

Manual Motor Starters

- Complete Ranges up to 100 Amps
- ON-OFF-Trip Three Position Operator
- Unique Handle Lock in the OFF Position
- Class 10, 20 Overload Trip Characteristics
- DIN Rail or Back Panel Mounting
- Finger Safe Terminals
- Trip Test



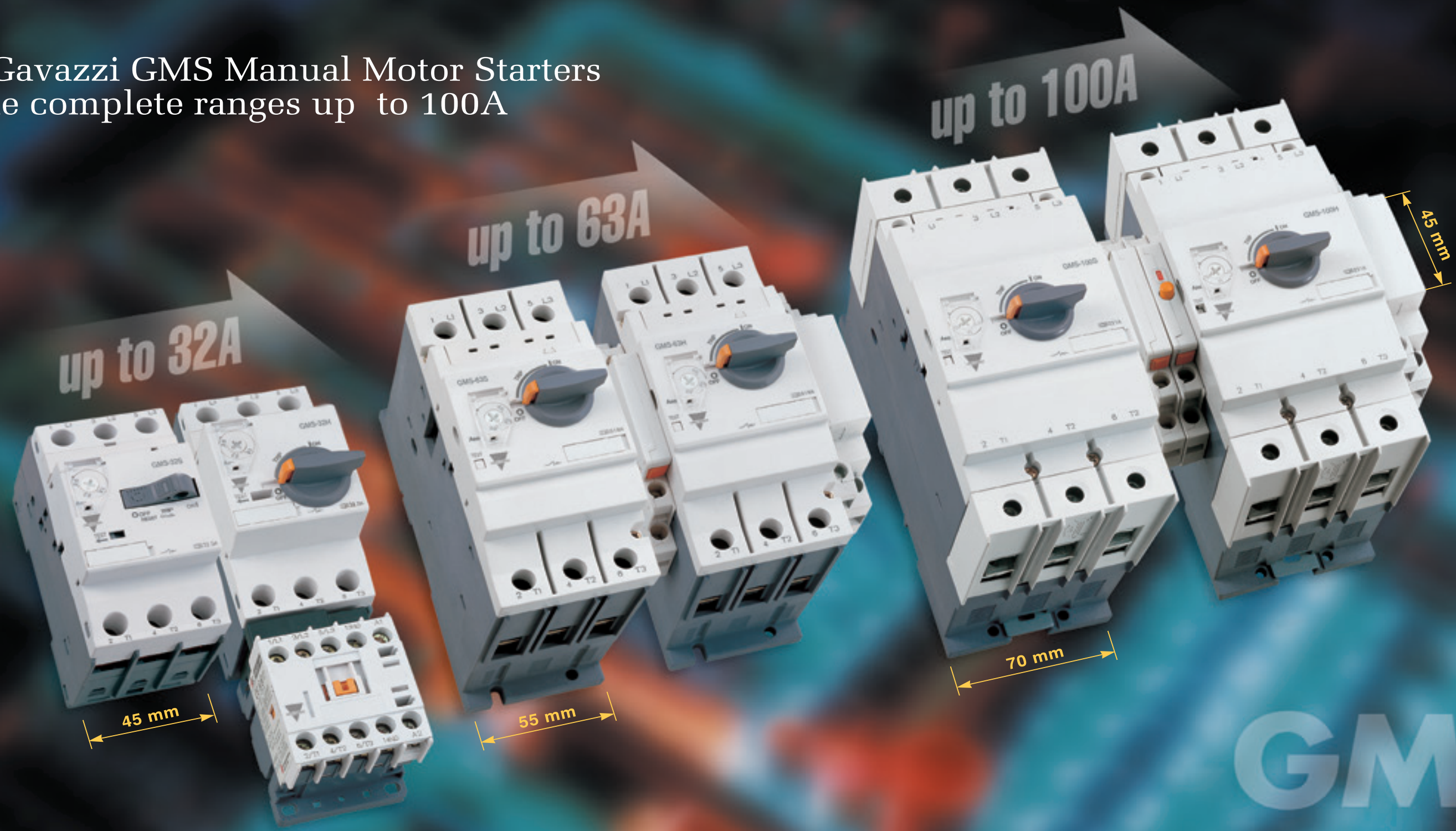
With
Extended
Warranty



Switch



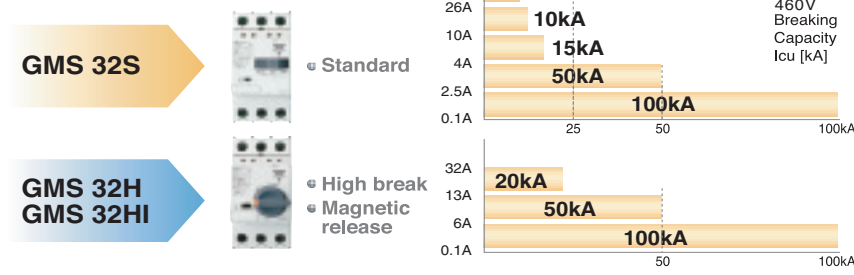
Carlo Gavazzi GMS Manual Motor Starters provide complete ranges up to 100A



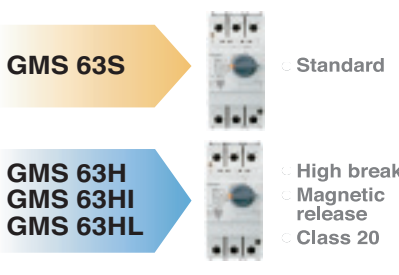
GMS

32AF

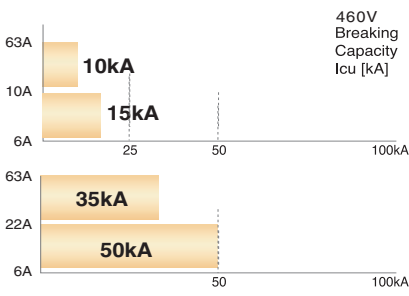
0.1~0.16... 22~32A (16 step)



6~10... 45~63A (9 step)



63AF



11~17... 80~100A (10 step)



