



Technical Documentation for the linear smoke detector

DLF150



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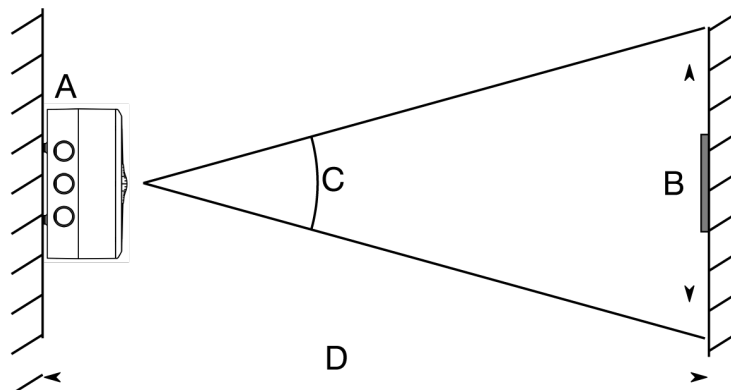
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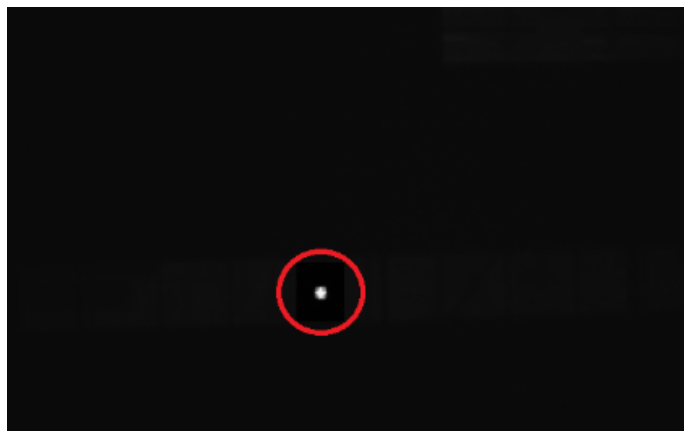
A. Product presentation

A.1. Product description

The product DLF150 is a linear smoke detector which operates on the principle of an emitted infrared light and the detection of the reflected portion of this light beam. The infrared light is reflected by a dedicated reflector mounted opposite to the device (emitter/receiver unit):



- A: Emitter / Receiver combination
- B: Reflector
- C: Maximum viewing angle $\pm 7^\circ$ horizontal, $\pm 4^\circ$ vertical
- D: Separation distance 8...150 m



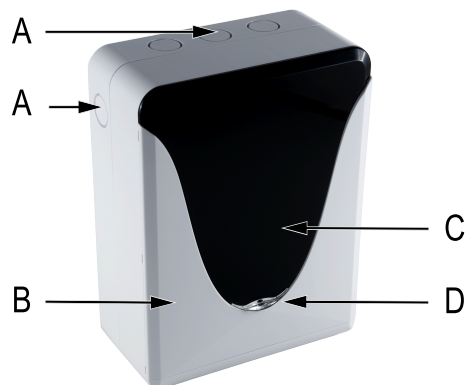
To avoid the need for a precise alignment, which is time consuming and often uncomfortable due to the mounting height of the detector, an image sensor serves as the receiving element. This sensor and the integrated lens enables the DLF150 to "see" the reflector within an angle of up to $\pm 7^\circ$, which makes the installation significantly easier and faster.

The image on the left shows how the reflector is visible as a white spot (encircled in red) within the DLF150 service app, so that its position can be checked upon installation.

No physical access to the device is needed for the fine tuning of the alignment after the installation. All data exchange and setup commands are done via a wireless link.

Main features of the the device:

- A: Knock-out positions for cable glands M20
- B: Removable front cover
- C: Sensor area, do not cover!
- D: LED indicator





The Bluetooth MY BEAM commissioning app is mandatory to make sure that the device is properly aligned. It can be downloaded on Google PlayStore for Android V9.0 and above and on Apple AppStore for iOS.

The package contains these components:

- Wall mounted base with Knockout for cable glands
- Detector unit with screws to fix on to wall mount base
- Single reflector for a distance of up to 60 m
- Terminal blocks for a wiring cable with cross section from 0.5 to 2.5 mm²
- Installation guide

Additional components which can be obtained separately:

34144	BEAM-INSTALLATION-KIT	Installationkit with wrench tool, alarmfilter, laserpointer / cap
34168	RESET-STATION	Reset Station for DLF150
34166	MIR-H-1	Reflector heater for 1 reflector
34167	MIR-H-4	Reflector heater for 4 reflectors
34165	WMK-M	3D adjustable Wall Mounting Kit
34163	BEAM-MP4	Basement to mount 4 reflectors
34164	BEAM-MP9	Basement to mount 9 reflectors
34151	BEAM-TEST-POLE	Holder for Alarm Filter for Solo telescope Pole
34160	BEAM-LASERPOINTER	Laserpointer for Alignment of DLF150
34159	BEAM-TESTFILTER	Alarm Filter
34128	BEAM-SUNPROTECTION	Sun- and dust protection for DLF150
33647	REFL-10X10	Single reflector as sparepart for DLF150
33642	MIR-KIT3	Extension kit for 60-120 m (3 reflectors)
33644	MIR-KIT8	Extension kit for 120-150 m (8 reflectors)
33625	BEAMKIT4CC	Accessories kit Long Beam lattice screen Set of 4
34152	BEAM-IP66	IP66 Case (EN 54-12 certification pending)

The screwdrivers required for the device and the IP66 enclosure are included in the installation kit. General tools and materials required for commissioning:

- Screws suitable for the chosen wall (flat head, 4x Ø4.5mm)
- Screwdriver for the wall mount screws
- Torx screwdriver (T25) for the enclosure
- Mobile device (Android V7.0 and above / iOS 15 and above) for the Bluetooth MY BEAM service application

Care must be taken that the reflector must be in the field of view of the device. The sensing device is capable of detecting the reflector +/- 7° from the optical axis, but a margin of approx. 2° must be considered to accommodate building movement during operation. To ensure this requirement, an optional laser pointer can be purchased (see Section B.3, "Laser Pointer") to mark the preferred installation spot of the reflector.

A.2. Variants

The product comes in different variants, which can be addressable detectors to be used only in connection with a compatible fire control panel and relay variants which are equipped with potential-free signal outputs for use in other fire detection systems, each one is available with or without an internal heater to avoid condensation in cold environments. The fire detection characteristics do not differ among these variants.



The products are commercialized under different part numbers, their technical characteristics are the same as the certified references to which they are attached.

The part numbers evolve according to the market, design and packaging. For example, OAXXY may be an part number for France while OAZZY is another part number for international customers. Different part numbers can exist according to different parameters such as quality marking (NF, LPCB, VDS, BOSEC,...) or the colour of the product housing, or even the sales channel. In all cases the product is referenced with its certified reference since the certified characteristics are identical. All products are delivered with a simplified manual (NSP) customized according to the part number which summarizes its characteristics.

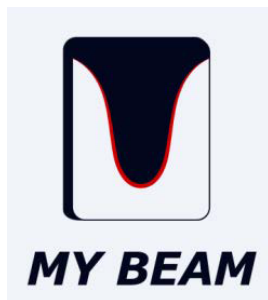
Variant overview

- Relay variant
- Relay variant with heater
- Addressable variant
- Addressable variant with heater

The different connection diagrams are shown in chapter Section E, "Wiring".

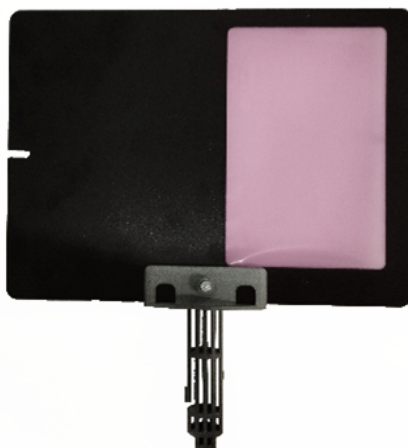
B. Accessories

B.1. Installation and service app Bluetooth MY BEAM



To put the device into operation, a smartphone/tablet (Android or iOS) is necessary with the Bluetooth MY BEAM setup application installed. Make sure that Bluetooth is available and enabled on the device.

B.2. Test alarm attenuation film



The test filter, sold separately, attenuates the reflected light intensity to simulate the occurrence of smoke to trigger an alarm. The film must cover the emitter/receiver optics completely to ensure that the predefined threshold is reached. A dedicated fixture is available to be used with the filter film, it can also be used to cover the lens completely (which results in a fault message)

Take care to disable all alarm outputs/evacuation prior to triggering the alarm.

