliaries

		Auxiliary contacts for front mounting FX...		Auxiliary contacts for left side mounting LX...		Alarm switch for left side mounting 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		A600		A600	
	DC	Q300		Q300		Q300	
Back-up fuses gG, gL	[A]	16		16		16	
Rated supply current	[V]	-	240	24	240	24	240
	AC-15: [A]	-	3	6	4	6	4
	DC-13: [V]	24	220	24	220	24	220
	[A]	1	0.1	2	0.25	2	0.25
Weight (g)		18		30		40	
Terminal parts							
Screwdriver							
Single-core	1.conductor [mm] / [AWG]	0.5...2.5 / 20...14					
	2.conductor [mm] / [AWG]	-					
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					



Pozidriv size 2

0.5...2.5 / 20...14

0.5...2.5 / 20...14

0.5...4 / 20...10

0.75...2.5 / 18...14

0.8...1.2 / 7...10

		Undervoltage release for right side mounting RU...		Undervoltage release with 2 auxiliary contacts for right side mounting RUX...		Shunt release for right side mounting RS...	
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							
Single-core	1.conductor [mm] / [AWG]						
	2.conductor [mm] / [AWG]						
Standard	1.conductor [mm] / [AWG]						
	2.conductor [mm] / [AWG]						
Tightening torque	[Nm] / [lb-in]						



Pozidriv size 2

0.5...2.5 / 20...14

0.5...2.5 / 20...14

0.5...4 / 20...10

0.75...2.5 / 18...14

0.8...1.2 / 7...10

General data

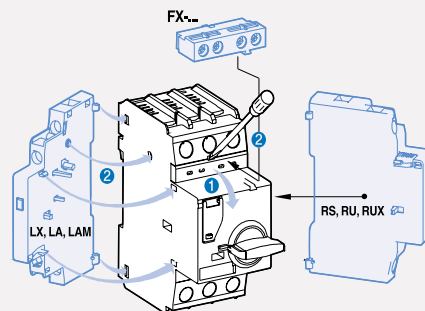
● Installation of auxiliaries

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

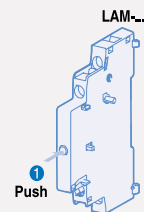


MMS-32S/H/Hi

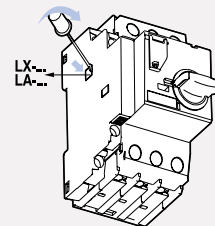
- To install FX remove the cover ① first.
- 2 each of LX can be installed together.
- Only one of auxiliaries among RU, RS and RUX can be mounted on the right side of MMS.
- Do not give trip signal to RS longer than 10 sec.
- Refer to the possible combination chart for the mounting of LX, LA and LAM on left side of MMS.



- Push the trip button before installation of LAM

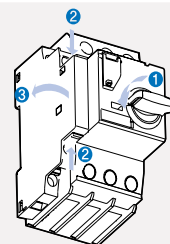


- Remove the indicated part in the fig. before the additional installation of LX



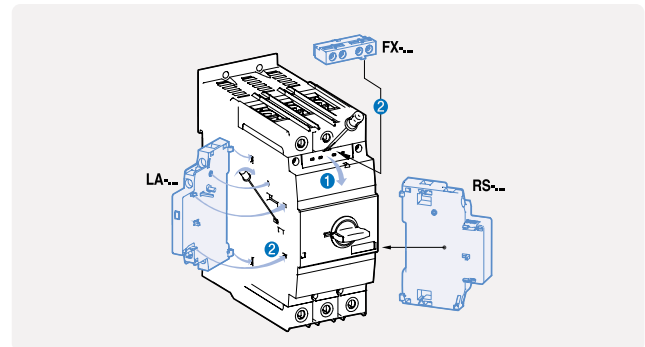
Separation of auxiliaries from MMS

- be sure to turn off the main switch of MMS before the separation.
- push softly the separation button on the side of the auxiliary and pull it.

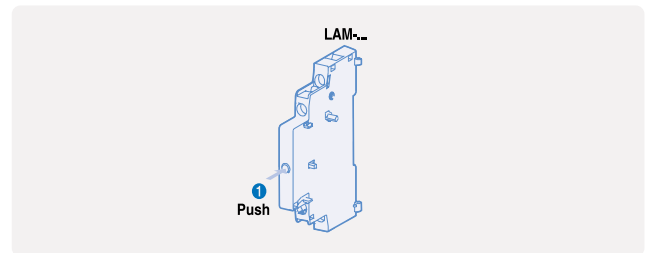


MMS-63, 100S/H/HI

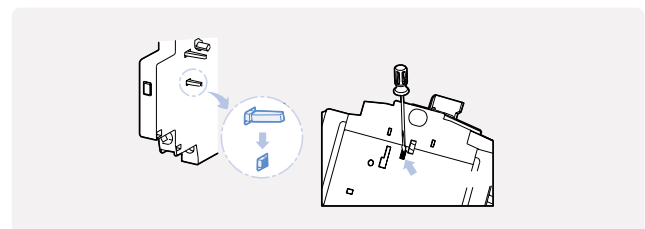
- To install FX remove the cover ① first.
- 2 each of LX can be installed together.
(only 1 each for MMS-63)
- Only one of auxiliaries among RU, RS and RUX can be mounted on the right side of MMS.
- Do not give trip signal to RS longer than 10 sec.
- Refer to the possible combination chart for the mounting of LX, LA and LAM on left side of MMS.



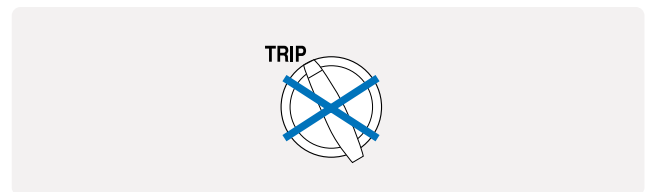
- Push the trip button before installation of LAM



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



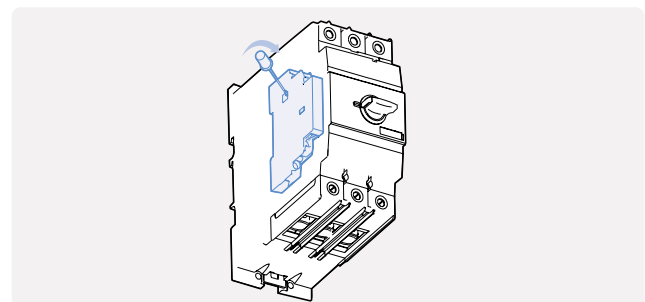
- Do not install LA in the status of TRIP of MMS-100



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

Separation of auxiliaries from MMS

- be sure to turn off the main switch of MMS 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 RUX

Installing

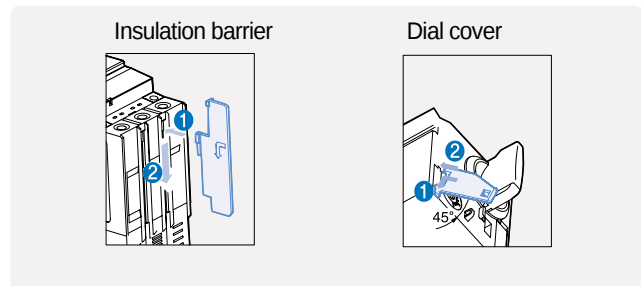
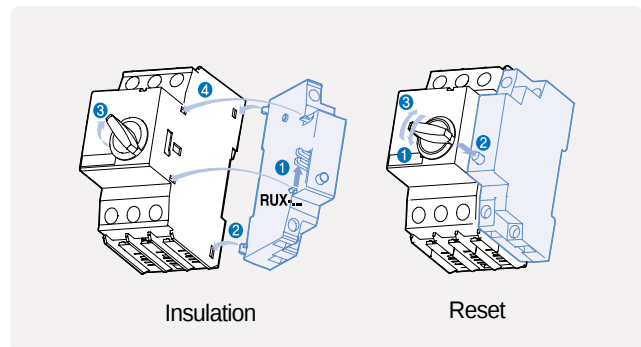
- (1) Check if the trip button of RUX is "UP".
If not, push the side lever ① to come it up.
- (2) Fit the both lower hooks ② into the MMS.
- (3) Rotate the handle of MMS to the 20 to 30 degree ③ to ON direction and keep it.
- (4) Fit the both upper hooks ④ into the MMS.
- (5) Input power to the RUX.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

Resetting

The trip button of RUX does not come "UP" in the event of tripping due to undervoltage.