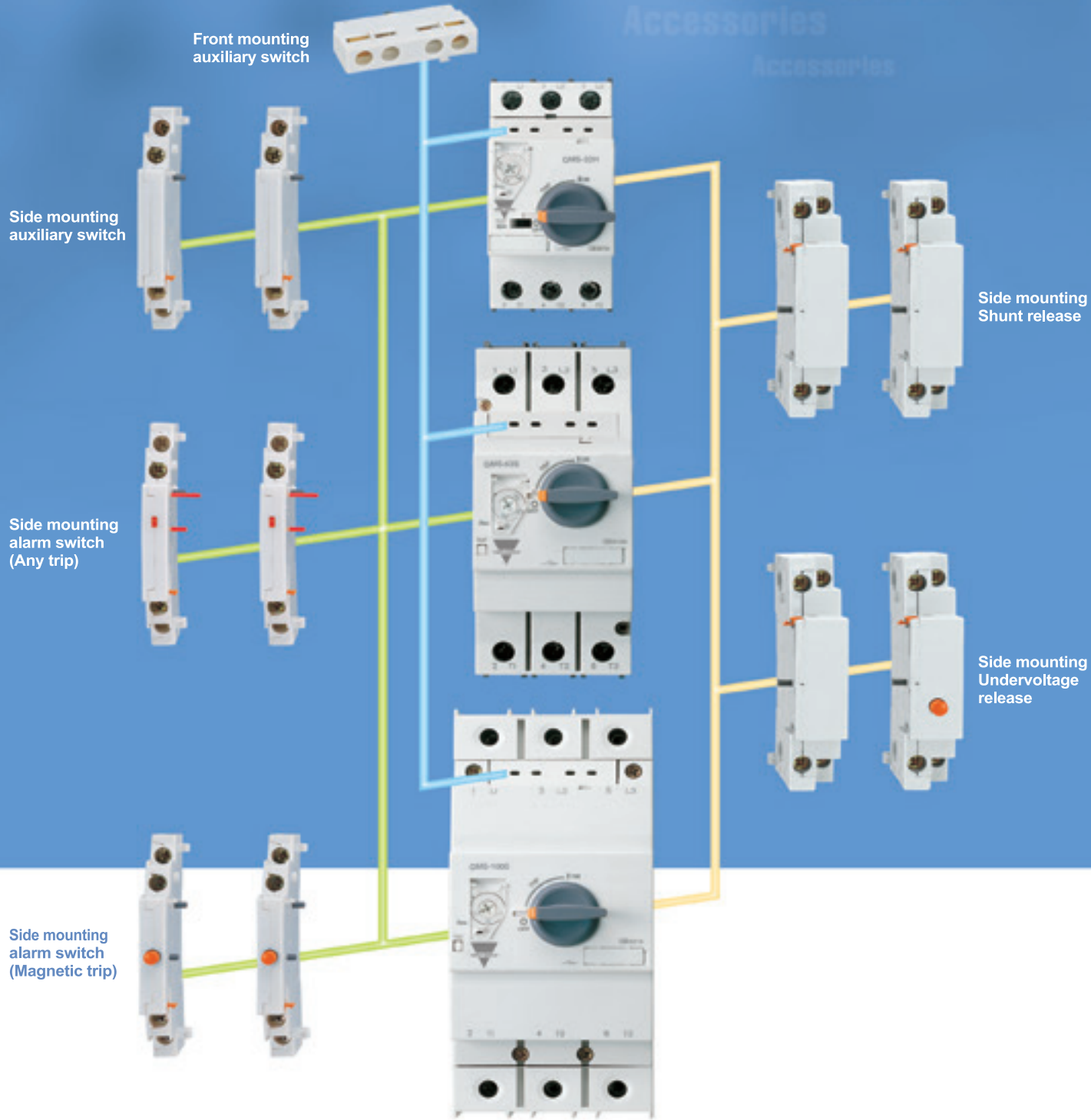
100AF

Carlo Gavazzi GMS Manual Motor Starters deliver more efficiency through various functions and compact design

Common use from 32 to 100AF
A wide variety of accessories enables a flexible response to changes in specifications



[Scale 1:1]



Function

- Protection of group installation
- Protection of circuits
- Motor protection
- Starter protection
- Wide range of ambient temperature compensation
- Phase failure protection



Feature

- 45mm width up to 32A, 55mm width up to 63A and 70mm width rated to 100 amps
- Three position operator: ON-OFF-TRIP (Only 100AF is applied)
- Complete range of common accessories
- Handle lock in the OFF position
- Class 10,20 overload trip characteristics
- Trip test
- Finger safe terminal
- DIN rail and screw mounting

Standard

- The components fulfill the international standard IEC 60947
- The devices can be used as Manual Motor Starter in Group Installations According to UL508.

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Quick selection table ... IEC rating



Frame			32AF												63AF										100AF																															
Type	Current adjustable type		GMS-32S						GMS-32H						GMS-63S					GMS-63H					GMS-100S					GMS-100H																										
	Instantaneous type		-						GMS-32HI						-					GMS-63HI					-					GMS-100HI																										
	Class 20		-						-						-					GMS-63HL					-					GMS-100HL																										
Breaking capacity			Standard						High break						Standard					High break					Standard					High break																										
Handle Type			Rocker						Rotary						Rotary					Rotary					Rotary					Rotary																										
Number of poles			3						3						3					3					3					3																										
Rated operational voltage (Ue)			Up to 690V						Up to 690V						Up to 690V					Up to 690V					Up to 690V					Up to 690V																										
Rated frequency			50/60 Hz						50/60 Hz						50/60 Hz					50/60 Hz					50/60 Hz					50/60 Hz																										
Rated insulation voltage (Ui)			690V						690V						1,000V					1,000V					1,000V					1,000V																										
Rated impulse voltage (Uimp)			6kV						6kV						8kV					8kV					8kV					8kV																										
Utilization category	IEC 60 947-2 (Breaker)		Cat. A						Cat. A						Cat. A					Cat. A					Cat. A					Cat. A																										
	IEC 60 947-4 (Motor starter)		AC 3						AC 3						AC 3					AC 3					AC 3					AC 3																										
Shock resistance (IEC 68 Part 2-27)			25g						25g						25g					25g					25g					25g																										
Degree of protection (IEC 60 529)			IP 20						IP 20						IP 20					IP 20					IP 20					IP 20																										
Instantaneous short circuit release			13 × Ie max.						13 × Ie max.						13 × Ie max.					13 × Ie max.					13 × Ie max.					13 × Ie max.																										
Mechanical endurance (Operating)			100,000						100,000						50,000					50,000					50,000					50,000																										
Electrical endurance (Cycles)			100,000						100,000						25,000					25,000					25,000					25,000																										
Max operating frequency per hour (Ope./h)			25						25						25					25					25					25																										
Temperature compensation (Operation)			-20 ~ +60 °C						-20 ~ +60 °C						-20 ~ +60 °C					-20 ~ +60 °C					-20 ~ +60 °C					-20 ~ +60 °C																										
Phase failure function			○						○						○					○					○					○																										
Trip indicating function			×						×						×					×					○					○																										
Test function			○						○						○					○					○					○																										
Rated breaking capacity (kA)	Rated operational current (Ie)	Thermal release Adjustment range (A)	240V 230V		415V 400V		460V 440V		525V 500V		690V 600V		240V 230V		415V 400V		460V 440V		525V 500V		690V 600V		240V 230V		415V 400V		460V 440V		525V 500V		690V 600V		240V 230V		415V 400V		460V 440V		525V 500V		690V 600V		240V 230V		415V 400V		460V 440V		525V 500V		690V 600V					
			Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics	Icu	Ics						
	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	100	100	100	100	100	100	100	100	100	100	100	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	100	100	100	100	100	100	100	100	100	100	100	100	100	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	100	100	100	100	100	100	100	100	100	100	100	100	100	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	100	100	100	100	100	100	100	100	100	100	100	100	100	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	100	100	100	100	100	100	100	100	100	100	100	100	100	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	100	3	3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	2.5	1.6~2.5	100	100	100	100	100	100	100	50	38	3	3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	4	2.5~4	100	100	100	100	50	38	15	11	3	3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
	6	4~6	100	100	100	100	15	11	10	8	3	3	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100						



Motor protection

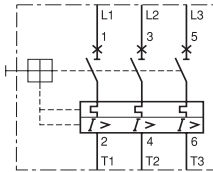
- Adjustable thermal release
- Magnetic release $13 \times I_e$ max.
- Trip class 10
- Ambient temperature compensation
- Phase-failure protection



GMS-32S



GMS-32H



(Circuit diagram)

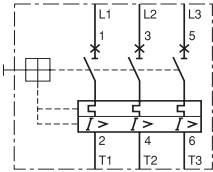
- Adjustable thermal release
- Magnetic release $13 \times I_e$ max.
- Trip class 10
- Ambient temperature compensation
- Phase-failure protection



GMS-63H



GMS-100H



(Circuit diagram)

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						440/460V	
				3-phase [kW] (50/60Hz)			3-phase [HP] (60Hz)			I _{cu} [kA]	I _{cs} [kA]
				230V	400V	690V	230V	460V	575V		
GMS-32S (Standard)	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	50	38
	6	4...6	78	1.5	2.2	4	1½	5	5	15	11
	8	5...8	104	1.5	3	5.5	2	5	5	15	11
	10	6...10	130	3	4	7.5	3	7½	10	15	11
	13	9...13	169	3	5.5	11	3	7½	10	10	8
	17	11...17	221	4	7.5	11	5	10	15	10	8
GMS-32H (High break)	22	14...22	286	4	7.5	15	7½	15	20	8	6
	26	18...26	338	5.5	11	18.5	7½	15	20	8	6
	32	22...32	416	7.5	15	22	10	20	30	6	4
	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	50	38
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	20	15	
26	18...26	338	5.5	11	18.5	7½	15	20	20	15	
32	22...32	416	7.5	15	22	10	20	30	20	15	

