

thefirebeam™ protection system



user guide

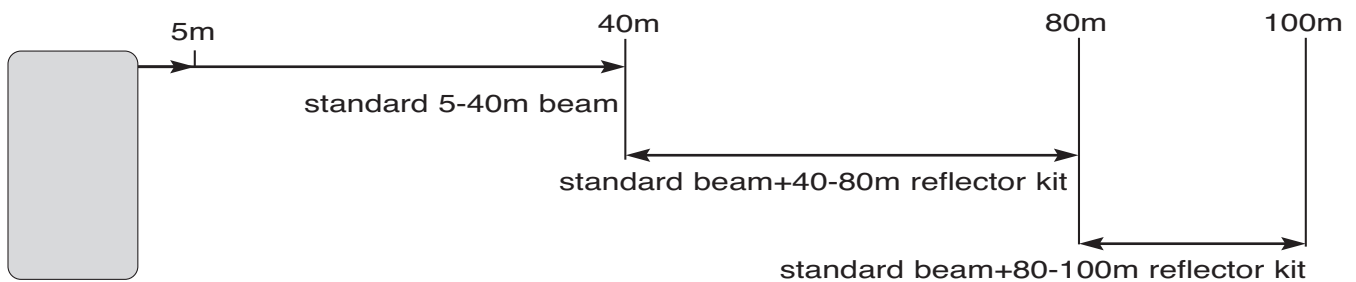
issue 0025-05

distance & positioning guidelines

these guidelines are given as a guide only and it is important that you refer to your appropriate governing standards at all times.

what distance?

The standard fire beam will be suitable for distances of over **5m** to **40m** to the reflector. If you require **40m** to **80m** you will need to use the mid range reflector extension kit. For ranges of **80m** to **100m** you will require the long range reflector kit.

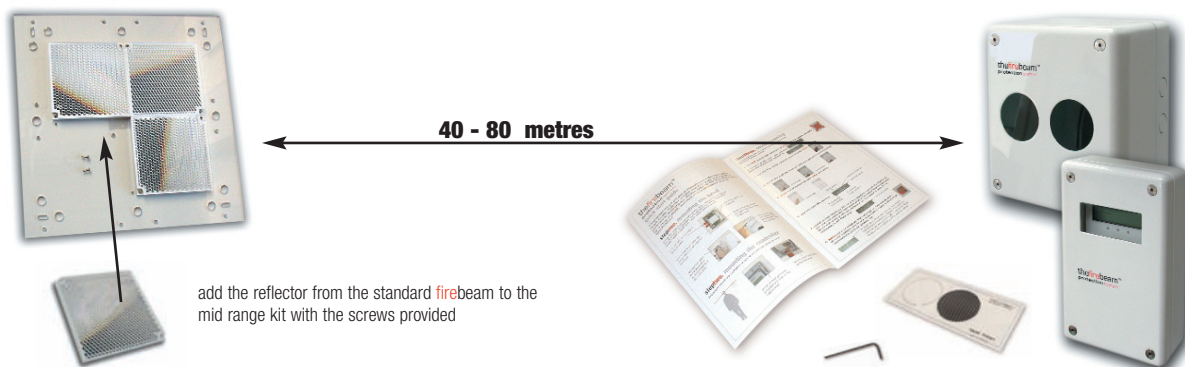


5-40 metres the standard firebeam The standard firebeam comes boxed with the head unit, low level controller, one reflector, 3mm allen key, test filter and quick start installation guide this should be used for distances over 5m and up to 40 meters



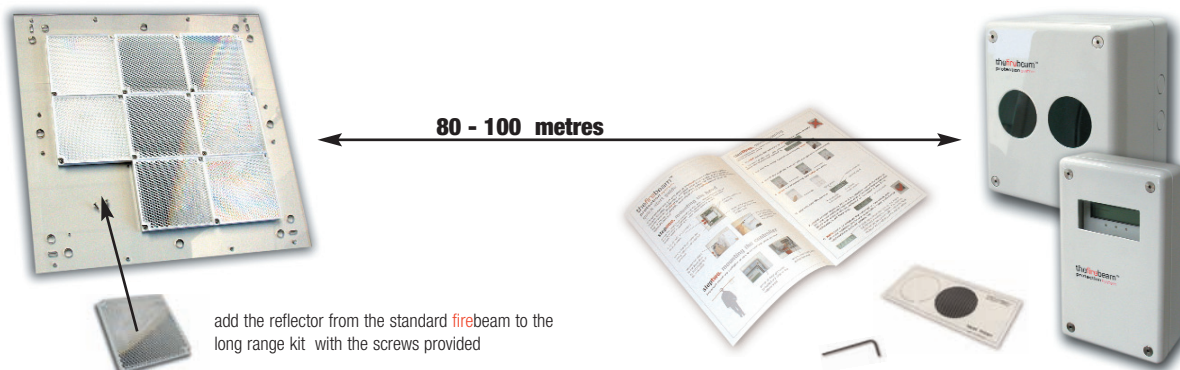
40 - 80 metres = the standard firebeam + mid range 40 to 80m kit

for distances Of 40 metres to 80 meters you will need to use the standard firebeam and a mid range extension kit (the mid range kit comes with a back- ing plate and 3 extra reflectors, you will need to add the reflector from the standard kit to the mid range kit with the screws provided)



