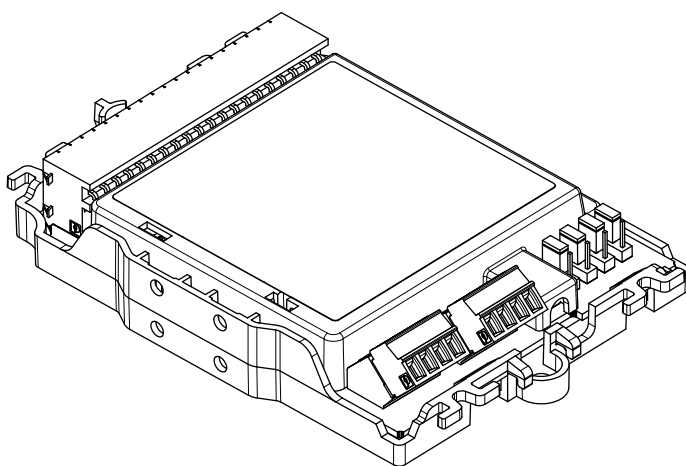


SIEMENS



FDCL221-M

Multi line separator module

Technical manual

Technical specifications and availability subject to change without notice.

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1 About this document

Goal and purpose

This document contains all information on the multi line separator module FDCL221-M.

Consistent compliance with the instructions guarantees correct and safe use.

Target groups

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

Target group	Activity	Qualification
Product Manager	<ul style="list-style-type: none"> ● 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. 	<ul style="list-style-type: none"> ● Has obtained suitable specialist training for the function and for the products. ● Has attended the training courses for Product Managers.
Project Manager	<ul style="list-style-type: none"> ● Coordinates the deployment of all persons and resources involved in the project according to the schedule. ● Provides the information required to run the project. 	<ul style="list-style-type: none"> ● Has obtained suitable specialist training for the function and for the products. ● Has attended the training courses for Project Managers.
Project Engineer	<ul style="list-style-type: none"> ● Parameterizes the product according to country-specific and customer-specific requirements. ● Checks operability and releases the product for commissioning at the place of installation. ● Searches for and corrects malfunctions. 	<ul style="list-style-type: none"> ● Has obtained suitable specialist training for the function and for the products. ● Has attended the training courses for Project Engineers.
Installation personnel	<ul style="list-style-type: none"> ● Assembles and installs the product components at the place of installation. ● Carries out a performance check following installation. 	<ul style="list-style-type: none"> ● Has received specialist training in the area of building installation technology or electrical installations.
Maintenance personnel	<ul style="list-style-type: none"> ● Carries out all maintenance work. ● Checks that the products are in perfect working order. ● Searches for and corrects malfunctions. 	<ul style="list-style-type: none"> ● Has obtained suitable specialist training for the function and for the products.

Document identification

Position	Information
Title page	<ul style="list-style-type: none"> ● Product type ● Product designation ● Document type
Last page, bottom left	<ul style="list-style-type: none"> ● Document ID ID_ModificationIndex_Language_COUNTRY ● Edition date
Last page, bottom right	<ul style="list-style-type: none"> ● Manual ● Register


Conventions for text marking

Markups

Special markups are shown in this document as follows:

▷	Requirement for a behavior instruction
⇒	Intermediate result of a behavior instruction
⇨	End result of a behavior instruction
'Text'	Quotation, reproduced identically
<Key>	Identification of keys

Supplementary information

The  symbol identifies supplementary information such as a tip for an easier way of working.



Supplementary information is labeled using the 'i' symbol.

Reference documents

Document ID	Title
A6V10224008	FDCL221-M multi line separator module (installation instructions enclosed with the product)
008331	'List of compatibility' (for 'Sinteso' product line)
A6V10229261	'List of compatibility' (for 'Cerberus PRO' product line)

Technical terms

Term	Explanation
ABS	Acrylonitrile-butadiene-styrene (plastic)
FDnet/C-NET	Addressed detector line
Jumper	Jumper on printed circuit board for configuration
Collective detector line	Non-addressed detector line
LED	Light-emitting diode
Loop	Detector line loop line
Sub-stub	Detector line on a FDnet/C-NET loop only connected on one side
SW	Software

History of changes

Document ID	Edition date	Brief description
A6V10224006_c_en_--	09.2009	'Cerberus PRO' product line added, G number and CPD number added
A6V10224006_b_en_--	04.2009	Storage temperature changed
A6V10224006_a_en_--	02.2009	First edition

2 Safety

2.1 Safety notices

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:



General danger



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.
<i>NOTICE</i>	<i>NOTICE</i> identifies possible damage to property that may result from non-observance.


How risk of injury of presented

Information about the risk of injury is shown as follows:

	⚠ WARNING
	Nature and origin of the danger Consequences if the danger occurs <ul style="list-style-type: none"> ● Measures / prohibitions for danger avoidance

How possible damage to property is presented

Information about possible damage to property is shown as follows:


	<i>NOTICE</i>
	Nature and origin of the danger Consequences if the danger occurs <ul style="list-style-type: none"> ● 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, assembly, 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
	<p>Electrical voltage</p> <p>Electric shock</p> <ul style="list-style-type: none"> ● 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 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.

Assembly, 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 alarming control 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 layout and 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

Disclaimer

We have checked that the content of this document matches the hardware and software described. Despite this, we cannot rule out deviations and cannot therefore assume liability for them matching completely. The details in this document are checked regularly and any corrections needed included in subsequent editions.




We are grateful for any suggestions for improvement.


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

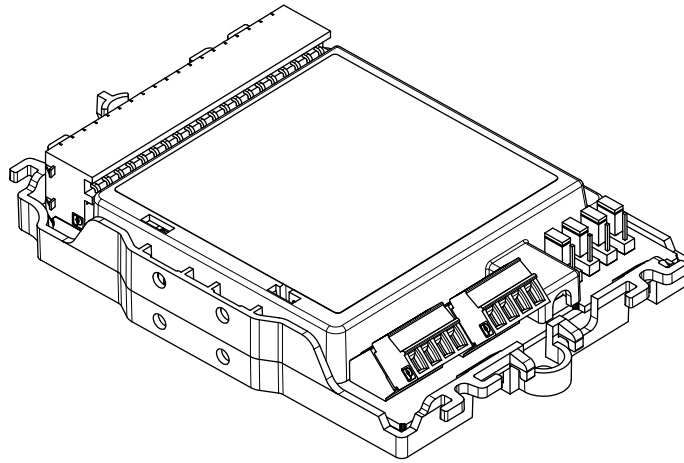
Limitations to the configuration or use of devices in a fire detection installation with a particular firmware version are possible.

	<p>⚠ WARNING</p>
	<p>Limited or non-existent fire detection</p> <p>Personal injury and damage to property in the event of a fire.</p> <ul style="list-style-type: none"> ● 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.

