Mounting Feasa LED Analyser

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About this Manual

This Manual is applicable to Feasa Led Analysers range of products.

The ICT Models : Feasa 3I, Feasa 5I, Feasa 6I, Feasa 10I & Feasa 20I.

The High Bright ICT Models : Feasa 3IB, Feasa 5IB, Feasa 10IB & Feasa 20IB.

The Functional Models : Feasa 3F, Feasa 5F, Feasa 6F, Feasa 10F & Feasa 20F.

The High Bright USB Models : Feasa 3FB, Feasa 5FB, Feasa 6FB, Feasa 10FB & Feasa 20FB.

The Life Tester Models : Feasa 3LT, Feasa 5LT, Feasa 10LT & Feasa 20LT.

The Low Light Models: Feasa 3A, Feasa 5A, Feasa 6A & Feasa 10A,

The InfraRed Models: Feasa 3-IR, Feasa 3-IRP, Feasa 10-IR, Feasa 10-IRP & Feasa 20-IR, 20-IRP,

Feasa operates a policy of continuous development. Feasa reserves the right to make changes and improvements to any of the products described in this document without prior notice.

Feasa reserves the right to revise this document or withdraw it at any time without prior notice.

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Feasa -I & Feasa -IB Physical Dimensions & Wiring Details

Description:

The Feasa 20-I and 20-IB units are 20 Channel Led Analysers with Serial (3 pin) and an ICT (20 pin) Interfaces. The unit can measure up to 20 Leds simultaneously. The analyser measures the parameters of the Led by transferring the light from the Led under test to the analyser via a 1mm Plastic Optical Fiber (POF).

Physical Layout Feasa 20-I & 20-IB:

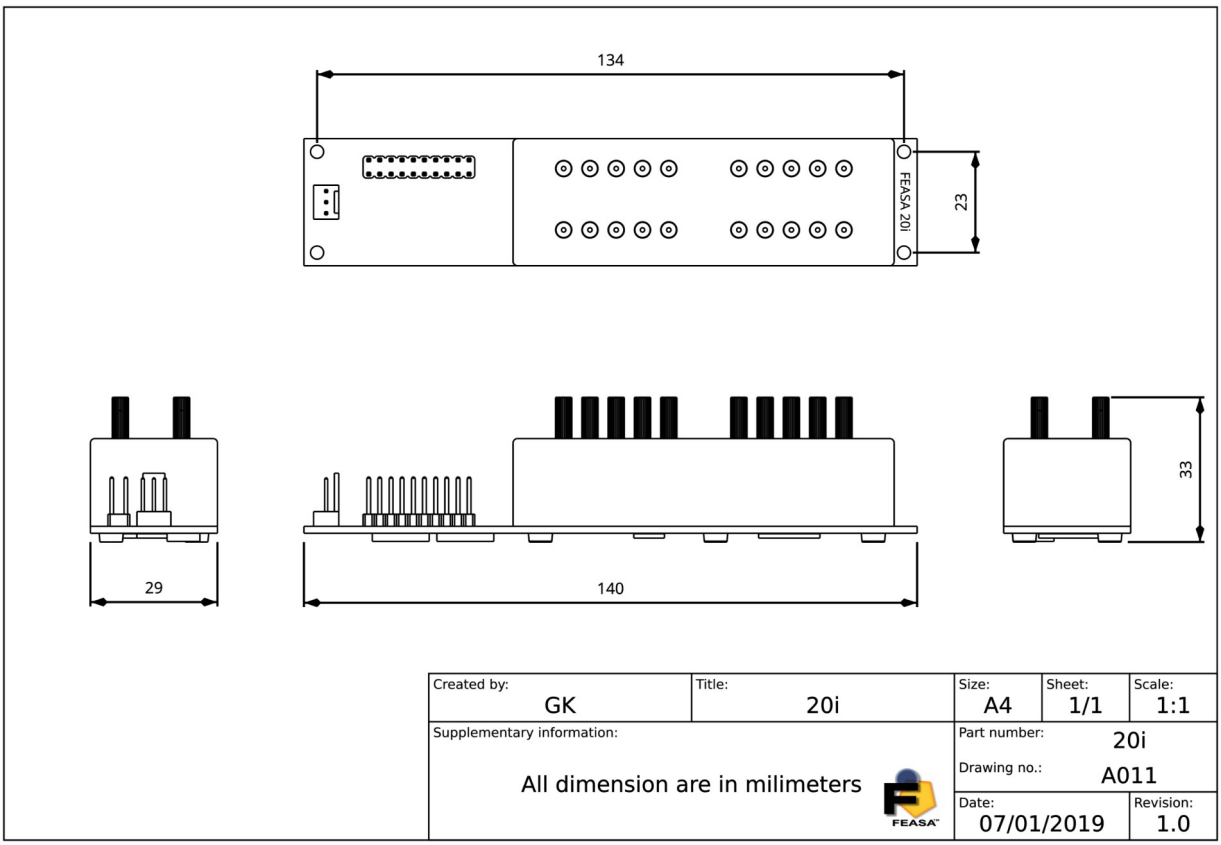

Figure 1a

Figure 1a shows the physical layout of the 20 Channel Analyser. The fibers are labelled 1-20. There are four mounting holes which will accept M3 screws as shown.

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Description:

The Feasa 3,5,6,10-I and 3,5,6,10-IB units have Serial (3 pin) and an ICT (20 pin) Interfaces. The units can measure 3,5,6 or10 Leds simultaneously. The analyser measures the parameters of the Led by transferring the light from the Led under test to the analyser via a 1mm Plastic Optical Fiber (POF).

Physical Layout Feasa 3-I - 10-I, 3-IB – 10-IB:

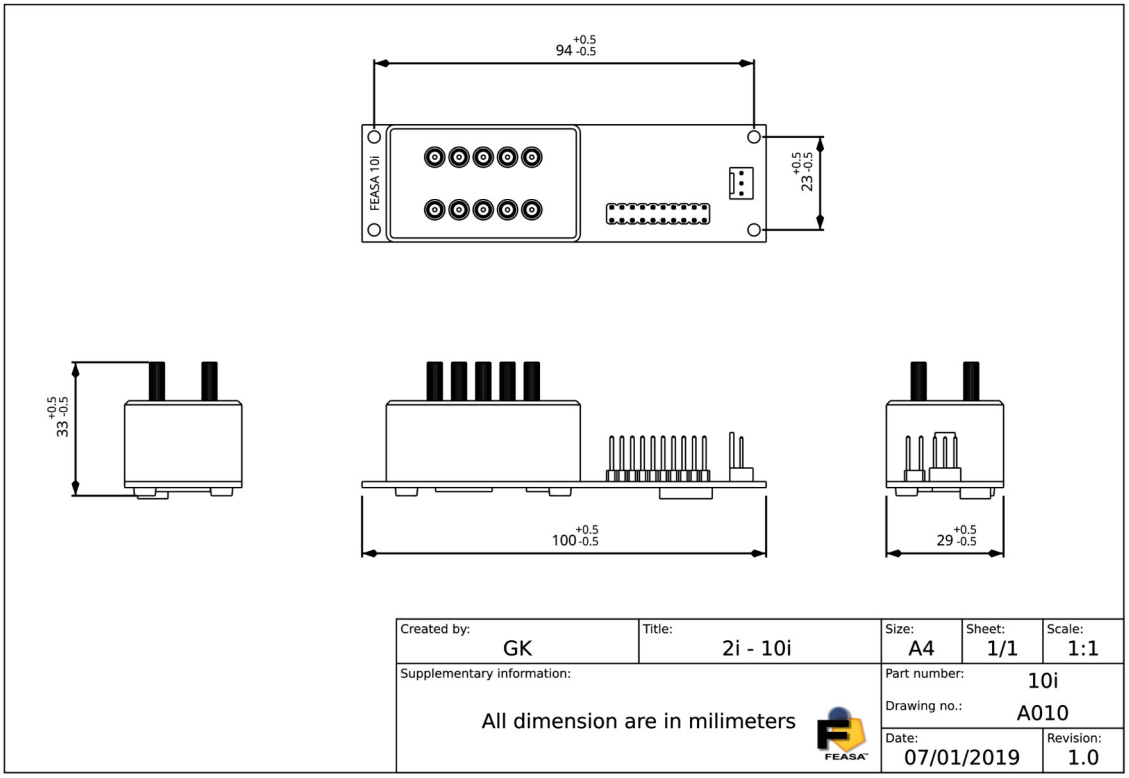

Figure 1b

Figure 1b shows the physical layout of the 3,5,6,10 Channel Analyser. The fibers are labelled 1-10. There are four mounting holes which will accept M3 screws as shown.

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Power Requirements:

The Power requirements for the unit are 5V DC @ 200mA. When power is applied to the Analyser a Green LED will light to indicate it is ready for testing. **Do NOT exceed 6V I/P**

20 pin connector Power Wiring Locations:

19	Power	VCC	Power Supply 5V DC
20	Ground	GND	Ground

Serial Interface Wiring:

Please use the Serial Cable *LA-SER-01* provided with the unit. A wiring detail is located on Figure 2. Power to the unit in this mode must be applied to pins 19 (5V) and 20 (GND) on the 20 pin ICT connector.

Serial Connector (RS232C)

Pin	*Signal*	*Pin on 9-Pin D-type*
1	Tx from LED Analyser	2
2	Rx from LED Analyser	3
3	GND	5

Figure 2

ICT Wiring:

If using the ICT mode connect the Led Analyser to the ICT machine(Agilent, Genrad, Terrydyne etc.) using the 20pin JP3 connector on the board. Figure 3 has a detail of the wiring instruction.

