AFDD

ARC FAULT DETECTION DEVICE

OPERATION INSTRUCTION

Standard: IEC 60364-4-42

CNC Deliver Power For Better Life

⚠ Before installing and using this product, please read this manual carefully and pay more attention to safety.

AFDD

Arc Fault Detection Device

1 General

The AFDD is assembled by combining a miniature circuit breaker and an arc fault protection module. It provides protection functions such as overload, short circuit, and arc fault protection.

The AFDD is suitable for AC 50Hz, rated voltage of 230V, and rated current up to 63A and below. It is used for overcurrent protection in buildings and similar applications. Additionally, it can detect many fire risks caused by device failures or aging of electrical wires. It provides protection against ground arc faults, parallel arc faults, and series arc faults. It effectively reduces the occurrence of fire safety accidents and provides effective protection for the safety of people's lives and property.

2 Operating conditions

2.1 Ambient Air Temperature

The ambient air temperature should not exceed +70°C or be lower than -35°C, with an average value not exceeding +35°C over a 24-hour period.

Note: For AFDD arc fault protection breakers used under ambient air temperatures higher than +70°C or lower than -35°C, consultation with the manufacturer is required.

2.2 Altitude

The installation location should have an altitude not exceeding 2000m.

2.3 Atmospheric Conditions

The relative humidity of the atmosphere should not exceed 50% at the highest ambient temperature of +60°C. At lower temperatures, higher relative humidity levels, such as 90% at 20°C, may be permissible. However, precautions should be taken to protect against occasional condensation caused by temperature variations.

2.4 Installation Conditions

The external magnetic field near the installation location should not exceed 5 times the strength of the Earth's magnetic field in any direction.

The installation position should be vertical, and the tilt in any direction should not exceed 10 degrees.

The installation should be in a location free from impact vibration and protected from rain or snow.

Standard TH35-7.5 type steel mounting rails should be used for installation.

2.5 Pollution degree: Degree 2

2.6 Installation category: Category III;

2.7 Protection degree: IP20 (IP40 when installed in a distribution box, distribution cabinet or box);

2.8 When wiring a product with an N pole (neutral pole), it is necessary to connect the neutral wire to the terminal or point marked with the N symbol.

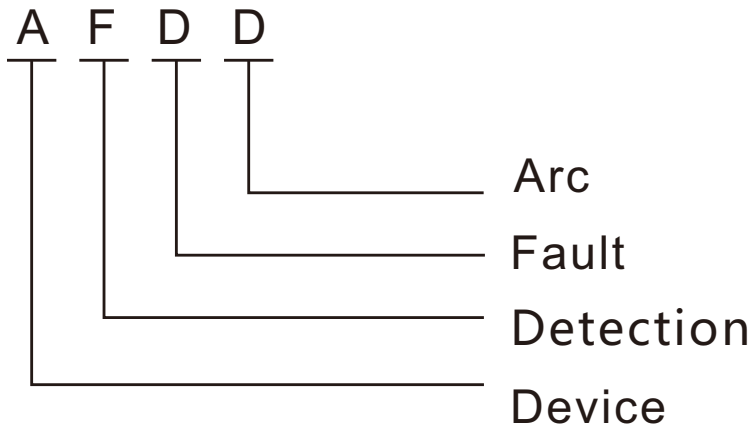
Normal storage and transportation conditions:

a) Temperature: -40°C to +85°C.

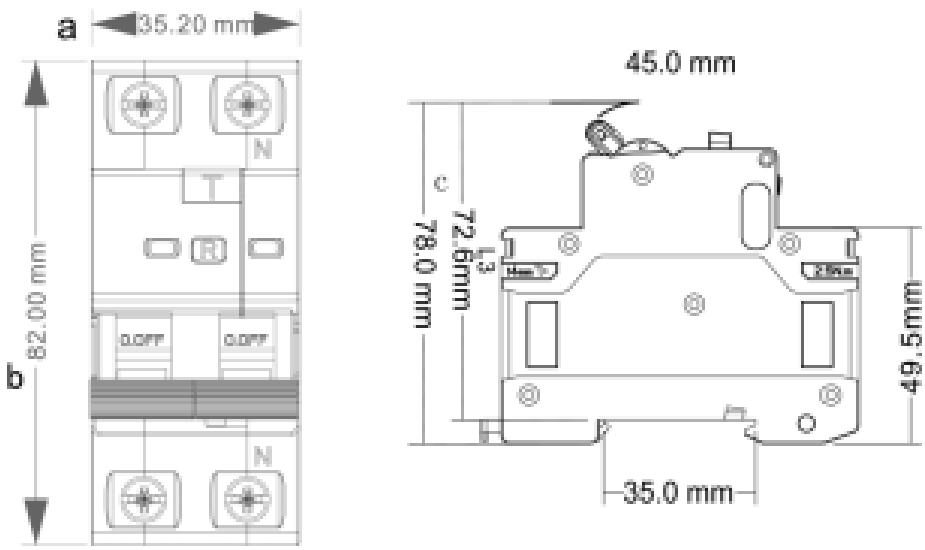
b) Relative humidity (at 25°C): ≤95%.

c) During transportation, handle the product with care, avoid inversion, and prevent strong impacts.

