



Optical Probes and Measuring Cells

FOR UV/VIS/NIR/IR/RAMAN SPECTROSCOPY

FOR LABORATORY, PILOT PLANT AND PROCESS ANALYTICS **(PAT)**

MADE IN GERMANY



Reliable and Safe Measurement Results in Optical Analytics

For over 100 years **Hellma** has been the world's leading supplier of UV|Vis|NIR spectroscopy cuvettes for laboratory analytics and is now also a solution specialist in process analytical technology for a wide range of applications in research and industry. Products and services of the **Hellma Analytics** and **Hellma Solutions** brands provide the basis for precise and reliable measurement results in laboratory and process and thus safe and high-quality end products in the chemical, pharmaceutical, life science, food and beverage, cosmetics, environment, energy, technology and research industries.

Eight Hellma sales subsidiaries worldwide and over 200 international points of sales are available to customers for direct contact. Hellma is valued worldwide for its high performance, consulting competence and well-proven products.

100% Made in Germany.

www.hellma.com



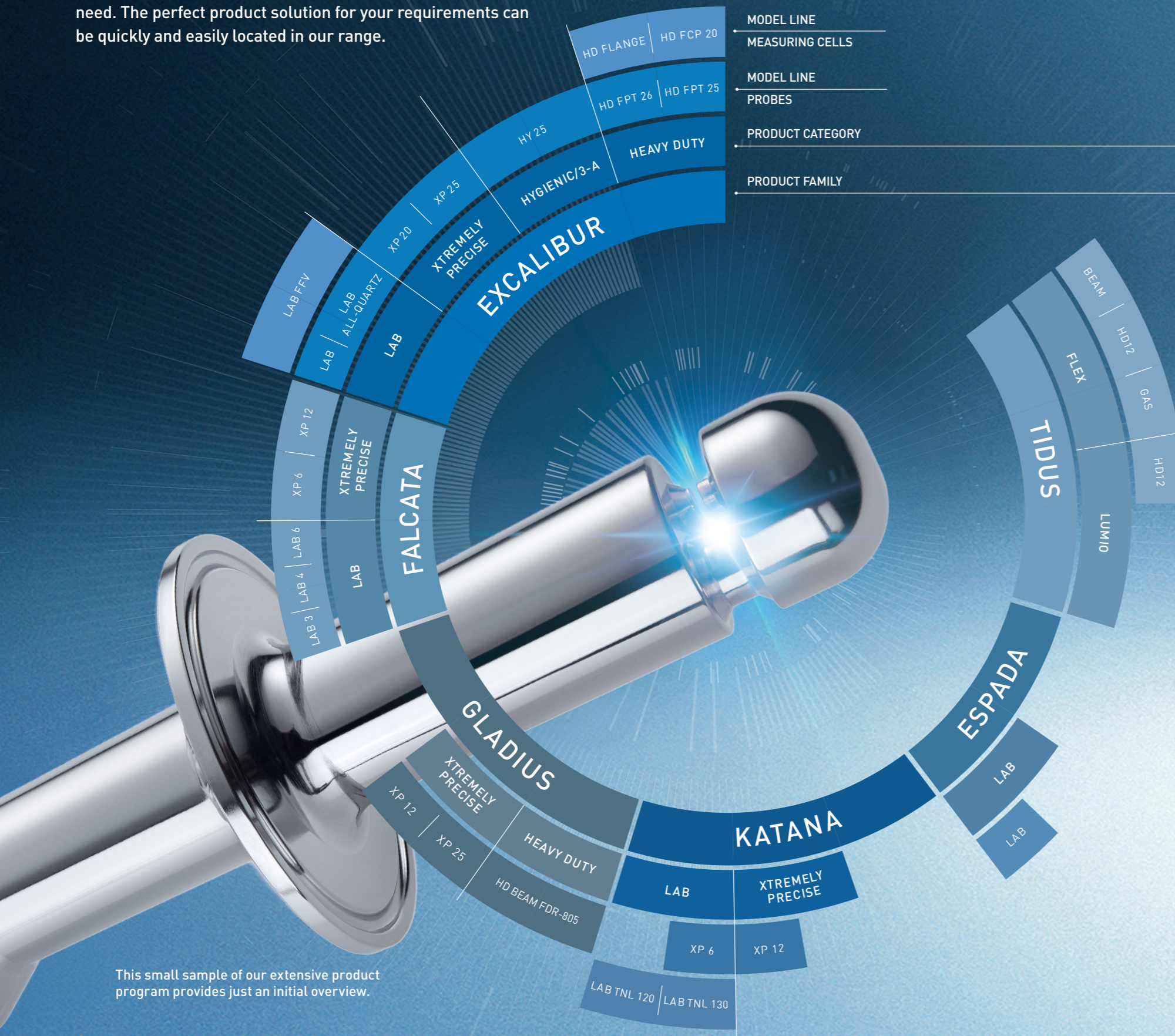
Our wide-ranging experience means that our product solutions are extremely diverse and perfectly designed to meet your needs.