ICT Connector JP3

Pin	Type	Name	Function
1	Output	Ser_Out	Synchronous Serial Output
2	Input	Ser_In	Synchronous_Serial Input
3	Input	SCK	Synchronous Serial Clock
4	Ground	GND	Ground
5	Input	Reset	Reset input
6	Input	/OE	Output Enable – Active low
7	Input	Ex_Trig	External Trigger
8	Input	PWM_bar	Select PWM mode - Active low.
9	Input	Addr0/LA_Select	Fiber Address 0 (also used for Synchronous Serial mode)
10	Input	Addr1	Fiber Address 1
11	Input	Addr2	Fiber Address 2
12	Input	Addr3	Fiber Address 3
13	Input	Addr4	Fiber Address 4
14	Input	/WE	Active Low.
15	Output	Int_freq	Frequency Out Square wave for Intensity
16	Output	Color_freq	Frequency Out Square wave for Color
17	Output	Sat_freq	Frequency Out Square wave for Saturation
18	Output	RY_BY	Ready Busy Output (Also Used for Syncronous Serial mode)
19	Power	VCC	Power Supply 5V DC
20	Ground	GND	Ground

Figure 3

Make sure Pin 20 GND is wired to System Ground and also ensure this pin is wired to the Agilent PSU GND that is used to power the Analyser.

One method of connecting the Led Analyser to an Agilent / GenRad or Terradyne system is to use a 20way ribbon cable from the Feasa -I JP3 to a 20 way transfer connector on the Fixture bed and then from the transfer connector to the machine Interface pins. The overall length of the Ribbon Cable and internal Fixture wiring should not exceed 1 meter.

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Functional Analyser Range Physical Dimensions & Wiring Details

Description:

Figure 4a shows a 20 channel Functional, Life Test and High Brightness Led Analysers. They all have mini usb, Serial Interfaces and Trigger Inputs at the front and they have Daisy Chain and Serial Power connections at the rear. The analysers measure the parameters of the Led by transferring the light from the Led under test to the analyser via a 1mm Plastic Optical Fiber (POF) for Functional & High Bright and 1.1mm Glass fiber for the Life Tester Analyser. The standard Fiber length is 60cm.

These Functional and LifeTest Analysers come housed in a Silver aluminium case with mounting brackets. The High Brightness Functional Analysers come housed in a Black aluminum case with mounting brackets. The overall dimensions of the units are shown in Figure 4a. Allow 60mm of height clearance to route the Fibers from the Analyses.

Physical Layout Feasa 20F, 20LT, 20FB:

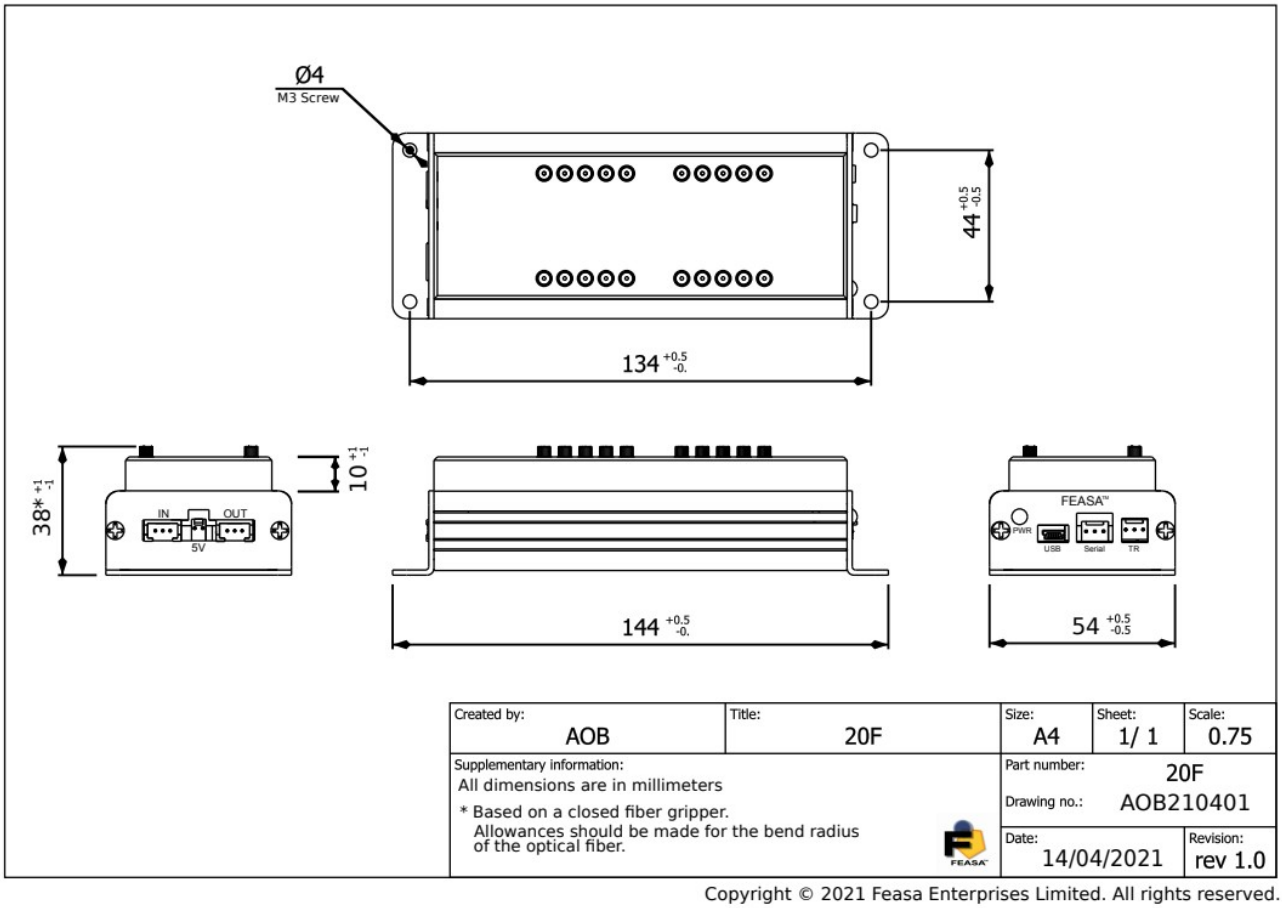

Figure 4a

The Mounting holes are drilled at **4mm** and we recommend to use **M3** screws for mounting.

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Description:

Figure 4b shows a 3 - 10 channel Functional, Life Test and High Brightness Led Analysers. They all have mini usb, Serial Interfaces and Trigger Inputs at the front and they have Daisy Chain and Serial Power connections at the rear. The analysers measure the parameters of the Led by transferring the light from the Led under test to the analyser via a 1mm Plastic Optical Fiber (POF) for Functional & High Bright and 1.1mm Glass fiber for the Life Tester Analyser. The standard Fiber length is 60cm.

These Functional and LifeTest Analysers come housed in a Silver aluminium case with mounting brackets. The High Brightness Functional Analysers come housed in a Black aluminum case with mounting brackets. The overall dimensions of the units are shown in Figure 4b. Allow 60mm of height clearance to route the Fibers from the Analyses.

Physical Layout Feasa 3F - 10F, 3LT - 10LT , 3FB – 10FB :

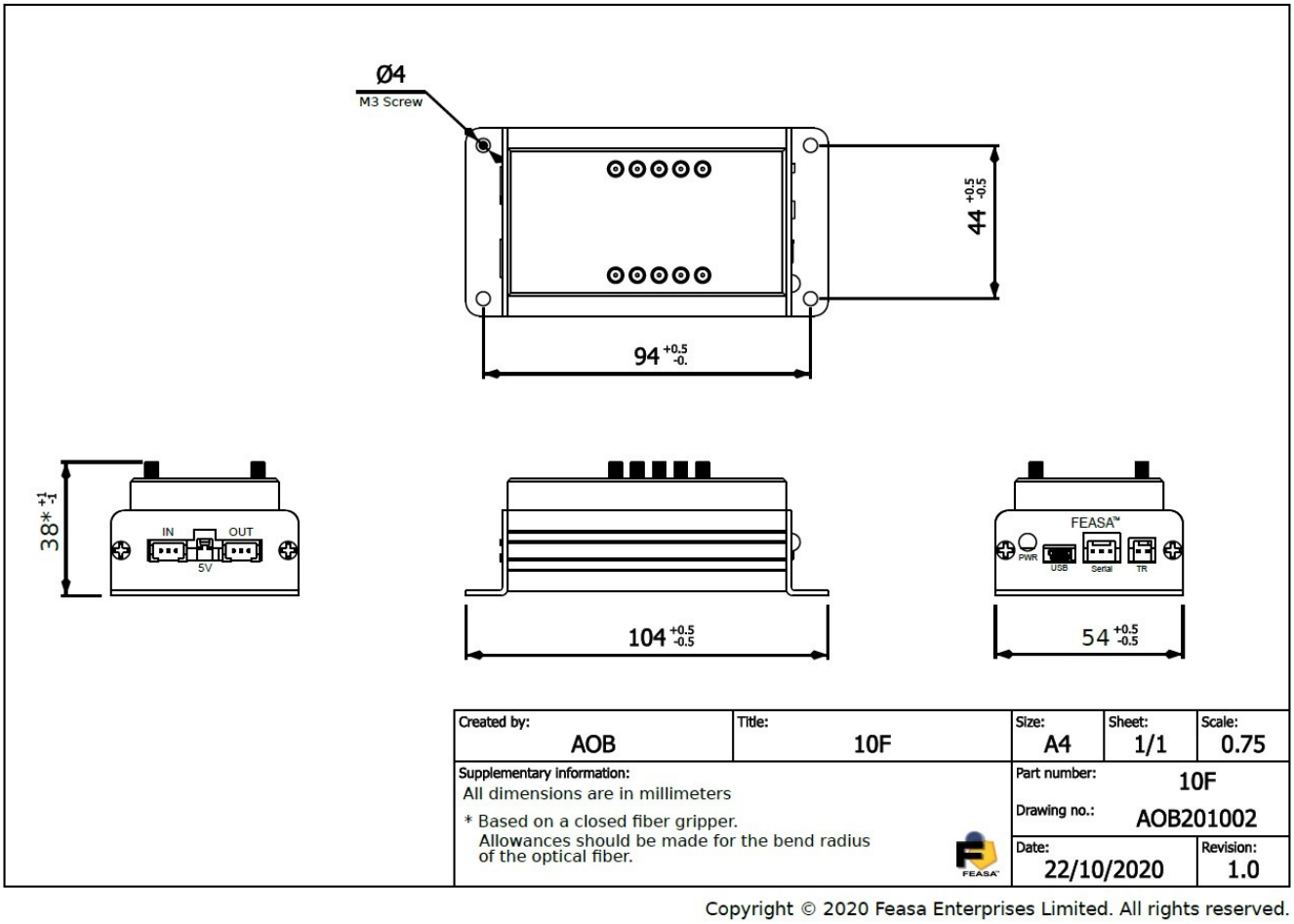

Figure 4b

The Mounting holes are drilled at **4mm** and we recommend to use **M3** screws for mounting.