	<p><i>NOTICE</i></p>
	<p>Incorrect planning and/or configuration</p> <p>Important standards and specifications are not satisfied.</p> <p>Fire detection installation is not accepted for commissioning.</p> <p>Additional expense resulting from necessary new planning and/or configuration.</p> <ul style="list-style-type: none"> ● 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 Setup and function

3.1 Overview



Multi line separator module FDCL221-M

The multi line separator module FDCL221-M contains several separate line separators.

Each line separator can detect and disconnect short-circuits in the FDnet/C-NET.

The multi line separator module is intended to allow easier conversions from collective detector lines to the Sinteso/Cerberus PRO fire detection system with the FDnet/C-NET bus system.


Properties

- Compatible with FDnet/C-NET communication protocol
- System compatibility:
 - FDnet: FS20, AlgoRex, SIGMASYS
 - C-NET: FS720
- Communication via the detector line
- Individual addressing of line separators for easy location identification
- Number of FDnet/C-NET loops can be configured using jumpers
- 9 line separators in one FDnet/C-NET loop or 2 x 4 line separators in two FDnet/C-NET loops
- Safeguards the FDnet/C-NET against short-circuits when sub-stubs are connected
- Status indicator (LED) for each line separator
- Easy way of connecting sub-stubs
- Different types of installation
- Maintenance-free

Applications

- Line separators are interconnected to ensure that several sub-stub lines do not fail in the event of a short-circuit.
- Time-optimized modernization of collective detector lines on the addressed FDnet/C-NET system.

See also

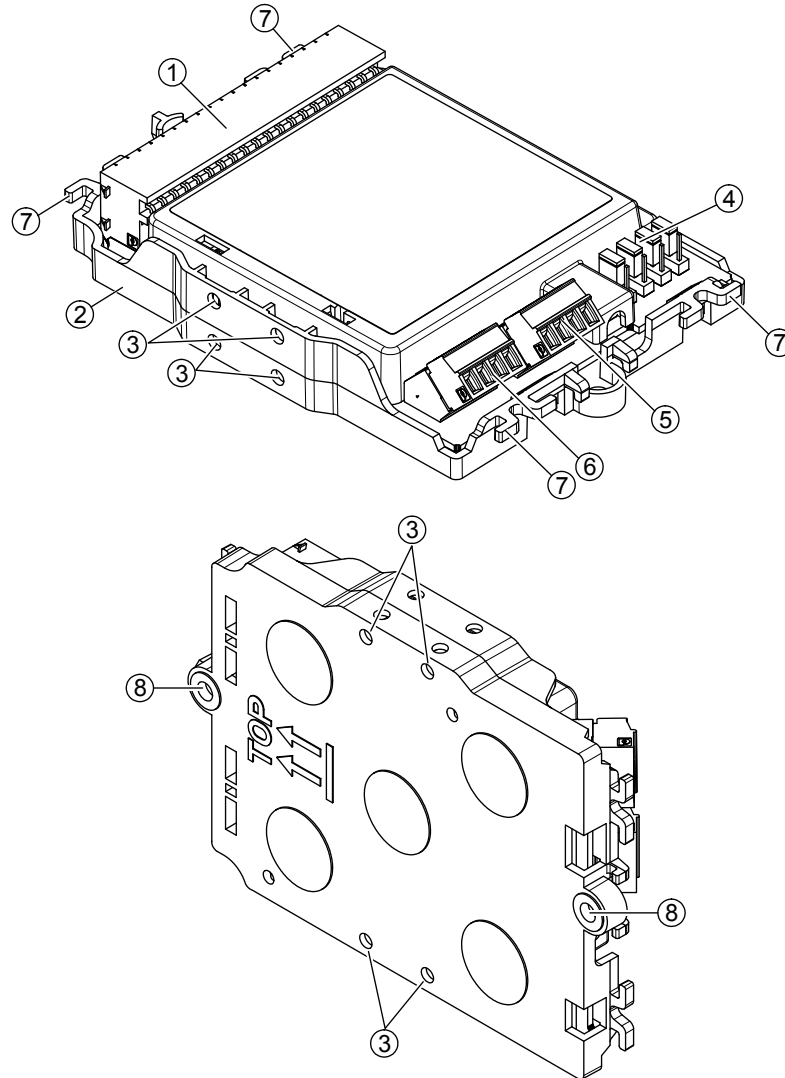
 Positioning [→ 25]

