Safe Live Working

DEHNarc Mobile Arc Fault Protection System

Protection and cost-effectiveness go hand in hand

Arc fault protection…

Electrical installations must be permanently available and are therefore frequently not disconnected during maintenance work. At the same time, the service life of these installations is increasingly extended. Therefore, the risk of an arc fault accident, which can cause serious injuries or even death, increases during live working.

Workers must be protected during live working. This is also required by country-specific Occupational Health and Safety Acts. The International Social Security Association (ISSA) has published a guideline on the risks of live working*.

When using DEHNarc, the nominated person in control of an electrical installation exceeds his / her responsibility to protect employees during live working since, according to the risk analysis, the use of personal protective equipment would be sufficient.

For more detailed information on arc fault protection, please visit our homepage.

… by means of DEHNarc

DEHNarc is the only **mobile** arc fault protection system that reliably protects workers from arc faults.

DEHNarc is **cost-effective**: The system can be installed in just a few minutes. Since DEHNarc is not permanently fixed in the installation, it can be flexibly and repeatedly used for live working on different installations – during operation and without disconnecting the installation. If DEHNarc is used during live working, operational interruptions are avoided and the value of the installation is maintained.

* International Social Security Association (ISSA): „Guideline for the selection of personal protective equipment", www.issa.int/prevention-electricity

Functional principle

DEHNarc detects arcing with an optical sensor system. This system immediately causes a short-circuit which trips the upstream overcurrent protective devices and puts the installation into a safe state, thus considerably reducing the incident energy. The DEHNarc protection system significantly limits the effects of the arc and reduces the risk for the worker.

The technical reliability of DEHNarc meets the most stringent requirements and was evaluated by means of FMEA*.

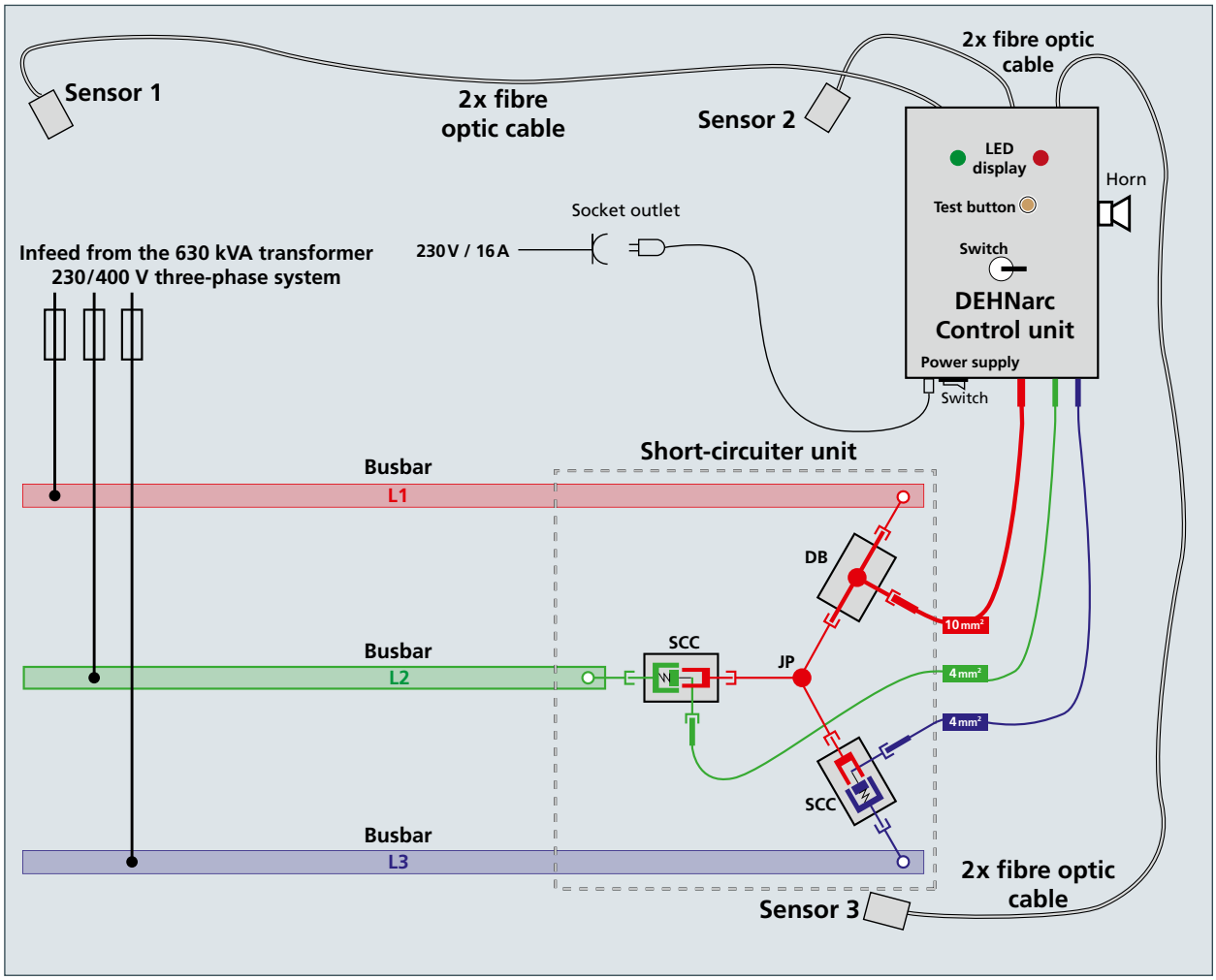
Technical data	
Nominal voltage	230/400 V 50 Hz
Prospective short-circuit current	2 – 25 kA
Max. permissible short-circuit duration	70 ms (at 25 kA)
Typical response time	5 ms (at 25 kA)

