IF SENSOR R25

OPTICAL 3D SENSOR FOR HIGH RESOLUTION QUALITY ASSURANCE IN RESEARCH AND PRODUCTION

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Agenda

- Characteristics
- Applications
- Unique features
- System integration

CHARACTERISTICS

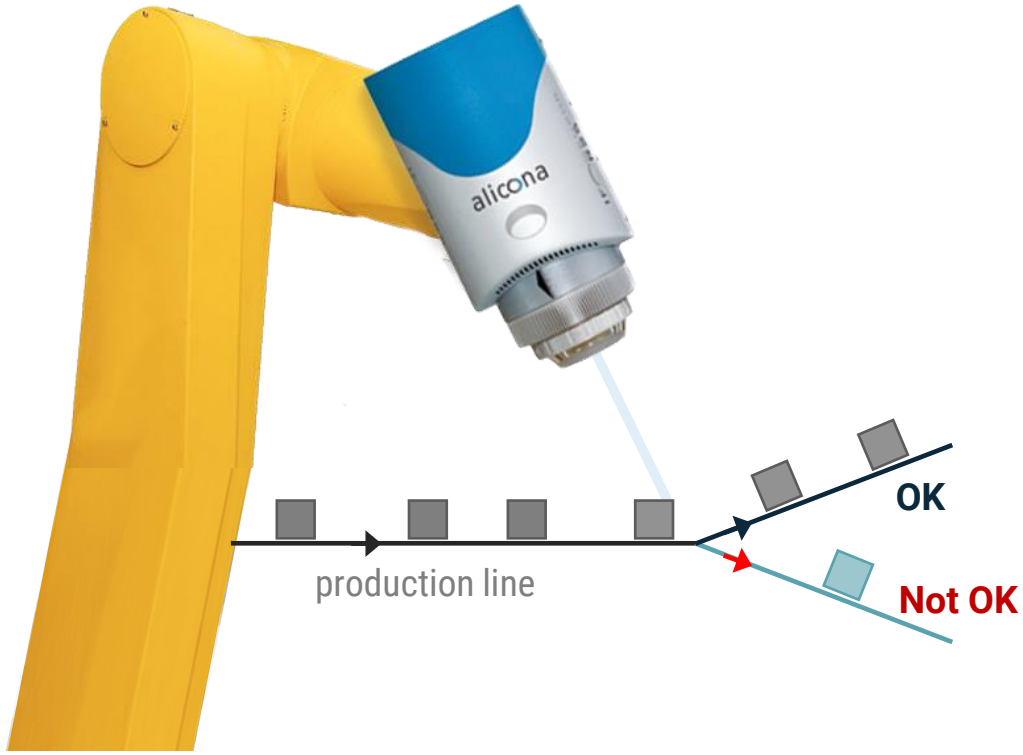
IF-SensorR25

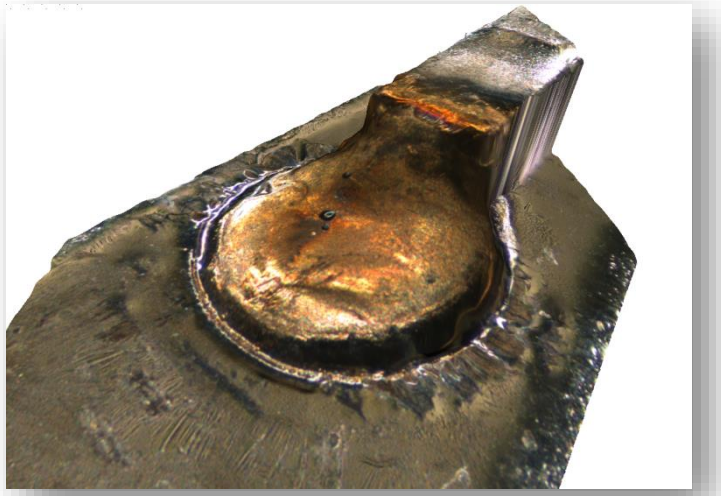
Optical 3D surface measurement device

- Uses the robust technology Focus-Variation
- Is integrated easily with existing systems
- Offers automated form and roughness measurement in production
- Delivers high resolution results with high repeatability and tracability
- High speed measurement

