SIEMENS

FDCW241

Radio gateway

Technical Manual

Building Technologies

Control Products and Systems

Legal notice

Technical specifications and availability subject to change without notice.

Issued by:

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Edition: 2016-11-28

Document ID: A6V10227639_k_en_--

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1 About this document

Goal and purpose

This document contains information on the radio gateway FDCW241. Following the instructions consistently will ensure that the product can be used safely and without any problems.

Intended use

The radio gateway FDCW241 must only be used on a FDnet/C-NET detector line in a fire detection system FS20/FS720.

	• Specialist electrical engineering knowledge is required for installation. • Only an expert is permitted to carry out installation work. Incorrect installation can take safety devices out of operation unbeknown to a layperson.

Target groups

The information in this document is intended for the following target groups:

Target group	Activity	Qualification
Product Manager	• Is responsible for information passing between the manufacturer and regional company. • Coordinates the flow of information between the individual groups of people involved in a project.	• Has obtained suitable specialist training for the function and for the products. • Has attended the training courses for Product Managers.
Project Manager	• Coordinates the deployment of all persons and resources involved in the project according to schedule. • Provides the information required to run the project.	• Has obtained suitable specialist training for the function and for the products. • Has attended the training courses for Project Managers.
Project engineer	• Sets parameters for product depending on specific national and/or customer requirements. • Checks operability and approves the product for commissioning at the place of installation. • Is responsible for troubleshooting.	• Has obtained suitable specialist training for the function and for the products. • Has attended the training courses for Product Engineer.
Installation personnel	• Assembles and installs the product components at the place of installation. • Carries out a performance check following installation.	• Has received specialist training in the area of building installation technology or electrical installations.
Maintenance personnel	• Carries out all maintenance work. • Checks that the products are in perfect working order. • Searches for and corrects malfunctions.	• Has obtained suitable specialist training for the function and for the products.

Source language and reference document

- The source/original language of this document is German (de).
- The reference version of this document is the international version in English. The international version is not localized.

Document identification

The document ID is structured as follows:

ID code	Examples
ID_ModificationIndex_Language_COUNTRY -- = multilingual or international	A6V10215123_a_de_DE A6V10215123_a_en_-- A6V10315123_a_--_--

Date format

The date format in the document corresponds to the recommendation of international standard ISO 8601 (format YYYY-MM-DD).

Conventions for text marking

Markups

Special markups are shown in this document as follows:

▷	Requirement for a behavior instruction
1. 2.	Behavior instruction with at least two operation sequences
–	Version, option, or detailed information for a behavior instruction
⇨	Intermediate result of a behavior instruction
⇨	End result of a behavior instruction
●	Numbered lists and behavior instructions with an operation sequence
[➜ X]	Reference to a page number
'Text'	Quotation, reproduced identically
<Key>	Identification of keys
>	Relation sign and for identification between steps in a sequence, e.g., 'Menu bar' > 'Help' > 'Help topics'
↑ Text	Identification of a glossary entry

Supplementary information and tips

	The 'i' symbol identifies supplementary information and tips for an easier way of working.

1.1 Applicable documents

Document ID	Title
001508	Guidelines Connection factors, line resistances and capacitances for fire detection systems collective, AnalogPLUS, interactive, FDnet
008250	Technical Manual Line tester FDUL221
008331	List of compatibility (for 'Sinteso™' product line)
009052	FS20 Fire detection system - Commissioning, Maintenance, Troubleshooting
009409	Data sheet Colored detectors, bases and base attachment FDO.., FDOOT…, FDT…, FDB…
010030	Application guideline Sinteso Fire detectors
A6V10210416	FS720 Fire detection system - Commissioning, Maintenance, Troubleshooting
A6V10227631	Planning Radio fire detection system SWING
A6V10227643	User Guide SWING-Tool FXS2061
A6V10229261	List of compatibility (for 'Cerberus™ PRO' product line)
A6V10271323	Data sheet SWING Neural radio fire detector FDCW241, FDOOT271, FDM273, FDM275, FDM275(F)
A6V10347735	Installation MCL-USB adapter (radio) FDUZ227
A6V10367669	Open-Source Software (OSS) Licenses SWING

1.2 Download center

You can download various types of documents, such as data sheets, installation instructions, and license texts via the following Internet address:

http://siemens.com/bt/download

● Enter the document ID in the 'Find by keyword' input box.

You will also find information about search variants and links to mobile applications (apps) for various systems on the home page.

1.3 Technical terms and abbreviations

Term	Explanation
Battery empty	Fault message in the event of a battery failing completely
Battery low	Fault message in the event that the spare battery is activated
FDnet/C-NET	Addressed detector line
MC link	Maintenance and commissioning link, interface on radio gateway to PC
LED	Light-emitting diode

1.4 Revision history

The reference document's version applies to all languages into which the reference document is translated.

| **i** | The first edition of a language version or a country variant may, for example, be version 'd' instead of 'a' if the reference document is already this version. |

The table below shows this document's revision history:

Modification index	Edition date	Brief description
k	2016-11-28	Frequencies specified in 'Technical data' chapter
j	2016-09-30	Editorial adaptations throughout the document.
i	2016-04-25	Changes/additions in the following chapters: • 'Replacing the radio gateway and transferring data' • 'Replacing the radio gateway FDCW241' • 'Firmware update' Additional editorial changes throughout the document.
h	2015-10-15	Changes/additions in the following chapters: • Radio cell • Internal view • Status display on the radio gateway • Compatibility FDnet/C-NET • Basic rules for commissioning • Commissioning the radio cell • Maintenance / troubleshooting • Putting the radio cell into maintenance mode • Putting the radio cell into normal operation • Adding or removing radio devices • Adding radio devices • Removing radio devices permanently • Replacing a radio device with another of the same type • Replacing the radio gateway FDCW241 • Technical data Graphical internal views of the radio gateway display design with new antenna
g	2015-06-16	The following accessory parts added: • FDCH271 (housing base) • FDCH272 (housing cover) Frequencies corrected in 'Technical data' chapter
f	2015-03-06	• Chapter with reference to download center added • 'Intended use' section added • Editorial changes • All graphics updated • 'Messages and consequences' chapter added • Tables on the flashing behavior of the LEDs added to 'Status display on the radio gateway' chapter • Graphic added to 'Basic rules for commissioning' chapter • Steps added to 'Commissioning the radio cell' chapter • 'Technical data' chapter revised
e	2013-09-01	Changes in chapter: Planning, Technical data

Modification index	Edition date	Brief description
d	2013-01-15	New chapters 'Replacing the radio gateway' and 'Firmware update'
c	2012-10-19	Maximum current connection factor and quiescent current connection factor changed.
b	2012-06-22	Editing
a	2011-11-01	First edition

The language versions and country variants produced by a local company have the same modification index as the corresponding reference document. They are not however included in the table below.

The table below shows the published language versions and country variants with the corresponding modification index:

Modification index	en_--	de_--	fr_--	it_--	es_--
k	X	X	X	X	X
j	–	X	–	–	–
i	–	X	–	–	–
h	–	X	–	–	–
g	–	X	–	–	–
f	X	X	X	X	X
e	X	X	X	X	X
d	X	X	X	X	X
c	X	X	X	X	X
b	X	X	X	X	X
a	–	X	–	–	–

X = published

– = no publication with this modification index

2 Safety

2.1 Safety instructions

The safety notices must be observed in order to protect people and property.

The safety notices in this document contain the following elements:

- Symbol for danger
- Signal word
- Nature and origin of the danger
- Consequences if the danger occurs
- Measures or prohibitions for danger avoidance

Symbol for danger

⚠	This is the symbol for danger. It warns of **risks of injury**. Follow all measures identified by this symbol to avoid injury or death.

Additional danger symbols

These symbols indicate general dangers, the type of danger or possible consequences, measures and prohibitions, examples of which are shown in the following table:

Symbol	Description	Symbol	Description
⚠	General danger	⚠(EX)	Explosive atmosphere
⚠	Voltage/electric shock	⚠	Laser light
⚠	Battery	⚠	Heat

Signal word

The signal word classifies the danger as defined in the following table:

Signal word	Danger level
DANGER	DANGER identifies a dangerous situation, which **will result directly in death or serious injury** if you do not avoid this situation.
WARNING	WARNING identifies a dangerous situation, which **may result in death or serious injury** if you do not avoid this situation.
CAUTION	CAUTION identifies a dangerous situation, which could result in **slight to moderately serious injury** if you do not avoid this situation.
NOTICE	*NOTICE* identifies possible damage to property that may result from non-observance.

How risk of injury is presented

Information about the risk of injury is shown as follows:

	⚠ WARNING
	Nature and origin of the danger
	Consequences if the danger occurs
	• Measures / prohibitions for danger avoidance

How possible damage to property is presented

Information about possible damage to property is shown as follows:

	NOTICE
	Nature and origin of the danger
	Consequences if the danger occurs
	• Measures / prohibitions for danger avoidance

2.2 Safety regulations for the method of operation

National standards, regulations and legislation

Siemens products are developed and produced in compliance with the relevant European and international safety standards. Should additional national or local safety standards or legislation concerning the planning, mounting, installation, operation or disposal of the product apply at the place of operation, then these must also be taken into account together with the safety regulations in the product documentation.

Electrical installations

⚡	⚠ WARNING
	Electrical voltage
	Electric shock
	• Work on electrical installations may only be carried out by qualified electricians or by instructed persons working under the guidance and supervision of a qualified electrician, in accordance with the electrotechnical regulations.

- Wherever possible disconnect products from the power supply when carrying out commissioning, maintenance or repair work on them.
- Lock volt-free areas to prevent them being switched back on again by mistake.
- Label the connection terminals with external voltage using a 'DANGER External voltage' sign.
- Route mains connections to products separately and fuse them with their own, clearly marked fuse.
- Fit an easily accessible disconnecting device in accordance with IEC 60950-1 outside the installation.
- Produce earthing as stated in local safety regulations.

⚠	⚠ CAUTION
	Noncompliance with the following safety regulations
	Risk of injury to persons and damage to property
	• Compliance with the following regulations is required.

🔧	• Specialist electrical engineering knowledge is required for installation.
	• Only an expert is permitted to carry out installation work.
	Incorrect installation can take safety devices out of operation unbeknown to a layperson.

Mounting, installation, commissioning and maintenance

- If you require tools such as a ladder, these must be safe and must be intended for the work in hand.
- When starting the fire control panel ensure that unstable conditions cannot arise.
- Ensure that all points listed in the 'Testing the product operability' section below are observed.
- You may only set controls to normal function when the product operability has been completely tested and the system has been handed over to the customer.

Testing the product operability

- Prevent the remote transmission from triggering erroneously.
- If testing building installations or activating devices from third-party companies, you must collaborate with the people appointed.
- The activation of fire control installations for test purposes must not cause injury to anyone or damage to the building installations. The following instructions must be observed:
  - Use the correct potential for activation; this is generally the potential of the building installation.
  - Only check controls up to the interface (relay with blocking option).
  - Make sure that only the controls to be tested are activated.
- Inform people before testing the alarm devices and allow for possible panic responses.
- Inform people about any noise or mist which may be produced.
- Before testing the remote transmission, inform the corresponding alarm and fault signal receiving stations.

Modifications to the system design and the products

Modifications to the system and to individual products may lead to faults, malfunctioning and safety risks. Written confirmation must be obtained from Siemens and the corresponding safety bodies for modifications or additions.

Modules and spare parts

- Components and spare parts must comply with the technical specifications defined by Siemens. Only use products specified or recommended by Siemens.
- Only use fuses with the specified fuse characteristics.
- Wrong battery types and improper battery changing lead to a risk of explosion. Only use the same battery type or an equivalent battery type recommended by Siemens.
- Batteries must be disposed of in an environmentally friendly manner. Observe national guidelines and regulations.

Disregard of the safety regulations

Before they are delivered, Siemens products are tested to ensure they function correctly when used properly. Siemens disclaims all liability for damage or injuries caused by the incorrect application of the instructions or the disregard of danger warnings contained in the documentation. This applies in particular to the following damage:

- Personal injuries or damage to property caused by improper use and incorrect application
- Personal injuries or damage to property caused by disregarding safety instructions in the documentation or on the product
- Personal injury or damage to property caused by poor maintenance or lack of maintenance

2.3 Standards and directives complied with

A list of the standards and directives complied with is available from your Siemens contact.

2.4 Release Notes

Limitations to the configuration or use of devices in a fire detection installation with a particular firmware version are possible.

⚠	⚠ WARNING
	Limited or non-existent fire detection
	Personal injury and damage to property in the event of a fire.
	• Read the 'Release Notes' before you plan and/or configure a fire detection installation.
	• Read the 'Release Notes' before you carry out a firmware update to a fire detection installation.

!	*NOTICE*
	Incorrect planning and/or configuration
	Important standards and specifications are not satisfied.
	Fire detection installation is not accepted for commissioning.
	Additional expense resulting from necessary new planning and/or configuration.
	• Read the 'Release Notes' before you plan and/or configure a fire detection installation.
	• Read the 'Release Notes' before you carry out a firmware update to a fire detection installation.

