



KEEP YOU AWAY FROM ELECTRICAL FIRE

Overview

Following the publication of Amendment 2 of the 18th Edition Wiring Regulation on 28th March 2022, the use of Arc Fault Detection Devices (AFDD) has been made mandatory in certain types of installations.

Regulation 421.1.7 now states AFDD conforming to BS EN 62606 shall be provided for single-phase AC final circuits supplying socket-outlets with a rated current not exceeding 32 A in:

- Higher Risk Residential Buildings(HRRB)
- Houses in Multiple Occupation (HMO)
- Purpose-Built Student Accommodation(PBSA)
- Care homes

For all other premises with socket-outlets up to 32A, the use of AFDDs is alsorecommended.

What types of circuits can AFDD be used on?

The regulations state AC single-phase circuits not exceeding 230V, that includes ring circuits, radials etc. Where used, AFDD shall be placed at the origin of the circuit to be protected.

EKL17-40AFD devices are a single module device which fits the existing busbar system of the existing arrangement. The device offers protection against overcurrent, short circuit, earth leakage and arc fault all in one device and are available in B&C Curve variants. It can direct replacement RCBO in existing consumer units.



Features

- Rated6-40A
- Series and parallel arc fault detection
- Combined arc fault detection, short circuit, overload and earth leakage detection
- 10,30,100,300mA earth leakage detection Type A
- B and C curve tripping characteristics
- Switched Live Neutral
- Fits existing busbar system
- Self testing (AFDD function only)

Complete Circuit Protection

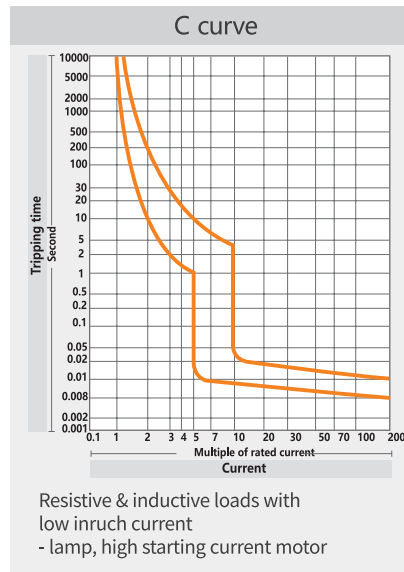
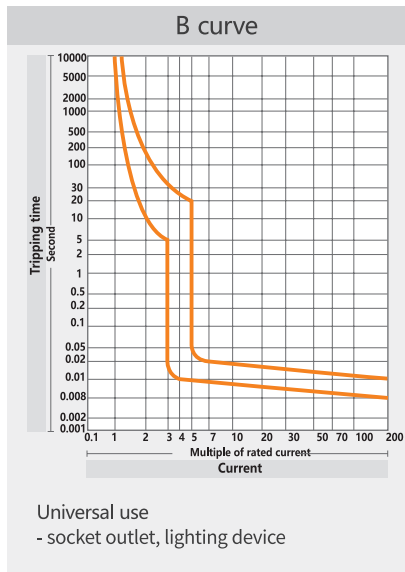
	Over Current	Short Circuit	Earth Leakage	Series Arc Fault	Parallel Arc Fault
MCB	✓	✓	✗	✗	✗
RCCB	✗	✗	✓	✗	✗
RCBO	✓	✓	✓	✗	✗
AFDD	✗	✗	✗	✓	✓
AFDD Integrated with RCBO	✓	✓	✓	✓	✓

Technical Data

Standard	IEC/EN61009-1, IEC62026
Protection	Arc Fault Protection, Overload Protection, Short-Circuit Protection, Earth-Leakage Protection
Type of trip	Ground fault: Electronic
	Overload and short circuit: Thermo-magnetic
Type of protection(electric leakage)	A
No. of poles	1P+N (N pole can be connected and disconnected)
Rated currents (In)	6, 10, 16, 20, 25, 32, 40A
Rated sensitivity currents IΔn	10, 30, 100, 300mA
Residual current off-time under IΔn	≤ 0.1s
Reted residual making and breaking capacity (IΔm)	500A(In ≤ 50A)
Rated voltage (Ue)	230/240V-
Rated frequency	50/60Hz
Rated breaking capacity	6,000A
Energy Limiting Class	3
Rated impulse withstand voltage (1.2/50) Uimp	4,000V
Dielectric test voltage at Ind.Freq. for 1 min	2kV
Thermal release characteristic	(1.13-1.45)×In
Magnetic release characteristic	B: (3-5)×In, C: (5-10)×In
Electrical life	4,000 Cycles
Mechanical life	10,000 Cycles
Contact position indicator	Yes
Protection degree	IP20
Ambient temperature	-25°C to +40°C , Max.95% humidity
Terminal connection type	Cable/Pin-type busbar
Max. terminal size for cable	L(in): 25mm ² , N/L(out): 16mm ²
Max. tightening torque	L(in): 2.5N.m, N/L(out): 2N.m
Installation	Mounting on 35mm DIN rail
Connection	From bottom

Tripping Characteristic (IEC61009-1)

Curve	Rated current	Condition						
		Thermal release				Magnetic release		
		Non-tripping	Tripping	Non-tripping	Tripping time	Holding current	Tripping current	Tripping time
B	6-40A	1.13×In		≤ 1h		3×In		≥ 0.1
			1.45×In		< 1h		5×In	< 0.1
C	6-40A	1.13×In		≤ 1h		5×In		≥ 0.1
			1.45×In		< 1h		10×In	< 0.1



Limit values of operating criteria for AFDD at low arc currents up to 63 A (IEC62026)

Limit values of break time for Ue 230V AFDD

Test arc current (r.m.s.values)	Max breaking time
2.5A	1S
5A	0.5S
10A	0.25S
16A	0.15S
32A	0.12S
63A	0.12S

Note:

1. The test arc current is the expected current before ignition occurs in the test circuit.
2. Low arc currents can occur due to insulation faults phase to earth or series arcing.

