

FAQ | Contactor Screws and Lugs Explained

Purpose



This document is to be used as a visual aide in describing the differences of the screw type, lug type, and bolt-on connections which are available for the LS Electric Metasol series contactors. This document is focused only on the main contacts and not on the auxiliaries or contactor coil fasteners. It is important to understand the contactors fastener options in order to ensure proper field wiring and long term reliability. This is also necessary when combining contactors with overload relays (OLRs) for motor starters.

Screw Type

Contactors can be ordered as a "screw type". The part # will contain an "S" to designate this fastener type. See below example.

Example: MC32A-30-00-K7-**S**-E

↑ Designates that the main contacts have screw type fasteners

 Note: Contactor sizes MC6a~40a are only available as Screw Type. 

Screw Type/Bolt-On Specifications

Screw Type contactors can support a wide array of terminal types. This includes various ferrules, fork terminals, and bare wire. Screw type changes physically based on the contactor frame size. Refer to the below reference and tables.



The **MC-40a and smaller** screw type contactors utilize a pressure plate ideal for the connection of bare wire or ferrules, but can also be used with fork terminals.









Wire type		Main Terminal Size	Recommended Connections					mm(max)
								
Frame			(AWG / mm²)					
MC-6a/9a		M3.5	18~10 / 1~6	18~10 / 1~6	18~10 / 1~6	8.3		
MC-12a			16~10 / 1.5~10	16~10 / 1.5~10	16~10 / 1.5~10			
MC-18a			16~8 / 1.5~10	16~8 / 1.5~10	16~8 / 1.5~10			
MC-9b		M4	18~10 / 1~6	18~10 / 1~6	18~10 / 1~6	9.6		
MC-12b			18~10 / 1~6	16~10 / 1~6	16~10 / 1~6			
MC-18b			18~10 / 1~6	16~8 / 1.5~10	16~8 / 1.5~10			
MC-22b			18~10 / 1~6	14~8 / 2.5~10	14~8 / 2.5~10			
MC-32a		M5	18~10 / 1~6	12~8 / 2.5~10	12~8 / 2.5~10	12.8		
MC-40a			18~10 / 1~6	8~6 / 10~16	8~6 / 10~16			

Table 1: Recommended connectors and wire gauge for MC6a~40a.



The **MC-50a to MC-150a** screw type contactors feature a SEMs screw without a pressure plate. Ring tongue terminals are recommended for these contactors to ensure a reliable connection.

MC-185a and larger contactors use a -B in the part # to designate a bolt-on connection. This consists of a bolt, washer, and nut assembly. This connection type also supports a ring tongue terminal like the smaller contactors. Lug kits are available for these contactors (P/N: AJ-220, 400, and 800 see page 3).

				Ferrule and Bare Wire is Not Recommended. Use Lug Type!						Recommended Connection
Wire type	Main Terminal Size									
		(AWG / mm ²)						mm(max)		
Frame										
-S Screw Type	MC-50a		M6	-	10~4 / 6~25	10~4 / 6~25	14			
	MC-65a			-	8~3 / 10~35	8~3 / 10~35				
	MC-75a		M8	-	8~2 / 10~35	8~2 / 10~35	17			
	MC-85a			-	8~1/0 / 10~50	8~1/0 / 10~50				
	MC-100a			-	8~2/0 / 10~70	8~2/0 / 10~70				
	MC-130a		M8	-	3~2/0 / 35~70	3~2/0 / 35~70	24.5			
	MC-150a			-	3~4/0 / 35~95	3~4/0 / 35~95				
-B Bolt-On Type	MC-185a		M10	-	1~4/0 / 50~95	1~4/0 / 50~95	25			
	MC-225a			-	1/0~300 / 50~150	1/0~300 / 50~150				
	MC-265a		M12	-	3/0~500 / 95~240	3/0~500 / 95~240	30			
	MC-330a			-	4/0~500 / 95~240	4/0~500 / 95~240				
	MC-400a			-	350~700 / 185~185×2	350~700 / 185~185×2				
	MC-500a		M16	-	350~800 / 185~240×2	350~800 / 185~240×2	40			
	MC-630a			-	600~2000	-				
	MC-800a			-	1700~Busbar	-				
	MC-1260a		M12	-	5mm×100mm×2ea	-	-			
	MC-1400a		M12	-	5mm×100mm×2ea	-	-			
	MC-1700a			-	5mm×100mm×3ea	-				
MC-2100a	-			5mm×100mm×4ea	-					

Table 2: Recommended connectors and wire gauge for MC50a and larger.

Lug Type

Contactors can also be ordered as a “lug type”. The part # will contain an “L” to designate this fastener type. This “L” option is available on contactors **MC-50A to MC-150A**. Lug type should be ordered when ferrules or bare wire will be connected to the main contacts.

Example: MC65A-30-00-K7-L-E

↑ Designates that the main contacts have lug type fasteners

Lug Type Specifications

As previously mentioned lug type contactors can support ferrule or bare wire terminals. The lug type design consists of box lug assembly. Refer to the below images.



or

The **MC-50a to MC-150a** uses a box lug design. This design utilizes a pressure plate to hold the wire in place



Note: Recommended wire gauge for lug type is the same as screw type. Refer to Table 2.



Figure 1: Picture of box lug

Lug Kits

Lug terminal kits are available for contactors MC-185a to MC-800a. This allows bare wire connections for bolt-on type contactors. Use the below table to select the appropriate part number.

	P/N	MC Contactor Used On	Wire Range	Description
MC Contactor Lug Terminal Set	AJ-220	MC-185a,225a	1 x 300 MCM	LUG ASS'Y TERMINAL (Includes 3 pieces)
	AJ-400	MC-265a~400a	2 x 3-4/0 AWG	
	AJ-800	MC-500a~800a	2 x 3/0-600MCM	



AJ-220



AJ-400



AJ-800

Overload Relays

Overload relays (OLRs) should be ordered to mate up to the contactors fastener type. Simply put, if using a screw type contactor, a screw type overload is required. If using a lug type contactor, a lug type overload is required. See below example.



MC40A-30-00-K7-S-E
+
MT-32 34A 3K SCREW EXP

Figure 2: A screw type contactor with a screw type OLR.

Support

For technical questions on this document or any LS product, please contact us using the below methods.

Email:

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Phone: 800-891-2941