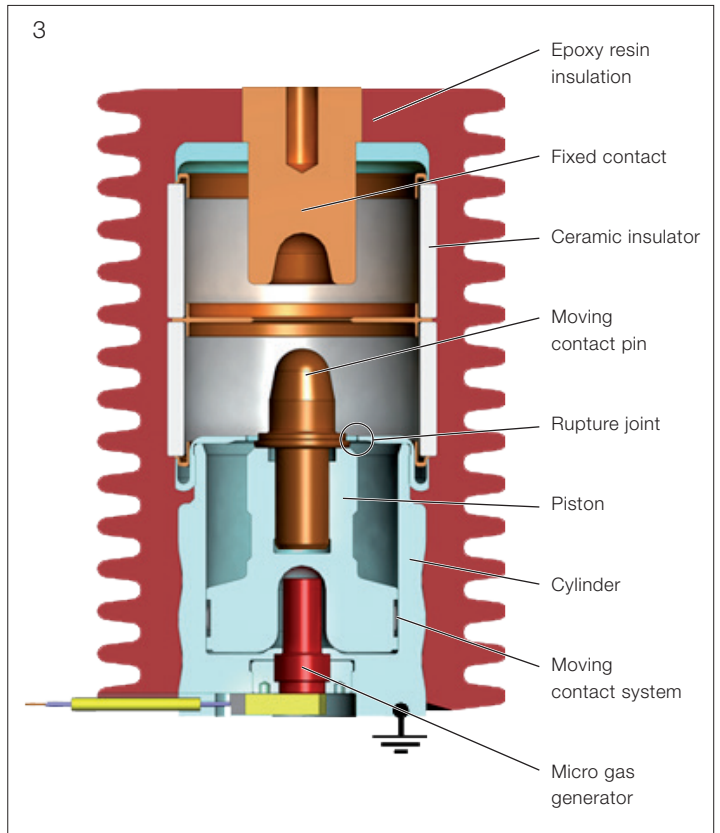
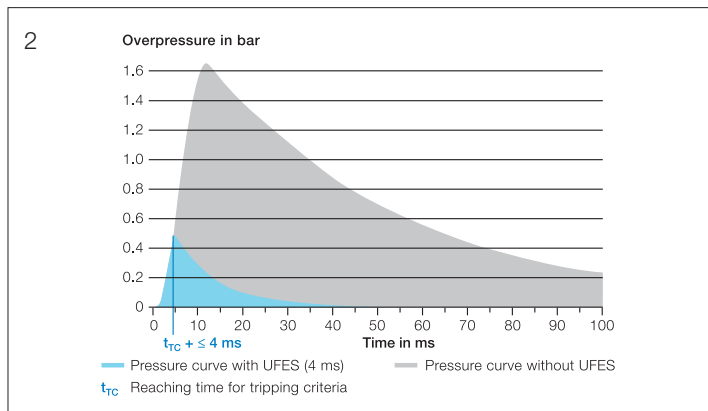
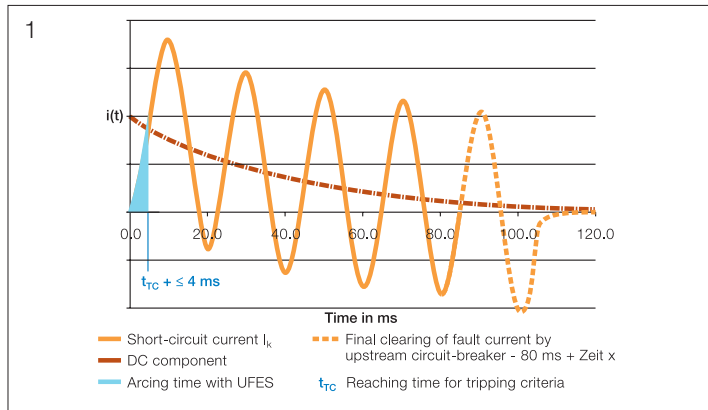


UFES™ – Ultra-Fast Earthing Switch

UFES

Ultra-Fast Earthing Switch



1 The Ultra-Fast Earthing Switch eliminates the arc fault well before the first peak of the fault current. | 2 Example pressure curves, with and without UFES, in a compartment of an air-insulated medium voltage switchgear system with an internal arc fault current of 130 kA (peak) / 50 kA (rms). | 3 Primary switching element for one phase.

