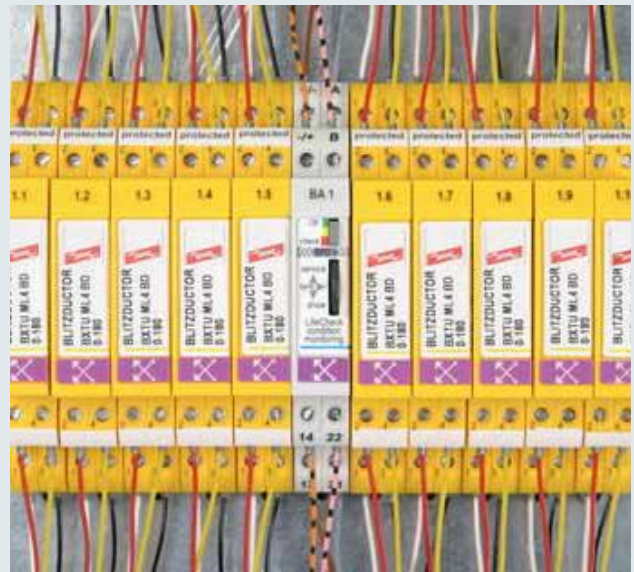


- Permanent condition monitoring of LifeCheck-equipped arresters ensures a maximum degree of system protection and availability
- The early detection system already detects arrester overload and warns of imminent arrester failure
 - Visual indication of faulty or previously damaged arresters
 - Compact dimensions and minimum wiring
 - Monitoring of up to ten arresters (40 signal cores)
 - Remote signalling contact
 - Remote monitoring also via RS485 interface and PC software



Installed DEHRecord condition monitoring unit

Condition Monitoring

The DRC MCM XT condition monitoring system is a compact DIN rail mounted device designed for condition monitoring of up to 10 pre-programmed BXT/BXTU arresters with an integrated LifeCheck monitoring circuit.

Integrated into the protection modules, LifeCheck permanently monitors the proper condition of the arrester and acts like an early warning system, detecting imminent electrical or thermal overload of the protection components. The LifeCheck status can be read out via contactless RFID technology. Stationary installed, the condition monitoring system allows condition-based maintenance of 10 BXT/BXTU arresters.

The system acts like an early warning system, generating a fault message already in case of imminent arrester overload. This fault message is indicated by means of the integrated three-coloured LED and transmitted via one of two integrated remote signalling contacts. Failure of the monitoring system, e.g. due to a voltage breakdown, is also indicated via the remote signalling contacts.

The Show function integrated in the DRC MCM system allows to detect previously damaged arresters in the monitoring group.

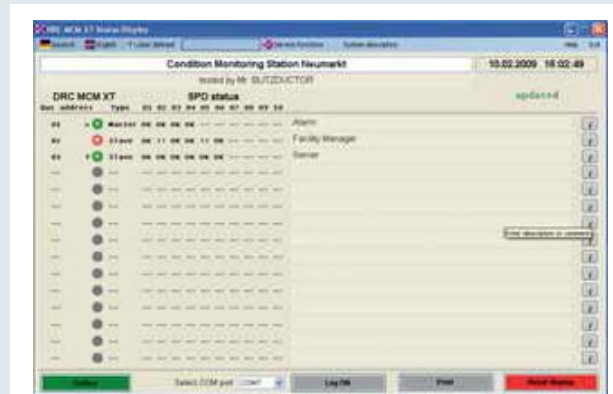
If several condition monitoring systems are used in one switchgear cabinet, these systems are connected via the integrated RS485 interfaces to synchronise the monitoring cycles. Up to 15 DRC MCM systems can be connected to one another at the RS485 bus, allowing up to 150 BLITZDUCTOR modules or 300 pairs to be monitored simultaneously with minimum wiring effort.

The "Status Display and Service Console" PC software

is an optional user software for the DRC MCM XT condition monitoring system. It indicates the status of the arresters and addresses the LifeCheck-equipped BLITZDUCTOR modules.

The software can be installed on a standard PC using an RS485/USB interface converter of type "USB-NANO 485" which is available as accessory.

