

Operating Manual

DEHNrecord DRC SCM XT



DEHN + SÖHNE

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Note:

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1. Terms and Definitions

BLITZDUCTOR®

Surge protection module manufactured by DEHN + SÖHNE

DEHNrecord DRC LC M3+

DEHNrecord DRC LC M3+ is a compact handheld reader with integrated RFID technology for non-contact testing of surge protection modules (Blitzductors®).

DEHNrecord DRC MCM XT

DEHNrecord DRC MCM XT is a compact monitoring device with integrated RFID technology for stationary testing of surge protection modules (Blitzductors®) in single and multiple application.

DEHNrecord DRC SCM XT

DEHNrecord DRC SCM XT is a compact monitoring device with integrated RFID technology for stationary testing of surge protection modules (Blitzductors®) in single device application.

HW

Hardware

SW

Software

LifeCheck®

Test for correct functioning of the surge protection modules during system operation without removing them.

RFID

Radio Frequency Identification – Identification procedure per radio technology which allows for non-contact reading and saving of data.

SPD

Surge Protection Device – surge protection module

FM

Floating remote signalling contact

2. Literature / References

- /1/ Operating manual **DEHNrecord DRC LC M3+**
Issued by : DEHN + SÖHNE

3. Application

DEHNrecord DRC SCM XT is a compact monitoring device in an XT enclosure with integrated RFID technology (Radio Frequency Identification) for non-contact stationary monitoring of surge protection modules (SPDs). SPDs and monitoring device are marked with the LifeCheck® symbol.

LifeCheck® Symbol:



Up to 10 surge protection modules (Type BLITZDUCTOR® with integrated LifeCheck®) can be assigned to one DRC SCM XT monitoring device.

The following surge protection modules are equipped with LifeCheck® technology:

- BLITZDUCTOR® CT; Type: BCT MLC ...
- BLITZDUCTOR® XT; Type: BXT ML...
- BLITZDUCTOR® XT; Type: BXT ...EX...
- BLITZDUCTOR® XTU; Type: BXTU ML...

The status of this "group" of protection modules is continuously contactless checked via the DEHNrecord DRC SCM XT monitoring device, it is displayed by an integrated LED and signalled by a potential-free remote signalling switching contact. Both the LED indicator and remote signalling contact provide general information about the operating state of all protection modules assigned to the monitoring device:

- All protection modules of the group are okay
- Replacing of at least one protection module necessary

A detailed fault diagnosis either is provided by

- the LED which is integrated in the monitoring device, or
- by manually testing of the individual SPDs with the handheld reader DEHNrecord DRC LC M3+

4. LifeCheck®

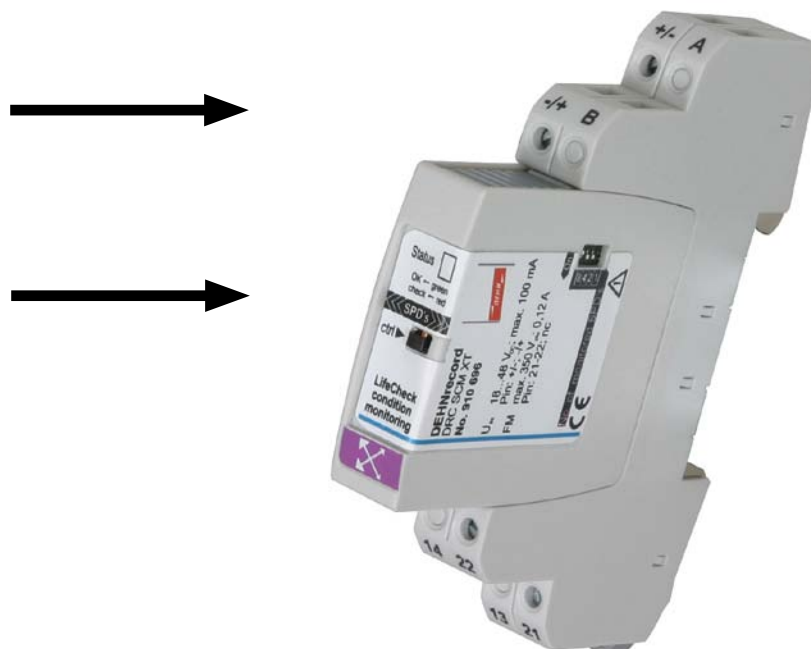
Protection modules with LifeCheck® symbol are equipped with a combined RFID based transmission and monitoring unit. Thermal and electrical overloads of the surge protective device will be reliably detected.

With the stationary monitoring device DEHNrecord DRC SCM XT, the proper state of these surge protection modules (Type BLITZDUCTOR®) can be permanently monitored and remotely signalled to a supervising control centre.

5. Device Description

The stationary monitoring device DEHNrecord DRC SCM XT consists of

- a special **base part** for DIN rail mounting and wiring
- a **plug-in module** which includes the condition monitoring unit



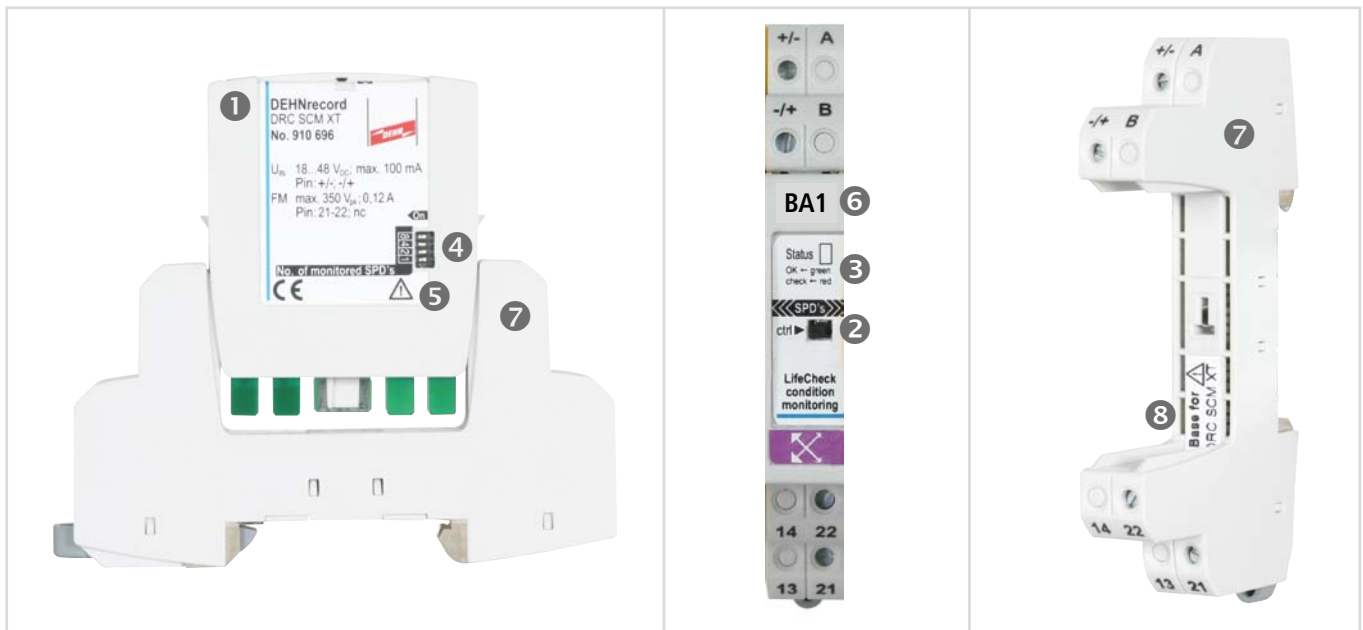
The standard delivery includes a quick guide¹⁾ and the labelling system BS BA1.

Current versions of

- Detailed operating manual for DRC SCM XT (Publication No. 1818)
- Operating manual for handheld reader DRC LC M3+¹⁾
- Device software for the handheld reader DRC LC M3+¹⁾

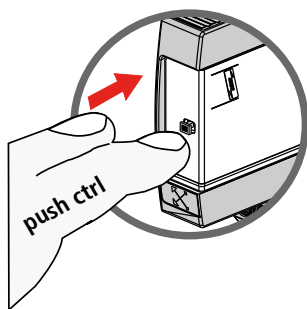
are available for downloading download under www.dehn.de/download/.

¹⁾ Publication No. 1809, see also www.dehn.de



- 1 Plug-in module DRC SCM XT for inserting/snapping into the base part 7; monitoring device for stationary, permanent LifeCheck® of up to 10 BLITZDUCTOR® XT (or CT).

- 2 Button for controlling the DRC SCM XT via the following function:




ctrl

controls the detailed status indication via the LED or the programming of an SPD

Three options are provided: press short (<2 sec.), press long (>5 sec.) and press until changing of function is recognised.

An ongoing test (LED, orange permanent light) may be interrupted by pressing the button, see also ("Extended functions for the DRC SCM XT" in chapter 13).