UFES primary switching element type U1

Electrical maximum characteristics for each voltage category
(Different types available)

Rated voltage (rms) *	kV	1.4	17.5	27	36
Rated power frequency withstand voltage (rms)	kV	5	42	60	70
Rated lightning impulse withstand voltage (peak)	kV	12	95	150	170
Rated frequency	Hz	50 / 60	50 / 60	50 / 60	50 / 60
Rated short-time withstand current (rms)	kA	100	50 (63)	40	40
Rated peak withstand current	kA	220	130 (165)	104	104
Rated duration of short-circuit	s	0.5	3 (1)	3	3
Rated short-circuit making current	kA	220	130 (165)	104	104

Mechanical properties

Dimension (diameter x height)	mm	~ 137 x 210
Closing time	ms	< 1.5
Contact bounce time	ms	0

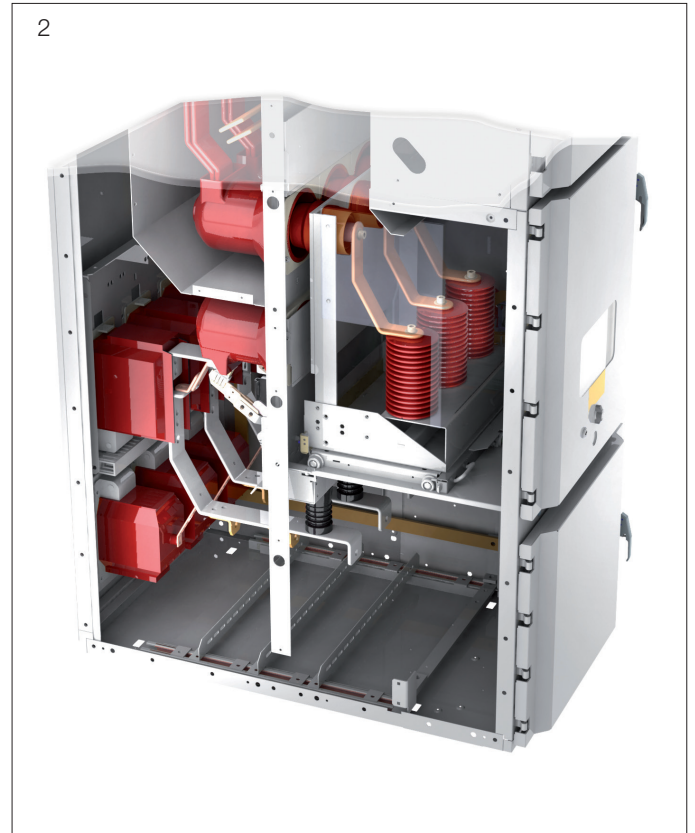
Service life expectation

Number of closing operations		1
Mechanical	years	up to 30
Micro gas generator	years	up to 15

* 40.5 kV on request

UFES

Applications



1 ABB Service Box, top mounted | 2 ABB withdrawable solution

Selection of retrofit solutions

Particularly for older, non-IAC qualified switchgear systems, the Ultra-Fast Earthing Switch allows the highest degree of protection for equipment and operator safety to be achieved. A variety of solutions are available for retrofitting of existing switchgear systems.

ABB Service Box (up to 24 kV)

Universally usable ABB UFES Service Box for retrofitting of air-insulated switchgear

- Non-proprietary application
- Maximum installation flexibility to suit the space available

ABB withdrawable solutions

The UFES primary switching elements, installed in ABB withdrawable assembly or truck design, provides a simple opportunity to upgrade existing switchgear systems with active arc fault protection

- The contact with the busbars is established via the isolating contacts of the withdrawable assembly
- The optimum Plug & Play solution when vacant panels are available
- Similar solutions are also available for other switchgear types with trucks *

New ABB switchgear

Also for new ABB switchgear, the integration of UFES is a useful supplement in order to protect this investment against the impacts of an internal arc, and in addition, to increase the operator safety to a maximum. For switchgear of type UniGear ZS1 for example, the following technical solutions are available:

- UFES installation in a top box with direct connection to the busbar
- UFES installation in the cable connection compartment
- Separate panel with UFES draw-out unit

