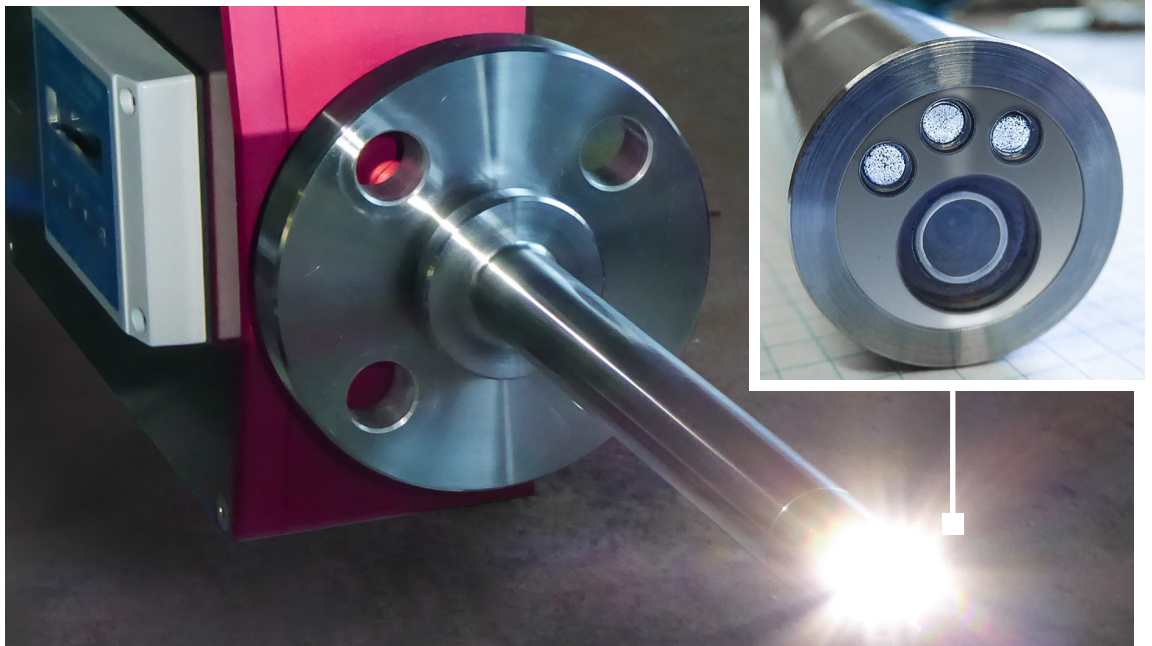




MSE Meili AG
Multiphase Systems Engineering

Labasys® Process Scope

Industrial Process Endoscope 




Description

The Labasys® Process Scope is a sophisticated system for industrial process endoscopy – even for very rough and demanding applications. The instrument gives you direct live insight into your process. You may watch how your product originates, how much there is, what color it has, how big the particles/droplets are, in what direction they are going and how fast. Image analysis modules allow the determination of quantities as particle size or velocities in real-time.

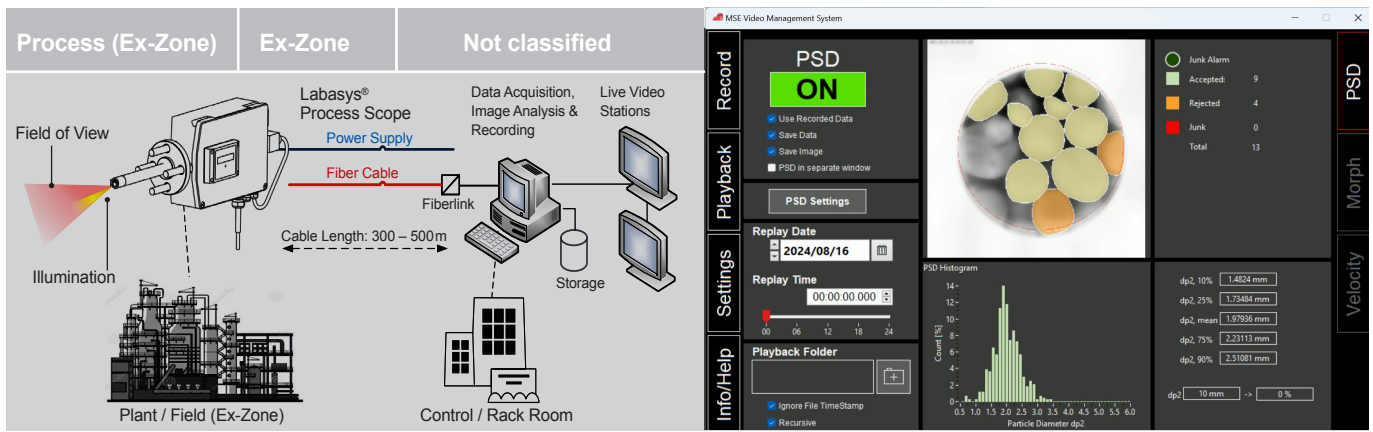
The main system components are (see scheme on back page):

Ex-protected field instrument with endoscope, camera with lens, LED-illumination, fiber link etc. Fiber & power cable, typical length: 300 – 500m. PC based Video Management Software (MSE VMS) station for display of live video, adjustment of focus, image analysis and recording in the control room.

