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# LED TEST

FEASA LED ANALYSER

## CONTENTS

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<b>3</b>	Specialist fixture solutions
<b>3</b>	Long-lasting, stable partnership
<b>4</b>	Functional Analyser (FKT)
<b>4</b>	In Circuit Test Analyser (ICT)
<b>5</b>	Infrared Analyser
<b>5</b>	Low Light Analyser
<b>6</b>	High Bright Analyser
<b>6</b>	LED Life Analyser
<b>7</b>	RGB LED Analyser
<b>8</b>	Infrared Analyser
<b>9</b>	Legend
<b>10</b>	Display Analyser
<b>11</b>	Optional accessories

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## SPECIALIST FIXTURE SOLUTIONS

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ATX is Europe's market leader in the manufacture of test fixtures for electronic test procedures.

Why you too should choose an ATX fixture - it's simple:

### TECHNICAL KNOW-HOW

Our sales team is technically well versed - our consultants are selected from the design team or other technical departments.

### PROJECT KNOW-HOW

We work together with you towards a common goal: to find and implement the optimal solution for your individual testing requirements.

### KNOWLEDGE BASE

Our employees bring well over 1,000 man-years of fixture building experience to the team.

# SINCE 1997

## LONG-LASTING, STABLE PARTNERSHIP

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### ATX HARDWARE GMBH WEST AND FEASA ENTERPRISES LIMITED

Two can provide more expertise and specialisation than one!

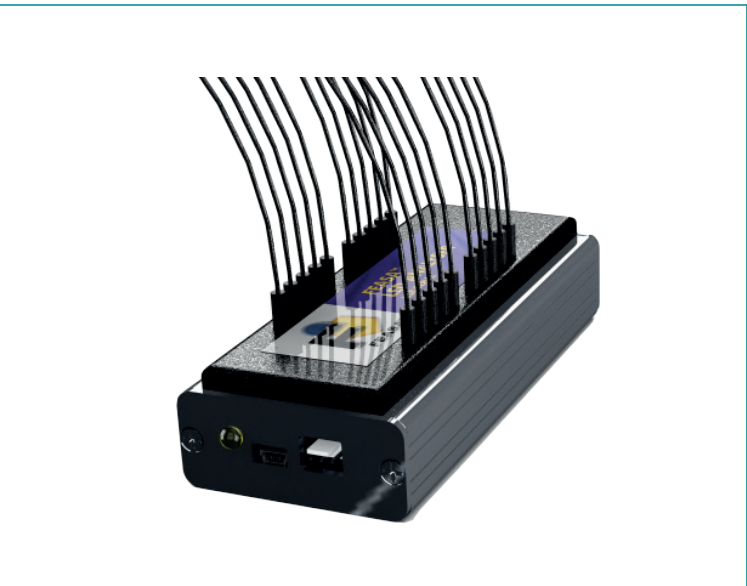
ATX is established specialist with extensive experience in all aspects of fixture technology. It is our aim to provide you with excellent, efficient and productive fixture performance. According to these criteria, we also search our suppliers specifically. In Feasa Enterprises we found a strong partner for the LED check tasks. The Feasa LED analyser are an innovative, reliable and precise solution for the test of LEDs on color and intensity. Compact robust and easy to implement.

### Ideal solution for our customers

The Feasa analyser checks for example 100 LEDs in less than three seconds.

The speed of the test is dependent on the intensity of the LEDs being tested, i.e. bright LEDs have a shorter test time, dimmer LEDs have a longer test time. The capture (measurement) of up to 20 LEDs is done in parallel and can be achieved in times as fast as 102 ms depending on the intensity (brightness). The data is read back from each fiber sequentially and takes approximately 5 ms per fiber.

# FUNCTIONAL ANALYSER (FKT)



Order number	Designation
570027	Feasa 3F LED Analyser without OH ´s
570042	Feasa 5F LED Analyser without OH ´s
570011	Feasa 10F LED Analyser without OH ´s
570015	Feasa 20F LED Analyser without OH ´s

The Feasa Functional Analyser (FKT) is available in 3, 5, 10 and 20 channel configurations. Interfaces for this are USB, RS232 or daisy-chaining - several LED analysers can be connected via the daisy-chain ports. Only one RS232 serial port is needed to connect up to 30 LED analysers.

