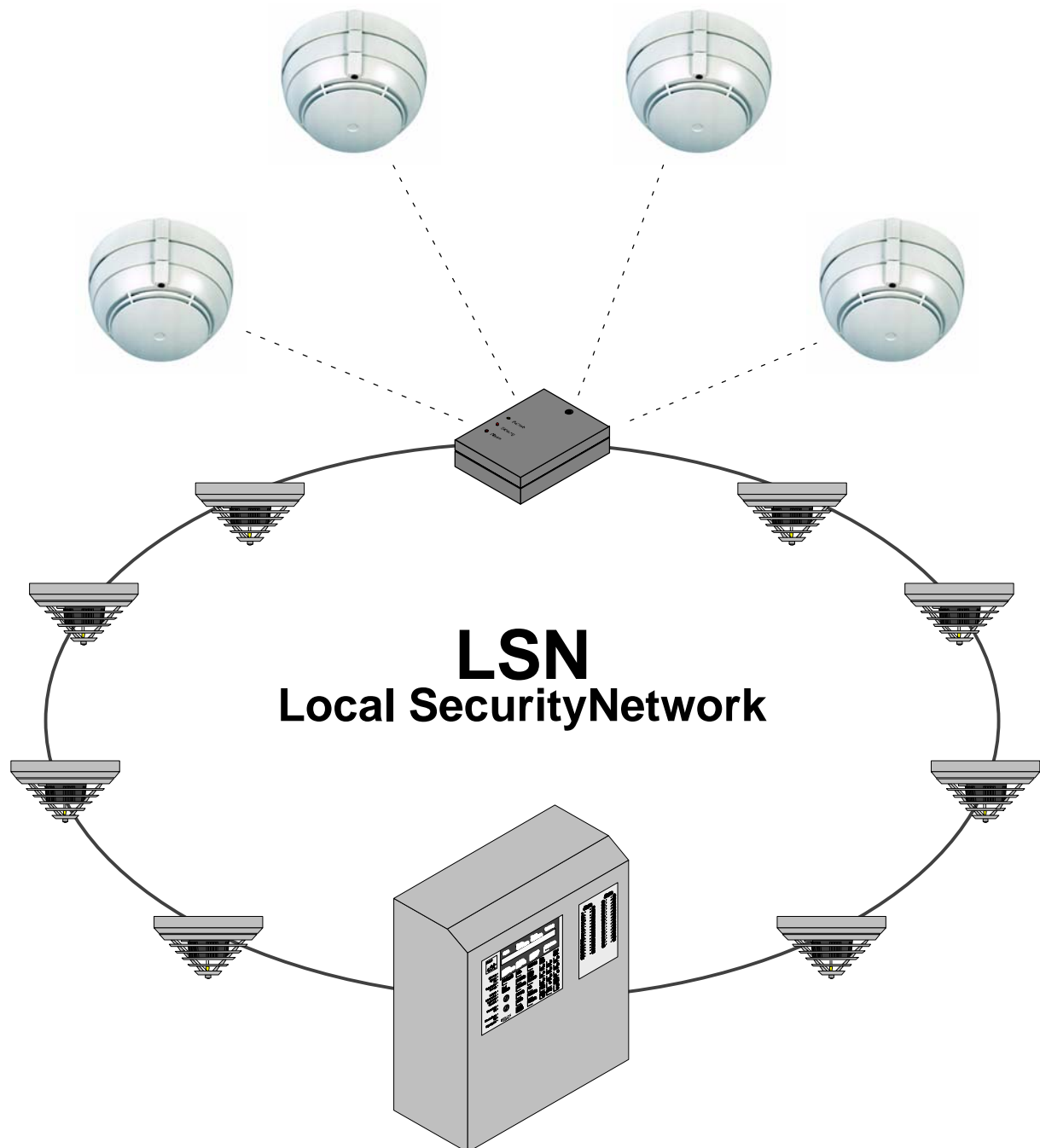


Product Documentation

LSN radio fire detection system



This documentation details planning, installation and initial set-up and is only intended for users of our systems. This documentation may not be reproduced or made available to third parties without written permission.



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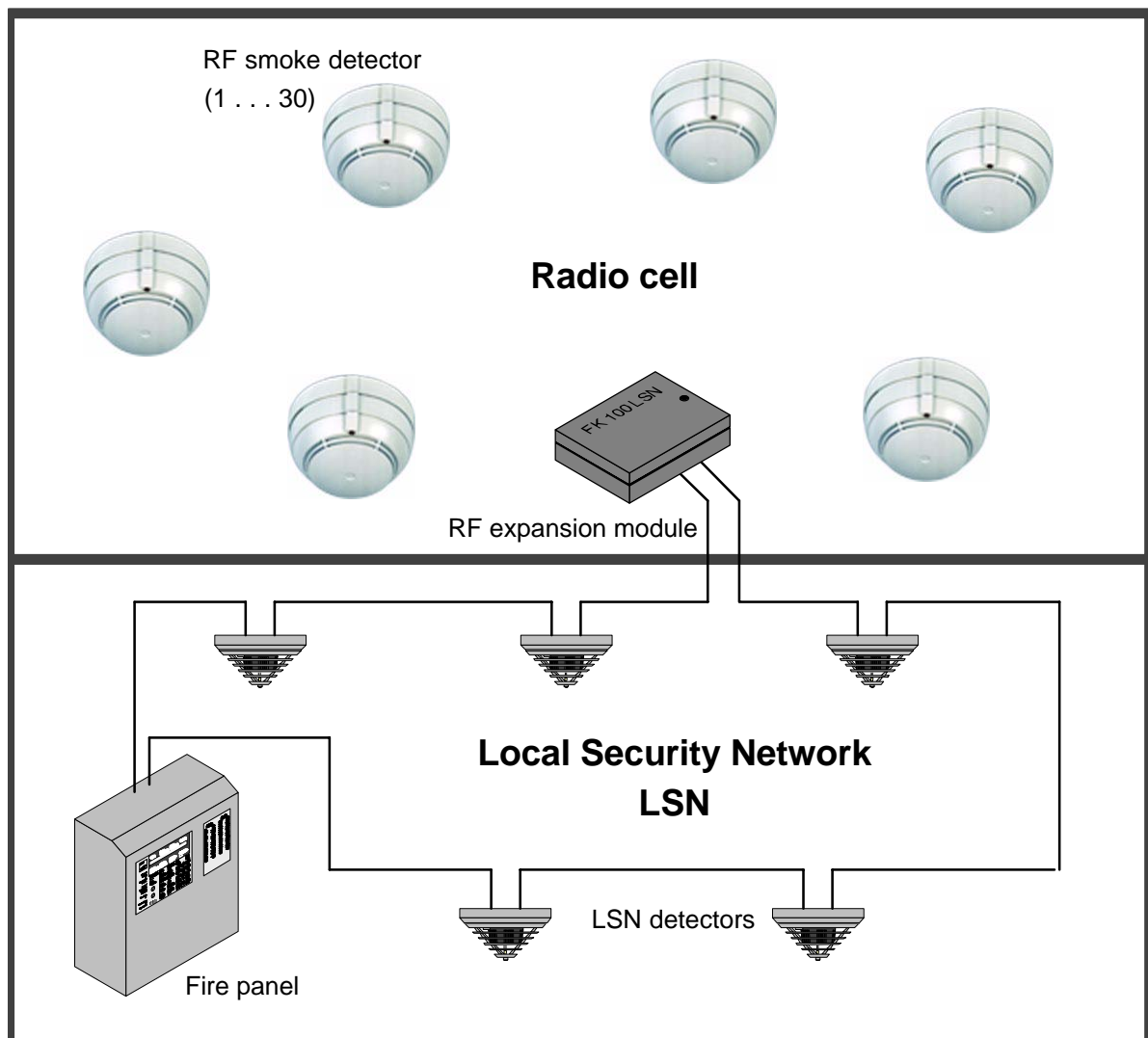
1. Product Description

1.1. Radio fire detection system overview

The system works on a new band that is only released for security technology, 868-870MHz SRD (**S**hort **R**ange **D**evice band), and has a radio license in line with ANNEX 4, Directive 99/5/EC Radio recognition. The SRD band is not subject to long range amateur radio or industrial, scientific and medical applications with high transmission power. This permits a high transmission/functional reliability.