3 Structure and function

3.1 Setup

3.1.1 Radio cell

The radio gateway forms a radio cell together with the radio devices that are connected via radio.

The radio gateway is used to monitor signals from radio devices and transfer them to a fire control panel via the detector line.

The radio gateway communicates with the control panel via the detector line. Power is supplied via the detector line and via a battery pack. This ensures a permanent power supply for the radio gateway.

The areas that radio cells cover may overlap. The radio cell may take the following formats:

● Loop with a maximum of 32 addresses (30 addresses for radio devices and 2 addresses for the radio gateway)

or

● Stub with a maximum of 32 addresses (30 addresses for radio devices and 2 addresses for the radio gateway)

> Observe the country-specific regulations relating to the permitted number of devices. The radio gateway always occupies two addresses. You will find the performance characteristics in documents A6V10227631 and A6V10271323

The radio gateway FDCW241 can communicate with the following devices:

● Radio fire detector FDOOT271
● Radio manual call point FDM273
● Radio manual call point FDM275
● Radio manual call point FDM275(F)

The following diagram shows possible ways of integrating the radio gateway into the fire detection system on a FDnet/C-NET detector line.
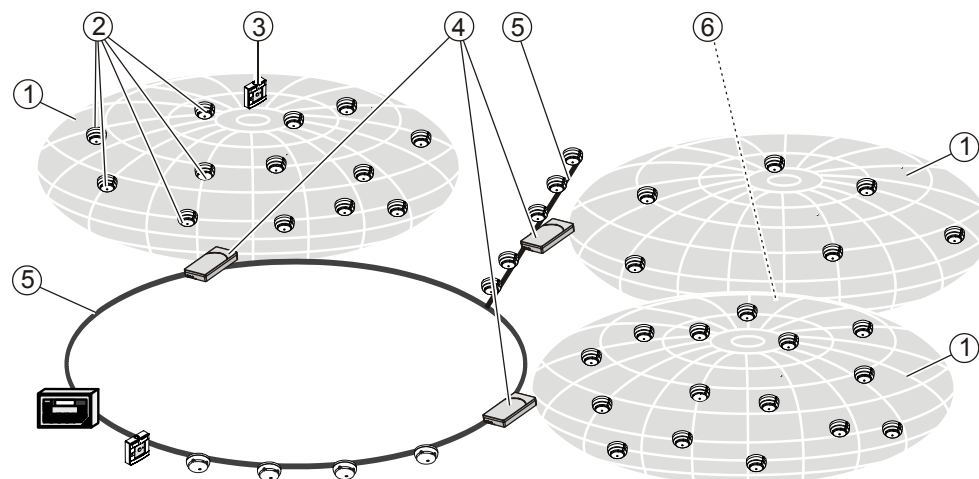

Figure 1: Radio gateway FDCW241 on detector line

1	Radio cell	4	Radio gateway FDCW241
2	Radio fire detector FDOOT271	5	Detector line
3	Radio manual call point FDM273, FDM275 or FDM275(F)	6	Radio cell overlapping

3.1.2 External view

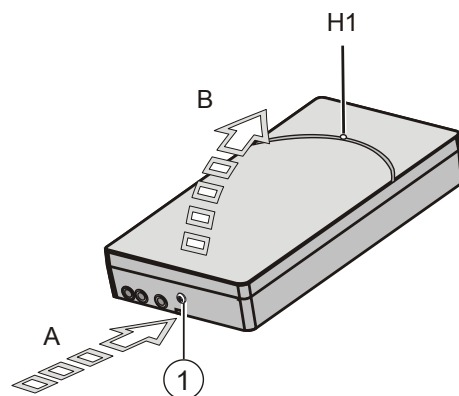*Figure 2: External view of radio gateway FDCW241*

1 Screw

A Unlocking for housing cover

B Opening direction

H1 Red / green LED for detector line

3.1.3 Internal view
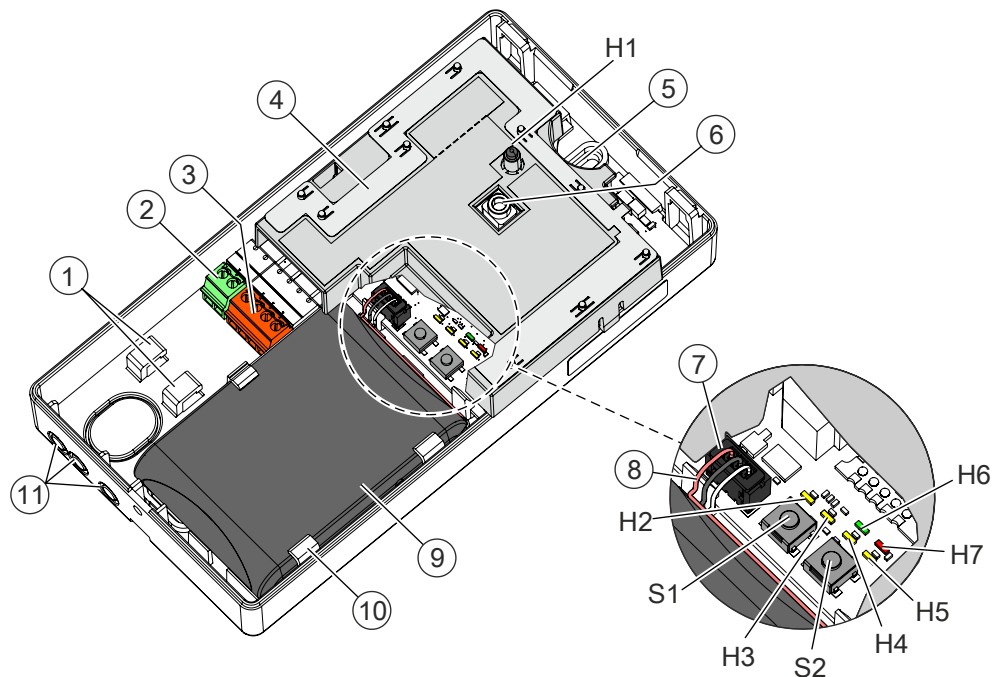
Figure 3: Internal view of radio gateway FDCW241

1	Fastening tabs for strain relief	11	Cable entries
2	Socket strip, 2 poles	H1	Red / green LED for detector line
3	Detector line socket strip	H2	Yellow LED for maintenance mode
4	Aerial	H3	Yellow LED for reset
5	Opening for screw fastening	H4	Yellow LED for radio cell
6	Socket for MCL-USB adapter (radio)	H5	Yellow LED for battery
7	Battery connector (3-pin)	H6	Green LED for connection to software tool FXS2061
8	Battery cable	H7	Red LED for faults
9	Battery pack	S1	Button for maintenance mode
10	Holder for battery pack	S2	Reset button

3.1.4 Scope of delivery

- 1x radio gateway FDCW241
- 1x screw for cover
- 2x cable ties (2.4 x 102 mm) for cable strain relief

ℹ️	Batteries are not included in the scope of delivery. A battery pack is always needed to commission and operate the radio gateway.

3.1.5 Details for ordering

Type	Order number	Designation
FDCW241	S54370-F11-A1	Radio gateway
FDCW241	S54370-F11-A3	Radio gateway (colored)

3.2 Function

3.2.1 Diagnosis levels

The radio gateway monitors its operation largely autonomously. If a radio gateway fails, a fault is signaled and displayed on the control unit.

The following diagnosis levels are derived from the various control measurements in the radio cell:

- Normal
- Battery low
- Battery empty
- Fault

Diagnosis level	Meaning	Measures
Normal	• No faults present. • The radio gateway is fully functional.	• None
Battery low	• The battery voltage is too low. • Battery pack replacement recommended.	• Connect a new battery pack.
Battery empty	• The radio gateway is only being supplied with power via the detector line. • The battery is completely discharged or missing. • Battery pack replacement necessary.	
Fault[1]	• The radio gateway has only limited functionality.	• Test the detector line voltage. • Check whether all the radio devices are logged on. • Replace the radio gateway.

[1] This diagnosis level can be indicated together with other diagnosis levels, e.g., with 'Battery low'.

3.2.2 Behavior in degraded mode

Applicable for the FDnet/C-NET:

When the main processor of the fire control panel fails, the control panel works in degraded mode operation. Depending on the control panel type, the fire control panel can continue to perform the most important alarming and signaling functions in degraded mode operation.

Behavior of control panels that support degraded mode operation:

● Alarming is still ensured in degraded mode operation. However, in degraded mode only collective alarming is possible. This means that in the event of an alarm, it is possible to identify the FDnet/C-NET detector line but not the exact location of the detector triggering the alarm.

Degraded mode operation on the FDnet/C-NET is not supported in the same way by all control panels. The information in the 'List of compatibility' and in the corresponding control panel documentation must be taken into account during project planning.

3.2.3 Status display on the radio gateway

The status is displayed directly on the radio gateway by means of LEDs.

● External indicator, red and green (H1)
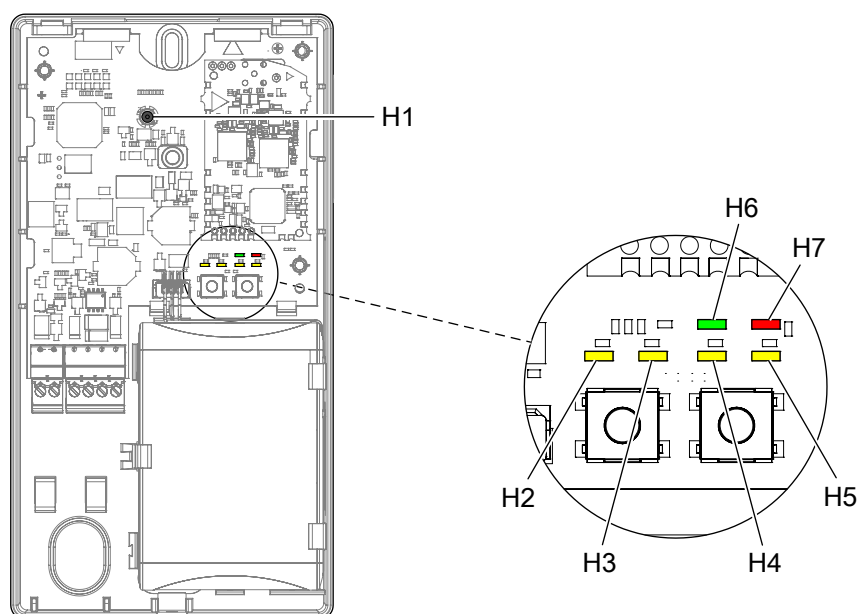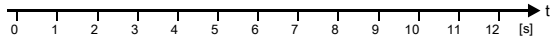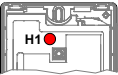● Six indicators in the housing (H2, H3, H4, H5, H6, H7). You can see these if you open the housing cover.
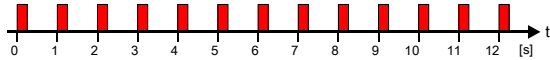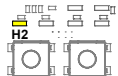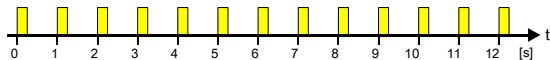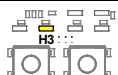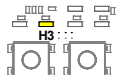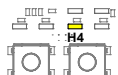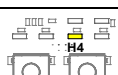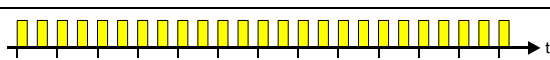
Figure 4: Radio gateway FDCW241

H1	Red / green LED for detector line
H2	Yellow LED for maintenance mode
H3	Yellow LED for reset
H4	Yellow LED for the radio network
H5	Yellow LED for the charge status of the battery pack
H6	Green LED for connection to software tool FXS2061
H7	Red LED for faults

Radio gateway status

The table below describes the flashing behavior of the LEDs H1...H7 for gateway FDCW241.

Indication		Meaning	Graphic
H1, H2, H3, H4, H5, H6, H7	Off	When a power supply is present, the radio gateway operates without any problems.	
	H1 flashes red once a second	The control panel sets the P2 localization bit.	
	H2 flashes yellow once a second	The radio cell is in maintenance mode.	
	H3 flashes yellow twice every second for 20 seconds	The factory settings have been established. The radio gateway is now ready for operation.	
	H3 flashes yellow every second for 5 seconds	Once the power supply has been connected and the indicator has flashed 5 times, the radio gateway is ready for operation.	
	H4 flashes yellow every two seconds	The radio cell is not yet ready for operation. Not all the radio devices are being monitored yet, or not all of them have been read in by the radio gateway yet.	
	H4 flashes yellow twice every second	The radio module has failed. There is no connection to the radio devices.	
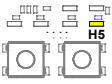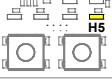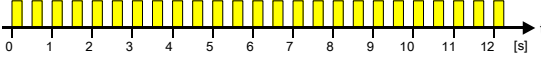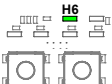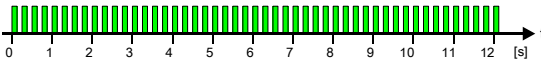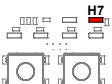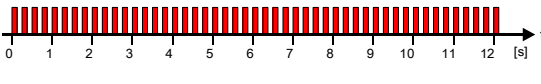
Indication		Meaning	Graphic
	H5 flashes yellow every two seconds	'Battery low' The battery pack needs to be replaced.	
	H5 flashes yellow twice every second	'Battery empty' The battery pack is missing or not connected.	
	H6 flashes green four times every second	The connection to software tool FXS2061 has been established.	
	H7 flashes red four times every second	There is a fault.	