80 - 100 metres = the standard firebeam + long range 80 to 100m kit

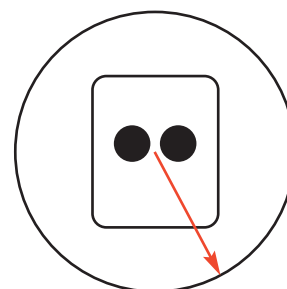
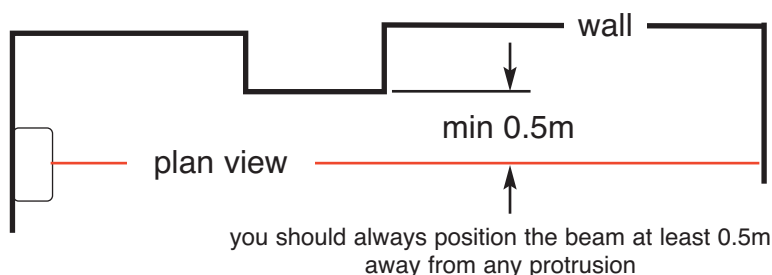
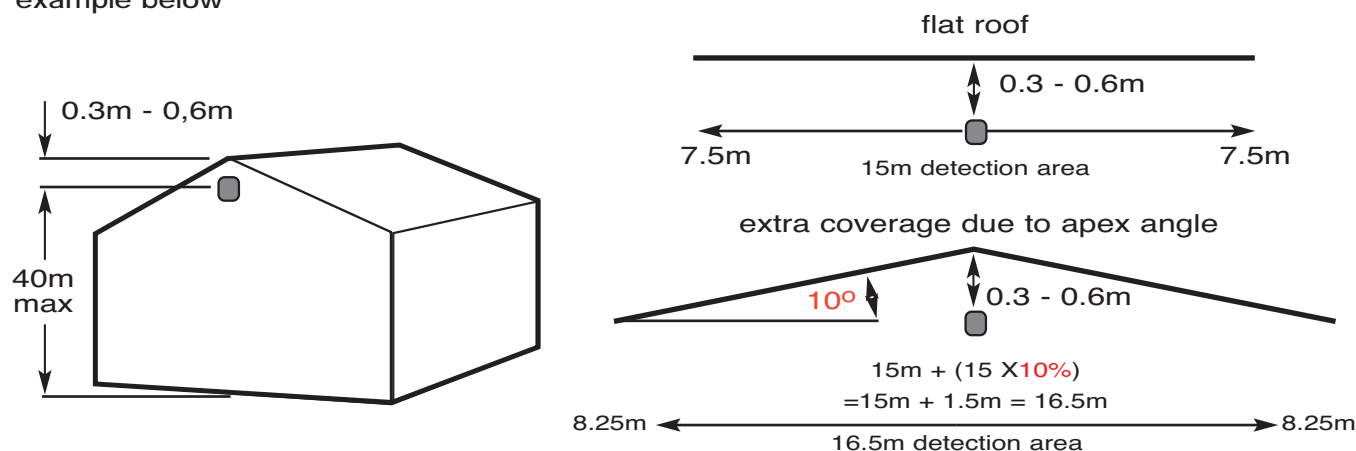
for distances of 80 metres to 100 metres you will need to use the standard firebeam and a long range extension kit (the long range kit comes with a backing plate and 8 extra reflectors, you will need to add the reflector from the standard kit to the long range kit with the screws provided)



what position?

A roof is considered flat unless the height of the apex is greater than 0.6m. If the roof is flat the firebeam system can be placed anywhere under the roof between 0.3m and 0.6m below the roof, up to a maximum height of 40m from the floor. The firebeam has a detection area of 7.5m either side of the beam.

If the roof is considered to have an apex, place the firebeam system 0.3m to 0.6m down from the top of the apex, up to a maximum height of 40m from the floor. The maximum protected area either side of the beam can be extended by 1% for every degree of roof pitch, see the example below



field of view should be a 50cm radius from the centre of the beam head

Always mount the firebeam system on a solid construction that is unlikely to flex. Mount over 2.7m from floor level to avoid people walking through the beam, and consideration should also be given to the possibility of obstruction by fork lift trucks and the like.

Avoid pointing the head into direct sunlight.

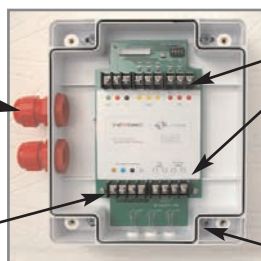
installing and commissioning

step one. mounting the head

screw the head backing plate to the wall - always try to use as sturdy location as possible, such as brick or major structural steels (avoid mounting to outer metal cladding etc)

2 knock outs are provided on both sides

wire to low level controller using bottom colour coded terminals

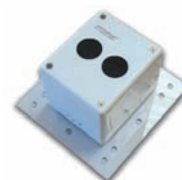


wire into system as required
See generic wiring diagram on the following page. For other configurations contact us or view our website.

screw in through holes provided outside of the rubber seal

Also available adapter plate

use this accessory for easy mounting to unistrut fabrication. Holes are pre drilled to the correct pitch of the head and conveniently positioned for use with unistrut