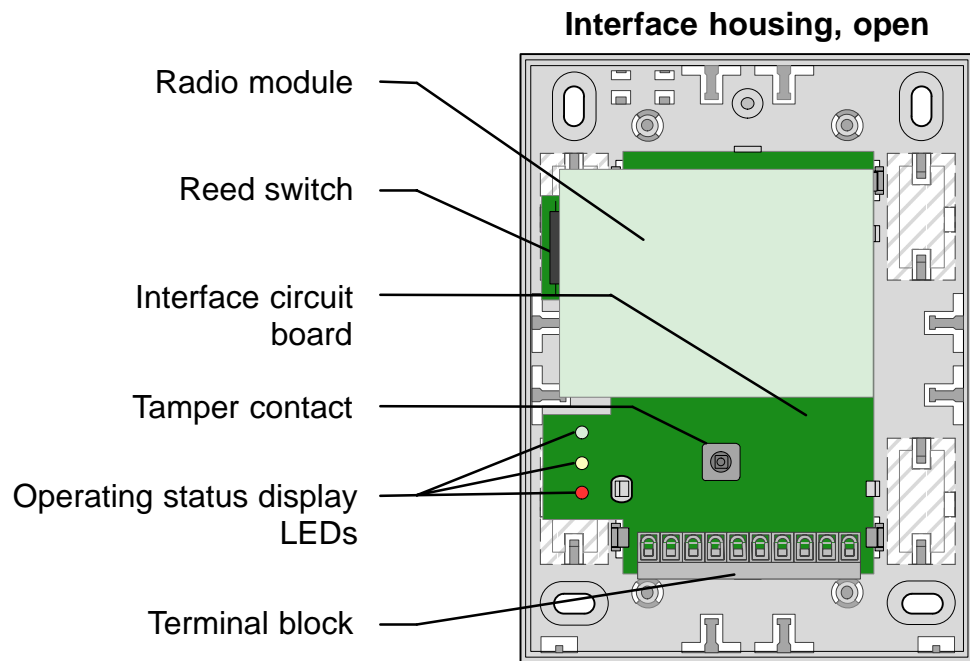
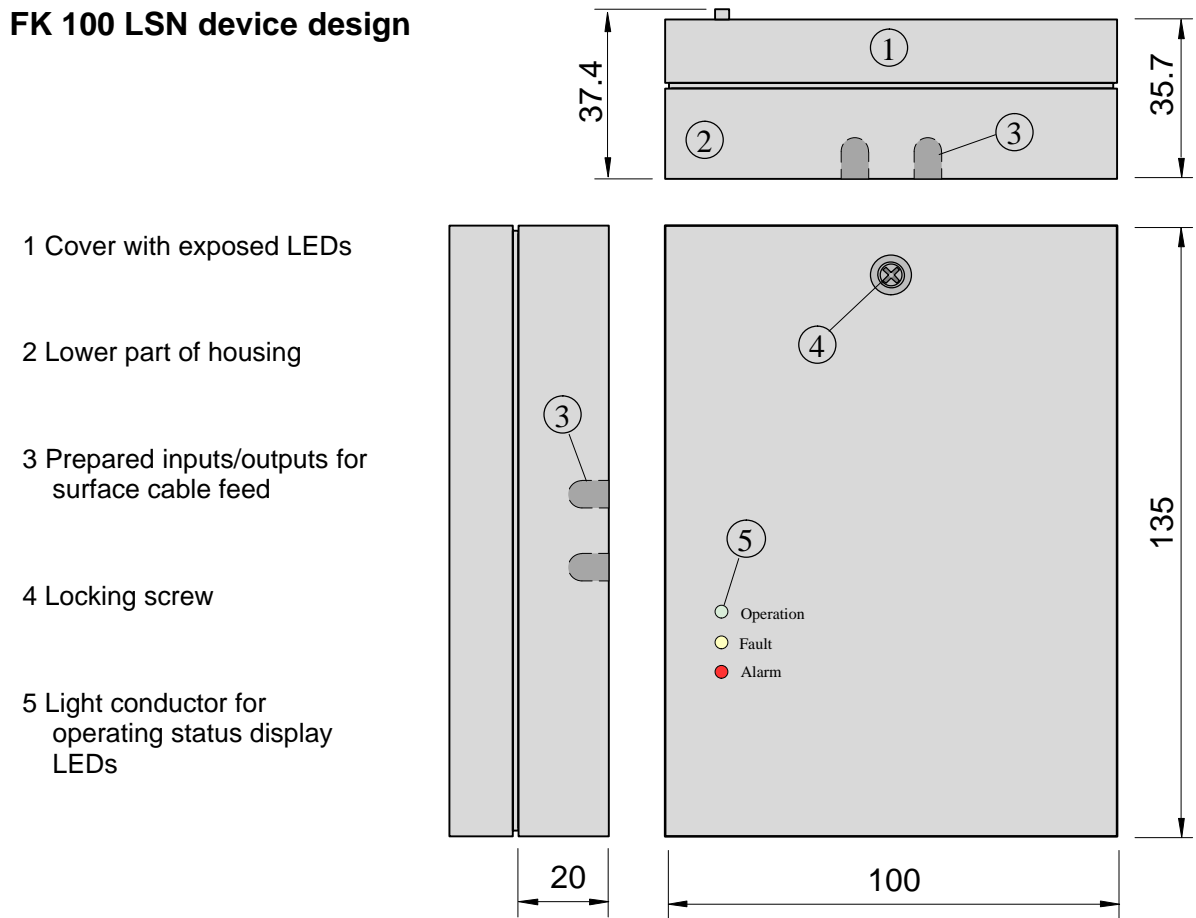
The radio fire detection system (the radio cell) comprises an RF expansion module and up to 30 RF smoke detectors. As an LSN element, RF expansion module FK100 LSN is connected in a loop or stub line and forms the interface between the RF smoke detectors and the fire panel.

Information transfer between the detector and the expander is bi-directional. If a B-channel is occupied by another system, this is detected immediately and the radio cell switches immediately to an alternative channel to guarantee alarm transmission



1.2. RF expansion module FK 100 LSN product description

FK 100 LSN device design



FK 100 LSN device description

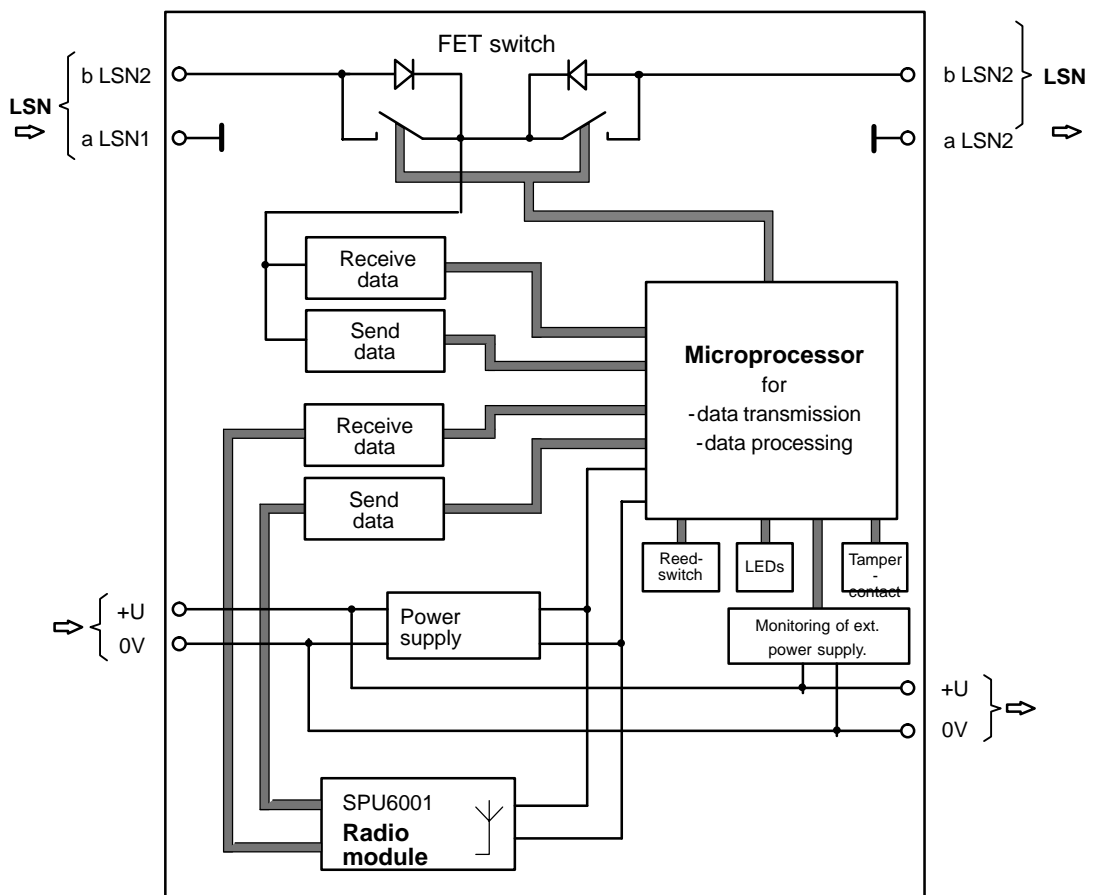
Power is supplied to the LSN part in the RF expansion module via the LSN loop; the attached radio module with radio license in line with ANNEX 4, Directive 99/5EC Radio recognition requires a separate voltage supply.

The integrated microcontroller controls the interfaces and user elements and is responsible for data transmission between the wireless smoke detector and the fire panel.

FK 100 LSN has a tamper contact, a reed switch for manual activation of the configuration mode and 3 LEDs for the operating status display.

The LSN - RF expansion module complies with the standard regulations and guidelines for security systems: EN 54; DIN - VDE 0833; VdS.

FK 100 LSN block diagram



1.3. RF smoke detector DOW 1171 product description

The battery-operated programmable RF smoke detector works on the tried and tested scattered light principle with lateral scattering and, in conjunction with a modern detection algorithm, achieves a homogeneous response behavior and outstanding interference immunity. The same radio module as that used in the RF expansion module is integrated in the detector for bi-directional information transfer.

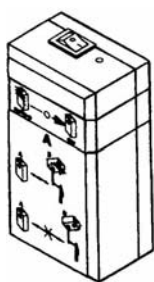
2. Scope of Order

Product ID	LE*	Designation
4.998.111.422	ST	FK 100 LSN surface; RF expansion module for surface mounting
4.998.115.784	ST	DOW 1171; RF smoke detector (incl. 2 batteries)
2.799.270.113	ST	Magnet for initial set-up of the radio system without fire panel and WinPara

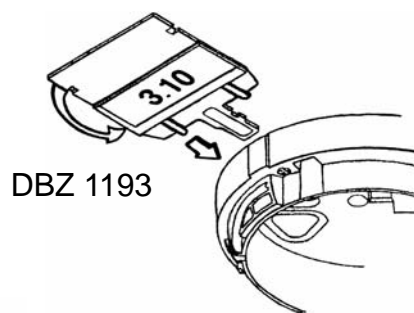
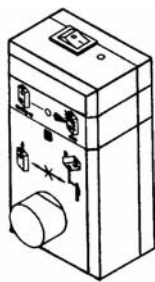
*LE = Delivery unit

2.1. Accessories

8.787.335.005	ST	9V lithium battery for DOW 1171 (two batteries per detector are required!)
4.998.115.785	PAK	DBZ 1193A, detector identification for DOW 1171 (1 PAK = 10 pieces)
4.998.120.143	ST	DZW 1171, radio test device for field strength measurement
4.998.117.745	ST	Radiospy, software and device for testing and display of radio cell
4.998.120.144	ST	Detector exchanger for RF detector DOW 1171 (only suitable for use with Siemens service rods)



DZW 1171



Detector exchanger
for DOW 1171

3. Planning Notes

- **Limiting values:**
 - Maximum 30 DOW 1171 wireless smoke detectors per FK 100 LSN RF expansion module.
 - All RF expansion modules and all RF smoke detectors are LSN elements (1 FK 100 LSN + 30 DOW 1171 = 31 LSN elements).
 - Maximum 127 LSN elements permissible per NVU.