Table 1: Radio gateway status

3.3 Power supply

Power supply via the detector line

- For normal operation

Power supply from battery pack BAT3.6-10

ℹ️ When the battery pack is supplying power, the radio network remains active even if the detector line is switched off. As a result, wireless operation will occur when the detector line is switched on.

- For commissioning the radio cell for the first time
- If the power supply via the detector line is interrupted
- If the detector line is temporarily switched off

When the battery is full, the operating life is around one week if no power is supplied via the detector line.

3.4 Accessories

3.4.1 Connection terminal DBZ1190-AB
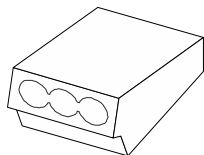
- Auxiliary terminal for connecting cables
- For T-branches of additional cabling, e.g., for cable shielding, detector heating units, sounder base, external alarm indicators, etc.
- For conductor cross-sections of 1…2.5 mm²
- 3 poles
- Order number: BPZ:4942340001

3.4.2 Battery pack BAT3.6-10
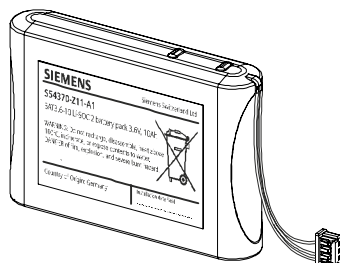
- For supplying radio devices and the radio gateway with power
- Lithium batteries
  - BAT3.6-10 LI-SOCl2 battery pack 3.6 V, 10 Ah
- Batteries with battery cable
- Connector system with protection against polarity reversal
- Inscription field for commissioning date
- Compatible with:
  - Radio gateway FDCW241
  - Radio manual call point FDM273
  - Radio manual call point FDM275
  - Radio manual call point FDM275(F)
  - Radio fire detector FDOOT271
- Order number: S54370-Z11-A1

3.4.3 Housing FDCH221
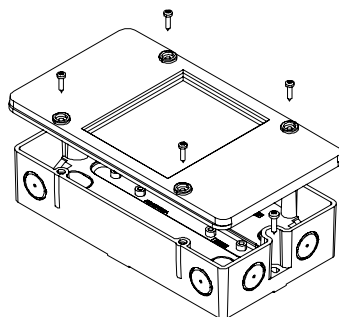
- To protect against dust and wetness
- Compatible with:
  - Multi line separator module FDCL221-M
  - Input module FDCI22x(-CN)
  - Input/output module FDCIO22x(-CN)
  - Output module FCA1209-Z1
  - Radio gateway FDCW241
  - Zone module, external powered FDCI223, FDCI723
- Order number: S54312-F3-A1

3.4.4 Housing base FDCH271
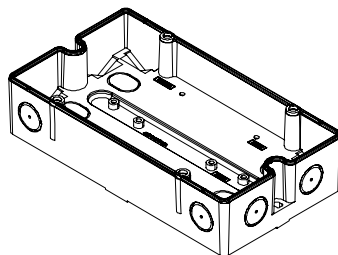
- Housing base for radio gateway
- Order number: S54370-N45-A1

3.4.5 Housing cover FDCH272
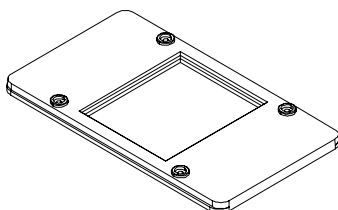
- Housing cover for radio gateway
- Order number: S54370-N46-A1

3.4.6 MCL-USB (radio) adapter FDUZ227
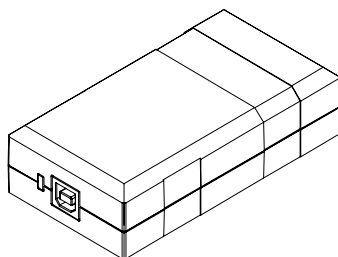
- For connecting FDnet/C-NET devices to a personal computer
- Signals can be transmitted to SWING radio devices via radio
- Interface converter for USB on MC link
- Compatible with:
    - Floor repeater terminal FT2010
    - Floor repeater display FT2011
    - Radio gateway FDCW221 and FDCW241
    - Detector exchanger and tester FDUD292
    - Intelligent detector tester FDUD293
    - Line tester FDUL221
    - Radio manual call point FDM27x
    - Radio fire detector FDOOT271
- You will find more information in document A6V10347735
- Order number: S54323-F106-A1

4 Planning

The radio connection means that there is no need to wire the radio devices, such as the radio fire detector, radio manual call point, etc., in the usual way. Together with the radio gateway, the radio devices form a radio cell. The control panel treats this radio cell as a loop or a stub. It is used for the 'Sinteso' and 'Cerberus PRO' product lines.

In the 'Planning' document (A6V10227631), you will find detailed information about the components of the radio fire detection system as well as the necessary devices and device combinations.

You will find more information in the 'List of compatibility'.

4.1 Compatibility FDnet/C-NET
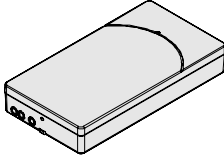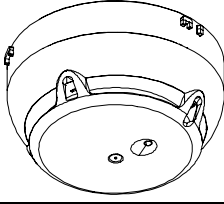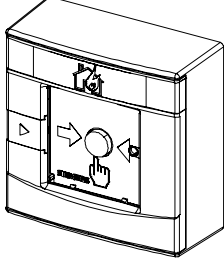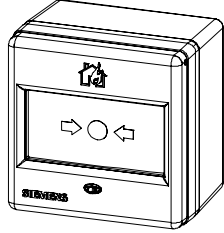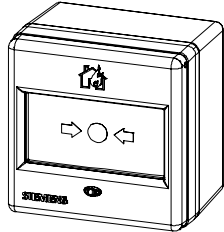
Compatible with control panels that support the FDnet/C-NET detector line.

Detector line	Control panel				
	FC20xx	FC72x	SIGMASYS	AlgoRex	FC361-xx
FDnet	X	–	–	–	–
C-NET	–	X	–	–	–

X = compatible

– = not compatible

Note that different market package compatibilities apply depending on the radio device. You will find information on this in the following table:

Radio device		Detector line	
		FDnet	C-NET
FDCW241		≥MP4	≥IP4
FDOOT271		≥MP4	≥IP4
FDM273		≥MP4	≥IP4
FDM275		≥MP5	≥IP5
FDM275(F)		≥MP5	≥IP5

You will find detailed information in the 'List of compatibility'.

Limitations

- Maximum 16 FDCW241 radio gateways per line
- Reduced if length of line is over 2,200 m as per Sinteso Quantities tool (A6V10094878) or Cerberus PRO Quantities tool (A6V10211118)

5 Mounting / Installation

5.1 Mounting
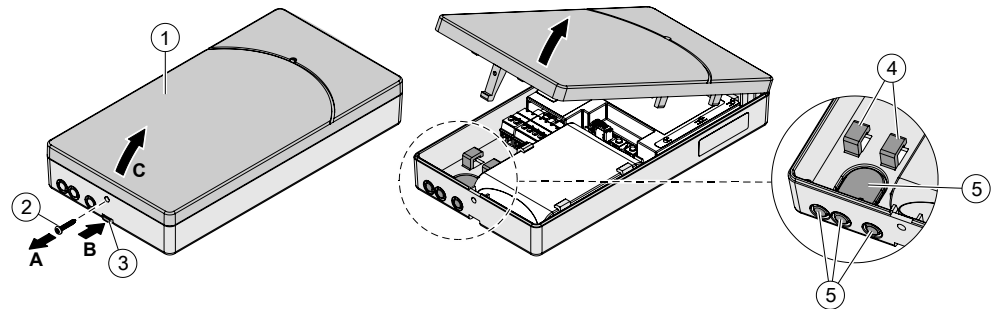
Figure 5: Installing the radio gateway

1 Housing cover

2 Screw

3 Lock

4 Strain relief fastenings

5 Cable entries

▷ You have the radio gateway, battery pack, fixing screws, and cable tie to hand.

▷ You have the device location plan to hand.

▷ The connection cable has a conductor cross-section of 0.2…1.5 mm².

▷ The lines to the installation location are installed.

▷ Two fixing screws (Ø max. 4.3 mm) are to hand.

1. Determine the installation location:

   – The housing must be positioned in accordance with the planning specifications (make sure there is a wide radio range and that the housing can be accessed easily).
   – Make sure there is enough space for you to open the housing cover easily.
   – The housing may be installed in any appropriate position.

2. Open the housing:

   – Remove the screw (2) (A).
   – Using a screwdriver to press the lock (3) into the housing (B) and unlock the housing cover (1).
   – Lift the housing cover (1) and remove it.

3. Remove the adhesive label bearing the serial number from the back box and use it to mark the installation location on the device location plan.

4. In the back box, break out the plastic for the cable entry (5):

   – Openings in the supporting surface for recess-mounted cables
   – Openings in the narrow side for surface-mounted cables

5. Insert the cables into the back box.

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6. Mount the back box, without the battery pack, on a flat surface using two screws (Ø max. 4.3 mm) at the mounting points (see 'Master gauge for recesses [➜ 59]' chapter). One screw at the mounting point is sufficient for fixing in housing FDCH221.

7. Fasten the cable using a cable tie as strain relief (4).

8. Label the battery pack with the date.

9. Insert the battery pack and check the position of the battery cable. Do not connect the battery pack until you are ready to commission the radio cell.

⇨ The radio gateway is installed.

See also

▤ Commissioning [➜ 32]

▤ Connecting the radio gateway [➜ 29]

5.2 Mounting in housing FDCH221

The radio gateway can be installed in a separate housing FDCH221. The housing protects the radio gateway from dirt and dust.
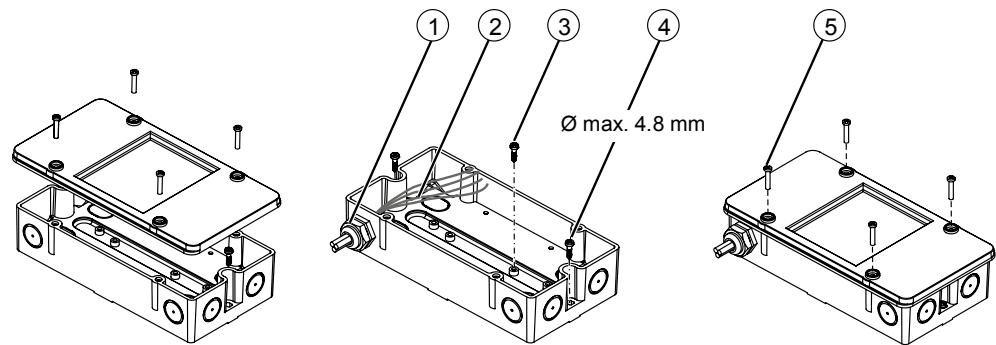
Figure 6: Installing housing FDCH221

1 Cable entry	4 Screws for securing the housing
2 Cables	5 Screws for housing cover
3 Screw for radio gateway	

Proceed as follows to install the radio gateway in housing FDCH221:

1. Break out the required cable entries (1) on the housing.

2. Install the housing with screws (4) on a level surface.

3. Insert the cables (2). If necessary, fix the cables using M20 x 1.5 cable glands or use a different cable entry.

4. Remove the housing cover from the radio gateway and dispose of it in an environmentally-friendly manner. [➜ 59]

5. Install the radio gateway in the housing using the fixing screw (3) provided.

6. Connect [➜ 29] the radio gateway.

7. Close the housing using the screws (5) provided.

⇨ The radio gateway is now installed in housing FDCH221. The radio gateway indicators can be viewed through the window of the housing.

5.3 Connecting the radio gateway

	• Specialist electrical engineering knowledge is required for installation.
	• Only an expert is permitted to carry out installation work.
	Incorrect installation can take safety devices out of operation unbeknown to a layperson.