APPLICATIONS

Weld Spots Inspection





Measurement of a weld spot

Quality Assurance

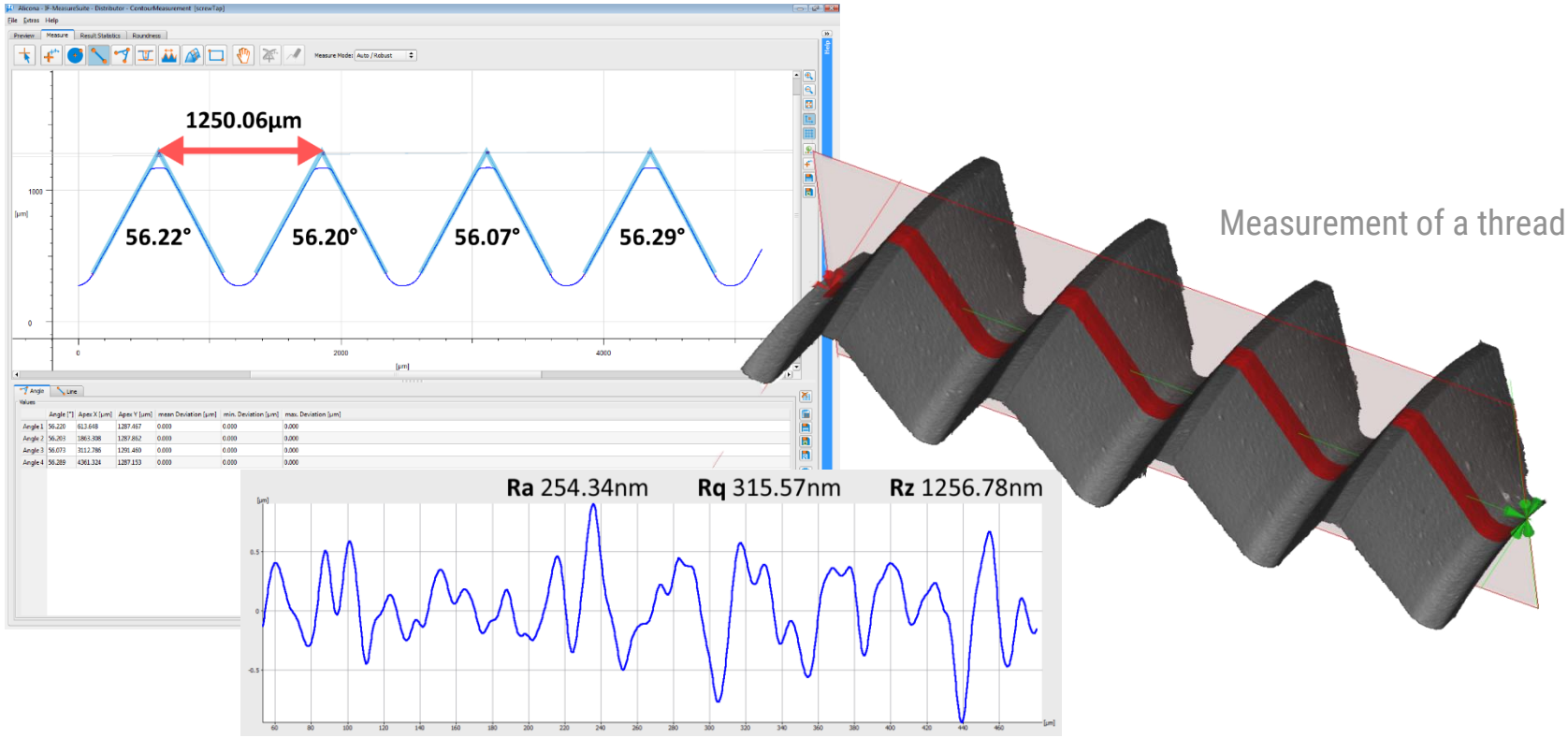
Sensor integrated in EDA
(machine tool of Makino)

- Controlled production
- Ruling out manufacturing defects
- 100% control in production