- **If several RF expansion modules are installed in the same area, a minimum distance of 2m must be retained between the individual FK 100 LSNs. In addition, the maximum distance of 40m between FK 100 LSNs or attenuation of 90dB must not be exceeded.**

- **The RF expansion module must not be installed in a metal cabinet!**

- A separate power supply is required to provide power to the radio module, the microprocessor and the peripheral accessories.

- Power is supplied to the LSN part in FK 100 LSN via the two wires of the LSN line.

- The pair of wires for the separate power supply can be looped through to supply downstream LSN elements.

- A magnet is required to activate the reed switch in the RF expansion module for initial set-up of the radio system without fire panel.

- If a building has unusual wall structures, field strength measurements must be taken using mobile test device DZW 1171 to ensure reliable planning.

- The Radiospy software with field strength measuring device is a convenient tool for planning and displaying a radio cell using a PC/laptop.

- **The integrated radio module has been approved in the following countries:** Austria, Belgium, Croatia, Denmark, Germany, Italy, Luxembourg, The Netherlands, Norway, Portugal, Spain, The Czech Republic, Slovenia, Sweden, Switzerland, The United Kingdom

3.1. Planning a radio cell



The range that can be achieved by a radio system in a building is generally dependent on the reflection and absorption responses of the materials used and on the design of the ceilings and walls!

☞ There is no need for a visual line between the radio components!

Limiting value when planning a transmission path



Total attenuation of a transmission path < 90dB.

Relationship between distance and attenuation with a visual line

☞ In buildings, doubling the distance between the RF expansion module and the RF detector results in an attenuation increase of 16 to 17dB.

Distance	40m	30m	25m	20m	15m	10m	5m
Attenuation	90dB	83dB	79dB	74dB	67dB	57dB	40dB

Walls and ceilings in buildings cause additional attenuation of the radio signal.

- The attenuation values of the construction elements in question (walls, ceilings) must also be added to determine the actual attenuation at the mounting location in the case of attenuation owing to the distance.

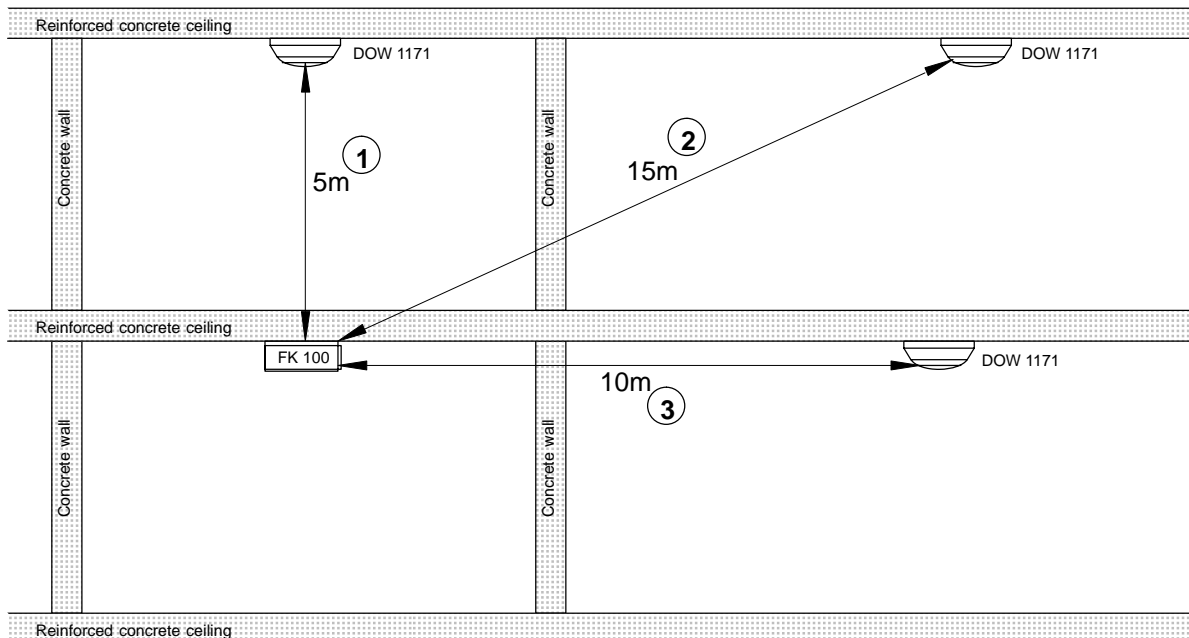
Attenuation values for constructions frequently used in buildings

Construction	Additional attenuation	
Partition	Very low	1dB
Dry brick wall or concrete wall/ceiling	Low	6dB
Lime sand brick	Moderate	6dB
Sand lime brick planning elements	Moderate	10dB
Wood skeleton wall/wood panel wall	Moderate	10dB
Damp brick wall	Moderate	10dB
Coated gypsum plasterboard (double wall)	High	15dB
Reinforced concrete	High	30dB
Thick, damp brick wall	Very high	40dB



3.2. Calculation example:

- ☞ RF expansion module FK 100 LSN is mounted under a reinforced concrete ceiling, the partition walls are made from concrete



- **Transmission path 1:** 5m distance + reinforced concrete ceiling = 40dB + 30dB = **70dB**
- **Transmission path 2:** 15m distance + reinforced concrete ceiling + concrete wall = 67dB + 30dB + 6dB = **103dB**
- **Transmission path 3:** 10m distance + concrete wall = 57dB + 6dB = **63dB**

⇒ Transmission paths 1 and 3 can be operated (total attenuation < 90dB)

⇒ The detector for transmission path 2 can no longer be reached (total attenuation 103dB > 90dB permissible total attenuation)

3.3. Field strength measurement with radio test device DZW 1171

- Switch on modules **A** and **B**.

⇒ The LEDs next to the switches light up if there is sufficient battery voltage.

⇒ The specified radio connection between the modules is initiated automatically and the LED on module **A** flashes while the radio connection is being established.

⇒ Once the radio connection has been successfully established, the LED on module **A** and the LED on module **B** light up permanently.

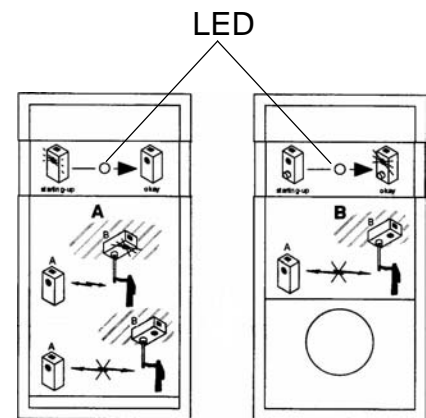
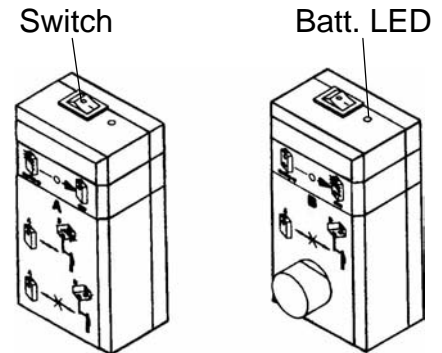
- Position module **A** as close as possible to the RF expansion module.

- Connect module **B** to the service rod and move to the required RF detector mounting location.

☞ The radio signal can be transferred all the while the LED on module **B** is illuminated (attenuation < 89dB).

☞ If the LED on module **B** starts to flash, the radio range limit has been reached (attenuation 85dB). If the LED continues to flash, the radio signal is still strong enough for trouble-free operation.

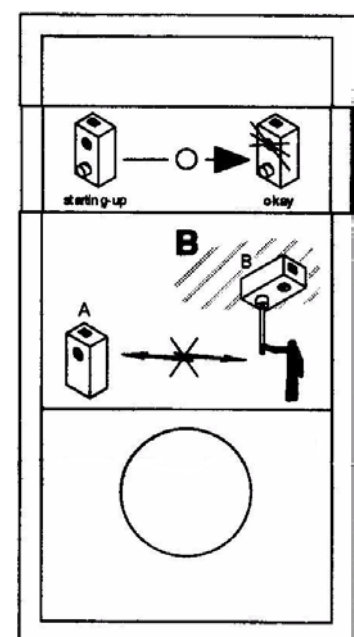
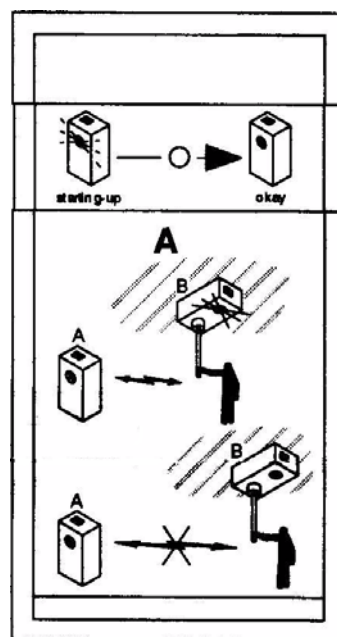
☞ If the LED on module **B** goes out, the mounting location of the RF expansion module or the RF detector is outside the radio range.