Once all the radio devices of a radio cell have been logged on to the radio gateway (B) in battery mode (A), the radio gateway can be connected to the FDnet/C-NET detector line (C).
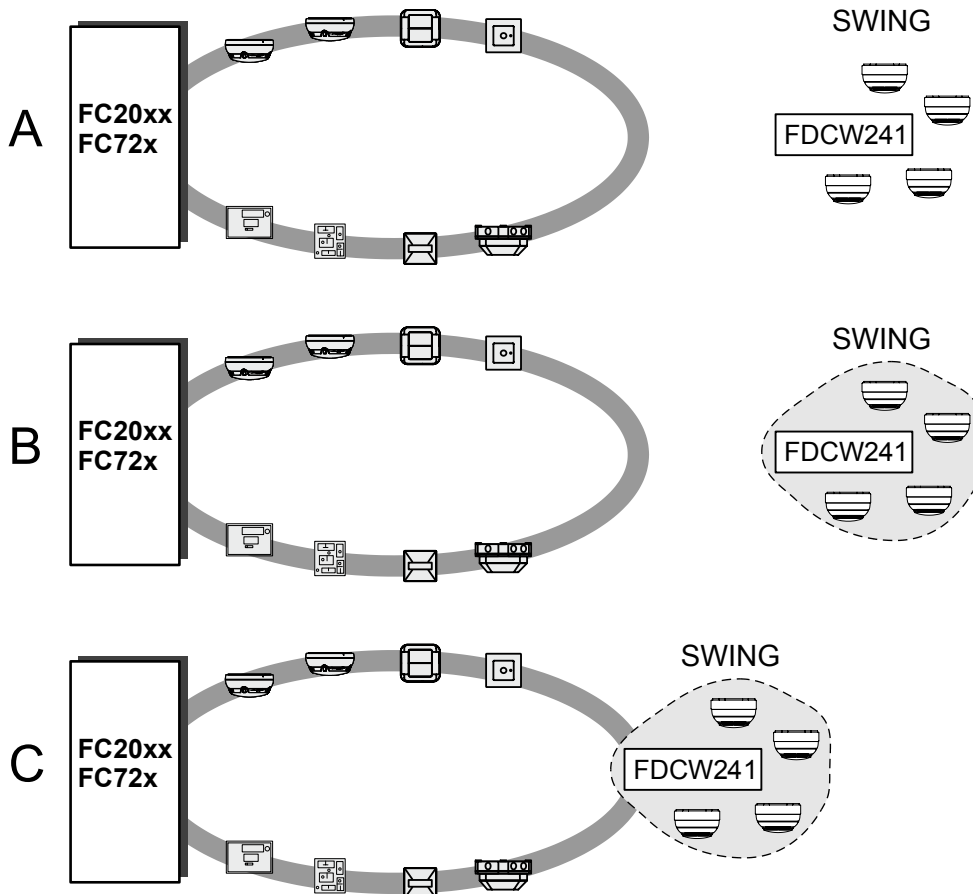
Figure 7: Connecting the radio cell to the detector line
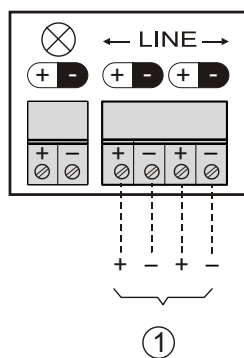
Figure 8: Connections on radio gateway FDCW241

1   detector line terminal strip

The radio gateway 'FDCW241' automatically assigns the additional, virtual address **'FDCL221v'** as a line separator. When you assign the connections, you determine the order in which the devices are read in at the control panel.

The following topologies are possible:

Radio cell as LOOP
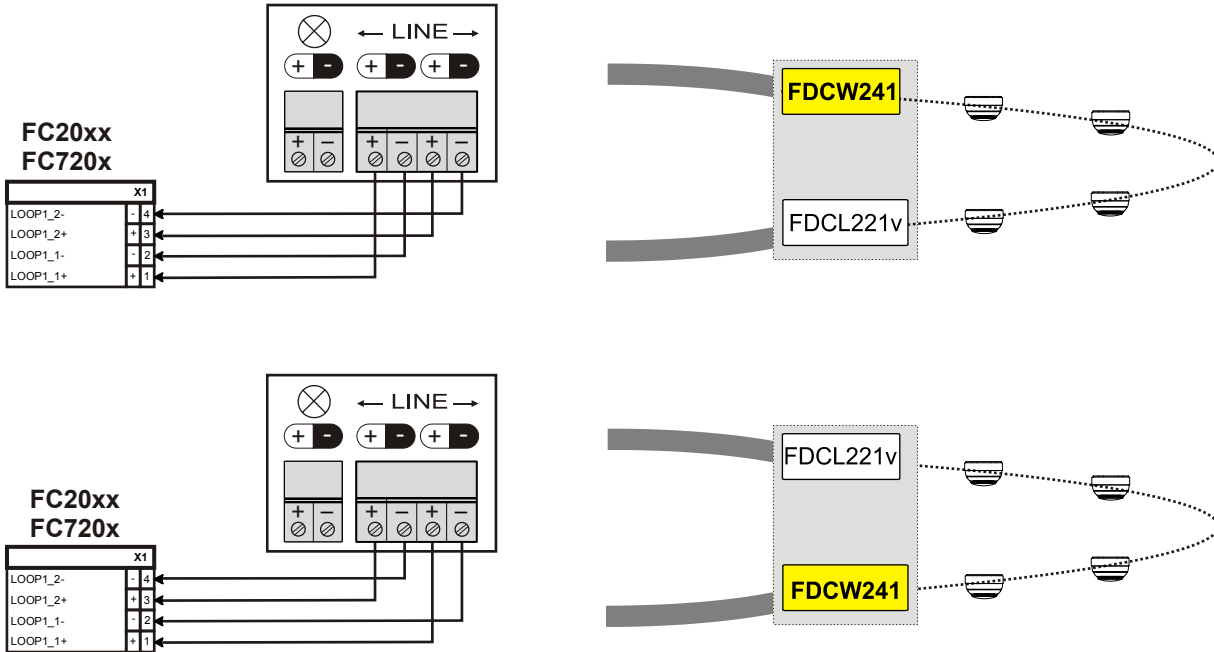
Figure 9: Loop connection

Radio cell as stub
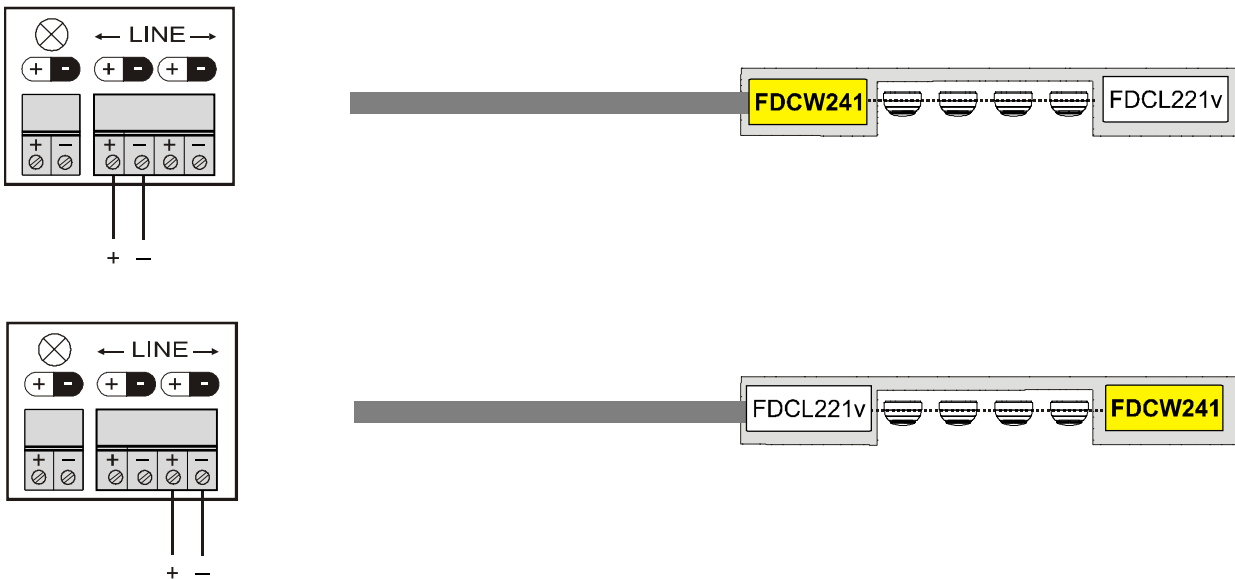
Figure 10: Stub connection only

Radio cell as sub-stub on loop
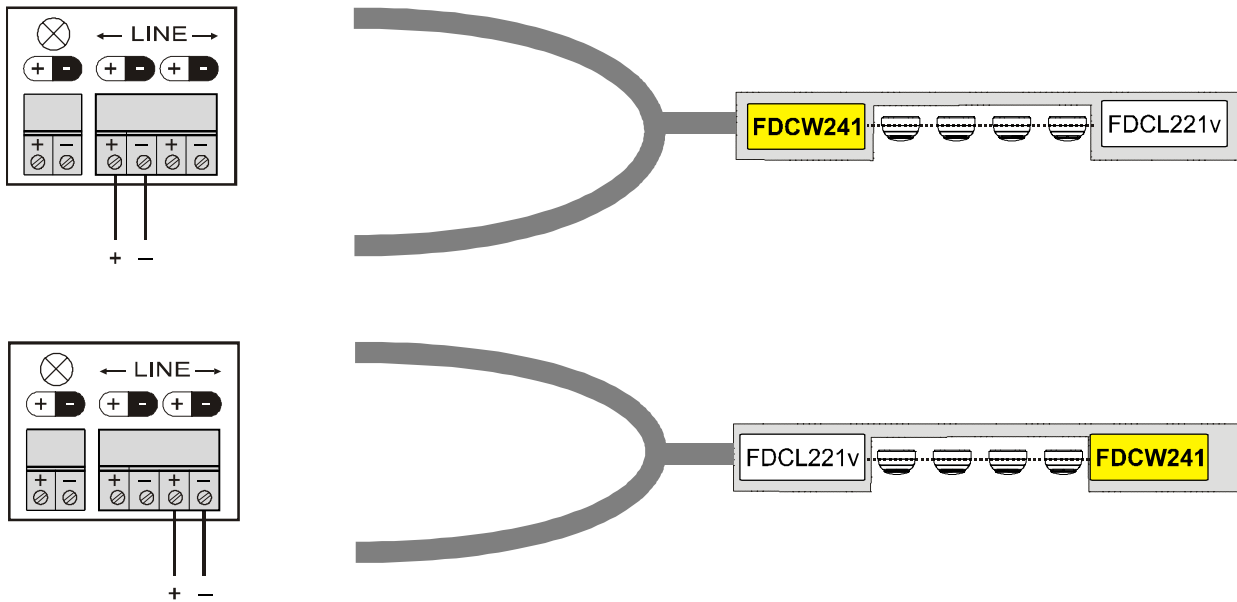
Figure 11: Sub-stub on loop connection

Wiring connections

!	**NOTICE**
	Failure of the electrical connection
	Damage to the screw terminals or contact problems may lead to faults in the electrical connection. If the conductor cross-sections you want to connect to the radio gateway are larger than 1.5 mm², the screw terminals may become damaged or contact problems may arise.
	• Use the connection terminal DBZ1190-AB for cables with a conductor cross-section of 1.5…2.5 mm².
	• Obtain a corresponding terminal from the customer for even larger cross-sections. The terminal can be positioned inside the housing.

▷ The radio cell is in battery mode.

▷ The detector line cable has a wire diameter of 0.2…1.5 mm².

▷ The detector line terminal strip is not inserted.

▷ The 2-pin terminal strip must not be connected.

1. Wire the detector line terminal strip in accordance with the required topology. Do not insert the detector line terminal strip until the radio cell has been commissioned and is about to be connected to the detector line.

2. Switch the detector line off.

3. Connect the socket strip to the radio gateway.

4. Switch the detector line on.

5. Snap the housing cover on and screw it down tight.

⇨ The radio cell is now set up and ready for commissioning via the control panel.

6 Commissioning

The procedure for commissioning via the control panel is no different to the one used for commissioning wired devices. The relevant fire detection system documents also apply to the SWING radio fire detection system.

There are two operating conditions for radio cells.

Normal operation

The radio cell is active and ready for use. Information is transmitted to the detector line via the radio gateway.

Maintenance mode

The radio cell is active but not ready for use. Information is not transmitted to the detector line via the radio gateway. The radio cell can be modified.

6.1 Basic rules for commissioning

Requirements for reliable radio device connections:

* Radio cells whose areas of coverage overlap must not be in maintenance mode at the same time. This means that you should only ever switch one radio cell at a time to maintenance mode.

Requirements for connecting the radio cell to the detector line:

* The radio cell is complete and the radio devices are logged on.
* The radio cell is working in normal operation.

Commissioning the detector line

* Finish commissioning a radio cell before you connect the radio gateway to the detector line.