- Probes and measuring cells for UV/Vis/NIR/IR/Raman spectroscopy
- Products for use in liquids, powders, gases, solids and pastes
- Customized technology for lab and process applications
- Patented sealing technology to withstand the harshest process conditions



VARIED PORTFOLIO. CLEAR STRUCTURE.

Hellma's product structure makes it simple to find what you need. The perfect product solution for your requirements can be quickly and easily located in our range.



HELLMA
PRODUCT FAMILIES
each presents a measuring principle from our product range

HELLMA
PRODUCT CATEGORIES
facilitate product search by application

EXCALIBUR
Measuring principle: Transmission

FALCATA
Measuring principle: Transflection

GLADIUS
Measuring principle: Reflection

KATANA
Measuring principle: Attenuated Total Reflection (ATR)

ESPADA
Measuring principle: Fluorescence

TIDUS
Measuring principle: Raman

LAB

FIELD OF APPLICATION:
Laboratory
PARTICULARLY SUITABLE FOR:
small volumes
CHARACTERIZED BY:
high transmission

XTREMELY PRECISE

FIELD OF APPLICATION:
Process and pilot plant
PARTICULARLY SUITABLE FOR:
Measurements with high reproducibility
CHARACTERIZED BY:
very high accuracy of path length and excellent transmission

HEAVY DUTY

FIELD OF APPLICATION:
Process analysis (PAT)
PARTICULARLY SUITABLE FOR:
rough process conditions
CHARACTERIZED BY:
high pressure and temperature resistance

This small sample of our extensive product program provides just an initial overview.

TIDUS LUMIO

LASER-INTEGRATED ATEX RAMAN PROBE

NEW



Laser source on board (532 nm)

Applications range from laboratory research to large-scale manufacturing

Works together with almost any Raman spectrometer

Operation even with sensitive Vis spectrometers for qualification purposes

Multiple process interface configurations possible

Excellent for upstream and downstream processes

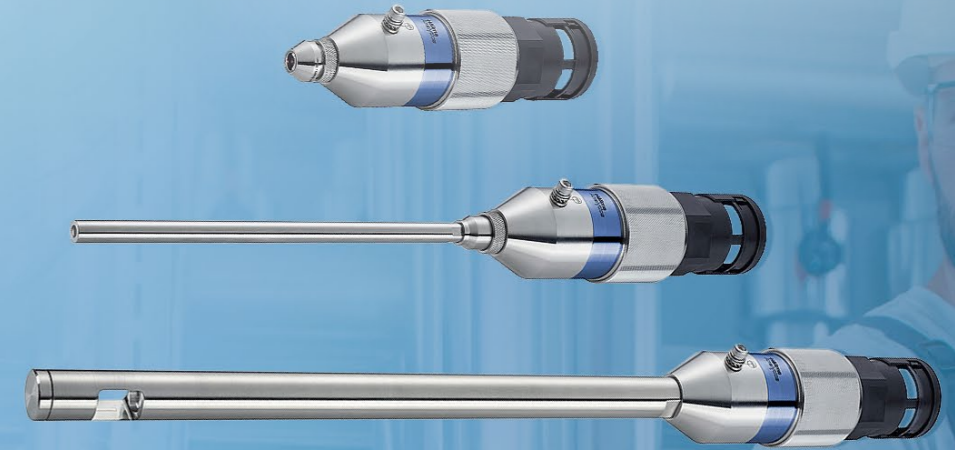
Thus, affordable Raman systems can be upgraded for ATEX use



Perfect for **Instrument Manufacturers, System Integrators** to extend their portfolio or **Endusers** with spectroscopy knowledge.