Module A

Module B

Basic graphical instructions (imprinted on the modules)



4. Technical Data

RF expansion module FK 100 LSN	
Operating voltage - LSN part - Remaining components	+ 10V DC . . . + 33V DC + 20V DC . . . + 30V DC
Current consumption - LSN part - Remaining components	6mA <20mA
Frequency range	868 to 870MHz (SRD band)
Channel spacing	25kHz
Max. number of RF expansion modules	10 (see also page 7, Limiting values)
Max. number of RF smoke detectors	30 DOW 1171 per FK 100 LSN
Protection class	IP 30
Permissible ambient temperature	-10 °C . . . + 55 °C
Housing material/color	Plastic, ABS Terluran light-gray, RAL 9002
Dimensions (H x W x D)	135 x 100 x 35.7mm
Weight	approx. 200 g
VdS approval number	G 203 016

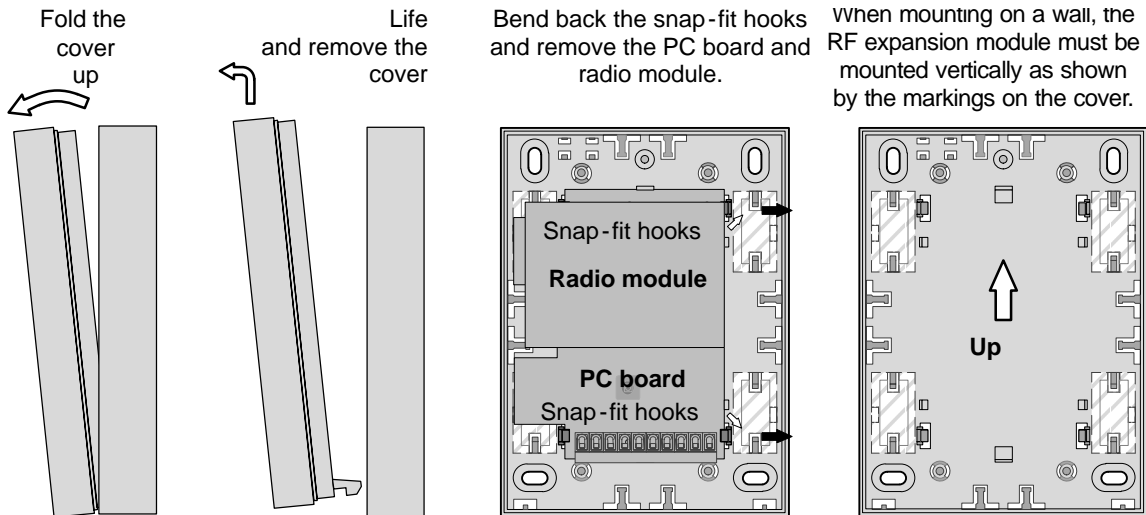
RF smoke detector DOW 1171	
Power supply.	Two 9V lithium batteries
Battery service life	Approx. 5 years
Average current consumption	0.07mA
Frequency range	868 to 870MHz (SRD band)
Channel spacing	25kHz
Transmission power	Max. 5mW
Range in buildings	Up to 30m
Detection principle	Scattered light measurement
Protection category (as per EN 60 529)	IP 44
Permissible ambient temperature	-10 °C . . . + 55 °C
Permitted relative humidity (as per EN 60 529)	< 95% at T < 34 °C
Housing material/color	Plastic, PC/ABS, white, similar to RAL 9010
Dimensions (D x H)	Ø119 x 73mm
Weight	approx. 335g
Radio license (in line with ANNEX 4, Directive 99/5EC Radio recognition)	CE 0123 ①
VdS approval number	G 200 112



5. Installation

5.1. Mounting Tips for RF expansion module FK 100 LSN

- The RF expansion module must only be installed in dry areas. The maximum permissible ambient temperature must also be observed (see "Technical Data"). The PC board, including the radio module, must be removed before mounting. Carefully bend back the snap-fit hooks to remove the PC board.



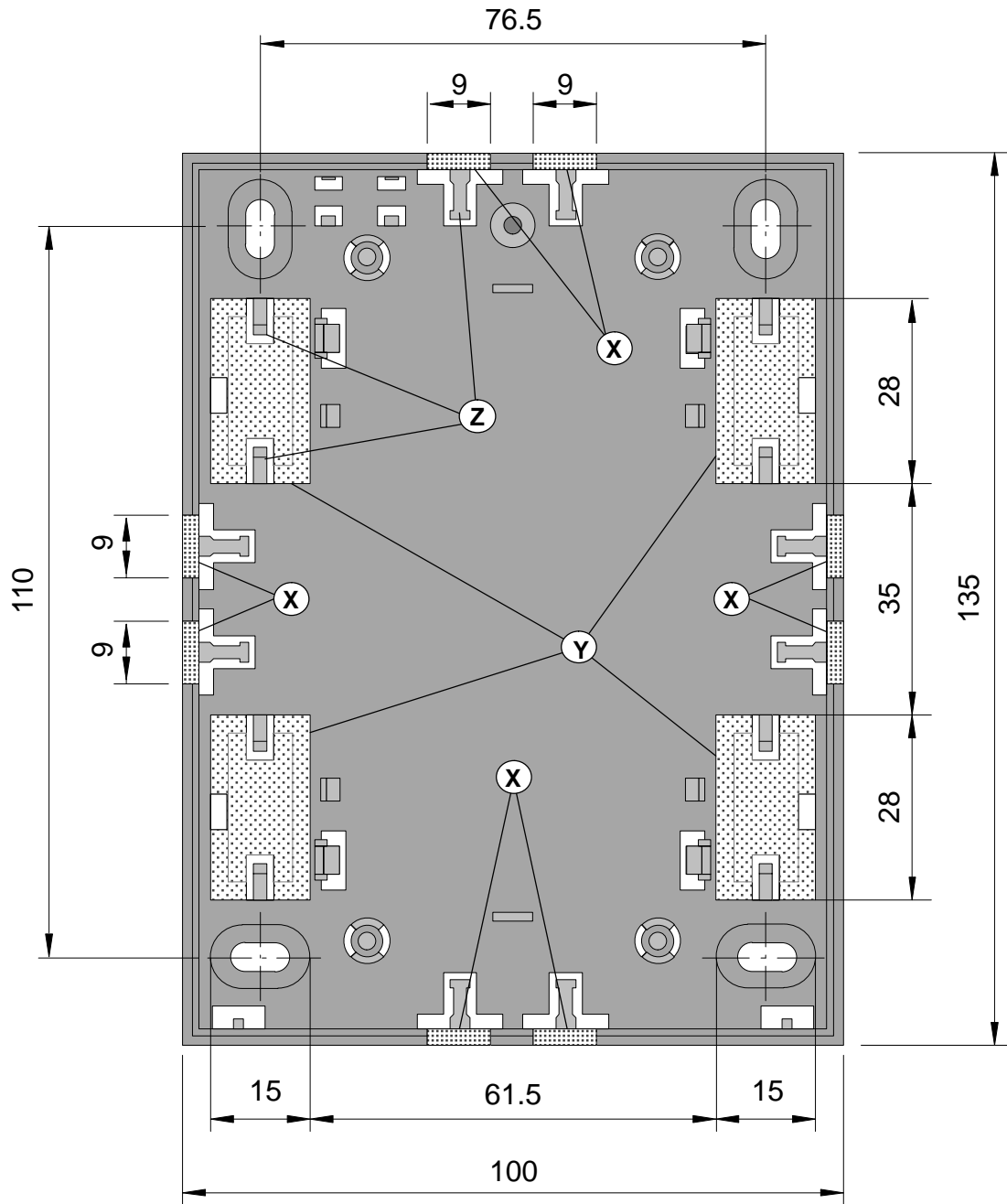
- With recessed cable feed, pre-punched openings are punched through on the base of the lower part of the housing.
- With surface cable feed, pre-punched openings are punched through on the side of the lower part of the housing.
- Mount the lower part of the housing on a dry surface using at least two screws.



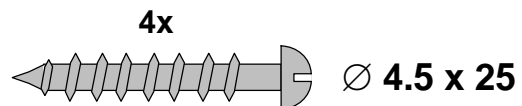
If several FK 100 LSN RF expansion modules are mounted in the same area, a minimum distance of 2m must be retained between the individual RF expansion modules!

- Use cable ties to relieve the strain on the cable at the bars (see assembly drawing on p.2) .
- After installation, replace the cover and secure it using the screw provided.
- Only use mounting materials specified by Bosch-ST; interference resistance cannot otherwise be guaranteed.
- **Caution! ESD (electrostatic discharge).** The standard precautions for C-MOS technology must be taken when handling PC boards.
- The connection criteria of the regional authorities /institutions (police, fire service) must be observed.