The attenuation filter can be mounted to a detector test pole to reach the detector in a height up to 6 m.

To use this feature, the film must be attached to the fixture, which fits into a telescopic test pole (i.e. Solo Model 100).

B.3. Laser Pointer

A laser pointer is available as an optional tool to check the mounting spot for a good alignment prior to first powerup. The laser pointer can be purchased separately. The laser pointer can be put in place after the wall-mount base has been fixed to the wall or before the top cover of the device is clipped on.



Left image: Laser class 2 mounted in the base of the DLF150 / Right image: Laser class 2 mounted in the Housing of the DLF150

B.4. Detector Heater

Some variants of the DLF150 are equipped with an internal heater to avoid condensation of moisture on the optical system. A specific product variant with "H" or "T" extension is available for special environments. If the separate supply voltage is available, the heating is automatically activated to maintain the temperature of the device at approx. 20°C (depending on the ambient temperature).

In case of an addressable version, a separate power supply (24 V DC, min. 650 mA) is needed.

See Section E.2, "Wiring of the product – addressable version" for a note on the wiring.

The relay version requires two separate power supplies:

1. An external power supply compliant with EN 54-4 (24 V DC) for the detector DLF150
2. An external power supply (24 V DC, min. 650 mA) for the heating function

B.5. Reflector Heater



A separate product is available to avoid condensation of moisture on the reflector surface. Unheated buildings and/or high moisture in the air increase the probability of condensation. The heated reflector is available in two versions:

- 10 x 10 cm² active area: For a distance of up to 60 m, connection 12 V DC, 1 A,
- 20 x 20 cm² active area: For a distance from 60 to 120 m, connection 24 V DC, 1 A

In case this heater is needed, make sure that a sufficient power supply is available on site.

B.6. Reset Station

The reset box for relay beam detectors can be used to manually reset the alarm on the device itself, per default the alarm is latched until a reset. The reset box is wired to the detector and installed in an easily accessible location.

Briefly closing the switch only resets the alarm indicator (relay and LED). Closing it for longer (> 10 seconds) causes the device to restart with Bluetooth enabled, so that configuration via the application can then be carried out.

Resetting after an alarm can also be performed by an input/output module – Section E.1, “Wiring of the product – Relay version”.

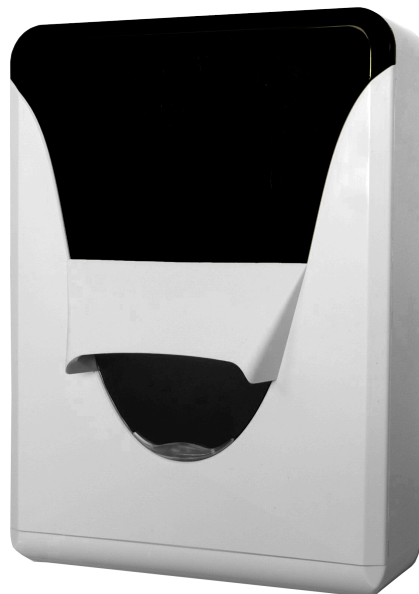
When the key is in position (X), the ‘smoke detection’ function is inhibited in order to avoid false alarms during construction, cleaning or other work, and the detector's fault relay is activated after a few seconds.



B.7. Sun shield for emitter / receiver device

A separate front cover with sun shield is available for applications where sunlight might fall into the lens. It also serves as a protection from dust or other pollutants.

The default cover without shield can easily be replaced by this front cover, no tools are necessary.



B.8. Sun shield for reflector

To avoid unwanted reflection of sunlight, a separate part can be clipped onto the reflector(s) prior to installation.

This sun protection consists of separate elements (10 * 10 cm² reflector size) and can be extended for larger reflectors by clipping elements together.



C. Functionalities

The DLF150 constantly monitors the reflected intensity of the infrared light. A light pulse is emitted every 4 seconds, and the reflected intensity is captured by an image sensor. By using an image sensor, there is no need to exactly align the device.

If the reflected intensity drops below a configurable threshold for three consecutive pulses, an alarm is triggered. A further delay can be set via Bluetooth MY BEAM. For the relay version, the alarm threshold is configured via the Bluetooth MY BEAM service application. The addressable version is configured via the setup tool of the fire control panel.

The detection system based on an image sensor gives several advantages over traditional linear smoke detectors.

C.1. Fast and easy setup

In a typical installation it is sufficient to connect to the device once with a mobile smartphone/tablet etc to initiate the alignment process and the automatic calibration of the infrared intensity.

The installer can visually check the visibility of the reflector and the surrounding area so that no foreign objects obstruct the view or overlap with the reflector image.

C.2. Fault avoidance

C.2.1. Stability against misalignment

If the alignment changes in case of thermal expansion of the building structure, the DLF150 is able to track the reflector image within its field of view thus avoiding a false alarm which would occur when the reflector is moved outside of the optimum alignment path. However, only slow movements are compensated for and above a certain angle or angular velocity a measurement fault or false alarm may occur.

C.2.2. Insensitivity against stray light sources

Additional light sources can be filtered out as long as they do not overlap with the reflector image. However, it is strongly advised to avoid direct sunlight or other broadband lights such as incandescent bulbs to be close to the optical path. The installation site should be checked in advance if artificial light sources or sunlight (either direct or reflected) might reach the device or the reflector in a small angle from the optical axis.

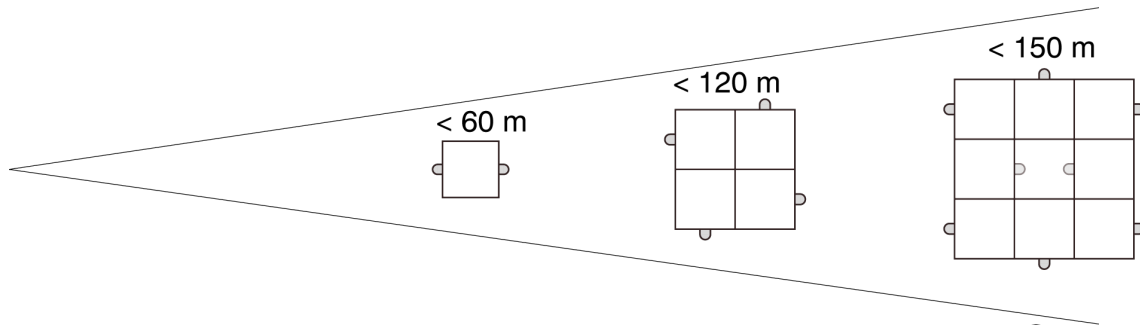
C.2.3. Insensitivity against reflectance

The same constraints as for stray light sources apply for highly reflective objects which are close to the optical path and near to the emitter/receiver. On the alignment screen these objects should be visible and must be clearly separated from the reflector.

D. Installation

The installation must always be in accordance with local regulations concerning fire alarm systems. This concerns for example the type of cable used, the position of the detector inside the building, the number of detectors per area and the sensitivity setting of the detector.

Figure 1. Reflector size with relation to distance



Choose the reflector size according to the schema above.

Use only the supplied reflector(s) to avoid problems during installation and operation!

To avoid any problems with a bad alignment after a certain period of operation, it is advised to align the detector as well as possible facing towards the reflector.

Make sure that the reflector can be seen from the detector location. It must not be hidden behind any structure or moving elements!

In general, two approaches are possible to yield a good positioning:

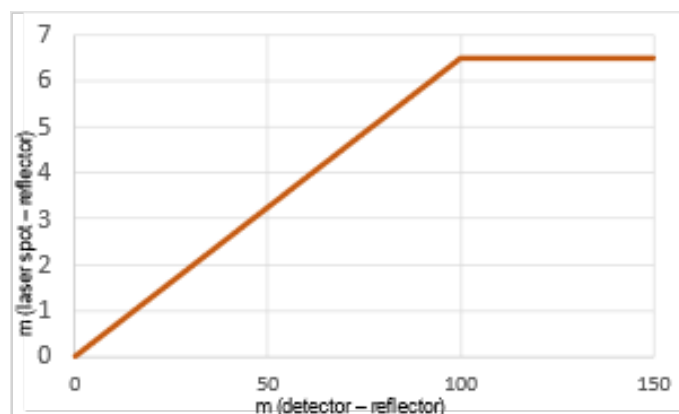
1. First mount the reflector to one side of the building, then mount the emitter/receiver unit targeting the reflector.
2. First mount the emitter/receiver unit, then place the reflector in the field of view.

In both cases, the optional laser pointer can be used to check the alignment: The laser pointer is fitted inside the wall mount base to mark the optimal spot for the reflector. It can also be applied on the installed detector to check the alignment.