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						440/460V	
				3-phase [kW] (50/60Hz)			3-phase [HP] (60Hz)			I _{cu} [kA]	I _{cs} [kA]
				230V	400V	690V	230V	460V	575V		
GMS-63S (Standard)	10	6~10	130	3	4	7.5	3	7½	10	15	12
	13	9~13	169	3	5.5	11	3	7½	10	10	8
	17	11~17	221	4	7.5	11	5	10	15	10	8
	22	14~22	286	4	7.5	15	7½	15	20	10	8
	26	18~26	338	5.5	11	18.5	10	20	25	10	8
	32	22~32	416	7.5	15	22	10	25	30	10	8
	40	28~40	520	7.5	18.5	30	15	30	40	10	8
	50	34~50	650	11	22	45	15	40	50	10	8
GMS-63H (High break)	63	45~63	819	15	30	55	20	50	60	10	8
	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	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	35	27
	32	22~32	416	7.5	15	22	10	25	30	35	27
	40	28~40	520	7.5	18.5	30	15	30	40	35	27
GMS-100S (Standard)	50	34~50	650	11	22	45	15	40	50	35	27
	63	45~63	819	15	30	55	20	50	60	35	27
	17	11~17	221	4	7.5	11	5	10	15	40	30
	22	14~22	286	4	7.5	15	7½	15	20	40	30
	26	18~26	338	5.5	11	18.5	10	20	25	40	30
	32	22~32	416	7.5	15	22	10	25	30	40	30
	40	28~40	520	7.5	18.5	30	15	30	40	40	30
	50	34~50	650	11	22	45	15	40	50	40	30
GMS-100H (High break)	63	45~63	819	15	30	55	20	50	60	40	30
	75	55~75	975	22	37	63	25	60	75	40	30
	90	70~90	1170	30	45	75	30	75	100	40	30
	100	80~100	1300	30	45	90	40	75	100	40	30
	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
GMS-100H (High break)	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

Short-circuit protection for starters

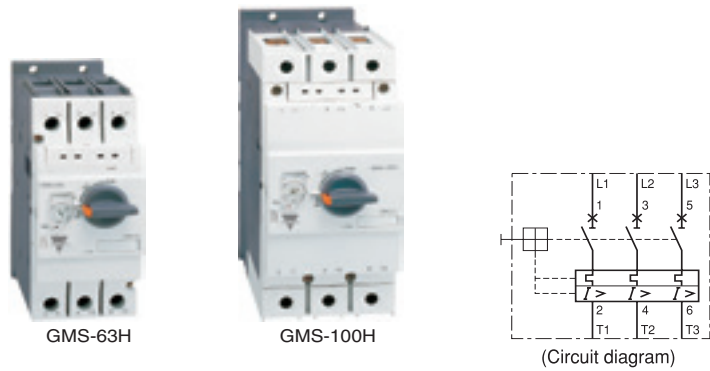
Motor protection ... Class 20



- Without thermal releases
- Magnetic release $13 \times I_e$ max.



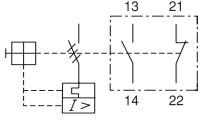
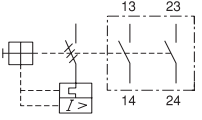
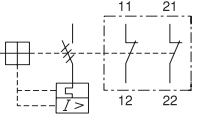
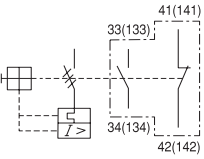
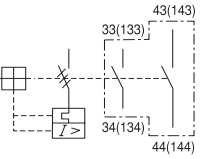
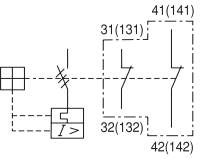
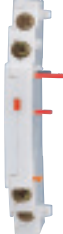
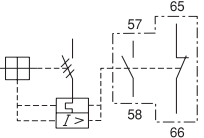
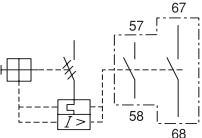
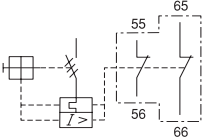
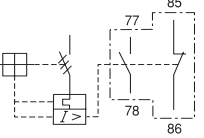
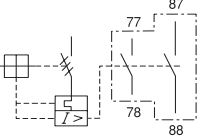
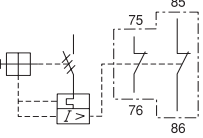
- Adjustable thermal release
- Magnetic release $13 \times I_e$ max.
- Trip class 20
- Ambient temperature compensation
- Phase-failure protection



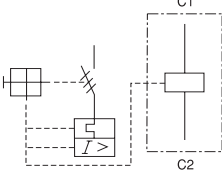
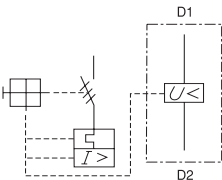
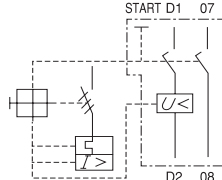
Type	Rated operational current I_e [A]	Thermal release Adjustment range [A]	Magnetic release Operating current [A]	Switching of 3 phase AC motors, AC-2, AC-3						440/460V	
				3-phase [kW] (50/60Hz)			3-phase [HP] (60Hz)			I_{cu} [kA]	I_{cs} [kA]
				230V	400V	690V	230V	460V	575V		
GMS-32HI (High break)	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	50	38
	10	-	130	3	4	7.5	3	7½	10	50	38
	13	-	169	3	5.5	11	3	7½	10	50	38
	17	-	221	4	7.5	11	5	10	15	20	15
	22	-	286	4	7.5	15	7½	15	20	20	15
GMS-63HI (High break)	26	-	338	5.5	11	18.5	7½	15	20	20	15
	32	-	416	7.5	15	22	10	20	30	20	15
	10	-	130	3	4	7.5	3	7½	10	50	38
	13	-	169	3	5.5	11	3	7½	10	50	38
	17	-	221	4	7.5	11	5	10	15	50	38
	22	-	286	4	7.5	15	7½	15	20	50	38
	26	-	338	5.5	11	18.5	10	20	25	35	27
	32	-	416	7.5	15	22	10	25	30	35	27
GMS-100HI (High break)	40	-	520	7.5	18.5	30	15	30	40	35	27
	50	-	650	11	22	45	15	40	50	35	27
	63	-	819	15	30	55	20	50	60	35	27
	17	-	221	4	7.5	11	5	10	15	50	38
	22	-	286	4	7.5	15	7½	15	20	50	38
	26	-	338	5.5	11	18.5	10	20	25	50	38
	32	-	416	7.5	15	22	10	25	30	50	38
	40	-	520	7.5	18.5	30	15	30	40	50	38
	50	-	650	11	22	45	15	40	50	50	38
	63	-	819	15	30	55	20	50	60	50	38
GMS-100HI (High break)	75	-	975	22	37	63	25	60	75	50	38
	90	-	1170	30	45	75	30	75	100	50	38
	100	-	1300	30	45	90	40	75	100	50	38
	100	-	1300	30	45	90	40	75	100	50	38

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						440/460V	
				3-phase [kW] (50/60Hz)			3-phase [HP] (60Hz)			I_{cu} [kA]	I_{cs} [kA]
				230V	400V	690V	230V	460V	575V		
GMS-63HL (High break)	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	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	35	27
	32	22~32	416	7.5	15	22	10	25	30	35	27
	40	28~40	520	7.5	18.5	30	15	30	40	35	27
	50	34~50	650	11	22	45	15	40	50	35	27
	63	45~63	819	15	30	55	20	50	60	35	27
GMS-100HL (High break)	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
GMS-100HL (High break)	100	80~100	1300	30	45	90	40	75	100	50	38