- ③ **3-colours-LED**  for indicating the monitoring and device status. Function is indicated by the LED flashing.

Device status



Start sequence:



Device status, fault / wrong configuration (DIP switch ④)



Programming mode

Monitoring status



All SPDs OK



Replace at least one SPD

e.g. SPD No. 3

⇒ The number of red flashing pulses indicates the SPD No. of the first SPD to be replaced.

- ④ 4-fold DIP switch for configuring the monitoring device:

Attention:

Remove the plug-in module before configuration!


Function				
Set the quantity (n) of SPDs to be monitored. Numbers 1..n then will also be used as sequence number for parameterising of the SPDs monitored.	State when delivered	0		
	Admissible range	1 ... 10		
	Setting	By setting the corresponding binary code value : e.g. 10 (= 8+2)		
		8	4	2
		On	Off	On
				Off

- ⑤  ⇒ Follow the quick guide!

- ⑥ **Adhesive label:** A labelling system which is included in delivery for marking the DRC SCM XT with the SCM system address (BA1). This device address is necessary for programming the SPDs for stationary monitoring or for localising damaged SPDs and for providing replacement devices.

- 7 Special base part for DIN rail mounting, with screw terminals, for insertion of the plug-in module 1.

Terminal	Function	Note
+ / -	External d.c. supply,, 18...48 V, max. 100 mA	Any polarity
- / +		
A	Function not implemented	
B		
13	Function not implemented	Max.: 300 mW at; d.c. 350 V; 120 mA a.c. 250 V; 70 mA Any polarity
14		
21	Remote signalling contact 1 break contact, nc	
22		

- 8  Base part only for plug-in module DRC SCM XT ⇒ Follow quick guide!

6. Design/Configuration

DRC SCM XT monitoring device allows for permanent LifeCheck® monitoring of up to 10 BLITZDUCTOR® XT or CT.

For monitoring of BXT...EX...modules, TW DRC MCM EX partitions are mandatory in order to ensure the separation distance between intrinsically safe and not intrinsically safe current circuits! A space requirement of at least 14 cm for a partition must be observed (e.g. distance from cable ducts at least 14 cm, DIN rail arranged in the centre).

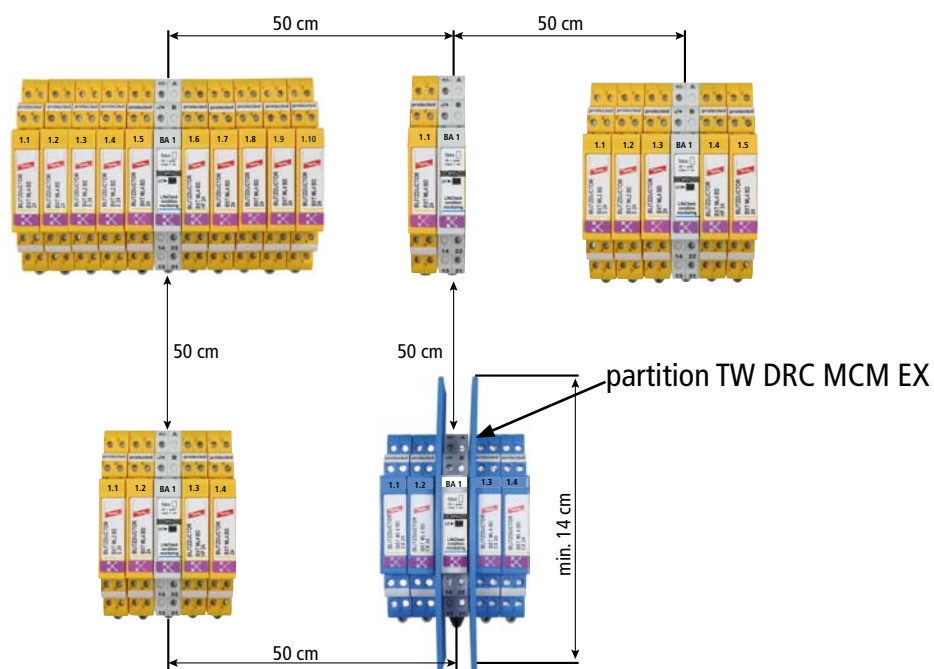
SPDs shall be equally assigned to the monitoring devices.

DRC SCM XT, however, must be arranged preferably in the centre of the assigned SPDs. Reserve plug-in places are to be arranged on the outside. In case of a mixed monitoring of BLITZDUCTOR® XT and CT they shall be arranged according to type each at one side.

Potential sources of interference, e.g. switching system components, providing an RFID similar frequency, also shall be inserted in the minimum distance.

Single device application

DRC SCM XT is only for single device application, i.e. a **minimum distance of 50 cm (all directions)** must be kept between the individual DRC SCM XT, in order to exclude mutual influencing and wrong measurements.



The specified device address 1 (BA1) is applicable for each DRC SCM XT. The assigned SPDs have to be programmed according to the number of SPDs to be monitored.

In addition to the connection of the remote signalling contact the DRC SCM XT only needs a d.c. voltage supply.

7. Wiring

Remove the plug-in module for the wiring to be carried out at the base part.

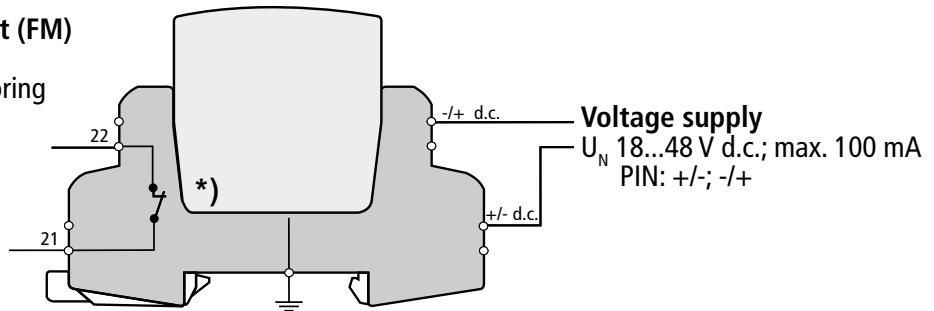
Shown remote signalling contact: Function principle! Contact is integrated in the monitoring module!

Optional remote signalling contact (FM)

Galvanically isolated switch contact integrated in the DRC SCM XT monitoring module.

max. 350 V d.c. / 120 mA
250 V a.c. / 70 mA
300 mW

Pin: 21-22 break contact (nc)



*) Switch contact shown in its normal state (all monitored SPDs are OK), that is supply voltage is applied and the DRC SCM XT module is plugged in.

Note:

Single-core, non-sheathed cables of intrinsically and non-intrinsically safe circuits routed together in conductor bundles or cable ducts must be separated by an intermediate layer of insulating material or an earthed metal intermediate layer in accordance with EN 60079-14. Separation is not required if sheathed cables or cable shields are used in intrinsically and non-intrinsically safe circuits.

7.1 Power supply

Connect the device to d.c. supply at the terminals +/- and -/+ .

Polarity:	any
Nominal voltage (range):	24 (18...48) V _{d.c.}
Max. power consumption:	80 (100...60) mA

Smoothing and residual ripple of the power supply used, have to comply with the nominal voltage range!


7.2 Remote signalling contact

Remote signalling of the monitoring state of each group is possible via the galvanically isolated break contact which is integrated in the DRC SCM XT.

Without power supply the status of the FM contacts is at "Replace SPD".

8. Configuration

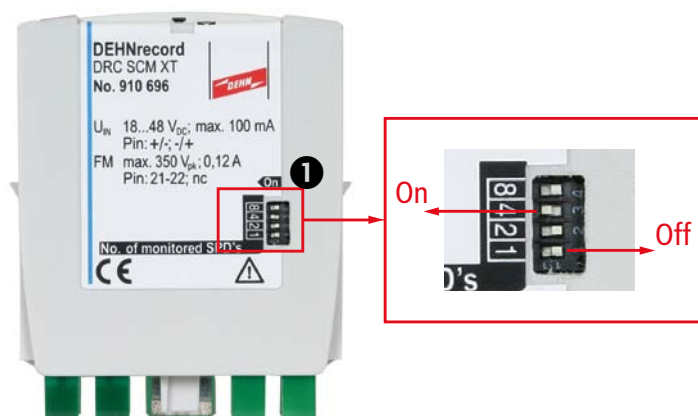
The plug-in module must be removed for settings/changes of the device configuration.

When delivered all DIP switches are set to OFF. When starting operation therefore error is indicated  (inadmissible configuration).

8.1 Number of SPDs to be monitored

The maximum number of 10 SPDs to be monitored is set laterally by 4 DIP switches ❶. On starting operation, the LED indicates error when setting 0 or >10.

DIP switch				
State when delivered	0			
Admissible range	1...10			
Configuration	Binary by setting of the corresponding number, e.g. 10 (=8+2)			
	8	4	2	1
	On	Off	On	Off



8.2 Device address/Group No.

The device address is also used as group no. of the assigned SPDs. It is internally set to 1 and can not be changed.

