Guidelines for the selection of residual current circuit-breakers

Doepke

Start

Does the electrical equipment contain multi-phase frequency converts that can produce smooth DC residual currents?

examples:
- HVAC and heat pumps
- escalators and lift systems
- medical equipment
- photovoltaic systems
- welding equipment
- charging stations for electric vehicles

Will the circuit-breaker be used for a charging station for an EV charging station?

Is an integrated emergency switching-off facility required?

DFS 4 A EV NA — HD, *
for electromobility
Pulsating current sensitive and AC sensitive. Specifically developed for use in charging stations for electric vehicles. DC tripping threshold 6 mA and additional emergency switching-off function.

DFS 4 A EV — HD
for electromobility
Pulsating current sensitive and AC sensitive. Specifically developed for use in charging stations for electric vehicles. DC tripping threshold 6 mA.

Will the circuit-breaker be used for a photovoltaic system?

DFS 2/4 PV — HD
for safe solar energy
AC-DC sensitive. Reliable protection for installations that require fire protection for frequencies > 1 kHz. Optimal for the protection of photovoltaic systems.

Will the circuit-breaker be used for a heat pump?

DFS 2/4 HP — HD
the heat pump specialist
AC-DC sensitive. Reliable protection for installations that require fire protection for frequencies > 1 kHz. Ideal for installations where heat pumps are used.

energy transition

Is electrical equipment with single-phase frequency converters used?

examples:
- washing machines
- pumps
- hammer drills

Is an integrated emergency switching-off facility desired?

Is detection of mains faults (e.g. interruption of the neutral conductor) desired?

Is increased availability required?

examples:
- high frequency of thunderstorms
- unstable mains supply
- electrical equipment producing transient interference currents

Is detection of mains faults (e.g. interruption of the neutral conductor) desired?

Is an integrated emergency switching-off facility needed?

Will the circuit-breaker be used where particular risks of fire exist?

examples:
- agriculture
- biogas plants
- combustible constructions (CA2)
- paint shops
- joineries
- fuel dispensing installations

Is enhanced fire protection up to 150 kHz desired?

Is an additional facility for reclosure desired?

Is the electrical installation operated on a supply with unknown or insufficient residual current protection?

Is the electrical installation operated on a supply with unknown or insufficient residual current protection?

DFS 2/4 F — HD
safety with mixed frequencies
Sensitive to mixed frequencies. Reliable protection for installations with single-phase frequency converters, numerous power supplies or LED lighting.

DFS 4 A NA — HD, *
protected in emergency situations
Pulsating current sensitive and AC sensitive. Specifically developed for circuits that require emergency switching-off.

DFS 2/4 A — HD
reliable standard protection
Pulsating current sensitive and AC sensitive. Reliable protection for standard applications such as socket-outlet and lighting circuits.

DFS 2/4 A KV — HD
short-time delayed tripping
Pulsating current sensitive and AC sensitive. Ideal for installations exposed to transient leakage currents.

DFS 6 A NU — *
protection in the event of mains faults
Pulsating current sensitive and AC sensitive. Detects upstream mains faults, such as neutral conductor interruption, and switches off before overvoltage damage occurs.

DFS B SK NU — *
protection in the event of mains faults
AC-DC sensitive. Reliable protection for installations where high frequency fire protection is not required. Detects upstream mains faults, such as neutral conductor interruption, and switches off before overvoltage damage occurs.

mains monitoring

DFS 2/4 B SK — HD
safe and reliable system availability
AC-DC sensitive. Reliable protection for installations where high frequency fire protection is not required.

DFS 4 B SK MI — HD
for mobile installations
AC-DC sensitive. Reliable protection for installations where high frequency fire protection is not required. Ideal for mobile installations where RCCBs of type A or unknown types are installed upstream.

DFS 2/4 B+ — HD
fire protection up to 20 kHz
AC-DC sensitive. Reliable protection for installations that require fire protection of 420 mA at frequencies up to 20 kHz.

DFS 4 B+ MI — HD
for mobile installations
AC-DC sensitive. Reliable protection for installations that require fire protection of 420 mA at frequencies up to 20 kHz. Ideal for mobile installations where RCCBs of type A or unknown types are installed

DFS 2/4 B NK — HD
facilities at risk of fire
AC-DC sensitive. Reliable protection for installations that require conventional 300 mA fire protection.

DFS 4 B SK NA — HD, *
protected in emergency situations
AC-DC sensitive. Reliable protection for installations where high frequency fire protection is not required. Ideal for circuits that require emergency switching-off.

DFS 4 B SK FANA — *
emergency switching-off and remote operation
AC-DC sensitive. Reliable protection for installations where high frequency fire protection is not required. Ideal for circuits that require emergency switching-off. Including remote control to enable switch on from a distance.

HD Heavy duty – for harsh environmental conditions

* Additional function also available as a main switch

Sensitive to mixed frequencies

Pulsating current sensitive and AC sensitive

AC-DC sensitive

! Note:
The rated residual current is not considered in this diagram and must be selected in accordance with the protective measure.

This is a recommendation by Doepke Schaltgeräte GmbH