To turn ON the MMS after the tripping

- ① turn OFF the MMS and check if the trip button of RUX comes "UP".
- ② push the trip button
- ③ turn ON the MMS



* Only for MMS-100

* For all MMS

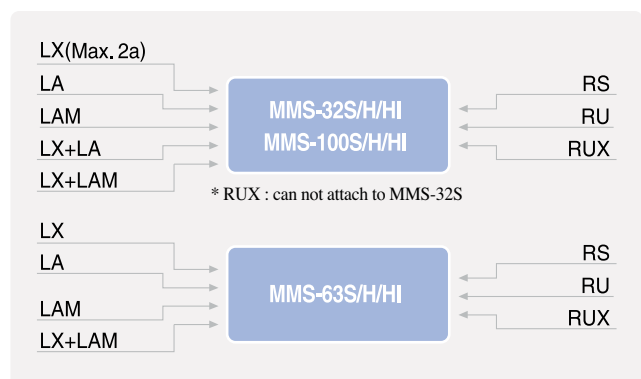
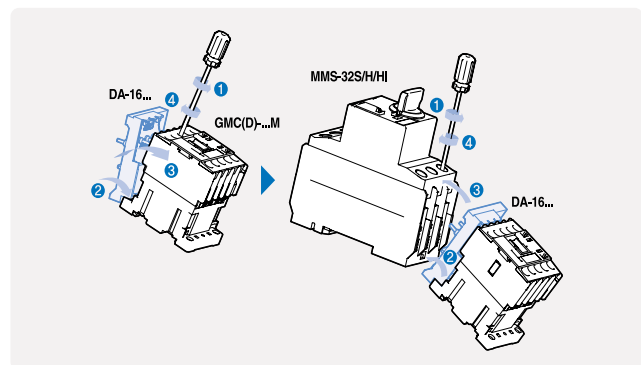
Combination with mini contactors

Adaptor	MMS	+	Contactor model
DA-16SA	MMS-32S	+	GMC-6M~16M
DA-16SD	MMS-32S	+	GMD-6M~16M
DA-16HA	MMS-32H	+	GMC-6M~16M
DA-16HD	MMS-32H	+	GMD-6M~16M
DA-32SA	MMS-32S	+	MC-9~32
DA-32SD	MMS-32S	+	MC-9D~32D
DA-32HA	MMS-32H	+	MC-9~32
DA-32HD	MMS-32H	+	MC-9D~32D
DA-63A	MMS-63S/H	+	MC-35~63
DA-63D	MMS-63S/H	+	MC-35D~63D
DA-95A	MMS-100S/H	+	MC-65~95
DA-95D	MMS-100S/H	+	MC-65D~95D

Possible combination chart

Please read this chart completely before installing the auxiliaries.

Improper combination can cause electric failure or accident.



IEC performance data (Motor protection)

Standard type

● MMS 32S

Rated operational current I_e [A]	0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32
Switching of standard three-phase motors																
AC-2, AC-3																
230/240V [kW]	-	0.03	0.06	0.09	0.12	0.18/0.25	0.37	0.55/0.75	1.1/1.5	1.5	2.2/3	3	3.7/4	4	5.5	7.5
400/415V [kW]	0.02	0.06	0.09	0.12	0.18/0.25	0.37/0.55	0.75	1.1/1.5	2.2	3	3.7/4	5.5	7.5	7.5	11	15
500V [kW]	-	-	-	0.25	0.37	0.55/0.75	1.1	1.5/2.2	3	3.7	4/5.5	7.5	11	11	15	18.5
690V [kW]	-	-	-	0.25	0.37/0.55	0.75/1.1	1.5	2.2/3	3.7/4	5.5	7.5	11	11	15	18.5	22
Back-up fuses gG, gL ₊ , only if $I_{cc} > I_{cu}$ (* = No back up fuse required)																
230/240V [A]	*	*	*	*	*	*	*	*	*	*	*	*	*	125	125	125
400/415V [A]	*	*	*	*	*	*	*	*	*	*	80	80	100	100	100	100
440/460V [A]	*	*	*	*	*	*	*	50	50	63	63	80	80	100	100	100
500V [A]	*	*	*	*	*	*	50	40	50	63	63	80	80	80	80	80
690V [A]	*	*	*	*	*	20	35	40	50	63	63	63	63	63	63	63
Ultimate short-circuit breaking capacity I_{cu}																
230/240V [kA]	100	100	100	100	100	100	100	100	100	100	100	100	50	40	40	30
400/415V [kA]	100	100	100	100	100	100	100	100	100	100	50	50	20	15	15	15
440/460V [kA]	100	100	100	100	100	100	100	50	15	15	15	10	10	8	8	6
500V [kA]	100	100	100	100	100	100	50	15	10	10	6	6	6	6	6	5
690V [kA]	100	100	100	100	100	3	3	3	3	3	3	3	3	3	3	3
Rated service short-circuit breaking capacity I_{cs}																
230/240V [kA]	100	100	100	100	100	100	100	100	100	100	100	100	38	30	30	22
400/415V [kA]	100	100	100	100	100	100	100	100	100	100	38	38	15	11	11	11
440/460V [kA]	100	100	100	100	100	100	100	38	11	11	11	8	8	6	6	4
500V [kA]	100	100	100	100	100	100	38	11	8	8	5	5	5	5	5	4
690V [kA]	100	100	100	100	100	3	3	3	3	3	3	3	3	3	3	3

● MMS 63S

Rated operational current I_e [A]	10	13	17	22	26	32	40	50	63
Switching of standard three-phase motors									
AC-2, AC-3									
230/240V [kW]	2.2/3	3	3.7/4	4	5.5	7.5	7.5	11	15
400/415V [kW]	3.7/4	5.5	7.5	7.5	11	15	18.5	22	30
500V [kW]	4/5.5	7.5	11	11	15	18.5	22	30	37
690V [kW]	7.5	11	11	15	18.5	22	30	45	55
Back-up fuses gG, gL ₊ , only if $I_{cc} > I_{cu}$ (* = No back up fuse required)									
230/240V [A]	*	*	*	125	125	160	160	160	200
400/415V [A]	*	80	100	125	125	125	125	160	160
440/460V [A]	80	80	100	100	100	100	100	100	125
500V [A]	80	80	80	80	80	80	80	80	80
690V [A]	63	63	63	63	63	63	63	63	80
Ultimate short-circuit breaking capacity I_{cu}									
230/240V [kA]	100	100	100	50	50	50	50	50	50
400/415V [kA]	100	50	25	25	25	25	25	25	25
440/460V [kA]	15	10	10	10	10	10	10	10	10
500V [kA]	10	6	6	6	6	6	6	6	6
690V [kA]	4	4	4	4	4	4	4	4	4
Rated service short-circuit breaking capacity I_{cs}									
230/240V [kA]	100	100	100	38	38	38	38	38	38
400/415V [kA]	100	38	19	19	19	19	19	19	19
440/460V [kA]	12	8	8	8	8	8	8	8	8
500V [kA]	8	5	5	5	5	5	5	5	5
690V [kA]	3	3	3	3	3	3	3	3	3

IEC performance data (Motor protection)

Standard type

● MMS 100S

Rated operational current I_n [A]	17	22	26	32	40	50	63	75	90	100
Switching of standard three-phase motors AC-2, AC-3										
230/240V [kW]	3.7/4	4	5.5	7.5	7.5	11	15	22	30	30
400/415V [kW]	7.5	7.5	11	15	18.5	22	30	37	45	45
500V [kW]	11	11	15	18.5	22	30	37	45	55	63
690V [kW]	11	15	18.5	22	30	45	55	63	75	90
Back-up fuses gG, gL, only if $I_{cc} > I_{cu}$ (* = No back up fuse required)										
230/240V [A]	*	*	*	*	*	*	*	*	*	*
400/415V [A]	100	125	125	125	160	160	160	160	160	160
440/460V [A]	100	125	125	125	125	125	160	160	160	160
500V [A]	100	100	100	100	100	100	100	125	125	125
690V [A]	63	80	80	80	80	80	80	100	125	125
Ultimate short-circuit breaking capacity I_{cu}										
230/240V [kA]	100	100	100	100	100	100	100	100	100	100
400/415V [kA]	50	50	50	50	50	50	50	50	50	50
440/460V [kA]	40	40	40	40	40	40	40	40	40	40
500V [kA]	25	25	25	15	15	12	12	8	8	8
690V [kA]	10	10	10	10	6	6	6	5	5	5
Rated service short-circuit breaking capacity I_{cs}										
230/240V [kA]	100	100	100	100	100	100	100	100	100	100
400/415V [kA]	38	38	38	38	38	38	38	38	38	38
440/460V [kA]	30	30	30	30	30	30	30	30	30	30
500V [kA]	19	19	19	11	11	9	9	6	6	6
690V [kA]	8	8	8	8	5	5	5	4	4	4

High breaking type

● MMS 32H

Rated operational current I_n [A]	0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32
Switching of standard three-phase motors AC-2, AC-3																
230/240V [kW]	-	0.03	0.06	0.09	0.12	0.18/0.25	0.37	0.55/0.75	1.1/1.5	1.5	2.2/3	3	3.7/4	4	5.5	7.5
400/415V [kW]	0.02	0.06	0.09	0.12	0.18/0.25	0.37/0.55	0.75	1.1/1.5	2.2	3	3.7/4	5.5	7.5	7.5	11	15
500V [kW]	-	-	-	0.25	0.37	0.55/0.75	1.1	1.5/2.2	3	3.7	4/5.5	7.5	11	11	15	18.5
690V [kW]	-	-	-	0.25	0.37/0.55	0.75/1.1	1.5	2.2/3	3.7/4	5.5	7.5	11	11	15	18.5	22
Back-up fuses gG, gL, only if $I_{cc} > I_{cu}$ (* = No back up fuse required)																
230/240V [A]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
400/415V [A]	*	*	*	*	*	*	*	*	*	*	*	*	100	125	125	125
440/460V [A]	*	*	*	*	*	*	*	*	*	80	80	80	80	100	100	100
500V [A]	*	*	*	*	*	*	*	*	*	63	80	80	80	80	80	80
690V [A]	*	*	*	*	*	*	35	40	50	63	63	63	63	63	63	63
Ultimate short-circuit breaking capacity I_{cu}																
230/240V [kA]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
400/415V [kA]	100	100	100	100	100	100	100	100	100	100	100	100	50	50	50	50
440/460V [kA]	100	100	100	100	100	100	100	100	100	50	50	50	20	20	20	20
500V [kA]	100	100	100	100	100	100	100	100	100	50	50	42	10	10	10	10
690V [kA]	100	100	100	100	100	100	8	8	6	6	6	6	4	4	4	4
Rated service short-circuit breaking capacity I_{cs}																
230/240V [kA]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
400/415V [kA]	100	100	100	100	100	100	100	100	100	100	100	100	38	38	38	38
440/460V [kA]	100	100	100	100	100	100	100	100	100	38	38	38	15	15	15	15
500V [kA]	100	100	100	100	100	100	100	100	100	38	38	32	8	8	8	8
690V [kA]	100	100	100	100	100	100	8	8	6	6	6	6	4	4	4	4

Note) * = Short circuit proof up to 50 or 100kA. No back up fuse required.

