BDH160

Self-aligning optical beam smoke detector

Installation and configuration manual

Copyright

General information

Manufacturer’s details

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The persons authorized by the manufacturer to repair or replace the parts of this system have authorization to work on INIM brand devices only.

About this manual

Manual code: DCMIINIEBDH160 (0156-02)
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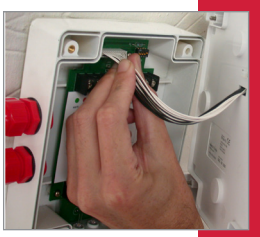
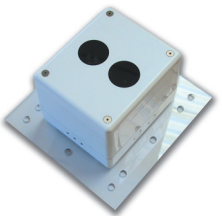
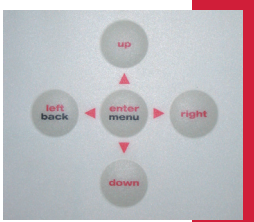






1 Distance and placement guidelines

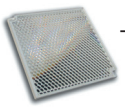
The following guidelines represent general indications, it is important to refer to the reference legislation currently in force in your country. Before proceeding with the installation of the BDH160 optical beam smoke detector, it is necessary to take into consideration the cover range and optimal placement inside the building.

What distance?

BDH160 optical beam smoke detectors are suitable for installation at a distance between **7m** and **70m** in respect to the reflector. Distances between **70m** and **140m** require use of **reflector extension kits with mid-range cover (70TO 140 kit)**. Distances between **140m** and **160m**require use of **reflector extension kits with long range cover (140TO160 kit)**.

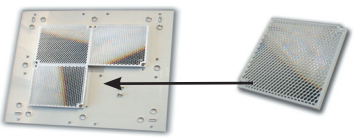
NOTE: distances **of less than 20 metres** can make use of the adhesive mask for short distance applications (supplied with the reflector and included in the package).

From 7 to 70 metres – Standard BDH160 optical beam smoke detector
The standard optical beam smoke detector is supplied with the main unit, the control keypad, a reflector, an adhesive mask for short-distance applications, a 3mm hex key and a quick installation guide; this configuration is suitable for applications between 7 to 70 metres.



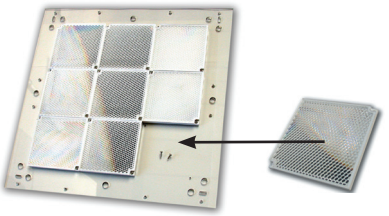
The standard BDH160 optical beam smoke detector covers a distance between 7m and 70m.

From 70 to 140 metres – Standard BDH160 optical beam smoke detector + mid-range extension kit (from 70 to 140 metres).



Distances between 70 and 140 meters require use of the standard optical beam smoke detector and a **70KIT140 mid-range extension kit** (the mid-range extension kit is supplied with a support plate and 3 additional reflectors, to which to add the reflector from the standard mid-range kit and the relative screws).

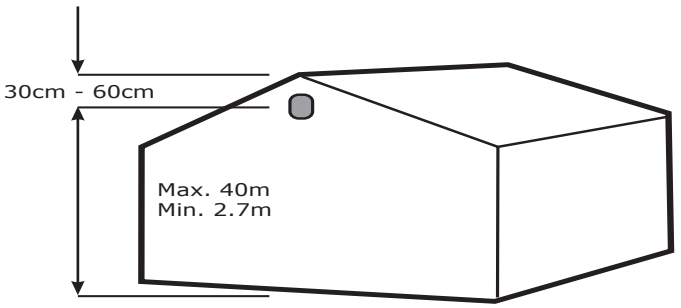
From 140 to 160 metres – Standard BDH160 optical beam smoke detector + mid-range extension kit (from 140 to 160 metres).

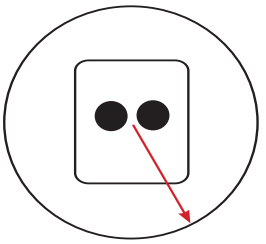


Distances between 140 and 160 metres require a standard optical beam smoke detector and a **140KIT160 long-range extension kit** (the latter is supplied with a support plate and 8 reflectors, to which to add the reflector from the standard kit).

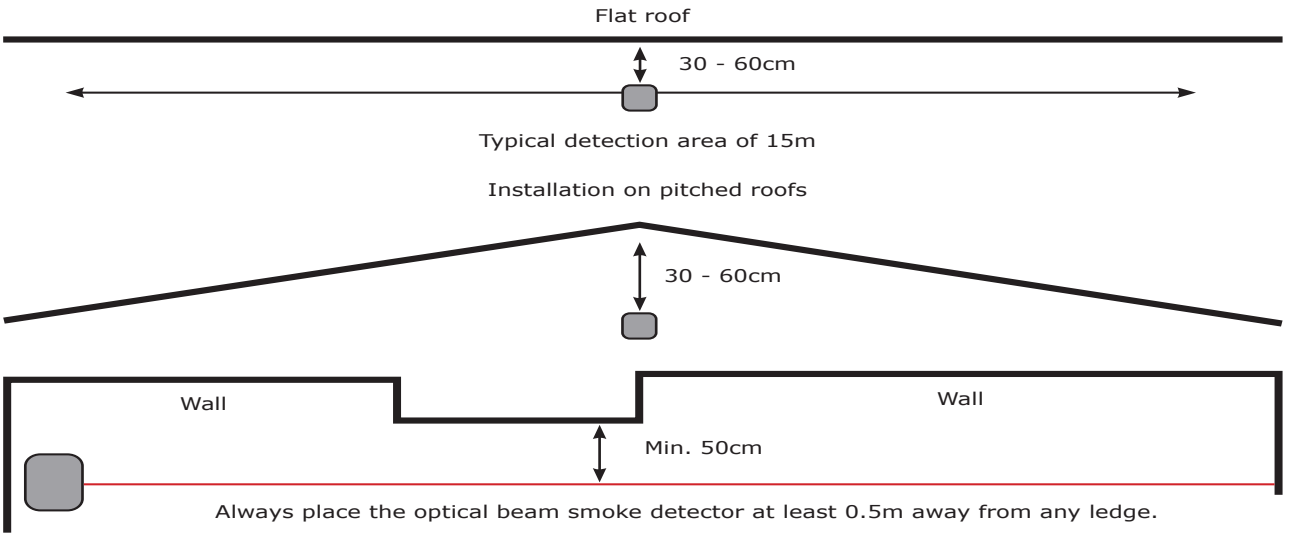
What placement?