Type	Description	Connection diagram		
GFX... 	Auxiliary Switch • Front mounting • 2-pole • One front mounting module per circuit breaker	1NO1NC	2NO	2NC
		 GFX-11	 GFX-20	 GFX-02
GSX... 	Auxiliary Switch • Side mounting on the left • 2-pole • One side mounting module per circuit breaker	1NO1NC	2NO	2NC
		 GSX-11	 GSX-20	 GSX-02
GSA... 	Any Trip Alarm Switch • Side mounting on the left • 2-pole • One side mounting module per circuit breaker. (Always directly fitted to the circuit breaker).			
		 GSA32-11 GSA63100-11	 GSA32-20 GSA63100-20	 GSA32-02 GSA63100-02
GMA... 	Magnetic Trip Alarm Switch • Side mounting on the left • 2-pole • One side mounting module per circuit breaker. (Always directly fitted to the circuit breaker except using with Any Trip Alarm Switch).			
		 GMA-11	 GMA-20	 GMA-02

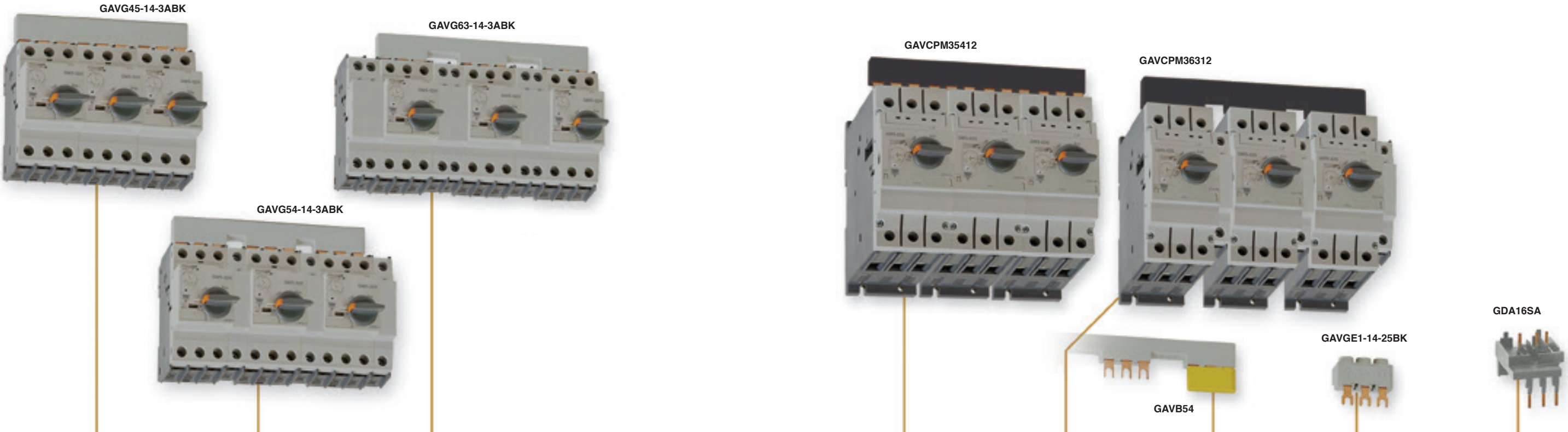
Ordering Example: Specify Contact Arrangement
GFX-11 (1NO 1NC)
GFX-20 (2NO)
GFX-02 (2NC)

Type	Description	Connection diagram	
GSR... 	Shunt release • Side mounting on the right • One side mounting module per circuit breaker. (Always directly fitted to the circuit breaker).		24V 50Hz / 28V 60Hz 110~127V 50Hz / 120V 60Hz 220~230V 50Hz / 240~260V 60Hz 240V 50Hz / 277V 60Hz 380~400V 50Hz / 440~460V 60Hz 415~440V 50Hz / 460~480V 60Hz
GUR... 	Undervoltage release • Side mounting on the right • One side mounting module per circuit breaker. (Always directly fitted to the circuit breaker).		24V 50Hz / 28V 60Hz 110~127V 50Hz / 120V 60Hz 220~230V 50Hz / 240~260V 60Hz 240V 50Hz / 277V 60Hz 380~400V 50Hz / 440~460V 60Hz 415~440V 50Hz / 460~480V 60Hz
GURX... 	Undervoltage release with Switch (Rotary Handle Only) • Side mounting on the right • Include 2NO Auxiliary contact • One side mounting module per circuit breaker. (Always directly fitted to the circuit breaker).		24V 50Hz / 28V 60Hz 110~127V 50Hz / 120V 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
PIL32 	Push-in lug • For screwing the MMS on to mounting plates.	GMS-32S GMS-32H
IB100 	Insulation barriers • Insulation barriers with increased creepage distances and clearances for UL	GMS-100S GMS-100H

Busbar accessories



	45mm Spacing (rated 63A)	54mm Spacing (rated 63A)	63mm Spacing (rated 63A)	54mm Spacing (rated 120A)	63mm Spacing (rated 120A)	Terminal cover	Supply connector	Connection module
Type	GAVG45-14-2ABK	GAVG54-14-2ABK	GAVG63-14-2ABK	GAVCPM25412	GAVCPM26312	GAVB54	GAVGE1-14-25BK	GDA16SA
Description	For 2 GMS-32S/H	For 2 GMS-32S/H + accessories (side mnt aux sw)	For 2 GMS-32S/H + accessories (side mnt undervoltage or shunt trip)	For 2 GMS-63	For 2 GMS-63 + accessories (side mnt aux sw)	3 Pole protective cover for GAVG....	3 Phase input terminal 63A	For connecting GMS-32S to CGMS-6A - CGMS-12A
Type	GAVG45-14-3ABK	GAVG54-14-3ABK	GAVG63-14-3ABK	GAVCPM35412	GAVCPM36312	GAVTA120	GAVBTC50E	GDA16SD
Description	For 3 GMS-32S/H	For 3 GMS-32S/H + accessories (side mnt aux. sw)	For 3 GMS-32S/H + accessories (side mnt undervoltage or shunt trip)	For 3 GMS-63	For 3 GMS-63 + accessories (side mnt aux. sw)	3 Pole protective cover for GAVCPM..	3 Phase Input terminal 120A	For connecting GMS-32S to CGMS-6D - CGMS-12D
Type	GAVG45-14-4ABK	GAVG54-14-4ABK	GAVG63-14-4ABK	GAVCPM45412	GAVCPM46312			GDA16HA
Description	For 4 GMS-32S/H	For 4 GMS-32S/H + accessories (side mnt aux. sw)	For 4 GMS-32S/H + accessories (side mnt undervoltage or shunt trip)	For 4 GMS-63	For 4 GMS-63 + accessories (side mnt aux. sw)			For connecting GMS-32H to CGMS-6A - CGMS-12A
Type	GAVG45-14-5ABK	GAVG54-14-5ABK	GAVG63-14-5ABK					GDA16HD
Description	For 5 GMS-32S/H	For 5 GMS-32S/H + accessories (side mnt aux. sw)	For 5 GMS-32S/H + accessories (side mnt undervoltage or shunt trip)					For connecting GMS-32H to CGMS-6D - CGMS-12D



● GMS-100S

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]	100	125	125	125	160	160	160	160	160	160
440/460V	[A]	100	125	125	125	125	160	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

● GMS-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	75	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	10	8	6	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.

● GMS-32HI

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
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	80	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

● GMS-63HI

Rated operational current I _e [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

● GMS-100HI

Rated operational current I _e [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	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



● GMS-100S

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]	100	125	125	125	160	160	160	160	160	160
440/460V	[A]	100	125	125	125	125	160	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

● GMS-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	75	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	10	8	6	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.