High breaking type

● MMS 63H



Rated operational current I_e [A]		10	13	17	22	26	32	40	50	63
Switching of standard three-phase motors AC-2, AC-3										
230/240V	[kW]	2.2/3	3	3.7/4	4	5.5	7.5	7.5	11	15
400/415V	[kW]	3.7/4	5.5	7.5	7.5	11	15	18.5	22	30
500V	[kW]	4/5.5	7.5	11	11	15	18.5	22	30	37
690V	[kW]	7.5	11	11	15	18.5	22	30	45	55
Back-up fuses gG, gL, only if $I_{cc} > I_{cu}$ (* = No back up fuse required)										
230/240V	[A]	*	*	*	*	*	*	*	*	*
400/415V	[A]	*	*	100	125	125	125	160	160	160
440/460V	[A]	100	100	100	125	125	125	125	125	160
500V	[A]	100	100	100	100	100	100	100	100	100
690V	[A]	63	63	63	80	80	80	80	80	80
Ultimate short-circuit breaking capacity I_{cu}										
230/240V	[kA]	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	50	50	50	50	50	50	50
440/460V	[kA]	50	50	50	50	35	35	35	35	35
500V	[kA]	50	42	12	12	12	10	10	10	10
690V	[kA]	6	6	5	5	5	5	5	5	5
Rated service short-circuit breaking capacity I_{cs}										
230/240V	[kA]	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	50	50	50	50	50	50	50
440/460V	[kA]	38	38	38	38	27	27	27	27	27
500V	[kA]	38	32	9	9	9	8	8	8	8
690V	[kA]	5	5	5	5	5	5	5	5	5

Note) * = Short circuit proof up to 50 or 100kA. No back up fuse required.

● MMS 100H



Rated operational current I_e [A]		17	22	26	32	40	50	63	75	90	100
Switching of standard three-phase motors AC-2, AC-3											
230/240V	[kW]	3.7/4	4	5.5	7.5	7.5	11	15	22	30	30
400/415V	[kW]	7.5	7.5	11	15	18.5	22	30	37	45	45
500V	[kW]	11	11	15	18.5	22	30	37	45	55	63
690V	[kW]	11	15	18.5	22	30	45	55	63	75	90
Back-up fuses gG, gL, only if $I_{cc} > I_{cu}$ (* = No back up fuse required)											
230/240V	[A]	*	*	*	*	*	*	*	*	*	*
400/415V	[A]	*	*	*	*	*	*	*	*	*	*
440/460V	[A]	125	125	125	160	160	160	200	200	200	200
500V	[A]	100	125	125	125	160	160	160	160	160	160
690V	[A]	80	80	80	80	80	100	100	125	160	160
Ultimate short-circuit breaking capacity I_{cu}											
230/240V	[kA]	100	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	100	100	100	100	100	75	75	75
440/460V	[kA]	50	50	50	50	50	50	50	50	50	50
500V	[kA]	35	35	35	25	20	15	15	12	12	12
690V	[kA]	12	12	12	12	12	10	8	6	6	6
Rated service short-circuit breaking capacity I_{cs}											
230/240V	[kA]	100	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	50	50	50	50	50	50	50	50	50
440/460V	[kA]	38	38	38	38	38	38	38	38	38	38
500V	[kA]	27	27	27	19	15	11	11	9	9	9
690V	[kA]	9	9	9	9	9	8	6	6	6	6

Note) * = Short circuit proof up to 50 or 100kA. No back up fuse required.

IEC performance data (Motor protection)

High breaking type

● MMS 32HI

Rated operational current I_e [A]	[A]	0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32
AC-2, AC-3																	
230/240V	[kW]	-	0.03	0.06	0.09	0.12	0.18/0.25	0.37	0.55/0.75	1.1/1.5	1.5	2.2/3	3	3.7/4	4	5.5	7.5
400/415V	[kW]	0.02	0.06	0.09	0.12	0.18/0.25	0.37/0.55	0.75	1.1/1.5	2.2	3	3.7/4	5.5	7.5	11	15	18.5
500V	[kW]	-	-	-	0.25	0.37	0.55/0.75	1.1	1.5/2.2	3	3.7	4/5.5	7.5	11	15	18.5	22
690V	[kW]	-	-	-	0.25	0.37/0.55	0.75/1.1	1.5	2.2/3	3.7/4	5.5	7.5	11	15	18.5	22	
Back-up fuses gG, gL, only if $I_{cc} > I_{cu}$ (* = No back up fuse required)																	
230/240V	[A]	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
400/415V	[A]	*	*	*	*	*	*	*	*	*	*	*	*	100	125	125	125
440/460V	[A]	*	*	*	*	*	*	*	*	*	80	80	80	80	100	100	100
500V	[A]	*	*	*	*	*	*	*	*	*	63	80	80	80	80	80	80
690V	[A]	*	*	*	*	*	*	35	40	50	63	63	63	63	63	63	63
Ultimate short-circuit breaking capacity I_{cu}																	
230/240V	[kA]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	100	100	100	100	100	100	100	100	100	100	50	50	50	50
440/460V	[kA]	100	100	100	100	100	100	100	100	100	50	50	50	20	20	20	20
500V	[kA]	100	100	100	100	100	100	100	100	100	50	50	42	10	10	10	10
690V	[kA]	100	100	100	100	100	100	8	8	6	6	6	6	4	4	4	4
Rated service short-circuit breaking capacity I_{cs}																	
230/240V	[kA]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	100	100	100	100	100	100	100	100	100	100	38	38	38	38
440/460V	[kA]	100	100	100	100	100	100	100	100	100	38	38	38	15	15	15	15
500V	[kA]	100	100	100	100	100	100	100	100	100	38	38	32	8	8	8	8
690V	[kA]	100	100	100	100	100	100	8	8	6	6	6	6	4	4	4	4

● MMS 63HI

Rated operational current I_e [A]	[A]	10	13	17	22	26	32	40	50	63
AC-2, AC-3										
230/240V	[kW]	2.2/3	3	3.7/4	4	5.5	7.5	7.5	11	15
400/415V	[kW]	3.7/4	5.5	7.5	7.5	11	15	18.5	22	30
500V	[kW]	4/5.5	7.5	11	11	15	18.5	22	30	37
690V	[kW]	7.5	11	11	15	18.5	22	30	45	55
Back-up fuses gG, gL, only if $I_{cc} > I_{cu}$ (* = No back up fuse required)										
230/240V	[A]	*	*	*	*	*	*	*	*	*
400/415V	[A]	*	*	100	125	125	125	160	160	160
440/460V	[A]	100	100	100	125	125	125	125	125	160
500V	[A]	100	100	100	100	100	100	100	100	100
690V	[A]	63	63	63	80	80	80	80	80	80
Ultimate short-circuit breaking capacity I_{cu}										
230/240V	[kA]	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	50	50	50	50	50	50	50
440/460V	[kA]	50	50	50	50	35	35	35	35	35
500V	[kA]	50	42	12	12	12	10	10	10	10
690V	[kA]	6	6	5	5	5	5	5	5	5
Rated service short-circuit breaking capacity I_{cs}										
230/240V	[kA]	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	50	50	50	50	50	50	50
440/460V	[kA]	38	38	38	38	27	27	27	27	27
500V	[kA]	38	32	9	9	9	8	8	8	8
690V	[kA]	5	5	5	5	5	5	5	5	5

● MMS 100HI

Rated operational current I_e [A]	[A]	17	22	26	32	40	50	63	75	90	100
AC-2, AC-3											
230/240V	[kW]	3.7/4	4	5.5	7.5	7.5	11	15	22	30	30
400/415V	[kW]	7.5	7.5	11	15	18.5	22	30	37	45	45
500V	[kW]	11	11	15	18.5	22	30	37	45	55	63
690V	[kW]	11	15	18.5	22	30	45	55	63	75	90
Back-up fuses gG, gL, only if $I_{cc} > I_{cu}$ (* = No back up fuse required)											
230/240V	[A]	*	*	*	*	*	*	*	*	*	*
400/415V	[A]	*	*	*	*	*	*	*	*	*	*
440/460V	[A]	125	125	125	160	160	160	200	200	200	200
500V	[A]	100	125	125	125	160	160	160	160	160	160
690V	[A]	80	80	80	80	80	100	100	125	160	160
Ultimate short-circuit breaking capacity I_{cu}											
230/240V	[kA]	100	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	100	100	100	100	100	100	75	75	75
440/460V	[kA]	50	50	50	50	50	50	50	50	50	50
500V	[kA]	35	35	35	25	20	15	12	12	12	12
690V	[kA]	12	12	12	12	12	10	8	6	6	6
Rated service short-circuit breaking capacity I_{cs}											
230/240V	[kA]	100	100	100	100	100	100	100	100	100	100
400/415V	[kA]	100	50	50	50	50	50	50	50	50	50
440/460V	[kA]	38	38	38	38	38	38	38	38	38	38
500V	[kA]	27	27	27	19	15	11	9	9	9	9
690V	[kA]	9	9	9	9	9	8	6	6	6	6

Manual motor controller (UL 508, CSA C22.2 as Manual motor controllers)