5.2. Assembly drawing for RF expansion module FK 100 LSN

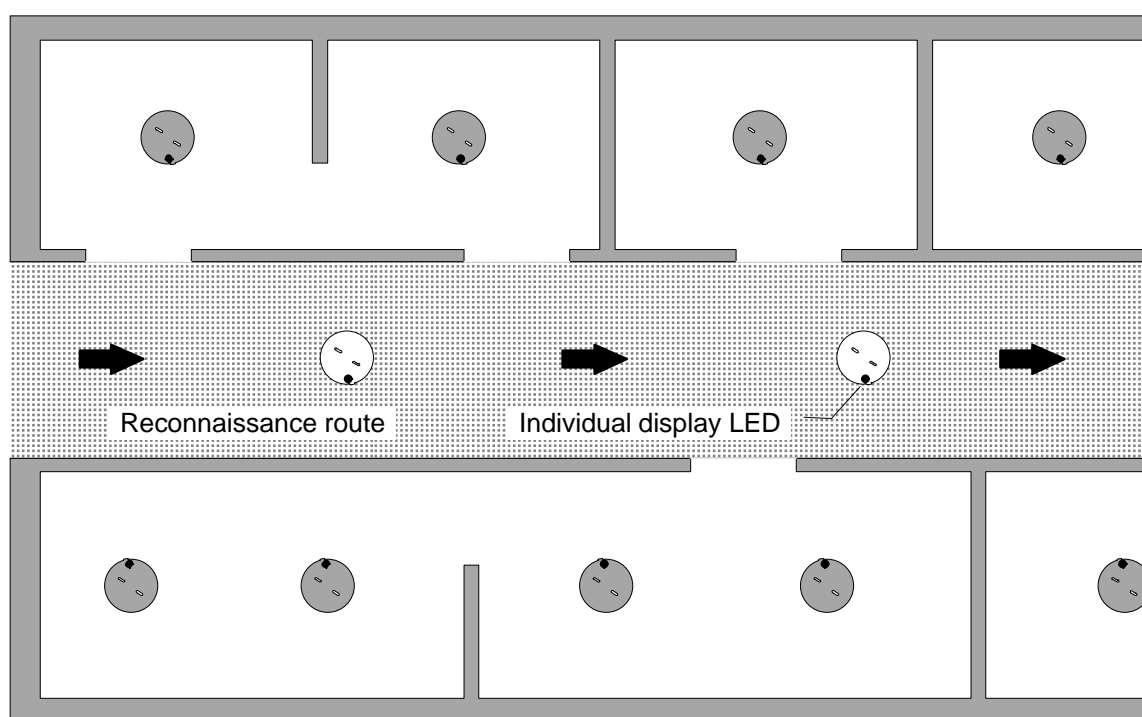


- ⊗ = Prepared inputs/outputs for surface cable feed
- ⊙ = Prepared inputs/outputs for recessed cable feed
- ⊚ = Bars for cable strain relief using cable ties



5.3. Mounting tips for RF smoke detector DOW 1171

- The RF smoke detector must only be installed in dry areas. The maximum permissible ambient temperature must also be observed (see "Technical Data").
- Use only mounting -material recommended and provided by Bosch-ST; interference resistance cannot otherwise be guaranteed.
- When mounting the base, always ensure that the individual display, from the reconnaissance route, is easily visible (see drawing below).
The position of the individual display is marked on the base for this reason (see assembly drawing, p. 15).

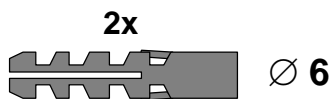
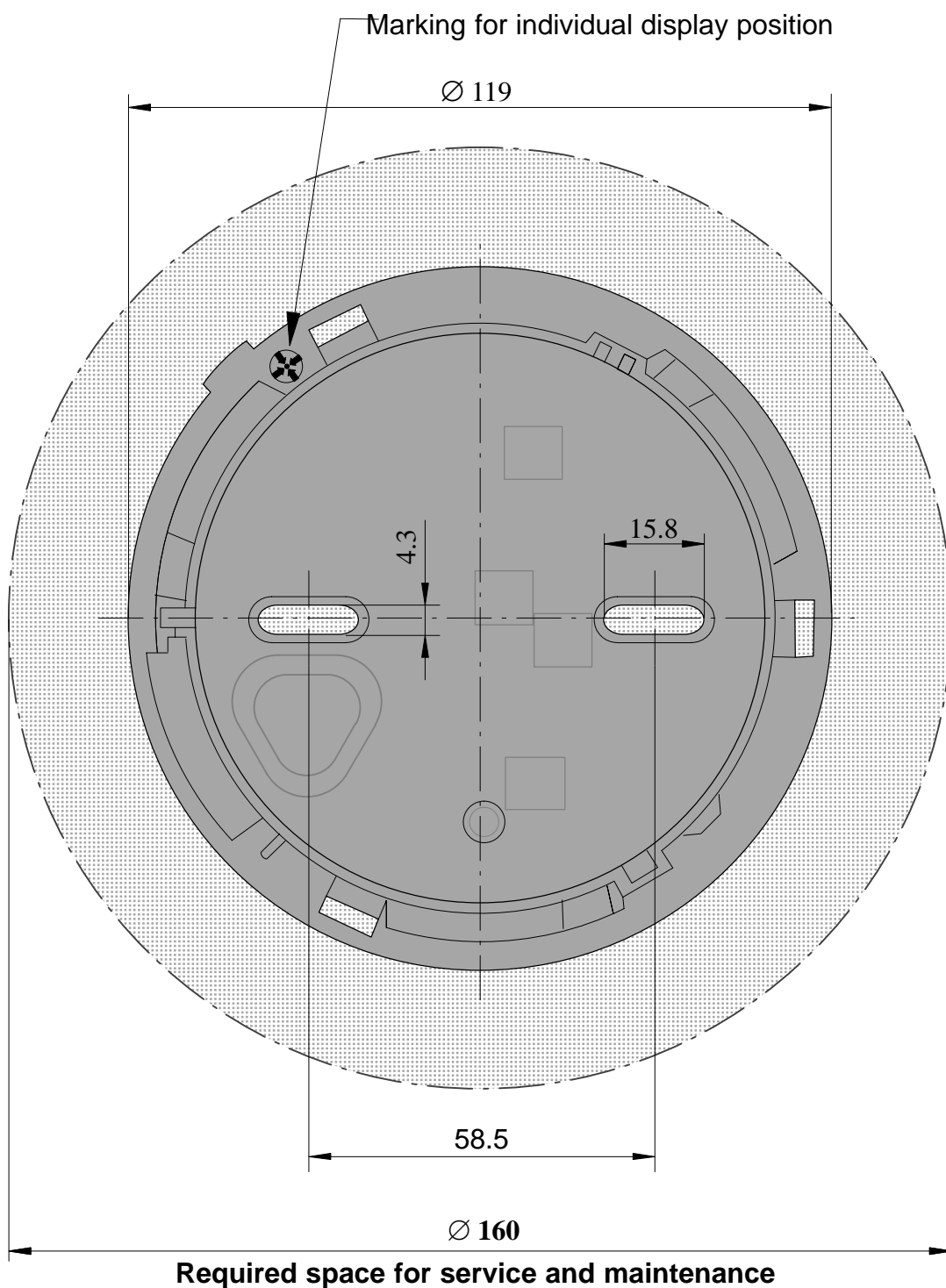


- The detector must be easily accessible for service and maintenance work and it must be possible to check the detector from directly underneath and remove it (e.g. to change the battery). A space of at least 2 cm must therefore be left around the base.
- **Only once the RF expansion module is permanently supplied with power must the 9V lithium batteries in the RF detector be inserted!**
If this is not the case, the detectors try constantly to establish a connection to the RF expansion module, which substantially reduces the service life of the batteries.



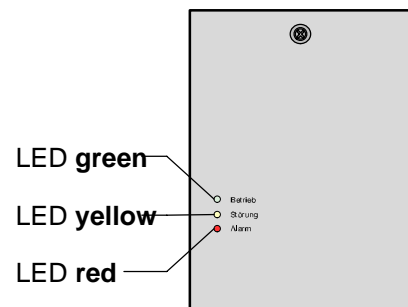
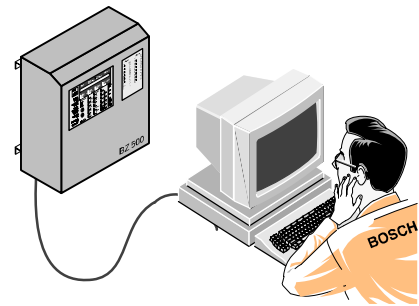
All wireless smoke detectors must always be mounted in the appropriate installation location in their bases when logging on to FK 100 LSN.

5.4. Assembly drawing for RF smoke detector DOW 1171



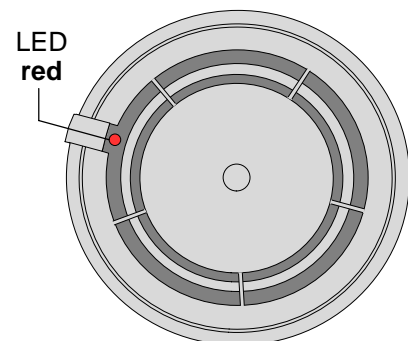
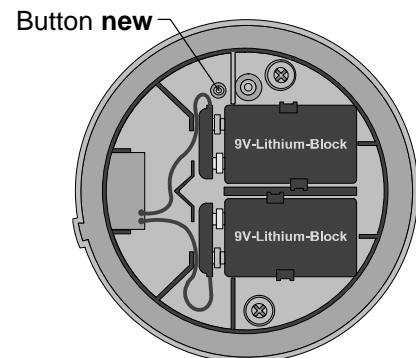
6. Initial Set-Up with Fire Panel and WinPara

- Connect the LSN and supply voltage to RF expansion module FK 100 LSN.
- ⇒ The red LED on FK 100 LSN lights up for a few seconds, after which the yellow LED flashes slowly to indicate that FK 100 LSN is in standby mode.
- Programm the entire system including FK 100 LSN on the programming PC using WinPara and load all RF detectors to be set in the fire panel.
- Activate the menu item “Reset FK100” in WinPara under FK 100 LSN.
- ⇒ The red LED on FK 100 LSN lights up briefly, then the green and yellow LEDs start to flash rapidly to indicate a frequency search (max. 10 min.).
- ⇒ Following a successful frequency search, the yellow LED goes out to indicate that it is now possible to log on to the RF detector.



Log RF detector on to RF expansion module:

- Insert the batteries and secure the cables, as shown in the diagram on the right.
- ⇒ The LED on the detector should flash slowly.
- If the LED is flashing rapidly, press the **new** button and hold it for at least 3 seconds.
- ⇒ The detector will be reset to its default settings and the red LED will flash slowly.
- Insert the detector in the base within 10 minutes of inserting the batteries!
- ⇒ Following a successful system logon (duration: 15 sec. to a max. of 10 mins), the red LED will go out and then flashes again for two minutes to indicate the field strength.