The 3, 5 and 10 channel units measure 86 mm x 57 mm x 50 mm - whereas the 20 channel model measures 127 mm x 57 mm x 55 mm.

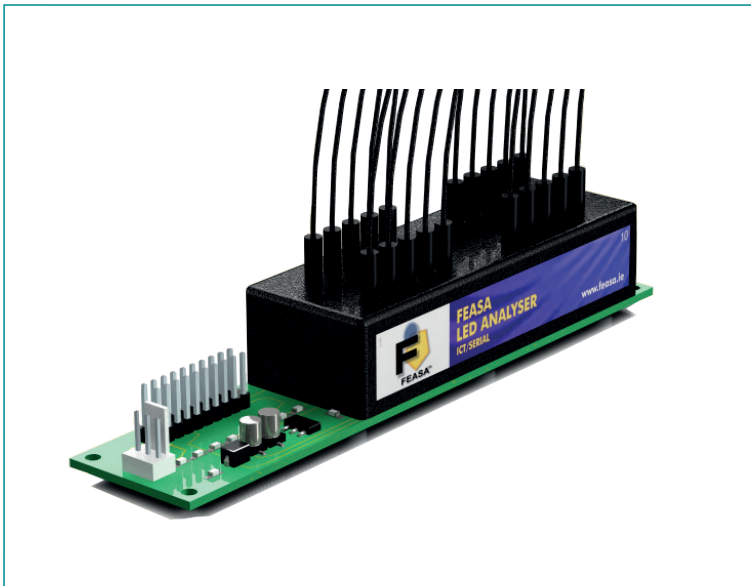
Each channel has a fibre length of 0.6 m, with the fibre having a diameter of 1.0 mm and allowing a bending radius of 15 mm.

The analyser is designed for a wavelength range from 450 nm to 650 nm and a temperature range from 0 °C to +50 °C.

**OUTPUT:** Red, green, blue (RGB), hue, saturation, intensity (HSI), dominant wavelength, CCT, CIE xy, CIE u´v depending on the interface

**DRIVER SOFTWARE:** DDL for testing, function sequence input Labview, C++

# IN CIRCUIT TEST ANALYSER (ICT)



Order number	Designation
570026	Feasa 3I LED Analyser without OH ´s
570028	Feasa 5I LED Analyser without OH ´s
570012	Feasa 10I LED Analyser without OH ´s
570016	Feasa 20I LED Analyser without OH ´s

The Feasa In Circuit Analyser (ICT) is available in 3, 5, 10 and 20 channel configurations. Interfaces for these are RS232 or 20-pin port. This model can also be „triggered“ by a trigger.

The 3, 5 and 10 channel units measure 100 mm x 29 mm x 50 mm - while the 20 channel model measures 140 mm x 29 mm x 50 mm.

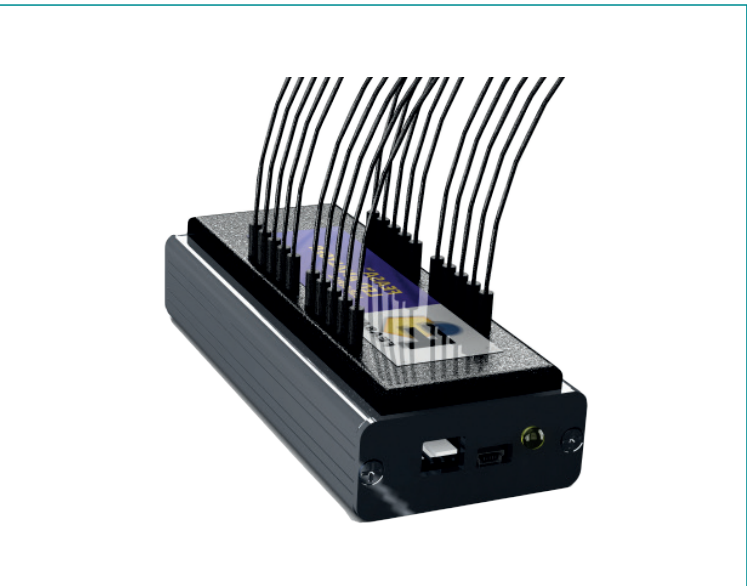
Each channel has a fibre length of 0.6 m, with the fibre having a diameter of 1.0 mm and allowing a bending radius of 15 mm.