3.1.1 Details for ordering

Type	Order no.	Designation
FDCL221-M	S54312-F6-A1	Multi line separator module

3.2 Setup

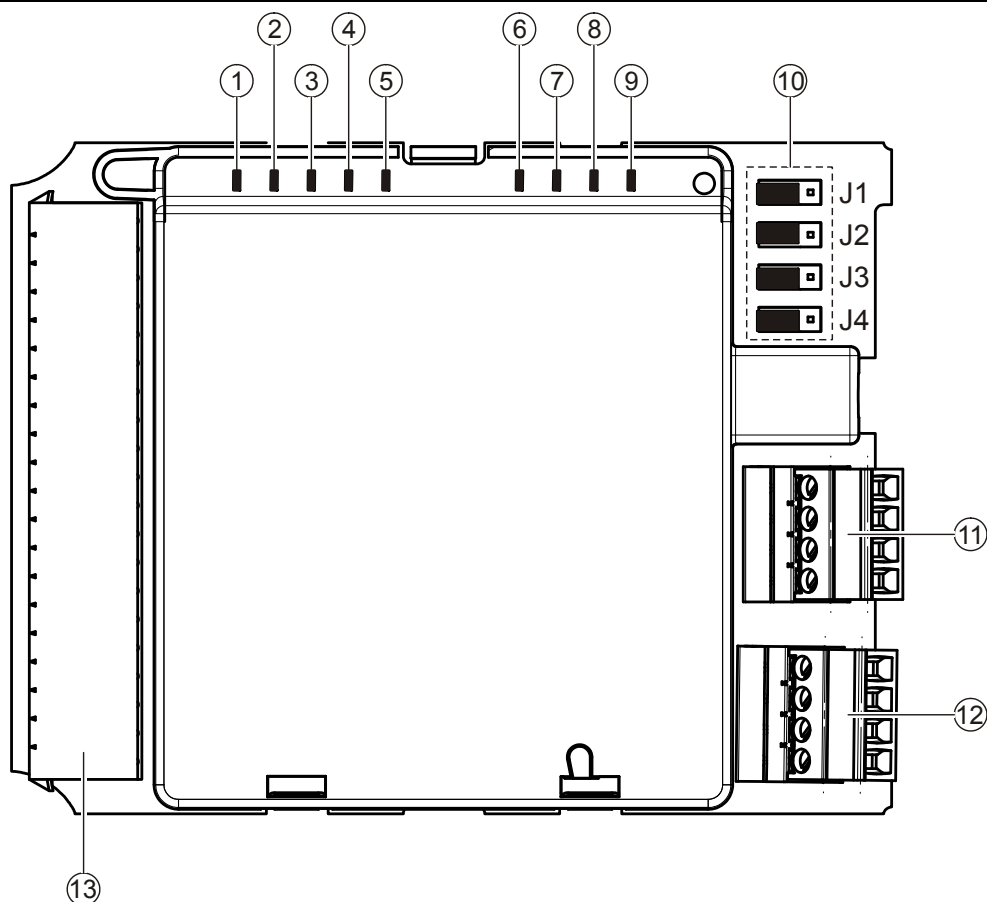
3.2.1 Overview



Overview of multi line separator module

- | | |
|---|---|
| 1 Connector (20-pin) for sub-stub lines | 5 Screw terminal for FDnet/C-NET detector line LINE 2 |
| 2 Module carrier | 6 Screw terminal for FDnet/C-NET detector line LINE 1 |
| 3 Holes for mounting feet | 7 Cable tie holder |
| 4 Jumpers J1 ... J4 | 8 Mounting holes for screws |

3.2.2 Circuit board view



Circuit board view of multi line separator module

- | | |
|------------------------|--|
| 1 LED line separator 1 | 10 Jumpers J1 ... J4 |
| 2 LED line separator 2 | 11 Screw terminal for FDnet/C-NET detector line LINE 2 |
| 3 LED line separator 3 | 12 Screw terminal for FDnet/C-NET detector line LINE 1 |
| 4 LED line separator 4 | 13 Connector (20-pin) for sub-stub lines |
| 5 LED line separator 5 | |
| 6 LED line separator 6 | |
| 7 LED line separator 7 | |
| 8 LED line separator 8 | |
| 9 LED line separator 9 | |

3.2.3 Indication elements

Each line separator has a status indicator. The yellow LED flashes if the line separator is open or in localization mode.

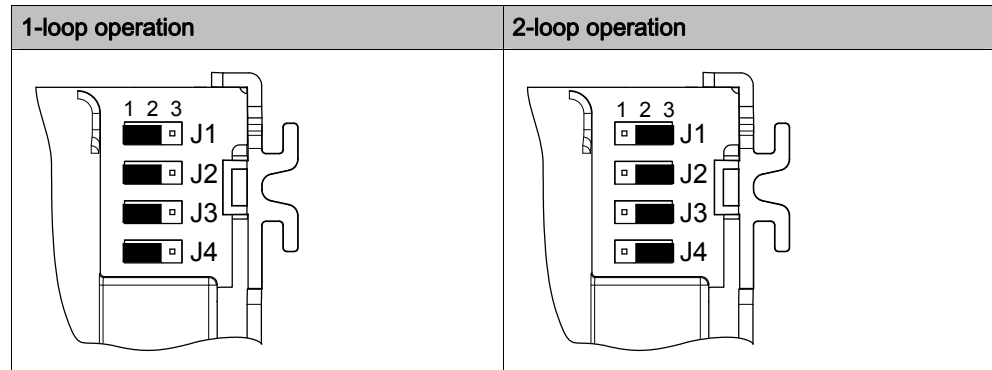
See also

- 📄 [Circuit board view \[-> 17\]](#)

3.2.4 Adjustment elements

The multi line separator module has 4 jumpers J1 ... J4. These jumpers can be used to configure whether the FDCL221-M is to be operated in one FDnet/C-NET loop or two FDnet/C-NET loops.

Jumpers J1 ... J4 have the following 2 plug positions:



The jumpers are plugged on 1-loop operation when delivered.

See also

📖 Function [→ 18]

3.3 Function

The multi line separator module FDCL221-M has several electronic switches (line separators). The following operating modes can be configured using jumpers:

- 1-loop operation
(9 line separators in one FDnet/C-NET loop)
- 2-loop operation
(4 line separators each in two FDnet/C-NET loops)

The function of the line separator in the FDnet/C-NET loop is to connect sub-stub lines to the FDnet/C-NET and selectively disconnect them in the event of a short-circuit. In the event of a short-circuit the line separator disconnects the affected bus area in the FDnet/C-NET so that the area unaffected by the short-circuit continues to function.

The multi line separator module has 2 x 4 screw terminals for the FDnet/C-NET loops and a 20-pin connector with spring clips for the 10 sub-stub lines. A maximum of 2 different loops can be connected.

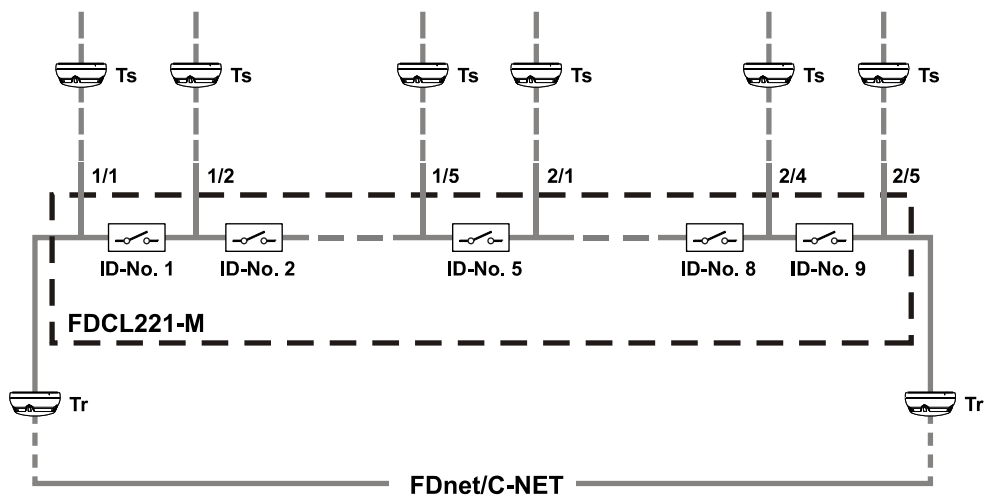
The status of each line separator is indicated by a yellow LED. The LED flashes if the line separator is open or in localization mode.

The multi line separator module is installed in the intermediate distributor or directly in the fire control panel.

!	NOTICE
	<p>Incorrect use</p> <p>False alarm caused by potentials moving in the event of external supply on the sub-stub via a FDnet/C-NET card.</p> <ul style="list-style-type: none"> ● Sub-stubs may only be fed via the line separator.

1-loop operation

The multi line separator module is connected to a FDnet/C-NET loop. This is the default configuration of the multi line separator module when delivered.