UNIQUE FEATURES

IF-SensorR25

Form and roughness measurement with only one system



Measurement of a thread

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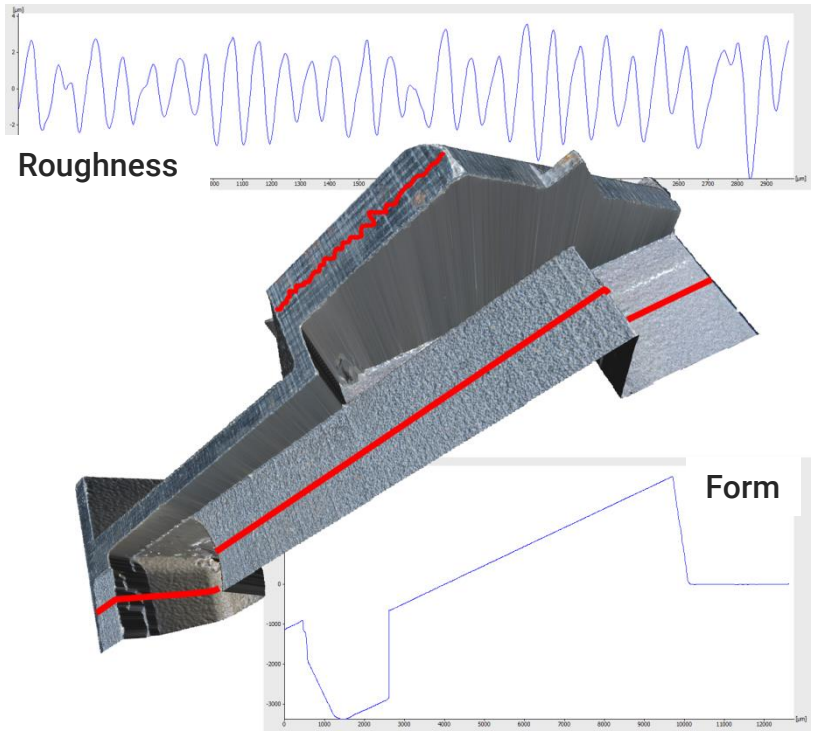
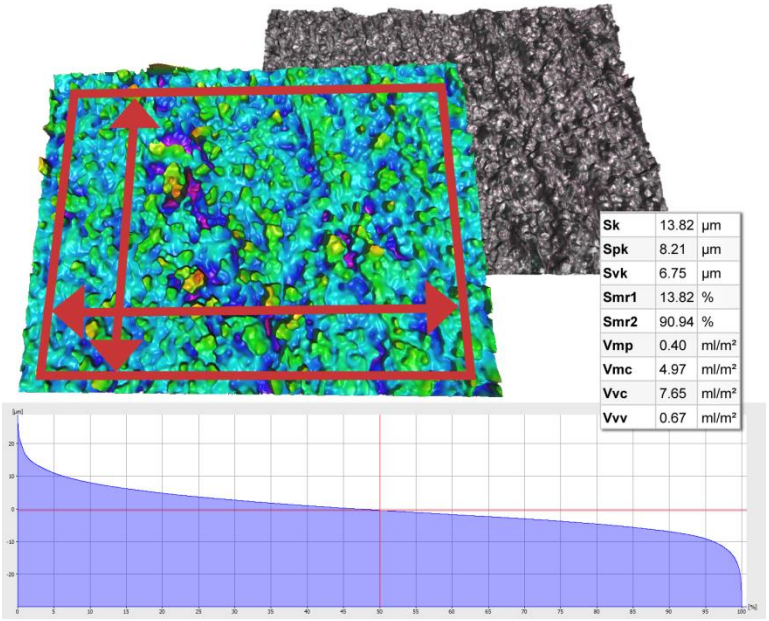
High resolution, repeatable and traceable surface measurement in production