connect the head to the base plate by first plugging in the connector

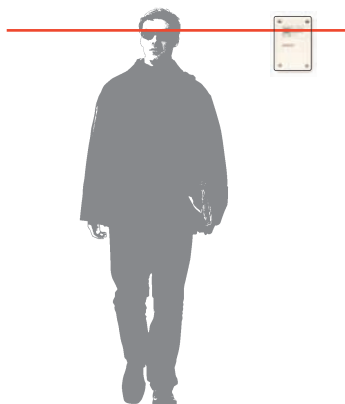


then screw down the head screws with the 3mm allen key provided



step two. mounting the controller

Important mount the controller at eye level and with easy access

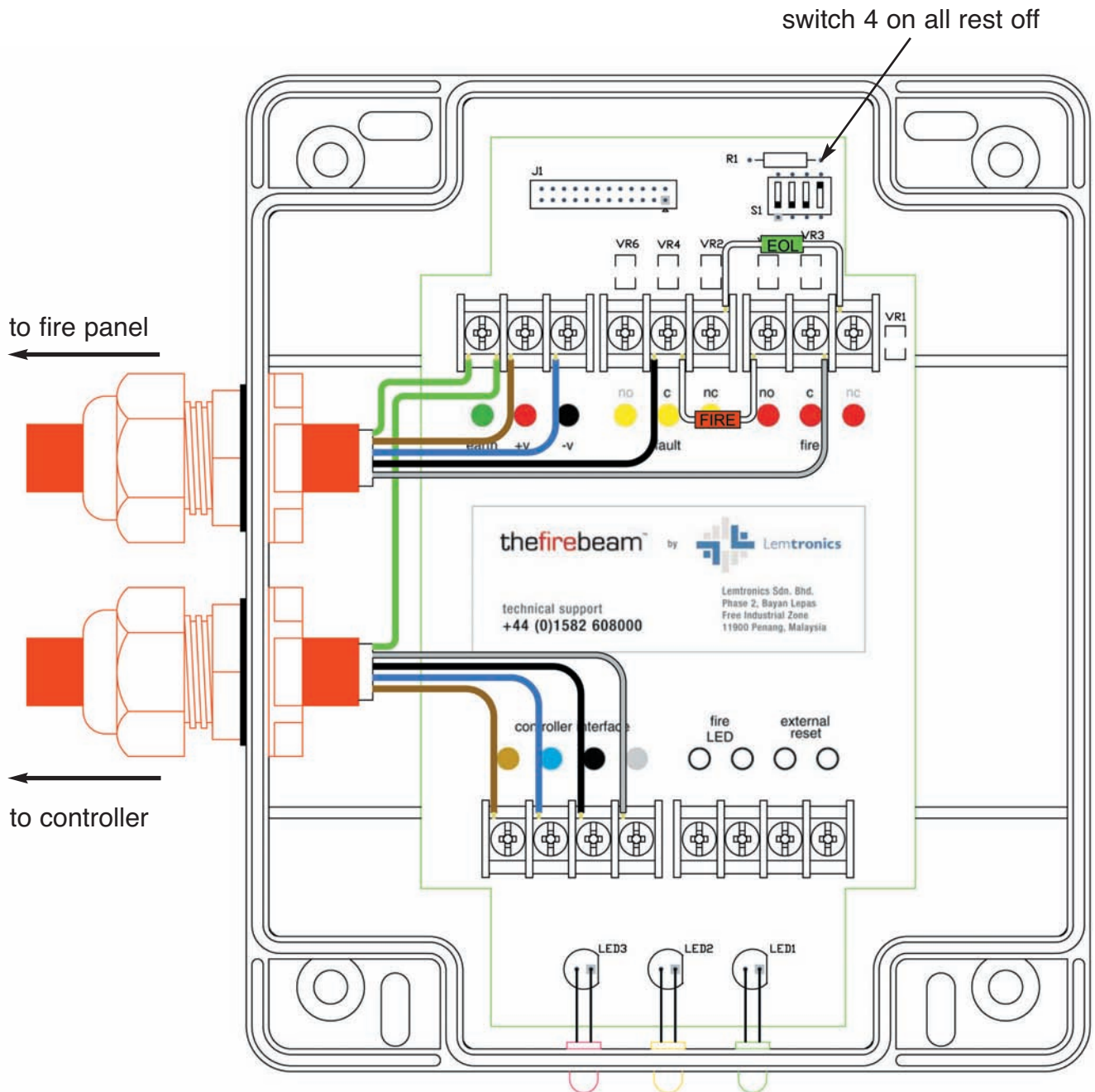


screw in through holes provided outside of the rubber seal



wire to head using colour coded terminals

generic wiring configuration



BROWN ● + supply (10.2-30 Vdc)
 BLUE ● - supply (return)
 BLACK ● zone +
 GREY ● zone -
 GREEN ● earth (screen)

Supply Voltage 12Vdc to 24 Vdc +25% -15%
 Quiescent Current 3mA
 Alarm Current 3mA
 Aligning Current 3mA
 Fault / Fire relay contact rating 2A @ 30Vdc

FIRE and EOL
 components as specified by
 the panel manufacturer

step three. commissioning

to commission the fire beam you must follow the simple procedure below

1. do **NOT** put up the reflector or **COVER** it if in place already!



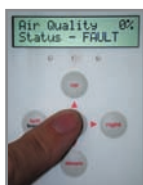
2. power up the unit - you will see

thefirebeam
protection sys

then the screen will default to

Air Quality 0%
Status - FAULT

3. access the menu system by pressing **enter**



4. scroll through the menus until you get to commissioning

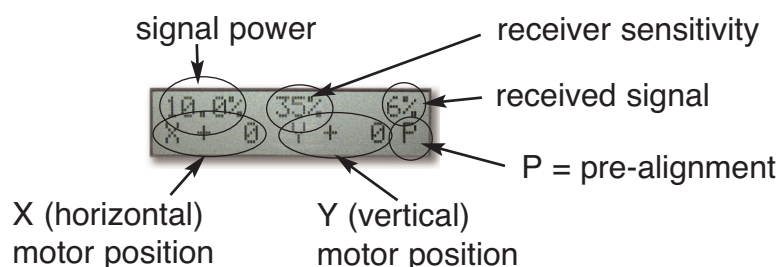


5. **enter** commissioning and **enter** pre-alignment

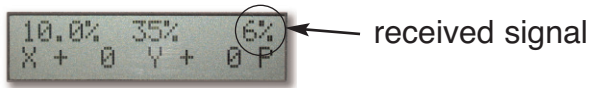
(pre alignment is probably the most important part of commissioning)