Ensure that the distance from the reflector to the laser spot is below the limit shown in the following graph (depending on the separation distance).

It is not necessary to exactly hit the reflector with the laser spot!

Figure 2. Maximum allowed distance between laser spot and reflector



D.1. Installation of the device

The underlying material should have a smooth and firm surface and must be free from vibration or flutter. If the device is mounted to an outer wall of a building, make sure the wall is solid and not flexing in case of strong wind.

If this is not the case, avoid mounting the device directly to the outer walls (i.e. sheet metal), use a separate structure instead. If no even surface can be found, use an intermediate mounting plate (thick plywood for example) to create a solid mounting plane.

When the alignment is correct, make sure that the device unit is securely fixed to the wall base.

A wireless connection via Bluetooth is used after mechanical and electrical installation to finish the commissioning of the DLF150.

Make sure to collect the tear-off label or write down the serial number to identify each device remotely after installation! The enclosed data matrix code (also shown on the device label) is required for commissioning with the Bluetooth MY BEAM service app.

In case there are no parallel walls to mount the detector and reflector, the universal ball joint fixture can be used to allow a coarse alignment with an angle deviation of approx. 45° in all directions.

The ball joint bracket is supplied with a VESA75 standard mounting plate that fits perfectly with the mounting holes on the LYNX-LOTA wall bracket.

D.2. Electrical installation

The device is available in two versions, one with an interface for two-wire ringbus systems and one with a DC supply and status relays for fire alarm and device fault.

The cables must be connected to the enclosure by using cable glands which ensure IP class 54. The wiring is explained in the following chapter.

E. Wiring

E.1. Wiring of the product – Relay version

For the relay version, the following connections are available (from top to bottom):

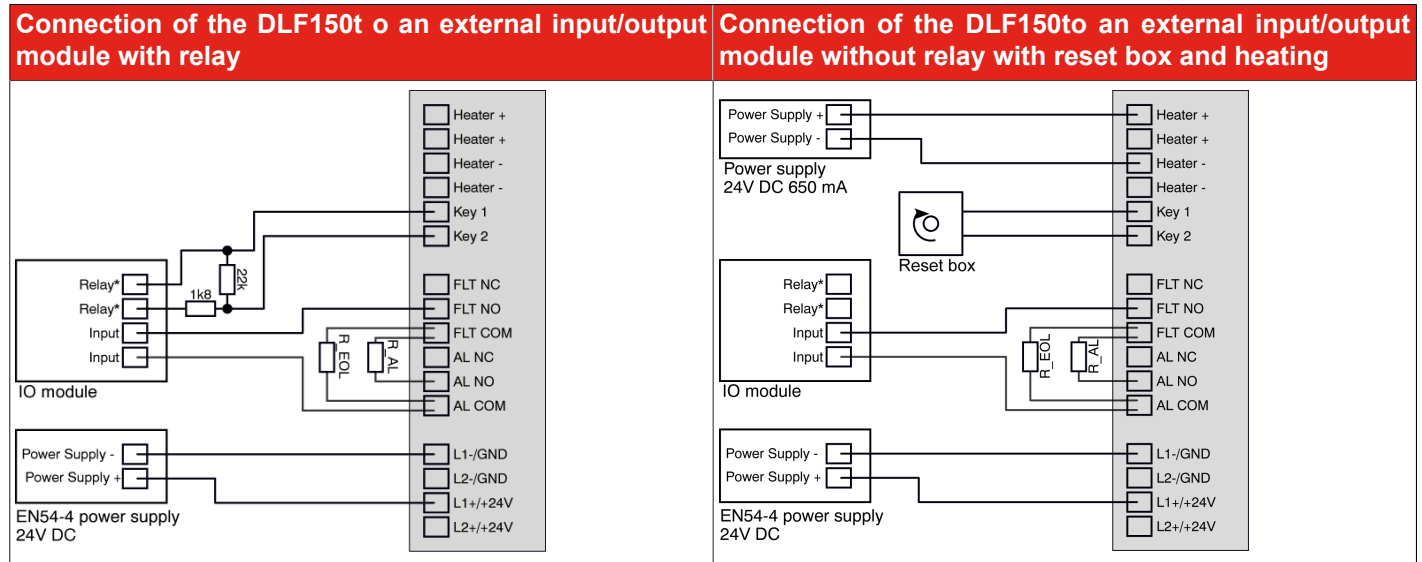
Pin No.	Description	Parameter
1	Heater +	Heater supply positive terminal, min. 650 mA current capacity. Optional in case of low temperature/condensation
2	Heater +	Heater supply positive terminal, min. 650 mA current capacity. Optional in case of low temperature/condensation, output terminal cable extensions
3	Heater -	Heater supply negative terminal, min. 650 mA current capacity. Optional in case of low temperature/condensation
4	Heater -	Heater supply negative terminal, min. 650 mA current capacity. Optional in case of low temperature/condensation, output terminal cable extensions
5	Key 1	Connect the key switch to reset. Briefly close the switch (<1 s): Reset the alarm output. Close for a long time (>10 s): Reset and activate Bluetooth.
6	Key 2	Connect the key switch to reset. Briefly close the switch (<1 s): Reset the alarm output. Close for a long time (>10 s): Reset and activate Bluetooth.
7	FLT NC	Fault status relay output: Normally open (no fault) contact, max. 2 A / 30 V DC
8	FLT NO	Fault status relay output: Normally closed (no fault) contact, max. 2 A / 30 V DC
9	FLT COM	Fault status relay output: Common contact, max. 2 A / 30 V DC
10	AL NC	Relay for alarm status: Normally closed (no alarm) contact, max. 2 A / 30 V DC
11	AL NO	Relay for alarm status: Normally open (no alarm) contact, max. 2 A / 30 V DC
12	AL COM	Relay for alarm status: Common contact, max. 2 A / 30 V DC
13	L1-/GND	Negative terminal of the supply voltage
14	L2-/GND	Negative terminal of the supply voltage , output terminal for cable extensions
15	L1+/+24V	Positive terminal of the supply voltage, nom. 24 V DC
16	L2+/+24V	Positive terminal of the supply voltage, nom. 24 V DC, output terminal for cable extensions

The screw terminals are fixed in the wall base, each contact is labeled for ease of installation. A flat screwdriver is needed to close the clamp terminals.

Take care to avoid pulling forces on the terminals, there is sufficient space inside the enclosure to take up some extra wire length. The terminals can be used for a wire cross-section of 0.5 to 2.5 mm². Check the contact by pulling gently on each wire before attaching the detector to the base.

E.1.1. Connection to an external input/output module or conventional line

The DLF150 in the relay variant has two relays to signal an alarm or a device fault. Both can be connected either as normally open or normally closed. A basic connection schematic is shown below. A standby loop current is defined by the terminating resistor R_{EOL} and must be selected according to the input threshold of the IO module. The alarm current is set by the alarm resistance R_{AL} which must also be chosen to fit the input threshold of the IO module.



To reset the DLF150 after an alarm, a potential-free alarm relay is required and must be connected to terminals Key 1 and Key 2. The contact must be closed for > one second to reset the detector correctly, and for at least 10 seconds to activate Bluetooth.

The power supply can also be cut off by a relay for more than 20 seconds.



A common power supply can be used to power the heater and the device in parallel. To reduce the load on battery-backed power supplies, the heater can be connected to a separate non-monitored supply (24 V DC, 0.6 A)

E.1.2. Connection of multiple devices to an external input/output module

If there is no requirement to have separate detection points, multiple detectors can be wired together to one IO module. However, the relay output (*) cannot be used to reset all connected detectors. Use the reset stations instead.