In the case of a flat ceiling, the detector can be placed in any location as long as its placement is between 30 and 60 cm below the ceiling. The detector cover range is determined by the reference standard of each country, a cover range of 15m (7.5m on each side of the detector) is generally acceptable. Similarly, the maximum height at which the detector can be installed is defined by the applied reference standard, however, an installation height of up to a maximum of 12m is generally acceptable, **for heights above this, additional measures are usually required such as additional installations at intermediate heights.** In the case of sloping roofs, it is necessary to install the detector close to the ridge of the ceiling at a distance between 30 and 60cm from the apex.

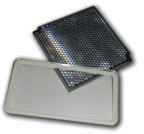




The field of view of the BDH160 has a radius of 50cm from the centre of the detector and must be free of obstacles.
Warning: For proper operation of the device, ensure that the detector is not obstructed along the entire axis of the field of view with a diameter of 1m.



Note. Particular attention must be paid during installation in humid environments or environments exposed to sudden temperature changes and, in all cases, in those applications where condensation could form on the detector or reflector. The "FOGKIT" prevents this eventuality, the kit includes an adhesive film to be affixed to the surface of the detector and a reflector with special coating, both of these objects are coated with special anti-condensation overlay. For applications with multiple reflectors (applications over 70m), coated reflectors such as the one included in the above-mentioned kit are available and are sold individually (FOGREF).

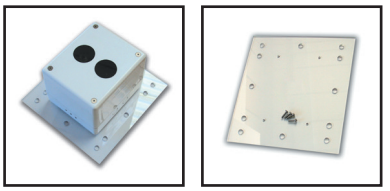


2 Installing, configuration and commissioning

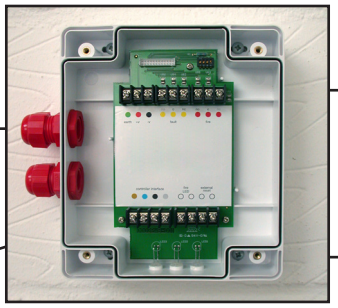
Step 1: Mounting the transceiver

Screw the base of the transceiver to the wall, it must always be mounted to a solid, flat surface (mounting on an uneven wall is to be avoided). Avoid mounting the transceiver in direct sunlight that might shine directly on to the "eyes of the beam". Ambient light does not affect the beam.

The BDHADAPT support plate – The BDHADAPT plate can be used as a support on which to screw the detector in the case of pre-drilled walls or installations where a suitable support surface is not available.



Two pre-cut holes are provided on both sides. Take great care when drilling in order not to damage the edges of the circuit.

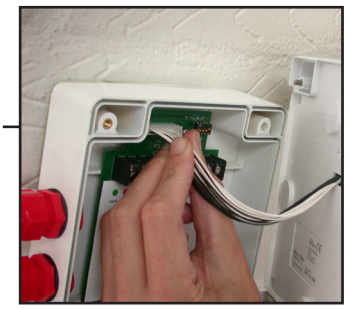


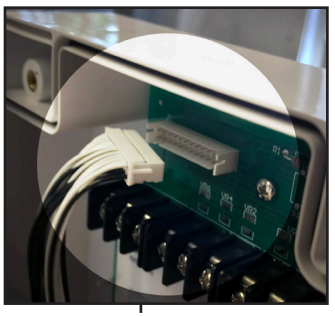
Connect the system as described (refer to the general wiring diagram on the next page). Ensure that all wires are below the level of the edge of the box front.

Connect the control unit in accordance with the colours indicated on the terminal block.

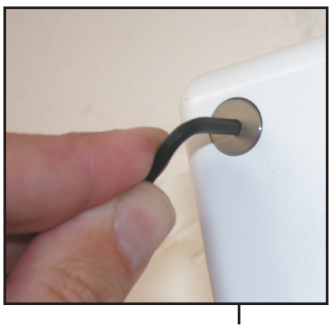
Use the screw holes on the outside of the rubber seals.

Connect the transceiver by inserting the connector. Do not force in, the white wires should be placed in the highest position. If you forget to link this group, an ERROR message will be shown on the control-unit screen. To avoid damaging the transceiver, do not mechanically stress the cable assembly.





IMPORTANT: Ensure that the connector is positioned in this way.

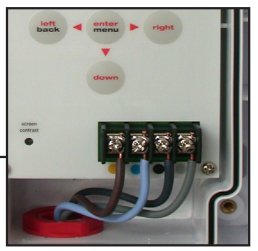


Tighten the screws with the 3mm hex key supplied in the package. Take care that the wiring does not end up under the screws.

Step 2: Mounting the control unit

Important: for easy access mount the control unit at eye level.

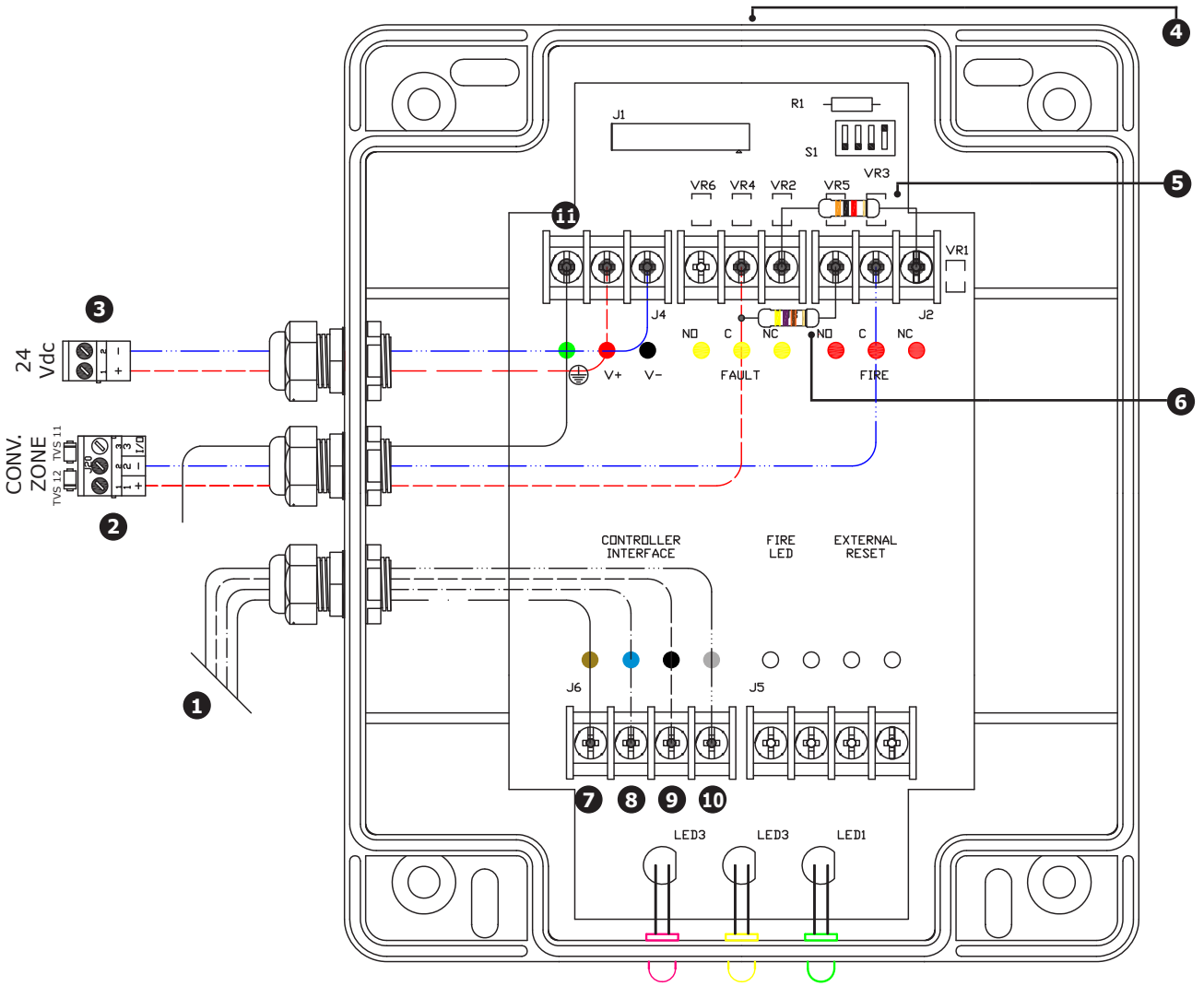
Use the screw holes on the outside of the rubber seals. Connect the control unit in accordance with the colours indicated on the terminal block. If this connection is not completed correctly, an ERROR message will be shown on the control-unit screen; this connection can be checked by reading the resistance between the black and grey terminals: a value of 110 Ohm is considered correct, while a value of 220 Ohm indicates an incorrect connection.