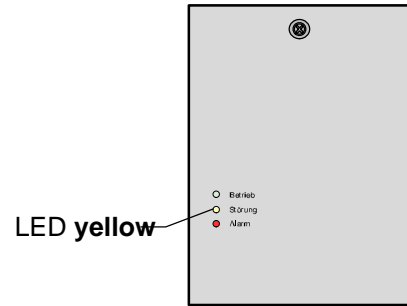


Flashes/sec.	Field strength	Effect
4	High	Within field strength range adequate for detector use!
3	Moderate	
2	Low	Impermissible field strength range! Improve detector positioning!
1	Very low	

⇒ The yellow LED on the RF expansion module lights up briefly to acknowledge each successful logon.

- All RF detectors (maximum of 30) are logged on to FK 100 LSN in this way **one after the other**.

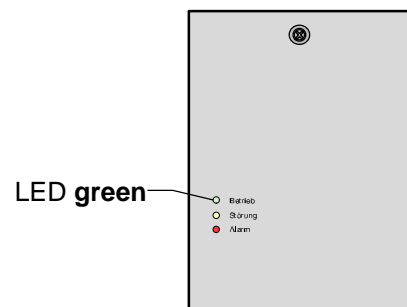
☞ **When logging on the individual RF detectors, the sequence used in WinPara must be used.** If this is not the case, the detector will be entered in a different position than in WinPara and it will not be possible to locate it clearly in the event of an alarm!




⇒ If all the RF detectors programmed in WinPara are logged on, FK 100 LSN automatically starts system configuration and this is indicated by the green LED flashing slowly.

⇒ Following successful system configuration, the green LED lights up permanently, indicating that the radio cell is in standard mode.


⇒ The system is then automatically re-initialized by the fire panel and switches to standard mode.




 **Avoid disconnecting the expander power supply after initial set-up of the radio cell, as all detectors search for their RF expansion modules during power loss and are therefore constantly transmitting, which substantially reduces the service life of the batteries.**

 **If it is necessary to disconnect the power supply for a long period (> 1 hour), remove the batteries from the RF detectors.**

6.1. Resetting a configured FK 100 LSN

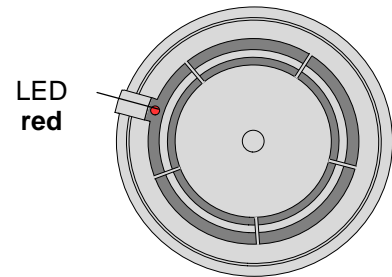
 **When performing initial set-up of a radio cell using WinPara, a configured (already operational) FK 100 LSN is automatically reset to its default settings.**

6.2. Exchanging an RF detector (only using WinPara)



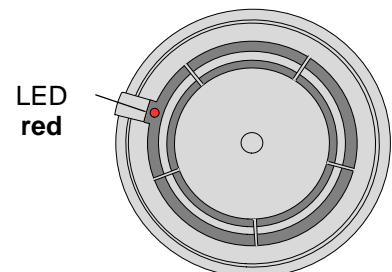
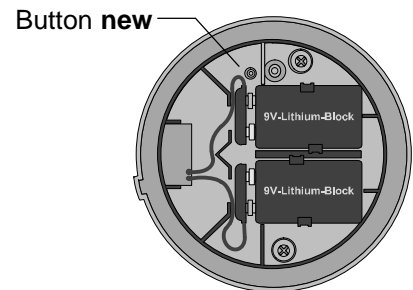
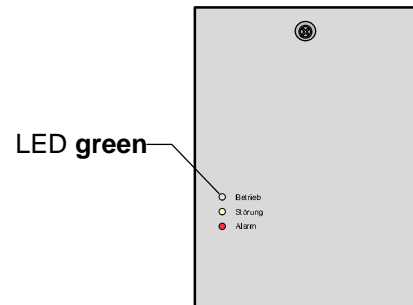
RF smoke detectors in an existing configured radio cell can only be exchanged, e.g. if an DOW 1171 RF detector fails, via WinPara. RF detectors can only be changed in series!

- Mark the DOW 1171 RF detector to be exchanged in WinPara.
 - Activate “DOW1171 detector exchange” in WinPara.
 - **Wait until the LED on the detector and the green LED on FK 100 are flashing rapidly.**
- ☞ **Only then can the DOW 1171 be removed from the base**



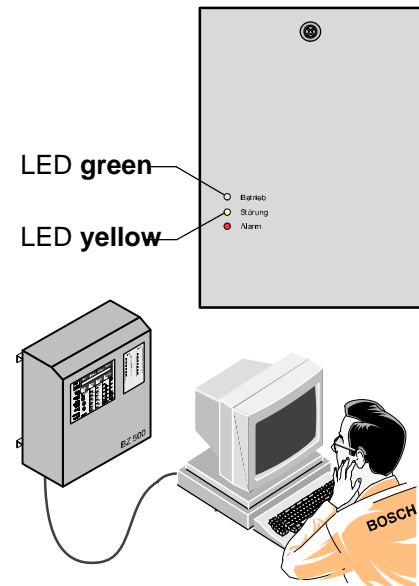
Log RF detector on to RF expansion module:

- Insert the batteries and secure the cables, as shown in the diagram on the right.
- ⇒ The LED on the detector should flash slowly.
- If the LED is flashing rapidly, press the **new** button and hold it for at least 3 seconds.
- ⇒ The detector will be reset to its delivery status and the LED will flash slowly.
- Insert the detector in the base within 10 minutes of inserting the batteries!
- ⇒ Following a successful system logon (duration: 15 sec. to a max. of 10 mins), the LED will go out and then flashes again for two minutes to indicate the field strength.



Flashes/sec.	Field strength	Effect
4	High	Within field strength range adequate for detector use!
3	Moderate	
2	Low	Impermissible field strength range! Improve detector positioning!
1	Very low	

- ⇒ The yellow LED on the RF expansion module lights up briefly to acknowledge successful logon of the DOW 1171 to the RF expansion module.
- ⇒ The green LED flashes slowly, indicating that FK 100 LSN has started system configuration.
- ⇒ Following successful system configuration, the green LED lights up permanently, indicating that the radio cell is in standard mode.
- ☞ The message “Detector exchange complete” is displayed on WinPara!
- **Any detector faults that are shown on the control panel display after exchange should be re-set!**



6.3. Displaying the radio cell B-channel



The B-channel of a radio cell can only be displayed using the programming software program WinPara.

- In WinPara, enter “Model 10” in the input field under “Peripheral control” in the “Read out dynamic data” menu under “Others”
- ⇒ **The B-channel is specified under “Data” in the display .**
- ☞ Radio channels and assignment sequences for initial set-up of an FK 100 LSN: **79, 5, 9, 13, 17, 23, 59, 63, 65, 71, 75, 1, 47, 32, 38, 42.**
- ☞ **If the same B-channel with different sub-channels is used by two FK 100 LSNs, it is necessary to set up one FK 100 LSN again! In the event of radio interference with FK 100 LSN, the sub-channels are selected automatically as the alternative frequency; dual assignment of a B-channel is therefore not possible!**

6.4. Reducing a radio cell (removing RF detectors)

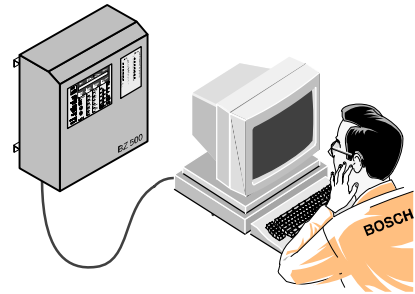


An RF smoke detector can only be removed from an existing configured radio cell, e.g. to reduce the detection range, via WinPara.

- ☞ **When one or several RF detectors have been removed, the radio cell must be set up again, i.e. the remaining RF detectors for the radio cell must be logged on again!**

6.5. Expanding a radio cell (adding RF detectors)

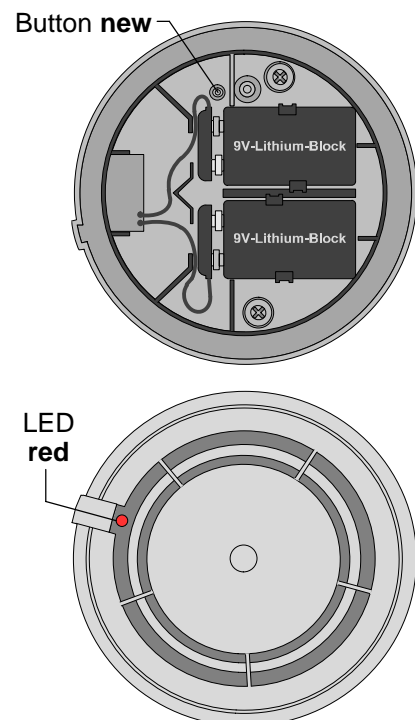
- Call up the “Enter as” menu in WinPara under “System” ⇒ “Peripheral control” ⇒ “LSN” ⇒ “FK100” ⇒ “LSN”.
- Enter the number of new DOW1171s.
- Load programming in the fire panel.
- Activate expansion under “FK100” via “DOW1171 to be added”.



⇒ The green LED on FK 100 LSN flashes rapidly, indicating that detectors can now be added.

Log RF detector on to RF expansion module:

- Insert the batteries and secure the cables, as shown in the diagram on the right.
- ⇒ The LED must flash slowly.
- If the LED flashes rapidly, press the **new** button and hold it for at least 3 sec.
- ⇒ The detector will be reset to its default settings and the red LED will flash slowly.
- Insert the detector in the base within 10 minutes of inserting the batteries!
- ⇒ Following a successful system logon (duration: 15 sec. to a max. of 10 mins), the red LED will go out and then flashes again for two minutes to indicate the field strength.



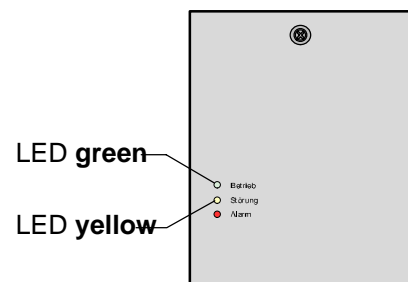
Flashes/sec.	Field strength	Effect
4	High	Within field strength range adequate for detector use!
3	Moderate	
2	Low	Impermissible field strength range! Improve detector positioning!
1	Very low	

⇒ The yellow LED lights up briefly to acknowledge each successful logon.