Each detector in alarm connects a resistor R_{AL} in parallel to the R_{EOL} which is detected by the IO module as a current increase. The line is terminated with a R_{EOL}^{***} resistor to detect a wire break. The optional heater is wired as shown on the right (24V / 650 mA):

Figure 3. Wiring for multiple relay version

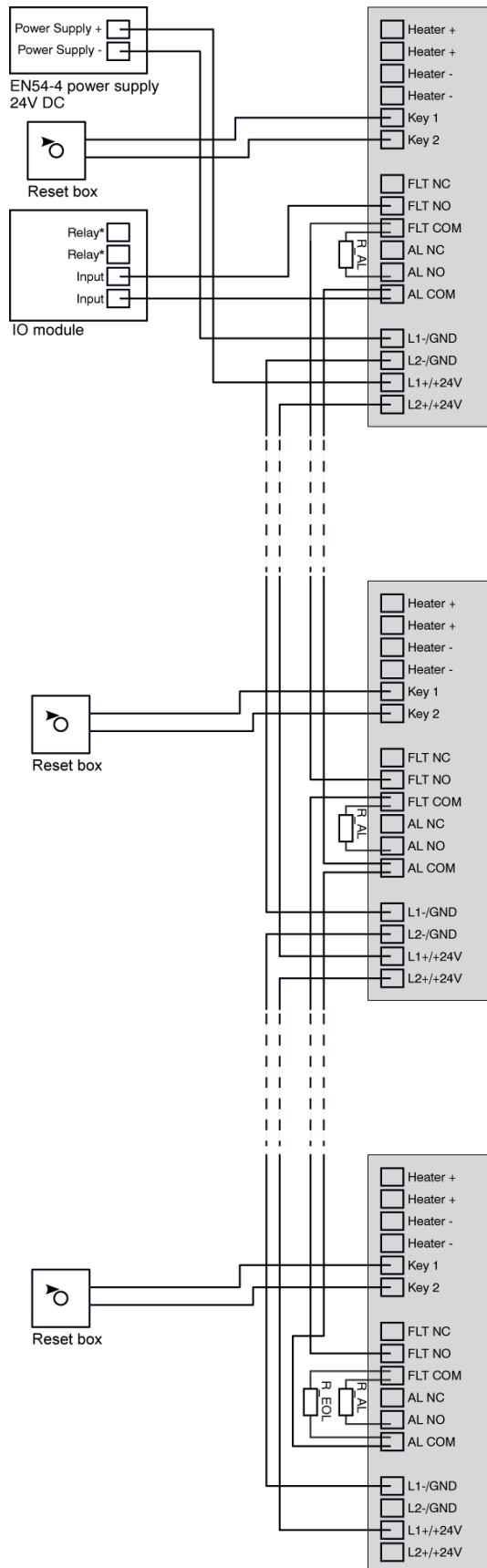
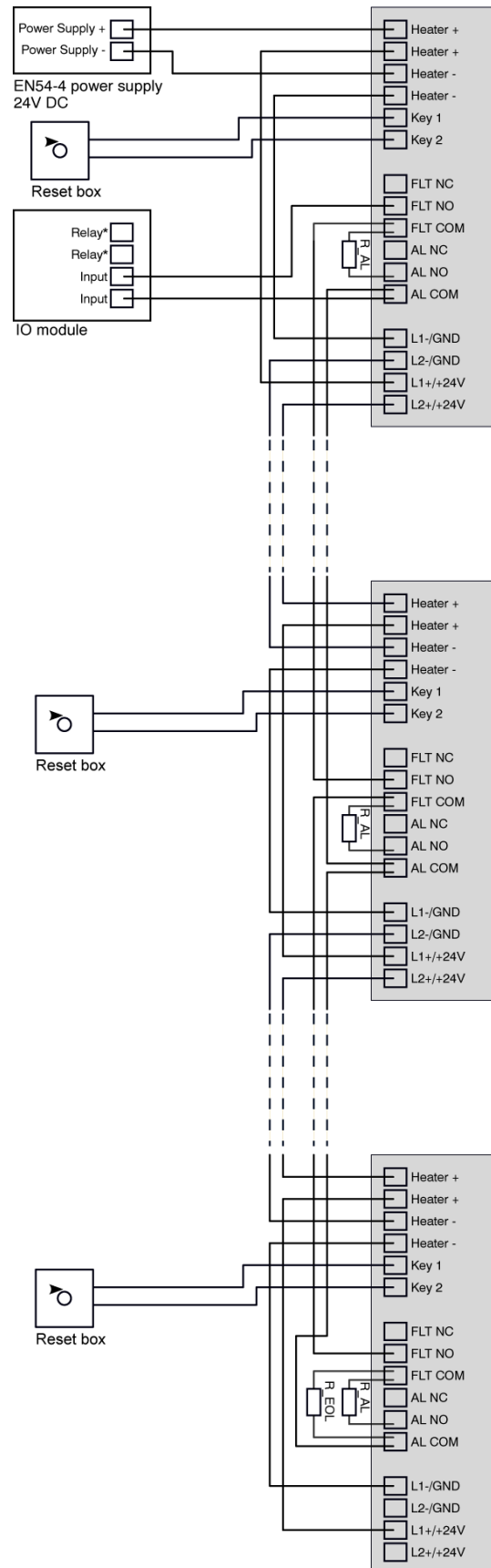


Figure 4. Wiring for multiple relay version with heater



E.2. Wiring of the product – addressable version

For an addressable version, the following wires can be connected (from up to down):

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Pin No.	Description	Parameter
1	Heater +	Heater supply positive terminal, min. 650 mA current capacity. Optional in case of low temperature/condensation
2	Heater +	Heater supply positive terminal, min. 650 mA current capacity. Optional in case of low temperature/condensation, output terminal for cable extension
3	Heater -	Heater supply negative terminal, min. 650 mA current capacity. Optional in case of low temperature/condensation
4	Heater -	Heater supply negative terminal, min. 650 mA current capacity. Optional in case of low temperature/condensation, output terminal for cable extension
5	KEY1	Not used
6	KEY2	Not used
7	FLT NC	Not used
8	FLT NO	Not used
9	FLT COM	Not used
10	AL NC	Not used
11	AL NO	Not used
12	AL COM	Not used
13	L1-/GND	Loop negative terminal, input
14	L2-/GND	Loop negative terminal, output
15	L1+/-+24V	Loop positive terminal max. 41 V DC, input
16	L2+/-+24V	Loop positive terminal max. 41 V DC, output

E.2.1. Connection to loop card, additional heater supply

Figure 5. Wiring for multiple loop version

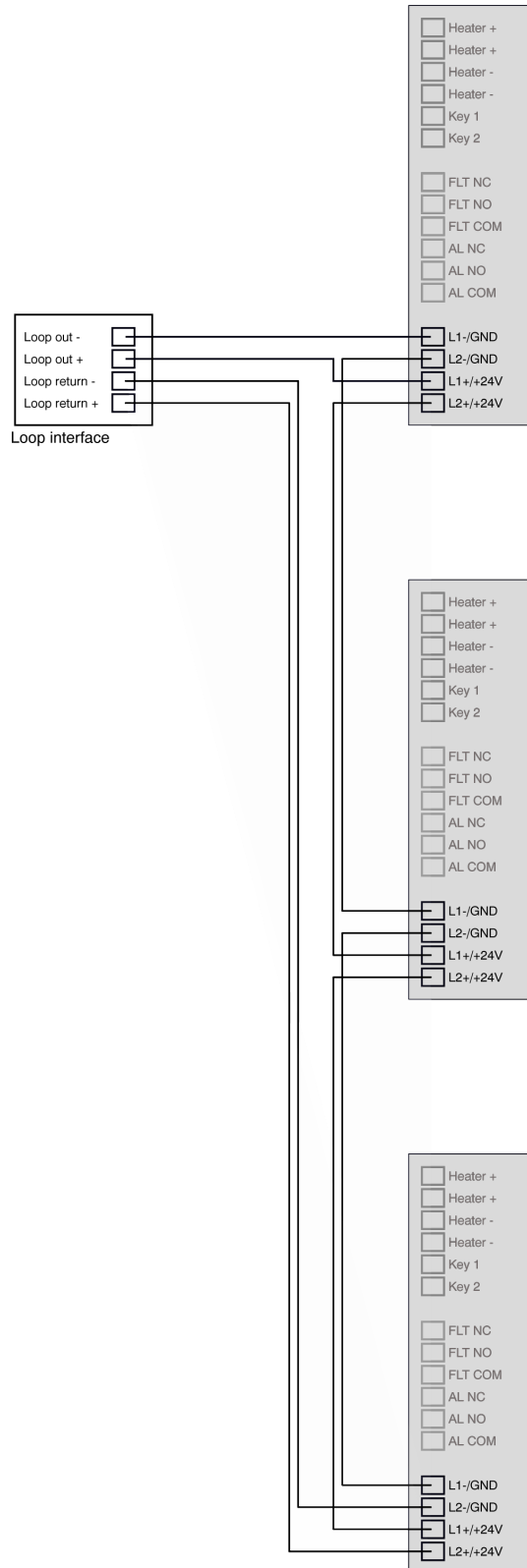
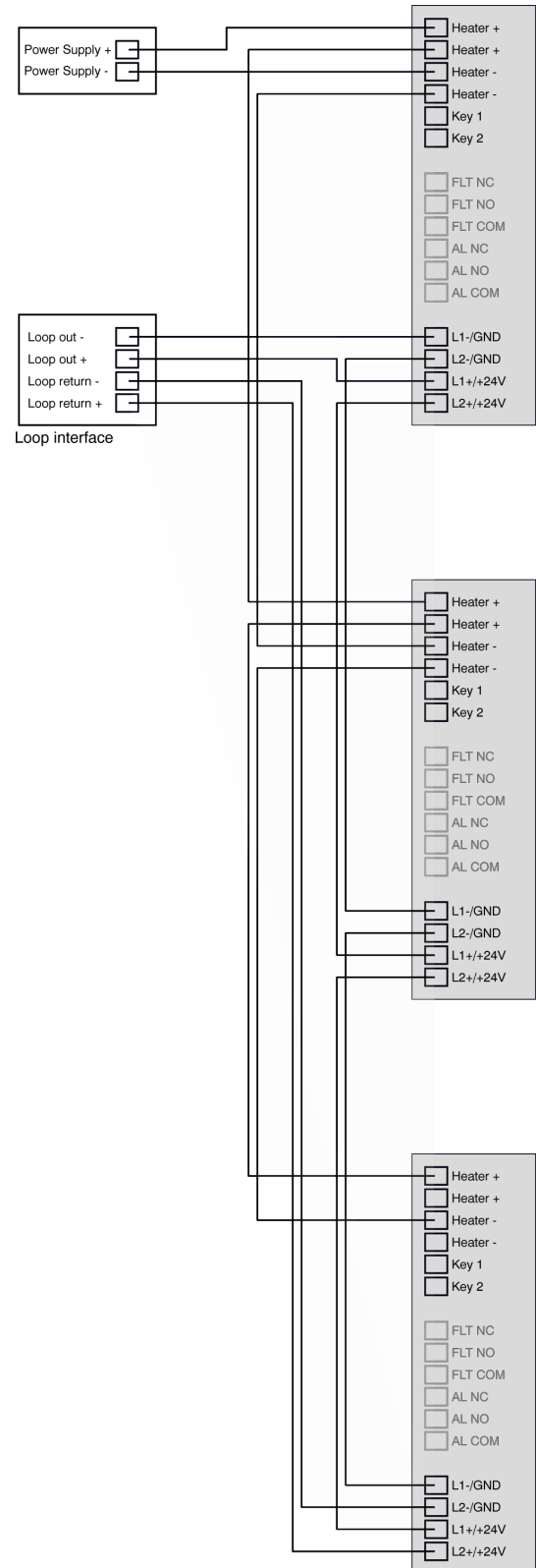