Wiring diagram

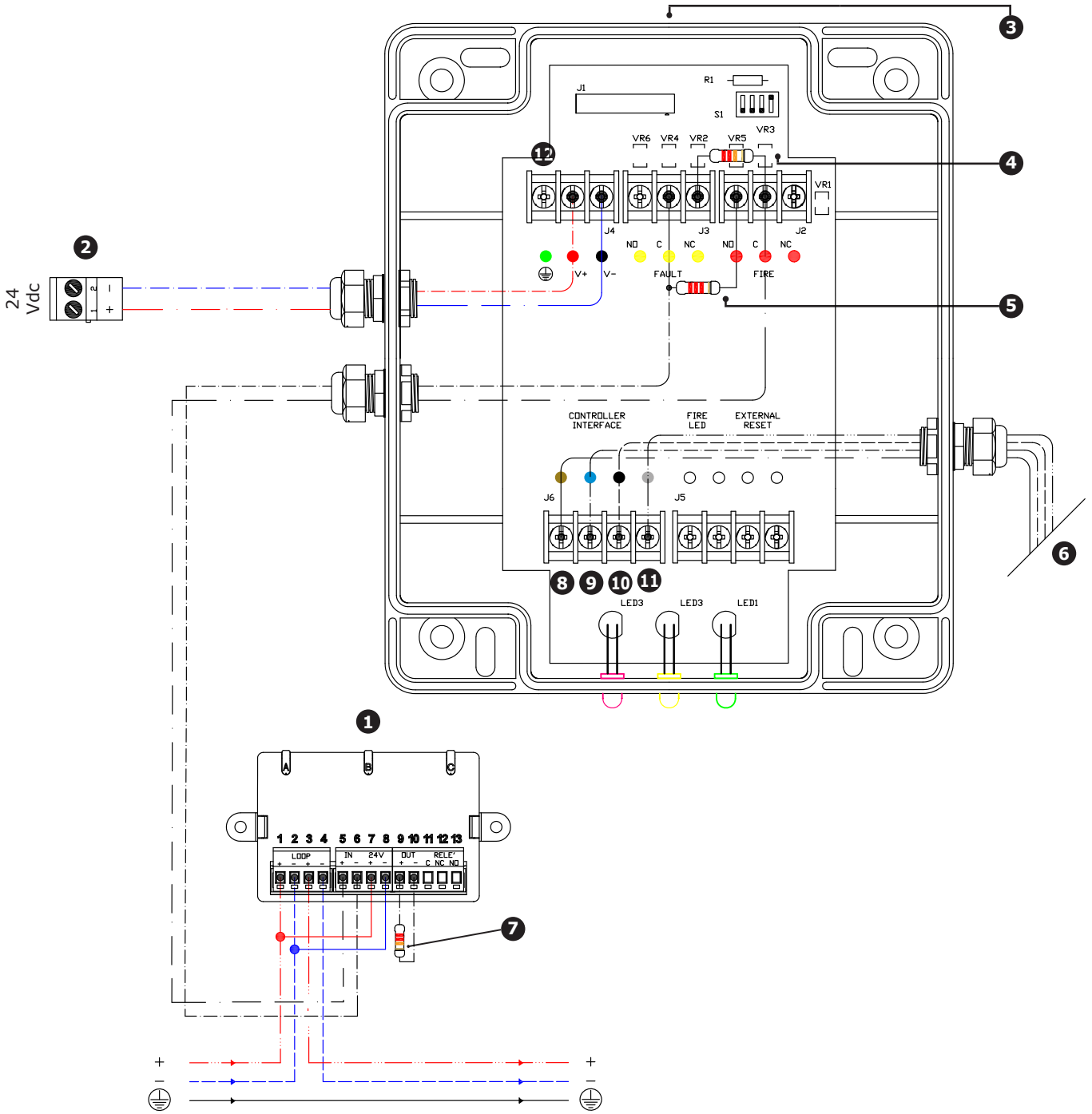
The BDH160 detector is a "conventional" type device, that is, it provides two relays (one for fault and one for alarm) in order to allow connection to any type of fire detection control panel (fig. 1, see below). By combining an Inim Electronics addressable module to the detector, it is possible to connect the detector to the loop of Inim Electronics addressable control panels (fig. 2 and 3, pages 8 and 9).