Combination Motor Controller

- Group Installation
- Type E starter

● MMS 32S

Rated operational current I _e [A]			0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32
Max. short-circuit current																		
240V	[kA]		100	100	100	100	100	100	100	100	100	100	50	50	40	30	30	20
480Y/277V	[kA]		50	50	50	50	50	50	50	50	25	25	10	10	10	10	7.5	7.5
600Y/347V	[kA]		10	10	10	10	10	10	10	5	5	5	5	5	5	5	5	5
Motor load																		
1 Phase	115V	[HP]	-	-	-	-	-	-	-	1/8	1/4	1/3	1/2	1/2	1	1½	2	2
	230V	[HP]	-	-	-	-	-	1/10	1/6	1/3	1/2	1	1½	2	3	3	5	5
3 Phase	230V	[HP]	-	-	-	-	-	-	1/2	3/4	1½	2	3	3	5	7½	7½	10
	460V	[HP]	-	-	-	-	-	3/4	1	2	3	5	5	7½	10	15	15	20
	575V	[HP]	-	-	-	-	1/2	3/4	1½	3	5	5	7½	10	15	20	20	30
Maximum rated current of fuse or breaker			[A]	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500

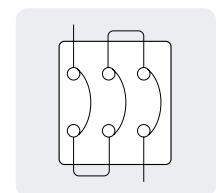
● MMS 63S

Rated operational current I _e [A]			10	13	17	22	26	32	40	50	63
Max. short-circuit current											
240V	[kA]		100	100	100	100	100	100	100	100	100
480Y/277V	[kA]		50	50	40	40	40	40	40	40	40
600Y/347V	[kA]		10	10	10	10	10	10	10	10	10
Motor load											
1 Phase	115V	[HP]	1/2	1/2	1	1½	2	2	3	3	5
	230V	[HP]	1½	2	3	3	3	5	7½	10	10
3 Phase	230V	[HP]	3	3	5	7½	7½	10	10	15	20
	460V	[HP]	5	7½	10	15	15	20	30	30	40
	575V	[HP]	7½	10	15	20	20	30	30	40	60
Maximum rated current of fuse or breaker			[A]	600	600	600	600	600	600	600	600

● MMS 100S

Rated operational current I _e [A]			17	22	26	32	40	50	63	75	90	100
Max. short-circuit current												
240V	[kA]		100	100	100	100	100	100	100	100	100	100
480Y/277V	[kA]		50	50	50	50	50	50	40	40	40	40
600Y/347V	[kA]		10	10	10	10	10	10	10	10	10	10
Motor load												
1 Phase	115V	[HP]	1	1½	2	2	3	3	5	5	7½	10
	230V	[HP]	3	3	3	5	7½	10	10	15	20	20
3 Phase	230V	[HP]	5	7½	7½	10	10	15	20	25	30	30
	460V	[HP]	10	15	15	20	30	30	40	50	60	75
	575V	[HP]	15	20	20	30	30	40	60	60	75	100
Maximum rated current of fuse or breaker			[A]	1000	1000	1000	1000	1000	1000	1000	1000	1000

In case of 1-phase use in series as shown below



Technical Information

Manual motor controller (UL 508, CSA C22.2 as Manual motor controllers)

Combination Motor Controller

- Group Installation
- Type E starter

● MMS 32H

Rated operational current I _e [A]			0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32
Max. short-circuit current																		
240V	[kA]		100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
480Y/277V	[kA]		65	65	65	65	65	65	65	65	65	65	65	65	30	30	30	30
600Y/347V	[kA]		25	25	25	25	25	25	25	25	25	25	25	25	10	10	10	10
Motor load																		
1 Phase	115V	[HP]	-	-	-	-	-	-	-	1/8	1/4	1/3	1/2	1/2	1	1½	2	2
	230V	[HP]	-	-	-	-	-	1/10	1/6	1/3	1/2	1	1½	2	3	3	5	5
3 Phase	230V	[HP]	-	-	-	-	-	-	1/2	3/4	1½	2	3	3	5	7½	7½	10
	460V	[HP]	-	-	-	-	-	3/4	1	2	3	5	5	7½	10	15	15	20
	575V	[HP]	-	-	-	-	1/2	3/4	1½	3	5	5	7½	10	15	20	20	30
Maximum rated current of fuse or breaker			[A]	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500

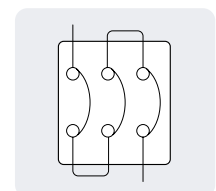
● MMS 63H

Rated operational current I _e [A]			10	13	17	22	26	32	40	50	63
Max. short-circuit current											
240V	[kA]		100	100	100	100	100	100	100	100	100
480Y/277V	[kA]		65	65	50	50	50	50	50	50	50
600Y/347V	[kA]		25	25	10	10	10	10	10	10	10
Motor load											
1 Phase	115V	[HP]	1/2	1/2	1	2	2	3	3	5	5
	230V	[HP]	1½	2	3	3	5	5	7½	10	15
3 Phase	230V	[HP]	3	3	5	7½	10	10	15	15	20
	460V	[HP]	7½	7½	10	15	20	25	30	40	50
	575V	[HP]	10	10	15	20	25	30	40	50	60
Maximum rated current of fuse or breaker			[A]	600	600	600	600	600	600	600	600

● MMS 100H

Rated operational current I _e [A]			17	22	26	32	40	50	63	75	90	100
Max. short-circuit current												
240V	[kA]		100	100	100	100	100	100	100	100	100	100
480Y/277V	[kA]		65	65	65	65	65	65	50	50	50	50
600Y/347V	[kA]		25	25	25	20	20	20	10	10	10	10
Motor load												
1 Phase	115V	[HP]	1	1½	2	3	3	5	5	7½	10	10
	230V	[HP]	3	3	5	5	7½	10	15	15	20	20
3 Phase	230V	[HP]	5	7½	10	10	15	15	20	25	30	40
	460V	[HP]	10	15	20	25	30	40	50	60	75	75
	575V	[HP]	15	20	25	30	40	50	60	75	100	100
Maximum rated current of fuse or breaker			[A]	1000	1000	1000	1000	1000	1000	1000	1000	1000

In case of 1-phase use in series as shown below



Manual Motor Controller (UL508)

● MMS 32S

Rated operational current I _e [A]		0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32
Max. short-circuit current																	
240V	[kA]	100	100	100	100	100	100	100	100	100	100	50	50	40	30	30	20
480Y/277V	[kA]	50	50	50	50	50	50	50	50	25	25	10	10	10	10	7.5	7.5
600Y/347V	[kA]	10	10	10	10	10	10	10	5	5	5	5	5	5	5	5	5
Motor load																	
1 Phase	115V	[HP]	-	-	-	-	-	-	1/8	1/4	1/3	1/2	1/2	1	1½	2	2
	230V	[HP]	-	-	-	-	1/10	1/6	1/3	1/2	1	1½	2	3	3	3	5
3 Phase	230V	[HP]	-	-	-	-	-	1/2	1	1½	2	3	3	5	7½	7½	10
	460V	[HP]	-	-	-	-	3/4	1½	2	5	5	7½	7½	10	15	15	20
	575V	[HP]	-	-	-	-	1/2	3/4	1½	3	5	5	7½	10	15	20	30
Max. fuse size	[A]	1	1	1	1	3	6	10	15	20	30	40	50	60	80	100	125
Max. breaker size	[A]	15	15	15	15	15	15	15	15	20	30	40	50	60	80	100	125

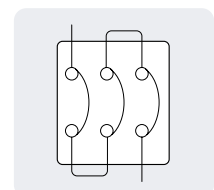
● MMS 63S

Rated operational current I _e [A]		10	13	17	22	26	32	40	50	63
Max. short-circuit current										
240V	[kA]	100	100	100	100	100	100	100	100	100
480Y/277V	[kA]	25	25	25	25	25	25	25	25	25
600Y/347V	[kA]	10	10	10	10	10	10	10	10	10
Motor load										
1 Phase	115V	[HP]	1/2	1/2	1	1½	2	2	3	5
	230V	[HP]	1½	2	3	3	5	7½	10	10
3 Phase	230V	[HP]	3	3	5	7½	7½	10	10	15
	460V	[HP]	5	7½	10	15	15	20	30	30
	575V	[HP]	7½	10	15	20	20	30	30	40
Max. fuse size	[A]	40	50	60	80	100	125	150	200	250
Max. breaker size	[A]	40	50	60	80	100	125	150	200	250

● MMS 100S

Rated operational current I _e [A]		17	22	26	32	40	50	63	75	90	100
Max. short-circuit current											
240V	[kA]	100	100	100	100	100	100	100	100	100	100
480Y/277V	[kA]	25	25	25	25	25	25	25	25	25	25
600Y/347V	[kA]	10	10	10	10	10	10	10	10	10	10
Motor load											
1 Phase	115V	[HP]	1	1½	2	2	3	3	5	5	7½
	230V	[HP]	3	3	3	5	7½	10	10	15	20
3 Phase	230V	[HP]	5	7½	7½	10	10	15	20	25	30
	460V	[HP]	10	15	15	20	30	30	40	50	60
	575V	[HP]	15	20	20	30	30	40	60	60	75
Max. fuse size	[A]	60	80	100	125	150	200	250	300	350	400
Max. breaker size	[A]	60	80	100	125	150	200	250	300	350	400

In case of 1-phase use
in series as shown below



Technical Information

Manual Motor Controller (UL508)