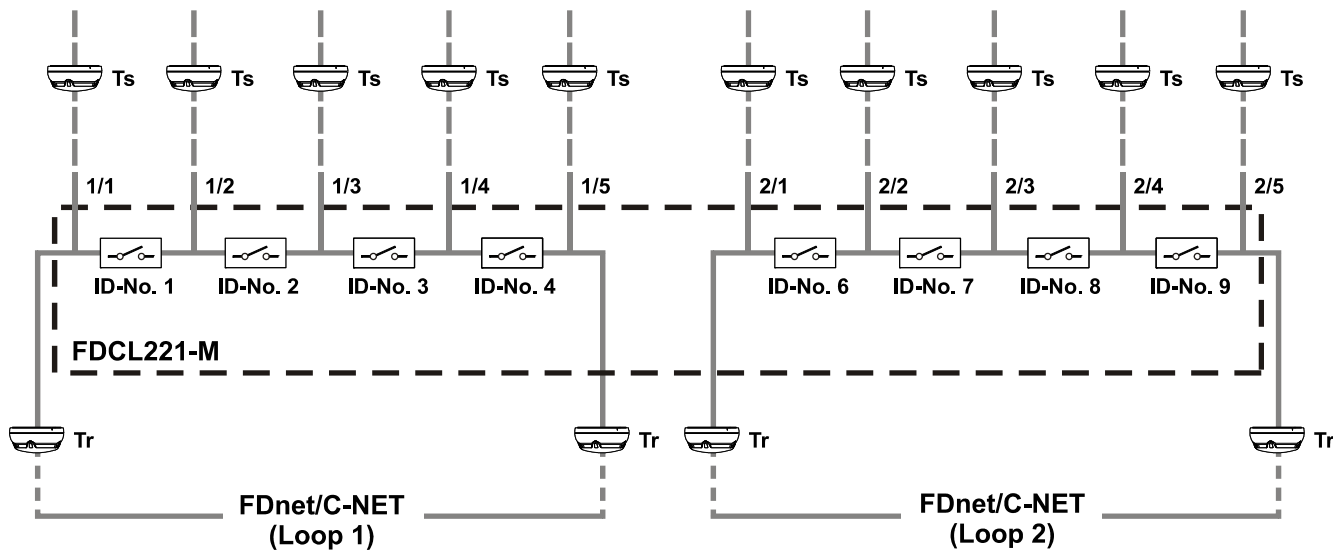


FDCL221-M topology with one detector line loop

- | | | | |
|-----|---|----|--|
| 1/1 | First sub-stub on FDnet/C-NET loop | Ts | FDnet/C-NET device on sub-stub |
| 2/5 | Tenth (last) sub-stub on FDnet/C-NET loop | Tr | FDnet/C-NET device on FDnet/C-NET loop |

2-loop operation

The multi line separator module can be connected to two separate FDnet/C-NET loops.



FDCL221-M topology with two detector line loops

1/1	First sub-stub on FDnet/C-NET loop 1	2/5	Fifth sub-stub on FDnet/C-NET loop 2
1/n	Nth sub-stub on FDnet/C-NET loop 1	Ts	FDnet/C-NET device on sub-stub
2/n	Nth sub-stub on FDnet/C-NET loop 2	Tr	FDnet/C-NET device on FDnet/C-NET loop

See also

- 📖 Circuit board view [→ 17]
- 📖 Indication elements [→ 17]
- 📖 Adjustment elements [→ 18]

3.4 Behaviour in degraded mode

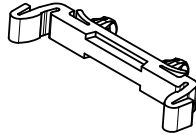
Applicable for the FDnet/C-NET:

If the main processor of the fire control panel fails, the control panel enters degraded mode operation. Depending on the control panel, the fire control panel may continue to provide the main alarming functions and signaling functions in degraded mode operation.

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.

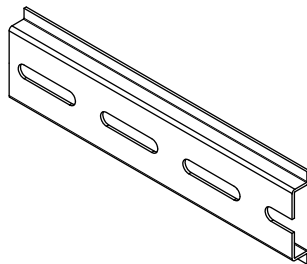
3.5 Accessories

3.5.1 Mounting foot FDCM291



- For device installation on a top hat rail TS35
- Two mounting feet must always be used
- Compatible with:
 - FDCI22x(-CN) input module
 - FDCIO22x(-CN) input/output module
 - Multi line separator module FDCL221-M
- Order no.: A5Q00003855

3.5.2 Top hat rail TS35

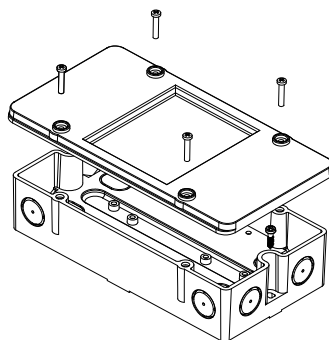


- Standard top hat rail for installing devices
- Width: 35 mm
- Length: 122 mm or 288 mm
- Compatible with:
 - FDCL221 line separator
 - Mounting foot FDCM291
- Order no. (length 122 mm): BPZ:5644780001
- Order no. (length 288 mm): BPZ:5644230001

See also

- 📖 Direct installation (without additional housing) [→ 27]

3.5.3 Housing FDCH221

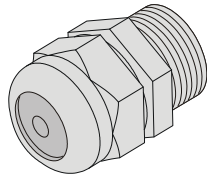


- To protect against dust and wetness
- Compatible with:
 - Multi line separator module FDCL221-M
 - Input module FDCI22x(-CN)
 - Input/output module FDCIO22x(-CN)
- Order no.: S54312-F3-A1

See also

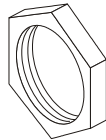
- 📖 Installation with housing [→ 29]

3.5.4 M20 x 1.5 metal cable gland



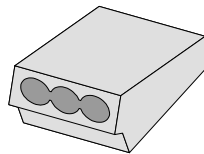
- For introducing a cable into a housing
- Compatible with:
 - M20 x 1.5 metal counter nut
- Order no.: A5Q00004478

3.5.5 M20 x 1.5 metal counter nut



- For use with metal cable gland M20 x 1.5
- Order no.: A5Q00004479

3.5.6 Connection terminal DBZ1190-AB



- For connecting cables
- For T-branches of additional cabling for cable shielding, detector heating units, sounder base, external alarm indicators, etc.
- For wire diameters of 1 ... 2.5 mm²
- 3-pin
- Order no.: BPZ:4942340001