● GMS-32HI

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
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	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

● GMS-63HI

Rated operational current I _e [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

● GMS-100HI

Rated operational current I _e [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	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



● GMS-63HL

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	10	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



● GMS-100HL

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.

Manual motor controller

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

● GMS-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	2	2	2
	230V [HP]	-	-	-	-	-	1/10	1/6	1/3	3/4	1	1½	2	3	3	5	5
3 Phase	230V [HP]	-	-	-	-	-	1/3	1/2	1	1½	2	3	3	5	7½	7½	10
	460V [HP]	-	-	-	-	1/2	3/4	1½	2	5	5	7½	7½	10	15	15	20
	575V [HP]	-	-	-	-	1/2	1	1½	3	5	5	10	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

Manual motor controller "group installation" or "Type E starter"

(UL 508, CSA C22.2 No..14, for group installation, in connection with a short-circuit protection device)

● GMS-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	2	2	2
	230V [HP]	-	-	-	-	-	1/10	1/6	1/3	3/4	1	1½	2	3	3	5	5
3 Phase	230V [HP]	-	-	-	-	-	1/3	1/2	1	1½	2	3	3	5	7½	7½	10
	460V [HP]	-	-	-	-	1/2	3/4	1½	2	5	5	7½	7½	10	15	15	20
	575V [HP]	-	-	-	-	1/2	1	1½	3	5	5	10	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





UL/CSA performance data (Motor protection)

Manual motor controller "group installation" or "Type E starter"
(UL 508, CSA C22.2 No.14, for group installation, in connection with a short-circuit protection device)



● GMS-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	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



● GMS-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



● GMS-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	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



● GMS-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	20	20	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



● GMS-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	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	2	2	2
	230V	[HP]	-	-	-	-	-	1/10	1/6	1/3	3/4	1	1½	2	3	3	5	5
3 Phase	230V	[HP]	-	-	-	-	-	1/3	1/2	1	1½	2	3	3	5	7½	7½	10
	460V	[HP]	-	-	-	-	1/2	3/4	1½	2	5	5	7½	7½	10	15	15	20
	575V	[HP]	-	-	-	-	1/2	1	1½	3	5	5	10	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



● GMS-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	30	30	30	30	30
	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	2	2	2
	230V	[HP]	-	-	-	-	-	1/10	1/6	1/3	3/4	1	1½	2	3	3	5	5
3 Phase	230V	[HP]	-	-	-	-	-	1/3	1/2	1	1½	2	3	3	5	7½	7½	10
	460V	[HP]	-	-	-	-	1/2	3/4	1½	2	5	5	7½	7½	10	15	15	20
	575V	[HP]	-	-	-	-	1/2	1	1½	3	5	5	10	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



● GMS-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	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
Max. fuse size			[A]	40	50	60	80	100	125	150	200
Max. breaker size			[A]	40	50	60	80	100	125	150	200



● GMS-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]	50	50	50	50	50	50	50	50	50
	600Y/347V	[kA]	10	10	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
Max. fuse size			[A]	40	50	60	80	100	125	150	200
Max. breaker size			[A]	40	50	60	80	100	125	150	200

● GMS-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	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
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

● GMS-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]	50	50	50	50	50	50	50	50	50	50
	600Y/347V	[kA]	10	10	10	10	10	10	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
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

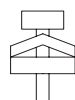
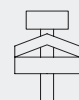
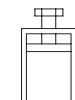
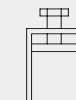


Type		GMS-32S	GMS-32H	GMS-63S, 63H	GMS-100S, 100H
Rated insulation voltage					
IEC		690V	690V	1000V	1000V
UL, CSA		600V	600V	600V	600V
Rated impulse withstand voltage					
Uimp/Pollution degree		6kV / 3	6kV / 3	8kV / 3	8kV / 3
Rated frequency		50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Utilization category:					
IEC 947-2 (Circuit breaker)		Cat. A	Cat. A	Cat. A	Cat. A
IEC 947-4-1 (Motor starter)		AC 3	AC 3	AC 3	AC 3
Life span					
Mechanical	Operations	100,000	100,000	50,000	50,000
Electrical(le max.)	Operations	100,000	100,000	25,000	25,000
Switching frequency	Ope./h	25	25	25	25
Ambient temperature					
Storage	°C	-50 ~ +80	-50 ~ +80	-50 ~ +80	-50 ~ +80
Operation	°C	-20 ~ +60	-20 ~ +60	-20 ~ +60	-20 ~ +60
Operation altitude	m	Up to 2000 (6500 Feet)	Up to 2000 (6500 Feet)	Up to 2000 (6500 Feet)	Up to 2000 (6500 Feet)
Protection class		IP 20 Safe from finger touch	IP 20 Safe from finger touch	IP 20 Safe from finger touch	IP 20 Safe from finger touch
Resistance to shock	g	25	25	25	25
Resistance to vibration	Hz	5 ~ 150	5 ~ 150	5 ~ 150	5 ~ 150
Rated thermal current Ith					
IEC	[A]	0.1 ... 32	0.1 ... 32	6 ...63	11 ...100
up to 60 °C ambient temperature					
Overload protection		○	○	○	○
Characteristics					
Ambient temperature compensation, thermal current Ith adjustments		set one point lower ³⁾ automatic set one point higher ³⁾	set one point lower ³⁾ automatic set one point higher ³⁾	set one point lower ³⁾ automatic set one point higher ³⁾	set one point lower ³⁾ automatic set one point higher ³⁾
-20 °C ~ -5 °C					
-5 °C ~ +40 °C					
+40 °C ~ +60 °C					
Phase-failure protection		○	○	○	○
Trip class		10	10	10 ¹⁾	10 ¹⁾
Magnetic release					
Response current		13 × In ²⁾	13 × In ²⁾	13 × In ²⁾	13 × In ²⁾
Total power loss Pv					
Circuit breaker at rated load	[W]	In = 0.16~4A : 9.8	In = 0.16~4A : 9.8	In = 10~22A : 13.3	In = 17~63A : 11.9
Operating temperature		In = 6~26A : 8	In = 6~26A : 8	In = 26~63A : 12.6	In = 75~100A : 15
		In = 32A : 3.9	In = 32A : 3.9		

Note = 1) Class20; GMS-63HL, GMS-100HL
2) In = Max. rated operational current Ie
3) use Thermal Current dial to adjust accordingly



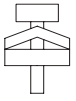
● Manual Motor Starter GMS-32...100

				GMS-32S	GMS-32H	GMS-32S, 63H	GMS-100S, 100H
Conformity to standards				IEC60947 UL508, UL508 Type E			
Approvals				CE, UL			
Terminal parts							
							
Screwdriver							
Single-core	1.conductor	[mm²] / [AWG]	1...10 / 18...8	1...10 / 18...8	0.75...35 / 18...2	2.5...70 / 12...2/0	
	2.conductor	[mm²] / [AWG]	1...6 / 18...10	1...6 / 18...10	0.75...25 / 18...4	2.5...50 / 12...1/0	
Stranded	1.conductor	[mm²] / [AWG]	1...6 / 18...10	1...6 / 18...10	0.75...35 / 18...2	2.5...70 / 12...2/0	
	2.conductor	[mm²] / [AWG]	1...6 / 18...10	1...6 / 18...10	0.75...25 / 18...4	2.5...50 / 12...1/0	
Flexible	1.conductor	[mm²] / [AWG]	1...6 / 18...10	1...6 / 18...10	0.75...25 / 18...4	2.5...50 / 12...1/0	
	2.conductor	[mm²] / [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	

