

# Technical Information

## General data



Type	MMS 32S
<b>Rated insulation voltage</b>	
IEC	690V
UL, CSA	600V
<b>Rated impulse withstand voltage</b>	
Uimp/Pollution degree	6kV / 3
<b>Rated frequency</b>	50 / 60 Hz
<b>Utilization category :</b>	
IEC 947-2 (Circuit breaker)	Cat. A
IEC 947-4-1 (Motor starter)	AC 3
<b>Life span</b>	
Mechanical Operations	100,000
Electrical (p max.) Operations	100,000
<b>Switching frequency</b>	Ope./h
	25
<b>Ambient temperature</b>	
Storage °C	-50 ~ +80
Operation °C	-20 ~ +60
<b>Operation altitude</b>	m
	Up to 2000 (6500 Feet)
<b>Protection class</b>	
	IP 20
	Safe from finger touch
<b>Resistance to shock</b>	g
	25
<b>Resistance to vibration</b>	Hz
	5 ~ 150
<b>Rated thermal current I<sub>th</sub></b>	
IEC [A]	0.1 ... 32
up to 60 °C ambient temperature	
<b>Overload protection</b>	
Characteristics	○
<b>Ambient temperature compensation</b>	
	-20 ~ +60
<b>Phase-failure protection</b>	
	○
<b>Trip class</b>	IEC 60947-4-1
	10
<b>Magnetic release</b>	
Response current	13 × I <sub>n</sub> <sup>2)</sup>
<b>Total power loss P<sub>v</sub></b>	
Circuit breaker at rated load [W]	I <sub>n</sub> = 0.16~4A : 9.8
Operating temperature	I <sub>n</sub> = 6~26A : 8
	I <sub>n</sub> = 32A : 3.9

Note = 1) Class20; MMS63HL, MMS100HL

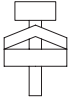
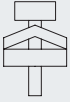
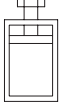
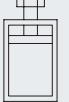
2) I<sub>n</sub> = Max. rated operational current I<sub>e</sub>

# Manual Motor Starters

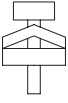


MMS32H	MMS63S, 63H	MMS100S, 100H
690V	1000V	1000V
600V	600V	600V
6kV / 3	8kV / 3	8kV / 3
50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
Cat. A	Cat. A	Cat. A
AC 3	AC 3	AC 3
100,000	50,000	50,000
100,000	25,000	25,000
25	25	25
-50 ~ +80	-50 ~ +80	-50 ~ +80
-20 ~ +60	-20 ~ +60	-20 ~ +60
Up to 2000 (6500 Feet)	Up to 2000 (6500 Feet)	Up to 2000 (6500 Feet)
IP 20	IP 20	IP 20
Safe from finger touch	Safe from finger touch	Safe from finger touch
25	25	25
5 ~ 150	5 ~ 150	5 ~ 150
0.1 ... 32	6 ... 63	11 ... 100
○	○	○
-20 ~ +60	-20 ~ +60	-20 ~ +60
○	○	○
10	10 <sup>1)</sup>	10 <sup>1)</sup>
13 × In <sup>2)</sup>	13 × In <sup>2)</sup>	13 × In <sup>2)</sup>
In = 0.16~4A : 9.8 In = 6~26A : 8 In = 32A : 3.9	In = 10~22A : 13.3 In = 26~63A : 12.6	In = 17~63A : 11.9 In = 75~100A : 15


### ● Manual Motor Starter MMS32..100

	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.conductor [mm] / [AWG]	1...6 / 18...10	1...6 / 18...10	0.75...25 / 18...4
Stranded	1.conductor [mm] / [AWG]	1...6 / 18...10	1...6 / 18...10	0.75...35 / 18...2
	2.conductor [mm] / [AWG]	1...6 / 18...10	1...6 / 18...10	0.75...25 / 18...4
Flexible	1.conductor [mm] / [AWG]	1...6 / 18...10	1...6 / 18...10	0.75...25 / 18...4
	2.conductor [mm] / [AWG]	0.75...4 / 18...10	0.75...4 / 18...10	0.75...16 / 18...6
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 MMS32..100

	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	B 600 Standard Pilot Duty	A 600 Standard Pilot Duty	A 600 Standard Pilot Duty
DC	R 300 Light Pilot Duty	Q 300 Light Pilot Duty	Q 300 Light Pilot Duty
Back-up fuses gG, gL [A]	16	16	16
Rated supply current [V]	24	24	24
AC-15: [A]	3	6	6
DC-13: [V]	24	220	24
[A]	1	0.1	2
Terminal parts			
Type of terminals			
Screwdriver		Pozidriv size 2	
Single-core	1.conductor [mm] / [AWG]	0.5...2.5 / 20...14	
	2.conductor [mm] / [AWG]	0.5...2.5 / 20...14	
Flexible	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	

## ● Accessories for Manual Motor Starter MMS32..100

	Undervoltage release for right side mounting <b>RU...</b>	Undervoltage release with 2 auxiliary contacts for right side mounting <b>RUX...</b>	Shunt release for right side mounting <b>RS...</b>
<b>Actuating voltage</b>			
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	
<b>Rated control voltage</b>			
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
<b>Coil rating</b>			
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%
<b>Terminal parts</b>			
Type of terminals			
Screwdriver		Pozidriv size 2	
1.conductor [mm] / [AWG]		0.5...2.5 / 20...14	
2.conductor [mm] / [AWG]		0.5...2.5 / 20...14	
1.conductor [mm] / [AWG]		0.5...4 / 20...10	
2.conductor [mm] / [AWG]		0.75...2.5 / 18...14	
<b>Tightening torque</b> [Nm] / [lb-in]		0.8...1.2 / 7...10	

## ● Weights

Description	Type	Weight [g]
Circuit breaker	<b>MMS-32S</b>	320
	<b>MMS-32H</b>	360
	<b>MMS-63S</b>	1,000
	<b>MMS-100S</b>	2,200
Auxiliary switch	<b>FX...</b> (Front Auxiliary Switch)	18
	<b>LX...</b> (Side Auxiliary Switch)	30
	<b>LA...</b> (Alarm Switch)	40
Undervoltage release	<b>RU...</b> (Undervoltage release)	110
	<b>RUX...</b> (Undervoltage release with 2 auxiliary contacts)	120
Shunt release	<b>RS...</b> (Shunt release)	110