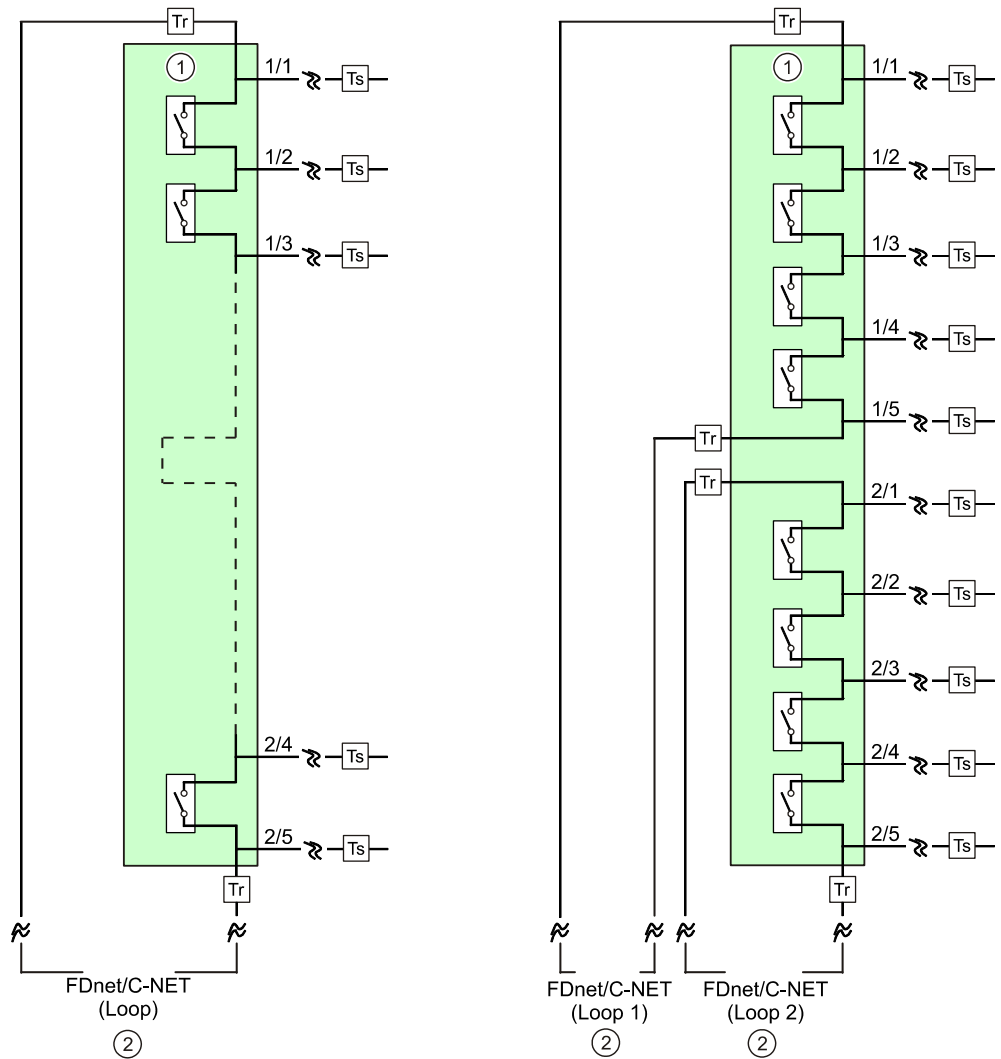
4 Planning

Unique detector line topology recognition is ensured if at least one device with a separating function, in this case a line separator, is present between two sub-stub lines.

If several sub-stub lines are to be activated on one FDnet/C-NET loop, failure of large numbers of devices must be prevented in the event of a line short-circuit. In this regard the national regulations must be observed. From a FDnet/C-NET communication point of view, one line separator within the FDCL221-M is a normal line participant which occupies one bus address and is visible in the line topology.

The following figure shows the common variants of a detector line which has been modified from a collective detector line to a FDnet/C-NET detector line, on which FDnet/C-NET devices (Tr/Ts) are installed with an integrated line separator function. The outgoing sub-stub lines are directly connected to the multi line separator modules FDCL221-M without a distributor terminal.

Placing the multi line separator module FDCL221-M in intermediate distributors e.g. on different floors



FDCL221-M 1-loop operation or 2-loop operation assembled in an intermediate distributor

1	Intermediate distributor	1/1	First sub-stub on FDnet/C-NET loop 1
2	FDnet/C-NET loop	2/5	Fifth sub-stub on FDnet/C-NET loop 2
Ts	FDnet/C-NET device on sub-stub	1/n	nth sub-stub on FDnet/C-NET loop 1
Tr	FDnet/C-NET device on FDnet/C-NET loop	2/n	nth sub-stub on FDnet/C-NET loop 2

4.1 Compatibility

The multi line separator module is compatible with the FDnet/C-NET communication protocol.

Mixed operation with other devices on the same detector line is possible without restrictions.

System compatibility:

- FDnet: FS20, AlgoRex, SIGMASYS
- C-NET: FS720

Depending on the type and software version of the control panel, the FDCL221-M may be shown in the control panel with another type designation (e.g. FDCL221). If using older control panels, the FDCL221-M can always be identified by its unique device ID.

For reasons of compatibility with older fire detection installations and newer software, the FDCL221-M identifies itself with the following combination:

Product version	ES ≥ 2
Software version	Software version ≥ 60



This combination is intended for the FDCL221-M for compatibility reasons. It does not indicate a device defect.

For more detailed information, please refer to the control panel documentation.

4.2 Fields of application

The line separator is required in a FDnet/C-NET, where several sub-stub lines converge at one point. This situation mainly occurs when changing from the old collective systems to the addressed FDnet/C-NET system.

4.3 Positioning

When renewing collective systems, the line separators are installed at points where several stub lines converge.

The multi line separator module can in the majority of cases be accommodated on different floors in the riser zone in an intermediate distributor.

If all the stub lines are routed individually to the collective control panel, the multi line separator module is directly installed in the new fire control panel.

4.4 Environmental influences

If the devices are used in industrial applications, consultation with the project manager is required, since plastics do not withstand certain environmental conditions.

The following factors must be taken into consideration:

- Chemicals
- Temperature
- Humidity

The housing is made from plastic and the printed circuit board is sealed with wax for increased corrosion protection.

5 Mounting / Installation

The multi line separator module can be installed directly or in an additional housing. The additional housing FDCH221 must be ordered separately.