The code for the SPDs to be programmed consists of the group no. and the consecutive position no. within the monitoring group: Group number. Position number. As the group number is preset to 1, only the position number varies. The code of an SPD at position five within the monitoring group thus is: 1.5 (see also 9. Programming of SPDs).

9. Programming of SPDs

When delivered, the Blitzductors® XT and CT can not be used with a DRC SCM XT monitoring device. The SPDs will be assigned to the respective DRC SCM XT only by a corresponding programming of the RFID transponders in the SPDs.

When programming the SPDs, a definite code which includes the device address/group number of the assigned monitoring device (fixed 1) as well as the consecutive number of corresponding Blitzductor within the group is generated for every transponder and deposited there. In operation the SPD then only responds to questions which include the code.

There are two possibilities of programming:

Direct programming at the DRC SCM XT monitoring device

Offline programming via handheld DRC LC M3+ reader

9.1 Direct programming at the DRC SCM XT monitoring device

SPDs are programmed via the SHOW mode of the DRC SCM XT. The mode is automatically started if non-existent SPDs or SPDs to be replaced are detected during a LifeCheck test. This function also allows for programming of SPDs with LifeCheck which are in the state as delivered, directly in the installation without further auxiliaries.

Faulty SPDs can be easily replaced in case of maintenance or be programmed and inserted on site at the initial commissioning of a system. At initial commissioning, the first LifeCheck test should be aborted after the boot up by pressing button (see also 13.1 Abort of an ongoing test), the SHOW mode then is immediately implemented (when delivered the monitoring status is set to "Replace all SPDs").

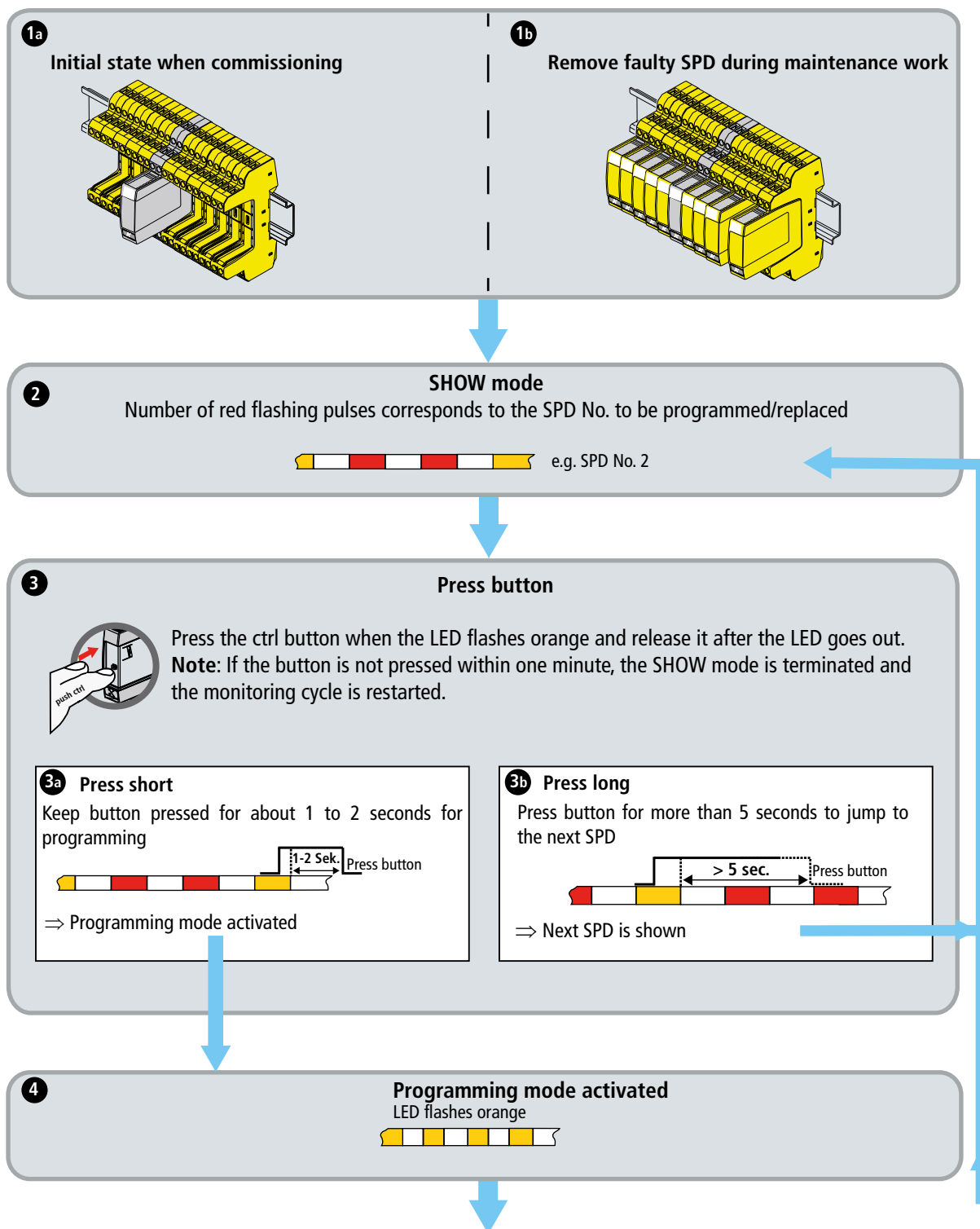
The SPDs are programmed via the button at the DRC SCM XT monitoring device and the LED status indication. In the SHOW mode, the number of the first SPD to be programmed or replaced is indicated by the number of red flashing pulses of the LED.

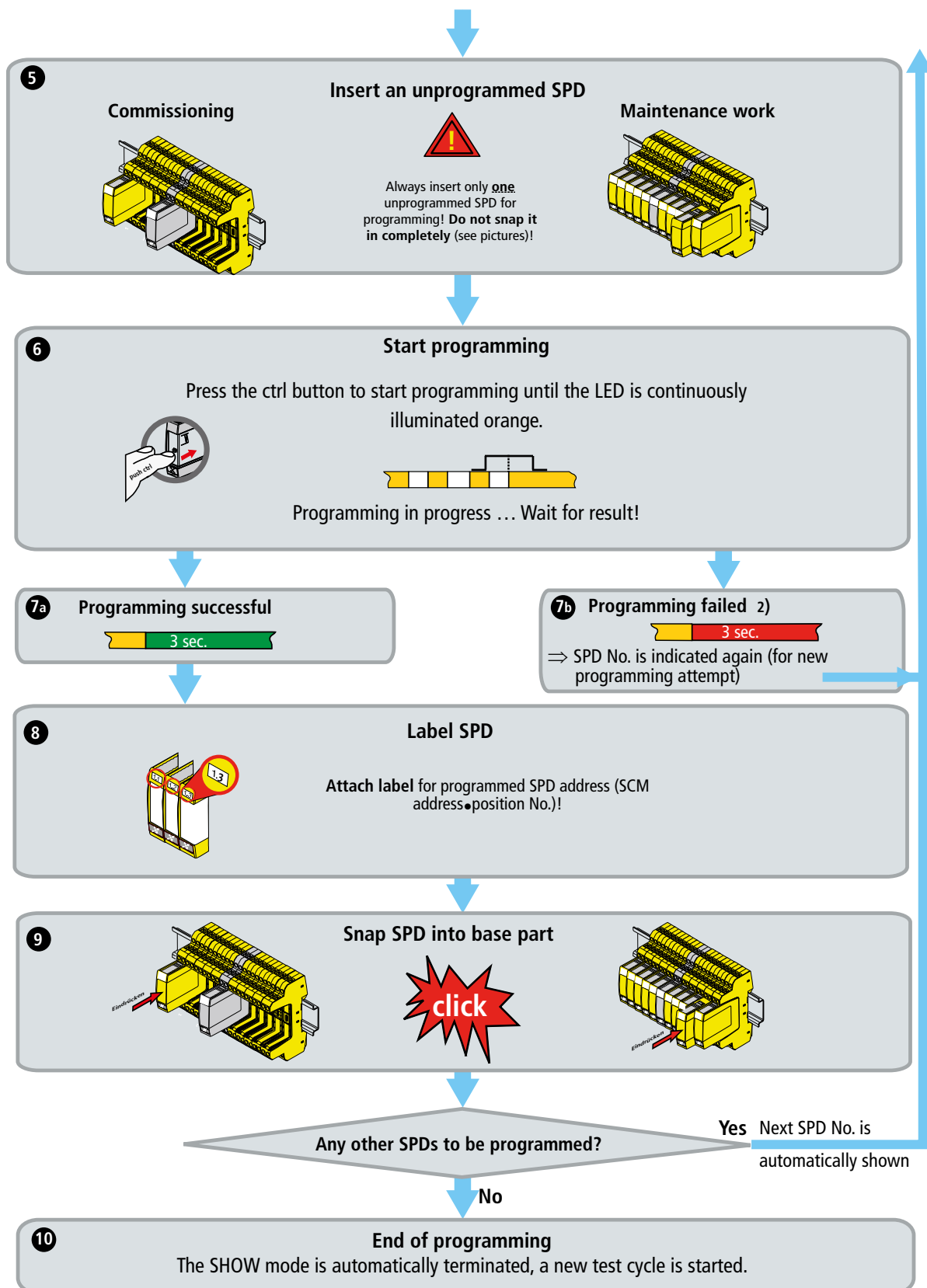
The following flowchart describes the programming of SPDs via the DRC SCM XT monitoring device. Observe that only one unprogrammed SPD is in the base part for programming and all other unprogrammed SPDs are located at least 50 cm away from the monitoring device. Only this ensures that always just one SPD is programmed with the corresponding code.