● MMS 32H

Rated operational current I _e [A]			0.16	0.25	0.4	0.63	1	1.6	2.5	4	6	8	10	13	17	22	26	32
Max. short-circuit current																		
	240V	[kA]	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	480Y/277V	[kA]	50	50	50	50	50	50	50	50	50	50	50	50	35	35	35	35
	600Y/347V	[kA]	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
Motor load																		
1 Phase	115V	[HP]	-	-	-	-	-	-	-	1/8	1/4	1/3	1/2	1/2	1	1½	2	2
	230V	[HP]	-	-	-	-	-	1/10	1/6	1/3	1/2	1	1½	2	3	3	3	5
3 Phase	230V	[HP]	-	-	-	-	-	-	1/2	3/4	1½	2	3	3	5	7½	7½	10
	460V	[HP]	-	-	-	-	-	3/4	1	2	3	5	5	7½	10	15	15	20
	575V	[HP]	-	-	-	-	1/2	3/4	1½	3	5	5	7½	10	15	20	20	30
Max. fuse size			[A]	1	1	1	1	3	6	10	15	20	30	40	50	60	80	100
Max. breaker size			[A]	15	15	15	15	15	15	15	20	30	40	50	60	80	100	125

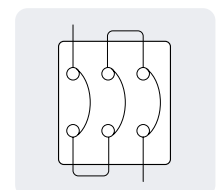
● MMS 63H

Rated operational current I _e [A]			10	13	17	22	26	32	40	50	63
Max. short-circuit current											
	240V	[kA]	100	100	100	100	100	100	100	100	100
	480Y/277V	[kA]	25	25	25	25	25	25	25	25	25
	600Y/347V	[kA]	10	10	10	10	10	10	10	10	10
Motor load											
1 Phase	115V	[HP]	1/2	1/2	1	1½	2	2	3	3	5
	230V	[HP]	1½	2	3	3	3	5	7½	10	10
3 Phase	230V	[HP]	3	3	5	7½	7½	10	10	15	20
	460V	[HP]	5	7½	10	15	15	20	30	30	40
	575V	[HP]	7½	10	15	20	20	30	30	40	60
Max. fuse size			[A]	40	50	60	80	100	125	150	200
Max. breaker size			[A]	40	50	60	80	100	125	150	200

● MMS 100H

Rated operational current I _e [A]			17	22	26	32	40	50	63	75	90	100
Max. short-circuit current												
	240V	[kA]	100	100	100	100	100	100	100	100	100	100
	480Y/277V	[kA]	25	25	25	25	25	25	25	25	25	25
	600Y/347V	[kA]	10	10	10	10	10	10	10	10	10	10
Motor load												
1 Phase	115V	[HP]	1	1½	2	2	3	3	5	5	7½	10
	230V	[HP]	3	3	3	5	7½	10	10	15	20	20
3 Phase	230V	[HP]	5	7½	7½	10	10	15	20	25	30	30
	460V	[HP]	10	15	15	20	30	30	40	50	60	75
	575V	[HP]	15	20	20	30	30	40	60	60	75	100
Max. fuse size			[A]	60	80	100	125	150	200	250	300	400
Max. breaker size			[A]	60	80	100	125	150	200	250	300	400

In case of 1-phase use
in series as shown below



Type '2' coordination according to IEC 947-4-1

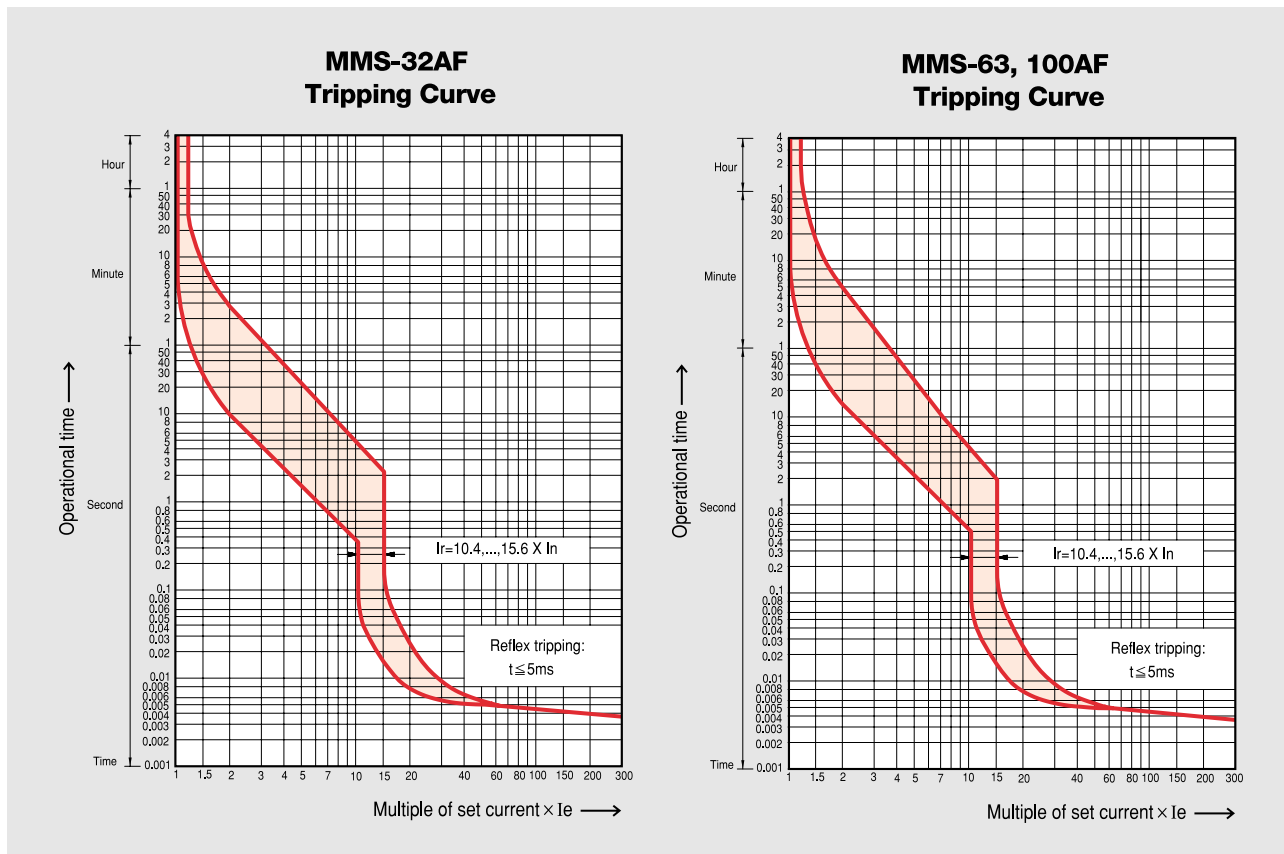
- Short-circuit current $I_k = 50\text{kA}$
Voltage : 400/415V, 50/60Hz

Standard motors		Manual motor starter			Contactor	
AC-3 at 400/415V 1500rpm		Circuit breaker	Thermal overload release setting range	Magnetic release response current		
[kW]	[A]	Type	[A]	[A]	Type	[A]
-	-	MMS-32S 0.16A	0.1~0.16	2.08	GMC-6M / GMC-9	6 / 9
0.06	0.2	MMS-32S 0.25A	0.16~0.25	3.25	GMC-6M / GMC-9	6 / 9
0.09	0.3	MMS-32S 0.4A	0.25~0.4	5.2	GMC-6M / GMC-9	6 / 9
0.12	0.4	MMS-32S 0.63A	0.4~0.63	8.19	GMC-6M / GMC-9	6 / 9
0.18	0.6	MMS-32S 0.63A	0.4~0.63	8.19	GMC-6M / GMC-9	6 / 9
0.25	0.8	MMS-32S 1A	0.63~1	13	GMC-6M / GMC-9	6 / 9
0.37	1.1	MMS-32S 1.6A	1~1.6	20.8	GMC-6M / GMC-9	6 / 9
0.55	1.5	MMS-32S 1.6A	1~1.6	20.8	GMC-6M / GMC-9	6 / 9
0.75	1.9	MMS-32S 2.5A	1.6~2.5	32.5	GMC-12	12
1.1	2.7	MMS-32S 4A	2.5~4	52	GMC-18	18
1.5	3.6	MMS-32S 4A	2.5~4	52	GMC-18	18
2.2	5.2	MMS-32S 6A	4~6	78	GMC-18	18
3	6.8	MMS-32S 8A	5~8	104	GMC-18	18
4	9	MMS-32S 10A	6~10	130	GMC-18	18
5.5	11.5	MMS-32H 13A	9~13	169	GMC-22	22
7.5	15.5	MMS-32H 17A	11~17	221	GMC-22	22
10	20	MMS-32H 22A	14~22	286	GMC-32	32
11	22	MMS-32H 26A	18~26	338	GMC-32	32
15	29	MMS-32H 32A	22~32	416	GMC-32	32
18.5	35	MMS-63H 40A	28~40	520	GMC-50	50
22	41	MMS-63H 50A	34~50	650	GMC-50	50
30	55	MMS-63H 63A	45~63	819	GMC-65	65
37	67	MMS-100S 75A	55~75	975	GMC-75	75
-	-	MMS-100S 90A	70~90	1170	GMC-85	85
45	80	MMS-100S 100A	80~100	1300	GMC-85	85

Definition type '2' coordination according to IEC 947-4-1 :

- The contactor or the starter must not endanger persons or systems in the event of a short-circuit.
- The contactor or the starter must be suitable for further use.
- No damage to the overload relay or other parts may occur with the exception of welding of the contactor or starter contacts provided that these can be easily separated without significant deformation (such as with a screwdriver).

Time/Current characteristic



I) Thermal release trip current :

The adjustable inverse bimetal trip reliability protects motors against overloads.

The curve shows the mean operating current at an ambient temperature of 20°C starting from cold.
Careful testing and setting ensures effective motor protection even in the case of single-phasing.

II) Magnetic release trip current :

The instantaneous magnetic trip has a fixed operating current setting.

This corresponds to 13times the maximum value of setting range,
at a lower setting it is correspondingly higher.