See also

📄 Housing FDCH221 [→ 21]

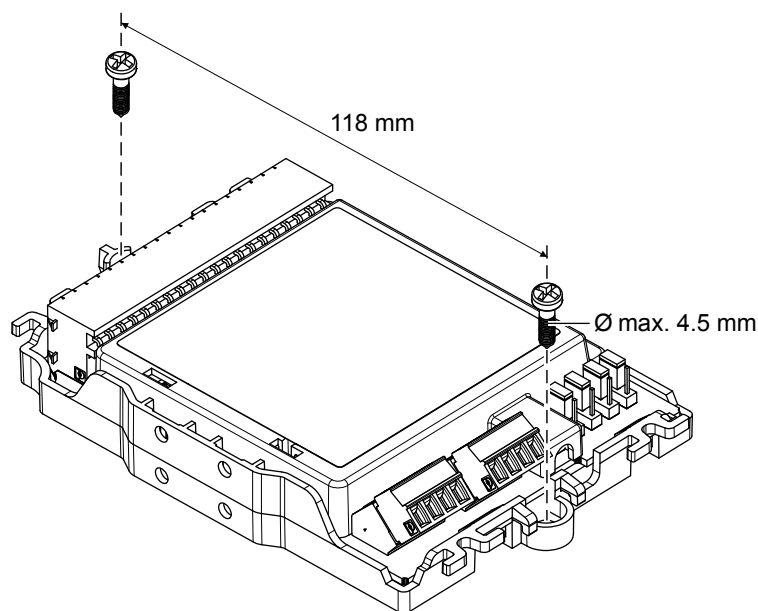
5.1 Direct installation (without additional housing)

The multi line separator module can be installed directly without additional housing in the following ways:

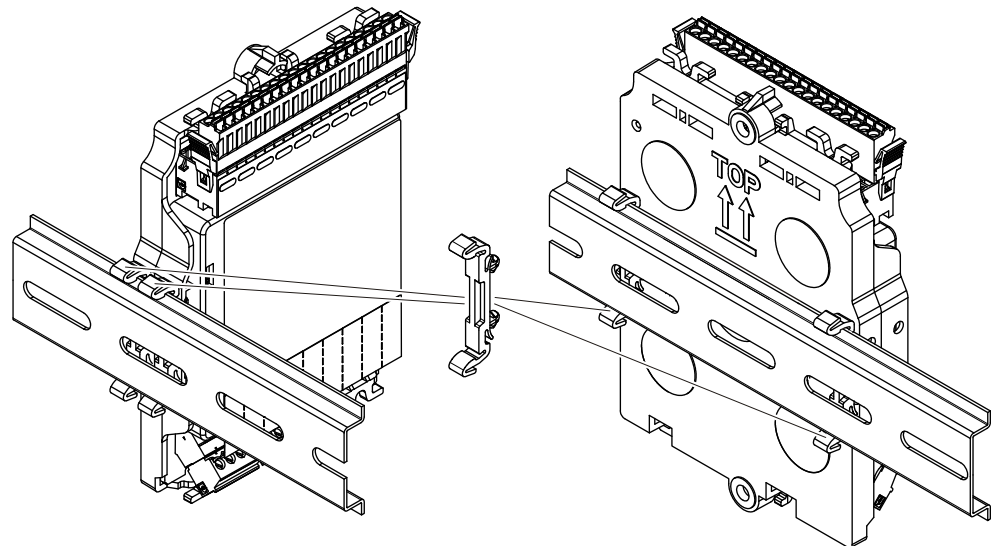
- Directly on a flat surface with 2 screws
- Vertically on a top hat rail TS35 with 2 mounting feet
- Horizontally on a top hat rail TS35 with 2 mounting feet

Proceed as follows to install the multi line separator module:

1. Install multi line separator module on a flat surface with 2 screws or on a top hat rail with two mounting feet (see following figures). Pick a suitable position during installation to ensure that the LEDs are visible at all times.
2. Connect cables to corresponding terminals (see connection diagram). Only connect one wire per terminal.
3. If using shielded FDnet/C-NET cables, connect cable shielding to connection terminal DBZ1190-AB. The shielding must not touch any external ground potentials or metal parts.
4. Secure cables on module carrier with cable ties.



Direct installation on a flat surface



Vertical or horizontal installation on top hat rail TS35

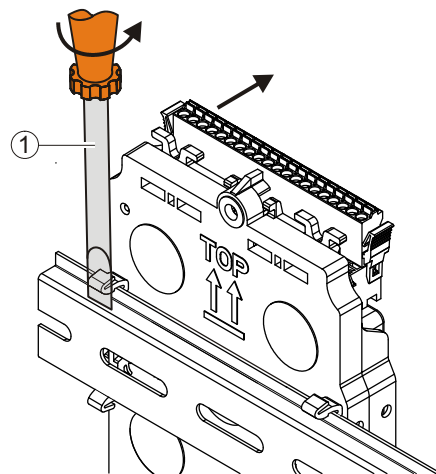
See also

☰ Connection diagram [→ 30]

5.2 Dismantling from the top hat rail

Proceed as follows to dismantle the multi line separator module from the top hat rail:

1. Place a screwdriver at a right angle between mounting foot and mounting surface of top hat rail.
2. Turn screwdriver to release mounting foot.



Dismantling the multi line separator module from the top hat rail

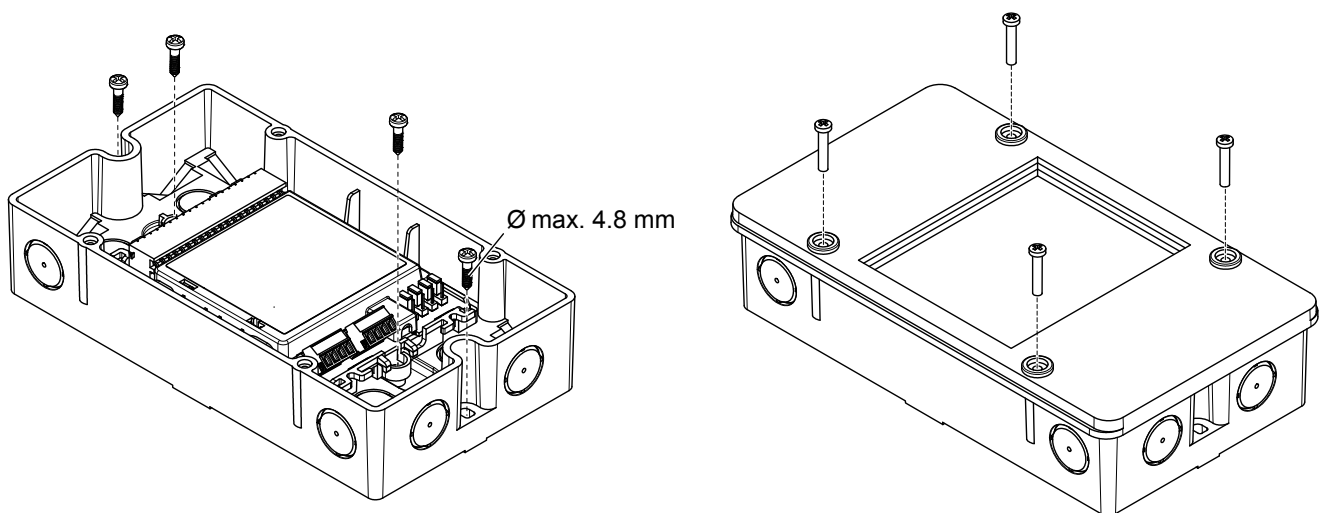
1 Size 4 screwdriver

5.3 Installation with housing

The multi line separator module can be installed in a separate housing FDCH221. The housing protects the multi line separator module from dirt and dust.