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Front / Rear Connections

This shows the layout of the Connectors viewed from the edge of the board.

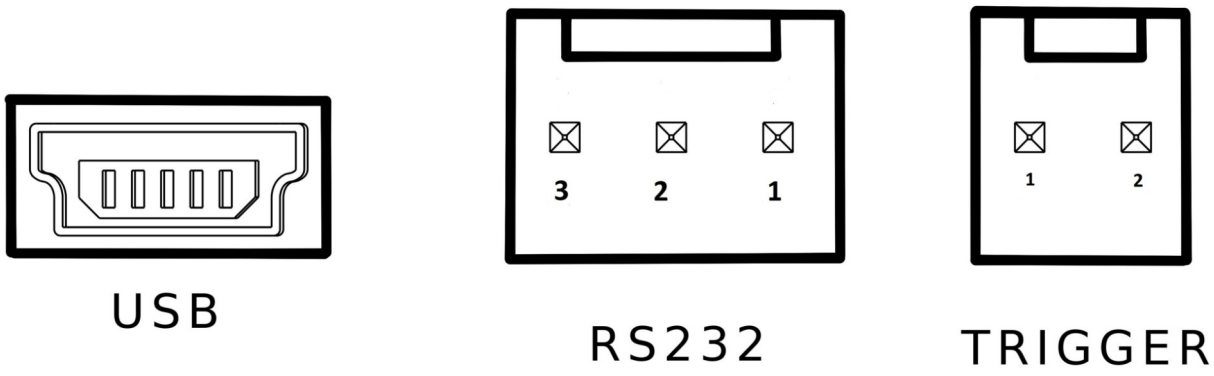

Figure 4c (Front Panel).

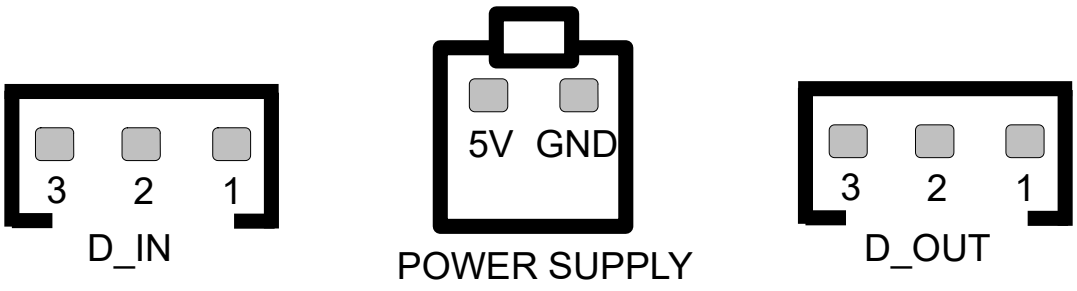

Figure 4d (Rear Panel).

Power Requirements:

The Power requirements for the Analyser are 5V DC @ 200mA. Do **NOT Exceed 6V** as this will damage the Analyser. If the USB Interface is used then the Analyser will draw its power from the USB Port on the Computer. If the Serial Interface is used then the Analyser must be supplied power through the 2-pin Power connector. When power is applied to the Analyser a Green LED will light to indicate it is ready for testing.

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Serial Interface Wiring:

Serial Connector (RS232C)

Pin	*Signal*	*Pin on 9-Pin D-type*
1	Tx from LED Analyser	2
2	Rx from LED Analyser	3
3	GND	5

Power Connector JP5

Pin No	*Signal*
1	Power (5V DC)
2	GND

Figure 5.

Power is applied to pins 1 and 2.

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Trigger Port Control:

The Feasa Led Analyser includes a Trigger function that allows an external signal to trigger a capture. The Trigger function must first be enabled by sending commands to the Led Analyser. The capture is triggered by a high-to-low transition on the Trigger Pin.

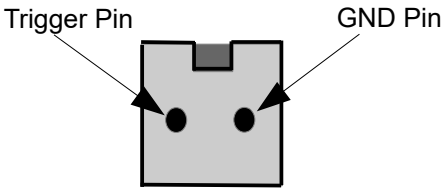

Figure 6

The layout of the Trigger Connector is shown above in figure 6. The trigger is activated on the Trigger Pin. This pin has an internal pull-up resistor to 3.3V. The Trigger is activated by driving this pin to GND.

Trigger Connector

Pin	***Signal***
1	Trigger Pin
2	GND

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Daisy Chain Ports:

Figure 7.

The Daisy Chain Function allows the end user to connect more than 1 analyser to a single USB port. Use the Daisy Chain Cables provided to connect each analyser to the next. The first unit in the chain is connected to the USB or Serial port. The D_Out Connector on the 1st unit is connected to the D_IN on the 2nd unit and so on for each analyser in the chain. If the first unit is connected to the usb port then its power is got from the USB of the PC. If however you are connecting the 1st unit through the Serial port then you will need to supply 5V separately. Each subsequent analyser in the chain will require a 5V source connected to the Power Connector also. Connectors are shown on the right-hand side of figure 7. The Power Connector JP5 is used to supply +5V DC to each Analyser in the chain. Allow 200mA @ 5V for each Analyser and ensure the wiring is adequate to supply the current without incurring large voltage drops. **For reliable operation it is necessary to have 5V at the Power Connector of each Analyser**.

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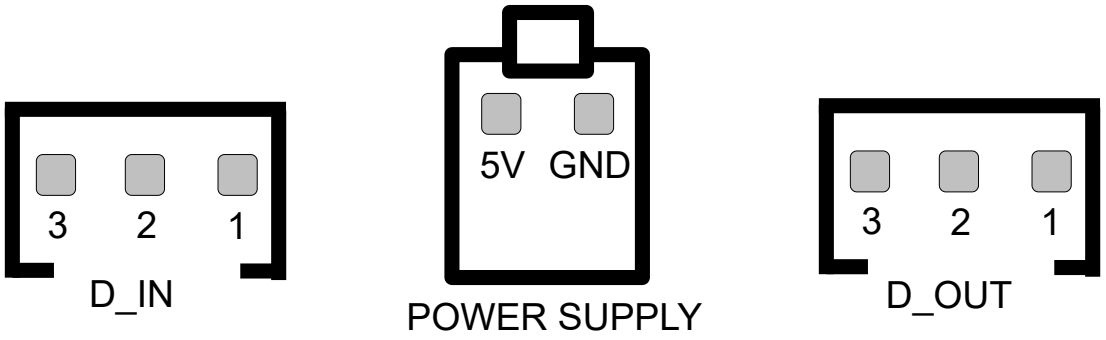
Daisy Chain Pin-out:



IN	D_IN	D_OUT
1	RX_in	RX_out
2	TX_out	TX_in
3	GND	GND

Figure 8.

Figure 8 shows the layout of the Connectors viewed from the edge of the board. The *GND* line of *D_OUT* is connected with the *GND* line of *D_IN*, the *RX_out* of *D_OUT* is connected to *RX_in* of *D_IN* and the line *TX_in* of *D_OUT* is connected to the line *TX_out* of *D_IN*.

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Functional InfraRed Range Physical Dimensions & Wiring Details

Description:

Figure 9a shows a 20 channel InfraRed Led Analysers. It has a mini usb and Serial Interface Inputs at the front and it has Daisy Chain and Serial Power connections at the rear. The analyser measures the parameters of the Led by transferring the light from the Led under test to the analyser via a 1mm Plastic Optical Fiber (POF) or 1.1mm Glass Optical fiber. The standard Fiber length is 60cm.

The InfraRed Analyser comes housed in a Red aluminium case with mounting brackets. The overall dimensions of the units are shown in Figure 9a. Allow 60mm of height clearance to route the Fibers from the Analyses.