Led indicator instruction

What to do if AFDD/RCBO trips?

1. Disconnect all electrical appliances connected to the circuit.
2. Reset and trigger AFDD/RCBO to 'ON' position.
3. For the description of LED indicators due to devices faulty-please refer to the Table 1 below.
- 3.1 If the fault indicator is normal, the tripping fault is a short-circuit or an overload.
4. Switch AFDD/RCBO to 'ON' position and then connect 1 appliance one at a time on the circuit to see which device is causing the tripping of the AFDD.
5. Once faulty appliance has been identified, Do not use it, until it has been repaired or disconnected from the circuit.
6. After the faulty appliance has been repaired or disconnected,switch AFDD/RCBO to 'ON' position.
7. If the fault is still not confirmed, please contact a qualified electrician for inspection.

SN	LED Indicator Instruction		
1	LED-green light goes on.	Device normal operation	
2	LED-red light goes on 1 time and goes out 1 time,5 cycles.	Arc fault	
3	LED-yellow light is on for 2 seconds around and off for 1 second around, 3 cycles.	Residual current fault	
4	LED-red light goes on.	Arc self-check failure	

The LED light flashing program in Table is described in detail:

1. When the product is in normal operation, the light on the AFDD will remain green.
2. Should the AFDD trip off and to check for an arc fault trip, put the AFDD into the 'ON' position and the red light will flash continuously for 5 cycles. Then the arc module will detect itself and turn green when no fault is detected.If there is a fault, the red light will be lit.
3. Should the AFDD trip and to check for a Residual current fault, put the AFDD into the 'ON' position and the yellow light will keep on for about 2 seconds, and then remain off for about 1 second, for a total of 3 cycles. Then the arc module detects itself and lights green when no fault is detected. If there is a fault, the red light will be on.
4. Arc self-test failure, red light on. (Please contact a qualified electrician as the device may need to be changed.)

Selection

RCD type

Type A-Tripping is ensured for sinusoidal, alternating residual currents as well as for pulsed DC residual currents, whether they be quickly applied or slowly increase.


Tripping curve

B curve (3-5 In) protection and control of the circuits against overloads and short-circuits; protection for people and big length cables in TN and IT systems.


C curve (5-10 In) protection and control of the circuits against overloads and short-circuits; protection for resistive and inductive loads with low inrush current.

Product Selection Form

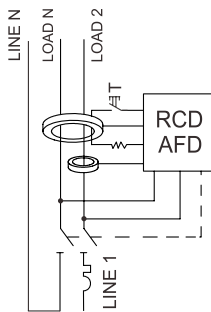
AFDD/RCBO EKL17-40AFD (B Curve)

Poles	Rated Current(A)	Sensitivity			
		10mA	30mA	100mA	300mA
	6A	EKL17-40AFD-1NB0610A	EKL17-40AFD-1NB0630A	EKL17-40AFD-1NB06100A	EKL17-40AFD-1NB06300A
	10A	EKL17-40AFD-1NB1010A	EKL17-40AFD-1NB1030A	EKL17-40AFD-1NB10100A	EKL17-40AFD-1NB10300A
	16A	EKL17-40AFD-1NB1610A	EKL17-40AFD-1NB1630A	EKL17-40AFD-1NB16100A	EKL17-40AFD-1NB16300A
	20A	EKL17-40AFD-1NB2010A	EKL17-40AFD-1NB2030A	EKL17-40AFD-1NB20100A	EKL17-40AFD-1NB20300A
	25A	EKL17-40AFD-1NB2510A	EKL17-40AFD-1NB2530A	EKL17-40AFD-1NB25100A	EKL17-40AFD-1NB25300A
	32A	EKL17-40AFD-1NB3210A	EKL17-40AFD-1NB3230A	EKL17-40AFD-1NB32100A	EKL17-40AFD-1NB32300A
	40A	EKL17-40AFD-1NB4010A	EKL17-40AFD-1NB4030A	EKL17-40AFD-1NB40100A	EKL17-40AFD-1NB40300A

AFDD/RCBO EKL17-40AFD (C Curve)

Poles	Rated Current(A)	Sensitivity			
		10mA	30mA	100mA	300mA
	6A	EKL17-40AFD-1NC0610A	EKL17-40AFD-1NC0630A	EKL17-40AFD-1NC06100A	EKL17-40AFD-1NC06300A
	10A	EKL17-40AFD-1NC1010A	EKL17-40AFD-1NC1030A	EKL17-40AFD-1NC10100A	EKL17-40AFD-1NC10300A
	16A	EKL17-40AFD-1NC1610A	EKL17-40AFD-1NC1630A	EKL17-40AFD-1NC16100A	EKL17-40AFD-1NC16300A
	20A	EKL17-40AFD-1NC2010A	EKL17-40AFD-1NC2030A	EKL17-40AFD-1NC20100A	EKL17-40AFD-1NC20300A
	25A	EKL17-40AFD-1NC2510A	EKL17-40AFD-1NC2530A	EKL17-40AFD-1NC25100A	EKL17-40AFD-1NC25300A
	32A	EKL17-40AFD-1NC3210A	EKL17-40AFD-1NC3230A	EKL17-40AFD-1NC32100A	EKL17-40AFD-1NC32300A
	40A	EKL17-40AFD-1NC4010A	EKL17-40AFD-1NC4030A	EKL17-40AFD-1NC40100A	EKL17-40AFD-1NC40300A

Circuit Diagram



Dimension (mm)