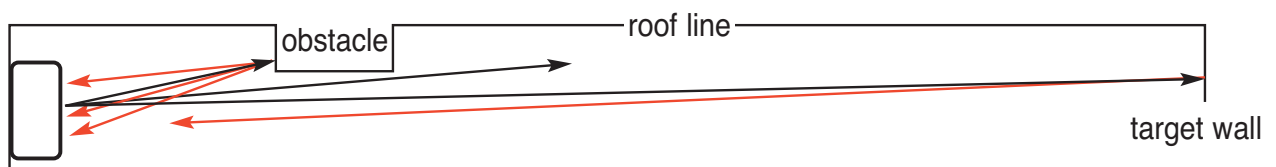
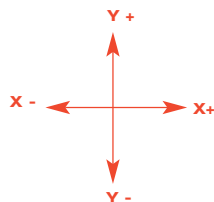
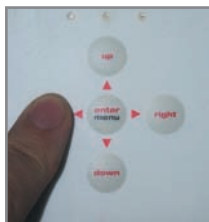
6. you will see this screen



7. signal power starts at 10% and the receiver sensitivity starts at 5% and automatically increases until a received signal from the blank wall without the reflector of between 5 and 7% is achieved, it will then stop



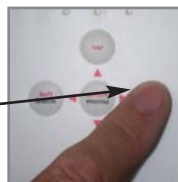
if you are covering a distance of **over 50 meters** you should be achieving signal power of **over 60%**, if you are receiving less it's possible that you are picking up a reflection from something other than the target blank wall. By moving the beam **(looking at the wall)** left (x-) right (x+) up (y+) and down (y-) you can move the beam away any obstacles to achieve higher signal power



8. Once you are happy with the power readings press enter and confirm by pressing the right key. The manual alignment menu will appear press **enter** to enter.



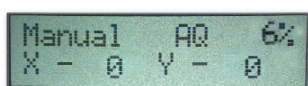
press **enter** in pre-alignment and then confirm by pressing the **right** key



press **enter** to enter manual mode



you will now seen this screen



9. **NOW** place or uncover the reflector on the blank wall directly opposite the beam head with a clear path though obstructions such as girders etc.

It is important that there is a clear line of vision between the reflector and any obstruction -the beam head must see at least 200mm of clear wall around the reflector to enable successful auto alignment.



clear vision around
the reflector

Once the reflector is in place the AQ value should jump up meaning that the head is now seeing the reflector.

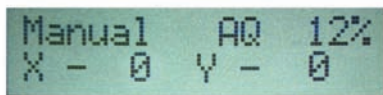


The minimum response you need to see is 40% (below this figure the beam will not self align in the next procedure) the higher the number the better - this can be over 100%

If you have received a AQ reading of over 40% go to Auto Alignment point 10.

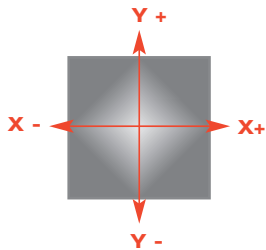
you need a reading of **at least 40%** to proceed to Auto alignment. If you do not receive an AQ signal of 40% it means the beam head is not seeing the reflector. You will need to move the beam head until you receive an AQ reading of above 40% ideally over 100%

If you are presented with the screen below (AQ-air quality could be any number up to 40%)

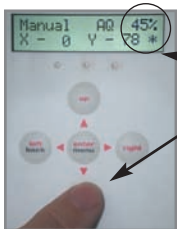


Now look at the position of the reflector in relation to the beam head. You will need to angle the beam toward the reflector by moving the head about its X or Y axis using the internal motors

In the example on the next page you will notice that the reflector is below the line of fire of the beam. So in this case you would need to lower the angle of the beam (-Y) until you receive a AQ (Air Quality) reading above 40% sensitivity. (40 steps of the motor = 1degree of movement)

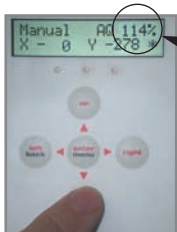


Adjustments can now be made to the **X** and **Y** axis by using the **left(x-)**, **right(x+)**, **up(y+)**, **down(y-)** keys. **Looking at the reflector** this will move the beam across the reflector like so (40 steps = 1degree) (you can hold the key down for faster increments)



in the example above moving the **y** axis **down(y-)** results in a greater % air quality

Wait for x / y values to finish moving to assess your AQ result



Try and achieve as good a result as possible - it must be **over 40%** or auto align will abort. (the better the result the shorter the auto align time will be - a result over 100 is good!)



Press **enter** to exit manual mode and enter Auto Alignment

10. Having received a AQ reading of over 40% in manual mode press enter to exit manual and enter again to enter auto alignment



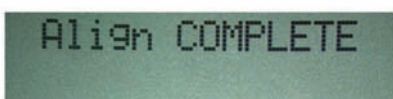
press **enter** and the beam head will automatically align on the reflector



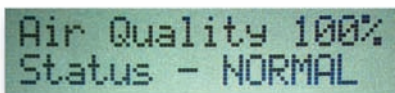
first you will see the signal power readings and receiver sensitivity drop if the received signal reading is over 100%. once at 100% or if the reading is under 100% the firebeam will automatically move its X and Y axis until it is positioned on the reflector. (This operation could take 30 minutes or more)



Note: if you break the beam whilst it's auto aligning it will automatically abort, reset by pressing the **left back** button and pressing **enter** to re-start auto alignment



the alignment could take up to 30 minutes or more depending on how much aligning is required. Once complete you will see a Align Complete notification, simply press the **left back** button to exit and your firebeam is now ready and commissioned



you will now see this screen. Air Quality may fluctuate slightly around a couple of % above and below 100

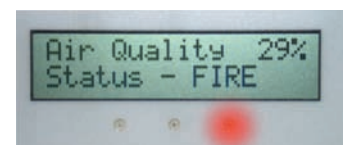
step four. testing

to test that the firebeam is aligned correctly you will need to carry out two tests.