You will find more information in the 'Changing and expanding the FDnet/C-NET detector line' chapters of the following documents:

For control panels FC20xx: Document 009052

For control panels FC72x: Document A6V10210416

Sequence for commissioning radio devices

Working outwards from the radio gateway, commission the individual radio devices one after the other. The graphic below serves as an example of the correct sequence for commissioning radio devices.
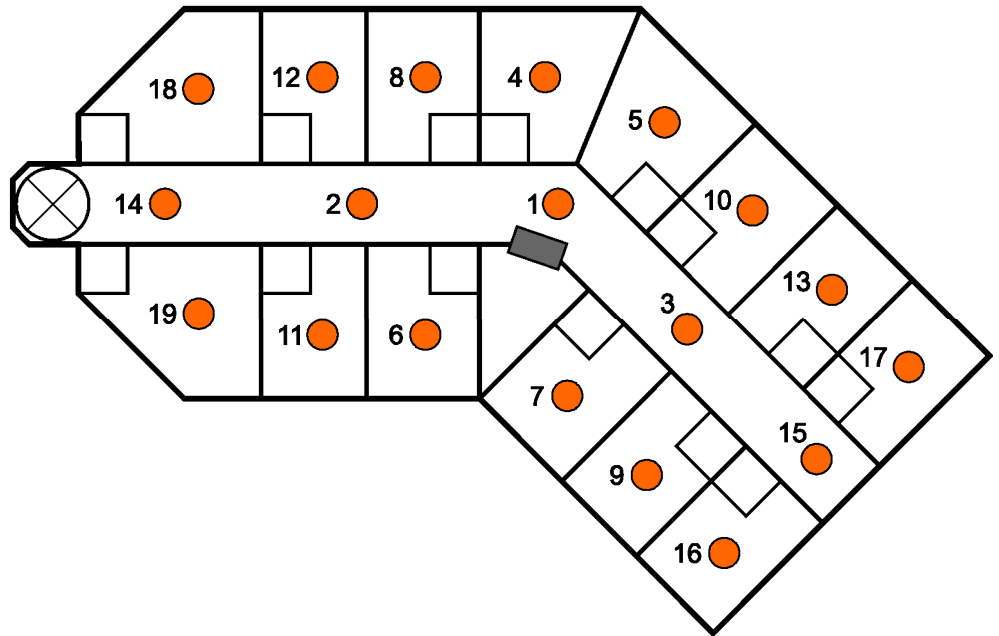
Figure 12: Example: Correct sequence for commissioning radio devices

Radio gateway

Radio device

ℹ️ Commission the radio devices that are close to the radio gateway first.
Commission the radio devices that are furthest away from the radio gateway last.

ℹ️ Only commission the radio cell at the installation location.

6.2 Commissioning the radio cell

The radio gateway forms a radio cell with the radio devices that are connected. The radio cell is switched to maintenance mode along with the radio gateway. To ensure that radio devices are integrated into the correct radio cell, only one radio cell may be in maintenance mode at any given time.

| ℹ | Start with the radio gateway. Activate the radio gateway, starting with the other radio devices. |
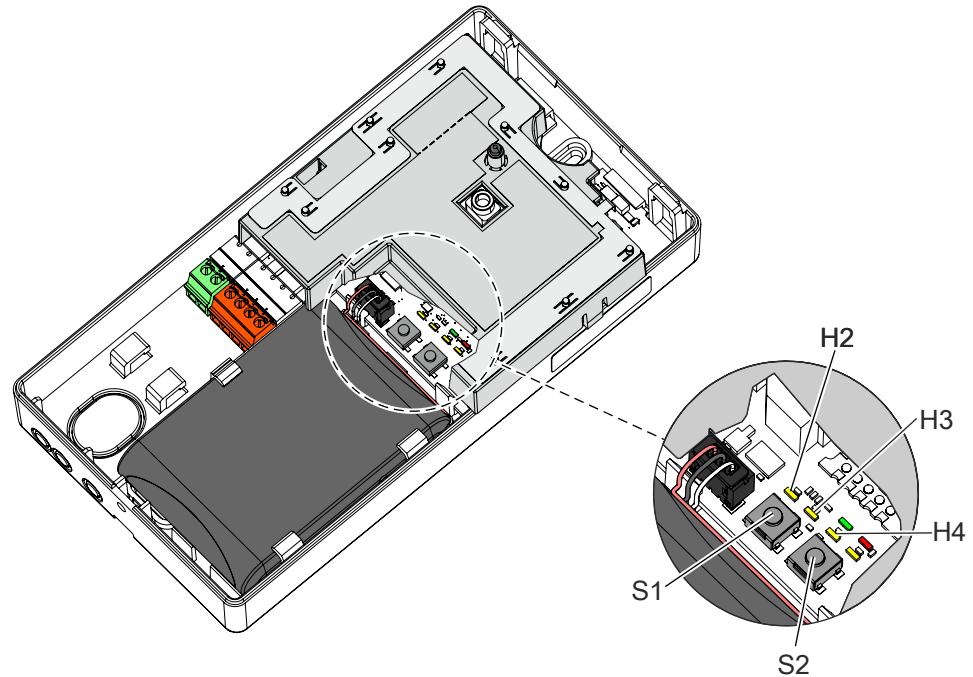
Figure 13: Radio gateway FDCW241

H2	Yellow LED for maintenance mode	S1	Button for maintenance mode
H3	Yellow LED for power supply and reset	S2	Reset button
H4	Yellow LED for radio network		

▷ The radio gateway is installed.

▷ The radio gateway is not connected to the detector line.

▷ The socket strips of the detector line have been wired in accordance with the required topology.

▷ The user is familiar with the content of chapter 'Changing and expanding the FDnet/C-NET detector line' in the control panel documentation.

1. Open the radio gateway housing.

2. Press button (S2) and, at the same time, connect the battery connector.
   - ⇨ The radio gateway performs a reset.
   - ⇨ The LED (H3) flashes 20 times.
   - ⇨ The radio gateway is now ready for operation.

3. Press and hold button (S1) for at least 2 seconds until LED (H2) flashes.
   - ⇨ The radio gateway and its radio cell are in maintenance mode.
   - ⇨ LED (H2) flashes at 1-second intervals.
   - ⇨ The radio devices can now be logged on.

4. Working outwards from the radio gateway, commission the individual radio devices one after the other. You will find information on the correct sequence for commissioning radio devices in the 'Basic rules for commissioning [➔ 32]' chapter.
   - Remove the adhesive label from the radio device and use it to mark the installation location on the device location plan.
   - Connect the power supply for the radio device.
   - ⇨ The internal alarm indicator of the radio device flashes.
   - ⇨ If it flashes red, this indicates the factory settings.
   - ⇨ Green flashing indicates that the radio device has already been logged on to a radio gateway and needs to be set to the factory settings.

5. To set a radio device to the factory settings, press the 'new' button on the radio device until the internal alarm indicator flashes red.
   - ⇨ The radio device is set to the factory settings.

6. Mount the radio device in the appropriate base (FDOOT271) or in the appropriate housing (FDM273) or back box (FDM275).
   - ⇨ The search for the radio network starts. During the search, the internal alarm indicator briefly flashes green twice, at an interval of 2 seconds.
   - ⇨ Once the radio device has successfully been logged on to the radio gateway, the network search stops and the internal alarm indicator goes out.

7. If the logon process has not been successful after a long period of time has passed, briefly remove the radio device from the base/housing and then re-insert it.
   - ⇨ The search for the radio network starts again.

8. Follow the same steps to log on the next radio device.
   - ⇨ All the radio devices are now logged on and form a radio cell.

9. Wait until LED (H4) on the radio gateway goes out.

10. Check that the number of logged-on radio devices in the radio cell is complete.
    - Check that the internal alarm indicators of all the radio devices are off.
    - **or**
    - Use line tester FDUL221. Make sure that the radio gateway is displayed with two addresses, as FDCL221v and as FDCW241.
    - ⇨ The radio cell is complete and the radio devices are logged on.

11. To switch the radio cell to normal operation, press and hold button (S1) for at least 2 seconds.

12. Wait until the LED (H2) goes out.
    - ⇨ The radio cell is in normal operation.

13. Connect the radio gateway and the detector line.

  – Switch the detector line off.
  – Insert the 'detector line socket strip'.
  ⇨ The radio gateway is now connected to the detector line.

14. Close the radio gateway housing.

15. Read in the radio cell at the control panel.

⇨ All the radio devices have now been read in at the fire control panel. Two addresses are displayed for the radio gateway.

1. Make a note of the sequence of the commissioned radio devices.

2. Use the FXS2061 SWING Tool to back up the network file. The procedure for backing up the network file is described in more detail in the User Guide SWING-Tool FXS2061 in the 'Menu bar' chapter.

You will find more information in the 'Changing and expanding the FDnet/C-NET detector line' chapters of the following documents:

For control panels FC20xx: Document 009052

For control panels FC72x: Document A6V10210416

See also

▤ Replacing the batter pack on the radio gateway [➙ 52]

7 Maintenance / troubleshooting

Maintenance work on a radio cell covers:

- Adding radio devices
- Removing radio devices
- Replacing the battery pack

Requirements for performing maintenance on a radio cell:

- The radio gateway has been switched to 'maintenance mode'
- The relevant zone has been switched off at the control panel

You will find more information in the 'Changing and expanding the FDnet/C-NET detector line' chapters of the following documents:

For control panels FC20xx: Document 009052

For control panels FC72x: Document A6V10210416

7.1 Establishing factory settings

All settings are deleted and reset to the factory settings.
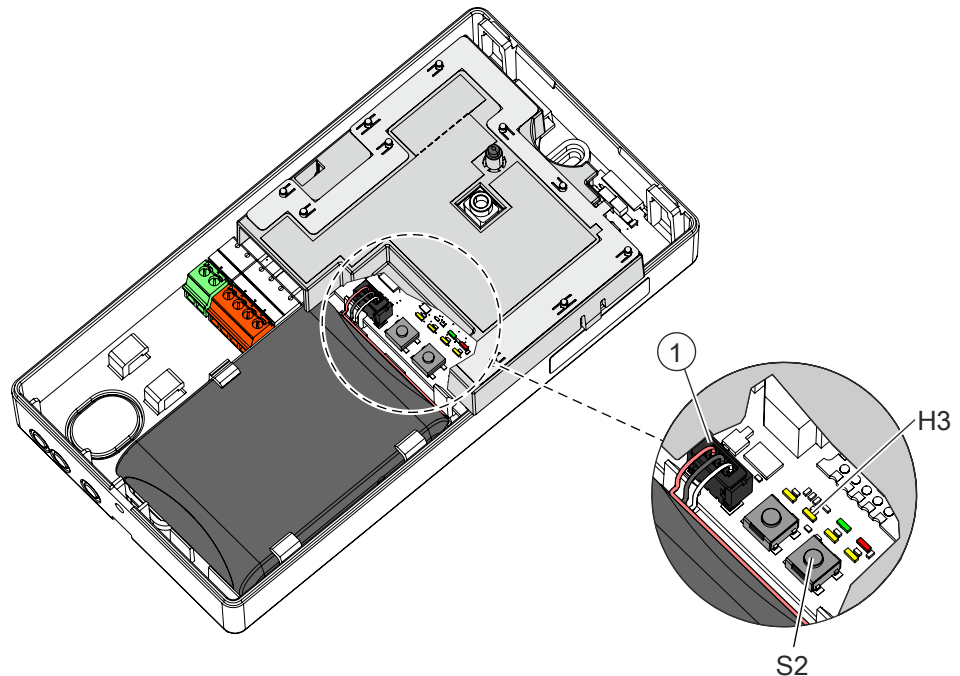
Figure 14: Radio gateway FDCW241

1	Battery connector	S2	Reset button
H3	Yellow LED for reset		

Proceed as follows to restore the radio gateway to the factory settings:

▷ The radio gateway must not be connected to the detector line.

1. Release the battery connector (1) to interrupt the power supply.

2. Wait approx. 10 seconds.

   ⇨ Any residual voltage that was present is dissipated.

3. Press and hold button (S2).

4. Connect the battery connector (1) to establish the power supply.

5. Release button (S2).

6. LED (H3) flashes rapidly 40 times for 20 seconds.

   ⇨ After this, the radio gateway is set to the factory settings.

7. Re-establish the other connections that have been released.

⇨ The factory settings have been established.