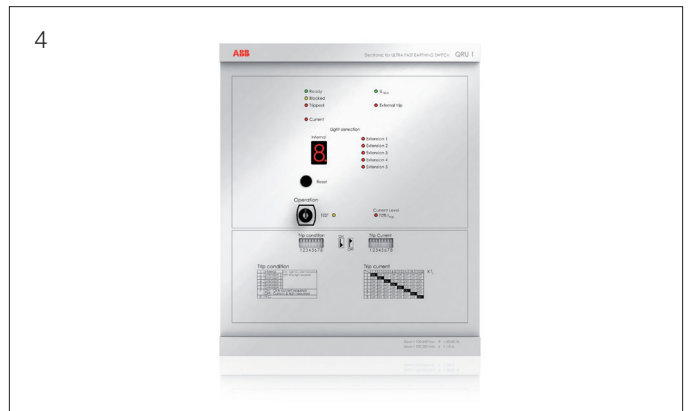
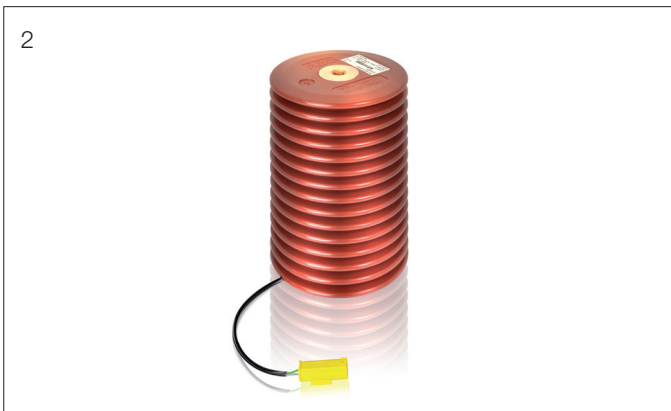
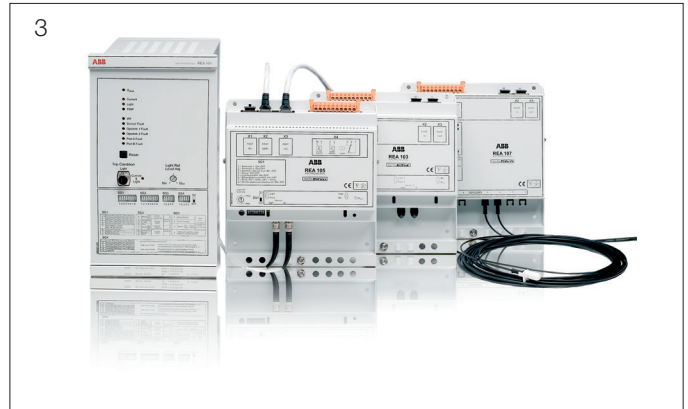
UFES components

The Ultra-Fast Earthing Switch can also be provided as a loose OEM component. There are different types of UFES kits available.

* on request

UFES

Active protection for switchgear



1 UFES electronics type QRU100 | 2 UFES primary switching element type U1 | 3 REA system | 4 UFES electronics type QRU1

UFES electronics type QRU100

- Standard electronic tripping unit for the combination with ABB arc protection system REA
- 2 Optolink inputs for connection of the REA101 relay
- 2 High-speed inputs (HSI)
- Self monitoring
- Optolink supervision
- Testing mode for functional check
- DIP switch configuration
- Ideal for extension of existing ABB arc protection systems
- Alternative: Fault detection by non-ABB system (Compatibility verification required!)

UFES primary switching element type U1

- Ultra-fast operating mechanism with micro gas generator
- Vacuum interrupter
- Compact design
- Versatile in installation
- Long service life

ABB arc protection system REA

- Optical detection via line or lens sensors
- Overcurrent detection
- Selective protection
- Circuit-breaker failure protection

UFES electronics type QRU1

- Alternative electronic detection and tripping unit
- 3 current inputs
- 9 optical inputs for light detection by lens sensors
- Complete solution for simple protection zones
- For large protection zones expandable up to 159 lens sensors with ABB arc guard type TVOC-2
- Self monitoring
- Testing mode for functional check
- DIP switch configuration
- Fast fault localization

UFES certified by:  

Contact

ABB AG

Oberhausener Strasse 33
40472 Ratingen, Germany
Phone: +49 2102 12-0
Fax: +49 2102 12-17 77

www.abb.com/mediumvoltage

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