● Accessories for Manual Motor Starter GMS-32...100

		Auxiliary contacts for front mounting GFX...		Auxiliary contacts for left side mounting GSX...		Alarm switch for left side mounting GSA...						
Rated thermal current / th												
at 40°C ambient temperature	[A]	5		1 0		1 0						
at 60°C ambient temperature	[A]	3		6		6						
Contact class coordination according to NEMA (UL/CSA-Standards)		B 600 Standard Pilot Duty R 300 Light Pilot Duty		A 600 Standard Pilot Duty Q 300 Light Pilot Duty		A 600 Standard Pilot Duty Q 300 Light Pilot Duty						
Back-up fuses gG, gL	[A]	16		1 6		1 6						
Rated supply current	[V]	24	240	24	240	24	240					
AC-15:	[A]	3	2	6	4	6	4					
DC-13:	[V]	24	220	24	220	24	220					
	[A]	1	0.1	2	0.25	2	0.25					
Terminal parts												
Type of terminals												
Screwdriver												
Single-core	1.conductor							[mm²] / [AWG]	0.5...2.5 / 20...14			
	2.conductor							[mm²] / [AWG]	0.5...2.5 / 20...14			
Flexible	1.conductor	[mm²] / [AWG]	0.5...4 / 20...10									
	2.conductor	[mm²] / [AWG]	0.75...2.5 / 18...14									
Tightening torque		[Nm] / [lb-in]		0.8...1.2 / 7...10								

● Accessories for Manual Motor Starter GMS-32...100

	Undervoltage release for right side mounting GUR...	Undervoltage release with 2 auxiliary contacts for right side mounting GURX...	Shunt release for right side mounting GSR...
Actuating voltage			
Pull-in	0.85...1.1 × Us	0.85...1.1 × Us	0.7...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
On-Time	100%	100%	100%
Terminal parts			
Type of terminals			
Screwdriver			
	Pozidriv size 2		
	0.5...2.5 / 20...14		
	0.5...2.5 / 20...14		
Tightening torque			
	0.5...4 / 20...10		
Tightening torque			
	0.75...2.5 / 18...14		
Tightening torque		[Nm] / [lb-in]	
		0.8...1.2 / 7...10	

● Weights

Description	Type	Weight [g]
Circuit breaker	GMS-32S	320
	GMS-32H	360
	GMS-63S	1,000
	GMS-100S	2,200
Auxiliary switch	GFX...(Front Auxiliary Switch)	18
	GSX...(Side Auxiliary Switch)	30
	GSA...(Alarm Switch)	40
Undervoltage release	GUR...(Undervoltage release)	110
	GURX...(Undervoltage release with 2 auxiliary contacts)	120
Shunt release	GSR...(Shunt release)	110



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

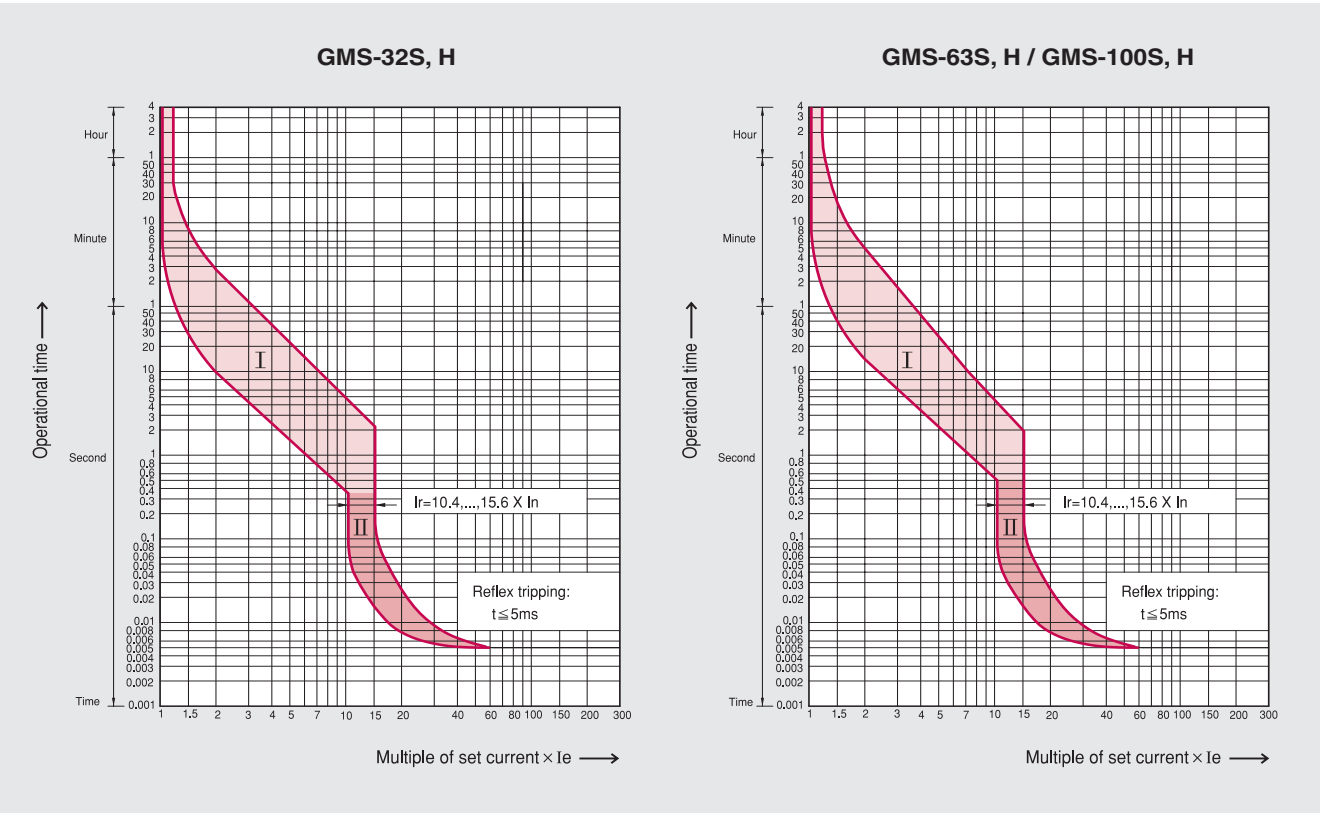
Time/Current characteristic

● Short-circuit current Iq = 50kA
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]
0.06	0.24	GMS-32S 0.25A	0.16 ~0.25	3.25	CGMS-6	6
0.09	0.33	GMS-32S 0.4A	0.25~0.4	5.2	CGMS-6	6
0.12	0.43	GMS-32S 0.63A	0.4~0.63	8.19	CGMS-6	6
0.18	0.61	GMS-32S 0.63A	0.4~0.63	8.19	CGMS-6	6
0.25	0.8	GMS-32S 1A	0.63~1	13	CGMS-6	6
0.37	1.1	GMS-32S 1.6A	1~1.6	20.8	CGMS-6	6
0.55	1.5	GMS-32S 1.6A	1~1.6	20.8	CGMS-6	6
0.75	1.9	GMS-32S 2.5A	1.6~2.5	32.5	CGMS-9/CGC-9	9
1.1	2.7	GMS-32S 4A	2.5~4	52	CGMS-9/CGC-9	9
1.5	3.5	GMS-32S 4A	2.5~4	52	CGMS-12/CGC-12	12
2.2	5.0	GMS-32S 6A	4~6	78	CGC-18	18
3.0	6.6	GMS-32S 8A	5~8	104	CGC-18	18
4.0	8.5	GMS-32S 10A	6~10	130	CGC-18	18
5.5	11.0	GMS-32S 13A	9~13	169	CGC-22	22
7.5	15.0	GMS-32H 17A	11~17	221	CGC-22	22
10.0	20.0	GMS-32H 22A	14~22	286	CGC-32	32
11.0	22.0	GMS-32H 26A	18~26	338	CGC-32	32
15.0	29.0	GMS-32H 32A	22~32	416	CGC-32	32
18.5	36.0	GMS-63S 40A	28~40	520	CGC-50	50
22.0	41.0	GMS-63S 50A	34~50	650	CGC-50	50
30.0	56.0	GMS-63S 63A	45~63	819	CGC-65	65
37.0	68.0	GMS-100S 75A	55~75	975	CGC-75	75
-	-	GMS-100S 90A	70~90	1170	CGC-85	85
45.0	81.0	GMS-100S 100A	80~100	1300	CGC-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).