Figure 6. Wiring for multiple loop version with heater



E.3. Addressing the product

Note: This is only valid for the addressable versions of the product.

The detector is delivered with the address 00. Use specific tools and/or procedures to set the address.

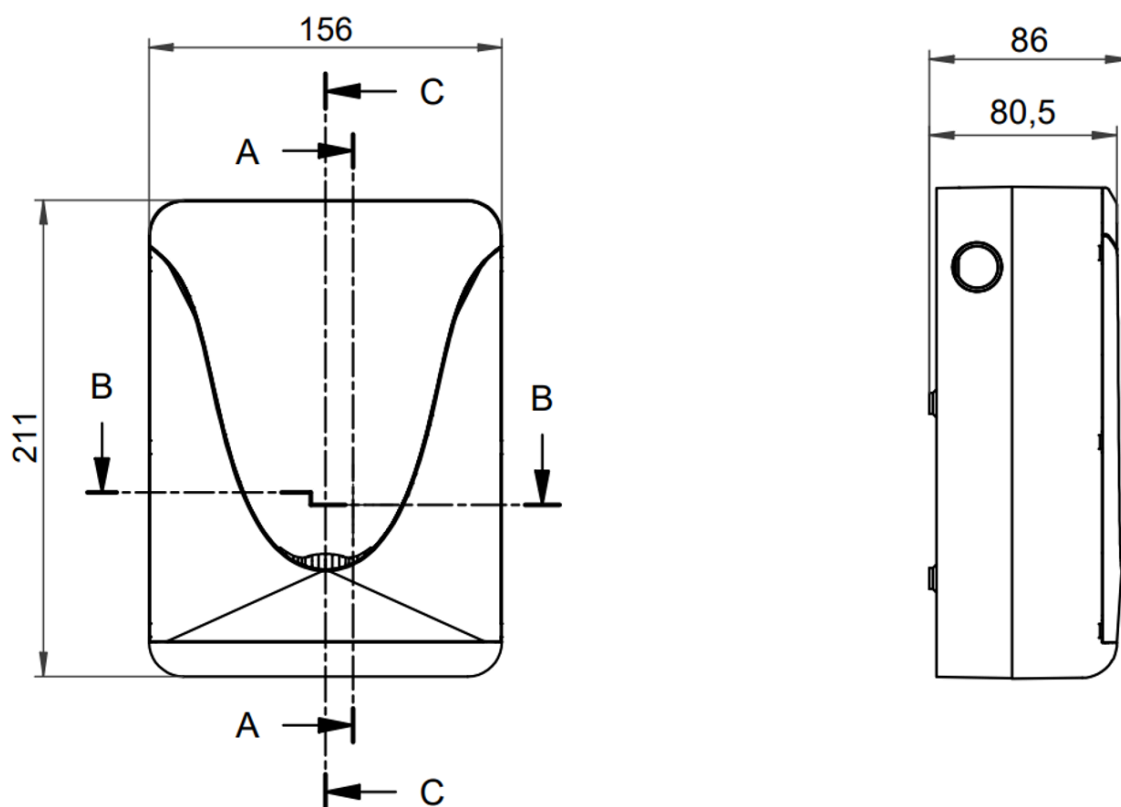
Moreover, program the Control and Indicating Equipment according desired configuration for the input.

F. Technical characteristic

F.1. Mechanical characteristics

The product is delivered with a wall mount base which provides IP class 54 if suitable cable glands (M20) are used.

Parameter	Value
Height	211 mm
Width	156 mm
Depth	86 mm
Weight	820 g



F.2. Electrical characteristics

	Relay version	Addressable version
Supply voltage range	21 ... 28,8 V DC	30 ... 41 V DC
Current consumption (operation)	6.5 mA	6.5 mA
Current consumption (installation)	40 mA	40 mA
Switching capacity ALARM	30 V / 2 A	---
Switching capacity FAULT	30 V / 2 A	---
Supply voltage for heater	21 ... 28.8 V DC	21 ... 28.8 V DC
Current consumption heater	≤ 650 mA	≤ 650 mA
Accepted wire cross section	0.5 to 2.5 mm ²	0.5 to 2.5 mm ²

F.3. Environmental characteristics

	Relay version	Addressable version
Operating temperature	-10 °C ... +55 °C	-10 °C ... +55 °C
Moisture	≤ 93 % rH	≤ 93 % rH
Operating temperature with heater	-30 °C ... + 55 °C	-30 °C ... + 55 °C

F.4. Optical characteristics

Parameter	Value
Wavelength emitter	850 nm
Maximum distance	150 m
Minimum distance	8 m
Maximum angular deviation during operation	+/- 1.0°
Maximum angular deviation of the reflector	+/- 3°
Allowed misalignment on installation at 150 m	+/- 3°
Allowed misalignment on installation at 50 m	+/- 5°

*Dynamic deviation during operation, typically caused by thermal expansion of building parts.

F.5. Levels of sensitivity

Level of sensitivity	Sensitivity according to EN 54-12
1	not certified
2	not certified
3	≥ 0,9 dB
4	≥ 1,3 dB
5	≥ 1,9 dB
6	not certified
7	not certified

F.6. Marking

Certified Reference	Part Number/ Name	CE-Marking	Certification number	Adress
DLF150	XXXX ¹	 CE YEAR : 26	DoP & CE-CPR number : 1116-CPR-232	DETECTOMAT GMBH - An der Strusbek 19, 22926 Ahrensburg (Germany)

¹ Examples: DLF150A, DLF150A-T, DLF150R, DLF150R-T ...



F.7. Compliance

The product complies with the following standard:

- EN54-12:2015
- EN54-17:2012 (Addressable versions only)

In conformity to the EU n°305/2011 Construction Product Regulation, this detector is tagged with the CE marking. It is also compliant with EMC (Electromagnetic Compatibility) directive 2014/30/EU. When relevant according to the market, the detector can also bear a national marking.

F.8. Environment

The product complies with environmental directives such as: RoHS for Restriction of Hazardous Substances (2011/65/EU), WEEE, ECOSYSTEM (specific at the French market for more information: www.ecosystem.eco)



G. Maintenance

The minimum mandatory maintenance of the detector must be carried out in accordance with the standards in effect in the installation country. In general, a regular testing of the alarm function is required multiple times per year.