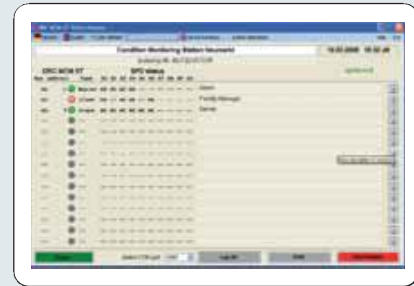
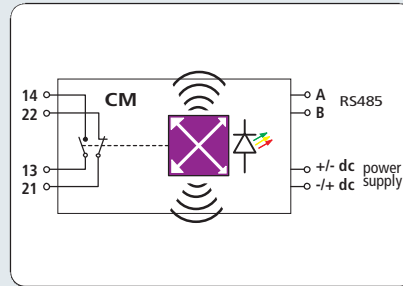
The software can be downloaded free of charge from www.dehn.de/download/ or is available as CD for a nominal fee.



Graphical status indication of DRC MCM XT monitoring systems and of all programmed protection modules assigned to them.

The Service functions allow to switch to the "Service Console" function complex. The protection modules can be easily addressed, tested and reset by means of the user-friendly interface.

DRC MCM XT



- Condition monitoring of LifeCheck-equipped arresters
- Permanent monitoring of up to 10 arresters (40 signal lines)
- Minimum wiring effort
- Optional remote signalling via RS485 or remote signalling contacts

Basic circuit diagram DRC MCM XT

DRC MCM XT Status Display software

DIN rail mounted device with integrated LifeCheck sensor for condition monitoring of max. ten LifeCheck-equipped BLITZDUCTOR XT/XTU arresters. A three-coloured LED and a remote signalling contact (break or make contact) indicate the operating state of the arrester.

The free "Status Display and Service Console" software can be optionally used via an RS485 interface converter. The software allows to remotely monitor the condition of all monitored arresters by means of a PC.

Download: www.dehn.de/download

Type	DRC MCM XT
Part No.	910 695
For testing	up to 10 BLITZDUCTOR XT/XTU ML arresters up to 10 BLITZDUCTOR XT/XTU ML EX arresters; for use in non-hazardous atmospheres only!
	Observe thread measure!
Operating elements	multiway button, DIP switch
Indicator	three-coloured LED (green, orange, red)
Input d.c. voltage range (U _{IN})	18..48 V
Max. nominal current input (I _{IN})	100 mA
RFID transmission frequency	125 kHz
Message: Replacing of SPD recommended	LED, remote signalling contact (break and make contact)
Test cycle	continuous
Operating temperature range for monitoring 10 BXT/BXTU arresters	-20°C...+60°C
Operating temperature range for monitoring 8 BXT/BXTU arresters	-40°C...+80°C
Degree of protection	IP 20
For mounting on	35 mm DIN rails acc. to EN 60715
Connection type	screw
Cross-sectional area, solid / flexible	0.08 - 2.5 mm ²
Tightening torque (terminal)	0.4 Nm
Enclosure material	polyamide PA 6.6
Colour	grey
Test standards	EN 61010-1, 61000-6-2/4, ETSI EN 300 330-1 V1.7.1
Type of remote signalling contact	make (no) and break contact (nc)
Technical data of remote signalling contact	contact resistance < 25 ohms; leakage current < 1 µA
d.c. switching capacity	350 V/0.12 A
a.c. switching capacity	250 V/0.07 A
Delivery includes	base part, monitoring module, quick guide and labelling system

Accessories for Condition Monitoring System with LifeCheck® Sensor

USB Interface Converter of Type USB NANO 485

USB NANO 485 converts between USB and RS-485 signals. The interface converter is specifically designed for two-wire RS-485 buses. LEDs indicate operation (yellow), Rx (green) and Tx (red). USB NANO 485 is ideally suited for use with notebooks due to its compact dimensions. Stationary use is also possible.



Type	USB NANO 485
Part No.	910 486
Version	with LED indication

Labelling System BA1-BA15

2x 165 adhesive labels for labelling DRC MCM XT monitoring devices with their bus address.



Type	BS BA1 BA15 BXT
Part No.	920 398
Colour	transparent

Status Center Software CD for DRC MCM XT

Status Center software for starting and managing up to 20 instances of the "Status Display with integrated Service Console" DRC MCM XT monitoring software. Monitoring and status indication of up to 3000 BLITZDUCTOR XT/XTU LifeCheck modules in up to 20 DRC MCM XT monitoring systems (15 DRC MCM XT each with RS485 bus wiring).