Wiring specifications	
Power supply voltage	from 12Vdc to 30Vdc
Stand-by current	3.5mA
Alarm current	3.5mA
Current during the alignment phase	Normal 3.5mA; Fast, 17mA
Fault/Alarm relay contacts	2A @ 30Vdc



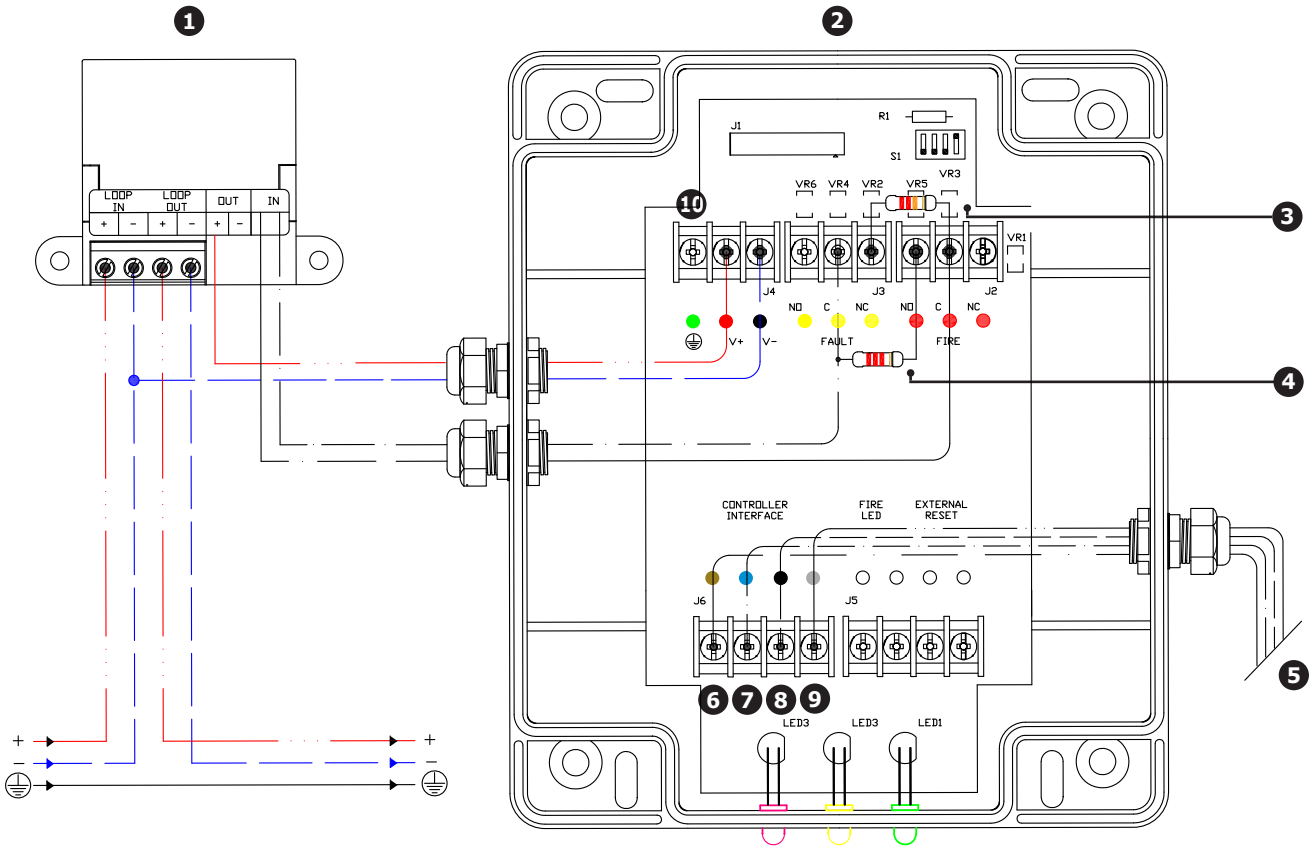
1	To the keypad
2	SmartLine – Conventional control panel
3	SPS24X60/X – Ancillary power-supply
4	BDH160 – Linear beam
5	End-of-line resistor - 3K9 Ohm - orange-white-red-gold
6	Alarm resistor - 470 Ohm - yellow-purple-brown-gold

7	Brown	+ power supply
8	Blue	- power supply
9	Black	zone +
10	Grey	zone -
11	Green	earth (shield)



1	EM312SR – IN/OUT module
2	SPS24X60X – Ancillary power-supply
3	BDH160 – Linear beam
4	Fault resistor - 22K - red - red - orange
5	Alarm resistor - 2K2 - red - red - red
6	To the keypad
7	Resistor - 22K - red - red - orange

8		Brown	+ power supply
9		Blue	- power supply
10		Black	zone +
11		Grey	zone -
12		Green	earth (shield)



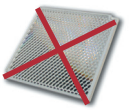
1	EU311 – Micromodule		6		Brown	+ power supply
2	BDH160 – Linear beam		7		Blue	- power supply
3	Fault resistor - 22K - red - red - orange		8		Black	zone +
4	Alarm resistor - 2K2 - red - red - red		9		Grey	zone -
5	To the keypad		10		Green	earth (shield)

Step 3: Commissioning

The commissioning of the BDH160 optical beam smoke detector requires a simple procedure, as described below. Ensure that the installation guidelines have been respected and that the BDH160 optical beam smoke detector has a clear field of view in direction of the reflector and that there are no obstacles in its path.

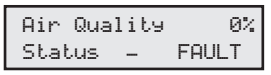
Language and commissioning speed

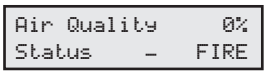
1. Attention! DO NOT install the reflector. If the reflector is already in place, cover it with a black cloth or a piece of non-reflective fabric. It is **NOT** possible to perform the alignment procedure with the reflector installed.



2. Switching on the unit will visualize:

The display will indicate a Fault or Fire, **this is normal**.





3. Access the menu by pressing **enter**.

4. The first screen that appears is:

If you wish to change the language, use the **right** and **left** keys to scroll through those available and, once selected, press **enter** to access the configuration menu. *Once the language has been changed, the system will continue in the chosen language.*

5. Press **enter** to visualize the **fast configuration** screen.

In most cases the use of **fast** mode is recommended (in normal mode the system draws 3.5mA, in fast mode 17mA), however, if you are configuring several BDH160 devices at the same time, the total current draw may be excessive, so it may be necessary use normal mode in order to avoid excessive consumption. Fast mode provides a four-times-faster motor response, which allows each BDH160 to align faster. Once the commissioning phase has been completed, the BDH160 optical beam smoke detector will automatically return to normal low-power mode (3.5mA).

6. Use the **left** and **right** keys to toggle between fast and normal mode, the * symbol indicates the selected mode. Press the **enter** key to continue.

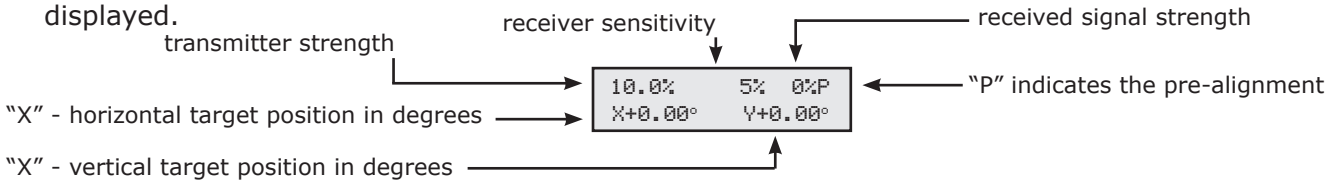
Pre-Alignment

7. The next screen is:

This is the most important step when configuring the BDH160.