Physical Layout Feasa 20-IR, 20-IRP:

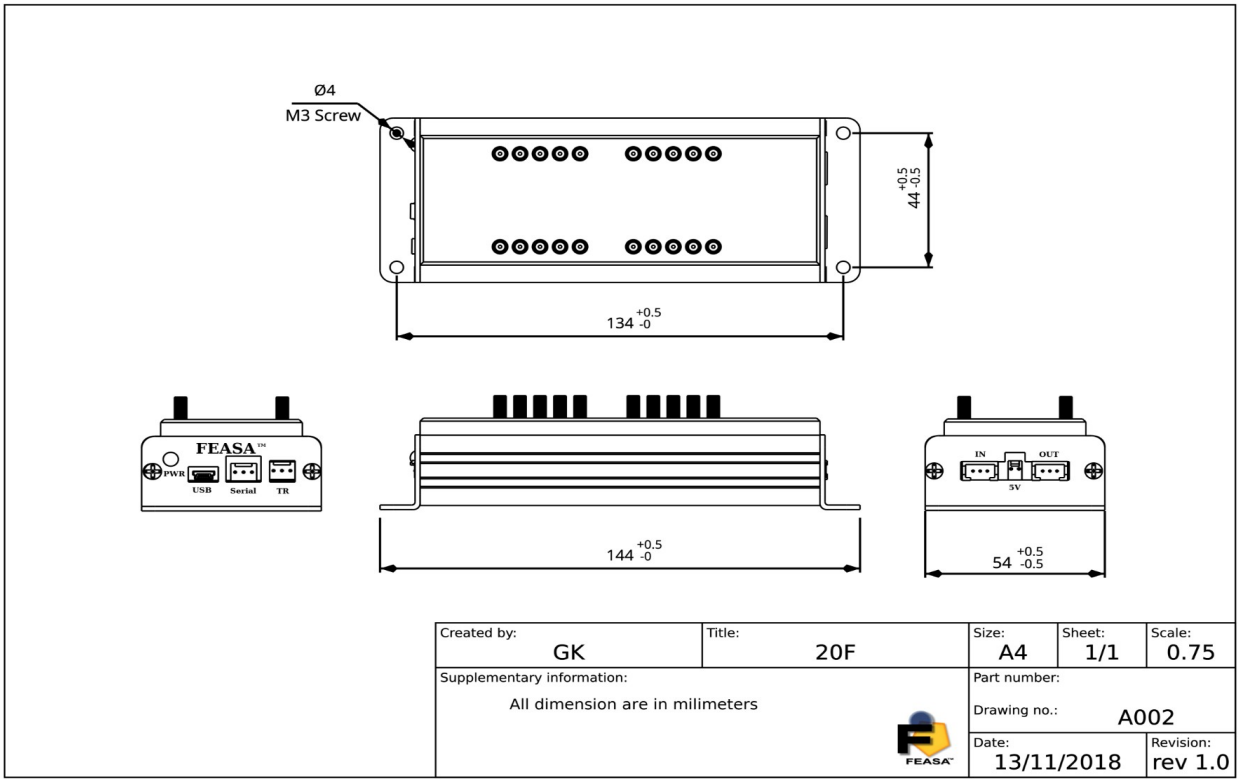

Figure 9a

The Mounting holes are drilled at **4mm** and we recommend to use **M3** screws for mounting.

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Description:

Figure 9b shows a 3 & 10 channel InfraRed Led Analysers. They have mini usb and Serial Interfaces Inputs at the front and they have Daisy Chain and Serial Power connections at the rear. The analysers measure the parameters of the Led by transferring the light from the Led under test to the analyser via a 1mm Plastic Optical Fiber (POF) or 1.1mm Glass fiber. The standard Fiber length is 60cm.

These InfraRed Analysers come housed in a Red aluminium case with mounting brackets. The overall dimensions of the units are shown in Figure 9b. Allow 60mm of height clearance to route the Fibers from the Analyses.

Physical Layout Feasa 3-IR, 3-IRP & 10-IR, 10-IRP:

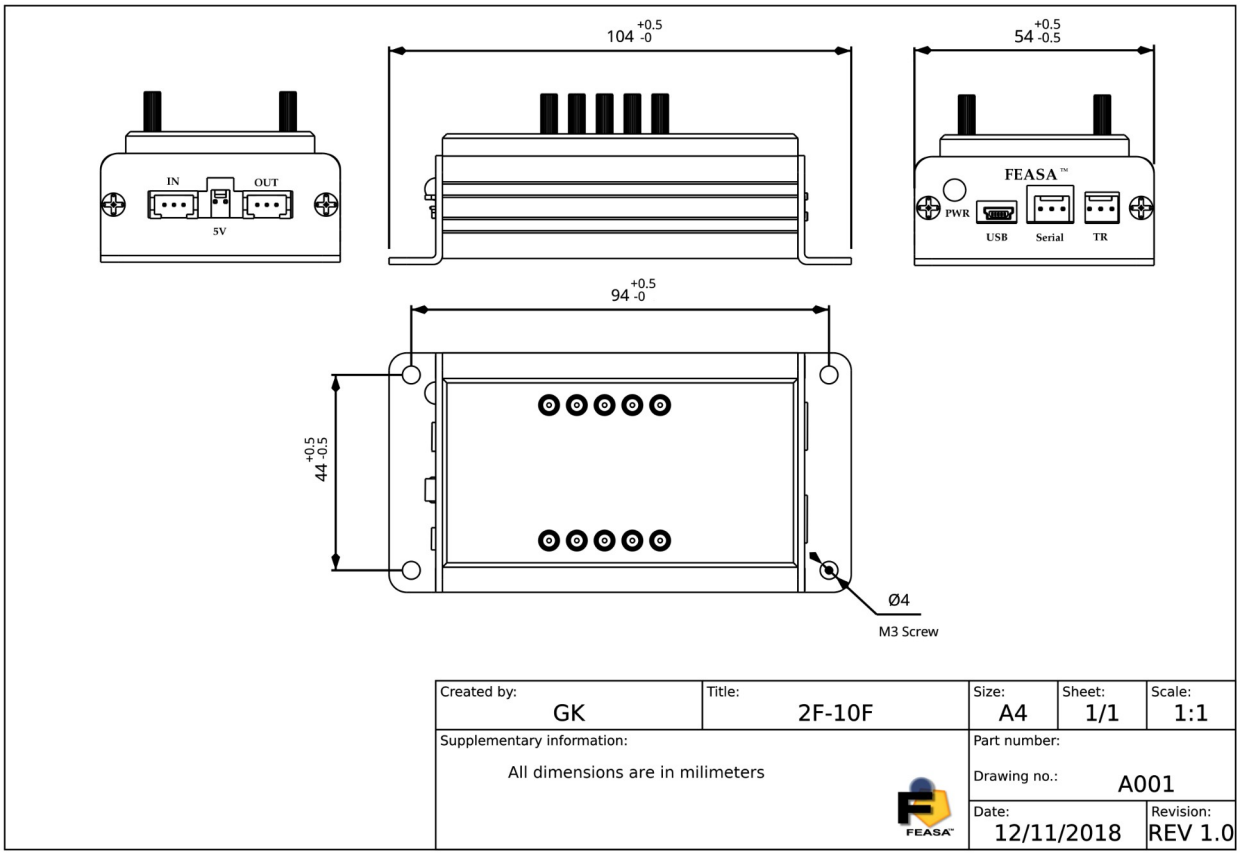

Figure 9b

The Mounting holes are drilled at **4mm** and we recommend to use **M3** screws for mounting.

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Front / Rear Connections

This shows the layout of the Connectors viewed from the edge of the board.

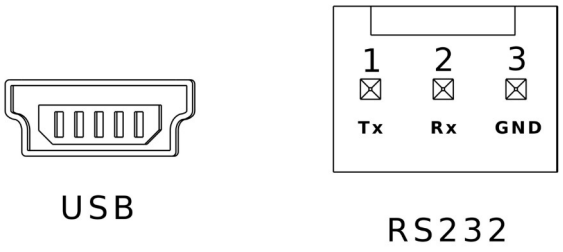

Figure 9c (Front Panel).

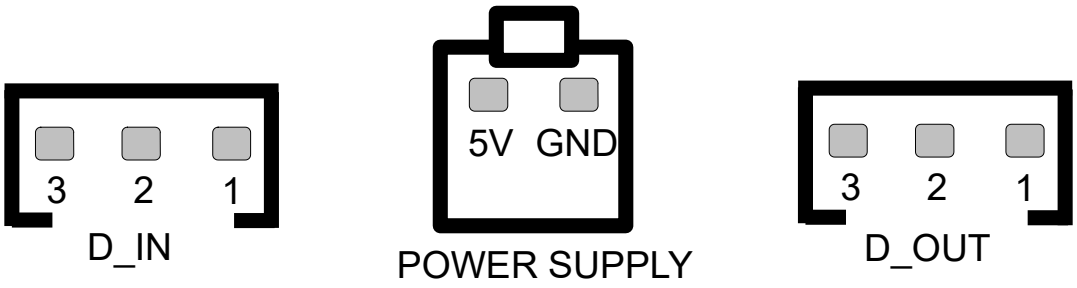

Figure 9d (Rear Panel).

Power Requirements:

The Power requirements for the Analyser are 5V DC @ 200mA. Do **NOT Exceed 6V** as this will damage the Analyser. If the USB Interface is used then the Analyser will draw its power from the USB Port on the Computer. If the Serial Interface is used then the Analyser must be supplied power through the 2-pin Power connector. When power is applied to the Analyser a Green LED will light to indicate it is ready for testing.

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Serial Interface Wiring:

Serial Connector (RS232C)

Pin	*Signal*	*Pin on 9-Pin D-type*
1	Tx from LED Analyser	2
2	Rx from LED Analyser	3
3	GND	5

Power Connector JP5

Pin No	*Signal*
1	Power (5V DC)
2	GND

Figure 10.

Power is applied to pins 1 and 2.

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Daisy Chain Ports:

Figure 11.

The Daisy Chain Function allows the end user to connect more than 1 analyser to a single USB port. Use the Daisy Chain Cables provided to connect each analyser to the next. The first unit in the chain is connected to the USB or Serial port. The D_Out Connector on the 1st unit is connected to the D_IN on the 2nd unit and so on for each analyser in the chain. If the first unit is connected to the usb port then its power is got from the USB of the PC. If however you are connecting the 1st unit through the Serial port then you will need to supply 5V separately. Each subsequent analyser in the chain will require a 5V source connected to the Power Connector also. Connectors are shown on the right-hand side of figure 11. The Power Connector JP5 is used to supply +5V DC to each Analyser in the chain. Allow 200mA @ 5V for each Analyser and ensure the wiring is adequate to supply the current without incurring large voltage drops. **For reliable operation it is necessary to have 5V at the Power Connector of each Analyser**.