TIDUS FLEX

RAMAN PROBE FOR SOLIDS, LIQUIDS AND GASES



The Tidus Flex is a Raman probe that ensures highest flexibility in terms of easy adjustment to ensure operability with several Raman spectrophotometers and process interfaces for almost any type of samples.

- For use in liquids and solid samples as well as gases and vapors
- Can be easily connected to standard Raman spectrophotometers via fibre optic cables
- Unique flexibility based on the combination of standardized optical head and interchangeable filter modules and objective lens assemblies
- Typical use in lab, pilot scale and process environments
- Perfect in biopharma, chemical and petrochemical applications
- Designed to enable ATEX-compliant operation

Maximum flexibility through different measuring heads with quartz or glass optics.



Get more details on our website:
www.hellma.com/en/tidus

DIVERSE AND CUSTOMIZABLE. AN OVERVIEW OF OUR PRE-CONFIGURED PRODUCT RANGE:

EXCALIBUR IMMERSION PROBES

Measuring principle: Transmission

LAB

SAMPLE MEDIA: **LIQUID**
WAVELENGTH RANGE: **UV, VIS, NIR**
MEASURING SITE: **LAB | PILOT PLANT**



Immersion Probes in this category are ideally suited for transmission measurements in laboratories, where due to moderate temperatures no special sealing technology is needed. The monolithic quartz measuring head provides excellent results.

Temperature: 5 °C to 150 °C Pressure: -1 bar to 6 bar

EXAMPLE:

Excalibur lab

Article no.
LEIX10UE20AN

Excalibur lab all-quartz

Article no.
LQID10UE20AN

XTREMELY PRECISE

SAMPLE MEDIA: **LIQUID**
WAVELENGTH RANGE: **UV, VIS, NIR**
MEASURING SITE: **PROCESS | PILOT PLANT**



The elastomer-sealed measuring head with very high transmission enables particularly accurate and reliable measurements. Basic models of this category are available in diameters 20 mm and 25 mm.

Temperature: 5 °C to 180 °C Pressure: 0 bar to 40 bar

EXAMPLE:

Excalibur XP 20

Article no.
PE3BQEZNAASL240N

Excalibur XP 25

Article no.
PE4BQEZNAASL240N

HEAVY DUTY

SAMPLE MEDIA: **LIQUID**
WAVELENGTH RANGE: **UV, VIS, NIR**
MEASURING SITE: **PROCESS | PILOT PLANT**



Thanks to metal-sealed optics, the products of this category are particularly suitable for transmission measurements under harsh process conditions. Different diameters are available.

Temperature: -30 °C to 400 °C Pressure: -1 bar to 250 bar

EXAMPLE:

Excalibur HD FPT 25

Article no.
PX5BSSGNAALD240G

Excalibur HD FPT 26

Article no.
PX4BSSGNABLL200G

HYGIENIC

SAMPLE MEDIA: **LIQUID**
WAVELENGTH RANGE: **UV, VIS, NIR**
MEASURING SITE: **PROCESS**



For transmission measurements in hygienic processes. The special hygienic design minimizes the adhesion of residues and allows more effective cleaning.

Temperature: 5 °C to 140 °C Pressure: -1 bar to 16 bar

EXAMPLE:

Excalibur HY 25 (3-A)

Article no.
PHAASPANHTSM075N

EXCALIBUR MEASURING CELLS

Measuring principle: Transmission

LAB

SAMPLE MEDIA: **LIQUID**
WAVELENGTH RANGE: **UV, VIS, NIR**
MEASURING SITE: **LAB | PILOT PLANT**



These compact measuring cells offer a high degree of flexibility. The fiber optic connection allows easy positioning. Optionally, the optical light path can be varied and the cell can be heated.