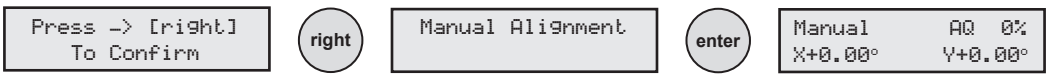
The pre-alignment phase sets the transmitter power based on the distance to be covered and can indicate whether unexpected reflections are being received from objects in the beam path.

8. Press **enter** to start the **Pre-Alignment** phase. Please remember: **no reflectors**. See the screen below, by observing it carefully it is possible to understand the meaning of the figures displayed.

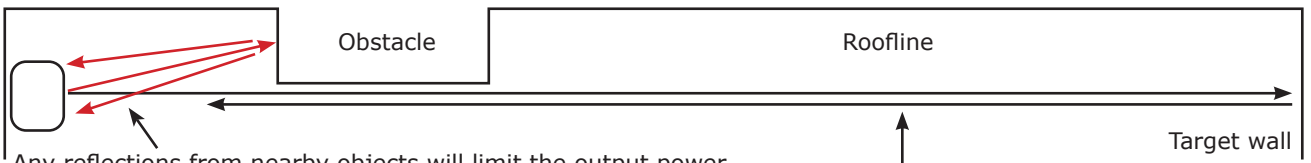


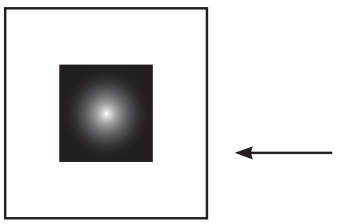
The detector will modulate its parameters to adapt them to the reflections in the environment where it is installed: the sensitivity percentage of the receiver will increase until it reaches 100%, after which the output power percentage will be increased until it reaches the value at which it detects a sufficient return value; at this point the value of the received signal strength should be around 6/7%. At the point where the power percentage of the transmitter no longer increases, press the **enter** key to confirm the pre-alignment. (In the case of an extremely low reflection rate the percentage of output power will reach 100% and the pre-alignment procedure will end automatically).

9. Press **enter** to confirm the pre-alignment and validate the settings by selecting the **right** key and accessing the **Manual Alignment** function.



Any obstacles in the vicinity of the transceiver will affect the pre-alignment process, therefore, care must be taken to ensure that no large, solid objects block the path of the beam.



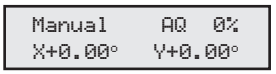


Ensure there is 1m of free space along the beam path and 500mm from the edges of the reflector. If the wall on which the reflector is/reflectors are placed is glossy or made of glass, the reflectors should be placed on a surface of 1 meter of non-reflective material in order to ensure proper operation.

Manual alignment

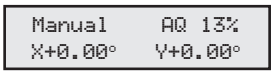
Once you have completed Pre-Alignment, you can proceed with Manual Alignment.

10. Now install the reflector. If when you install or uncover the reflector the digit on the right (corresponding to AQ) shows a value of 135%, it clearly indicates that the BDH160 optical beam smoke detector can see the reflector, therefore, you can press **enter** and go to the Auto Alignment phase.

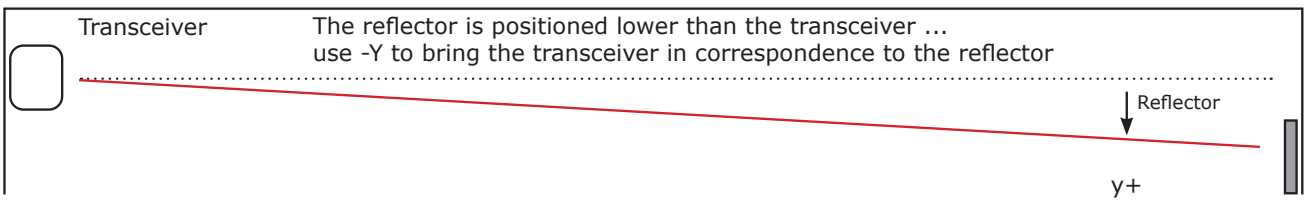


If the air quality signal (AQ) is higher than or equal to 80%, you can go to the next step - "11 Auto Alignment" - otherwise proceed with manual alignment following the steps listed below.

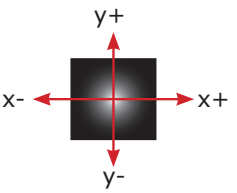
If once the reflector is installed or uncovered, the AQ signal does not reach a sufficient value, it is probably due to the fact that the beam is not aligned with the reflector, therefore, it is necessary to proceed with manual alignment. When, during manual alignment, the beam hits the reflector you note a sharp and sudden increase in the AQ value.



In the following example, it is possible to see that the reflector is below the beam, in this case the angle of the beam (-Y) should be lowered until an AQ value above 100% is received.



The BDH160 optical beam smoke detector can be moved on both the X and Y axes up to a maximum of 5 degrees by means of the **left (x-)**, **right (x+)**, and the **up (y+)** and **down (y-)** keys.



To confirm that the beam is "seeing" the reflector, the act of **covering** the reflector at any time should reduce the AQ value, thus demonstrating that the beam is linked to the reflector.

In the example above, moving the y axis downwards (y-) you obtain a higher AQ value

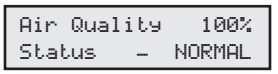
It is necessary to reach an AQ value that is as high as possible, it must be at least between 80 and 100%, ideally over 100%. Once this result is obtained, it is possible to go to **Auto Alignment** (no. 11).

Auto Alignment

11. After obtaining an AQ reading higher than 80% in manual mode, press **enter** to exit manual mode then press **enter** again to go to Auto Alignment mode.

Auto Alignment is an automatic process that principally reduces the sensitivity of the receiver and the IR power in order to obtain the best settings for the BDH160 optical beam smoke detector in its environment. The BDH160 optical beam smoke detector will automatically align itself with the centre part of the reflector, you will notice that the X and Y axes move as the BDH160 detector moves in various directions: top, bottom, left and right to find the centre point.

At the end of this phase, the BDH160 optical beam smoke detector will indicate **Align COMPLETE** and by pressing **enter** to confirm, the 100% normal Air Quality status will be shown.



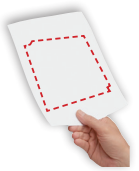
Warning: This process should take approximately 10 minutes, if the BDH160 optical beam smoke detector does not complete it within this time, check the X and Y axes to verify that its path has not been deflected in the direction of the reflector due to an obstacle. The X and Y values should be less than 1.50 on each axis and normally less than 0.90. If this is not so, it may be necessary to restart the Manual Alignment process and bring both axes of the BDH160 optical beam smoke detector back to 0.00, as well as find and remove the obstacle.