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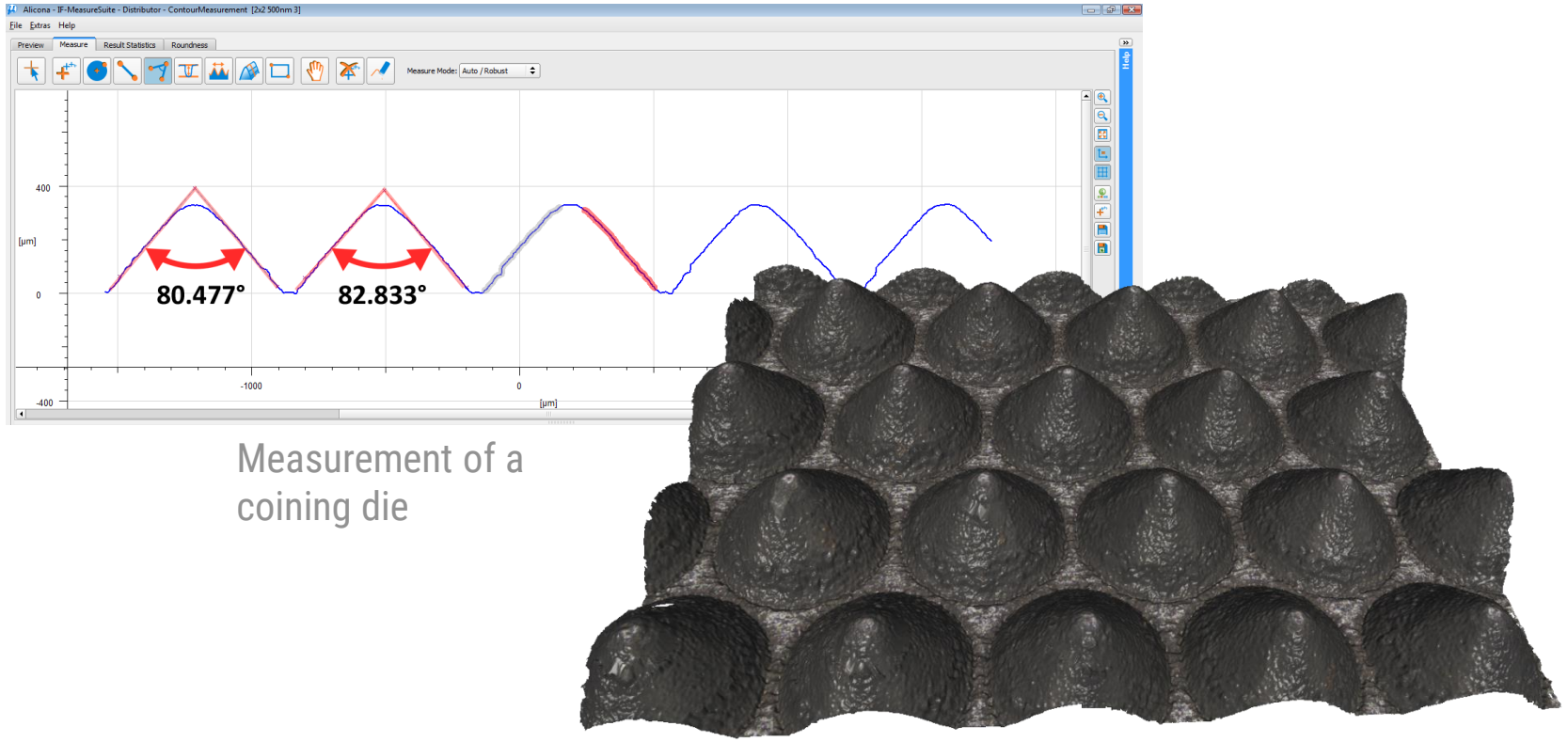
Measure flanks up to appr. 90°



Measurement of a coining die

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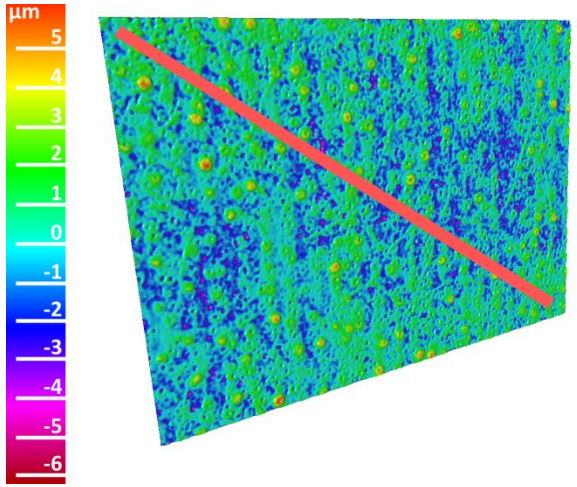
High speed measurement