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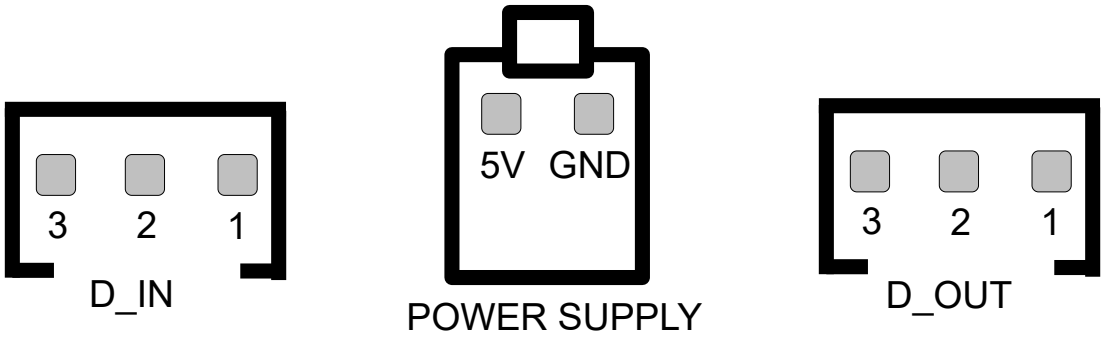
Daisy Chain Pin-out:



IN	D_IN	D_OUT
1	RX_in	RX_out
2	TX_out	TX_in
3	GND	GND

Figure 12.

Figure 12 shows the layout of the Connectors viewed from the edge of the board. The *GND* line of *D_OUT* is connected with the *GND* line of *D_IN*, the *RX_out* of *D_OUT* is connected to *RX_in* of *D_IN* and the line *TX_in* of *D_OUT* is connected to the line *TX_out* of *D_IN*.

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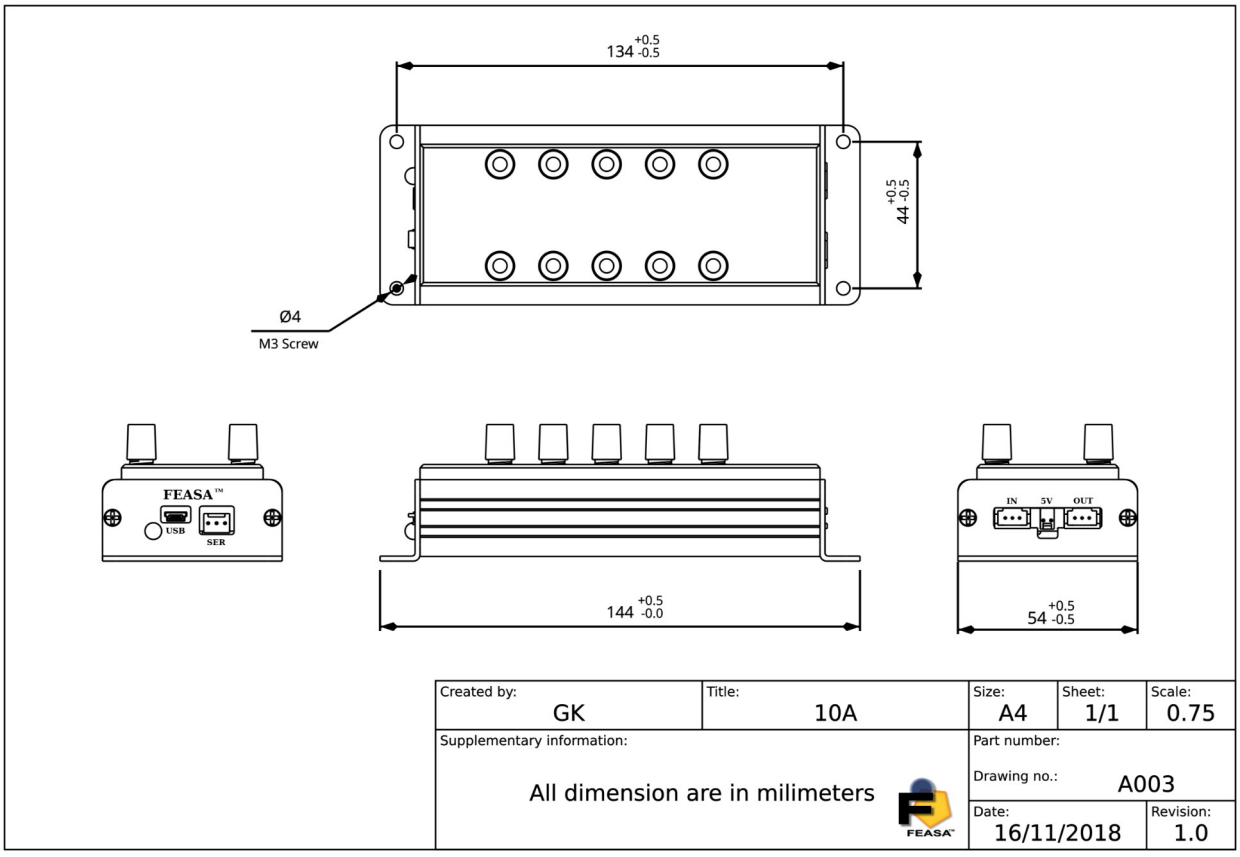
Low Light Analyser Range Physical Dimensions & Wiring Details

Description:

Figure 13a below is a 10A Low Light Led Analyser. It has a mini usb and Serial Interface at the front and a Daisy Chain and Serial Power connections at the rear. The analysers measure the parameters of the Led by transferring the light from the Led under test to the analyser via a 2.2mm Plastic Optical Fiber (POF). The standard POF is 60cm in length.
These Low Light Analysers come housed in a Blue aluminum case with mounting brackets. The overall dimensions of the units are shown in Figure 13a. Allow 60mm of height clearance to route the Fibers from the Analyser.

Physical Layout Feasa 10A:



The Mounting holes are drilled at **4mm** and we recommend to use **M3** screws for mounting.

Figure 13a

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Description:

Figure 13b is a 3 - 6A Low Light Led Analyser. They all have mini usb and Serial Interfaces at the front and they have Daisy Chain and Serial Power connections at the rear. The analysers measure the parameters of the Led by transferring the light from the Led under test to the analyser via a 2.2mm Plastic Optical Fiber (POF). The standard POF is 60cm in length.
These Low Light Analysers come housed in a Blue aluminum case with mounting brackets. The overall dimensions of the units are shown in Figure 13b. Allow 60mm of height clearance to route the Fibers from the Analyser.

Physical Layout Feasa 3A - 6A:

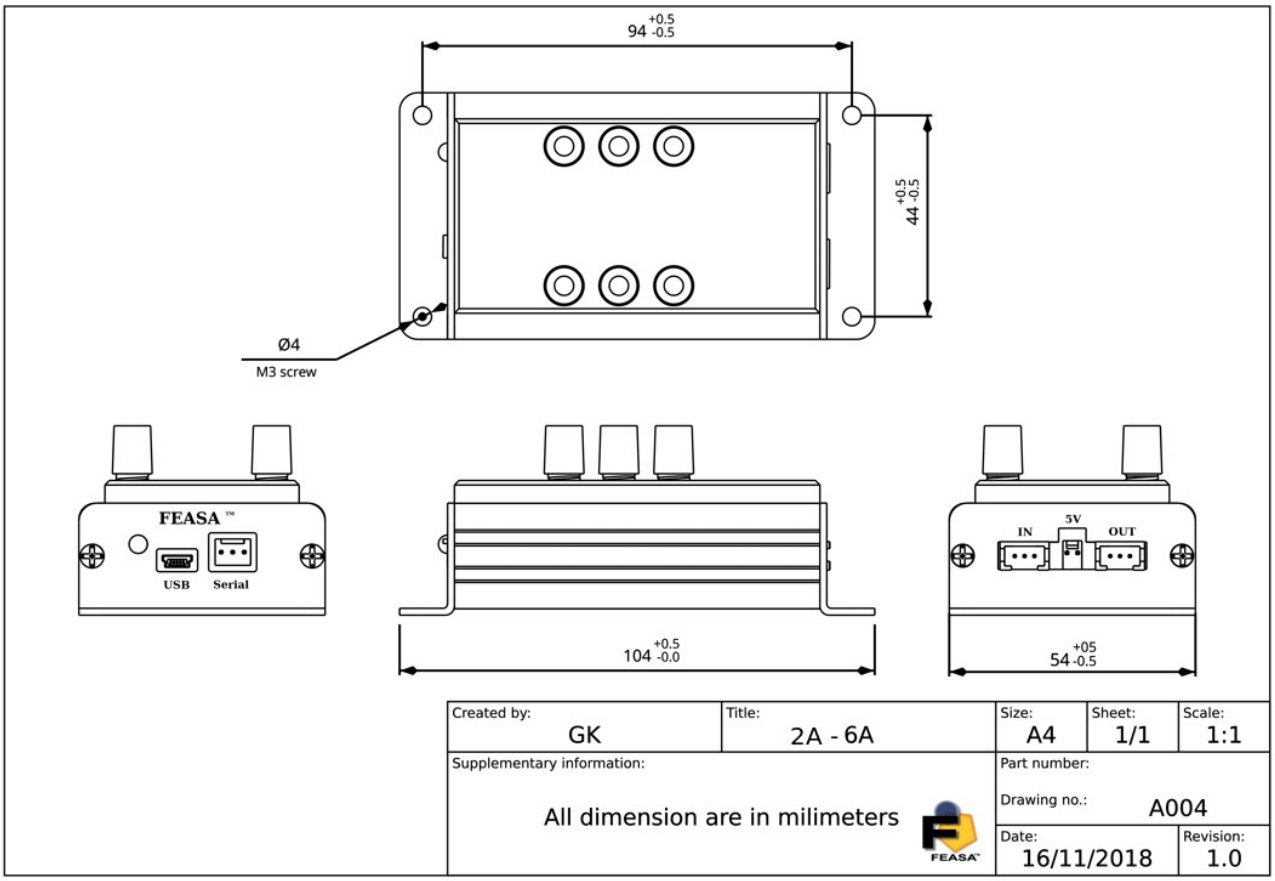

Figure 13b

The Mounting holes are drilled at **4mm** and we recommend to use **M3** screws for mounting.