Flowchart of SPD programming



Note: An ongoing LifeCheck test can be manually aborted by pressing the ctrl button (see also 13.1 Abort of an ongoing test).



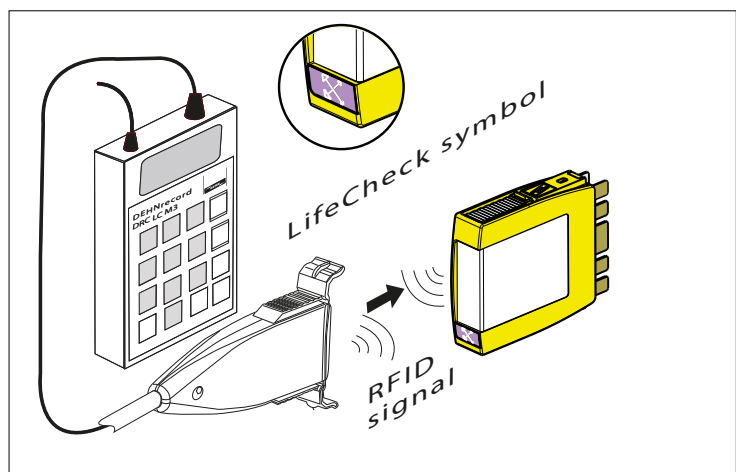


2) see 18. Problems / Possible solutions





9.2 Offline programming by DRC LC M3+ handheld reader

Description Offline programming via DRC LC M3+ - Part 1	Handheld reader display
<p>Programming of SPDs for stationary monitoring without DRC SCM XT is possible via the handheld reader DRC LC M3+. Minimum requirement is a 1.1.02 version of DRC LC M3.</p> <p>For updating of the device software use the PC software DRC SW Update. Device software is available for downloading under www.dehn.de/download/. For closer details on the device update please see the operating manual for the handheld reader. ^{12/}</p>	
<p>Programming of the SPDs and all other functions for the SPDs in relation to the DRC SCM XT and DRC MCM XT are collected at the DRC LC M3+ under the DRC MCM mode:</p> <p>Selection of the submenu for programming of SPDs</p>	<div> <div>Mode < - > DRC MCM</div> <div>OK ✓</div> </div> <div>Menu selection</div> <div>← →</div>
<p>Use the submenu item "SPD programme" for programming. After confirmation enter at first the device address "01" of the SCM and the consecutive number of the Blitzductor to be programmed.</p> <p>Use the blue arrow keys to change between entering the device address and the SPD number.</p>	<div> <div>DRC MCM: SPD programme</div> <div>OK ✓</div> </div> <div> <div>ADR=01 SPD=01 SPD prog. -> OK</div> <div>0 ... 9</div> <div>← →</div> </div>

The modules must be removed for individual programming.



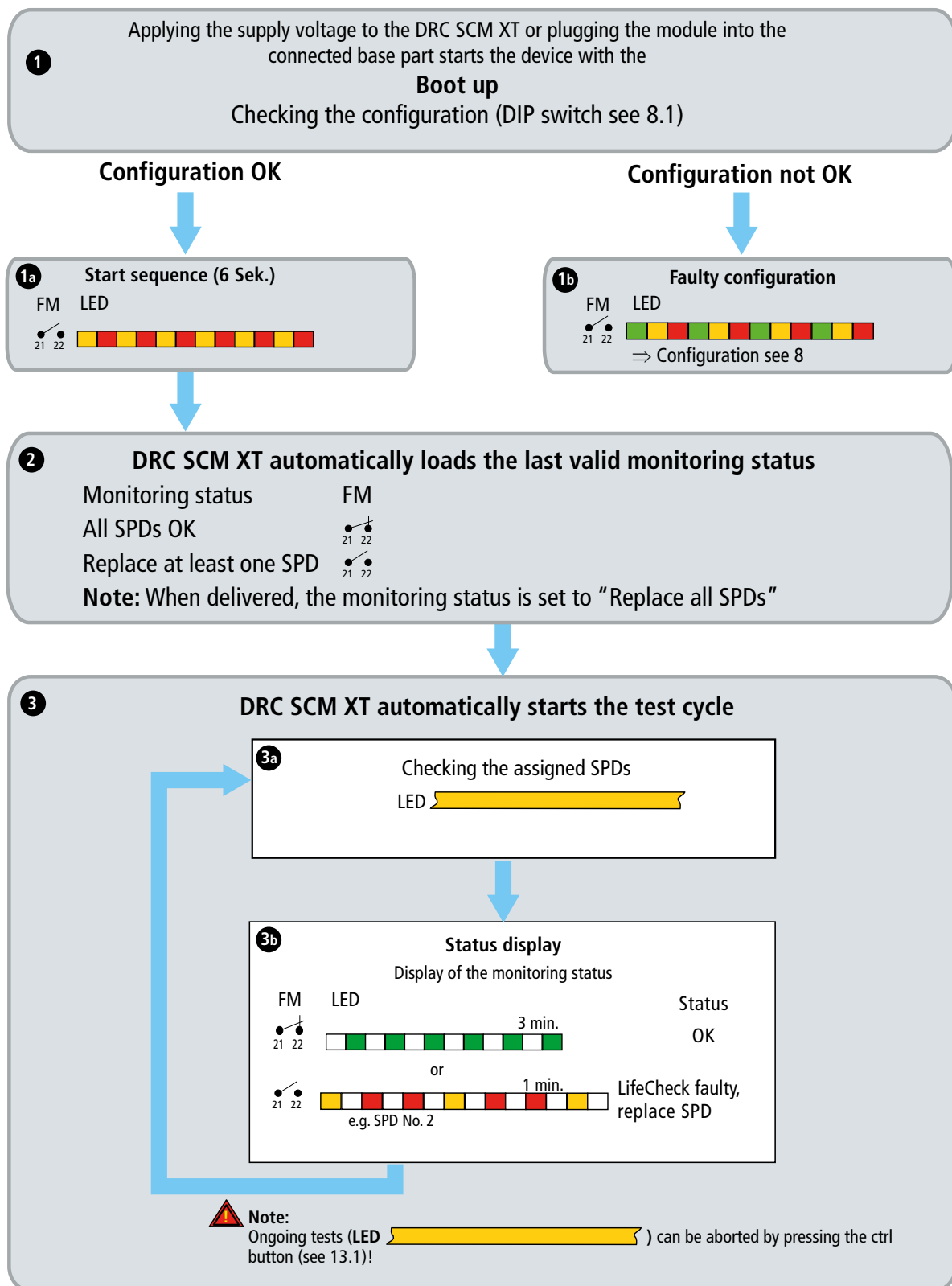
Note: During the programming there must not be any other unprogrammed SPD within a distance of 50 cm from the LifeCheck sensor!