Current setting I_e :

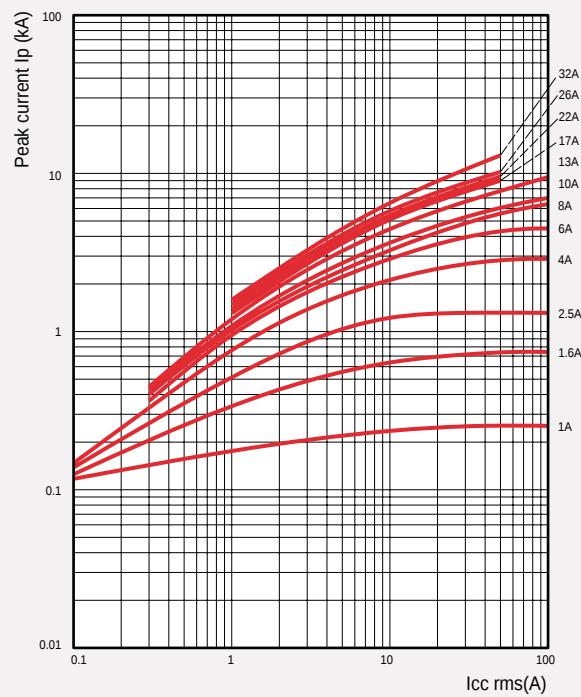
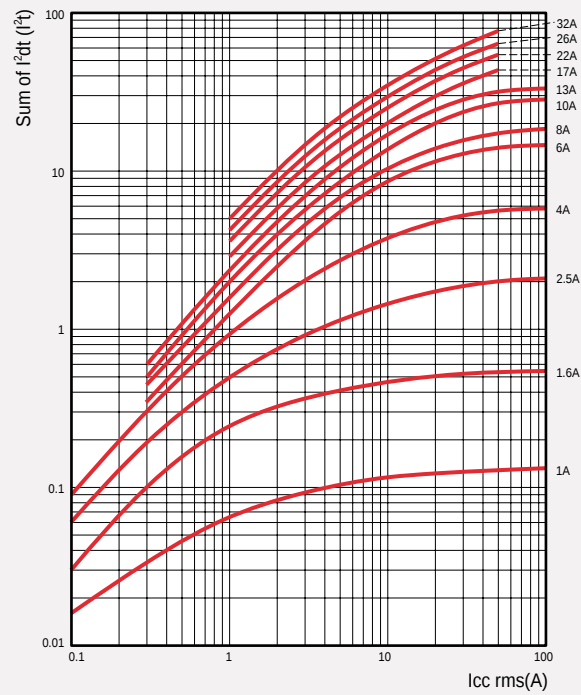
The overload trip corresponds to a thermal overload relay in a motor starter conforming to IEC 947-4-1.

If a different value is prescribed (e.g. reduced I_e for cooling medium having a temperature higher than 40°C or a place of installation higher than 2000m above sea level),
the setting current is equal to the reduced rated current I_e of the motor.

Thermal limit on short circuit for MMS

Thermal limit in kA^2s in the magnetic operating zone ($U_e=415\text{V}$)

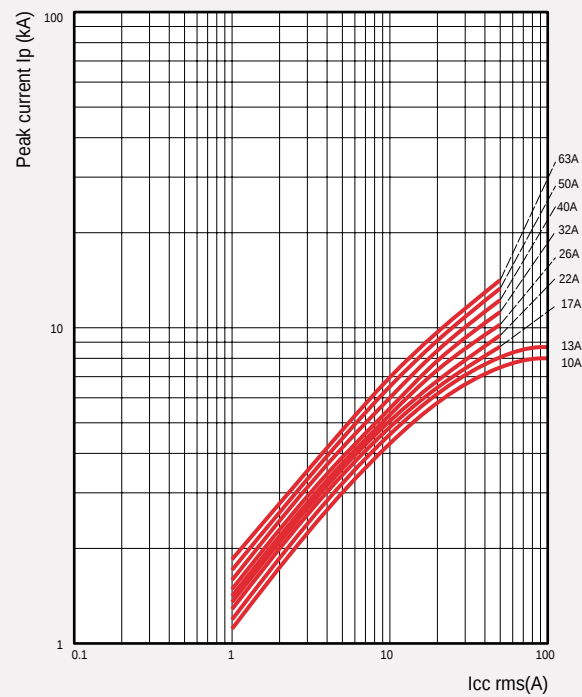
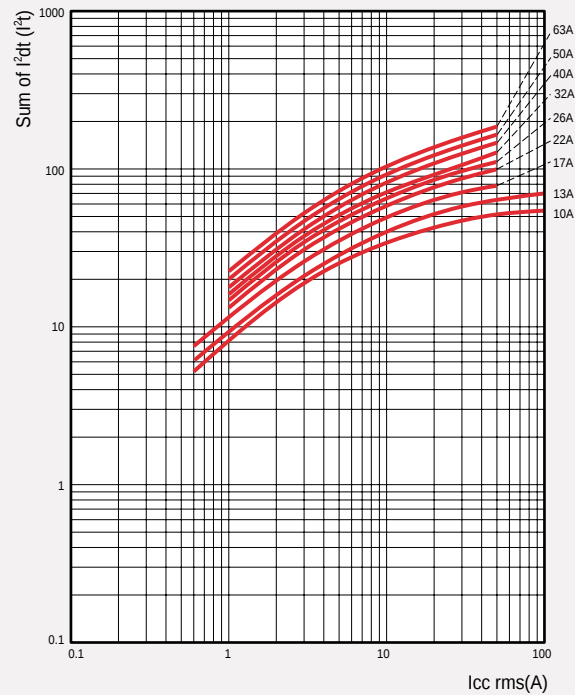
● MMS-32S/H/Hi



Thermal limit on short circuit for MMS

Thermal limit in kA^2s in the magnetic operating zone ($U_e=415\text{V}$)

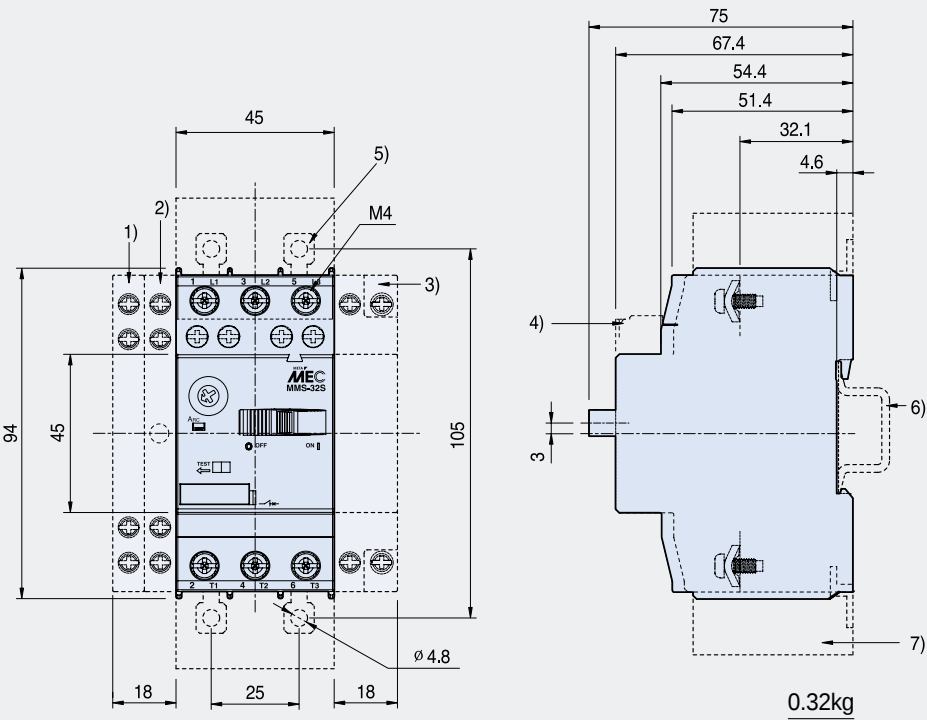
● MMS-63S/H/Hi



Dimensions

● MMS 32S

[mm]



0.32kg

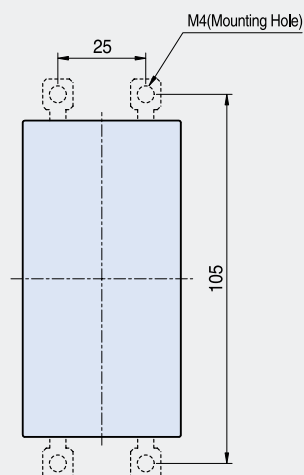
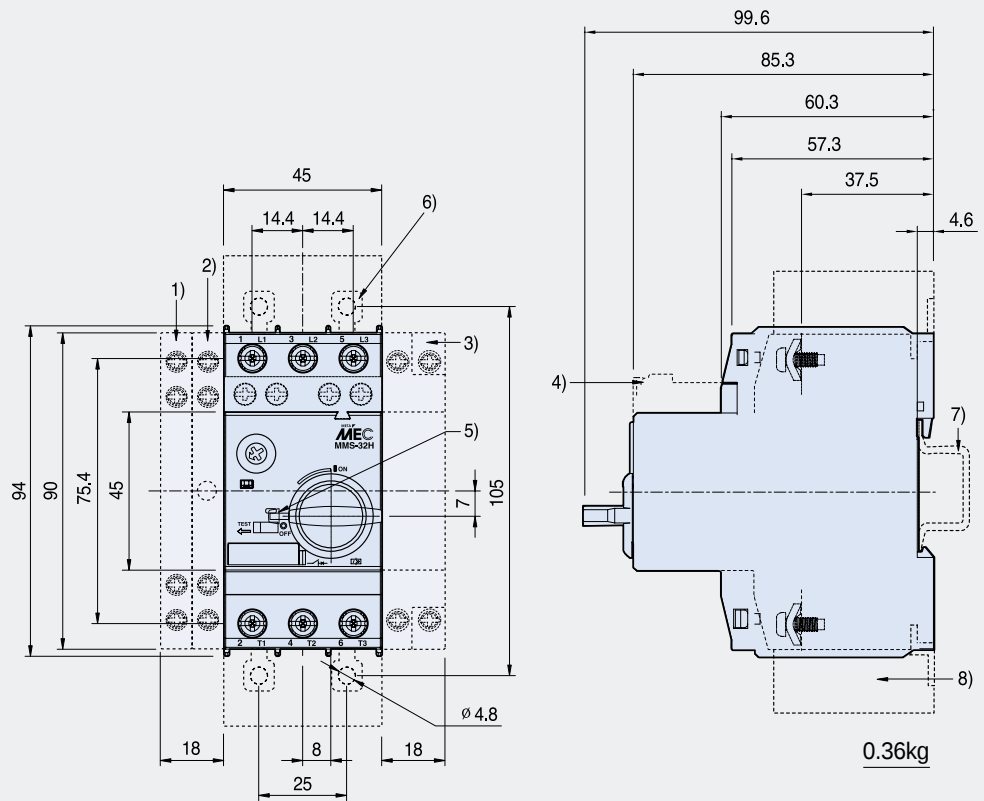
Height of arcing spaces
(Clearance from earthed parts)