The analyser is designed for a wavelength range of 450 nm to 650 nm. range of 450 nm to 650 nm and a temperature range of 0 °C to +50 °C..

**OUTPUT:** Red, Green, Blue (RGB), Hue, Saturation, Intensity (HSI), Dominant Wavelength, CCT, CIE xy, CIE u´v depending on interface

**DRIVER SOFTWARE:** Test model for Agilent i3070, test code for Teradyne, DLL for testing, function sequence input Labview, C++

# INFRARED ANALYSER



Order number	Designation
570001	Feasa 3IR Infrarot LED Analyser without OH´s
570002	Feasa 10IR Infrarot LED Analyser without OH´s
570018	Feasa 20IR Infrarot LED Analyser without OH´s

The Infrared LED Analyser contains a specially selected and processed fibre to be used in conjunction with the Optical Head, which is specifically designed for infrared LED testing.

Ideal for security and surveillance applications. The analyser is available in 3, 10 and 20 channel configurations. Interfaces for these are USB, RS232 or daisy-chaining - multiple LED analysers can be connected together via the daisy-chain connectors. Only one RS232 serial port is needed to connect up to 30 LED analysers.

The 3 and 10 channel units measure 86 mm x 57 mm x 55 mm - while the 20 channel model measures 127 mm x 57 mm x 55 mm.

Each channel has a fibre length of 0.6 m. The fibre has a diameter of 1.04 mm ± 0.03 mm and allows a bending radius of 15 mm.

The analyser is designed for a wavelength range of 700 nm to 950 nm and a temperature range of 0 °C to +50 °C. With an accuracy of ± 10 nm for 700 nm to 900 nm wavelength and ± 20 nm for 900 nm to 950 nm; repeatability < 1 nm of wavelength and < 1 % of intensity.

# LOW LIGHT ANALYSER



Order number	Designation
570076	Feasa 3A LED Analyser without OH´s
570077	Feasa 5A LED Analyser without OH´s
570025	Feasa 6A LED Analyser without OH´s
570078	Feasa 10A LED Analyser without OH´s

The Feasa Low Light Analyser is specifically designed for testing LED backlights of a switch or panel located within a plastic enclosure. The analyser tests the intensity, uniformity, xy chromaticity, dominant wavelength and CCT of the LEDs accurately, reliably and quickly. The Low Light Analyser ist available in 3, 5, 6 and 10 channel configurations.

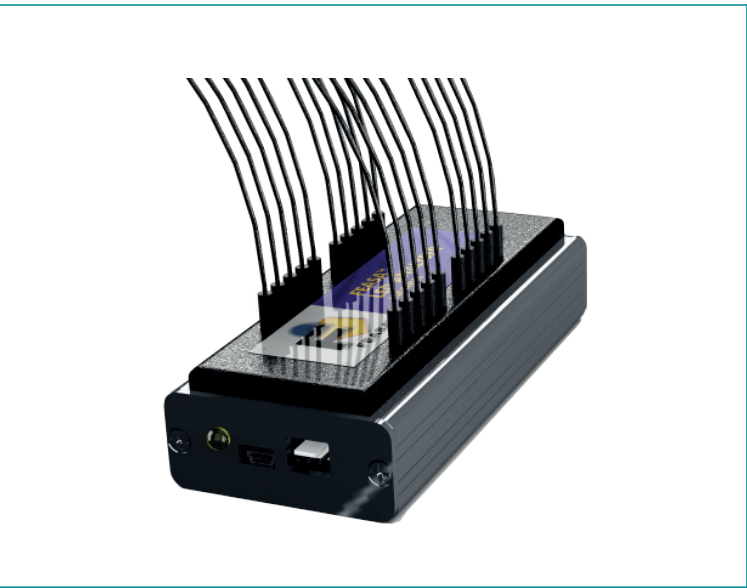
The 3, 5 and 6 channel units measure 105 mm x 55 mm x 50 mm - whereas the 10 channel model measures 145 mm x 55 mm x 50 mm.

Each channel has a fibre length of 0.6 m, with the fibre having a diameter of 2.2 m and allowing a bending radius of 15 mm.

The operating range is a minimum luminance of < 0.5cd/m², a maximum luminance of < 1000 cd/m² and a temperature range of 0 °C to +50 °C. With an accuracy of ± 0.01 @ x=0.33, y=0.33 and repeatability of ± 0.002 and < 1% of intensity.

