

Bulletin 140M Motor Protection Circuit Breakers

Overview

Motor Protection Circuit Breakers may provide the following protective and control functions.

- Disconnect for Motor Branch Circuit
- Branch-Circuit, Short-Circuit Protection (Magnetic Protection)
- Overload Protection (Thermal Protection)
- Switching (Manual)

In North America, electrical codes require that an individual Motor Branch Circuit be protected by a UL/CSA Listed Fuse, Circuit Breaker or Self-Protected Combination Motor Controller.

140M-C, D, and F Frames

The 140M-C, D, and F frame Motor Protection Circuit Breakers may have two cULus Listings - as Manual, Self-Protected Combination Motor Controllers and as Manual Motor Controllers (with optional approvals for Motor Disconnect and Group Installation). Cat. No. 140M-D8V* can also be applied at the output of a variable frequency drive (VFD) in multi-motor applications. See [Application Conditions \(140M-D8V\) on page 41](#) for more information.

When UL/CSA listed as Manual, Self-Protected Combination Motor Controllers, the 140M Motor Protection Circuit Breakers provide all of the necessary NEC/CEC requirements for the protection and control of individual Motor Branch Circuits without additional protective devices.

At some higher voltages and currents (particularly at 600V), a few of the 140M-C, D, and F frame devices are only UL/CSA Listed as Manual Motor Controllers (with optional approvals for Motor Disconnect and Group Installation). In NEC/CEC Group Installations, these devices must be applied per the appropriate rules which require the use of an upstream Branch-Circuit, Short-Circuit Protective Device (BCPD).

Type E and Type F Combination Motor Controllers




Most of the 140M-C...F motor protection circuit breakers are UL Listed as a manual Type E self-protected combination motor controller. Although there are many tests involved, one of the critical tests a self-protected combination motor controller must pass, is to perform 6000 electrical operations and an additional 4000 mechanical operations after a short circuit.

By definition, a **Type F** combination motor controller consists of a Type E manual self protected combination motor controller and a magnetic or solid-state motor controller (such as a Bulletin 100-C contactor or an SMC). As with a manual Type E self-protected combination motor controller, additional short-circuit protection is not required for the individual motor circuits.

A combination of a Bulletin 140M manual self protected combination motor controller and 100-C contactor can be listed as a Type E self-protected combination motor controller. In this case, both the 140M and 100-C must pass the additional 6000 electrical and 4000 mechanical operational test. In some cases, this may require over sizing of the Bulletin 140M MPCB or the 100-C contactor to achieve weld free performance and meet the additional life requirements.

Standards Compliance and Certifications

Standards Compliance	Certifications
IEC/EN60947-1,-2,-4-1,-5-1	CE Marked
IEC/EN60204-1	CCC
CSA,C22.2 No.14	CSA Certified
UL508	cULus Listed (File No. E54612, NLRV(7); E205542, NKJH(7); E197878, DIVQ(7);)
	ATEX

			
	C-Frame	D-Frame	F-Frame
Max. Current I_e	32 A	32 A	45 A
Current Rating	0.1...32 A	1.6...32 A	6.3...45 A
Short Circuit Protection	✓	✓	✓
Standard Magnetic Trip	✓	✓	✓
High Magnetic Trip	✓	✓	✓
Magnetic Only Trip (MCP)	✓	✓	✓
Overload Protection	✓	✓	✓
Trip Class	10	10	10
Application at output of VFD (multi-motor)		✓ (140M-D8V)	
Standards Compliance			
CSA22.2, No.14	✓	✓	✓
UL508 (Group Installation)	✓ (see ratings)	✓ (see ratings)	✓ (see ratings)
UL508 Manual, Self Protected (Type E)	✓ (see ratings)	✓ (see ratings)	✓ (see ratings)
UL508 (Overload Protection)	✓	✓	✓
IEC60947-1,-2	✓	✓	✓
IEC60947-4-1	✓	✓	✓
CE	✓	✓	✓
ATEX (IEC60079-14)	✓ (up to 25 A)	✓ (up to 25 A; except 140M-D8V)	—
CCC	✓ (up to 25 A)	✓ (up to 25 A)	✓
Accessories			
External Rotary Operator	✓	✓	✓
Auxiliary Contacts	✓	✓	✓
Trip Indication Contacts	✓	✓	✓