- All other RF detectors (maximum of 30) are logged on in this way **one after the other**.

⇒ Once the last DOW 1171 has been logged on, FK 100 LSN starts system configuration and the green LED flashes slowly.

⇒ Following successful system configuration, the green LED lights up permanently, indicating that the radio cell is in standard mode.

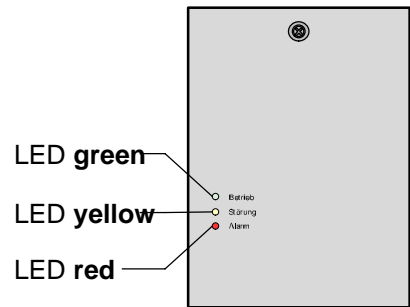


7. Initial Set-Up without Fire Panel and WinPara

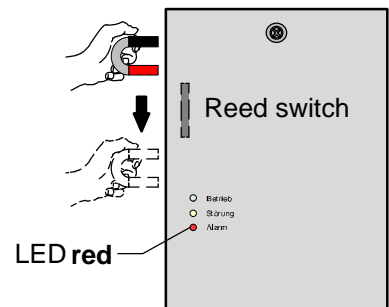
i A permanent power supply to FK 100 LSN must be ensured when performing initial set-up of a radio cell without fire panel.

☞ The LSN terminal block must not be connected to FK 100 LSN.

- Connect the expander power supply, e.g. by connecting the terminal block.
- ⇒ The red LED on FK 100 LSN lights up for a few seconds.
- ⇒ The yellow LED flashes slowly, indicating that FK 100 LSN is in standby mode.

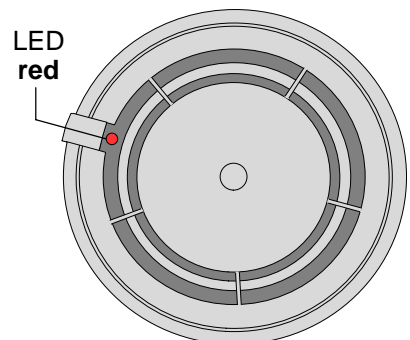
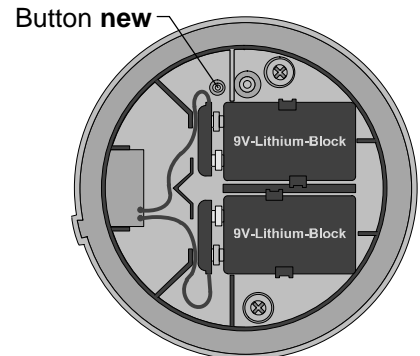


- The reed switch on FK 100 LSN is activated, by the magnets moving along the left-hand side of the housing, for manual initial set-up of the radio cell.
- ⇒ The red LED on FK 100 LSN lights up briefly, then the green and yellow LEDs start to flash rapidly to indicate a frequency search (max. 10 min.).
- ⇒ Following a successful frequency search, the yellow LED goes out to indicate that it is now possible to log on to the RF detector.

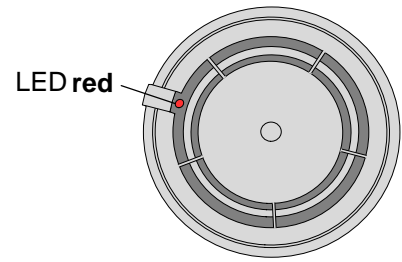


Log RF detector on to RF expansion module:

- Insert the batteries and secure the cables, as shown in the diagram on the right.
- ⇒ The red LED must flash slowly.
- If the LED is flashing rapidly, press the **new** button and hold it for at least 3 seconds.
- ⇒ The detector will be reset to its delivery status and the LED will flash slowly.
- Insert the detector in the base within 10 minutes of inserting the batteries!



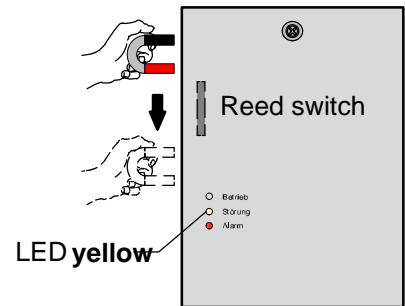
⇒ Following a successful system logon (duration: 15 seconds to a max. of 10 minutes), the LED will go out and then flashes again for two minutes to indicate the field strength.



Flashes/sec.	Field strength	Effect
4	High	Within field strength range adequate for detector use!
3	Moderate	
2	Low	Impermissible field strength range! Improve detector positioning!
1	Very low	

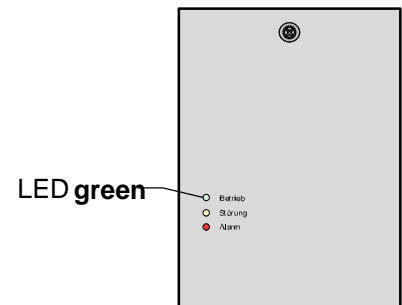
⇒ The yellow LED lights up briefly to acknowledge each successful logon.


- All RF detectors (maximum of 30) are logged on to FK 100 LSN in this way **one after the other**.
- Wait until the LED (flashing to indicate field strength) on the last detector goes out.
- Activate the RF expansion module by moving the magnets along the left-hand side of FK 100 LSN housing.




⇒ The green LED flashes slowly, indicating that FK 100 LSN has started system configuration.

⇒ Following successful system configuration, the green LED lights up permanently, indicating that the radio cell is in standard mode.



 **Avoid disconnecting the expander power supply after initial set-up of the radio cell, as all detectors search for their RF expansion modules during power off condition and are therefore constantly transmitting, which substantially reduces the service life of the batteries.**

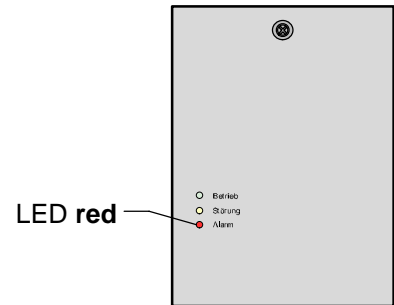
 **If it is necessary to disconnect the power supply for a long period (> 1 hour), remove the batteries from the RF detectors.**

7.1. Manually resetting a configured FK 100 LSN

☞ **New radio cells can only be installed with unconfigured RF expansion modules, i.e. RF expansion modules that are already operational must be reset.**

☞ If the red LED flashes rapidly upon switch-on, RF expansion modules are in a conflicting mode and must also be reset.

- Disconnect the power supply to FK 100 LSN, e.g. by removing the connection terminal block!

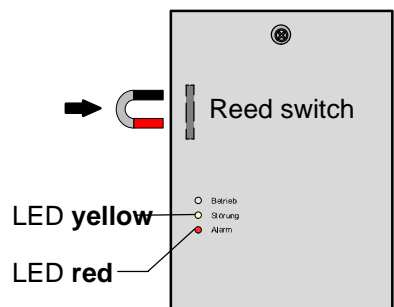


- Activate the reed switch in FK 100 LSN and secure the magnet to the expander.

☞ The reed switch must remain activated.

- Connect the power supply for FK 100 LSN!

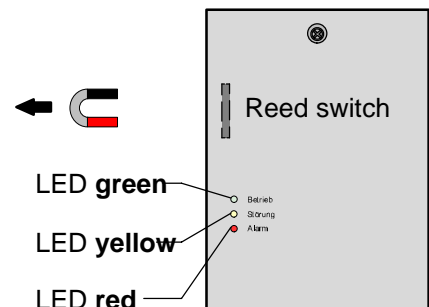
⇒ The red LED lights up briefly and the yellow LED then begins to flash rapidly.



- Deactivate the reed switch in FK 100 LSN by removing the magnets.

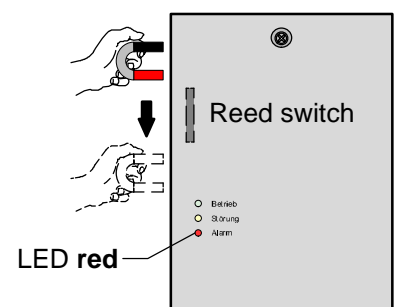
- Within 10s, activate the reed switch on FK 100 LSN (by moving the magnets along the left-hand side of the housing) repeatedly until the green and yellow LEDs flash rapidly.

⇒ After approx. 10s, the red LED lights up briefly and the green and the yellow LEDs continue to flash rapidly, indicating that the RF expansion module is searching for a clear frequency.



- Disconnect the power supply to FK 100 LSN, e.g. by removing the connection terminal block!

⇒ **The RF expansion module is reset.**



7.2. Expanding a radio cell (adding RF detectors)

i This function combines additional RF smoke detectors in an existing configured radio cell, e.g. to expand the detection range.

☞ The LSN terminal block must not be connected to FK 100 LSN.

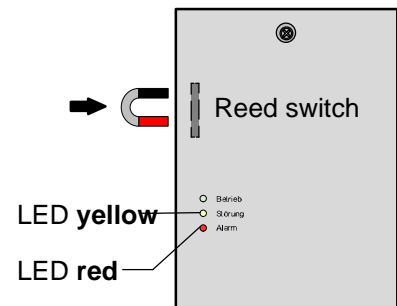
- Disconnect the power supply to FK100 LSN, e.g. by removing the connection terminal block.

- Activate the reed switch in FK 100 LSN and secure the magnet to the expander.

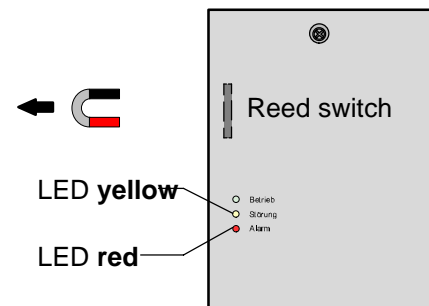
☞ The reed switch must remain activated.