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Front / Rear connections

This shows the layout of the Connectors viewed from the edge of the board.

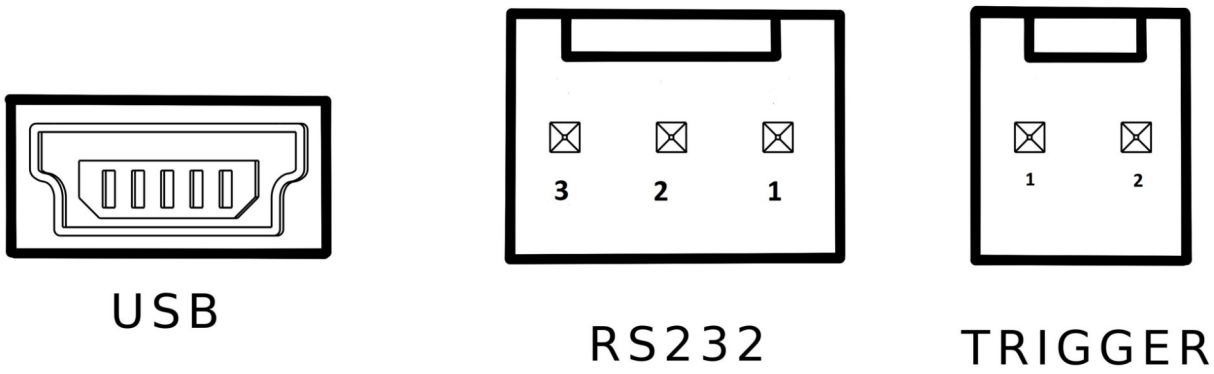

Figure 13c (Front Panel).

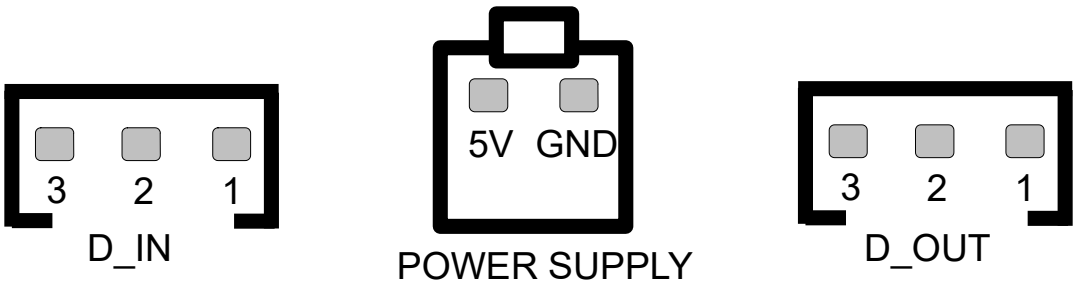

Figure 13d (Rear Panel).

Power Requirements:

The Power requirements for the Analyser are 5V DC @ 100mA. Do **NOT Exceed 6V** as this will damage the Analyser. If the USB Interface is used then the Analyser will draw its power from the USB Port on the Computer. If the Serial Interface is used then the Analyser must be supplied power through the 2-pin Power connector. When power is applied to the Analyser a Green LED will light to indicate it is ready for testing.

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Serial Interface Wiring:

Serial Connector (RS232C)

Pin	*Signal*	*Pin on 9-Pin D-type*
1	Tx from LED Analyser	2
2	Rx from LED Analyser	3
3	GND	5

Power Connector JP5

Pin No	*Signal*
1	Power (5V DC)
2	GND

Figure 14.

Power is applied to pins 1 and 2.

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Trigger Port Control:

The Feasa Led Analyser includes a Trigger function that allows an external signal to trigger a capture. The Trigger function must first be enabled by sending commands to the Led Analyser. The capture is triggered by a high-to-low transition on the Trigger Pin.

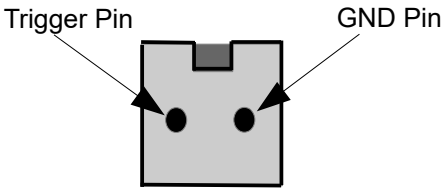

Figure 6

The layout of the Trigger Connector is shown above in figure 6. The trigger is activated on the Trigger Pin. This pin has an internal pull-up resistor to 3.3V. The Trigger is activated by driving this pin to GND.

Trigger Connector

Pin	***Signal***
1	Trigger Pin
2	GND

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Daisy Chain Ports:

Figure 15.

The Daisy Chain Function allows the end user to connect more than 1 analyser to a single USB port. Use the Daisy Chain Cables provided to connect each analyser to the next. The first unit in the chain is connected to the USB or Serial port. The D_Out Connector on the 1st unit is connected to the D_IN on the 2nd unit and so on for each analyser in the chain. If the first unit is connected to the usb port then its power is got from the USB of the PC. If however you are connecting the 1st unit through the Serial port then you will need to supply 5V separately. Each subsequent analyser in the chain will require a 5V source connected to the Power Connector also. Connectors are shown on the right-hand side of figure 15. The Power Connector JP5 is used to supply +5V DC to each Analyser in the chain. Allow 200mA @ 5V for each Analyser and ensure the wiring is adequate to supply the current without incurring large voltage drops. **For reliable operation it is necessary to have 5V at the Power Connector of each Analyser**.

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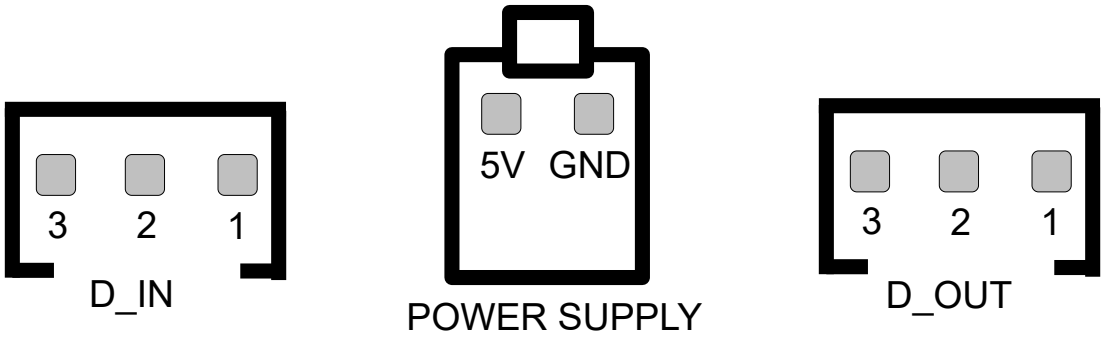
Daisy Chain Pin-out:



IN	D_IN	D_OUT
1	RX_in	RX_out
2	TX_out	TX_in
3	GND	GND

Figure 16.

Figure 16 shows the layout of the Connectors viewed from the edge of the board. The *GND* line of *D_OUT* is connected with the *GND* line of *D_IN*, the *RX_out* of *D_OUT* is connected to *RX_in* of *D_IN* and the line *TX_in* of *D_OUT* is connected to the line *TX_out* of *D_IN*.

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Plastic Optical Fiber Dimensions & Installing:

Description:

Having successfully mounted the Led Analyser unit in your fixture using the mechanical mounting details and wiring instructions provided the next step is probably the most critical to achieving good repeatable readings from your analyser.

Each analyser is provided with a corresponding number of Plastic Optical Fibers i.e. Feasa 20-I will have 20 Fibers where a Feasa 3-I will have 3 fibers etc. The Plastic Optical fiber used on the ICT and Functional Led Analyser Range is 1mm outside diameter with a single 0.5mm core.The Plastic Optical Fiber used in Low Light Analysers is 2.2mm with a single 1.5mm core.

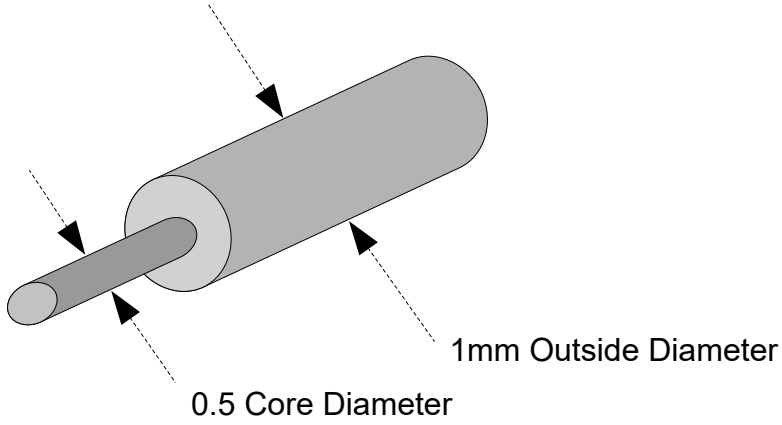

Figure 17a.

Some important characteristics of the fiber are as follows:-

- Minimum bend radius for 1mm Fiber is 15mm, and the 2.2mm fiber is 15mm.
- Operating temperature range of 1mm fiber -40° to +70° and the 2mm fiber being. -55° to +60° degrees Celsius.
- Fibers shipped from the factory are 600 – 650 mm in length.

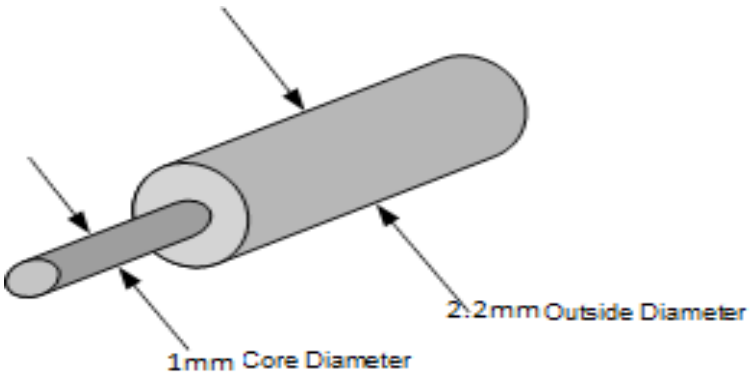

Figure 17b.