**SOFTWARE:** GUI (included in delivery), command line interface, C, C++, DLL, supports Labview

# HIGH BRIGT ANALYSER



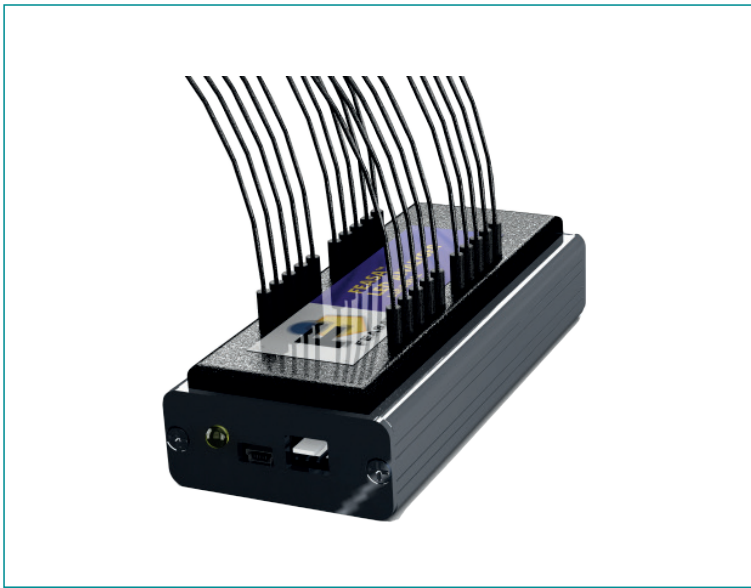
Order number	Designation
570061	Feasa 3B High Brightness LED Analyser without OH´s
570066	Feasa 3B High Brightness LED Analyser without OH´s
570062	Feasa 10B High Brightness LED Analyser without OH´s
570057	Feasa 20FB High Brightness LED Analyser without OH´s

The Feasa High Bright Analyser was specially designed for testing automotive LED headlights. It is suitable for very bright LEDs and can measure them up to 800 lumen. It is also designed for OH with very low numerical aperture, where the working range is a minimum luminous flux of 1 lumen per channel and a maximum luminous flux of 800 lumen.

The High Bright Analyser is available in 3, 5, 10 and 20 channel configurations. The model is available for Functional (FB) and In Circuit (IB) tests. Interface options are USB, Serial, Daisy-Chain and ICT interface.

**SOFTWARE:** GUI (included in delivery), command line interface C, C++, DLL, supports Labview

# LED LIFE ANALYSER



Order number	Designation
570079	Feasa 3LT LED Life Analyser without OH´s
570080	Feasa 6LT LED Life Analyser without OH´s
570081	Feasa 10LT LED Life Analyser without OH´s
570082	Feasa 20LT LED Life Analyser without OH´s

In order to be able to better test the service life of LEDs, Feasa developed the LED Life Analyser, which enables the measurement of LED values under extreme temperatures. This model can measure at temperatures from -65 °C to +125 °C.

The fibres used in the Life Analyser are specially designed for use at extreme temperatures. Specific optical heads, made of selected materials, have been designed to withstand the high temperatures.

The Feasa Life Analyser is available in 3, 5, 10 and 20 channel configurations. Interfaces are USB, RS232 and daisy-chain.

The associated test software continuously tests the LEDs at fixed time intervals and stores the results on the hard disk. In addition, the software can send updates via e-mail.

# RGB LED ANALYSER



Order number	Designation
579030	Feasa 3RGB LED Analyser
579031	Feasa 5RGB LED Analyser
579032	Feasa 6RGB LED Analyser
579033	Feasa 10RGB LED Analyser

The Feasa RGB LED Analyser was designed for measuring RGB LEDs, RGB LED backlit switches and panels where the light is travelling through etched or painted plastic panelling, such as on car dashboards.

This analyser tests for intensity, homogeneity, xy chromaticity, dominant wavelength and CCT accurately, reliably and quickly.

