Eaton MCH320

Eaton MEMSHIELD 2 MCH320 Miniature Circuit Breaker User Manual

Model: MCH320 | Brand: Eaton

1. Introduction and Product Overview

The Eaton MEMSHIELD 2, MCH320, is a 3-pole, 20 Amp Miniature Circuit Breaker (MCB) designed for reliable electrical circuit protection. This device features a Type C trip curve and a 10 kA short-circuit rating, enabling it to quickly disconnect electrical circuits in the event of damaging short-circuits and overloads.

Widely utilized in both industrial and domestic applications, the MCH320 MCB is typically installed within a distribution board. Its primary function is to provide essential circuit protection for valuable electrical components and devices within individual circuits. This high-performance circuit breaker adheres to international standards, having been tested in accordance with IEC 60898 and IEC 60947-2.

Figure 1: Eaton MEMSHIELD 2 MCH320 Miniature Circuit Breaker. This image displays the front and side view of the three-pole circuit breaker, showing the "MEM classic" branding, "C20" rating, and the ON/OFF levers for each pole.

2. Safety Information

WARNING: Electrical shock hazard. Installation, servicing, and maintenance of this device must be performed by qualified and licensed electricians only. Failure to follow these instructions can result in serious injury or death.

- Always disconnect power at the main service panel before working on or near electrical circuits.
- Use appropriate personal protective equipment (PPE), including insulated gloves and safety glasses.
- Verify that the circuit is de-energized using a voltage tester before beginning any work.
- Ensure all wiring connections are secure and comply with local and national electrical codes.
- Do not attempt to repair a damaged circuit breaker. Replace it with an identical or equivalent rated device.

3. Product Features

The MEMSHIELD 2 MCH320 MCB offers robust features for reliable circuit protection:

- **Current Rating:** 20 Amps, suitable for a variety of electrical loads.
- **Voltage Interrupt Rating:** 10 kA, providing high short-circuit protection capability.
- **Number of Poles:** 3 Pole, designed for three-phase electrical systems or applications requiring three-pole disconnection.
- **Tripping Curve:** Type C, offering protection for general purpose loads and moderate inrush currents.
- **Module Width:** 54 mm, designed for standard distribution board installations.
- **Compliance:** Tested in accordance with IEC 60898 and IEC 60947-2 standards.

4. Specifications

Specification	Value
Model Number	MCH320
Brand	Eaton (MEM Classic)
Current Rating	20 Amps
Voltage Interrupt Rating	10 kA
Number of Poles	3
Tripping Curve Type	C
Module Width	54 mm
Circuit Breaker Type	Standard Miniature Circuit Breaker (MCB)
Standards Compliance	IEC 60898 & IEC 60947-2

5. Installation

Installation of the Eaton MEMSHIELD 2 MCH320 MCB should only be performed by a qualified and licensed electrician in accordance with all applicable national and local electrical codes and regulations.

General Installation Steps (for qualified personnel):

1. **Power Disconnection:** Ensure all power to the distribution board or panel where the MCB will be installed is completely disconnected and locked out. Verify zero voltage with a suitable testing device.
2. **Mounting:** Mount the MCH320 MCB onto the DIN rail within the distribution board. Ensure it is securely clipped into place.
3. **Wiring:** Connect the incoming and outgoing electrical conductors to the appropriate terminals of the MCB. Ensure correct polarity and secure all terminal screws to the manufacturer's specified torque settings to prevent loose connections and overheating.
4. **Verification:** Double-check all wiring connections for correctness and security. Ensure no bare wires are exposed.
5. **Panel Closure:** Securely close the distribution board cover after installation is complete.
6. **Power Restoration:** Carefully restore power to the distribution board and test the circuit breaker's operation.

Refer to the specific wiring diagrams and installation guidelines provided with your distribution board for detailed

instructions.

6. Operation

The Eaton MEMSHIELD 2 MCH320 MCB operates as a protective device for electrical circuits. Its primary function is to automatically interrupt the flow of electricity when an overload or short-circuit condition occurs, thereby preventing damage to wiring and connected equipment.

- **ON Position:** When the lever is in the "ON" (upward) position, the circuit breaker is closed, allowing electricity to flow through the protected circuit.
- **OFF Position:** When the lever is in the "OFF" (downward) position, the circuit breaker is open, interrupting the flow of electricity to the protected circuit. This position is used for manual disconnection.
- **Tripped Position:** In the event of an overload or short-circuit, the MCB will automatically trip. The lever will typically move to an intermediate or "tripped" position (often between ON and OFF) to indicate that a fault has occurred.

To reset a tripped circuit breaker, first identify and rectify the cause of the trip (e.g., remove overloaded devices, fix short circuits). Then, push the lever fully to the "OFF" position before pushing it back to the "ON" position. If the breaker trips immediately again, do not attempt to reset it repeatedly; consult a qualified electrician.

7. Maintenance

Miniature Circuit Breakers like the MCH320 are generally maintenance-free devices. However, periodic visual inspection is recommended to ensure continued safe operation.

- **Visual Inspection:** Periodically inspect the MCB for any signs of physical damage, discoloration, burning, or loose connections. This should only be done by a qualified electrician with the power disconnected.
- **Cleaning:** If necessary, gently clean the exterior of the MCB with a dry, lint-free cloth. Do not use liquid cleaners or solvents.
- **Testing:** While MCBs are designed for long-term reliability, professional electrical testing may be performed during routine electrical system inspections to verify proper tripping characteristics.

Any signs of damage or malfunction require immediate attention from a qualified electrician. Do not attempt to repair a faulty circuit breaker.

8. Troubleshooting

If the Eaton MEMSHIELD 2 MCH320 MCB trips frequently or fails to operate as expected, consider the following common issues:

- **Frequent Tripping:**
  - **Overload:** The circuit may be drawing more current than the 20 Amp rating of the breaker. Disconnect some appliances or devices from the circuit.
  - **Short Circuit:** A direct connection between live and neutral/ground wires can cause an immediate trip. This requires immediate investigation by a qualified electrician.
  - **Faulty Appliance:** A defective appliance connected to the circuit could be causing the trip. Unplug all appliances and plug them back in one by one to identify the faulty one.
- **Breaker Won't Reset:**
  - If the breaker immediately trips again after being reset, a persistent fault (overload or short circuit) is likely present. Do not force the breaker.

- The breaker itself may be faulty and require replacement.

- **No Power to Circuit (Breaker ON):**
  - Check other breakers in the distribution board.
  - Verify connections at the breaker terminals (only by qualified personnel with power off).
  - There might be an issue with the wiring or the main power supply.

IMPORTANT: For any persistent electrical issues or if you are unsure about the cause of a trip, always consult a qualified electrician. Do not attempt electrical repairs if you are not trained and licensed.

9. Warranty and Support

Specific warranty terms and conditions for the Eaton MEMSHIELD 2 MCH320 Miniature Circuit Breaker are provided by the manufacturer, Eaton, or the authorized seller at the time of purchase. Please retain your proof of purchase for warranty claims.

For technical support, product inquiries, or warranty service, please contact your original point of purchase or refer to the official Eaton website for contact information and support resources.

Manufacturer: MEM Classic (Brand: Eaton)

Date First Available: July 17, 2019

ASIN: B00JP9CTO2