Description Offline programming via DRC LC M3+ - Part 2	Handheld reader display
Snap the sensor of the DRC LC M3+ on the SPD to be programmed before programming.	<div data-bbox="1074 259 1337 338" style="border: 1px solid black; padding: 2px;"> ADR=01 SPD=01: SPD prog. --> OK </div> <div data-bbox="1361 275 1409 327" style="border: 1px solid black; padding: 2px; text-align: center;">OK ✓</div>
Do not remove the sensor from the SPD during the programming.	<div data-bbox="1074 365 1337 443" style="border: 1px solid black; padding: 2px; text-align: center;"> -Programming- Please wait! </div>
The programming result is indicated as LifeCheck OK or replace SPD. ³⁾ If the programming fails again, it has to be checked, perhaps the SPD is already programmed. Use the submenu „Check/Search“ to find it out. ³⁾	<div data-bbox="1074 472 1337 551" style="border: 1px solid black; padding: 2px;"> LifeCheck OK ADR=01 SPD=01 </div> <div data-bbox="1361 488 1409 539" style="border: 1px solid black; padding: 2px; text-align: center;">OK ✓</div>
Confirming the result automatically leads to the next consecutive number within the group, which provides a quick progress, or a consecutive number may also be set via the number keys. (Use the blue arrow keys to change between device address and SPD number!)	<div data-bbox="1074 616 1337 694" style="border: 1px solid black; padding: 2px;"> ADR=01 SPD=02 SPD prog. -> OK </div> <div data-bbox="1361 631 1409 683" style="border: 1px solid black; padding: 2px; text-align: center;">OK ✓</div>
Label programmed SPDs immediately! With the consecutive number (1,2,...,9,10) or in connection with the group no./device address of the DRC SCM XT (1.1,...,1.10)!	
<p>Programming can be checked by checking the SPDs in the submenu "Check/Search".</p> <p>Enter device address and number of SPDs to be monitored.</p> <p>Select submenu "Check SPD"  </p> <p>Snap the LifeCheck sensor on the SPD and start checking  </p>	<div data-bbox="1074 940 1337 1019" style="border: 1px solid black; padding: 2px;"> DRC MCM: Check/Search </div> <div data-bbox="1361 956 1409 1008" style="border: 1px solid black; padding: 2px; text-align: center;">OK ✓</div> <div data-bbox="1361 1025 1449 1059" style="border: 1px solid black; padding: 2px; text-align: center;">0 ... 9</div> <div data-bbox="1074 1048 1337 1126" style="border: 1px solid black; padding: 2px;"> Configuration ADR=01 SPD=10 </div> <div data-bbox="1361 1070 1449 1104" style="border: 1px solid black; padding: 2px; text-align: center;">← →</div> <div data-bbox="1361 1122 1409 1173" style="border: 1px solid black; padding: 2px; text-align: center;">OK ✓</div> <div data-bbox="1074 1176 1337 1254" style="border: 1px solid black; padding: 2px;"> Check SPD ADR=01 10*SPD </div> <div data-bbox="1361 1196 1409 1247" style="border: 1px solid black; padding: 2px; text-align: center;">OK ✓</div> <div data-bbox="1074 1279 1337 1357" style="border: 1px solid black; padding: 2px;"> ADR=01 SPD=01 Check SPD -> OK </div> <div data-bbox="1361 1294 1409 1346" style="border: 1px solid black; padding: 2px; text-align: center;">OK ✓</div>
Do not remove the sensor from the SPD during the test!	<div data-bbox="1074 1411 1337 1489" style="border: 1px solid black; padding: 2px; text-align: center;"> -Checking- Please wait! </div>
The result of the LifeCheck test is shown as LifeCheck OK or replace SPD. ³⁾ Check the status of the removed SPD with the DRC LC M3+ handheld reader, if testing fails repeatedly. ³⁾	<div data-bbox="1074 1543 1337 1621" style="border: 1px solid black; padding: 2px;"> LifeCheck OK ADR=01 SPD=01 </div> <div data-bbox="1361 1559 1409 1610" style="border: 1px solid black; padding: 2px; text-align: center;">OK ✓</div>
After successfully programming of all SPDs, the stationary DRC SCM XT monitoring device can be started.	



Note: Deviating scope of function and programming sequence when using the DRC LC M3 handheld reader, observe Operating manual BA 1670/V.1.1.0.1 "Extension for the Stationary Monitoring Device DRC MCM XT"!

³⁾ See Operating Manual DRC LC M3+ /1/

10. Commissioning of DRC SCM XT







Monitoring of the SPDs by the DRC SCM XT is automatically started as soon as the testing for admissible configuration and the start sequence is terminated.

Commissioning is successful and can be terminated, if the assigned SPDs are checked  and DRC SCM XT shows that the monitoring status  of all SPDs is OK.

Attention! If the configured number of SPDs wrongly is lower than the existing SPDs to be monitored, this can not be recognised by the device, this means SPDs with No. $n >$ than the configured number are not checked!

11. Monitoring Status

The status of the monitoring group is redetermined with every complete checking  and visually indicated by LED and remote signalling contact (FM).
Two states may be shown:

	LED	FM 21-22, nc
<i>All SPDs OK</i>		
<i>Replace at least one SPD</i>	 <small>First SPD No., (here e.g. SPD No. 2)</small>	

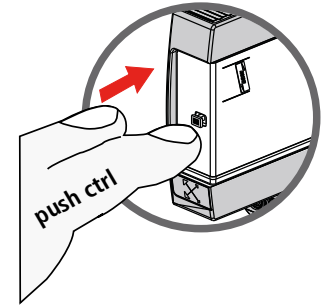
The updating rate of a DRC SCM XT monitoring status mainly depends on the number of SPDs which are determined for replacement.

For a DRC SCM XT with 10 assigned SPDs which are all OK, it is typically 15 seconds.
Another 75 seconds are necessary for every single faulty SPD. In the worst case, checking in case of 10 faulty SPDs would last approx. 13 minutes.

If a running check has to be aborted, the test sequence may be interrupted by pressing the ctrl button at the DRC SCM XT (until LED goes out for a short time) (see 13.1 Abort of an ongoing test cycle).

12. Maintenance at Monitoring Status Replace SPD


In order to avoid system downtimes, the SPD monitoring device already generates the *"Replace SPD"* monitoring status in case of an imminent fault due to inadmissible overload. Both thermal (overheating) and electrical (impulse current) occurrences are registered.

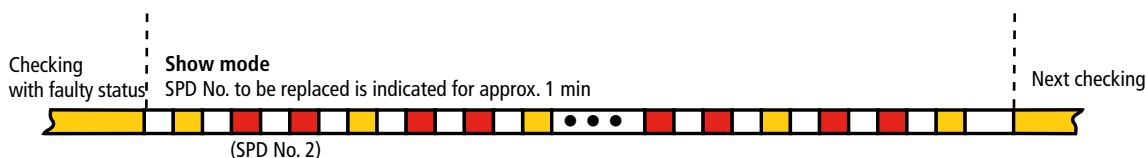


The DRC SCM XT records the overload or a pre-damage at an assigned SPD and signals the *"Replace SPD"* monitoring status via LED and remote signalling contact. The SPD to be replaced can be exactly located as follows:

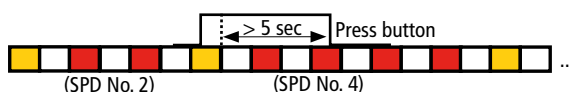
12.1 On-site determination by pushbutton function at the DRC SCM XT

The **SHOW mode** is used to indicate SPDs to be replaced/faulty on site without any other auxiliaries.

It is called up automatically if the monitoring status shows "Replace at least 1 SPD". The SPD No. of the first SPD to be replaced is indicated. In the following test cycle  e.g. SPD No. 2 and SPD No. 4 are determined as faulty:

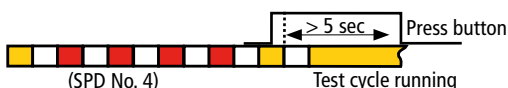


Pressing the button long when the LED flashes orange leads on to the next SPD No. to be replaced;




Is indicated for 1 minute without pressing the button.

If no other SPD must be replaced, the Show mode is finished and a new test cycle is automatically started.



In addition to the indication function also programming of SPDs is possible in the Show mode (see 9.1 Direct programming at the monitoring device)

If, however, all assigned SPDs are OK, the status "All SPDs OK" is indicated for 3 min. . During this time the button provides no function.



12.2 Offline determination by handheld reader DRC LC M3+

A documentation or labelling is not necessary for the on-site checking and identification of SPDs to be replaced when using the handheld reader DRC LC M3 (version state > 1.1.02 dated 2008/05/28) or the succeeding device DRC LC M3+ (version state > 1.2.00 dated 2009/08/04).
















Prerequisite is the deactivation of the monitoring device for the group to be tested, i.e. it is just locked out and removed from the base part.



Offline determination of SPDs to be replaced by DRC LC M3+ handheld reader:

Description Offline determination via DRC LC M3+ - Part 1	Handheld reader display
Under the menu item DRC MCM at the DRC LC M3+ , the checking of SPDs and all other functions for the protective devices in connection with the stationary reader are summarised: ³⁾	<div data-bbox="1043 976 1307 1055">Mode <-> DRC MCM</div> <div data-bbox="1331 987 1378 1043">OK ✓</div>
Before checking, the fixed device address /group no. (ADR=01) and the number of SPDs in the group which is going to be tested must be entered in the configuration, once when starting the DRC LC M3+ or in case of changes. Change between bus address and number of SPDs with  	<div data-bbox="1043 1133 1307 1211">DRC MCM: Check/Search</div> <div data-bbox="1331 1144 1378 1200">OK ✓</div> <div data-bbox="1043 1223 1307 1301">Configuration ADR=01 SPD=10</div> <div data-bbox="1331 1223 1378 1279">← →</div> <div data-bbox="1331 1279 1378 1335">OK ✓</div> <div data-bbox="1043 1335 1307 1413">Check SPD ADR=01 10*SPD</div> <div data-bbox="1331 1346 1378 1402">← →</div>
Whenever the configuration is called up, the status of the group, available under DRC MCM Status is reset to untested. There are three kinds of status: <ul style="list-style-type: none"> - untested 1 SPD OK 0 Replace SPD Configuration of the display is increasing from left to right, starting with the consecutive No. 1 up to the configured number.	<div data-bbox="1043 1469 1307 1547">MCM status ADR=01 10*SPD</div> <div data-bbox="1331 1480 1378 1536">OK ✓</div> <div data-bbox="1043 1592 1307 1671">MCM ADR=01 1 1 0 1 1 0 - - - -</div> <div data-bbox="1331 1603 1378 1659">OK ✓</div> <div data-bbox="1331 1659 1378 1715">← →</div>
Use the DRC LC M3+ menu item Check SPD for checking the Individual SPDs	<div data-bbox="1043 1727 1307 1805">Check SPD ADR=01 10*SPD</div> <div data-bbox="1331 1738 1378 1794">OK ✓</div>
The device address/group No. (ADR=01) is automatically taken from the configuration. Use the arrow keys for selecting the consecutive number of the SPD to be tested. Both numbers are the necessary code for calling up the SPD.	<div data-bbox="1043 1850 1307 1928">ADR=01 SPD=01 Check SPD ---> OK</div> <div data-bbox="1331 1861 1426 1917">4 6 ← →</div>