Type	SWP MCM ST CENTER
Part No.	910 489
For	up to 3000 BLITZDUCTOR XT

- A higher degree of protection and availability is achieved by preventive maintenance
 - The LifeCheck monitoring device detects thermal or electrical overload of all components
 - To avoid imminent failure and thus system downtime, the protection module should be replaced as soon as possible
- This type of SPD testing has the following benefits:
 - Extremely easy and within a matter of seconds
 - Module does not have to be removed during system operation
 - Detection of thermal or electrical overload of all components



Maintenance tests and test intervals of a lightning protection systems are specified in DIN EN 62305-3, supplement 3 (see table excerpt).

Class of LPS	Visual inspection	Complete inspection	Complete inspection of critical systems
I and II	1 year	2 years	1 year
III and IV	2 years	4 years	1 year

However, these specifications are only standard-based minimum requirements. Visual inspection of arresters for information technology systems does not make sense since the status of the devices is generally not visible. For this purpose, another method has to be chosen as is the case with complete inspections. In the past, measurement equipment was used to test arresters. These measurements were very time consuming, required expertise and the measurements did not provide sufficient information.

Preventive maintenance:

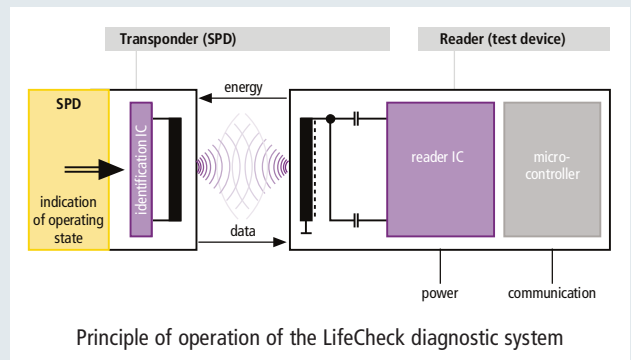
When using this maintenance strategy, arresters are tested and measured at regular intervals. The arresters are assessed according to certain criteria and, if required, replaced.

In the past, this was very time consuming, expensive and required downtime of the system.

For some years, LifeCheck-equipped arresters have been available, allowing to determine the status of the arrester via RFID technology. A monitoring circuit with a transponder in the arrester permanently monitors the protective circuit for impermissible overload caused by thermal overheating or electrical impulse currents.

Information is read out via a hand-held tester. This tester houses the reader, an RFID reader unit.

It contactlessly transmits electromagnetic energy to the transponder in the SPD, reads out its status and displays it. Information is simple: "SPD OK" or "Replace SPD!". This test is carried out easily within a matter of seconds without removing the SPD. The test can be carried out at any time without downtime since signal transmission is not interrupted.



This type of monitoring reliably detects thermal and electrical overload of all components, typically before the arrester fails and the availability of the system to be protected is limited. In addition, no expertise is required for testing. The reader also facilitates documentation of the test results, which is mandatory in compliance with the EN 62305-3 standard.

The test data (date, time, results) of all arresters are saved and can be transmitted to a PC via USB interface for printing or storage. Thus a higher degree of protection and availability is achieved by means of preventive maintenance with LifeCheck since overload of components is already detected before the protection of the system circuit fails.



DRC LC M3+



PC database software



Snap-on LifeCheck sensor

- Fast testing of LifeCheck-equipped arresters
- Hand-held device, easy transport and operation
- With database function for documentation
- Easy and fast parameterisation of arresters for condition monitoring with LifeCheck

Portable device with LifeCheck sensor for flexible use. Fast and easy testing of LifeCheck-equipped arresters. Visual and acoustic indication. With additional USB connection and database software for PC-aided management of test samples and documentation of the test results. The DRC LC M3+ features a snap-on LifeCheck sensor, eliminating the need to hold it to the arrester when testing. The hand-held device allows parameterisation of arresters for condition monitoring.