Maintenance must be carried out by qualified personnel. Optionally, we recommend to carry out additional maintenance and care procedures:

- Connecting with the service app to check for pollution of the optical system
- Removal of dust from the emitter / receiver unit and the reflector
- Connecting with the service app to check for spurious problems
- The DLF150 is equipped with an automatic compensation to retain a constant detection threshold over a long period of time even with dust settled on the optical components (window of the emitter/receiver or reflector), but the exact lifespan depends on the conditions on site. In case of an addressable detector, the sensor pollution level can be displayed on the fire control panel or the mobile application. In case of a relay variant, the pollution level can only be displayed on the mobile app.

G.1. Test alarm

The operability of the device can be checked by disabling the zone and/or the evacuation and triggering an alarm by covering the devices optics with the supplied Section B.2, "Test alarm attenuation film" to simulate the occurrence of smoke.

Additionally, the Bluetooth MY BEAM service application can be used to retrieve operational data and event logs from the detector. See chapter Section H, "Commissioning" for a guide on how to use the mobile application.

H. Commissioning

To start the commissioning, make sure that the following prerequisites apply for each device to be commissioned:

- The DLF150 is securely mounted to the desired position. The reflector is also securely mounted to the desired position.
- The DLF150 is facing towards the reflector. Check with the optional laser pointer. The serial number (last digits) must be known to identify the correct device on the app. Alternatively, the LED on the currently connected device flashes blue.
- For the addressable version: Supply via the fire control panel
- For the relay version: Direct connection to a DC power supply 21.0 ... 28.8VDC
- The detector can be set into test mode (via the control panel) or reset/power cycling (relay version).
- The Bluetooth MY BEAM is available on a mobile handset (smartphone or tablet) with Bluetooth enabled.

H.1. Preparation

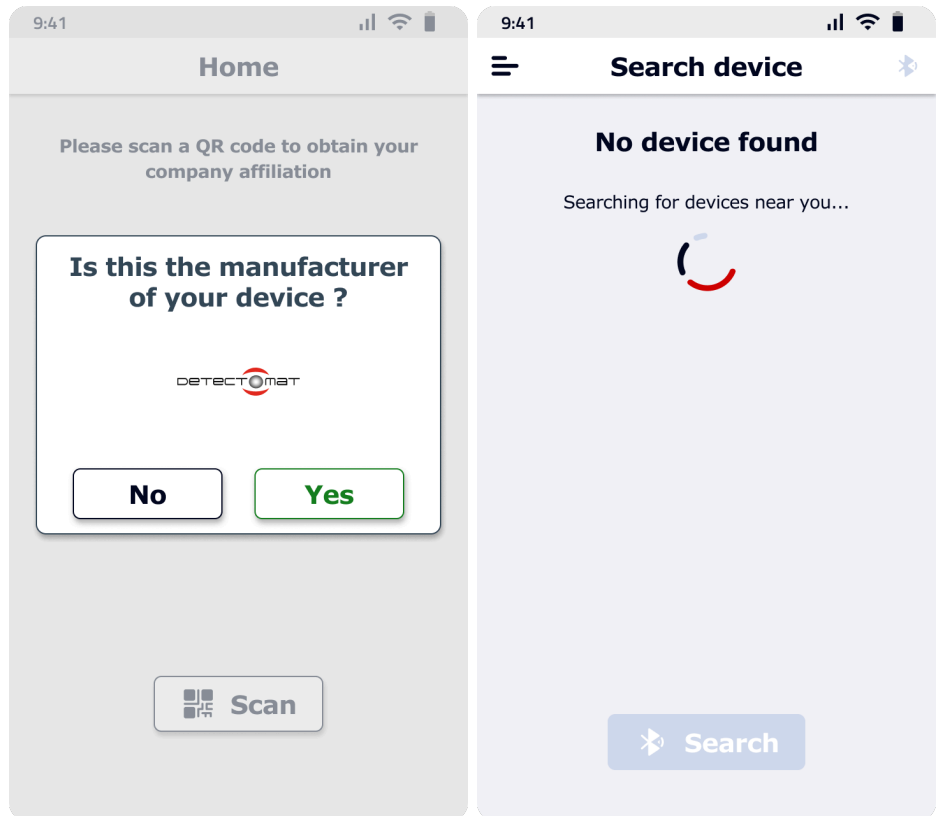
The DLF150 can be put into maintenance mode in two different ways:

1. Switching off the detector (via key switch) for at least 15 seconds and switching it back on (relay variant)
2. Putting the detector in test mode (Zone test) on the control panel (addressable variant)

When the maintenance mode is available (yellow LED flashes slowly in case of an addressable variant) you should be able to connect to the device via the Bluetooth MY BEAM.

After starting the maintenance mode, the device can be reached via Bluetooth within 120 minutes. After that time, the maintenance mode must be restarted to connect.

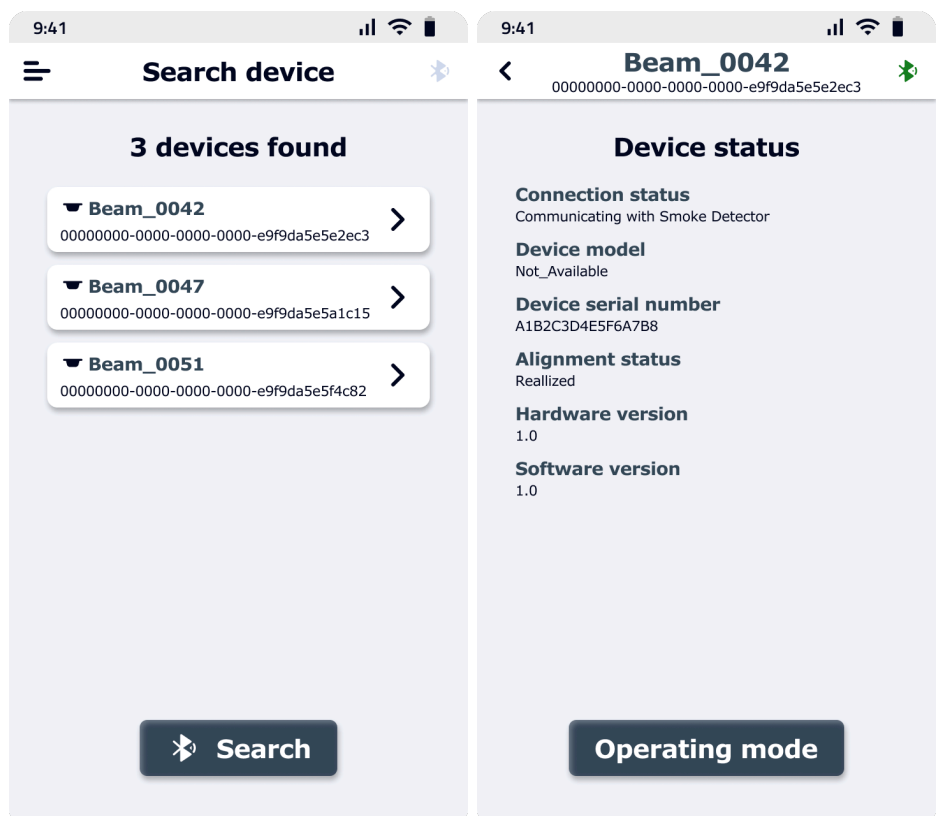
When using the app for the first time, scan the QR code on the product's type plate to assign the app to the correct product.



In the devices screen, select the desired detector based on its serial number (left image). Depending on the installation, multiple devices can be shown in the list.

When connected to the mobile device, the LED indicator of the DLF150 flashes blue: Make sure to be connected to the correct detector which is to be commissioned. In the information screen, basic detector data is displayed (right image).

To proceed with the setup / commissioning of a new detector, press OPERATING MODE to display the mode selection.



H.1.1. Possible issues

Device is not listed in the devices screen of the service app.

1. In this case, make sure that the wireless link is enabled on the device by starting the zone test mode in case of an addressable system. In the case of a relay variant, close the reset switch for at least 10 seconds and then open it again.

In case of a relay variant, reset the device by power cycling. After that, the wireless link is available for 120 minutes and is disabled automatically.