Temperature: 5 °C to 180 °C Pressure: 0 bar to 30 bar

EXAMPLE:

Excalibur Lab FFV

Article no.
CFWDZZSSNV00NFPXN

HEAVY DUTY

SAMPLE MEDIA: **LIQUID**
WAVELENGTH RANGE: **UV, VIS, NIR**
MEASURING SITE: **PROCESS | PILOT PLANT**



The transmission measuring cells are designed for use in production processes under harsh conditions. They are ideal for installation in pipelines and, depending on the size, can be used in the bypass or main product flow.

Temperature: -30 °C to 400 °C Pressure: -1 bar to 250 bar

EXAMPLE:

Excalibur HD Flange

Article no.
FEBCSSANIC615SLNN

Excalibur HD FCP-020

Article no.
CACSGSSSNL002NGDXG

FALCATA IMMERSION PROBES

Measuring principle: Transflection

LAB

SAMPLE MEDIA: **LIQUID**
WAVELENGTH RANGE: **UV, VIS, NIR**
MEASURING SITE: **LAB**



Ideal for transflection measurements in the laboratory. Compact design and flexible use thanks to exchangeable tips (6 mm diameter). The small outside diameters (3 mm, 4 mm, 6 mm) enable installation where space is limited (e.g. laboratory reactors, tablet dissolution tests).

Temperature: 5 °C to 100 °C Pressure: 0 bar to 6 bar

EXAMPLE:

Falcata 3

Article no.
LFCI10UE20AN

Falcata 4

Article no.
LFDI10UE20AN

Falcata 6

Article no.
LFEITSUE20AN

XTREMELY PRECISE

SAMPLE MEDIA: **LIQUID**
WAVELENGTH RANGE: **UV, VIS, NIR**
MEASURING SITE: **PROCESS | PILOT PLANT**



Ideal for transflection measurements in process applications. The compact measuring head allows flexible use, provides extremely precise and reliable measurements. Available in 6 mm and 12 mm diameters.

Temperature: 5 °C to 180 °C Pressure: -1 bar to 40 bar

EXAMPLE:

Falcata XP 6

Article no.
PF1FQSZNEASL240N

Falcata XP 12

Article no.
PF2FQSZNEASL240N

GLADIUS IMMERSION PROBES

Measuring principle: Reflection

XTREMELY PRECISE

SAMPLE MEDIA: **PASTE | SUSPENSION**
 WAVELENGTH RANGE: **UV, VIS, NIR**
 MEASURING SITE: **LAB | PROCESS | PILOT PLANT**



For reflection measurements with sample contact or with short focal distance for process applications.

Temperature: 5 °C to 120 °C **Pressure:** -1 bar to 16 bar

EXAMPLE:

Gladius XP 12

Article no.
PG2BSSEJEASM240N

Gladius XP 25

Article no.
PG4BSSEJEASM240N

HEAVY DUTY

SAMPLE MEDIA: **PASTE | POWDER**
 WAVELENGTH RANGE: **UV, VIS, NIR**
 MEASURING SITE: **PROCESS | PILOT PLANT**



For reflection measurements. The optical design of these probes enables a large measuring spot to be focused on the sample over a distance of several centimeters.

Temperature: 5 °C to 100 °C **Maximum Pressure:** Atmospheric Pressure

EXAMPLE:

Gladius HD FDR-805

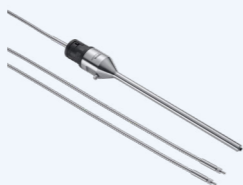
Article no.
PB7VFAIRGASZ000N

KATANA IMMERSION PROBE

Measuring principle: Attenuated Total Reflection (ATR)

XTREMELY PRECISE

SAMPLE MEDIA: **LIQUID | PASTE**
 WAVELENGTH RANGE: **UV, VIS, NIR**
 MEASURING SITE: **LAB | PROCESS | PILOT PLANT**



For Attenuated Total Reflection (ATR). For the direct measurement of highly absorbent liquids and pastes.