Example I

Requirement	Areal surface texture measurement
Measurement field	1mm²
Objective	20x

Measurement results within **3 seconds**

Measurement time = 2 seconds

Processing time = 1 second

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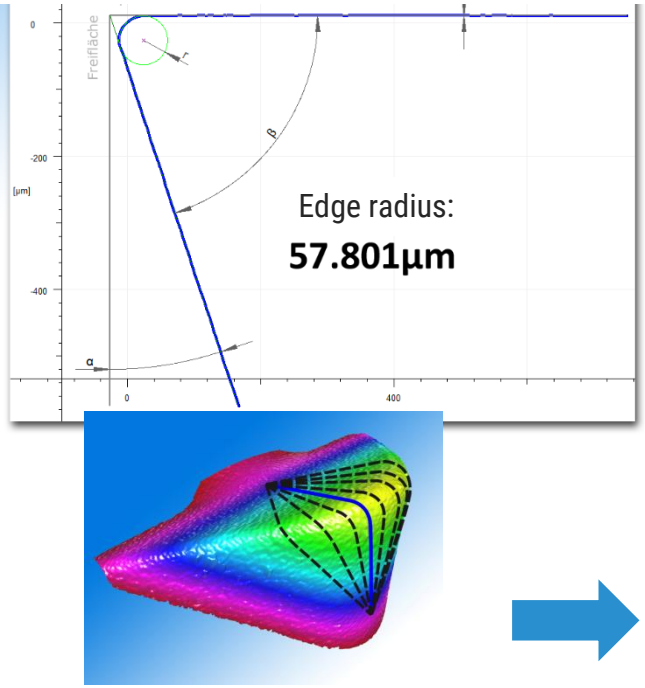
High speed measurement



Example II

Requirement	Radi measurement
Measurement field	r = 4mm
Objective	5x

Measurement results within 3 seconds

Measurement time = 15 seconds

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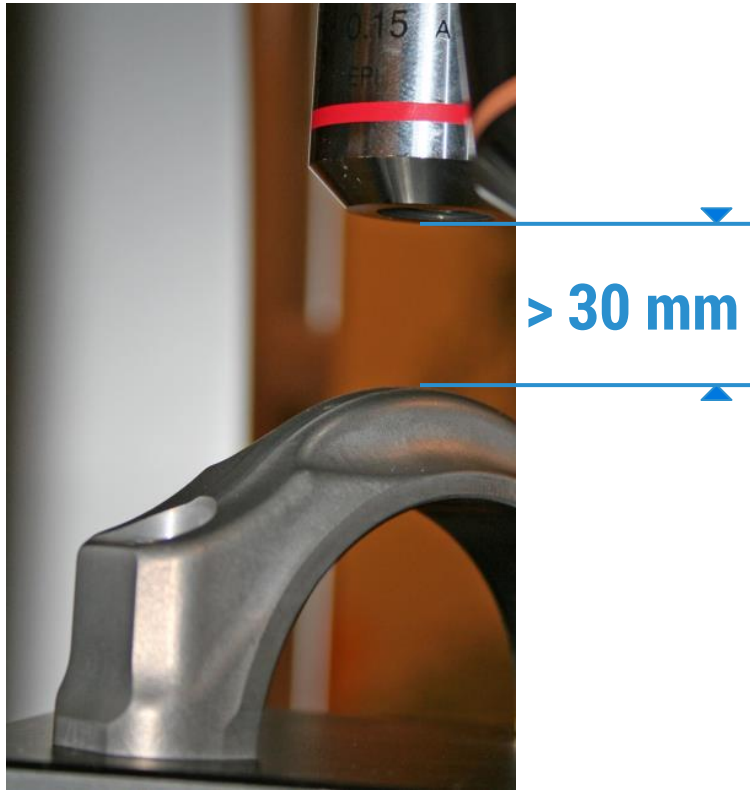
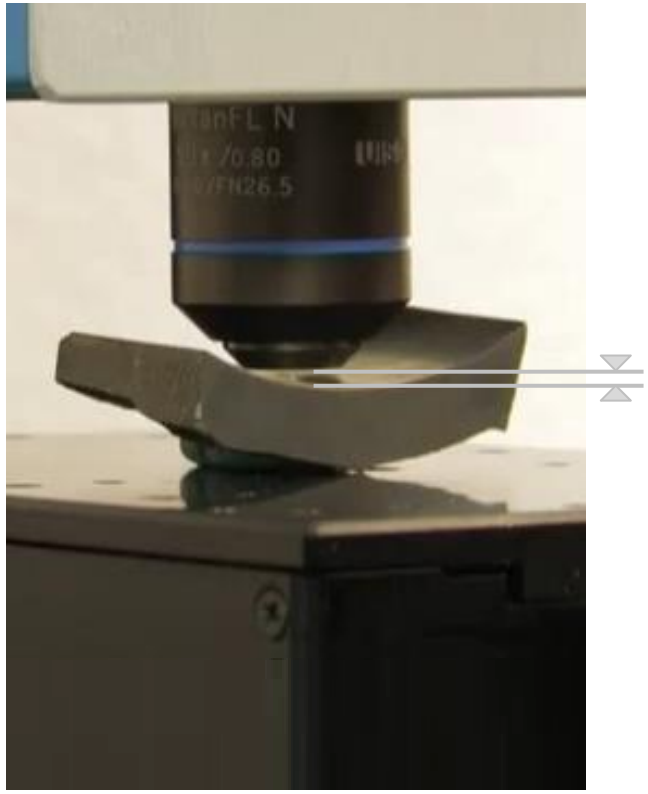
For large working distances