Type	DRC LC M3+
Part No.	910 653
Testing of	BLITZDUCTOR XT/XTU ML
Testing of BXT ML EX	BLITZDUCTOR XT ML EX: for use in non-hazardous atmospheres only!
Voltage supply (included in delivery)	Li-ion battery
RFID transmission frequency	125 kHz
Measured value indication	beep and LCD
Testing period	typically 3 to 10 sec.
Operating temperature range	-20°C...+65°C
Battery test	automatically switched off in case of flat battery
Cable length to the LifeCheck sensor	approx. 1000 mm
Dimensions of the LifeCheck sensor	90 x 51 x 12 mm
Dimensions of the hand-held device	166 x 95 x 30 mm
Delivery includes	hand-held device, LifeCheck sensor BXT, charging device, USB cable, test module for reference, software CD, storage case
Dimensions of the storage case	340 x 275 x 83 mm

Accessory for LifeCheck® SPD Test Device

LifeCheck Sensor for DRC BXT / BCT

Snap-on LifeCheck sensor and test module for use as spare part / extension for portable LifeCheck test devices.



Type	LCS DRC BXT	LCS DRC BCT
Part No.	910 652	910 654
For testing	BLITZDUCTOR XT ML	BLITZDUCTOR CT MLC

- For routine tests of surge protective devices
- Compact dimensions
- Suitable for mains and battery operation
- Low-battery indicator
- Test cables included in delivery
- Touch-proof test adapter available as accessory part



For testing the sparkover voltage of surge arresters. The test sample is connected via the included test cables or special test adapters.



Scope of delivery of the PM20 SPD test device

The PM 20 SPD test device with integrated sparkover detection allows to test Yellow/Line or Red/Line surge arresters with integrated varistor, Zener diode or gas discharge tube. Both the sparkover performance between the connections of the arresters as well as the continuity can be tested. The results can be compared to the limit values stated in the instructions for use. In case of deviations, the arrester or protection module has to be replaced. Test adapters with a corresponding support simplify testing of arresters of the BLITZDUCTOR XT and DEHNrapid LSA product family.

PM 20



- Combined testing of protective circuits with gas discharge tubes, varistors and zener diodes
- Easy and flexible use
- For use with PA BXT and PA DRL test adapters

Combined device for testing the sparkover voltage of surge arresters (with gas discharge tubes/varistors/zener diodes). Storage bag and measuring accessories included.

Type	PM 20
Part No.	910 511
Nominal d.c. voltage (U_N)	8-12 V d.c.
Test parameter: Test voltage	max. 1250 V d.c.
Test parameter: Test current (reference voltage)	1 mA d.c., constant
Measured value indication	alphanumeric, eight-digit LCD
Test output sockets	safety pole terminals (4 mm), positive pole: red colour, negative pole: black colour
Testing period	≤ 1.5 sec.
Number of individual tests during battery operation	typically 2000
Accessories included in delivery	2 test cables, (each 1 m long), 2 safety tapping test clips, 1 plug-in power supply unit (230 V a.c.), 1 storage bag
Dimensions of the storage bag	300 x 110 x 110 mm

Accessory for SPD Test Device

PA DRL Test Adapter

To be connected to PM 10 / PM 20 and to be plugged in for testing protection modules



Type	PA DRL
Part No.	910 507
Plug-in protection modules	DEHnrapiid LSA and DPL

Accessory for SPD Test Device

PA BXT Test Adapter

To be connected to PM 10 / PM 20 and to be plugged in for testing protection modules



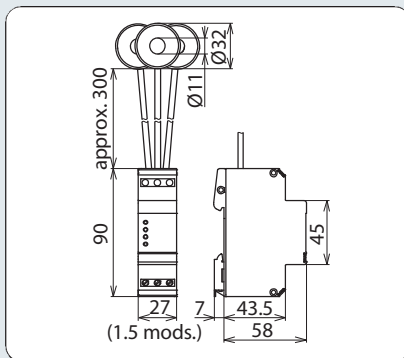
Type	PA BXT
Part No.	910 508
Plug-in protection modules	BLITZDUCTOR XT / CT

- SPD monitoring device for potential-free measuring of leakage currents flowing through surge arresters
- Measuring and evaluation unit in a compact DIN rail mounted enclosure (1.5 modules)
- Three hard-wired winding-type transformers
- Self-test and reset function
- Battery supply
- Two limit values for the leakage currents to be monitored
- LED indication on site and remote signalling contact

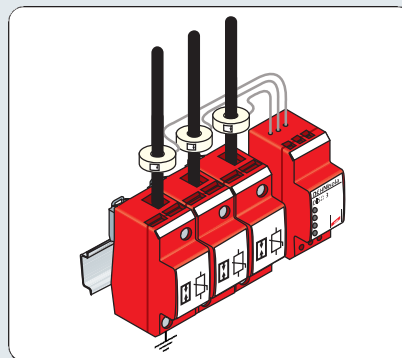


The DEHNisola monitoring device continuously monitors the function of installed lightning current and surge arresters

