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› Bussmann FNM-20BC 20 Amp Fusetron Time-Delay Supplementary Cartridge Fuse, 1-In Bag 32V UL Listed

Bussmann FNM-20BC

Bussmann FNM-20BC Fusetron Time-Delay Supplementary Cartridge Fuse User Manual

Model: FNM-20BC

INTRODUCTION

The Bussmann FNM-20BC is a 20 Amp Fusetron Time-Delay Supplementary Cartridge Fuse designed for various electrical protection applications. This midjet fuse, measuring 13/32-inch x 1 1/2-inch, provides supplemental protection to industrial, commercial, agricultural, heating, ventilating, and air conditioning equipment. Its time-delay feature is crucial for circuits with high inrush currents, allowing momentary motor startups without nuisance tripping. These fuses are commonly used to protect internal components such as control circuit wiring, motor control transformers, or small motors, ensuring the longevity and safe operation of your electrical systems.



Figure 1: Bussmann FNM-20BC Fusetron Time-Delay Supplementary Cartridge Fuse. This image shows the cylindrical fuse with metallic end caps and a central body, featuring a green label with "FUSETRON DUAL-ELEMENT FUSE" text.

SAFETY INFORMATION

Always prioritize safety when working with electrical components. Failure to follow these safety guidelines may result in electric shock, fire, or serious injury.

- **Disconnect Power:** Before installing, replacing, or inspecting fuses, always ensure that the power supply to the circuit is completely disconnected at the main breaker or switch. Verify with a voltage tester.
- **Use Proper Tools:** Use insulated tools when working near live electrical circuits.

- **Wear Personal Protective Equipment (PPE):** Always wear appropriate PPE, including safety glasses and insulated gloves.
- **Match Ratings:** Always replace a fuse with one of the identical type, voltage, and ampere rating. Using a fuse with an incorrect rating can lead to circuit damage, fire, or inadequate protection.
- **Consult a Professional:** If you are unsure about any electrical work, consult a qualified electrician.
- **Avoid Overloading:** Do not attempt to bypass or repair a blown fuse. This can lead to severe damage to equipment and create fire hazards.

SETUP AND INSTALLATION

The FNM-20BC fuse is designed for insertion into compatible fuse holders or panels. Proper installation ensures optimal circuit protection.

1. **Power Disconnection:** Ensure the power to the circuit where the fuse will be installed is completely turned off and locked out.
2. **Identify Fuse Holder:** Locate the appropriate fuse holder or slot in your electrical panel or equipment.
3. **Verify Compatibility:** Confirm that the fuse holder is designed for 13/32-inch x 1 1/2-inch midget cartridge fuses and matches the 20 Amp, 32V (or 250Vac) rating of the FNM-20BC.
4. **Insert Fuse:** Carefully insert the FNM-20BC fuse into the fuse holder. Ensure it is seated firmly and correctly. Do not force the fuse.
5. **Secure Holder (if applicable):** If the fuse holder has a cap or cover, secure it properly.
6. **Restore Power:** Once the fuse is securely installed and all covers are in place, you may safely restore power to the circuit.

For new installations, refer to the equipment's wiring diagram and local electrical codes for proper circuit design and fuse placement.

OPERATING PRINCIPLES

The Bussmann FNM-20BC is a dual-element, time-delay fuse. Understanding its operating principle is key to appreciating its protective function.

- **Overcurrent Protection:** The primary function of the fuse is to protect electrical circuits and equipment from damage caused by overcurrents (excessive current flow).
- **Dual-Element Design:** This fuse incorporates two distinct elements: a short-circuit element and an overload element.
 - *Short-Circuit Element:* Reacts quickly to high-level short-circuit currents, interrupting the circuit almost instantaneously.
 - *Overload Element:* Designed to open on sustained, lower-level overloads.
- **Time-Delay Feature:** The time-delay characteristic allows the fuse to withstand temporary, harmless inrush currents (e.g., motor startup currents) without opening. This prevents nuisance tripping and ensures continuous operation of equipment that draws high momentary currents. If the overcurrent persists beyond the allowed time, the fuse will open the circuit.
- **Circuit Interruption:** When an overcurrent condition exceeds the fuse's rating and duration, the internal element melts, creating an open circuit and stopping the flow of electricity, thereby protecting downstream components.