³⁾ See operating manual DRC LC M3+ . /1/

Description Offline determination via DRC LC M3+ - Part 2	Handheld reader display
Snap the sensor of the DRC LC M3+ on the SPD to be checked before starting the test cycle	
Do not remove the sensor from the SPD during the test cycle.	
The test result is shown as LifeCheck OK or Replace SPD and the status is updated. ³⁾	
Confirming the result automatically leads to the next consecutive number of the group.	  
This ensures a quick process, because with the next pressing of  another test can be started after applying the sensor on the corresponding SPD of the antenna. Press the  button for aborting the menu.	 
<p>The menu item Status shows a survey of already carried out tests.</p> <p>There are three kinds of status:</p> <ul style="list-style-type: none"> - untested 1 SPD OK 0 Replace SPD <p>Configuration of the display increases from left to right, starting with the consecutive No. 1 up to the configured number. Whenever the menu item Configuration is called up, the status is reset.</p>	   
<p>Remove the localised SPDs to be replace, probably verify the test in the unplugged state, programme the corresponding replacement⁵⁾ and insert the labelled SPD.</p> <p>Finally start the monitoring again by plugging the monitoring device in. Check the monitoring for all devices to show the OK status.</p>	

Note: Deviating scope of function and test procedure with the DRC LC M3 handheld reader, observe operating manual BA 1670/V1.1.0.1 "Extension for the Stationary Monitoring Device DRC MCM XT"!


3) See operating manual DRC LC M3+ - /1/

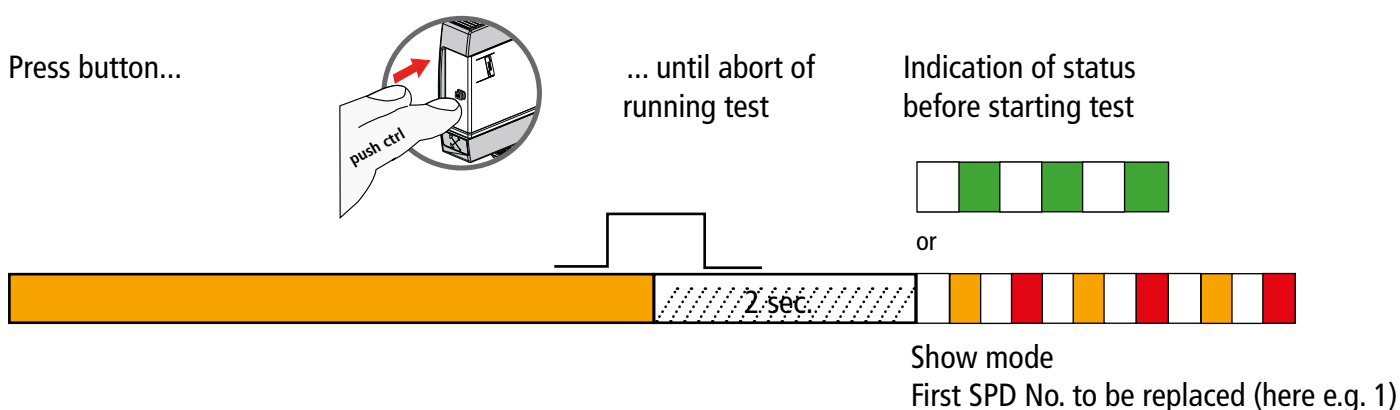
5) See 9.2 Offline programming via handheld reader DRC LC M3/M3+

13. Other Functions of the DRC SCM XT

In addition to the described functionality of the DRC SCM XT other useful functions are available.

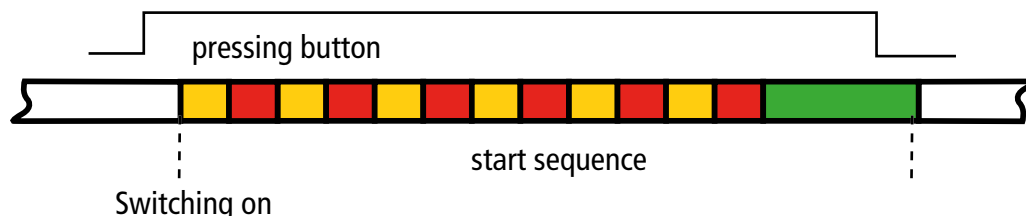
13.1 Abort during an ongoing test cycle

An ongoing test cycle () of a monitoring group may be aborted by pressing the button at the DRC SCM XT. It can take up to 30 seconds until pressing the button is identified for abort. Abort is accepted as soon as the LED goes out for 2 seconds. After abort of the test cycle, the last valid status of the monitoring group is shown (= status before starting the test, i.e. the status reached before aborting the test cycle is neglected).



13.2 Restore of factory setting / of status when delivered

This function resets the internal fault and status memory and the monitoring status to „Replace all SPDs“. For this purpose, press the button at the device already while switching on the power supply or when plugging it into the base part, and keep it pressed until the LED shows green light after the start sequence.