Focus-Variation



Conventional methods

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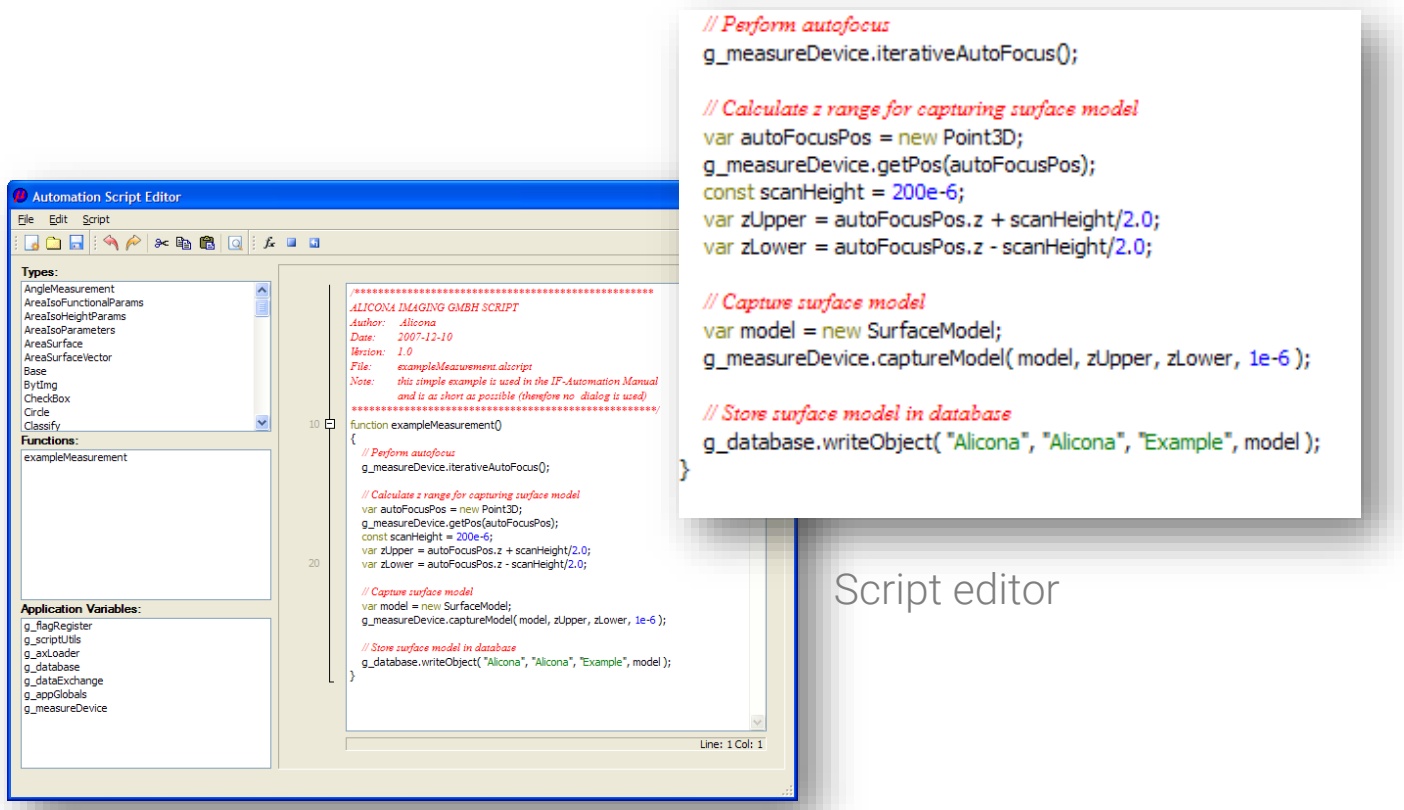
Insensitive to ambient light, temperature fluctuations and vibrations