Features

- superior optics with high-grade (medical) endoscope and powerful fiber bundle LED-illumination (intensity adjustable) for **sharp & detailed image**.
- tip with **sapphire windows** at front containing **no electronic parts** build for harsh process conditions.
- **dual sealing barrier** in tip for **high pressures** – leak-proof even if sapphire window broken.
- **robust aluminum housing with Ex-P control unit** protects sensitive electronic parts as camera etc.
- **explosion protected** for zones 1/21 (tip) resp. 2/22 (body) as II 2/3 GD  pzc op is IIC T4 Gb/Gc, IP 67 (if purge gas exit closed), **CE** mark.
- wetted parts completely in chromium-nickel steel.
- process connection upon customer specifications.
- **various industrial grade video cameras** applicable; frames rates up to 1'000 fps, resolutions up to 5 MP.
- Sustained, **uncompressed transfer of live video data** by optical fibers even over longer distances.
- powerful **Video Management Software 'MSE VMS'** for recording, management & display of video data.
- successfully **tested by LyondellBasell** in industrial 'multi-zone circulating reactor' MZCR in their '**Spherizone**' PP process.





Video Management Software - MSE VMS

The Windows™ based MSE VMS software is a powerful & user-friendly Video Management system adapted to the Labasys® Process Scope instrument. Its main features are:

- display of live video image on several screens.
- sustained **loss-less recording** of video data for **10 – 50 days** (effective time depends on specs. of camera, parameters, storage capacity etc.).
- integrated, robust **management system for video data** working on FIFO principle.
- playback of **recorded data on user-friendly video player** (simultaneously with recording)
- adjustment of various parameters as frame rate, resolution, archive sizes etc.
- Image analysis modules for particle size distribution, morphology, velocity etc.



Specifications (standard model)

- **process conditions tip:**
 - operating / max. temperature: -50 – 100° C / 150° C (higher temperatures possible with water cooler)
 - operating / max. pressure: ≤ 42 bar / 65 bar (higher pressures possible upon demand)
- **environmental conditions instrument:**
 - temperature: -10 to 50 °C
 - humidity: 0 – 99% non-condensing
- **material:** tip: stainless steel 1.4404/1.4435
instrument body: aluminum anodized
- **power:** instrument: +24 DC/50 W, provided from LPS power supply, input: 90-264 VAC, 47-63 Hz
- **connector:** 1" RF 600 (ASME B 16.5) or alike – upon customer specification
- **Illumination:** fiber bundle LED-illumination, at tip: $P_{CW,tip} \approx 600 \text{ mW}$, $< 20 \text{ mW/mm}^2$, ca. 200 lm.

Dimensions

- tip (OD.xlength): $\varnothing 25 \times 200 \text{ mm}$ (clearance to I.D. inlet: ca. 0.3–0.5 mm in diameter)
- housing: 290 x 200 x 115 mm (without add-on parts)
- **weight instrument:** ca. 10kg

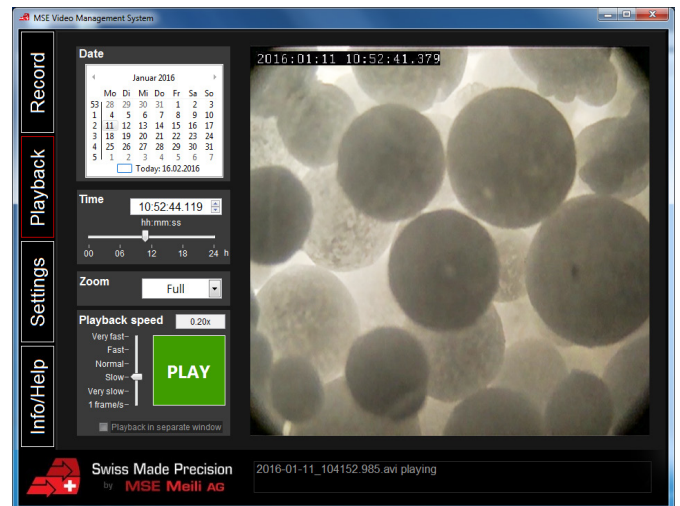
Options

- Explosion protection for zones 0 (tip) and 1 (body).
- various cameras with different frame rates, resolutions, monochrome or color etc.
- remote control of zoom and LED intensity.
- Instrument tip for higher temperature or pressure, different materials.

Models with other specifications upon request.

Applications

- Any kind of R&D or industrial process to be monitored, in particular multiphase flows in pilot and production plants e.g.:
- Processes in oil industry (refineries, FCC cracking), Polyolefin (PP/PE) processes, energy production (CFB's, nuclear), chemistry, cement/ceramics, pulp & paper, food, pharmaceuticals & life science etc.
- Your application: ...?



«The new 'Labasys® Process Scope' let us for the first time look into an operational 'Spherizone' process and watch the PP particles grow directly. We see their size, shape and movement - key information to better control our process.»

Enrico Balestra, Process Engineer LyondellBasell R&D Center Ferrara

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