Mode of operation

After the sensors and all other mobile components have been firmly mounted and interconnected via the control lines, all components are tested by an internal routine. This ensures that live working is as safe as possible concerning the risks of an arc fault. The sensors are aligned in such a way that a single sensor can detect an arc fault in the entire installation. Since DEHNarc is used for open switch racks in closed rooms, false tripping by extraneous light such as the flashlight of a digital camera is excluded. Even pulling a fuse under load does not trip the system.

DEHNarc consists of

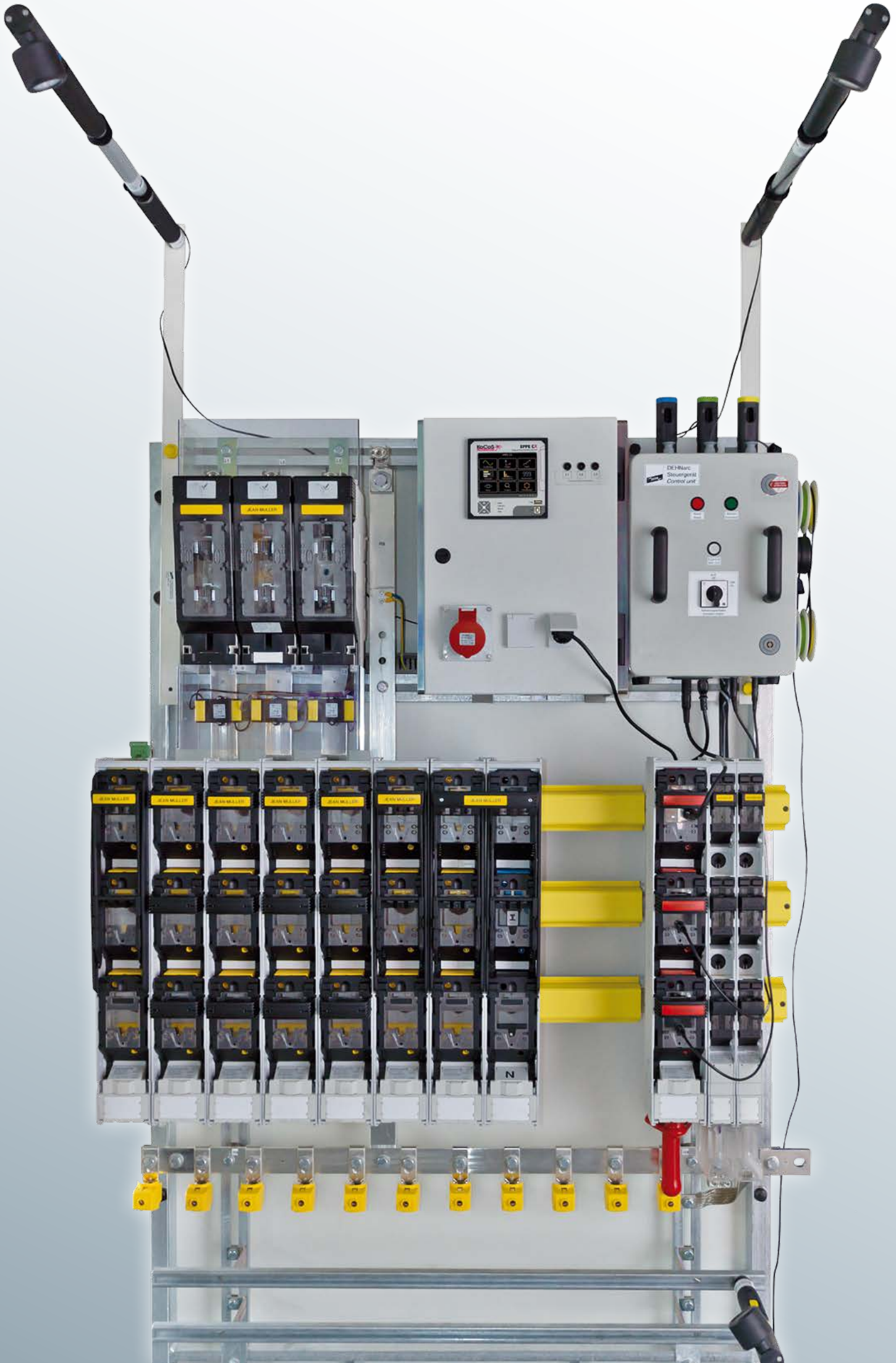
- Fixed components for the sensor support
- Mobile components