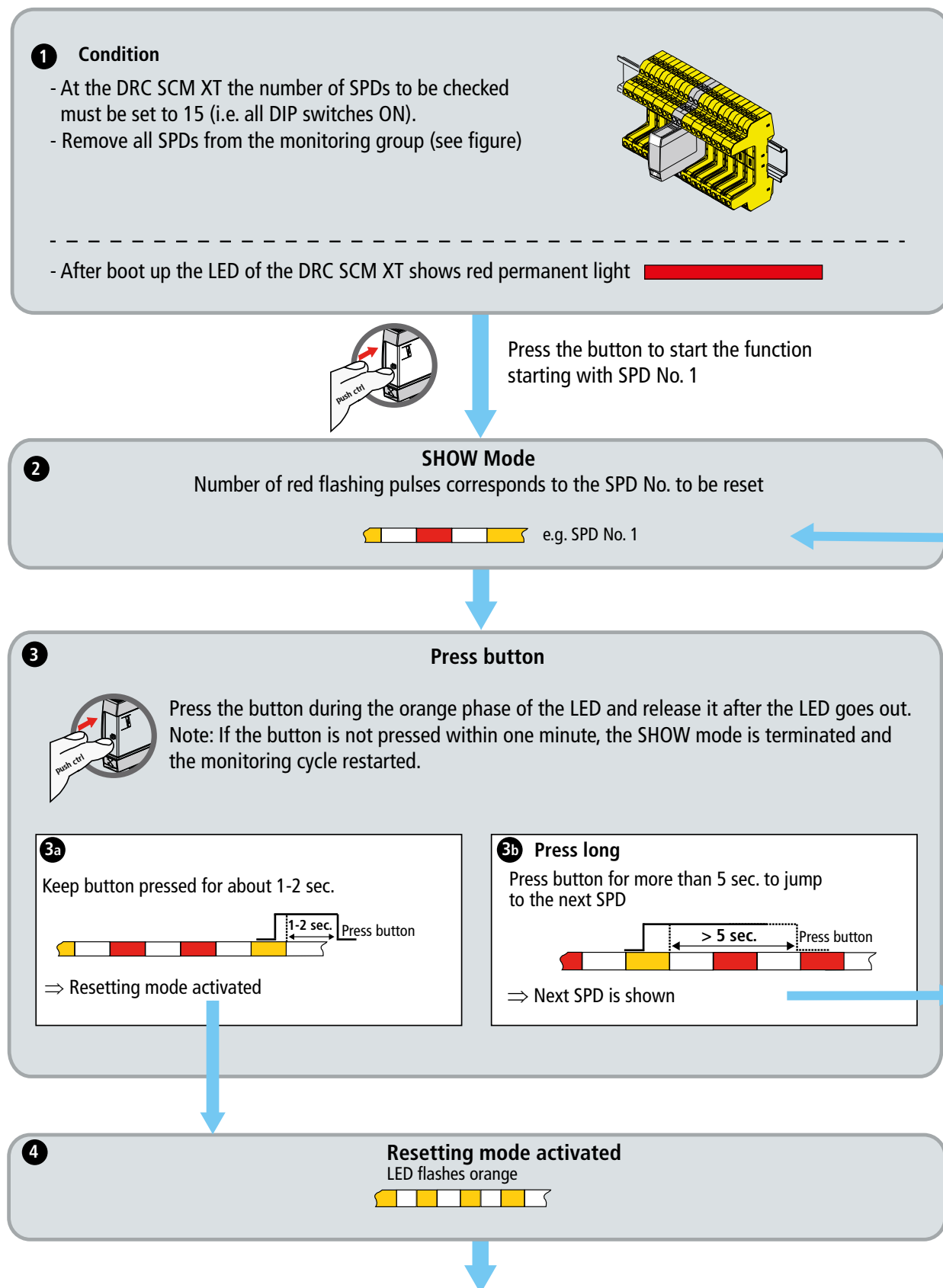


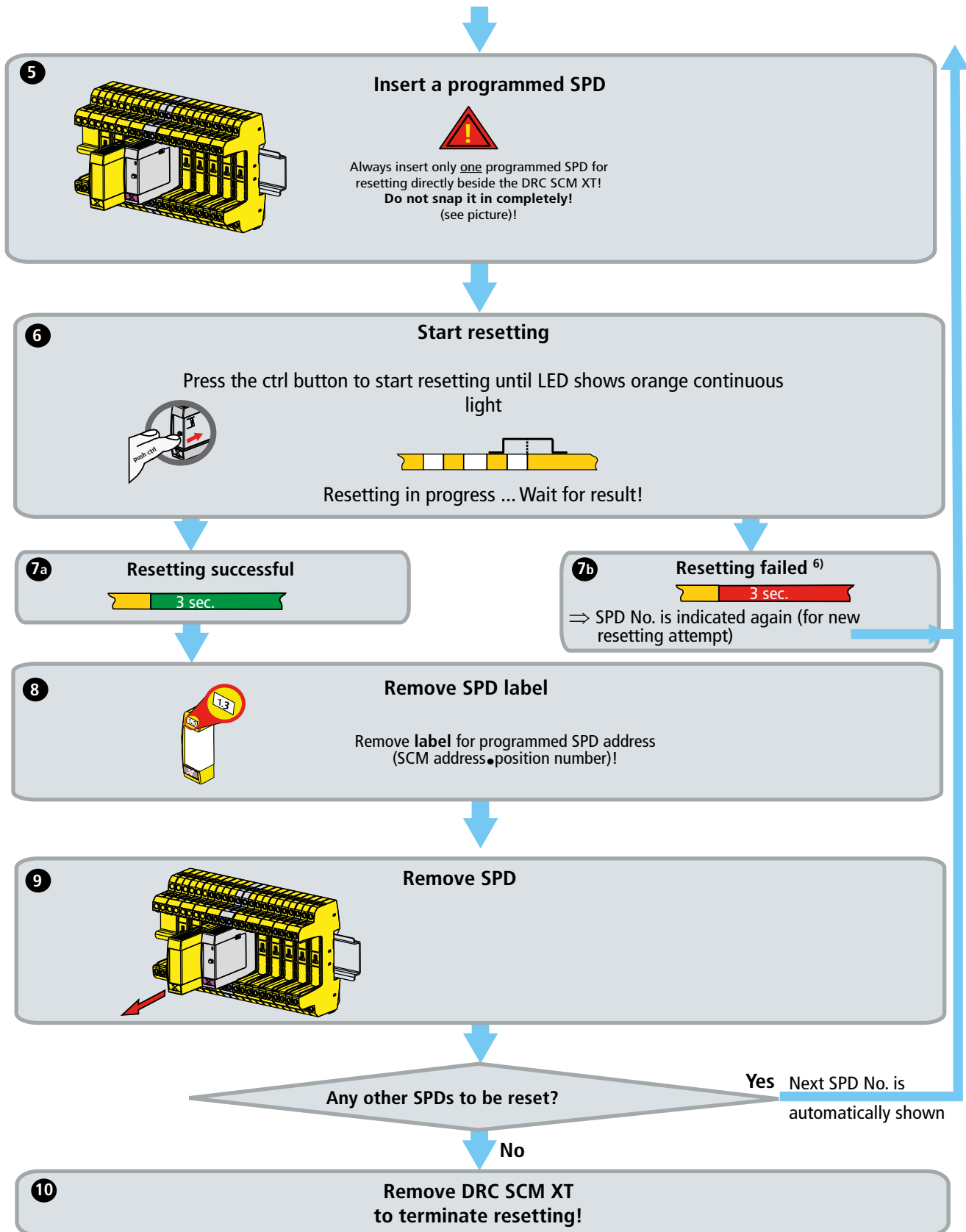
Note: May be used for purpose that in the SHOW mode all SPD Nos $n >$ are available for programming again. ⁴⁾

⁴⁾ See 9.1 Direct programming at the DRC SCM XT monitoring device

13.3 Resetting of SPDs

A reset function is implemented in order to reset the programming of SPDs with device address / group No. and SPD No. also without auxiliary (handheld reader DRC LC M3/M3+).





Note: Remove unprogrammed or reset SPDs from the monitoring group!