Step 4: Verifying

The BDH160 optical beam smoke detector must now be tested for **Alarms** and **Faults**.

Instead of being tested on the transmitter, the BDH160 optical beam smoke detector must be tested at the end of the **reflector**, in order to confirm its projection towards the latter and the completion of the configuration process.

Fault – Cover the reflector within a second with a non-reflective card to simulate a fault similar to that caused by forklift truck breaking the path of the optical beam of the BDH160 detector. After 10 seconds the detector should detect **fault** status and the amber light should start flashing.



Fire – Slowly cover 70% of the reflector with a non-reflective card to simulate smoke that obscures the optical beam of the BDH160 detector. After 10 seconds the detector should detect fire status and the red light should start flashing.

After successfully completing both tests, the BDH160 Optical beam smoke detector can be activated. At this point, if necessary, you can adjust the beam to suit its environment. Following are the menu options which summarize the available adjustments.

3 System display and menu

Main screen

This is the screen that is normally shown when the beam is in operating mode:

```
Air Quality   100%
Status   –  NORMAL
```

Other screens are:

FIRE

```
Air Quality    29%
Status   –    FIRE
```

The level of air quality has dropped below the setting of the fire threshold.

If the alarm is not set to Autoreset, it is necessary to perform reset of Alarm mode, press **enter** to show this screen:

```
Reset Alarm
```

Press **enter** again to reset and return to the normal screen.

If set to Autoreset, the BDH160 optical beam smoke detector will reset automatically when normal conditions are restored.

FAULT

```
Air Quality 0%
Status – FAULT
```

The beam path has been completely blocked.

ERROR

```
Air Quality XX
Status – ERROR
```

No communication with the control unit. It may be that the connector (see fig. on page 6) is not connected to the control unit, or that the transmitter is not connected to it; you can check this by reading the resistance via the black and grey terminals. If connected, these should read 110 Ohm, if instead they are not connected at one end, they will read 220 Ohms.

ALIGNMENT

```
Air Quality 89%
Status  – ALIGN
```

This screen will appear when the beam is performing Auto Alignment, due normally to movements in the structure of the building.

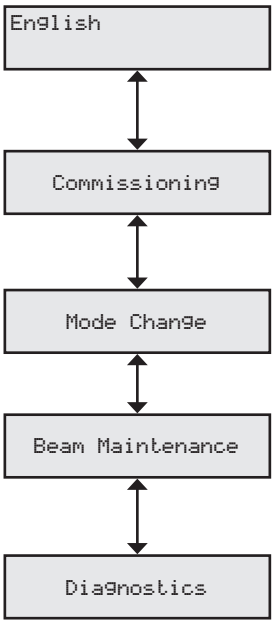
DIRT COMP

```
Status – Dirt Comp
```

This could be a compensation process due to a build up of dirt that has reached the maximum level – the **LED**s related to the **FAULT** or **FIRE** may flash.

How to use the system menu

Press **enter** to access the system menu, then press **down** for the main options:



press **enter** to change the language.

press **enter** for the commissioning options.

press **enter** to make all changes and adjustments to the BDH160 optical beam smoke detector.

press **enter** for routine maintenance.

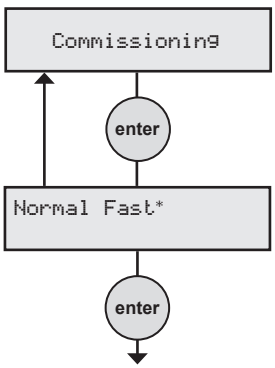
press **enter** to access the diagnostics function.

Individual menu options

1.

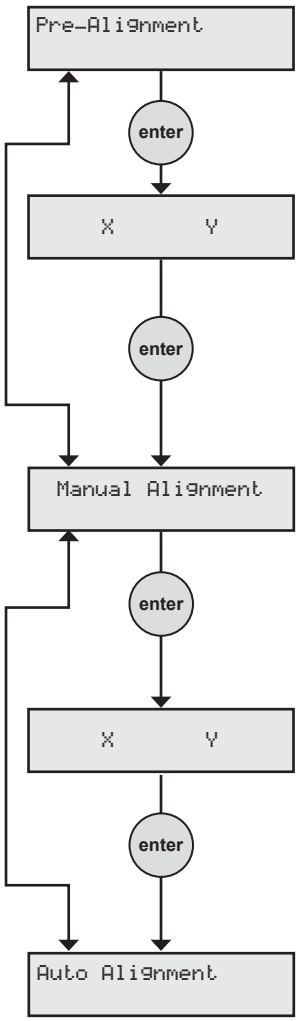
English is set as the default language. If confirmed, press **enter** to proceed with the configuration, or press the arrow symbol (**up**) to return to the main screen. If you wish to change the language, use the **right** and **left** keys to select the desired language and press **enter** to confirm the choice – you will then continue with the set language. The languages currently available are: English, Dutch, Italian, French, Spanish, Czech/Slovak and German.

2.



Press **enter** to access the "commissioning" option.

By pressing the **right** or **left** key you can switch from normal to fast mode. In most cases it is recommended to opt for fast mode (in normal mode the system uses 3.5mA, in fast mode it uses 17mA) - if you are configuring more than one beam at a time, you may need to use normal mode to avoid excessive current draw. Fast mode allows for four times faster motor response, which in turn allows each beam to activate faster. Once commissioning is complete, the BDH160 optical beam smoke detector will automatically return to normal low power mode (3.5mA).

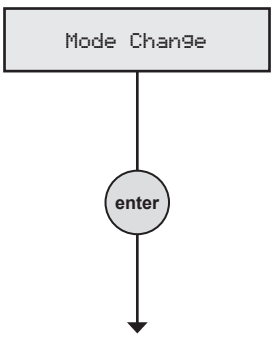


Press **enter** to start the Pre-alignment. During this phase the **reflector** must be **removed** or **covered**. The detector will modulate its parameters to adapt them to the reflections in the environment where it is installed: the sensitivity percentage of the receiver will increase until it reaches 100%, after which the output power percentage will be increased until it reaches the value at which it detects a sufficient return value; at this point the value of the received signal strength should be around 6/7%. At this point, when the power percentage of the transmitter no longer increases, press the **enter** key to confirm the pre-alignment. (In the case of very low reflections, the output power percentage will reach 100% and the pre-alignment procedure will end automatically).