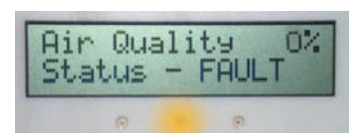
1. a filter test for 'Fire'

place the filter provided over the eyes of the firebeam. having done this (after 10 seconds) the red fire LED will flash on both the head and on the controller and the word FIRE will replace NORMAL on the low level controller display



2. a reflector test, to check that the beam is reflected back from the reflector

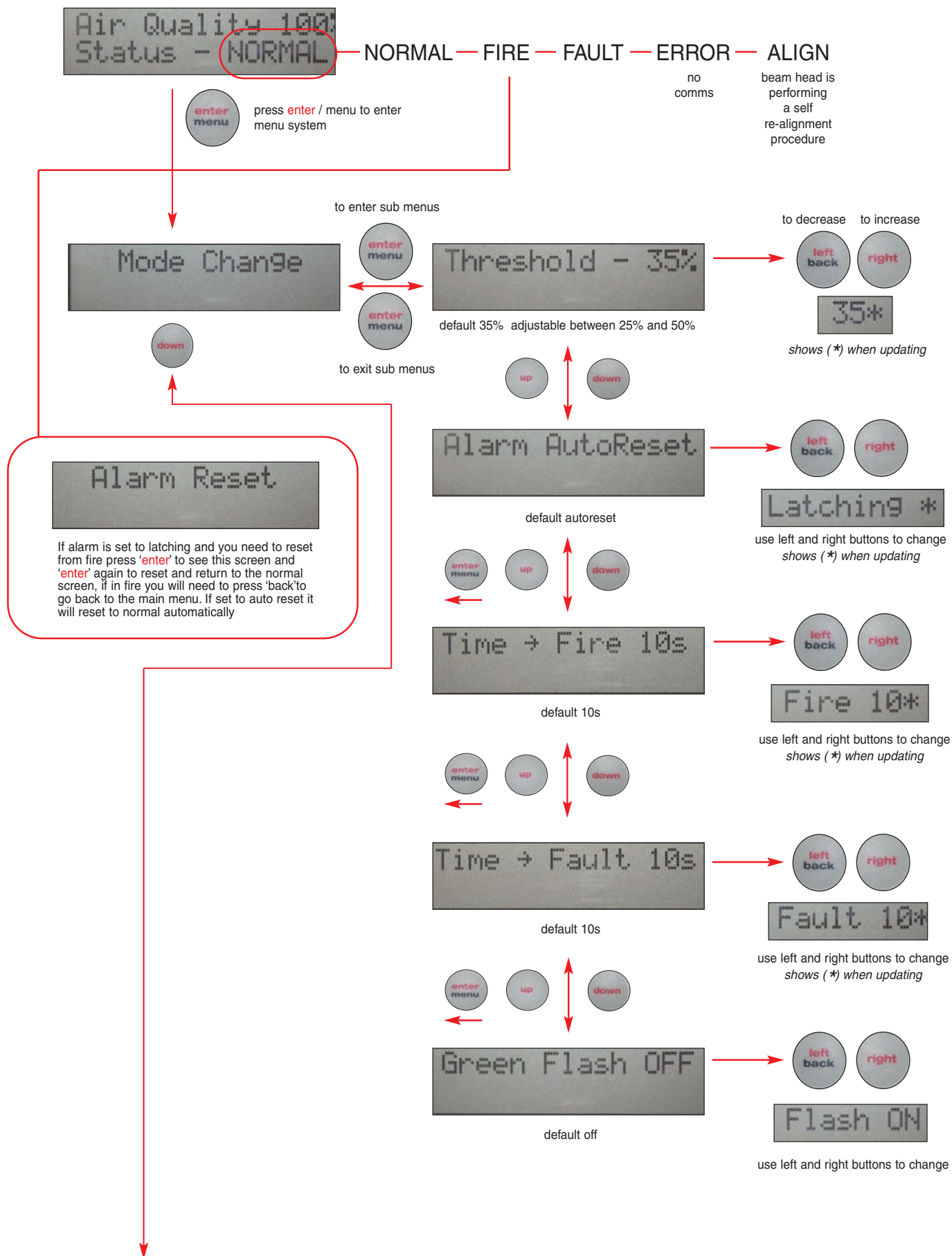
cover the reflector completely within one second. If the beam is correctly targeted on the reflector a fault condition will occur (after 10 seconds). A amber LED will flash on both the head and on the controller, the word FAULT will appear in the display