3 Type designation



4 Overall and mounting dimensions



5 Installation and Use (Maintenance)

5.1 Before installation, check if the product markings match the intended conditions of use.

5.2 Before installation, ensure that the mechanism of the AFDD arc fault protection breaker operates smoothly, reliably, and without any jamming.

5.3 Connect the power supply to the input terminal and the load to the output terminal.

5.4 After power is applied, press the test button of the AFDD arc fault protection breaker multiple times to confirm its reliable operation.

5.5 When the handle moves upwards, the MCB side handle displays 0N, and the indicator window changes from green to red, indicating that the circuit is in the ON state. When the handle moves downwards, the MCB side handle displays OFF, and the indicator window changes from red to green, indicating that the circuit is in the OFF state.

5.6 During installation, securely fix the AFDD arc fault protection breaker to the mounting rail, ensuring that it does not become loose or fall off. When removing the AFDD arc fault protection breaker, simply pull the stopper.

5.7 The working reference temperature for the AFDD arc fault protection breaker is +30±5°C. If there is a change in ambient temperature, the rated values need to be adjusted accordingly. If multiple AFDD arc fault protection breakers are installed in a closed enclosure, the internal temperature of the enclosure may increase, and the rated current should be multiplied by a derating factor of 0.8.

6 Failure Analysis

The fault analysis and troubleshooting of AFDD arc fault protector are shown in Table 5.

Fault cause		Fault analysis	Fault troubleshooting
Refusal to operate	The refusal to operate of the AFDD circuit breaker due to the absence of the neutral wire	The AFDD circuit breaker is only connected to the line conductor on the power side and the neutral conductor is not connected.	Connect the neutral wire on the power side
Accidental operation	The short circuit tripping of the AFDD circuit breaker	The line (L) and neutral (N) wires of the AFDD circuit breaker's input and output terminals are crossed.	Strictly follow the wiring diagram and the product markings to connect the circuit

7 Important Notices

Before installation, operation, operation, maintenance, and inspection, it is crucial to carefully read this manual and accurately install and use this product as per the instructions provided.

⚠ Danger

2.1 It is strictly prohibited to operate the circuit breaker with wet hands.

2.2 During use, touching conductive parts is strictly forbidden.

2.3 During maintenance and servicing, ensure that the product is not energized.

2.4 Testing the product using direct grounding or short-circuit methods is strictly prohibited.

ⓘ Caution

2.5 Installation, maintenance, and servicing should be performed by qualified professionals.

2.6 The product's characteristics are factory-set and should not be disassembled, adjusted, or tampered with during use.

2.7 Before use, confirm whether the product's operating voltage, rated current, frequency, and characteristics meet the requirements of the application.

2.8 When wiring the product, incoming lines should be connected from the top, and outgoing lines should be connected from the bottom. In three-phase circuits, pay attention to the phase sequence. After inserting the wires into the terminal, tighten the terminal screws with a torque of no less than 1.5N·m to prevent the wires from loosening or coming off. Exposed copper wire ends should not be outside the terminal.

2.9 This product has an IP20 protection rating and does not provide dust protection. If used in dusty environments, it should be installed in a well-sealed terminal box.

2.10 If the product is damaged or produces abnormal sounds when unboxing, immediately stop using it and contact the supplier.

2.11 After the product trips due to disconnection, overload, or short-circuit currents, the fault should be resolved before restoring closing operations to avoid impacting the product's lifespan.

2.12 Insulation resistance test meters should not be used to measure the insulation resistance between the power supply phases on the product's circuit board.

2.13 The product should be protected from rainwater and drops during use, storage, or transportation.

2.14 Proper waste disposal should be carried out when the product is no longer in use. Thank you for your cooperation.

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CERTIFICATE

Product Model: AFDD

Standard: IEC 60364-4-42

Inspector : CNC003

Production date: Printed on the product or package.

This product is qualified according to the delivery inspection

CNC AFDD

CNC ELECTRIC

Tel: 0086-577-61989999 Fax: 0086-577-61891122

www.cncele.com E-mail: cncele@cncele.com