- Connect the power supply for FK 100 LSN!

⇒ The red LED lights up briefly and the yellow LED then begins to flash rapidly afterwards.

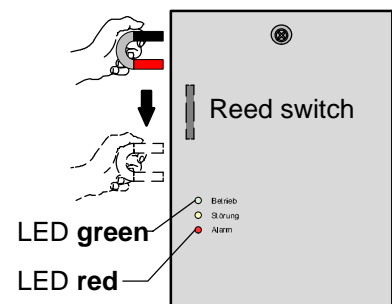


- Deactivate the reed switch in FK 100 LSN by removing the magnets.



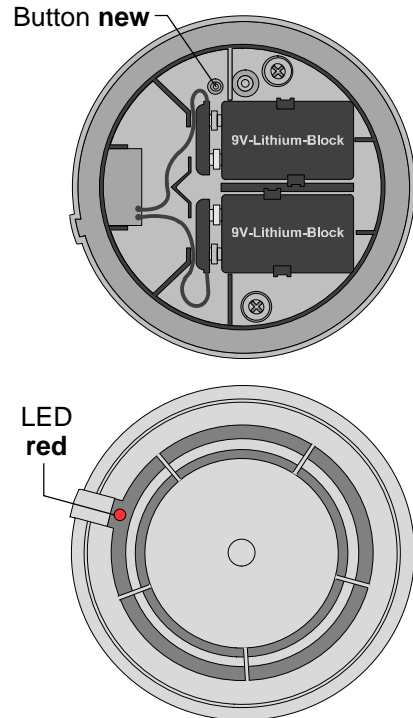
- Within 10s, activate the reed switch on FK 100 LSN (by moving the magnets along the left-hand side of the housing) repeatedly until only the green LED flashes rapidly.

⇒ After 10s, the red LED lights up briefly, indicating that the new RF detectors can now be logged on.



Log RF detector on to RF expansion module:

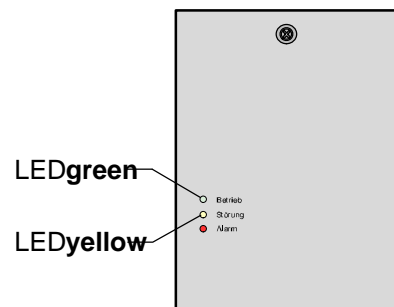
- Insert the batteries and secure the cables, as shown in the diagram on the right.
- ⇒ The red LED must flash slowly.
- If the LED is flashing rapidly, press the **new** button and hold it for at least 3 seconds.
- ⇒ The detector will be reset to its delivery status and the red LED will flash slowly.
- Insert the detector in the base within 10 minutes of inserting the batteries!
- ⇒ Following a successful system logon (duration: 15 sec. to a max. of 10 mins), the red LED will go out and then flashes again for two minutes to indicate the field strength.



Flashes/sec.	Field strength	Effect
4	High	Within field strength range adequate for detector use!
3	Moderate	
2	Low	Impermissible field strength range! Improve detector positioning!
1	Very low	

⇒ The yellow LED on the RF expansion module lights up briefly to acknowledge successful logon of the DOW 1171 to the RF expansion module.

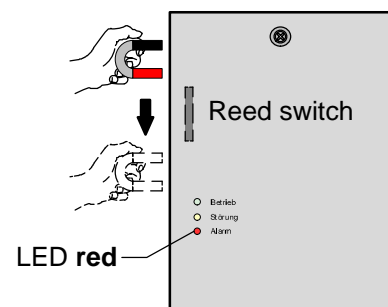
- All additional RF detectors (up to a maximum of 30) are logged on to FK 100 LSN in this way **one after the other**.
- Wait until the red LED (flashing to indicate field strength) on the last detector goes out.



- Activate the reed contact on FK 100 LSN by moving the magnets along the left-hand side of the housing.

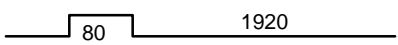
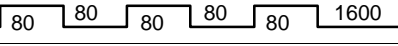
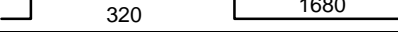
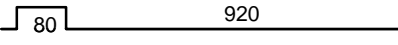
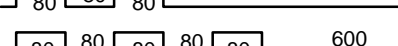
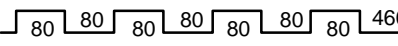
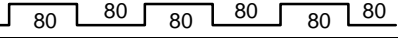
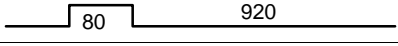

⇒ The green LED flashes slowly, indicating that FK 100 LSN has started system configuration.

⇒ Following successful system configuration, the green LED lights up permanently, indicating that the radio cell is in standard mode.



8. LED Displays

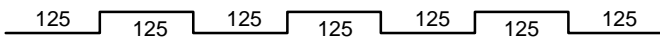


8.1. LED (red) on RF smoke detector DOW 1171

Flash cycle		Timing diagram [ms]	Cause
Slowly	1x/2s		New logon
Rapidly	3x/2s		Renewed logon
Long	1x/2s		System search
<u>Slowly to rapidly</u>			<u>Field strength flashing</u>
	1x/1s		Field strength very low
	2x/1s		Field strength low
	3x/1s		Field strength moderate
	4x/1s		Field strength high
Very rapid	6x/1s		Fault, defect
Slowly	1x/1s		Fire alarm

8.2. LEDs on RF expansion module FK 100 LSN

Display	LED			Cause
	red	yel- low	green	
Rapid flashing		x	x	Frequency search
Rapid flashing			x	RF smoke detector logon
Rapid flashing		x		Initial set-up without WinPara
Rapid flashing	x			Conflict mode
Slow flashing			x	Radio cell system configuration
Slow flashing		x		Standby mode
Slow flashing	x			Fire alarm
Steady light		x		Sabotage alert (expander opened or de- tector twisted out of base)
Steady light			x	Normal mode

Timing diagram [ms]

Display	Timing diagram [ms]
Rapid flashing, 4Hz	
Slow flashing, 0.5Hz	
Steady light	



9. Maintenance and service



The functionality of the system must be checked at least once a year (see also DIN VDE 0833 -1).

- ☞ Maintenance and inspection work should be carried out regularly by trained personnel.

9.1. Battery change in RF smoke detector DOW 1171

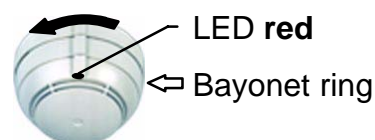


Under optimum application conditions, lithium batteries have an operational life of approx. 5 years. However, we recommend that you replace the batteries after approx. 4 years, as part of a scheduled inspection.

- ☞ Batteries are changed during normal operation.
- ☞ It is not necessary to make any settings on the fire panel.
- ☞ When changing the batteries, various system-specific fault messages are generated when the detector is removed, these must be reset manually once the batteries have been changed.
- ☞ **Only one detector should be removed from the base to avoid any mix up when refitting them.**

Procedure

- Turn the bayonet ring to the left and remove the detector from the socket.
 - Replace the batteries and then secure the cables so that they do not become trapped when the detector is mounted.
- ⇒ The red individual display LED will flash three times in two seconds once the batteries have been inserted.
- Refit the detector to the base within 10 minutes of changing the batteries.
- ⇒ The red individual display LED flashes at a frequency of 1-4Hz, depending on the field strength, indicating that the RF detector is logging on to the RF expansion module again.
- ☞ The individual display LED will go out once this renewed logon procedure is complete.
 - The batteries in the next detector are then changed.



9.2. Service Accessories

Product ID	LE*	Designation
4.998.112.071	ST	Test device for optical smoke detectors
4.998.112.069	ST	Telescopic rod (1m – 3.38m) made from fiberglass. Can be extended with max. 3 extension rods.
4.998.112.070	ST	Extension rod made from fiberglass (1m) A maximum of 3 extension rods can be used.
4.998.120.144	ST	Detector exchanger for optical smoke detector DOW 1171 (only suitable for use with Siemens service rods)
4.998.112.074	ST	Solo aerosol, testing gas (spray can) for smoke detectors

* LE = Delivery unit; PAK = Packing

9.3. Spare parts

Product ID	LE*	Designation
8.787.335.005	ST	9V lithium battery for RF detector DOW 1171 Two batteries per detector are required!



In case of defect, the entire module/driver is exchanged.
Disposal of defective modules/devices/batteries should be disposed of according to legal regulations.

9.4. Additional Documentation



For those with access authorization, on the Bosch ST ExtraNet at www.boschsecurity.com/emea/fire the current information for each product, as well as the installation instructions supplied with the device, are available for download as a PDF file.

10. Table of Abbreviations

ABS	=	A crylnitrile B utadiene S tylene (plastic)
AC	=	A lternating c urrent
AHB	=	Connectionhandbook
a.P.	=	Surface mounting
BMZ	=	Fire panel
DC	=	D irect c urrent
DIN	=	G erman I nstitute for S tandardization
EN	=	E uropean S tandard
ESD	=	E lectro s tatic d ischarge
FK	=	RF expansion module
IHB	=	I nstallation h and b ook
LED	=	L ight E mitting D iode
LSN	=	L ocal S ecurity N etwork
PC	=	P olycarbonate (plastic)
SRD	=	S hort range d evelopments
u.P.	=	Concealed
VDE	=	A ssociation of G erman E lectrical Engineers
VdS	=	VdS Schadenverhütung GmbH
WinPara	=	Windows-based software for programming Bosch LSN security systems

11. Troubleshooting



If you experience problems with initial-set up, DLC support should generally be contacted before modules are exchanged!

Problem	Solution
The LED on the detector flashing rapidly when the batteries are inserted.	<ul style="list-style-type: none">○ Press the new button on the back of the detector and hold it for at least 3 seconds. This resets the detector.
LEDs on the RF expansion module flashing without definition.	<ul style="list-style-type: none">○ Reset the RF expansion module using the WinPara parameterization module or reset it manually, see page 17 and page 23.

12. Notes

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