7.2 Putting the radio cell into maintenance mode
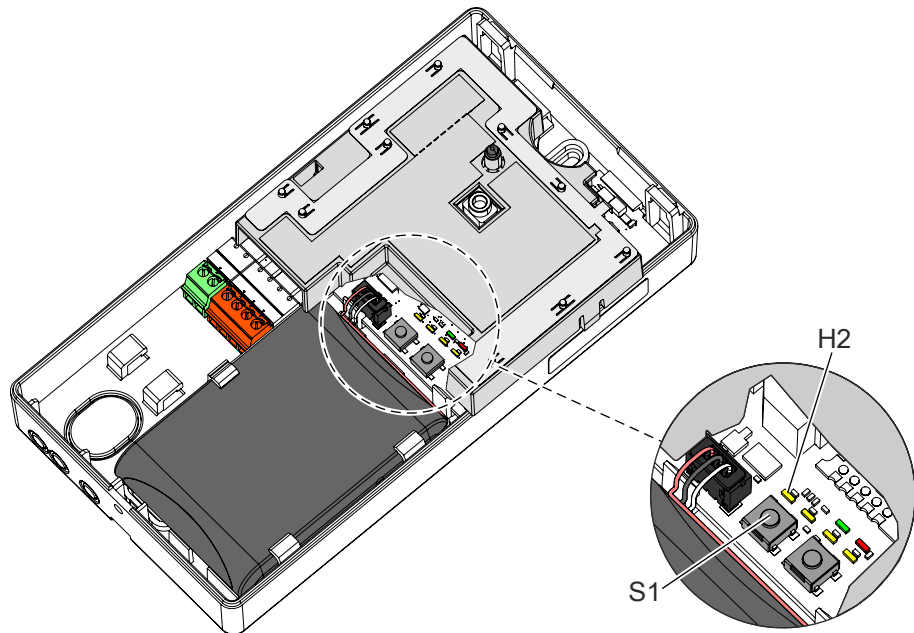
Figure 15: Radio gateway FDCW241

H2   Yellow LED for maintenance mode

S1   Button for maintenance mode

▷ The housing for the radio gateway is open.

▷ The radio gateway is in normal operation.

1. Switch off the relevant zone on the station.

    ⇨ LED (H2) is not flashing.

2. Press and hold button (S1) for at least 2 seconds until LED (H2) flashes.

⇨ The radio gateway and its radio cell are in maintenance mode.

⇨ LED (H2) flashes at 1-second intervals.

⇨ The radio devices can now be logged on.

You will find more information in the 'Changing and expanding the FDnet/C-NET detector line' chapters of the following documents:

For control panels FC20xx: Document 009052

For control panels FC72x: Document A6V10210416

7.3 Putting the radio cell into normal operation
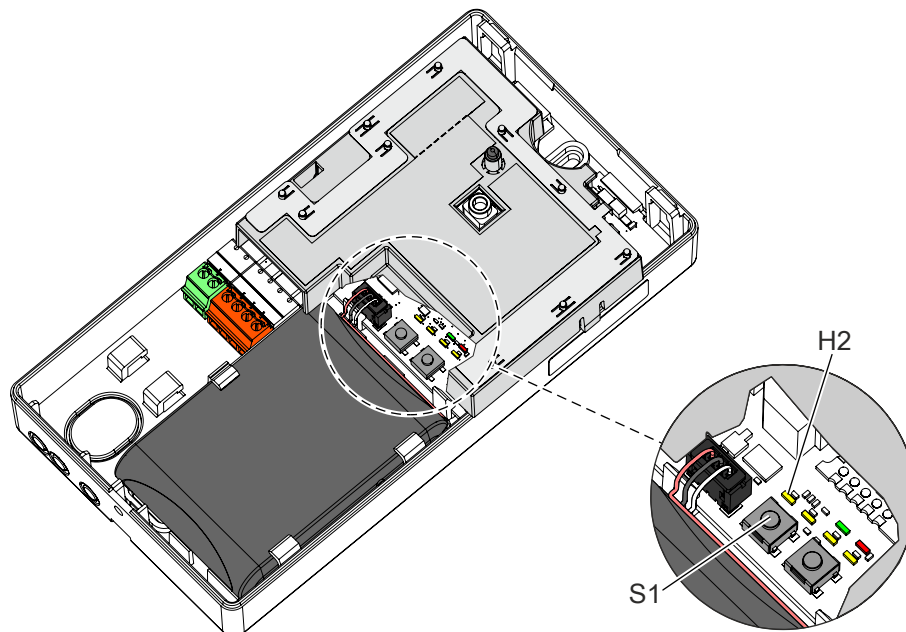
Figure 16: Radio gateway FDCW241

H2   Yellow LED for maintenance mode

S1   Button for maintenance mode

▷   The housing for the radio gateway is open.

▷   The process of logging radio devices on to the radio gateway is complete.

1. Check LED (H2).

   ⇨   In 'maintenance mode', LED (H2) flashes.

2. Press and hold button (S1) for at least 2 seconds.

⇨   LED (H2) goes out.

⇨   The radio cell is in normal operation.

If necessary, check the station settings.

You will find more information in the 'Changing and expanding the FDnet/C-NET detector line' chapters of the following documents:

For control panels FC20xx: Document 009052

For control panels FC72x: Document A6V10210416

7.4 Adding or removing radio devices

The procedure for adding or removing radio devices on a detector line is no different to the one used for adding or removing wired devices. The relevant fire detection system documents also apply to the SWING radio fire detection system.

You will find more information in the 'Changing and expanding the FDnet/C-NET detector line' chapters of the following documents:

For control panels FC20xx: Document 009052

For control panels FC72x: Document A6V10210416

See also

🗎 Connecting the radio gateway [➜ 29]

🗎 Applicable documents [➜ 7]

7.4.1 Adding radio devices

The procedure for adding radio devices on a detector line is no different to the one used for adding wired devices. The relevant fire detection system documents also apply to the SWING radio fire detection system.

> Wait until one radio device has been successfully logged on before attempting to add the next radio device. The internal alarm indicator for the radio device is off.

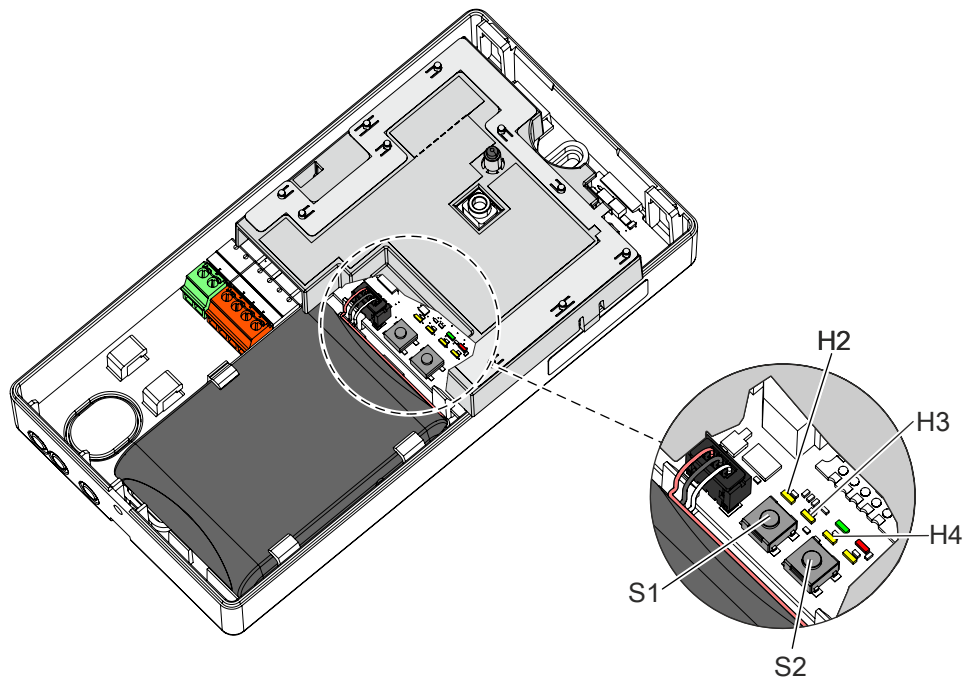
Figure 17: Radio gateway FDCW241

H2	Yellow LED for maintenance mode	S1	Button for maintenance mode
H3	Yellow LED for power supply and reset	S2	Reset button
H4	Yellow LED for radio network		

▷   You have the new radio device and its battery pack to hand.

▷   You have a device location plan showing the locations of the radio devices in the radio cell.

▷   It is possible to access the station.

1. Proceed according to chapter 'Changing and expanding the FDnet/C-NET detector line' in the control panel documentation.

2. Switch off the detector line in the station.

   ⇨   It is now possible to add new radio devices.

3. Set the radio gateway to maintenance mode.

   – Press and hold button (S1) for at least 2 seconds until LED (H2) flashes.
   ⇨   The radio gateway and its radio cell are in maintenance mode.
   ⇨   LED (H2) flashes at 1-second intervals.

4. Remove the adhesive label from the radio device and use it to mark the installation location on the device location plan.

5. Connect the power supply for the radio device.

   ⇨   The internal alarm indicator of the radio device flashes.
   ⇨   If it flashes red, this indicates the factory settings.
   ⇨   If it flashes green, this indicates that the radio device has already been logged on to a radio gateway and needs to be set to the factory settings.

6. To set a radio device to the factory settings, press the 'new' button on the radio device until the internal alarm indicator flashes red.

   ⇨   The radio device is set to the factory settings.

7. Mount the radio device in the appropriate base (FDOOT271) or in the appropriate housing (FDM273) or back box (FDM275).

   ⇨   The search for the radio network starts. During the search, the internal alarm indicator briefly flashes green twice, at an interval of 2 seconds.
   ⇨   Once the radio device has successfully been logged on to the radio gateway, the network search stops and the internal alarm indicator goes out.

8. If the logon process has not been successful after a long period of time has passed, briefly remove the radio device from the base/housing and then re-insert it.

   ⇨   The search for the radio network starts again.

9. Finish the process of logging the radio devices on to the radio gateway.

   – Check that the process of logging on to the radio gateway is complete.
   – Wait until the LED (H4) on the radio gateway goes out.
   – Check that the number of logged-on radio devices in the radio cell is complete.
   – Use line tester FDUL221. Make sure that the radio gateway is displayed as two devices.
   – or
   – Check the internal alarm indicator for the new radio device. It must not flash.
   ⇨   The radio cell is complete and the radio devices are logged on.

10. Switch the radio gateway to normal operation.

   – Press and hold button (S1) for at least 2 seconds.
   ⇨   LED indicator (H2) goes out.
   ⇨   The radio gateway is in normal operation.

11. Close the radio gateway housing.

12. Switch the detector line on at the station and read in the new radio device in accordance with the documents for the fire control panel. Note the information in chapter 'Changing and expanding the FDnet/C-NET detector line' in the fire detection system documentation.

13. Make a note of the change in your documents.

    ⇨ The new radio device has now been added.

> **See also**
>
>   ▤ Replacing the batter pack on the radio gateway [➜ 52]

7.4.2 Removing radio devices temporarily

An individual radio device may be removed temporarily, for example, if renovation work is being carried out.

	⚠ WARNING
⚠	**Risk of injury due to undetected fire**
	When parts of the system are switched off, they are not monitored and no fire alarm signals are issued for them.
	• Keep the amount of time during which parts are switched off to a minimum.
	• Put the intended safety measures in place.

	NOTICE
!	**Do not remove multiple radio devices at the same time**
	This may cause other radio devices to lose their connection to the radio gateway and be displayed as missing devices.
	When the devices are switched back on, faults may be reported at the station.

Proceed as follows to remove a radio device temporarily:

▷ The radio cell is in normal operation.

1. Remove the radio device by releasing it from the base or housing.

2. Perform the necessary activities.

3. Once the activities are complete, install the radio device in the same base or the same housing.

    ⇨ The internal alarm indicator flashes.

4. Wait until it has stopped flashing.

⇨ The radio device has now been successfully logged on. You can temporarily remove the next radio device.

7.4.3 Removing radio devices permanently

The procedure for removing radio devices on a detector line is no different to the one used for removing wired devices. The relevant fire detection system documents also apply to the SWING radio fire detection system.

When radio devices are removed permanently, the radio cell changes. The SWING planning specifications must be adhered to. If you are removing multiple radio devices, you must finish removing one before you start removing the next one.
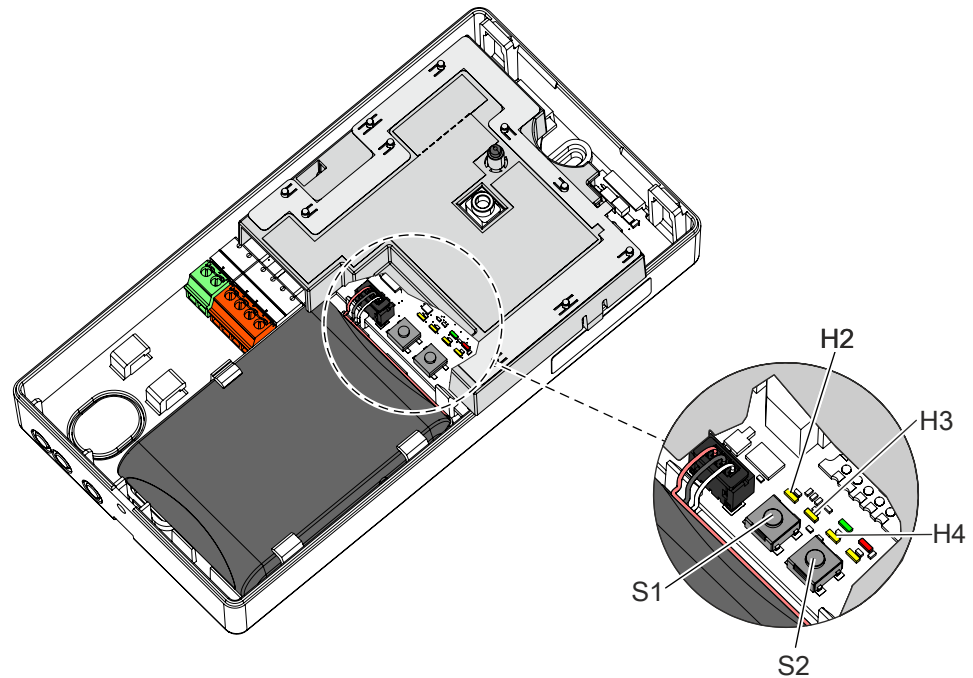
Figure 18: Radio gateway FDCW241

H2	Yellow LED for maintenance mode	S1	Button for maintenance mode
H3	Yellow LED for power supply and reset	S2	Reset button
H4	Yellow LED for radio network		

Proceed as follows to remove a radio device:

▷ You have a device location plan showing the locations of the radio devices in the radio cell.