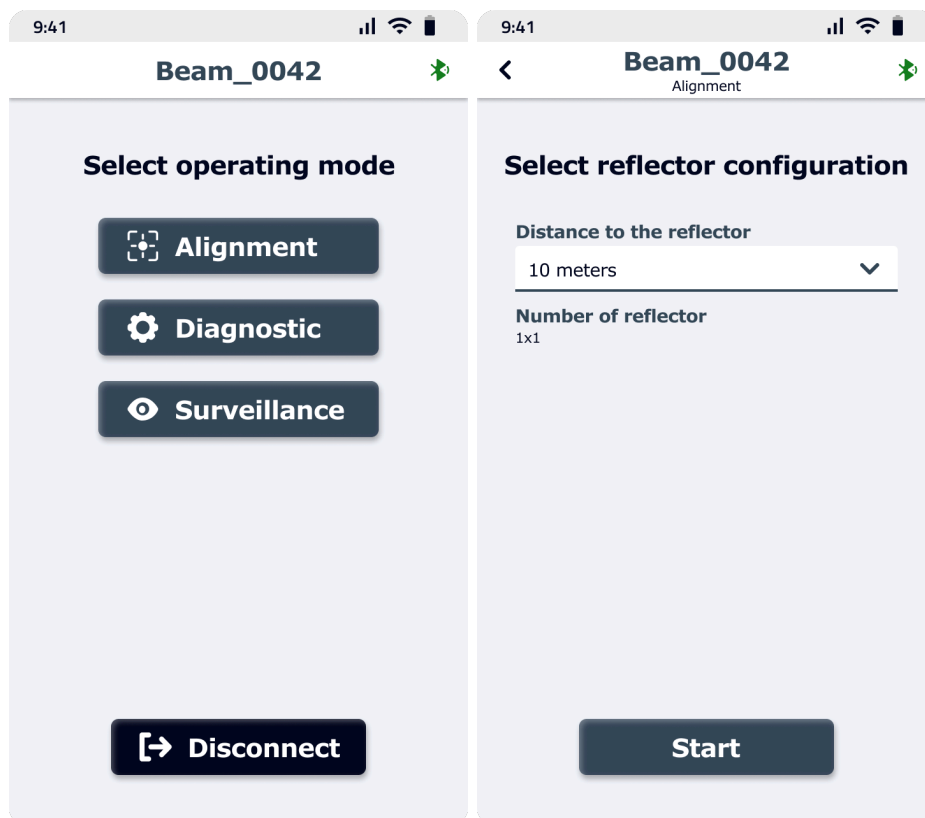
2. Check if the wireless link is possibly blocked by metal objects or the distance is too long. In most installations, the range is not a limiting factor but depends on the facility and the used mobile device.

H.2. Alignment

By pressing “Alignment” (right image), the detector switches to commissioning mode. In the following screen, a selection of the (approximate) installation distance to the reflector must be entered. The number of single reflectors (cluster size) is automatically adjusted and must fit the installation. If the reflector is too dark, increase the distance setting slightly, or decrease it if the reflector is too bright and therefore appears blurred.

This selection must be made to ensure a correct starting condition to detect the reflector.

Before pressing “START”, make sure that the path to the reflector is free, as the detector takes a digital image of the reflector and its surroundings.

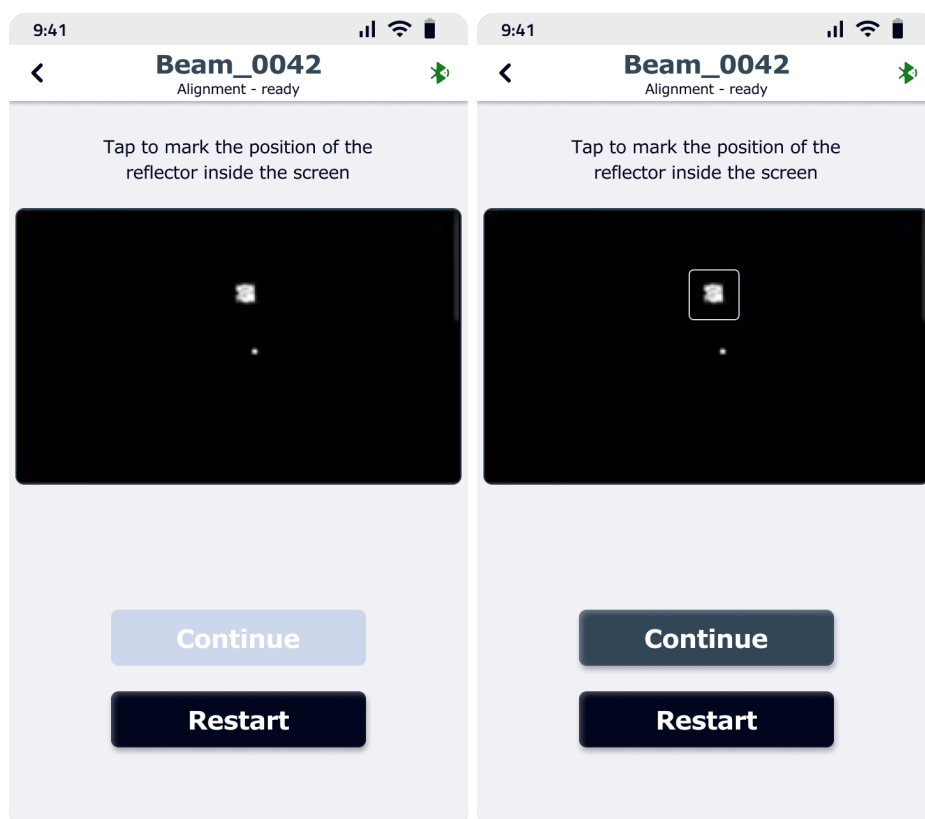


When the image is transmitted to the mobile device, the area surrounding the reflector is shown.

Check if the reflector is visible in the image as a clear bright spot (right image). If not, you may have to mechanically align the detector to move the reflector into the field of view, or if the image is too dark, simply press “RESTART” to take another snapshot with increased infrared illumination.

Tap on the reflector spot to mark it. The area will be marked in white (right image).

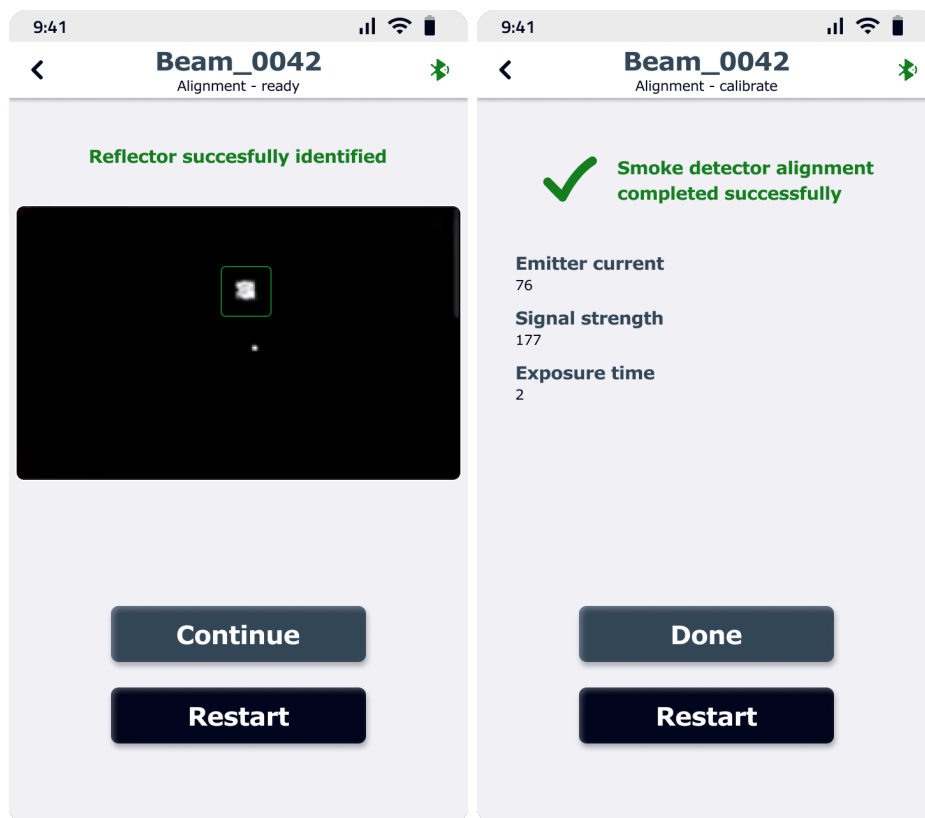
Press CONTINUE to go on with the setup. The reflector position will be sent to the DLF150 device and analyzed.



Check if the square around the reflector turns green as a confirmation (right image). If the reflector is shown in the centre of the green square, the position has been detected properly. In this case press "CONTINUE" to finish the calibration of the light intensity which may take some seconds, based on the initial conditions and the surrounding area of the reflector.

When the calibration is finished successfully (right image), press DONE to return to the information screen.

There are some cases in which the alignment/calibration cannot be completed successfully. Some typical problems are described below.