- Temperature sensors
- Vibration sensor

IF-SensorR25
IF-AutomationModule

Easy integration into production due to a small and light measuring head as well as standardized interfaces



Script editor

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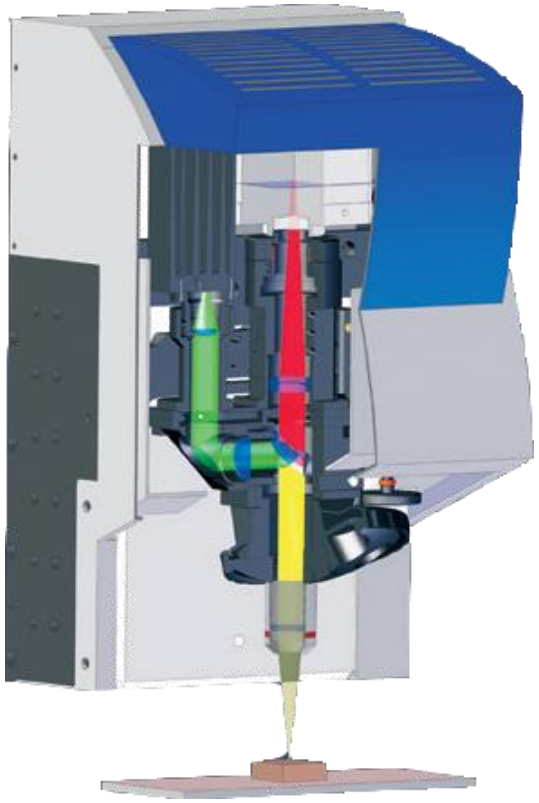
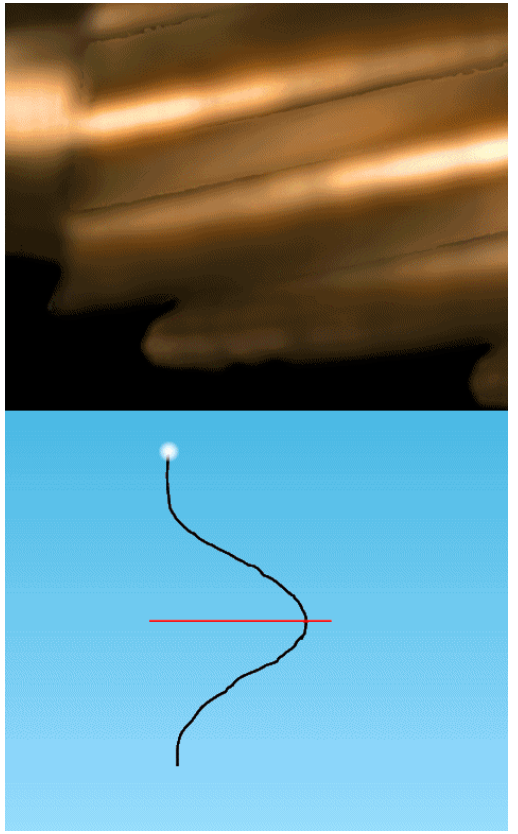
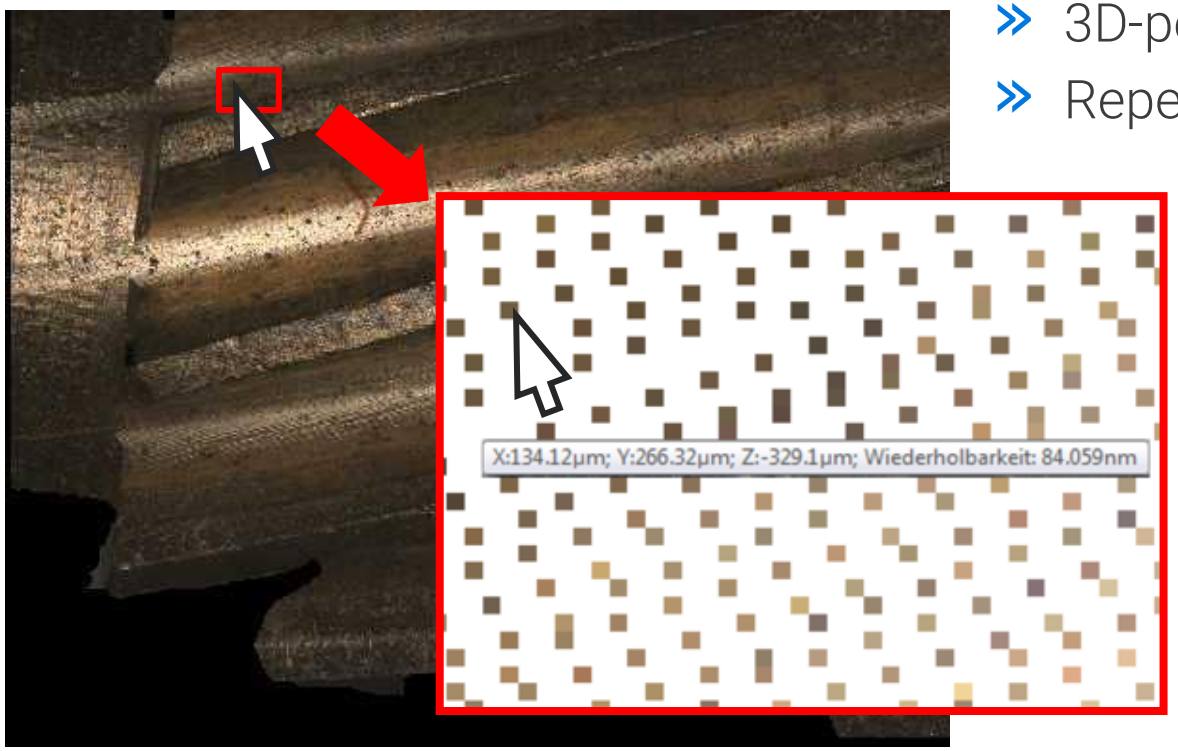
How Focus-Variation Works