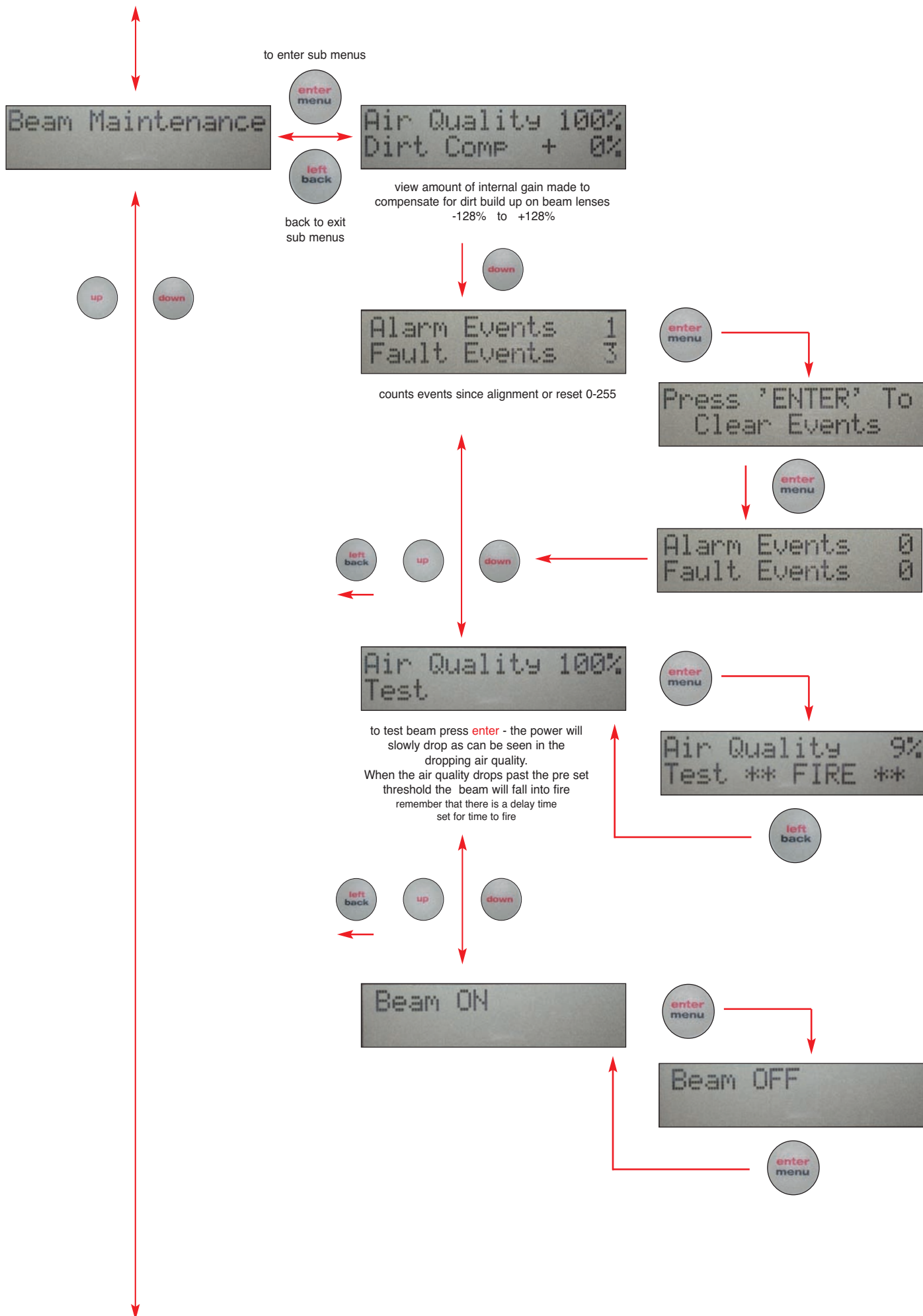


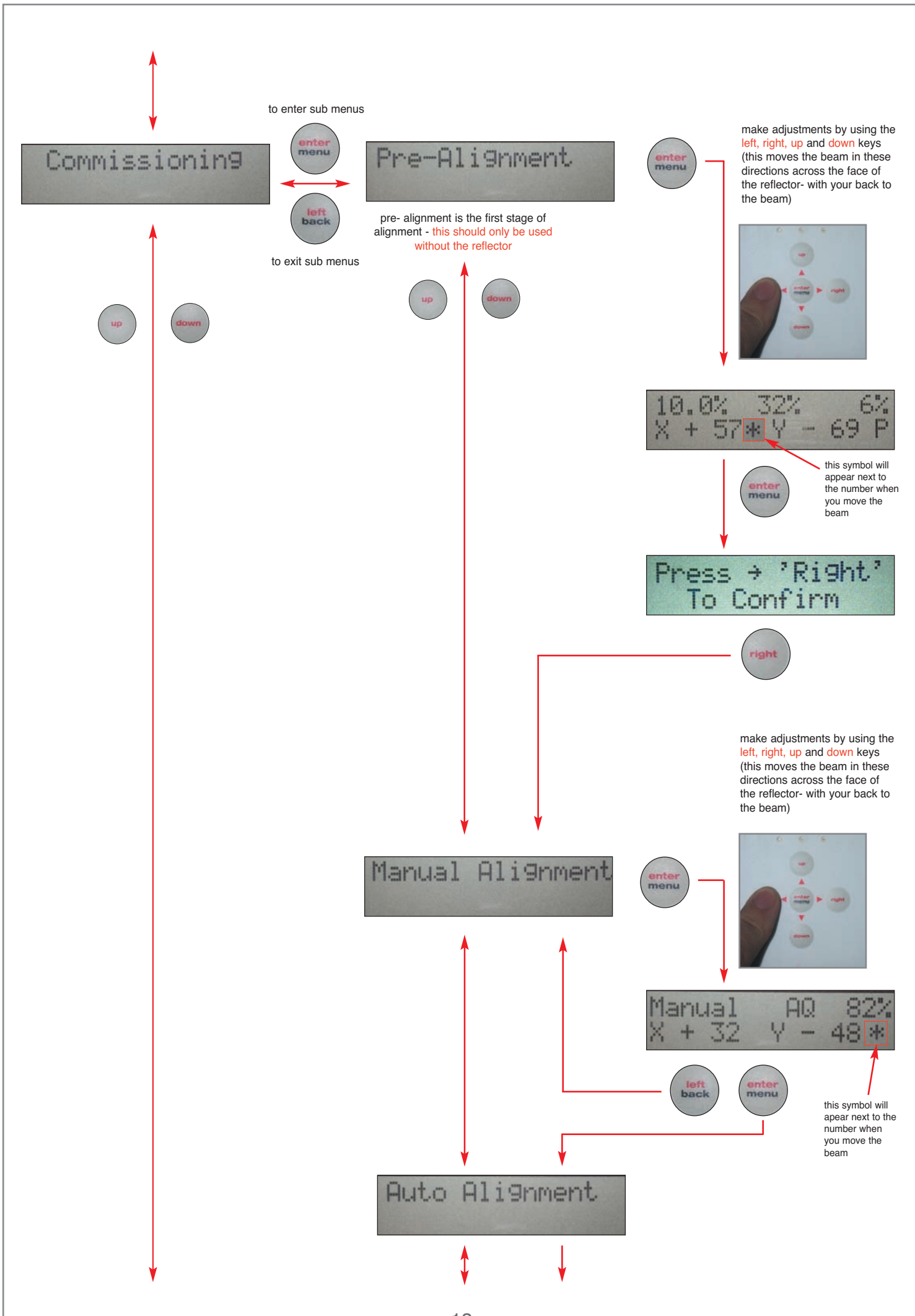
Your firebeam has now been commissioned and tested.