Cutting the 1mm Fiber:

The LED Analyser is supplied with pre-finished fiber ends so do not cut the fiber unless it is necessary. If there are unused fibers coil them up in the Fixture. They could be useful later if a fiber is broken. Sometimes, due to space constraints or the fiber end has been damaged, it will be necessary to cut the fiber. The procedure for cutting the fiber using the Feasa supplied Fiber Cutter is as follows:-

- Select the correct hole size for the fiber being cut.
- Pull up the razor blade, Push fiber into the selected aperture until the damaged region is approximately 2 mm beyond the razor blade. (figure 18a)

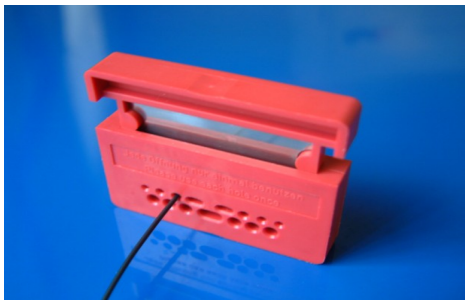

Figure 18a.

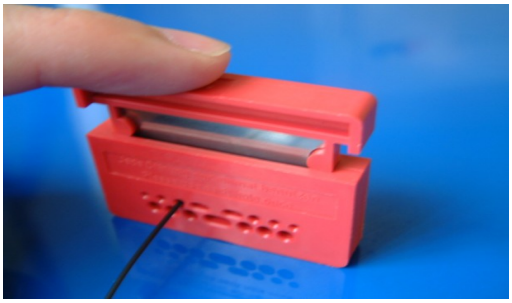

Figure 18b.

- Press down on the top of the razor blade until the fiber is cut through. (figure 18b)

Is is recommended that the (Red) Fiber Cutter supplied with the Led Analyser is only used to cut the Fibers for this analyser ONCE.

Cutting the 2.2mm Fiber:

The Low Light Analyser is supplied with pre-finished fiber ends so do not cut the fiber unless it is necessary. If there are unused fibers coil them up in the Fixture. They could be useful later if a fiber is broken. Sometimes, due to space constraints or the fiber end has been damaged, it will be necessary to cut the fiber. The recommended procedure for cutting the fiber is as described above for a 1mm Fiber with an extra step added where the fiber end must be polished:-

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Install Fiber Guide LA-REC-xx:

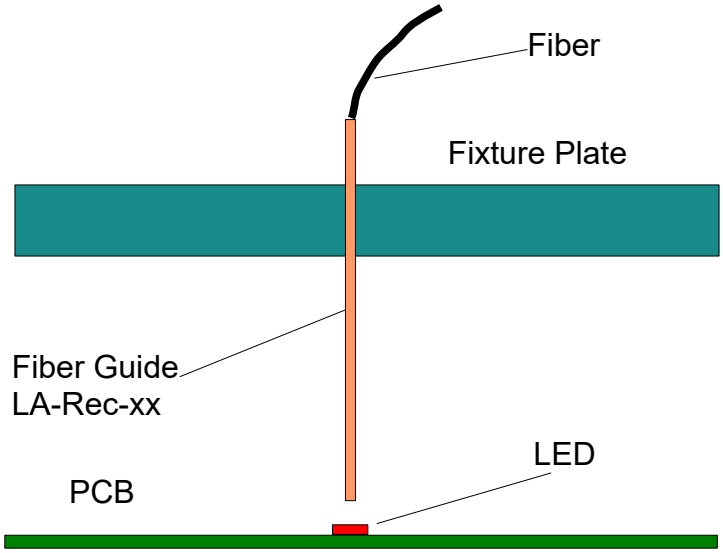

Figure 19.

1. Mount the Led Analyser into the Fixture using the dimension and wiring details provided in this document.

2. Locate the Led to be tested.

3. The Fiber Guide must be mounted over the LED to be tested. It must be located over the **Optical** centre of the LED (This is the spot where the light originates). This is not always the mechanical centre of the LED – it is often offset from the centre. The optical centre of the LED can be found in the mechanical drawing of the LED (usually found towards the end of the data sheet).

4. At this time you will need to decide how you want to locate your Plastic Optical Fiber over the Led to be tested. Feasa provide Fiber Guides **LA-REC-xx** with each unit. Proceed to step 5 now if you are using these Fiber Guides.
   Component placement accuracy can have an effect on intensity accuracy so Feasa provide a range of **Optical Heads** which improve the stability of intensity readings. Should you decide to use the optical head please refer to the section of this manual for mounting an Optical Head. (Refer to the Optical Head data sheet on the CD for more information)

5. Drill a hole over the xy location. The Diameter of hole depends on the hardness of the material you are drilling into perspex or G10 Fiberglass. A table of dimensions is available at Figure 22.

6. Insert one of the LA-Rec-xx Fiber Guides provided setting the height over the led as necessary. Set a gap of 3mm between the top of the LED and the bottom of the Guide initially. Do not fix the Fiber Guide permanently at this stage. It may be necessary to adjust the gap later during the debug phase.

7. Place the corresponding number fiber from the Led Analyser into this Guide and push through until it is flush with the end of the Fiber Guide. Do not cut the fiber at this time.

8. Repeat the process for each Led to be tested.

9. Coil away any unused fibers as they may be required at a later date for repairs etc.

10. Debug your program.

11. During debug you may be required to move the Fiber Guide closer or further away due to intensity readings. Please do so at this time without cutting the fiber.

12. When you are satisfied that all your Leds are testing OK you can then tidy up the fiber lengths. Remember the bend radius of the fiber is 15mm anything tighter will result in degrading of your results. Avoid using over tight tie wraps as they too will decrease your readings and possibly damage you fibers. If at this time you wish to shorten you fibers please follow the procedure for cutting the fibers above. This will also change your intensity readings so a minor debug of your program will be required.

13. The Fiber may be fixed permanently, **after debug has been completed**, with a glue such as Epoxy or Silicone.

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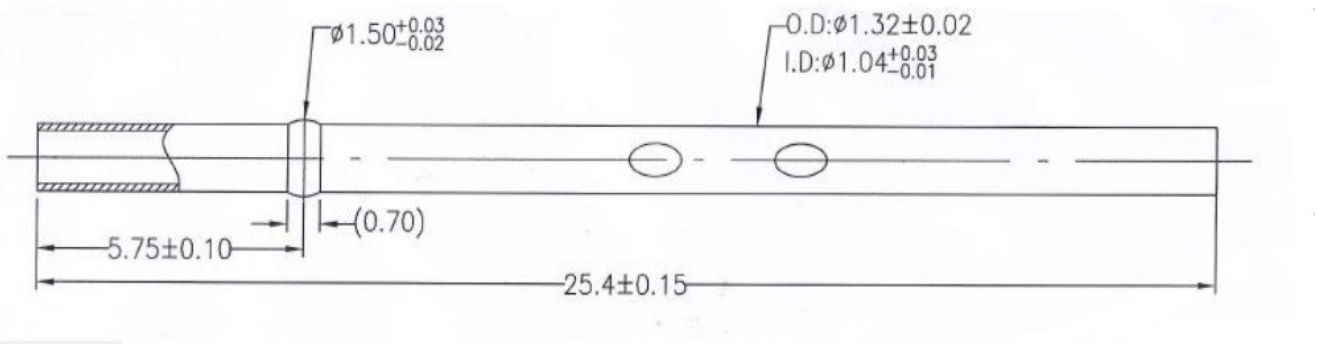
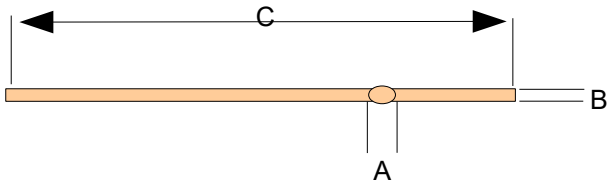
LA-REC-xx Sizes:

Feasa Part No: LA-REC-xx



MATERIAL:
Receptacle: Brass, Au (0.05um min) on Ni (2.0um min) Plated

LA-REC-xx



Part Number	Diameter A, Diameter B	Recommended Drill Size	Length
LA-Rec-xx	OD B=1.32mm ID B=1.05mm	1.35mm for perspex 1.40mm for G10 Fiberglass	C =25.4mm

Figure 22.

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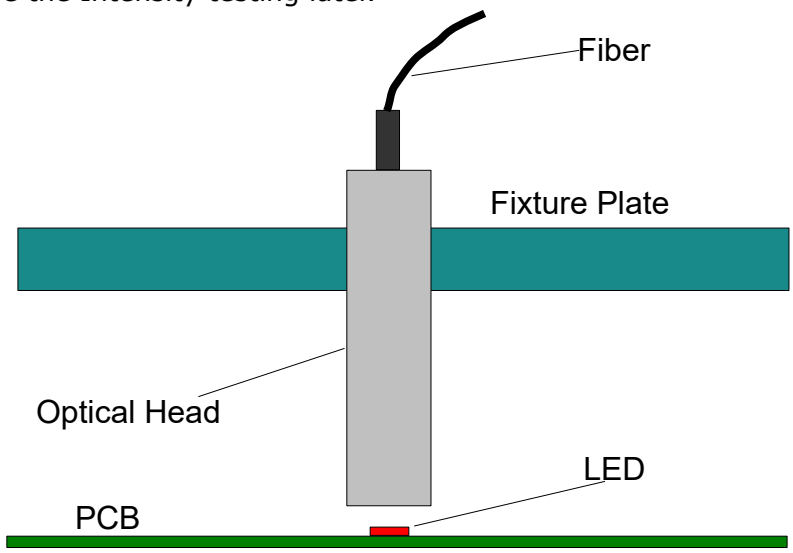
Install the Optical Head OH-x:

The Optical Head compensates for the variation in placement of LED's from board to board. This has a big effect when testing the LED Intensity. So if the Optical Head is not positioned correctly it could compromise the Intensity testing later.