Temperature: 5 °C to 180 °C **Pressure:** -1 bar to 16 bar

EXAMPLE:

Katana XP 6

Article no.
PK1KSSZUEASM240N

Katana XP 12

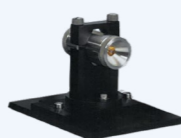
Article no.
PK2KSSZUEASM240N

KATANA MEASURING CELL

Measuring principle: Attenuated Total Reflection (ATR)

LAB

SAMPLE MEDIA: **LIQUID**
 WAVELENGTH RANGE: **IR**
 MEASURING SITE: **LAB | PILOT PLANT**



ATR tunnel cells provide a high degree of analytical accuracy. They are ideal for the chemical analysis of liquids in the IR range.

EXAMPLE:

Measuring cell produced to meet customer requirements

TIDUS IMMERSION PROBES

Measuring principle: Raman

XTREMELY PRECISE

SAMPLE MEDIA: **LIQUID**
 EXCITATION WAVELENGTH: **VIS**
 MEASURING SITE: **PROCESS | PILOT PLANT**



The special design of the optical components of this category are optimized for a maximum Raman signal.

Temperature: 5 °C to 400 °C **Pressure:** -1 bar to 250 bar

EXAMPLE:

Tidus Lumio HD 12

Article no.
RL2ASSGDF2ALD240NN

LAB

SAMPLE MEDIA: **LIQUID**
 EXCITATION WAVELENGTH: **VIS**
 MEASURING SITE: **LAB | PILOT PLANT**



The Raman probes were developed for laboratory use. A big advantage of this series is the high flexibility due to exchangeable optics and filters.

Temperature: 5 °C to 400 °C **Pressure:** -1 bar to 250 bar

EXAMPLE:

Tidus Flex Beam

Article no.
RA00LSIFK0ALZ000NN

Tidus Flex HD 12

Article no.
RA2ASSGFK0ALD200NN

Tidus Flex Gas

Article no.
RA4WQSZFK0ALC300NN

ESPADA IMMERSION PROBE

Measuring principle: Fluorescence

LAB

SAMPLE MEDIA: **LIQUID**
 WAVELENGTH RANGE: **UV, VIS**
 MEASURING SITE: **LAB**



The Espada immersion probes of this category are ideally suited for fluorescence measurements in the laboratory. The optical material of all laboratory probes is quartz glass.

Temperature: 5 °C to 100 °C **Pressure:** 0 bar to 6 bar

EXAMPLE:

Espada Lab

Article no.
LDIX03UE20AN

You will find the most common products in our new online configuration tool. This can be used to navigate quickly and easily through our continuously expanding product range to find the perfect solution for your needs.

configurator.hellma.com

SPECTROSCOPY FOR VARIOUS INDUSTRIES

Discover the Wide Range of Applications

Food
Beverages



Agriculture



Cosmetics
Bodycare



Pharmaceutical
Biotechnology



Chemistry
Petrochemistry



Plastics
Polymers

APPLICATION EXAMPLES

- Acrylic acid and monomers in solution polymerization
- Active ingredient verification in pharmaceuticals
- Butyl glycol in paints
- Fatty acids in cosmetics
- Glucose and ethanol in yeast fermentation
- Hydrocarbons in petrochemicals
- Iodine number in palm oil or C8-C14 in soap noodles
- Moisture in fertilizers
- Nutrients and metabolites in biopharmaceuticals
- Sulfathiazole discrimination in pharmaceuticals
- ... and many more

Contact us to discuss and
evaluate possibilities.
Find all international contacts:
www.hellma.com/en/contact



Discover the wide range of applications
for our Hellma products





High-quality maintenance ensures that your immersion probes and measuring cells continue to perform reliably.

WHY REGULAR MAINTENANCE HELPS YOU RELAX

Plant efficiency and process reliability are crucial for you – this is why you use products from Hellma. Hellma’s high quality products are designed for precision, reliability and durability. However, under extreme conditions and after prolonged operation, it is important to keep an eye out for signs of wear. We have an effective programme to support you with this. Regular maintenance minimizes the risk of sudden product failure, which could result in high process costs and time loss. With a maintenance contract, you are taking active precautions while saving time and money, enabling you to focus on more important matters instead.



It is better to act than to react. Maintenance is important!



- Increased process reliability and plant efficiency
- Significantly reduced process risk
- Prevention of downtimes and associated process costs
- Compliance with legal requirements and standards
- Longer product lifetime
- Warranty on all work performed
- Extended warranty



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