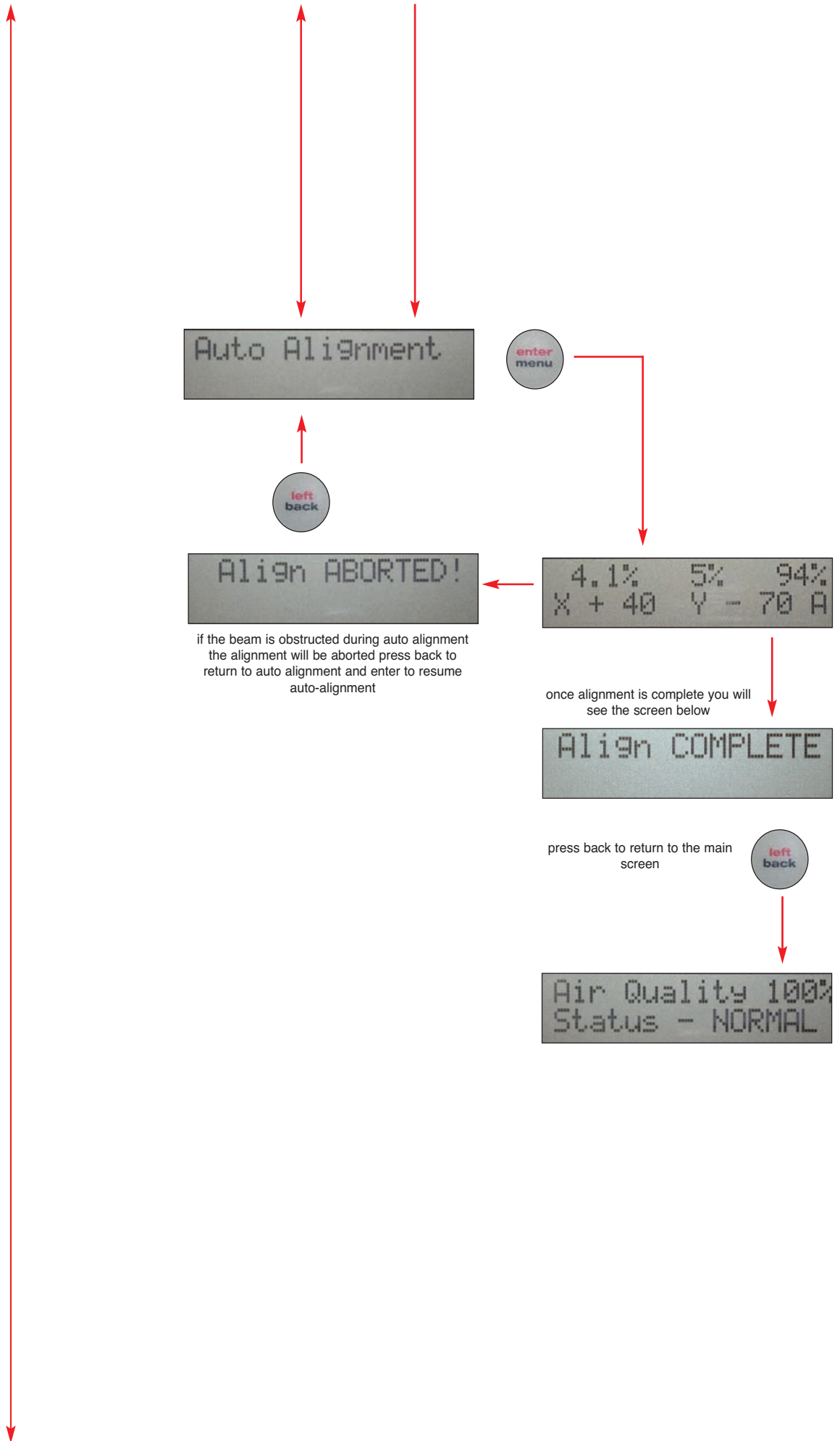
screen and menu system

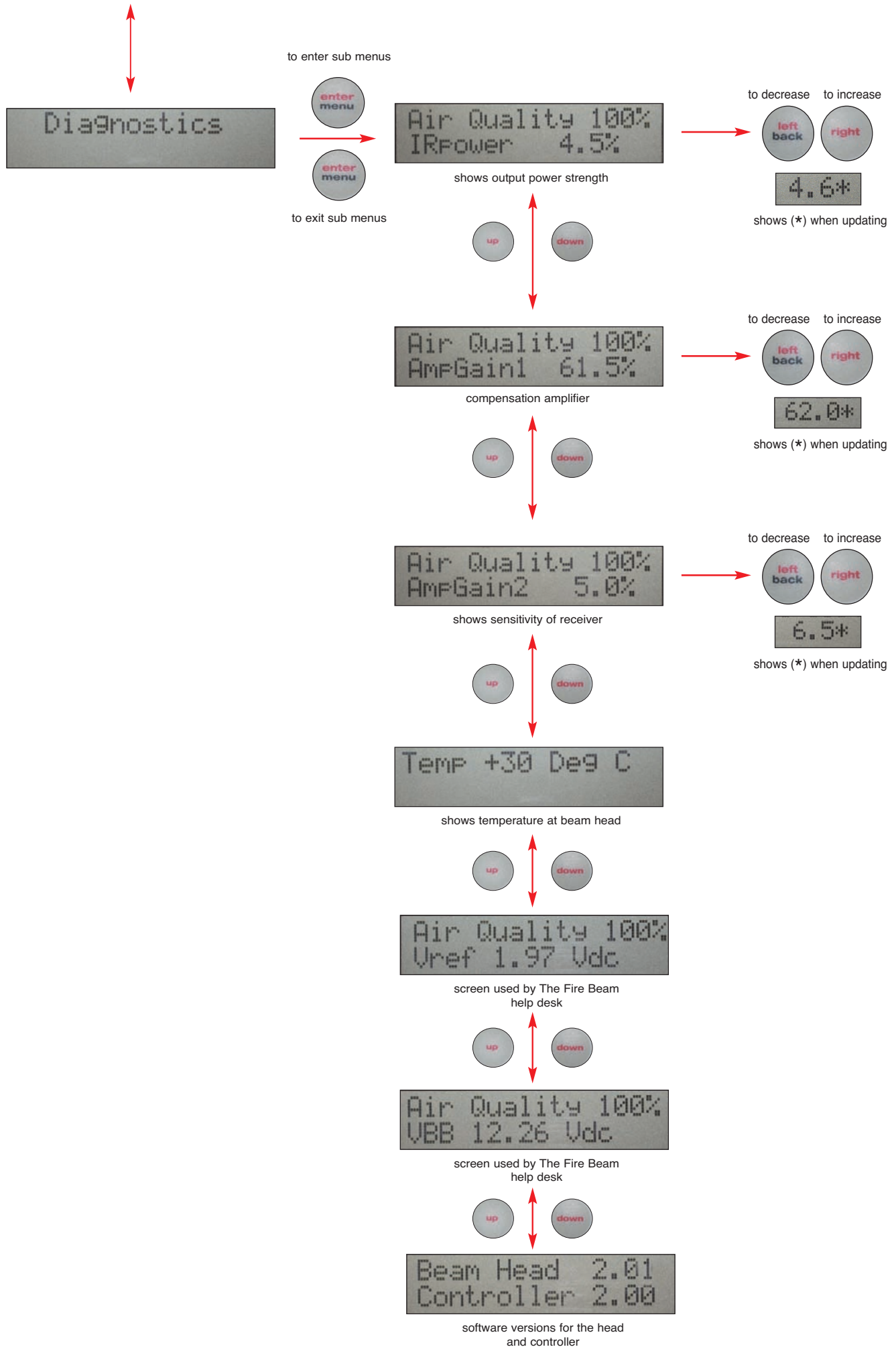
issue 0026-02











technical specifications

Electrical Specifications:

Supply Voltage. 10.2 to 40 VDC

Supply Current. 3mA (constant current) in all operational states

Environmental Specifications:

Temperature. -10°C to +55°C

Humidity. 10 to 95% RH Non-condensing

Protection Index. IP65 when suitably mounted and terminated

Mechanical Specifications:

Beam Head.

180mmH x 155mmW x 137mmD
Weight 1.1Kg

Controller.

185mmH x 120mmW x 62mmD
Weight 0.55Kg

40KIT80 Mid-Range Reflector.

293mmH x 293mmW x 5mmD
Weight 0.8Kg

80KIT100 Long Range Reflector.

394mmH x 394mmW x 5mmD
Weight 1.8Kg

ADAPTER.

270mmH x 250mmW x 5mmD
Weight 0.6Kg
(mounts the Beam Head onto unistrut)

Optical Specifications:

Optical Wavelength. 870nm

Maximum Angular Alignment. $\pm 15^\circ$

Maximum Angular Misalignment.
(static not auto-aligning)
Beam Head $\pm 0.75^\circ$ Reflector $\pm 2^\circ$

Operational Specifications:

Protection Range:

FIREBEAM.

Standard Product 5 to 40 metres

40KIT80.

Mid-Range Reflector Kit 40 to 80 metres

80KIT100.

Long Range Reflector Kit 80 to 100 metres

Alarm Sensitivity Levels:

25%(1.25dB) to 50%(3dB) in 1%(0.05dB) increments (default 35% (1.87dB))

Alarm Condition:

Obscuration drops to below pre-defined sensitivity level.

Time to Alarm Condition adjustable
2 to 30 seconds in 1 second increments
(default 10 seconds)