Proceed as follows to install the multi line separator module in housing FDCH221:

1. Break open required cable entries on housing.
2. Install housing on a flat surface.
3. Insert cables. If necessary, fix the cables using the M20 x 1.5 cable glands or use a different cable entry.
4. Install multi line separator module in housing with enclosed fixing screws.
5. Connect cables to corresponding terminals (see connection diagram). Only connect one wire per terminal.
6. If using shielded FDnet/C-NET cables, connect cable shielding to connection terminal DBZ1190-AB. The shielding must not touch any extrinsic earthing potentials or metal parts in the housing.
7. Close housing using supplied screws.

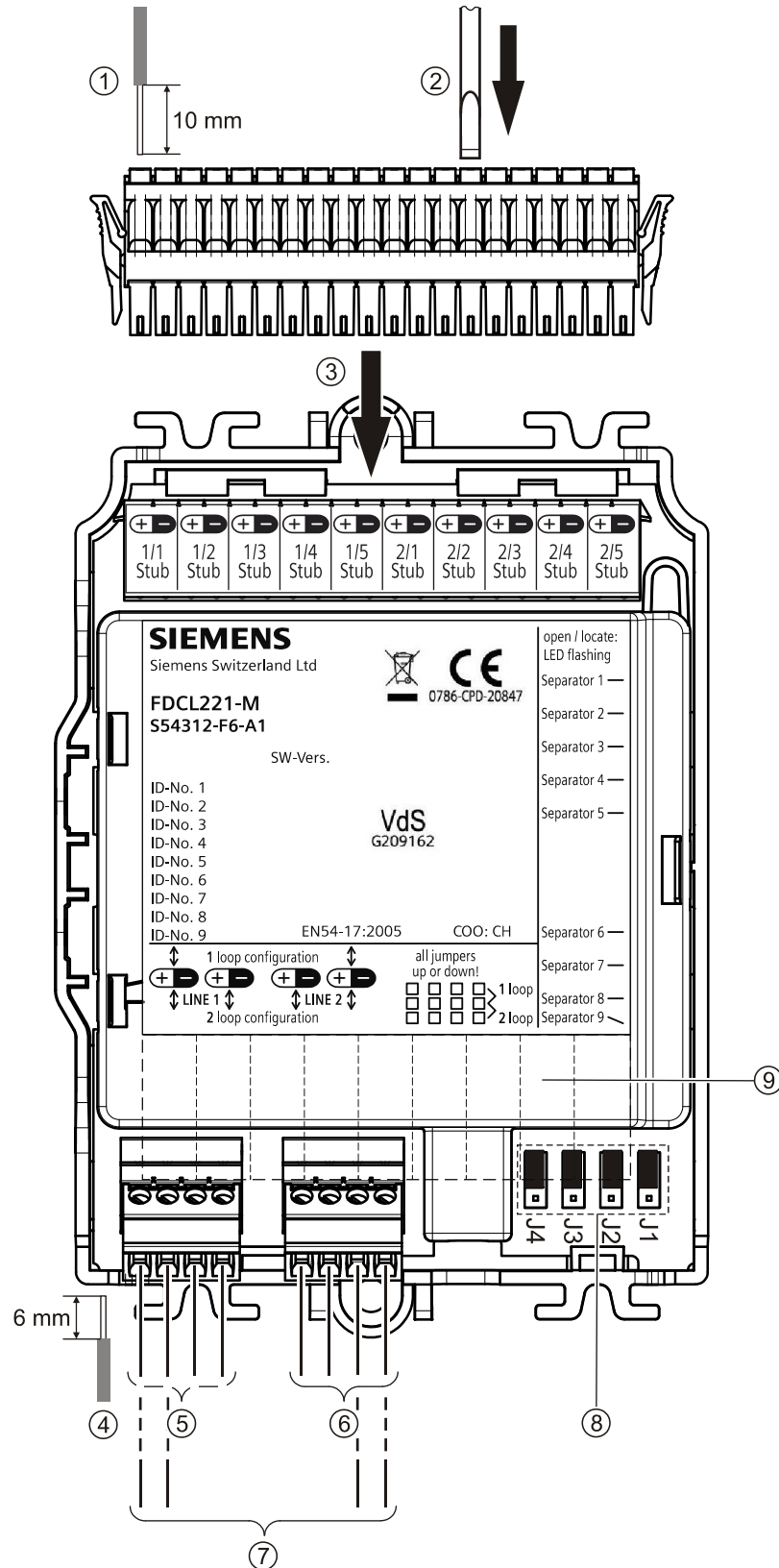


Installing the multi line separator module in housing FDCH221

See also

- 📄 Connection diagram [→ 30]

5.4 Connection diagram



FDCL221-M connection diagram

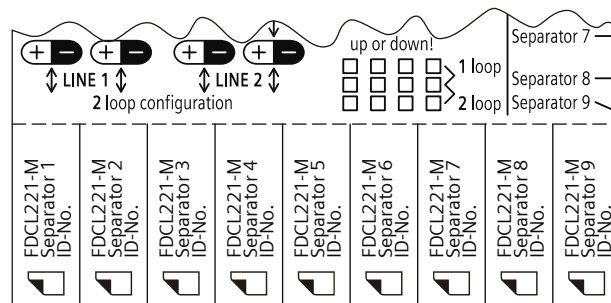
- 1 Bare length for 20-pin connector
- 2 Press screwdriver (width of blade 2.5 mm) as far as stop position to open spring contact
- 3 Fit 20-pin connector on to FDCL221-M
- 4 Bare length for 4-pin FDnet/C-NET plug
- 5 2-loop operation:
FDnet/C-NET loop 1
- 6 2-loop operation:
FDnet/C-NET loop 2
- 7 1-loop operation: FDnet/C-NET
- 8 Configuration with jumpers:
- 1-loop operation (default)
- 2-loop operation
- 9 Tear-off labels

Connect multi line separator module as shown in connection diagram and place jumpers according to use.

Note the following when connecting the multi line separator module:

- Only connect one sub-stub between two FDnet/C-NET devices. If you need to connect more than one sub-stub always connect a line separator between the sub-stubs.
- Press orange contact opening with screwdriver (width of blade 2.5 mm) when inserting wire into spring clip.
- Press orange contact opening with screwdriver to loosen connection line from spring clip.

Place 9 line separators, each with an ID number, between sub-stub connections. Self-adhesive tear-off labels are available on the FDCL221-M for your system documentation (see following figure).