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.

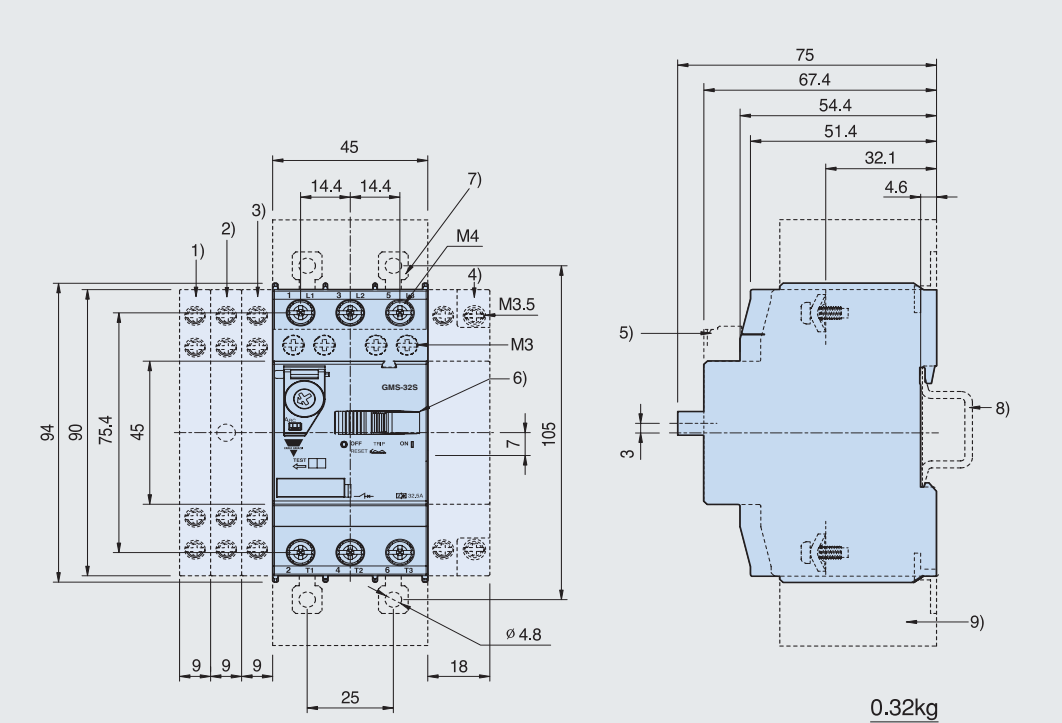
II) Magnetic release trip current :

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.

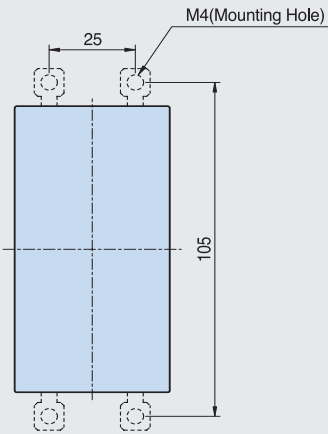
Current setting Ie :

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 Ie 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 Ie of the motor.

● GMS-32S [mm]



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



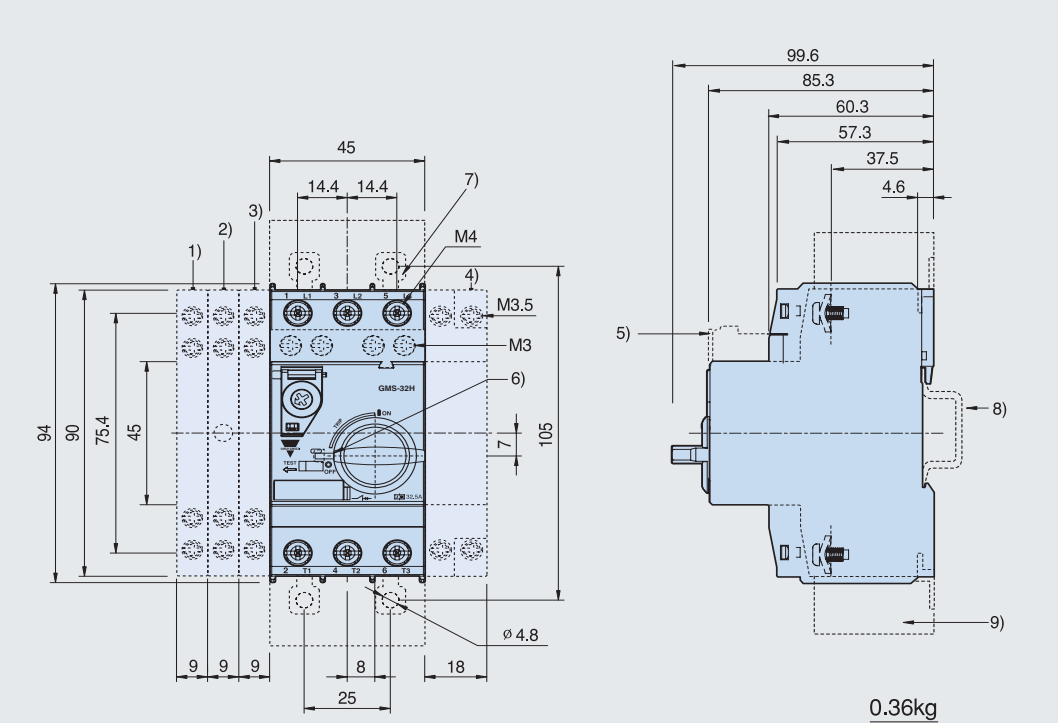
Height of arcing spaces
(Clearance from earthed parts)

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

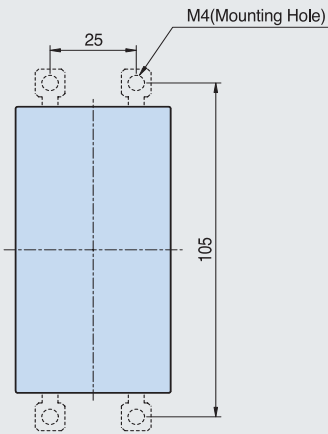
Arcing spaces for limiter function

Ue[V]	525		690	
	left/right	top/bottom	left/right	top/bottom
[mm]	10	40	30	50

● GMS-32H, 32HI [mm]



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



Height of arcing spaces
(Clearance from earthed parts)