Ue[V]	240	415	460	525	690
[mm]	20	20	20	20	20

- 1) Side auxiliary switch
- 2) Side magnetic trip alarm switch
- 3) Side shunt release or Side undervoltage release
- 4) Front auxiliary switch
- 5) Push-in Lugs for screw mounting
- 6) 35mm standard mounting rail acc. to EN 50 022
- 7) Arcing space

- **MMS 32H, 32HI**

[mm]



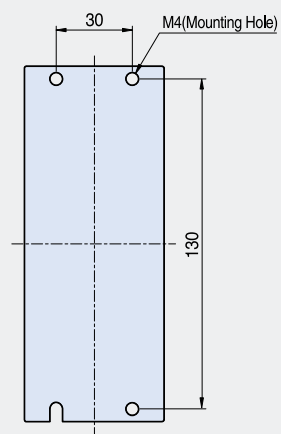
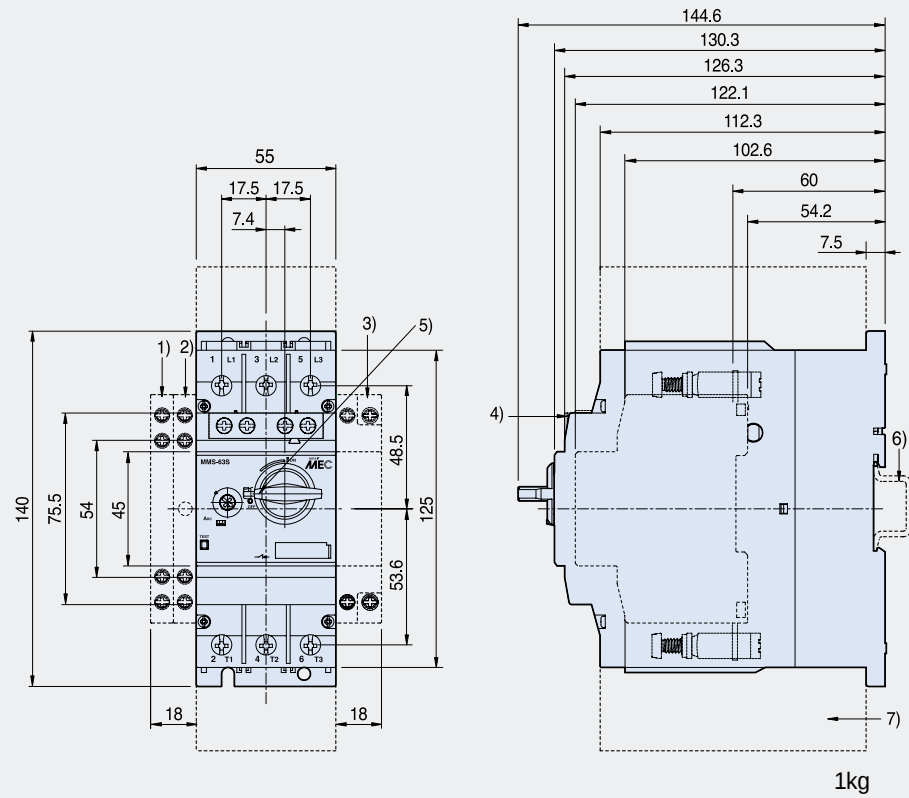
Height of arcing spaces
(Clearance from earthed parts)

Ue[V]	240	415	460	525	690
[mm]	30	30	30	30	50

- 1) Side auxiliary switch
- 2) Side magnetic trip alarm switch
- 3) Side shunt release or Side undervoltage release
- 4) Front auxiliary switch
- 5) Handle lock in OFF position($\varnothing$ 5mm)
- 6) Push-in Lugs for screw mounting
- 7) 35mm standard mounting rail acc. to EN 50 022
- 8) Arcing space

● **MMS 63S, 63H, 63HI**

[mm]



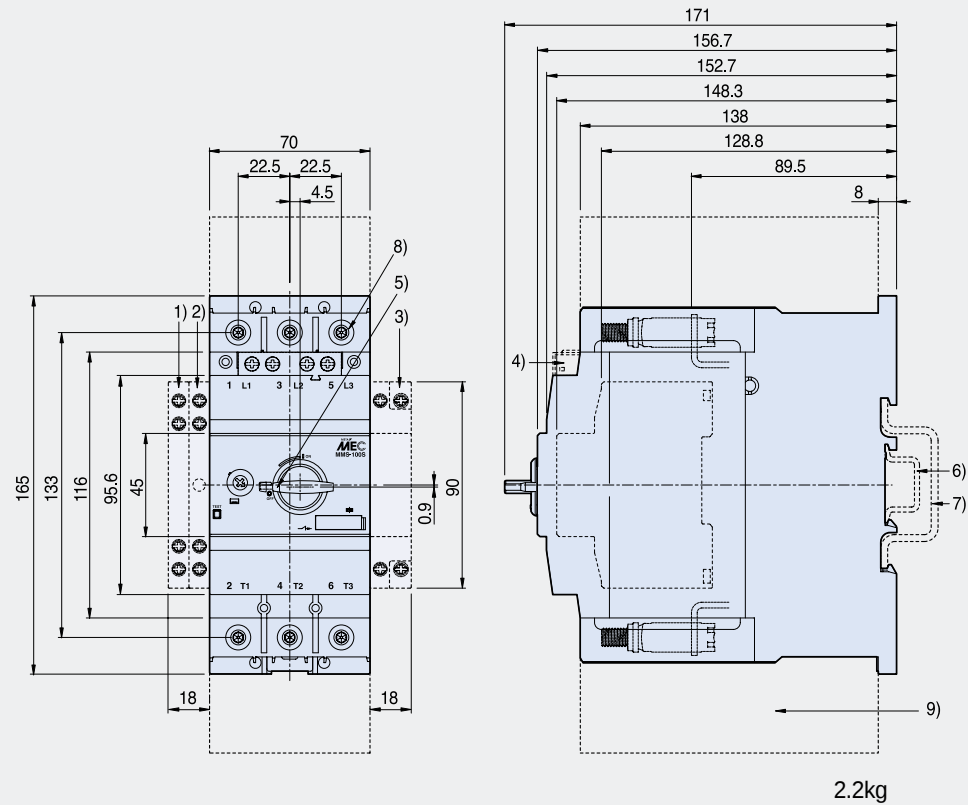
Height of arcing spaces
(Clearance from earthed parts)

Ue[V]	240	415	460	525	690
[mm]	50	50	50	50	50

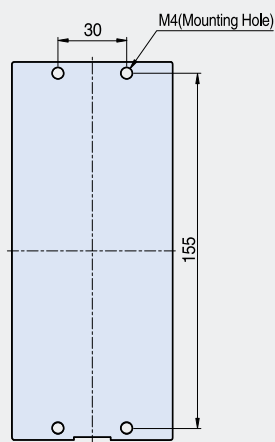
- 1) Side auxiliary switch
- 2) Side magnetic trip alarm switch
- 3) Side shunt release or Side undervoltage release
- 4) Front auxiliary switch
- 5) Handle lock in OFF position($\varnothing 5\text{mm}$)
- 6) 35mm standard mounting rail acc. to EN 50 022
- 7) Arcing space

● MMS 100S, 100H, 100HI

[mm]



- 1) Side auxiliary switch
- 2) Side magnetic trip alarm switch
- 3) Side shunt release or Side undervoltage release
- 4) Front auxiliary switch
- 5) Handle lock in OFF position($\varnothing 5\text{mm}$)
- 6) 35mm standard mounting rail acc. to EN 50 022
- 7) 75mm standard mounting rail acc. to EN 50 023
- 8) 4mm hexagon socket screw
- 9) Arcing space

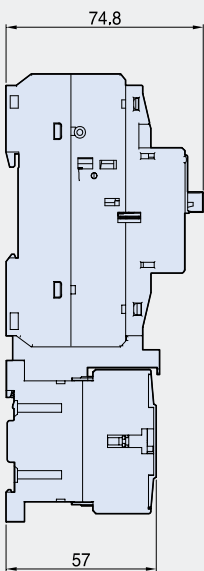
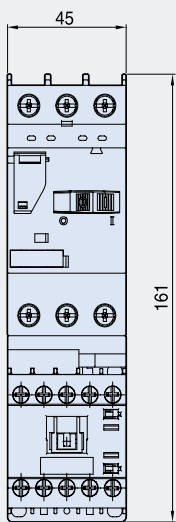