The RGB LED Analyser is available in 3, 5, 6 and 10 channel configurations. Each channel fiber has a length of 0.6 m, the fiber has a diameter of 2.2 mm, including cladding, and a bend radius of 50 mm. Operating from a luminance of 0.5 cd/m<sup>2</sup> and a maximum luminance of 1000 cd/m<sup>2</sup> and temperature of 0-50 °C. Accurate to  $\pm 0.01$  @  $x=0.33$ ,  $y=0.33$  for monochromatic and RGB colours, with repeatability of  $\pm 0.002$  and  $< 1\%$  of intensity.

Interface options are USB, Serial and Daisy-Chain.

**SOFTWARE:** Set up software provided, command line interface C, C++, DLL, Labview support

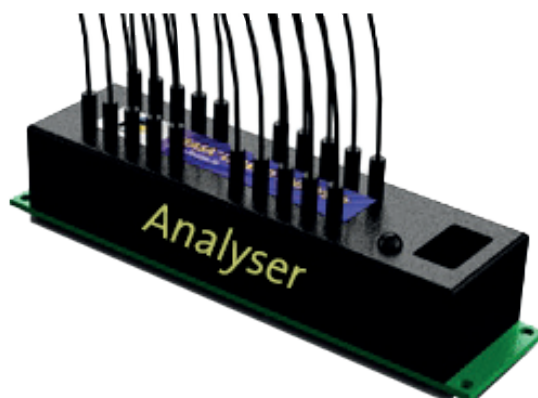
# INFRARED ANALYSER



Order number	Designation	Scope of application
570056	Feasa OH-1 Optical Head, Dia = 3,55 mm	Can also be used if the LEDs only have a distance of 3.55 mm (from centre to centre) on a PCB.
571020	Feasa OH-2S Optical Head, Dia = 4,55 mm	Can be used even with fixture height restrictions due to its short length of only 25 mm.
571016	Feasa OH-3 Optical Head, Dia = 4,5 mm	Our standard optical head; suitable for most applications with a 5 mm centre-to-centre distance.
571017	Feasa OH-4 Optical Head, Dia = 4,55 mm	Ideal for LEDs with 90 ° or lateral emission.
571019	Feasa OH-5 Optical Head, Dia = 3,55 mm	Used when the LEDs only have a distance of 4.00 mm (from centre to centre) on a PCB.
572005	Feasa OH-6 Optical Head, Dia = 8 mm	Designed for testing high brightness LEDs and large diameter LEDs, are particularly suitable for lamps used in daylight.
571022	Feasa Optical Head OH-7LT, Dia = 4,55 mm	For use in an oven in conjunction with the LED Life Tester. The temperature range of this optic head is from -65 °C to +125 °C.
572010	Feasa Optical Head OH-8IR, Dia = 4,55 mm	Designed to test the intensity of infrared LEDs in conjunction with the IR LED Analyser.
571021	Feasa Optical Head OH-9RF, Dia = 6,55 mm	This optic head is suitable for use in RF environments.
570071	Feasa OH-10 Optical Head (Plastic), Dia = 1,00 mm	The OH-10 is suitable for bright and close-to-centre LEDs. suitable. 1.3 mm (from centre to centre).
571023	Feasa OH-11 Optical Head, Dia = 0,95 mm	The OH-11 is suitable for very bright LEDs that are very close to the centre point. 1.00 mm (from centre to centre).
571024	Feasa OH-13 Optical Head, Dia = 4,55 mm	Designed for testing LEDs with low brightness, they are particularly suitable for display backlights and panels.
570070	Feasa OH-16 Optical Head, Dia = 10,2 mm	Designed for testing low brightness LEDs and large diameter LEDs, they are particularly suitable for display backlights and panels.
579034	Feasa OH-34 Optical Head	For testing side-emitting LEDs that are located as close as 10 mm centre to centre on a pcb.
579035	Feasa OH-34A Optical Head	For testing side-emitting LEDs that are located as close as 10 mm centre to centre on a pcb.
579036	Feasa OH-36 Optical Head	For testing high intensity LEDs with the Feasa Low Light LED Analyser. Minimum LED centre to centre distance on a pcb 9 mm.
579037	Feasa OH-36A Optical Head	For testing high intensity LEDs with the Feasa Low Light LED Analyser. Minimum LED centre to centre distance on a pcb 9 mm.