Functional principle of DEHNarc

SCC: short-circuiting cartridge
JP: junction piece
DB: disconnecting blade

* FMEA: Failure Mode and Effects Analysis


DEHNarc
Steuergerät
Control unit
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Fixed components

Fixed at the low-voltage electrical equipment

Light sensor support rail (left)

To be mounted to the DIN rail in the upper part of the low-voltage electrical equipment by means of a knurled nut

Type	Part No.
DARC LSHS L 940	781 040

Light sensor support rail (right)

To be mounted to the DIN rail in the upper part of the low-voltage electrical equipment by means of a knurled nut

Type	Part No.
DARC LSHS R 940	781 060

Light sensor supports with plug-in coupling (2 pieces)

To be mounted in the hole of the light sensor support rail

Type	Part No.
DARC LSH M10	781 080

Light sensor support with jack coupling

To be mounted on the lower C-rail of the low-voltage electrical equipment

Type	Part No.
DARC LSH SB	781 090

Alternative: Wall-mounted

Light sensor supports with plug-in coupling (2 pieces)

To be mounted in the upper part of the low-voltage electrical equipment on a vertical wall

Type	Part No.
DARC LSH WB	781 085

Light sensor support with jack coupling

To be mounted on the lower C-rail of the low-voltage electrical equipment

Type	Part No.
DARC LSH SB	781 090

Mobile components

Control unit

Visual detection of an arc fault by means of three sensors and activation of the short-circuiting cartridges; visual and acoustic indication in case of a fault; integrated self-testing element

Type	Part No.
DARC STG	781 000

Short-circuiting cartridges (2 pieces)

Short-circuiting cartridge with disconnector cover for use in fuse switch disconnectors and for short-circuiting after receiving the signal of the control unit

Type	Part No.
DARC KSP	781 020

Disconnecting blade

Disconnecting blade with disconnector cover for use in fuse switch disconnectors; galvanic connection between the busbar and the control unit

Type	Part No.
DARC TRM	781 010

Junction piece

Mounted in the fuse switch disconnector to ensure mechanical connection between the short-circuiting cartridge and the disconnecting blade

Type	Part No.
DARC KST	781 030

Light sensor spacers with plug-in coupling (2 pieces)

For use as intermediate element when mounting the two light sensors in the upper part of the low-voltage electrical equipment

Type	Part No.
DARC LSDH	781 100

Connecting lines (2 pieces) control unit – short-circuiting cartridge

Connecting lines between the DARC STG control unit and the DARC KSP short-circuiting cartridge

Type	Part No.
DARC VL 4 1000	781 130
DARC VL 4 1500	781 150

Connecting line control unit – disconnecting blade

Connecting line between the DARC STG control unit and the DARC TRM disconnecting blade

Type	Part No.
DARC VL 10 500	781 170
DARC VL 10 1000	781 190

Transport case

For the control unit, junction piece, connecting lines and light sensor spacers, with wheels and foam padding

Type	Part No.
DARC TK	781 220

Test case

For testing the function of the short-circuiting cartridges and the disconnecting blade; disconnecting blades must be ordered separately

Type	Part No.
DARC PK KSP	781 230

A switch disconnector with a short-circuit current up to 25 kA (1 s) must be installed on site to accommodate the short-circuiter cartridges, disconnecting blade and junction piece.

www.dehn-international.com/partners

Surge Protection
Lightning Protection
Safety Equipment
DEHN protects.

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GmbH + Co.KG.

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