DEHNisola: Measuring and evaluation unit with three hard-wired winding-type transformers and fixing accessory



Dimension drawing DISO 3



Measuring and evaluation device with three winding-type transformers

Type	DISO 3
Part No.	910 600
Indication of limit value 1 (I_1)	0.5 mA _{rms} (indication only on site, will be reset when the value falls below the limit value)
Indication of limit value 2 (I_2)	5 mA _{rms} (indication on site and remote signalling, will be reset only by pushing the reset button at the device)
Measuring cycle	every hour or acyclically after every discharge process of the protective device to be monitored
Self-test	injection of fault currents in each sensor for testing the measuring unit, "reset" > 2 sec.
Battery supply	battery life: approx. 10 years, LowBatt indication and remote signalling
Remote signalling contact: Max. a.c. switching voltage	125 V
Remote signalling contact: Max. d.c. switching voltage	110 V
Remote signalling contact: Max. switching capacity	30 W
Remote signalling contact: Max. switching current	1 A
Remote signalling contact: Cross-sectional area	0.5 to 4 mm ²
Operating temperature range	-25°C...+60°C
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material of the measuring and evaluation device	thermoplastic, red, UL 94 V-0
Degree of protection of the measuring and evaluation device	IP 20
Dimensions of the measuring and evaluation device	1.5 modules, DIN 43880
Dimensions of the sensors	inner diameter: 11 mm, outer diameter: 33 mm
Length of the sensor cables	300 mm each
Weight	0.23 kg

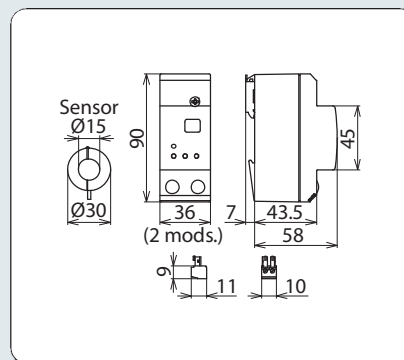
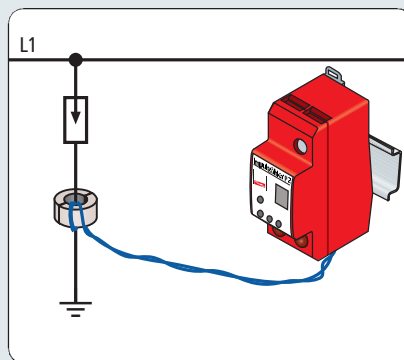
Registration of discharge processes



Counter with integrated battery supply (9 V) and battery charge control. Indication via two-digit LCD with setting and resetting buttons.

- Potential-free registration of discharge currents flowing through surge protective devices
- Easy installation by enclosing the earth conductor of the arrester with a hinged toroidal core
- Counter in a DIN rail mounting enclosure (2 modules)
- Twisted sensor cable, 1 m long

P2 impulse counter: Counter, sensor cable and toroidal core with fixing accessory



Dimension drawing P2

Type	P 2
Part No.	910 502
Response threshold for impulse currents (rise time $\geq 8 \mu\text{s}$)	> 1 kA
Sequence of impulses	1 s
LCD	electronic counter 0...99
Power supply	9 V battery (IEC 6LR61) included in delivery, replaceable, battery life > 1 year
Battery charge control	button and LED situated at device
Setting device	button at device for setting the counter (e.g. after replacing a battery)
Resetting device	button at device for resetting the counter to 0
Operating temperature range	-10°C...+50°C
For mounting on	35 mm DIN rails acc. to EN 60715
Enclosure material (counter)	thermoplastic, red, UL 94 V-0
Enclosure material (sensor)	PA 6, grey
Degree of protection	IP 20
Dimensions (counter)	2 modules, DIN 43880
Dimensions (sensor)	inner \varnothing 15 mm, outer \varnothing 36 mm
Length of the connecting cable (between sensor and counter)	max. 1 m, twisted
Weight (counter, sensor and connecting cable)	0.2 kg
Accessories included in delivery	9 V battery, IEC 6LR61; cable tie (for fixing the sensor)