Tear-off labels

- Stick appropriate tear-off label to your system documentation.
- Remove all unused tear-off labels from FDCL221-M!

See also

- 📄 Adjustment elements [→ 18]
- 📄 Function [→ 18]

6 Commissioning

From a FDnet/C-NET communication point of view, the multi line separator module FDCL221-M is a line participant which, depending on the operating mode, occupies up to 9 bus addresses and is visible in the line topology. Each individual line separator has its own bus address.

Commissioning is not mandatory. The procedure for the control panel depends on the fire detection installation.

For more detailed information, please refer to the control panel documentation.

7 Maintenance/Troubleshooting

The multi line separator module is maintenance-free. It features a self-monitoring function and must be replaced if damaged.

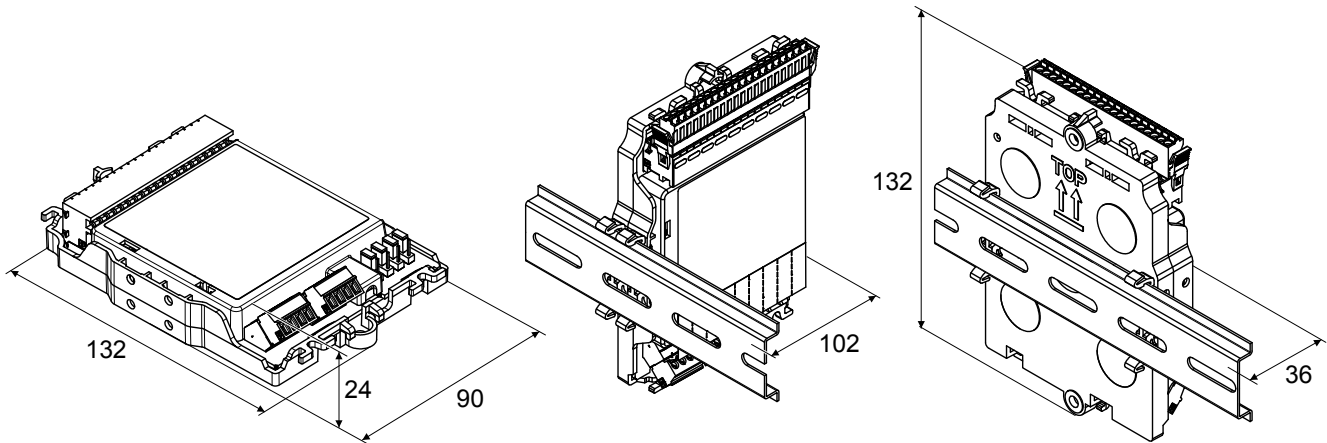
8 Specifications

8.1 Technical data

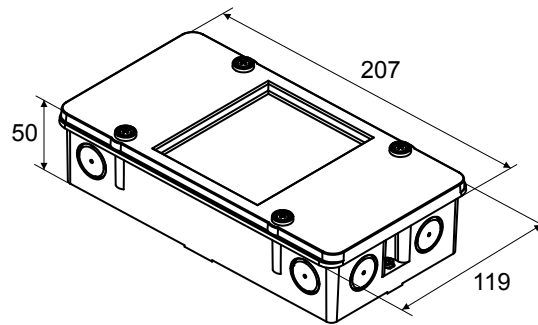
Detector line	Operating voltage	12 ... 33 V DC
	Quiescent current:	
	● 1-loop operation	2.25 mA (9 x 250 μ A)
	● 2-loop operation	2 x 1 mA (4 x 250 μ A)
	Quiescent current connection factor:	
	● Per line separator	1
	● 1-loop operation	Max. 9 x 1
	● 2-loop operation	Max. 2 x 4
	Address connection factor:	
	● 1-loop operation	9 x 1
	● 2-loop operation	2 x 4
	Separator connection factor:	
	● Per line separator	1
	● 1-loop operation	Max. 9 x 1
● 2-loop operation	Max. 2 x 4	
Protocol	FDnet/C-NET	
Compatibility	See 'List of compatibility'	
Line separator (per separator)	Line voltage:	
	● Nominal	32 V DC (= V_{nom})
	● Minimum	12 V DC (= V_{min})
	● Maximum	33 V DC (= V_{max})
	Voltage at which the separator opens:	
	● Minimum	7.5 V DC (= $V_{SO min}$)
	● Maximum	10.5 V DC (= $V_{SO max}$)
	Permanent current when switches are closed:	Max. 0.5 A (= $I_{C max}$)
	Switching current (e.g. in the event of a short-circuit)	Max. 1 A (= $I_{S max}$)
	Leakage current when switches are open:	Max. 1 mA (= $I_{L max}$)
Serial impedance when switches are closed:	Max. 0.5 Ω (= $Z_{C max}$)	
External alarm indicators	Number of external alarm indicators that can be connected	None

Connections	Detector line:	
	● Design	Screw terminals on plug
	● Cable cross section	0.2 ... 1.5 mm ²
	● Bare length	6 mm
	Sub-stubs:	
	● Design	Spring clips on plug
	● Cable cross section	0.2 ... 1.5 mm ²
	● Bare length	10 mm
Ambient conditions	Operating temperature/permissible ambient temperature	-25 ... +70 °C
	Storage temperature	-30 ... +75 °C
	Air humidity	≤95 % rel.
	Protection categories according to EN 60529/IEC 60529:	
	● Without housing	IP30
	● With housing FDCH221, screwed	IP65
	Electromagnetic compatibility:	
	● 1 MHz ... 2 GHz	10 V/m
Mechanical data	Dimensions (L x W x H):	
	● Module FDCL221-M (without housing)	132 x 90 x 24 mm
	● Housing FDCH221	207 x 119 x 50 mm
	Weight of module FDCL221-M	0.124 kg
	Housing material	ABS
	Colors:	
	● Module carrier	~RAL 9010 pure white
	● Housing FDCH221	~RAL 9010 pure white
	● Housing cover	Transparent
Standards	Standards	EN 54-17
	VdS approval	G209162
	LPCB approval	Pending
	Certificates	0786-CPD-20847
	CE conformity mark	Yes
	Protection categories	IEC 60529
	QA Standards	<ul style="list-style-type: none"> ● Siemens Standard SN 36350 ● ISO 9001 ● ISO 9004

8.2 Dimensions



Dimensions for types of installation without housing



Dimensions for housing FDCH221

8.3 Environmental compatibility

- Reusable materials
- Electronic parts and synthetic materials can be easily separated
- Halogen-free synthetic materials, marked by embossed code
- The synthetic materials used do not generate any toxic substances during combustion.

The larger plastic parts are labeled according to ISO 11469. The basic polymer abbreviations comply with ISO 1043. The materials can be separated and recycled on this basis.

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