Height of arcing spaces
(Clearance from earthed parts)

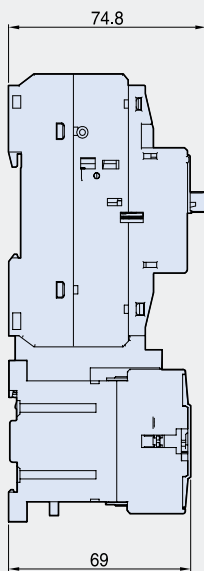
Ue[V]	240	415	460	525	690
[mm]	50	70	70	110	150

● MMS + Mini-MS

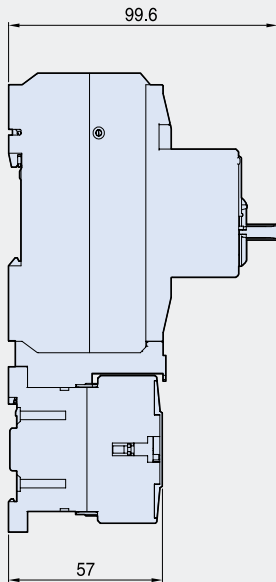
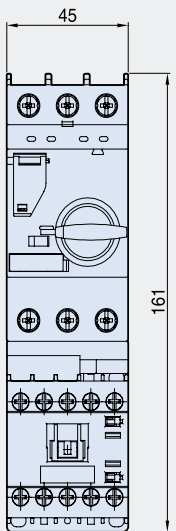
[mm]



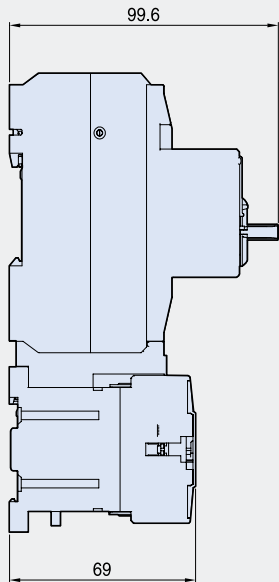
**MMS-32S
+
GMC-6M~16M**



**MMS-32S
+
GMD-6M~16M**



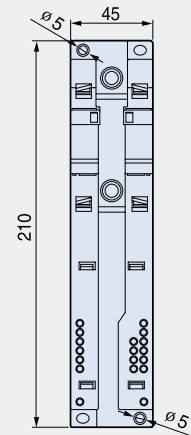
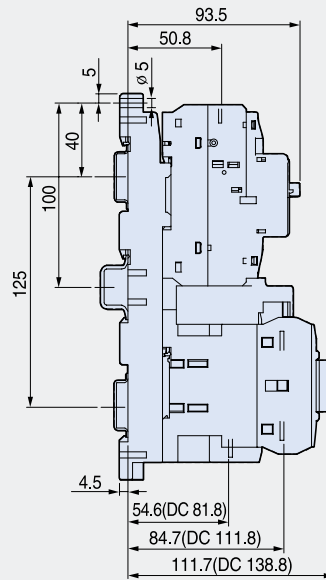
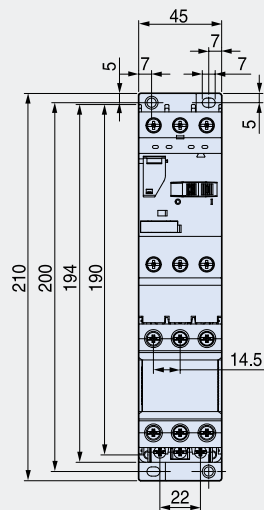
**MMS-32H
+
GMC-6M~16M**



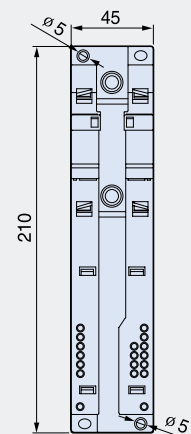
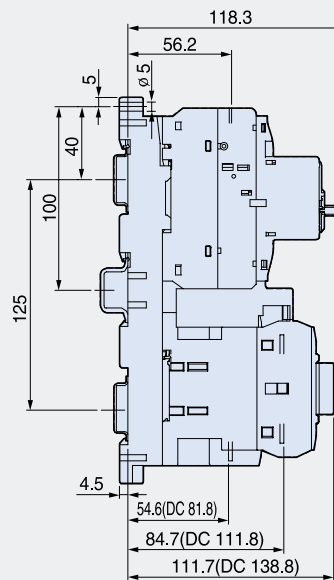
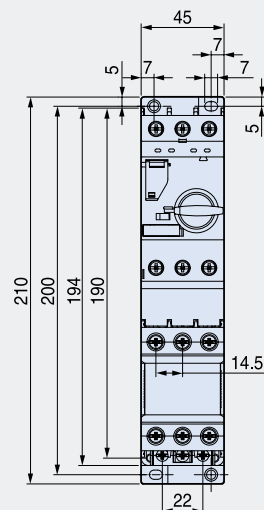
**MMS-32H
+
GMD-6M~16M**

● MMS + Susol MC

[mm]



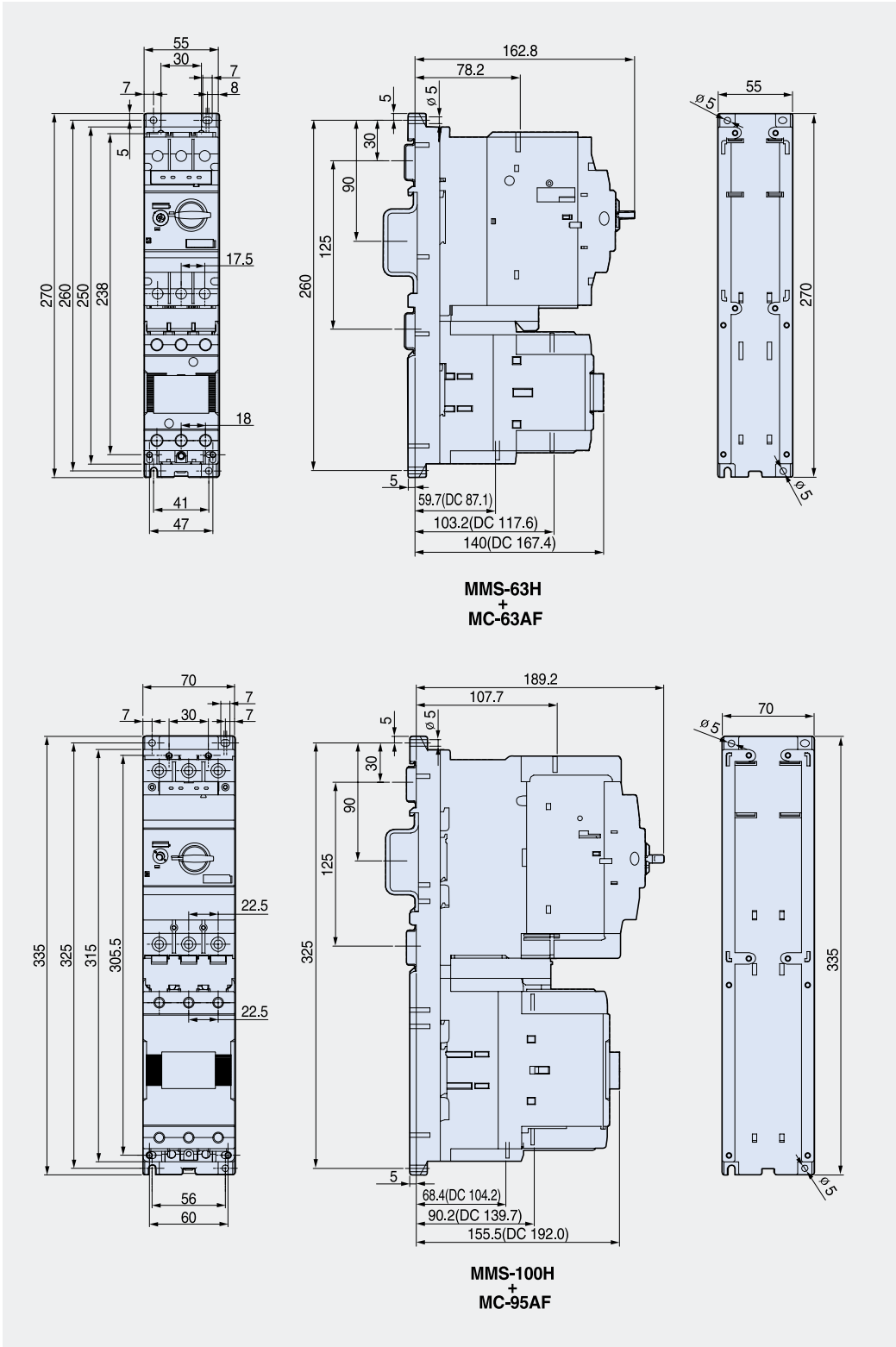
**MMS-32S
+
MC-32AF**



**MMS-32H
+
MC-32AF**

● MMS + Susol MC

[mm]



Leader in Electrics & Automation



Safety Instructions

- For your safety, please read user's manual thoroughly before operating.
- Contact the nearest authorized service facility for examination, repair, or adjustment.
- Please contact a qualified service technician when you need maintenance.
Do not disassemble or repair by yourself!
- Any maintenance and inspection shall be performed by the personnel having expertise concerned.

LS Industrial Systems Co., Ltd.

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