▷ It is possible to access the station.

1. Proceed according to chapter 'Changing and expanding the FDnet/C-NET detector line' in the fire detection system documentation.

2. Proceed according to chapter 'Removing or replacing non-stationary devices' in the fire detection system documentation.

3. Identify the location of the radio device.

4. Press and hold button (S1) for at least 2 seconds until LED (H2) flashes.

   ⇨ The radio gateway is in maintenance mode.
   ⇨ LED (H2) flashes at 1-second intervals.
   ⇨ The radio devices can now be logged on.

5. Remove the radio device from the base or housing.

   ⇨ The internal alarm indicator flashes briefly at 2-second intervals.

6. Remove the base or housing.

7. Remove the battery pack from the radio device.

8. Store, transport, and dispose of the battery pack in accordance with local regulations and laws. See also chapter 'Basic principles for replacing the battery pack [➜ 51]'.

   ⇨ The radio gateway registers the radio device as missing after a maximum of 5 minutes.
   ⇨ LED (H4) flashes.

9. When LED (H4) flashes, press and hold button (S1) for at least 2 seconds.

   ⇨ The radio cell switches to normal operation.
   ⇨ The radio gateway deletes the missing radio device from its memory.

10. Follow the same steps to remove the next radio device. Start with step 2.

11. Complete the work as instructed by the fire detection system documentation.

12. Make a note of the change in your documents.

⇨ The radio devices have now been removed.

7.4.4 Replacing a radio device with another of the same type

The procedure for replacing radio devices on a detector line is no different to the one used for replacing wired devices. The relevant fire detection system documents also apply to the SWING radio fire detection system.

If you replace a radio device with another device of the same type, the system should not change; only the radio device identification information will need to be altered.

> ℹ️ If you want to replace multiple radio devices, you must finish replacing one device before you start replacing the next one.
>
> This will ensure that the site configuration does not change.
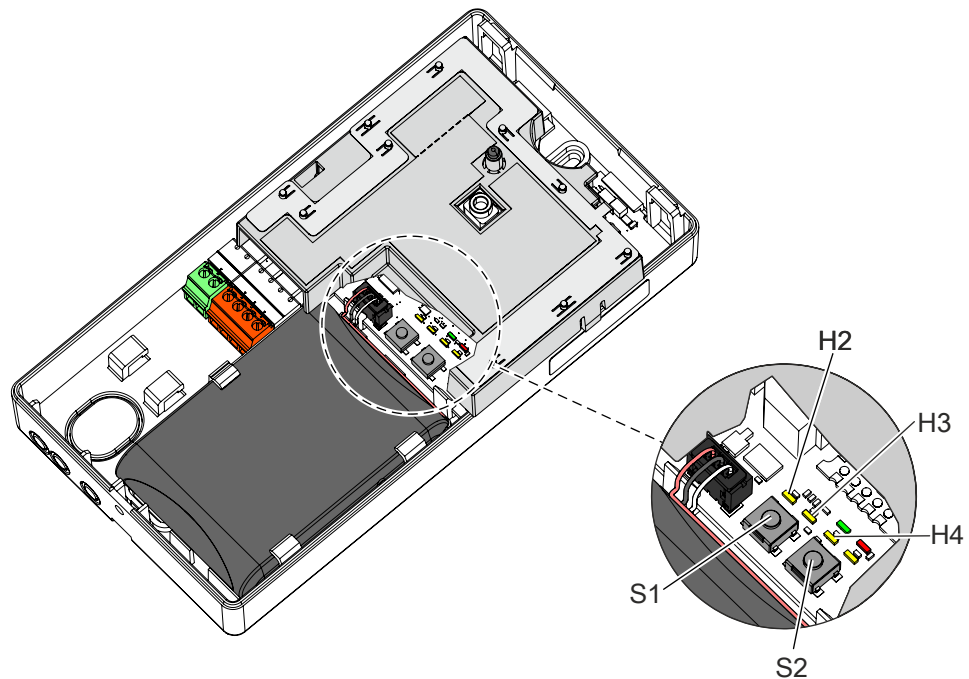
Figure 19: Radio gateway FDCW241

H2	Yellow LED for maintenance mode	S1	Button for maintenance mode
H3	Yellow LED for power supply and reset	S2	Reset button
H4	Yellow LED for radio network		

Proceed as follows to replace the radio device:

▷ The housing for the radio gateway is open.

1. Proceed according to chapter 'Changing and expanding the FDnet/C-NET detector line' in the fire detection system documentation.

2. Switch the detector line off.

   ⇨ LED (H2) is not flashing.

3. Set the radio gateway to maintenance mode.

   – Press and hold button (S1) for at least 2 seconds until LED (H2) flashes.
   ⇨ The radio gateway and its radio cell are in maintenance mode.
   ⇨ LED (H2) flashes at 1-second intervals.
   ⇨ The radio devices can now be logged off and on.

4. Remove the old radio device from the base or housing.

⇨ The internal alarm indicator flashes briefly at 2-second intervals.

5. Remove the battery pack from the radio device.

6. Store, transport, and dispose of the battery pack in accordance with local regulations and laws. See also chapter 'Basic principles for replacing the battery pack [➜ 51]'.

⇨ The radio gateway registers the old radio device as missing after a maximum of 5 minutes.
⇨ LED (H4) flashes.

7. Remove the adhesive label from the radio device and use it to mark the installation location on the device location plan.

8. Connect the power supply for the radio device.

⇨ The internal alarm indicator of the radio device flashes.
⇨ If it flashes red, this indicates the factory settings.
⇨ If it flashes green, this indicates that the radio device has already been logged on to a radio gateway and needs to be set to the factory settings.

9. To set a radio device to the factory settings, press the 'new' button on the radio device until the internal alarm indicator flashes red.

⇨ The radio device is set to the factory settings.

10. Install the radio device in the appropriate base (FDOOT271) or the appropriate housing (FDM273).

⇨ The search for the radio network starts. During the search, the internal alarm indicator briefly flashes green twice, at an interval of 2 seconds.
⇨ Once the radio device has successfully been logged on to the radio gateway, the network search stops and the internal alarm indicator goes out.

11. If the logon process has not been successful after a long period of time has passed, briefly remove the radio device from the base/housing and then re-insert it.

⇨ The search for the radio network starts again.

12. Finish the process of logging the radio devices on to the radio gateway.

– Check that the process of logging on to the radio gateway is complete.
– Wait until the LED (H4) on the radio gateway goes out.

13. Press and hold button (S1) for at least 2 seconds.

⇨ The radio cell is in normal operation.
⇨ The radio gateway deletes the old radio device from its memory.

14. Close the radio gateway housing.

15. Switch the detector line on at the station and read in the new radio device in accordance with the documents for the fire control panel.

16. Make a note of the change in your documents.

⇨ The radio device has now been replaced.

See also

  📄 Connecting the radio gateway [➜ 29]

7.4.5 Connecting the radio cell to the detector line

▷ The detector line is switched off.

▷ The detector line terminal strip is connected according to chapter: Connecting the radio gateway [➜ 29].

▷ All radio devices are logged on to the radio gateway.

▷ The radio gateway is set to normal operation.

1. Connect the radio gateway and the detector line by inserting the detector line terminal strip into the radio gateway.

2. Close the radio gateway housing.

3. Switch the detector line on.

⇨ The radio gateway is now connected to the detector line.

7.5   Replacing the radio gateway and transferring data

If an existing radio gateway is to be replaced with a new radio gateway in the same position, all data from the old radio gateway can be transferred to the new radio gateway.

> Radio gateways with ES <15 may only be replaced by another radio gateway with ES <15.
> Radio gateways with ES ≥15 may only be replaced by another radio gateway with ES ≥15.

The 'FXS2061 SWING Tool' software needs to be used in order to transfer the data.

See also
📄 Applicable documents [➜ 7]

7.5.1   Replacing the radio gateway FDCW241

When the radio gateway is replaced, the saved radio gateway data can be transferred to the new radio gateway. See chapter 'Replacing the radio gateway and transferring data [➜ 49]' in document A6V10227639.

> The new radio gateway takes over the identity of the old radio gateway.
>
> The old radio gateway must no longer be used in the same fire detection installation, as the old radio gateway uses the same net ID as the new radio gateway.
> After it has been reset to the factory settings, the old radio gateway can be used again.
>
> **For radio gateways with ES <15,**
> the old radio gateway is inoperative after the replacement.
> Radio gateways with ES <15 may only be replaced by another radio gateway with ES <15.
>
> **For radio gateways with ES ≥15,**
> the old radio gateway can be used again after it has been reset to the factory settings.
> The factory settings must be reset outside of the range of the radio network in which the old radio gateway was incorporated.
> Radio gateways with ES ≥15 may only be replaced by another radio gateway with ES ≥15.

▷ The new radio gateway with a new, connected battery pack is available.

▷ The old radio gateway is logged onto a fire control panel.

▷ The MCL-USB adapter (radio) FDUZ227 is connected to the old radio gateway using a cable.

1. Proceed according to chapter 'Removing or replacing non-stationary devices' in the fire detection system documentation.

2. Switch the detector line off.

3. Remove the cable connection to the detector line on the radio gateway.

4. Select the relevant radio gateway in the task card 'Network'.

5. Select the 'Update' command from the 'Exchange FDCW241' menu bar.

6. Enter your password. The initial password is '1234'.

7. Follow the instructions exactly as they are shown in the window.

8. If you have carried out all the steps, then confirm this with 'OK'.

   ⇨ The data is loaded from the old gateway.

⇨ The window with the command for changing the gateway appears.

ℹ️   Only confirm with 'OK' once you have switched gateways.

---

1. Now switch gateways by connecting the 3.5 mm jack cable to the new gateway.

2. Confirm the successful data transfer with 'OK'.

3. The new radio gateway automatically has the net ID of the old radio gateway.

4. Check whether the LED (H4) is flashing.
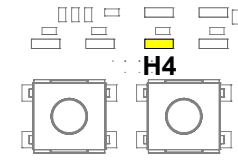
5. Overwrite the net ID of the new radio gateway with the net ID of the old radio gateway on the type plate.

6. Wait until LED (H4) stops flashing. This can take up to 30 minutes depending on the size of the radio cell.

7. Install the new radio gateway at the location of the old radio gateway.

8. Establish a cable connection to the detector line.

9. Switch the detector line on.

10. Dispose of the old, unusable radio gateway in an environmentally friendly manner. **NOTICE! If you want to reuse the radio gateway, note the information at the beginning of this chapter.**

⇨ The radio gateway is replaced.

7.6 Firmware update

The firmware update is carried out using the software 'FXS2061 SWING Tool'.

You will find a detailed description on how to perform the firmware update in document A6V10227643.

We recommend inserting a new battery into the radio gateway before the firmware update.

7.7 Basic principles for replacing the battery pack

	⚠ WARNING
	Risk of explosion due to fire or short-circuit, even if the battery pack is discharged Injuries caused by flying parts • To prevent the connection wires short-circuiting, insulate the connections and stick the battery cable to the battery pack. • Do not allow the battery pack to come into contact with water. • Do not extinguish a burning battery pack with water. • Do not recharge the battery pack. • Do not damage or dismantle the battery pack. • Do not heat the battery pack to more than 100 °C.

	⚠ WARNING
	Disposing of damaged or leaky battery packs Lithium can burn the skin and produce toxic vapors. • Avoid direct contact with the body. Wear appropriate protective clothing (safety gloves, safety goggles, etc.). Use appropriate means of transportation to move damaged batteries around. • Do not breathe in vapors. Ensure that there is sufficient ventilation.

Always observe the following information:

- When the control panel issues the message 'Battery low', replace the battery pack. The message 'Battery empty' is issued as a fault.
- Use the control panel to identify the location of the radio device.
- Only use battery pack BAT3.6-10.
- The battery pack must be new and free from damage. The battery cable is attached to the battery pack with an adhesive label.
- Store, transport, and dispose of the battery pack in accordance with local regulations, guidelines, and laws.
- Label the battery pack with the commissioning date.