H.2.1. Possible issues

Reflector is not shown on the image or is close to the border:

- Improve the alignment of the device towards the reflector in both horizontal and vertical orientation. To avoid trouble during operation, the reflector must stay clear from the image border. If this margin is too small, an error is displayed.

Reflector is not identified correctly (marked by a green square) and the signal calibration fails:

- Make sure the reflector is visible as a complete square and the green frame encloses the reflector image completely. If in doubt, repeat the alignment with a higher distance setting (i.e. 40m instead of 30 m).

Avoid intense sunlight in the background. The infrared portion of the sunlight interferes with the emitted flash of the DLF150 and may prevent that the bright spot of the reflector is detected properly.

I. Diagnostic

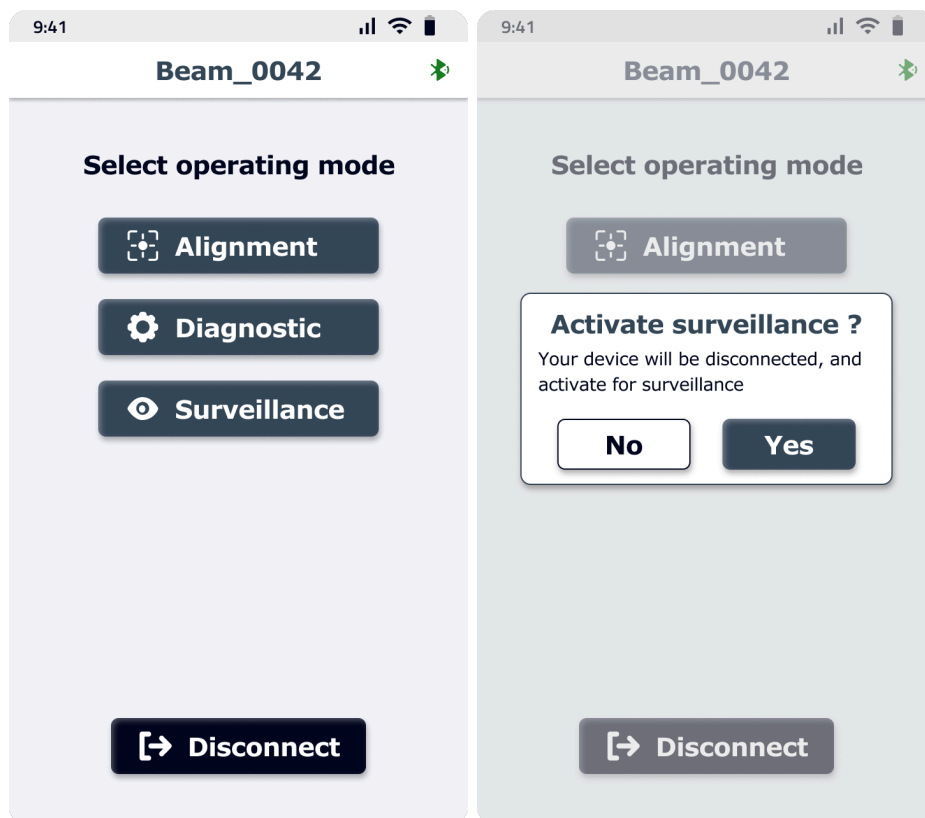
The current settings of the DLF150 can be displayed via the menu item 'Diagnostic'.

The menu item DIAGNOSTIC is used to set a revision date, the alignment date, and to download the event log. The 'Alarm level', the alarm delay, and the fault delay can be read out from the detector and redefined here using the respective 'Read' button.

After adjusting the values, the respective configuration can be written to the detector using the 'SET' button. Please note that only alarm levels 3-5 are certified according to EN 54-12. The alarm level is written and overwritten by the BMZ in the addressable version.

J. Surveillance

To put the DLF150 into the normal monitoring mode, select “Surveillance” on the mode select screen. When in normal operation, the internal LED indicator is off. The Bluetooth connection to the DLF150 will be deactivated when entering surveillance mode. A measurement of the optical path (attenuation of the light by smoke) is performed every four seconds.



J.1. Autocalibration

In surveillance mode, it might become necessary for the DLF150 to adjust the light intensity of the infrared emitter, for example if dust accumulates on the lens or reflector. In this case, an autocalibration algorithm is automatically triggered in the following situations:

- The reflected light pulse dropped a certain amount over a period of time.
- The IR current has not reached its maximum.
- The DLF150 has not detected a fire.

The pollution level is calculated from the amount of compensation which is necessary. If the current cannot be increased any further, this corresponds to 100% contamination and the device reports an error.

The autocalibration is designed to fulfil the requirements of EN 54-12.

J.2. Troubleshooting

Device is not listed in the devices screen of the service app Bluetooth MY BEAM

• Addressable variant:

Make sure that the wireless link is enabled on the device by starting the zone test mode in case of an addressable system. If in doubt, switch the zone test mode off and on again. Check if the detector is in a group which has been put in maintenance mode. The LED indicator must flash regularly when in test mode (double flash if device has detected a fault).

• Relay variant:

Reset the device via the reset input: Hold for at least 10 seconds to turn on Bluetooth. After the reset, wait 3 seconds and then start the search again (in the app). If the device is powered off, wait at least 15 seconds before switching it on again.

Wireless link

- The wireless link is available for 120 minutes and is disabled automatically to avoid unwanted connections, even if revision mode is still active. Re-enable the Bluetooth if desired after expiration of this timer.

Check if the wireless link is possibly blocked by metal objects or the distance is too long. In most installations, the range is not a limiting factor but depends on the facility and the mobile device used. Reduce the distance to the device if possible.

Reflector is not shown on the image or is close to the border

- Improve the alignment of the device towards the reflector in both horizontal and vertical orientation.

To avoid trouble during operation, the reflector must stay clear from the image border.

If this margin is too small, an error is displayed. If the reflector is too dark, the algorithm may have problems to identify its position. Repeat the commissioning with a higher distance setting.

If the image is overexposed, the outline of the reflector is not detected correctly, repeat the commissioning with a lower distance setting.

Reflector is identified correctly (marked by a green square) but the signal calibration fails:

- Make sure the reflector is visible as a complete square and the green frame encloses the reflector image completely. If in doubt, repeat the alignment with a higher distance setting (i.e. 40m instead of 30 m).
- Avoid intense sunlight in the background. The infrared portion of the sunlight interferes with the emitted flash of the DLF150 and may prevent that the bright spot of the reflector is detected properly.

Reflector position is not correctly detected

- Make sure that the green box is approximately square and centered over the reflector image (Image 1)

Image 1

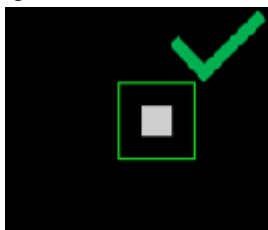


Image 2

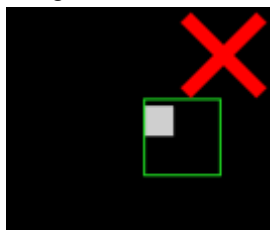


Image 3

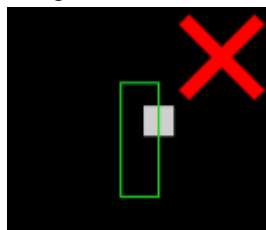
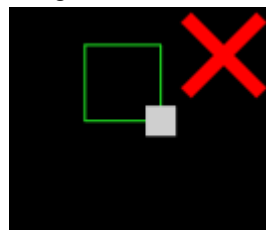


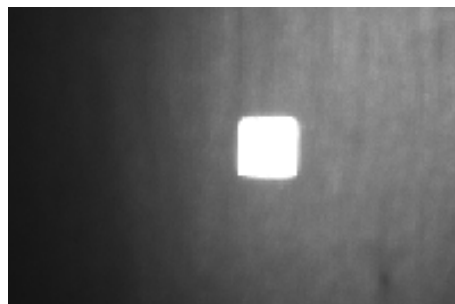
Image 4



Reasons for a wrong reflector detection

Too much light on the background

- If the background around the reflector is too reflective or illuminated by sunlight, it is impossible for the device to identify the reflector position correctly.
- See image on the right. If the total image brightness (exposure) is too high, a lower setting of the initial infrared power can be obtained by selecting a lower distance to the reflector.



Obstacles in the path from the device to the reflector

- If the reflector spot is not seen as a square, the calibration cannot be finished correctly. Make sure that the whole reflector outline is visible from the detector site.



After one successful commissioning, the app behaves erratically:

- Stop the app completely and delete the cache memory (on Android, long tap on the app icon and choose app details).

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- Depending on the OS version, the procedure might differ.