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Single Module Arc Fault Detection Device Data Sheet

Description and Features

The W brand WFD range AFDD consists of a Type A RCBO and a Arc fault detection module in a single module DIN rail mounted unit. They combine short circuit, overload, over voltage, earth leakage protection and arc fault protection and will disconnect Live and Neutral poles in the event of these faults. It could avoid various of fires caused by short circuit, circuit aging, heavy load, poor contact, fault electrical devices etc. Automatic control is realised by built-in computer chip. Its operating principle: the detected arc impulse is processed, compared and identified by electronic circuit and MCU. Once fault arc impulse which easily creates fire detected, the output will drive tripping unit to cut off the load power supply, so that the fire is prevented.

Protective Area

The WAF Range AFDDs combines AFDD, MCB and A type RCD devices. They can detect & respond as for type AC, as well as pulsating DC components. This allows to provide the highest protection level. They are ideal for domestic and commercial applications



Overvoltage Protection

Overvoltage condition of 270Vrms to 300Vrms for 10 seconds will cause device to trip. LED indication of over-voltage trip will be provided on product re-latch.

Switched Live and Neutral

The WFD Range AFDDs with switched neutral built in as standard will fully isolate a faulty or damaged circuit by disconnecting live and neutral conductors. They offer the most comprehensive circuit protection available. Using the WAF range AFDDs will guarantee that healthy circuits remain in service and that only a faulty circuit is switched off. This avoids danger and prevents inconvenience in the event of a fault. They have switched neutral build in as standard, live and neutral conductors do not have to be disconnected for insulation resistance testing. This saves time and money.

Part No	Description
WFD106B-030	A Type Single Module 6Amp B Curve 30mA Arc Fault Detection Device
WFD110B-030	A Type Single Module 10Amp B Curve 30mA Arc Fault Detection Device
WFD116B-030	A Type Single Module 16Amp B Curve 30mA Arc Fault Detection Device
WFD120B-030	A Type Single Module 20Amp B Curve 30mA Arc Fault Detection Device
WFD132B-030	A Type Single Module 32Amp B Curve 30mA Arc Fault Detection Device
WFD140B-030	A Type Single Module 40Amp B Curve 30mA Arc Fault Detection Device

BI-Directional

WFD1 is a bi-directional AFDD, which is suitable for PV and EV systems.

Application

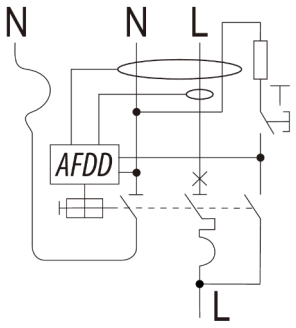
The WFD AFDD is designed for use in single phase AC current systems in either single phase only units or on one phase of a 3 phase distribution unit at a rated Voltage of 230V @ 50Hz. The WFD must not be used in DC networks. WFD Devices combine the function of a residual current operated device for earth leak detection, overcurrent protection for short-circuit and arc fault detection for both parallel and series arcs. The device is intended to reduce the risk of fires by ignition from electrical sources.

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Warning

The WFD must be installed by a qualified electrician in accordance with the current IET Wiring Regulations BS 7671.Total load must not exceed the rating of the WFD or any additional limitation.

Installation



1) Combined AFDD/RCBO range designed to fit our WME consumer units and modular enclosures
2) 35mm top hat din rail mounting.
3) Clip securely on to the din rail making sure the din rail clip at the bottom is pushed in, locking the WFD onto the din rail, ensure lever is in the OFF position.
4) Cut, dress and connect cables as shown in the wiring diagram

Lin (Line) terminal connect to the bus bar.

Neutral flying lead to the neutral terminal bar (can be cut to size to suit).

Connect the load to the L and N terminals at the top of the WFD and the Load earth to the terminal bar.

Connections

Before powering up the circuit check all connections are TORQUED **LOOSE CONNECTIONS CAUSE FIRES!!!**

Testing

1) CONNECTIONS TO THE WFD DO NOT REQUIRE TO BE DISCONNECTED IF THE LEVER IS IN THE "OFF" POSITION FOR IR TEST.
2) On completion of the installation, it must be tested in accordance with the latest edition of the IET Wiring Regulations for Electrical Installations (BS 7671).

Operation of the TEST button on WFD

When newly fitted systems do not trip on the TEST button or using the MFT the problem is normally caused by an earth to neutral fault on the circuit (PME supply). Installers can easily check the WFD by removing the LOAD connections on the device and applying power. If the TEST button works the fault is in the circuit.

RCBO TEST

THE WFD IS MANUFACTURED IN ACCORDANCE WITH IEC 61009-1 AND MUST BE TESTED TO THIS SPECIFICATION USING A CALIBRATED TEST METER.

0.5IΔn	**RCBO will not trip**
1Δn	**RCBO must trip within 300ms**
5IΔn	**RCBO must trip within 40ms**

What to do if an AFDD trips

1. Reset tripped WFD AFDD to ON position
2. Note LED indication---See LED indication table
3. If WFD AFDD trips again then disconnect all appliances connected to this circuit
4. Switch WFD to ON position and connect 1 appliance at a time to see which one trips the device
5. Once faulty appliance has been identified DO NOT USE until it has been checked
6. Switch AFDD to ON position
7. If fault does not clear phone a qualified electrician to check installation

After tripping under a fault condition the fault status indicator will show the fault nature according to the table below.

LED indication (table)

LED on	Device operable		Led on
Flash x 1	Serial arc detected	☀ ○	30 cycles
Flash x 2	Parallel arc detected	☀ ☀ ○	30 cycles
Flash x 3	Overvoltage	☀ ☀ ☀ ○	30 cycles
Flash x 4	Residual current detected	☀ ☀ ☀ ☀ ○	30 cycles
Flash x 8	Self test failed	☀ ☀ ☀ ☀ ☀ ☀ ○	30 cycles
NO LED	No supply voltage		

Note: LED flashing sequence repeats every 1.5sec after powering up, LED stops flashing after 30 cycles

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Standard		IEC/EN 61009-1 & IEC/EN 62606
Electrical features	Type (wave form of the earth leakage sensed)	A
	Thermo-magnetic release characteristic	B, C
	Pole	1P+N(Switched Live and Neutral)
	Rated current In (A)	6, 10, 16, 20, 25, 32, 40
	Rated voltage Ue (V	230
	Rated sensitivity IΔn (A)	0.03
	Rated residual making and breaking capacity IΔm (A)	3000
	Rated short-circuit capacity Icn (A)	6000
	Break time under IΔn (s)	≤0.1
	Rated frequency (Hz)	50/60
	Rated impulse withstand voltage (1.2/50)Uimp (V)	4,000
	Dielectric TEST voltage at ind. Freq. for 1min (kV)	2
	Insulation voltage Ui (V)	500
	Pollution degree	2
Mechanical features	Electrical life	2,000
	Mechanical life	2,000
	Contact position indicator	Yes
	Protection degree	IP20
	Ambient temperature (with daily average≤35°C)	-5... +40 °C
	Storage temperature	-25...+70 °C
Installation	Terminal connection type	Cable/U-type busbar/Pin-type busbar
	Terminal size top for cable	10mm²
	Terminal size bottom for cable	16 mm²
		18-5 AWG
	Terminal size bottom for busbar	10 mm²
		18-8 AWG
	Tightening torque	2.0 N*m
		18 In-lbs.
	Mounting	On DIN rail EN 60715 (35mm) by means of fast clip device
	Connection	From bottom