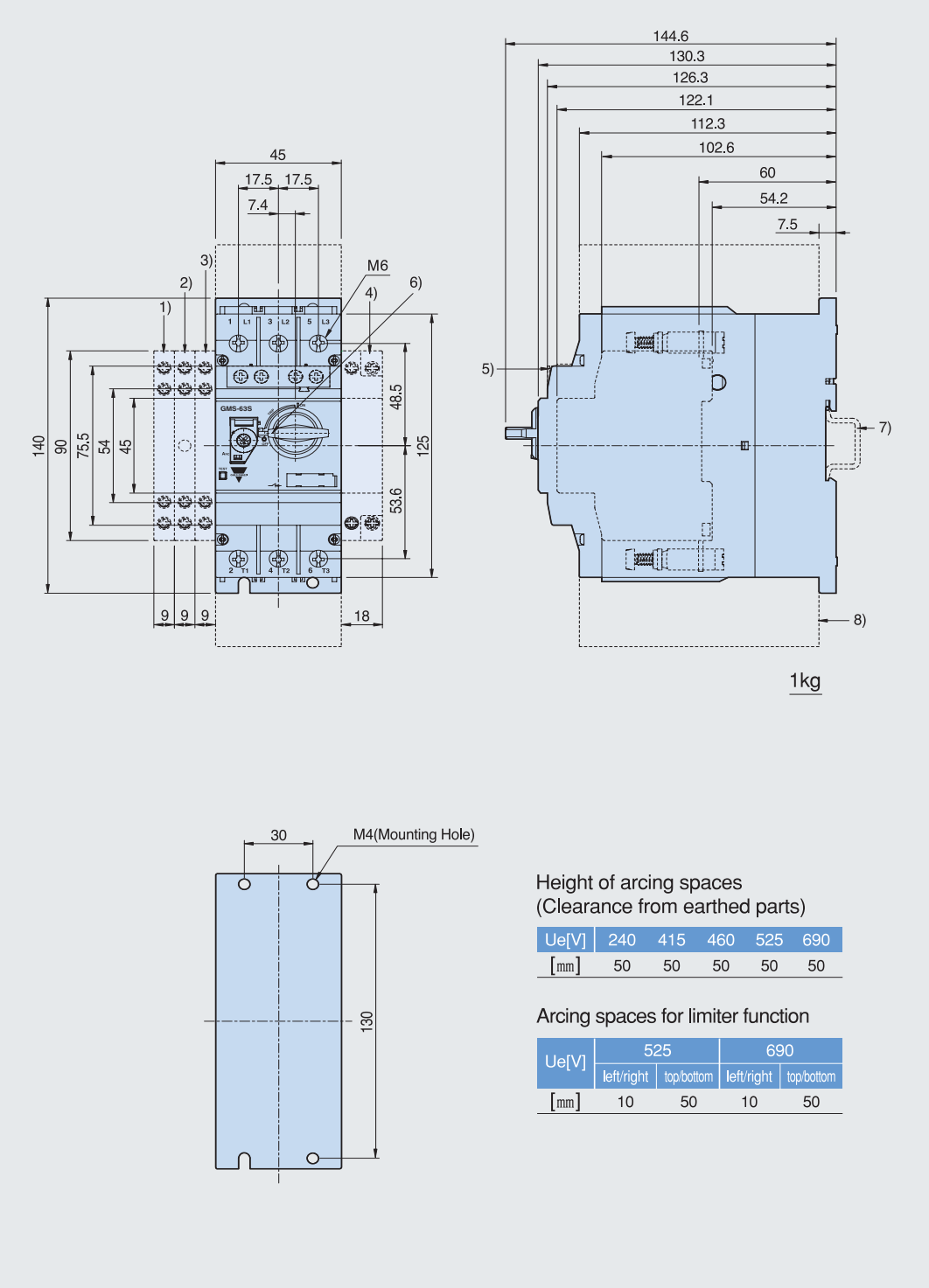
Ue[V]	240	415	460	525	690
[mm]	30	30	30	30	50

Arcing spaces for limiter function

Ue[V]	525		690	
	left/right	top/bottom	left/right	top/bottom
[mm]	10	40	30	50

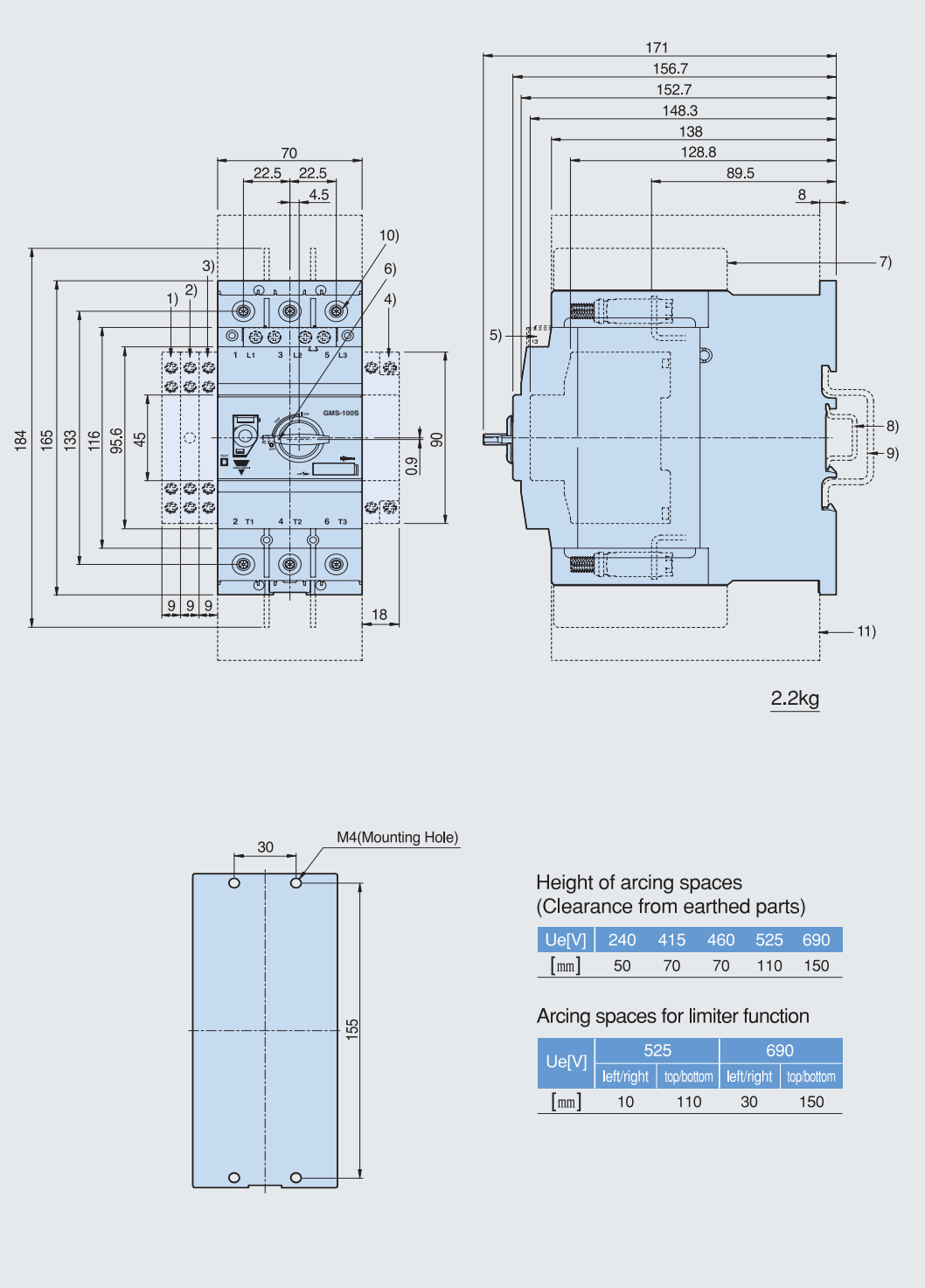
● GMS-63S, 63H, 63HI, 63HL

[mm]



● GMS-100S, 100H, 100HI, 100HL

[mm]



Notes:





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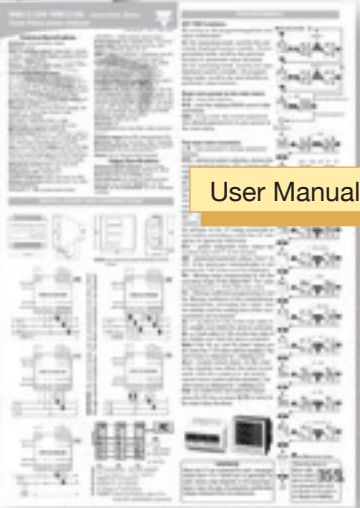
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