Alarm Indication:

Controller Status - FIRE

Controller Red Flashing LED 0.5 Second

Head Red Flashing LED 1 Second

Alarm Relay Change Over (CO) Contact

Rating 2A @ 30 VDC

Test/Reset Features:

Beam test function by controller

Alarm latching/auto-reset selectable
(default auto-reset)

Alarm reset in latching mode by controller reset function, removing power for >5 seconds, apply 12 to 24 VDC to reset connections in Beam Head.

Fault Sensitivity Level:

90%

Fault Condition:

Obscuration drops to below the fault sensitivity level within 1 second

Power Down or Supply Voltage < 9 VDC

Commissioning modes, Pre-Alignment and Auto Alignment

Beam turned off during Beam Maintenance
(auto resets in 8 hours to normal)

Time to Fault Condition adjustable,
2 to 60 seconds in 1 second increments
(default 10 seconds)

Fault Indication:

Controller Status - FAULT

Controller Yellow Flashing LED 1 Second

Head Yellow Flashing LED 1 Second

Fault Relay Change Over (CO) Contact
Rating 2A @ 30 VDC

Normal Condition:

Obscuration level is above the Alarm sensitivity level

Controller Status - NORMAL

Controller Green Flashing LED 1 Second

Programmable on/off

Head Green Flashing LED 1 Second

Programmable on/off

Auto-align/Beam Contamination Compensation:

Auto-align during normal operation if obscuration drops below 90%
(doesn't effect normal operating mode)

Beam Contamination Compensation 4 hour monitoring. Compensation data available at the controller