6) See 18. Problems / Possible Solutions

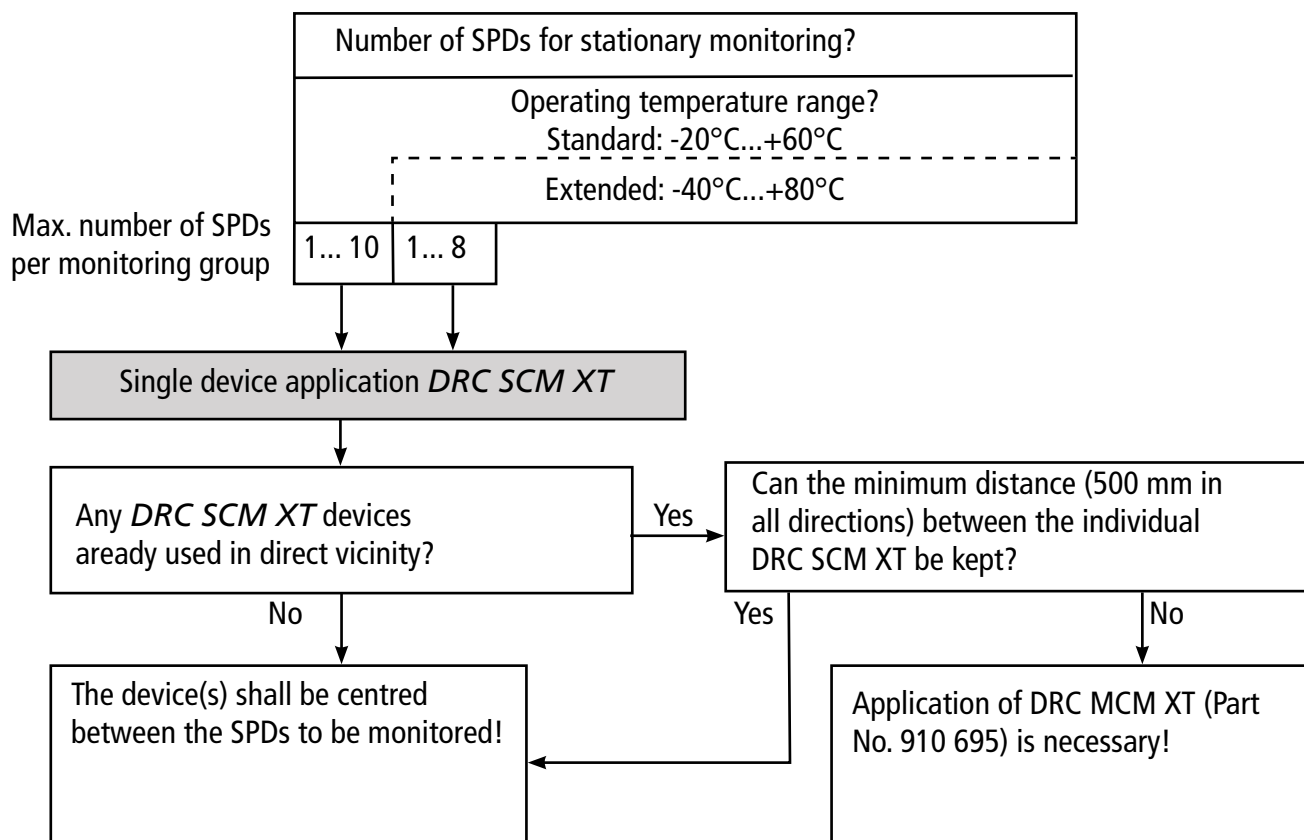
14. Technical Data

	Technical parameters	DRC SCM XT
Power supply	Nominal voltage (adm. range) U_N	24 (18...48) V _{DC}
	Nominal current consumption I_N	80 (100...60) mA
	Insulation	none, GND indirectly earthed
	Terminal designation at the base part	+/- ; -/+
	Screw terminal at the base part	0.08...2,5 mm ² stranded 0.08...4 mm ² solid
	Polarity	any
	Integrated polyswitch fuse	0.3 A; 60V; I_{BR} max. 10A
LifeCheck monitoring of SPDs	Number of SPDs	1...10 (see operating temperature range)
	Configuration of the number (adm. range)	laterally, via DIP switch (1...10)
	Arrangement of the device	centred between the SPDs
	Monitoring principle	cyclic request
	Monitoring parameters	RFID 125 kHz
	Typical time until first checking after commissioning: Start sequence	6 seconds
	Test cycle (1 SCM with 10 SPDs)	typ. 15 sec. (all OK) + approx. 75 sec. for every faulty SPD
Remote signalling contact (FM)	Type	potential-free break contact
	Max. switching parameters	max. 300 mW, 350 V d.c. each; 120 mA 250 V a.c. each; 70 mA
Monitoring status	Insulation	1500 V _{AC}
	Terminal designation at the base part	21 ; 22 (contact 1, break contact, nc)
	Screw terminal at the base part	0.08...2,5 mm ² stranded 0.08...4 mm ² solid
Ambient conditions	Operating temperature range	standard -20 ... +60 °C (1...10 SPD) extended -40 ... +80 °C (1...8 SPD)
	Location / Altitude	up to max. 2000 m, if $U_{FM} > 33 V_{rms}$ or 70 V _{d.c.} above 2000 m, if $U_{FM} < 33 V_{rms}$ or 70 V _{d.c.}
Installation	on	35 mm DIN rail in accordance with EN 60715, metallic
	Minimum distance device to device (all directions)	500 mm
Enclosure material		Polyamide PA 6.6 (elektrograu, RAL 7036)
Degree of protection		IP 20
Dimensions	Type	BLITZDUCTOR® XT design
	Width (DIN 43880)	12 mm (2/3 modules)
	Depth without terminals	90 mm
	Height above DIN rail	66 mm
Weight		62 g

	Technical parameters	DRC SCM XT
Standards	Safety (electrical equipment)	EN 61010 – 1
	EMC - immunity (industry) - interference (residential area) ERM	EN 61000 – 6 – 2 EN 61000 – 6 – 3 ETSI EN 300330-1
Settings when delivered	Number of SPDs to be monitored Device address/group no.	DIP_switch = 0 1 (fixed)

	DRC SCM XT	
Scope of delivery	Plug-in module with base part	
	Quick guide	Publication 1809
	1 labelling system	BS BA1 2x adhesive labels printed with device address BA1 and SPD Nos. 1.1-1.10
Accessory	Ex I partition	TW DRC MCM EX, Part No. 910 697

15. Projecting/Instructions for Use



16. Safety Instructions

Only electrically skilled persons are allowed to connect and install the device. The national rules and safety regulations must be observed.

Prior to installation, the DRC SCM XT must be visually examined for signs of damage. If the device has any damage or other defect, it must not be installed.

The device may only be used under the conditions shown and referred to in these installation instructions.

Loads above the values indicated can lead to the destruction of the DRC SCM XT and the electrical equipment connected.

Do not attempt to tamper with or modify the device in any way as this will void warranty.

Risk of injuries may be caused by high DRC SCM XT surface temperatures during the operation at ambient temperatures of +40°C ... +80°C.

Configuration of the device(s) with the number of SPDs to be monitored (via DIP switch) shall be carried out conscientiously in order to avoid that SPDs are not checked (in case of a too low set number)!

17. Maintenance and Care

17.1 Software update

Update of the device software is only possible at the manufacturer.

17.2 Cleaning

The monitoring module has to be removed and the base part has to be disconnected and removed. For cleaning the device, only use a soft cloth lightly moistened with water. Humidity getting into the device has to be absolutely avoided.

17.3 Transport and storage

Transport and storage shall not impair the application characteristics of the DRC SCM XT. The original packing shall be used.

Storage:




- In closed rooms
- Relative humidity < 85 %
- Temperature -40°C up to +80°C
- No direct sun light
- Keep the device dry and protect it from pollution.

17.4 Disposal




The device is covered by the European Directive 2002/96/EC on Waste Electrical and Electronic Equipment (WEEE) and should be disposed of for reuse in line with current legislation!

18. Problems/Possible solutions

Description of problem	Causes of error / Possible solutions
LED not illuminated/flashing after plugging the module into the base part.	Current supply is faulty - Check the terminals! - Check the supply voltage!
LED only flashes 	Error display, inadmissible/ wrong configuration - Check setting of the DIP switches (number of SPDs configured), laterally at the device! Admissible ranges of values: -- Number of SPDs to be checked: 1...10
Monitoring status "permanently" shows "Replace SPD"  SPD No. of the first SPD to be replaced is displayed (e.g. 2) within the Show function.	Any checking  carried out at all? - Orange LED flickers during the check? - Check the power supply (voltage range, admissible output current, smoothing)! Get an overview of all SPDs which are indicated as "faulty" (via button function, via DRC LC M3+ handheld reader)! - If e.g., all or only the high consecutive numbers of the SPDs to be monitored are shown as to be replaced, there may be a basic problem! -- Is the configuration of bus address / group no. and number of SPDs to be monitored correct? -- Are all SPDs programmed? One single unprogrammed SPD means that other SPDs are also shown as "fault"!

Description of problem	Causes of error / Possible solutions
<p>You do not know, whether and how the SPD is programmed</p>	<ul style="list-style-type: none"> - By means of the DRC LC M3+ handheld reader, checking for unprogrammed SPDs (Standard LC: quick check of the interval test), or a search function for programmed SPDs is possible (menu: DRC MCM; Check or search SPD), which, however, may take rather long time, if the group no. is unknown also. Possibly increase the number of SPDs to be searched to the max. number of 10 and repeat searching. - Without handheld reader only with the DRC SCM XT monitoring device, the programming fault may be limited by a logical screening. <ol style="list-style-type: none"> 1. Unplug all SPDs from the monitoring device/system. 2. Unplug DRC SCM XT and replug it by keeping the button pressed for at least 5 seconds until LED is illuminated green (=Restart with basic mode). 3. Abort measuring/test by button, SPD No. 1 to be replaced is shown. 4. Programme all SPDs consecutively, (according to the labelling), individually each (without being snapped in completely), directly near the DRC SCM XT. <ol style="list-style-type: none"> 4.1 Programming is OK, continue with the next SPD until at best all SPDs have been programmed again. 4.2 Programming is faulty (also if repeated several times), i.e. SPD programmed unlike of labelling. Programme all other SPDs at this number regardless of the labelling until the corresponding one is found (programming OK) and label correctly. Continue with the next SPD. If you are not successful, try to reset the SPD(s), however, only after the attempt of reprogramming all SPDs. 5. The correctly programmed and labelled SPDs shall not be reset before they shall be programmed again (see resetting of SPDs in case of wrong programming). <p>Labelling of DRC SCM XT <u>and</u> SPDs is urgently recommended!</p>
<p>The handheld reader does not support any functions with regard to DRC MCM XT. (Menu: DRC MCM)</p>	<p>Check the version of device! Only the handheld reader DRC LC M3+ Part No. 910 653 is equipped with the corresponding software functionality. At least necessary state of the DRC LC M3+ providing current DRC MCM XT functions: V1.2.0.0 04.08.09</p>

Description of problem	Causes of error / Possible solutions
<p>Resetting of wrongly programmed SPDs</p>	<p>If the programming is known, an SPD may be specifically reset by the DRC SCM ST, otherwise resetting of the SPD can only be tried on every SPD No. 1...10 in order to cancel a programming.</p> <p>Steps to reverse the programming of SPDs:</p> <ol style="list-style-type: none"> 1. Remove all SPDs from the monitoring device/ system. 2. Unplug the DRC SCM XT and plug it in again with a configuration of all DIP switches ON (corresponding number 15 of SPDs to be monitored). After the boot up phase the LED is continuously illuminated red. 3. Start the resetting mode by pressing any button. SPD No. 1 is displayed for the resetting. 4. Press the button long for switching on to the next SPD No., until the required No. is shown (same operation for programming). 5. Insert the SPD to be reset individually, directly beside the DRC SCM XT (without snapping in completely) and start the procedure with a short pressing of the button. <p>5.1 If programming of the SPD was known, resetting is finished with the OK being displayed.</p> <p>5.2 If programming of the SPD was unknown, resetting has to be repeated with every SPD No. 1...10, before reprogramming.</p>
<p>Is it possible to abort a checking, or shall it be finished to get an access via button function?</p> 	<p>The running test may be interrupted by pressing any button. Press the button (max. 30 sec.) until the LED goes out. The determined incomplete monitoring status is left unconsidered. After pressing the button again, the respective button function may be carried out.</p>
<p>SPD can not be programmed at the corresponding position.</p>	<p>Repeat programming at the innermost position (beside the DRC SCM XT).</p> <p>Attention! Do not snap in the SPD, only insert it partly!</p>

**Surge Protection
Lightning Protection / Earthing
Safety Equipment**

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