See also

7.8 Replacing the batter pack on the radio gateway

Indications that the battery pack needs to be replaced:

- The control panel signals a battery fault for the radio gateway.
- LED (H1) flashes and LED (H5) flashes at 2-second intervals.
- If the battery has failed completely, LED (H5) flashes quickly (twice per second).
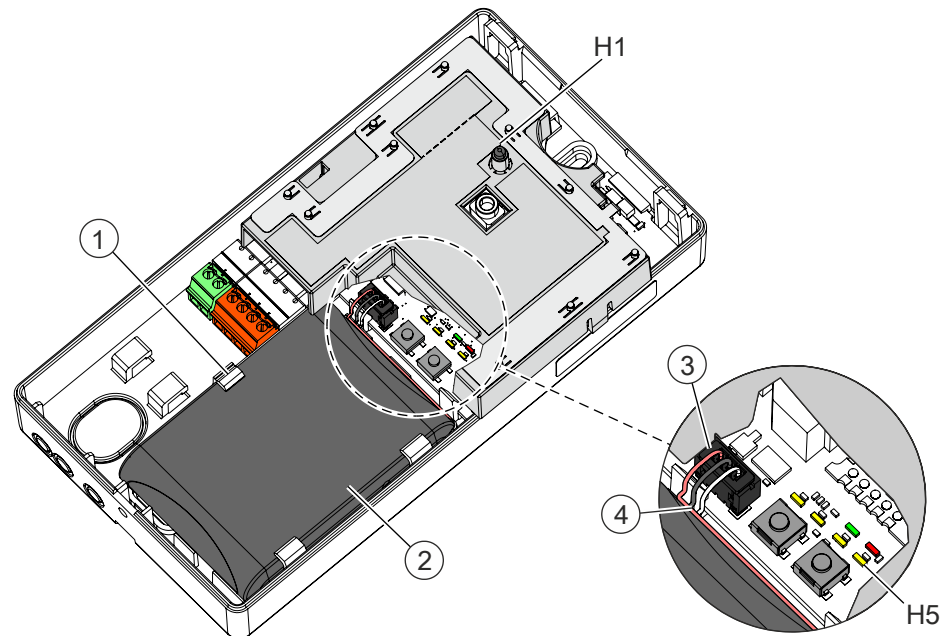

Figure 20: Radio gateway with battery pack inserted

1	Holder for battery pack	4	Battery cable
2	Battery pack	H1	Red / green LED for detector line
3	Battery connector (3-pin)	H5	LED amber

▷ The radio gateway is connected to the FDnet/C-NET and is being supplied with power. This connection must not be interrupted while the battery is being replaced.

▷ You have a new, undamaged battery pack BAT3.6-10 to hand.

1. Open the housing cover.

2. Release the battery connector (3).

3. Push the holder (1) to the side.

4. Remove the old battery pack (2) and dispose of it.

5. Label the new battery pack with the current date (on the inscription field).

6. Wait until the control panel shows 'BATTERY MISSING' after 5…10 seconds.

7. Insert the new battery pack (2).

   – Make sure that it latches into the holders correctly.

8. Install the battery cable (4) as indicated by the drawing.

9. Connect the battery connector (3).

10. Close the housing cover.

⇨ The battery pack has now been replaced.

The radio gateway is ready for operation immediately. There will be a delay before the fault message is cleared from the control panel.

7.9 Messages and consequences

The following table shows all messages that can be displayed on the fire control panel and their meanings:

Message	Meaning	Consequences
'Redundancy path lost'	A radio cell device does not have a redundancy path to the gateway and communicates via a separate path.	None
'Device missing'	A radio cell device has failed and cannot issue a signal if a fire is detected.	• In countries where this message is configured as 'saving', the message must be confirmed each time it occurs. The message remains on the display until it is confirmed. • In countries where this message is configured as 'non-saving', the message stops being shown on the display once the radio device becomes available again in the radio cell. • The radio device is only able to detect fire again and forward the alarm once the device is available in the radio cell. This also applies if the message has not yet been confirmed on the display. Pending alarms are then forwarded immediately. Alarms that are no longer pending are not forwarded.
	Several radio cell devices have failed and cannot issue a signal if a fire is detected.	• If more than one device has a fault message, the detector line must be restarted. • The radio devices are able to issue a line alarm once they are available in the radio cell. • Automatic radio fire detectors retrieve their configured parameter sets automatically once the detector line has been restarted.

8 Specifications

Unless otherwise mentioned, the following data applies:

Temperature	= 25 °C
Air pressure	= 1000 hPa (750 Torr)

You will find information on approvals on the data sheet for the device.

8.1 Technical data

You will find information on approvals, CE marking, and the relevant EU directives for this device (these devices) in the following document(s); see 'Applicable documents' chapter:

- Document A6V10271323

Detector line

Operating voltage	DC 12…33 V
Operating current	Typ. 1 mA (0.6…25 mA)
Maximum current connection factor	16
Quiescent current connection factor	6
Address connection factor	2 + n*1 (n = number of radio devices)
Separator connector factor	1
Protocol	FDnet/C-NET
Compatibility	See 'List of compatibility'
Design	- Inherently short-circuit-proof - Protected against polarity reversal - Protected against overvoltage

Line separator

Line voltage:	
• Nominal	DC 32 V (= V_{nom})
• Minimum	DC 12 V (= V_{min})
• Maximum	DC 33 V (= V_{max})
Voltage at which the line separator opens:	
• Minimum	DC 7.5 V (= $V_{SO\ min}$)
• Maximum	DC 10.5 V (= $V_{SO\ max}$)
Permanent current when switches are closed	Max. 1.5 A (= $I_{C\ max}$)
Switching current (e.g., in the event of a short-circuit)	Max. 2 A (= $I_{S\ max}$)
Leakage current when switches are open	Max. 1 mA (= $I_{L\ max}$)
Serial impedance when switches are closed	Max. 0.4 Ω (= $Z_{C\ max}$)

Radio	Number of radio devices per radio gateway as loop	Max. 30
	Number of radio devices per radio gateway as stub	Max. 30
	Sending/receiving aerials	Dual band aerial
	Radio transmission:	
	● Frequency range	433.05…434.79 MHz in band 44b and 45b [1]
		868…870 MHz in band 48, 49, 50, 54b, and 56b [1]
	● Channel grid	50 kHz
	● Number of channels	27 in 868-MHz band
		20 in 433-MHz band
	● Transmitting power	≤10 mW ERP in band 44b, 45b, and 49 [1]
		Type 10 (max. ≤25) mW ERP in band 48, 50, 54b, and 56b [1]
	● Range:	See document A6V10227631

[1] 2013/752/EU: according Official Journal of the European Union, COMMISSION IMPLEMENTING DECISION of 11 December 2013 amending Decision 2006/771/EC on harmonisation of the radio spectrum for use by short-range devices and repealing Decision 2005/928/EC (notified under document C(2013) 8776) (Text with EEA relevance)

Top band		Bottom band	
Channel	Frequency [MHz]	Channel	Frequency [MHz]
12	868.325	144	433.425
14	868.375	146	433.475
16	868.425	148	433.525
18	868.475	150	433.575
20	868.525	152	433.625
22	868.575	154	433.675
26	868.675	156	433.725
30	868.775	158	433.775
32	868.825	160	433.825
34	868.875	162	433.875
36	868.925	164	433.925
38	868.975	166	433.975
40	869.025	168	434.025
42	869.075	170	434.075
44	869.125	172	434.125
46	869.175	174	434.175
56	869.425	176	434.225
58	869.475	178	434.275
60	869.525	180	434.325
62	869.575	182	434.375
64	869.625		
68	869.725		
70	869.775		
72	869.825		
74	869.875		
76	869.925		
78	869.975		

Battery pack BAT3.6-10	Lithium battery pack	BAT3.6-10 LI-SOCl2 battery pack 3.6 V, 10 Ah
	Service life	Over 6 years in normal operation
		If the normal detector line power supply fails, approx. 1 week
	Battery voltage monitored	Yes
	Weight	0.093 kg

Connections	Detector line:	
	• Design	Screw terminals on plug
	• Cable cross section	0.2…1.5 mm²
	MC link:	
	• Design	3.5 mm jack socket

Ambient conditions	Operating temperature	-10…+55 °C
	Storage temperature	-30…+75 °C
	Air humidity	≤95 % rel.
	Protection category (IEC 60529):	• IP40
	In housing FDCH221:	• IP65
	Electromagnetic compatibility:	
	100 kHz…2.5 GHz	30 V/m

Mechanical data	Weight without battery pack	0.154 kg
	Housing material	Acrylonitrile-butadiene-styrene (ABS)
	Color	~RAL 9010, pure white

Standards	European standards	• EN 54-17
		• EN 54-18
		• EN 54-25
		• EN 300220-2

8.2 Dimensions

Radio gateway FDCW241

167

89

28
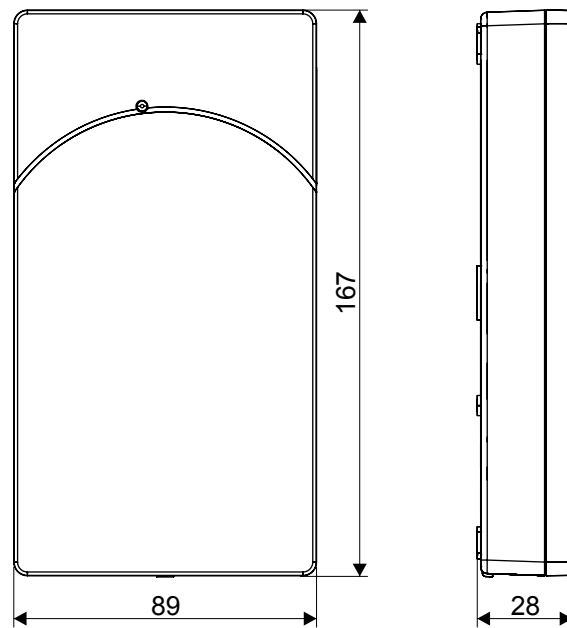
8.3 Master gauge for recesses
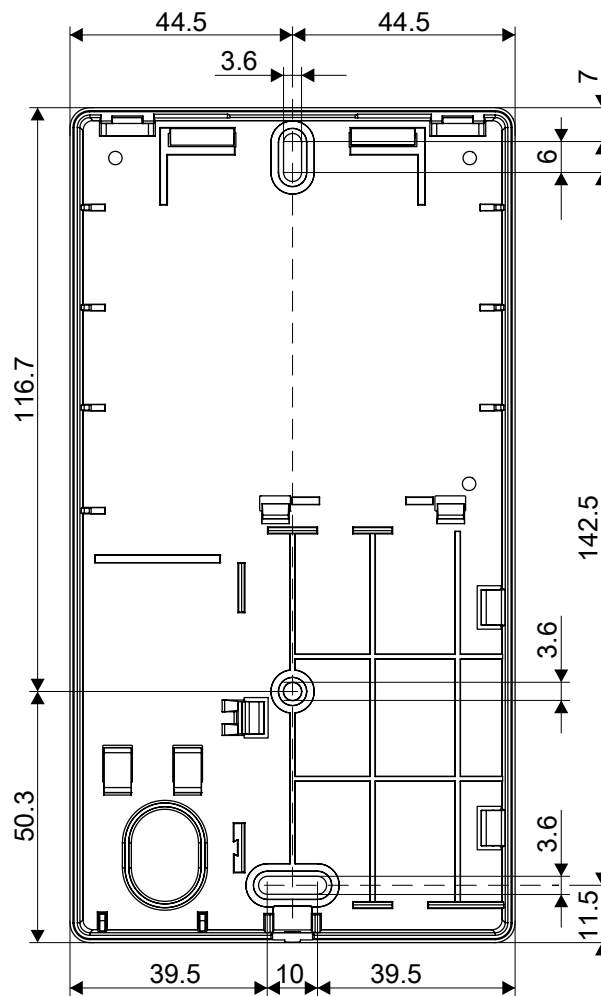
8.4 Environmental compatibility and disposal

This equipment is manufactured using materials and procedures which comply with current environmental protection standards as best as possible. More specifically, the following measures have been undertaken:

● Use of reusable materials

● Use of halogen-free plastics

● Electronic parts and synthetic materials can be separated

Larger plastic parts are labeled according to ISO 11469 and ISO 1043. The plastics can be separated and recycled on this basis.

Electronic parts and batteries must not be disposed of with domestic waste.

● Take electronic parts and batteries to local collection points or recycling centers.

● Contact local authorities for more information.

● Observe national requirements for disposing of electronic parts and batteries.

Glossary

Radio cell

Unit comprising all radio devices connected to
the radio gateway

Radio device

Any device that the radio gateway monitors

Radio network

Within a radio cell, bidirectional radio
connections are established between the radio
devices. Together with the radio gateway
connections, these create a radio network.

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