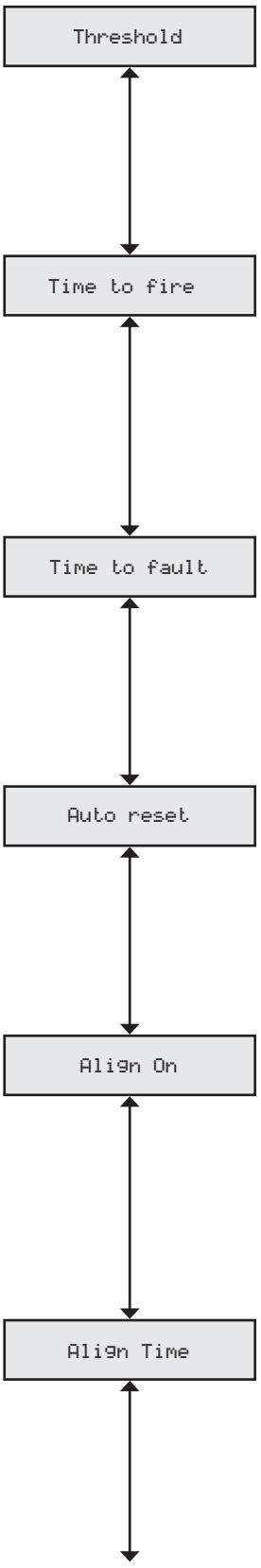
Press the **enter** key to switch to manual alignment. NOW THE REFLECTOR CAN BE PLACED OR UNCOVERED. If once the reflector is installed or uncovered, the AQ signal does not reach a sufficient value, it is probably due to the fact that the beam is not aligned with the reflector, therefore, it is necessary to proceed with manual alignment. When, during manual alignment, the beam hits the reflector, you will notice a sharp and sudden rise in the AQ value.

Press **enter** to start Auto Alignment. The beam will calibrate its power and search the edges of the reflector - adjusting its power as it aligns with the reflector. Once all four edges have been located twice, the beam will position itself in the centre of the reflector and the screen will show **Align COMPLETE**. Press **enter** to return to the **main screen**. If you see **align aborted**, this means that something has crossed the path of the received signal beam and the latter has been lost. Press **back/left** to return to **Auto Alignment**.

3.



In this section you can make changes to the operating options Press **enter** to access the settings and options of the submenu.



Threshold. Use the **right** and **left** keys to increase or decrease the sensitivity of the detector. The factory default value is 35% (which means that the received signal must drop by 35% to activate the fire relay). This sensitivity can be adjusted between **25%** (sensitive) and **50%** (**less sensitive**); press **enter** to return to the **settings** or the **down** key to move to the next parameter.

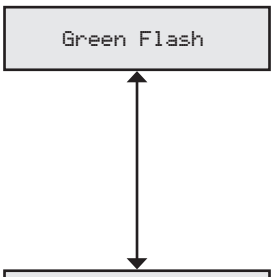
Time to Fire In this section you can adjust the time the beam must be obscured before the fire relay is activated. The factory default setting is 10 seconds, but it may be necessary to increase it in order to tolerate temporary obscuration of the beam (beam broken by a forklift truck), and can be adjusted from **2** to **30 seconds** using the **right** and **left** keys, press **enter** to return to the **settings** or the **down** key to move to the next parameter.

Time to fault Here you can set the error message filter time from **2** to **60 seconds** (the factory default setting is **10 seconds**). For a beam to go into "fault" status, the beam path must be completely blocked within 1 second. Use the **right** and **left** keys press **enter** to return to **settings** or the **down** key for **Auto reset**.

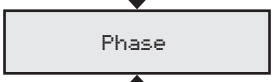
Auto reset When operating in **Auto reset** mode, once the detector goes into alarm status, it will return automatically to stand-by status once power is restored to the beam detector. With the **Auto reset** mode **off**, to reset the detector after an alarm, it will be necessary to carry out the reset procedure from the keypad or use the Reset terminal.

Align On/Off If the option is present and set to **On**, the detector will perform periodic alignment of the beam in order to compensate for any structural movement in the building. However, in some cases this function could be counterproductive (in the case of a detector that works for long periods with a visual field that is partially obscured) and thus lead to unwanted changes in the alignment of the beam, therefore, this function can be disabled via this menu.

Align Time The factory default setting is 4 hours, however, it can be adjusted to between **0** and **12 hours** by means of the **right** and **left** keys to suit the type of environment (press **enter** to return to the **settings** or the **down** key to move to the **Green Flashing Light** option).



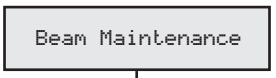
Green Flashing Light on/off. Using the **right** and **left** keys it is possible to **turn on** or **turn off** the green flashing light located on the transceiver and on the control unit. This is a useful way of finding the transmitter you are working on (press **enter** to return to the **settings** or the **down** key to switch to the **Phase** function).



Phase. Installing multiple beam detectors that face one another may cause signal disturbance. To alleviate this problem it is possible to set each beam detector to phase differently.

Hysteresis. Changing the hysteresis will change the return delay from **alarm** status to **normal** status, for example, the factory default setting of the beam detector is 15%, so if the beam is obscured at 65% (35% threshold) it must recover 15 to 80% before returning to normal status. This action prevents small fluctuations in the return signal, causing oscillations both under normal conditions and during a fire. This setting can be adjusted to between **1** and **40%** using the **right** and **left** keys, press **enter** to return to the **settings** or the **down** key to switch to **alarm/fault compensation**.

4.



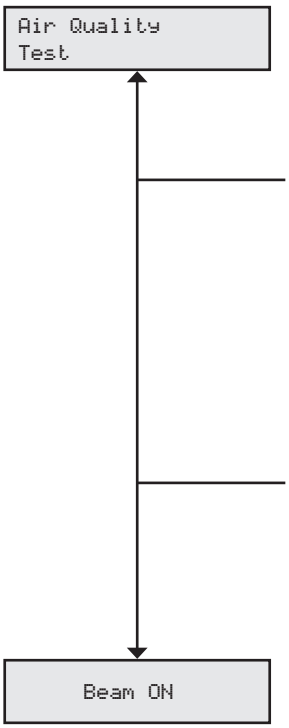
Press **enter** to switch to the **beam maintenance** function.

Dirt Compensation. This screen shows the time the beam has compensated for the accumulation of dust on the transmitter and on the reflectors.

Events history. In this section you can check how many times the beam has detected an alarm or a fault since it was configured or since the last event log was deleted.

Press **enter** to **clear the events history**.

Press the **left/back** keys to return to the **Maintenance** option or the **down** key to switch to **Self Test**.



Self Test.