MAINTENANCE

Fuses are single-use protective devices and are not designed for maintenance or repair. Once a fuse has blown, it must be replaced.

- **Regular Inspection:** Periodically inspect fuse holders and fuses for signs of damage, corrosion, or overheating. Any discoloration or melting of the fuse body indicates a past or present issue.
- **Replacement:** If a fuse blows, always replace it with a new fuse of the exact same type (e.g., Fusetron Time-Delay), voltage rating (32V or 250Vac), and ampere rating (20 Amp). Refer to the fuse's markings for verification.
- **Proper Disposal:** Dispose of blown fuses according to local regulations.

TROUBLESHOOTING

If a circuit protected by an FNM-20BC fuse loses power, the fuse may have blown. Follow these steps to troubleshoot:

1. **Power Disconnection:** Immediately turn off the power to the affected circuit at the main breaker or switch.
2. **Visual Inspection:** Carefully remove the fuse (using insulated tools if necessary) and visually inspect it. A blown fuse may show a broken filament, discoloration, or a darkened glass body.
3. **Continuity Test:** If visual inspection is inconclusive, use a multimeter to test for continuity across the fuse. A good fuse will show continuity (a very low resistance reading), while a blown fuse will show an open circuit (infinite resistance).
4. **Identify Cause:** Before replacing the fuse, try to determine why it blew. Common causes include:
 - *Overload:* Too many devices drawing power from the circuit.
 - *Short Circuit:* A direct connection between live and neutral/ground wires, often due to damaged insulation or faulty appliances.
 - *Faulty Appliance/Equipment:* A malfunctioning device connected to the circuit.
5. **Correct the Issue:** Address the underlying cause of the blown fuse. For example, unplug overloaded devices, inspect wiring for damage, or disconnect faulty appliances.
6. **Replace Fuse:** Only after the cause has been identified and corrected, replace the blown fuse with a new FNM-20BC fuse of the correct rating.
7. **Restore Power:** Restore power to the circuit and monitor its operation. If the new fuse blows immediately, there is still an unresolved issue in the circuit that requires professional attention.

If you cannot identify or resolve the cause of a repeatedly blowing fuse, consult a qualified electrician.

SPECIFICATIONS

Attribute	Value
Model Number	FNM-20BC
Ampere Rating	20 Amps
Voltage Rating	32 Volts (or 250Vac)
Fuse Type	Fusetron Time-Delay, Dual-Element, Supplementary Cartridge Fuse

Attribute	Value
Physical Size	13/32-Inch x 1 1/2-Inch (Midget)
Compliance	UL Listed Std. 248-14
Item Weight	0.8 ounces
Product Dimensions	4 x 2.25 x 0.41 inches

WARRANTY INFORMATION

This Bussmann FNM-20BC fuse comes with a **1-year warranty** from the manufacturer. This warranty typically covers defects in materials and workmanship under normal use. Please retain your proof of purchase for warranty claims. For specific terms and conditions, or to initiate a warranty claim, please contact Bussmann customer support.

SUPPORT AND CONTACT

For technical assistance, product inquiries, or support regarding your Bussmann FNM-20BC fuse, please contact Bussmann directly.

Manufacturer: Bussmann (an Eaton brand)

Website: www.eaton.com/us/en-us/products/electrical-circuit-protection/fuses.html (General fuse information)

Customer Service: Refer to the official Bussmann/Eaton website for the most current contact information, including phone numbers and email support.

When contacting support, please have your product model number (FNM-20BC) and any relevant purchase details ready.

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ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

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Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question