Optical Head Positioned over PCB with LED

Figure 20.

1. Mount the Led Analyser into the Fixture using the dimension and wiring details provided in this document.

2. Locate the Led to be tested.

3. The Optical Head must be mounted over the LED to be tested. It must be located over the **Optical** centre of the LED (This is the spot where the light originates). This is not always the mechanical centre of the LED – it is often offset from the centre. The optical centre of the LED can be found in the mechanical drawing of the LED (usually found towards the end of the data sheet).

4. Drill a mounting hole over this xy location. The Diameter of hole depends on the hardness of the material you are drilling into and the type of Optical Head you are using. Please refer to Figure 21 for details.

5. *Intensity is a measure of the amount of light being emitted by the LED. The Analyser tests the Intensity of each LED and outputs this value to the Test System. The value is output as a number in the range **0 - 99,999**. The Analyser is calibrated to a fixed standard and all measurements are relative. The Intensity output reading is NOT part of the International System of Units and is not an absolute or traceable unit of colour measurement. It is part of the Feasa intensity system of describing colour brightness.*

6. Place the corresponding number fiber from the Led Analyser into the Optical Head. Loosen the Black Screw on the end of the Optical Head and push the Fiber down gently until the stop is reached. Tighten the screw by hand to secure the fiber in place. Do not over tighten the screw. Do not cut the fiber at this time.

7. Typically we recommend to push the fiber fully into the Optical Head, this allows for easy maintenance and repair in production. However during debug you may require higher or lower Intensity readings due to the brightness of the Led under test. Thus it may be required to pull the Fiber out to reduce intensity readings required. The further you pull the fiber back the lower the intensity reading. The Maximum Intensity will be found by pulling the fiber back between 0.5 and 1mm from the stop position.
8. Repeat the process for each Led to be tested.
9. Coil away any unused fibers as they may be required at a later date for repairs etc.
10. Debug your program.
11. Typically we recommend a space of between 3-5mm from the OH to the LED however during debug you may be required to move the Optical Head closer or further away due to intensity readings. (Please refer to No 6 above for further changes). Please do so at this time without cutting the fiber.
12. When you are satisfied that all your Leds are testing OK you can then tidy up the fiber lengths. Remember the bend radius of the fiber is 15mm anything tighter will result in degrading of your results. Avoid using over tight tie wraps as they too will decrease your readings and possibly damage you fibers. If at this time you wish to shorten you fibers please follow the procedure for cutting the fibers above. This will also change your intensity readings so a minor debug of your program will be required.
13. The Optical Head may be fixed permanently, **after debug has been completed**, with a glue such as Epoxy or Silicone.

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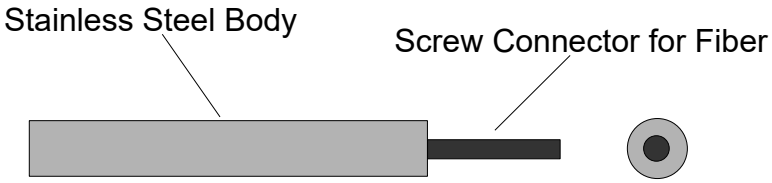
Optical Head Sizes:



Temperature Specifications:

All Optical Heads: Temperature Range 0C – 70C

OH-7LT, OH-10G-xxx: Temperature Range -65C - +125C

Part No	Body Diameter - Imperial	Body Diameter - Metric	Drill Size in G10	Overall Length (inc. Screw holder if applicable)	Minimum Centre to Centre Distance	Fiber	Comments
OH-1	0.120 +/- .001	3.022 – 3.048 mm	3.02mm	40mm	3.5mm	**POF 1mm**	**Diameter 3mm**
OH-24	0.120 +/- .001	3.022 – 3.048 mm	3.02mm	40mm	3.5mm	**POF 1mm**	90°
OH-5	0.141 +/- .001	3.556 – 3.607 mm	3.55mm	49mm	4mm	**POF 1mm**	**Diameter 3.55mm**
OH-5S	0.141 +/- .001	3.556 – 3.607 mm	3.55mm	28mm	4mm	**POF 1mm**	Short (OH5)
OH-3	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	50mm	5mm	**POF 1mm**	**Diameter 4.55mm**
OH-2S	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	30mm	5mm	**POF 1mm**	Short (OH3)
OH3-RGB	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	50mm	5mm	**POF 1mm**	RGB Led Test
OH-4	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	59mm	5mm	**POF 1mm**	90°
OH-4S	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	39mm	5mm	**POF 1mm**	Short (OH4)
OH-23	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	51mm	5mm	**POF 1mm**	Super High Bright Intensity
OH-33	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	50mm	5mm	**POF 1mm**	High Bright Intensity
OH-7LT	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	40mm	5mm	**Glass 1.1mm**	**Diameter 4.55mm**
OH-7D	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	40mm + 2 Fibers 60cm	5mm	**Optional**	Dual fiber
OH-8IR	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	50mm	5mm	**Glass 1.1mm**	Suitable for Infra Red
OH-6	0.315 +/- .001	7.975 – 8.026 mm	8.00mm	51mm	9mm	**POF 1mm**	**Diameter 8.00mm**
OH-6N	0.315 +/- .001	7.975 – 8.026 mm	8.00mm	50mm	9mm	**POF 1mm**	Standard Int.
OH6-RGB	0.315 +/- .001	7.975 – 8.026 mm	8.00mm	50mm	9mm	**POF 1mm**	RGB Led Test
OH-26	0.315 +/- .001	7.975 – 8.026 mm	8.00mm	52mm	9mm	**POF 1mm**	Super High Bright Int.
OH-9RF	0.257 +/- .002	6.25 – 6.55 mm	6.55mm	50mm	7mm	**POF 1mm**	RF Testing
OH-10	0.037 +/- .0025	0.876 – 1.003 mm	1.00mm	52mm + Fiber 60cm	1.5mm	**POF 1mm**	High Bright Int.
OH-10G-xxx	0.037 +/- .0025	0.876 – 1.003 mm	1.00mm	52mm + Fiber xxx cm	1.5mm	**Glass 1.1mm**	High Bright Int. With Glass Fiber

OH-11	0.0357 +/- .0003	0.899 – 0.914 mm	0.90mm	35mm + Fiber 60cm	1.1mm	**POF 1mm**	High Bright Int.
OH-12	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	29mm	5mm	**POF 2.2mm**	**Diameter 4.55mm**
OH-13	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	37mm	5mm	**POF 2.2mm**	Low Light Analyser
OH-14	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	45mm	5mm	**POF 2.2mm**	90°
OH-14S	0.180 +/- .002	4.521 – 4.623 mm	4.55mm	32mm	5mm	**POF 2.2mm**	Short (OH14)
OH-16	0.405 +/- .005	10.16 – 10.41 mm	10.2mm	51mm	11mm	**POF 2.2mm**	Fiber Holder 2.2mm

Figure 21.

Notes:

* OH-7LT is recommended for use with Life Test Analyser and the Fiber must be glued in place.
* OH-10, OH-11 are supplied with the fiber attached and are recommended to use with the High Bright Analysers.
* OH-12, OH-13, OH-14, OH-14S are to be used with Low Light Analyser and the Fiber must be glued in place.
* OH-16 are to be used with Low Light Analyser is manufactured from PVC.
* OH9RF is manufactured from PVC and can be used in RF environments.

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Fix a Glass Fiber from the Led Analyser to the Feasa OH without Fiber holder

1.0 Follow the instructions on the packet for mixing and dispensing an Epoxy.

1.1 Strip the outer insulation from approx 25mm of the glass fiber

1.2 Ensure the end of the Fiber is clean of any debris.

1.3 Push the fiber through the opening on the top of the Optical Head until it is in as far as possible. Then retract approx 2-3mm

1.4 Dab a drop of the Epoxy onto the Fiber at the opening of the OH.

1.5 Push the Fiber back in the 2mm and apply another dab all around the optical head fiber junction.

1.6 Twist the Optical Head to ensure an even coating of the epoxy is all around the joint.

1.7 Allow the Epoxy to cure as per the instructions on the pack.

1.8 Repeat for all Fibers and Optical Heads.

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Fix a 2.2mm POF from the Low Light Analyser to the Low Light Optical Head Series

1.0 Follow the instructions on the packet for mixing and dispensing the Epoxy.

1.1 Ensure the end of the fiber is clean. Do not cut the fiber length as supplied by Feasa as doing can effect the accuracy of the Analyser. Should you need to cut the fiber please run the Feasa supplied balancing or usercal software to compensate.

1.2 Push the fiber through the opening on the top of the Optical Head until it is in as far as possible. Then retract approx 2-3mm

1.3 Dab a drop of the Epoxy onto the Fiber at the opening of the OH.

1.4 Push the Fiber back in the 2mm and apply another dab all around the optical head fiber junction.

1.5 Twist the Optical Head to ensure an even coating of the epoxy is all around the joint.

1.6 Allow to bond for 10 – 15min

1.7 Repeat for all Fibers and Optical Heads.

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Clean the Feasa Optical Head or Glass Fiber

Using Cotton swabs (*Farnell reference* *https://ie.farnell.com/chemtronics/ct200/swab-cleaning-cotton-dble-headed/dp/1885604*), dip the swab into Isopropyl Alcohol (Farnell reference *http://ie.farnell.com/servisol/200005000/cleaning-solution-ipa-1l/dp/3821560*). Gently clean the end of the optical head or Glass Fiber using the swab until all dirt or contamination is removed from. Do NOT immerse the optical head in the Isopropyl Alcohol. The cleaning procedure should be repeated when necessary.

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