## LEGEND



### INNOVATIVE SOLUTION

#### For applications with a large number of LEDs

The Feasa Legend is an innovative solution with numerous advantages for applications with a large number of LEDs. The Feasa Legend system comprises two components, a hub and an LED analyser. The hub can be mounted on a test station or in the test fixture. The Legend can control up to eight LED analysers. Each LED analyser can test up to 20 LEDs and a fully loaded hub can test up to 160 LEDs. For a larger number of LEDs, several hubs can be combined.

The Feasa Legend is available in 60, 80, 100, 120, 140 and 160 channel configurations.

The Legend Hub measures 130 mm x 55 mm x 30 mm - whereas the Legend Analyser measures 120 mm x 29 mm x 50 mm

Each channel has a fibre length of 0.6 m. The fibre has a diameter of 1.00 mm including cladding and a bending radius of 15 mm. The analyser is designed for a wavelength range from 450 nm to 650 nm and a temperature range from 0 °C to +50 °C.

#### STABLE READOUT VALUES FOR INTENSITY AND COMMON COLOUR RANGES:

Hue, Saturation Intensity (HSI), Dominant Wavelength, Correlated Colour Temperature (CCT)

#### DIVERSE/SOFTWARE:

DLL for testing, function sequence input Labview, C++

In addition, Feasa offers some further programs to use the analyser as efficiently as possible.

Order number	Designation
570083	Feasa Legend 60 System without OH's
570038	Feasa Legend 80 System without OH's
570084	Feasa Legend 100 System without OH's

Order number	Designation
570085	Feasa Legend 120 System without OH's
570086	Feasa Legend 140 System without OH's
570087	Feasa Legend 160 System without OH's



## AUTOMOTIVE DISPLAYS

### Test of luminance, colour and contrast ratio

The Feasa Display Analyser is able to test the luminance, colour and contrast ratio of an automotive display. This analyser consists of a measuring head, fibre optic cable and a multi channel sensor module. The Feasa Display Analyser is available in 3, 6 and 10 channel configurations. The number of channels of a multi-channel module can be additionally increased via the daisy-chain connection.

The values range from a minimum luminance of 0.01 cd/m<sup>2</sup> and a maximum luminance of 10,000 cd/m<sup>2</sup>, contrast ratio is 200,000:1, display homogeneity in cd/m<sup>2</sup> and xy colour value. The temperature range is 0 °C to +40 °C.

The units with 3 and 6 channels measure 86 mm x 57 mm x 55 mm - the model with 10 channels, on the other hand, measures 124 mm x 57 mm x 75 mm. Each channel has a fibre length of 0.6 m, with the fibre having a diameter of 5.2 mm and allowing a bending radius of 25 mm.

#### DRIVER/SOFTWARE:

GUI (included in delivery), command line interface C, C++, DLL, supports Labview

Order number	Designation
571025	Feasa Display Analyser 3D without OH's
571026	Feasa Display Analyser 3D without OH's
571027	Feasa Display Analyser 10D without OH's

## OPTIONAL ACCESSORIES

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### LED-SPECTROMETER

#### For tests of LEDs on assembled PCBs with restricted access

For Feasa LED spectrometer has been specially designed for testing LEDs on assembled PCBs with restricted access. The Feasa LED spectrometer includes customised on-board firmware for automatic colour calculation at different colour ranges. It uses a similar user-friendly command set as the Feasa LED Analyser. When quality requires traceable measurements, the Feasa LED spectrometer offers an ideal solution. Traceable measurements can be achieved for luminous flux (lumens) and wavelength. The spectrometer can be used in conjunction with all Feasa LED analysers to ensure that the production facility meets customer requirements.

The analyser is designed for a wavelength range of 380 nm to 780 nm and a temperature range of 0 °C to +40 °C. The spectrometer measures 86 mm x 57 mm x 50 mm and is connected to its accessories via a 0.6 m cable, with a diameter of 5.1 mm including cladding.

The spectrometer can be controlled via PC programs. The measurements can easily be transferred to the current model plate of the Feasa LED Analyser.

### FURTHER SPECIAL ACCESSORIES

#### For absolute and traceable measurements

In combination with the Feasa LED spectrometer, they provide absolute and traceable measurements for chromaticity and intensity.

#### FEASA LUMINANCE HEAD

Colour value and luminosity



#### FEASA LUMINOUS INTENSITY HEAD

Colour value, luminosity and radiant intensity



#### FEASA INTEGRATING SPHERES

Colour value, luminous flux and electricity





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