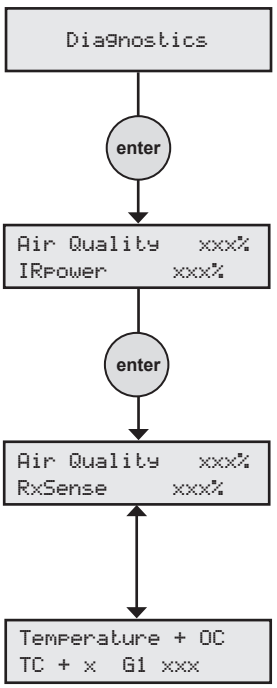
Press **enter** to start a **fire simulation**: by launching a test algorithm that reduces the output power, the receiver interprets this circumstance as a blackout. When the received signal drops below the threshold value, the beam will trip the **fire** relay - this relay will not trip until the set **time to fire** has elapsed, which could be between **2** and **30** seconds.

Press the **left/back** keys to complete the test; the **fire** test should be shown on the control unit. Press the **left/back** keys to return to the **maintenance** option or the **down** key to switch to the **On/Off** function.

Beam On/Off. If maintenance is required in the beam path, use the **right** and **left** keys to switch the device **On** or **Off**. This will generate an **error** on the screen.

Press **enter** to return to the **maintenance** option.

5.



Press to switch to the diagnostics function.

IRpower. This screen shows the quantity of output power. This can be increased or decreased by means of the **right** and **left** keys (press **enter** to return to the **diagnostics** function or the **down** key to switch to the **RX sensitivity** function).

RxSense. This screen shows the sensitivity of the receiver which can be changed by means of the **right** and **left** keys (press **enter** to return to the **diagnostics** function or the **down** key to switch to the **temperature** function).

Temperature and **Gain**. In this section, you can check the temperature measured on the transceiver and the quantity of temperature compensation (in this case no adjustments and/or changes can be made.

Press **enter** to return to the **diagnostics** function.

Technical specifications

Power supply voltage	12-30 Vdc normal
Power supply current	3.5mA (constant current in every operating status)
Constant current	17mA (constant current) during fast alignment
Temperature	From -10°C to +55°C
Humidity	From 10 to 95%, RH non-condensing
Protection grade	IP65 (if properly assembled and wired)
Transceiver	180mmH x 155mmW x 137mmD; Weight, 1.1 Kg
Control Unit	185mmH x 120mmW x 62mmD; Weight, 0.55 g
Mid-Range Reflector Extension Kit (70 to 140m)	293mmH x 293mmW x 5mmD; Weight, 0.8 g
Long-Range Reflector Extension Kit (140 to 160m)	293mmH x 394mmW x 5mmD; Weight, 1.8 Kg
Adapter	270mmH x 250mmW x 5mmD, Weight, 0.6 g
Optical wavelength	870nm
Maximum angular alignment	±5°
Maximum angular misalignment	Transceiver ±0.4°; Reflector ±0.2°
BDH160	Standard product from 7 to 70 metres. Use the adhesive mask to cover short distances, between 7 and 20 metres
70KIT140	Mid-range reflector extension kit
140KIT160	Long-range reflector extension kit
Alarm sensitivity levels	From 25% (1.25dB) to 50% (3dB) in 1% (0.05dB) steps (default setting: 35% (1.87dB))
Alarm	The obscuration drops below the predefined sensitivity level for a time that can be adjusted from 2 to 30 seconds in steps of 1 second (default setting: 10 seconds)
Alarm indications	Status of the control unit - ALARM Flashing Red Light on the control unit Flashing red light on the receiver Alarm relay switching contact 2A @ 30 Vdc
Fault sensitivity level	< 4%
Fault	Obscuration drops below the fault sensitivity level within 1 second Power off or supply voltage < 9 Vdc Configuration mode, Pre-Alignment, Auto Alignment The transceiver switches off during maintenance operations Time to Fault adjustable between 2 and 60 seconds in 1 second steps (default: 10 seconds)
Fault indications	Status of the control unit - FAULT Yellow flashing light on control unit, 1 second Yellow light on transceiver, 1 second Switching fault relay contact 2A @ 30 Vdc
Normal conditions	The obscuration level is higher than the alarm sensitivity threshold Status of the control unit - NORMAL Green flashing light on control unit On/Off programmable Green flashing light on transceiver On/Off programmable

CE

0786

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21
0786-CPR-21736

EN 54-12:2015
BDH160
Line-type smoke detector for fire detection
and fire alarm systems installed in buildings

Essential Characteristics	Performance
Operational reliability	*PASS*
Nominal activation conditions/sensitivity	*PASS*
Tolerance to supply voltage	*PASS*
Performance parameters under fire conditions	*PASS*
Durability of nominal activation conditions / sensitivity	
temperature resistance	*PASS*
humidity resistance	*PASS*
vibration resistance	*PASS*
electrical stability	*PASS*
corrosion resistance	*PASS*

Transform
weee compliance
Producer Registration Number: WEE/BH3365QU

WEEE

Informative notice regarding the disposal of electrical and electronic equipment (applicable in countries with differentiated waste collection systems)

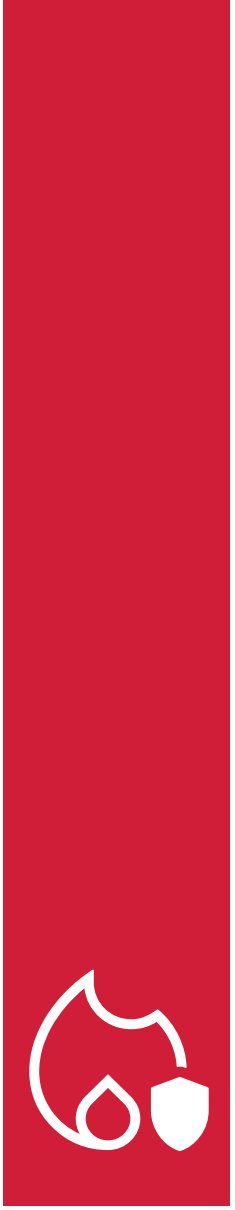
The crossed-out bin symbol on the equipment or on its packaging indicates that the product must be disposed of correctly at the end of its working life and should never be disposed of together with general household waste.

The user, therefore, must take the equipment that has reached the end of its working life to the appropriate civic amenities site designated to the differentiated collection of electrical and electronic waste.

As an alternative to the autonomous-management of electrical and electronic waste, you can hand over the equipment you wish to dispose of to a dealer when purchasing new equipment of the same type.

You are also entitled to convey for disposal small electronic-waste products with dimensions of less than 25cm to the premises of electronic retail outlets with sales areas of at least 400m2, free of charge and without any obligation to buy.

Appropriate differentiated waste collection for the subsequent recycling of the discarded equipment, its treatment and its environmentally compatible disposal helps to avoid possible negative effects on the environment and on health and favours the re-use and/or recycling of the materials it is made of.



Evolving Protection

ISO 9001 Quality Management
certificato da BSI con certificato numero FM530352

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