Information of a Dataset

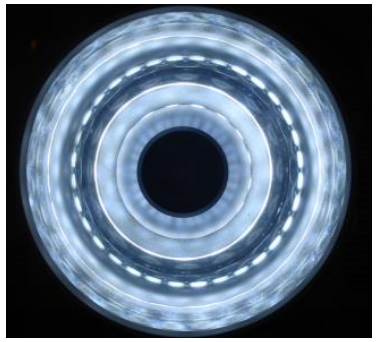


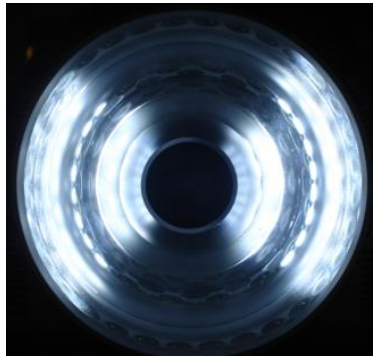
- True color
- 3D-position (x, y, z)
- Repeatability

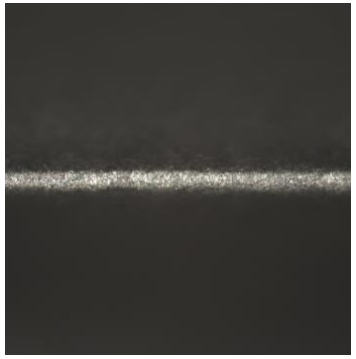
Illumination

» Motorized polarization

» Ring light with segments

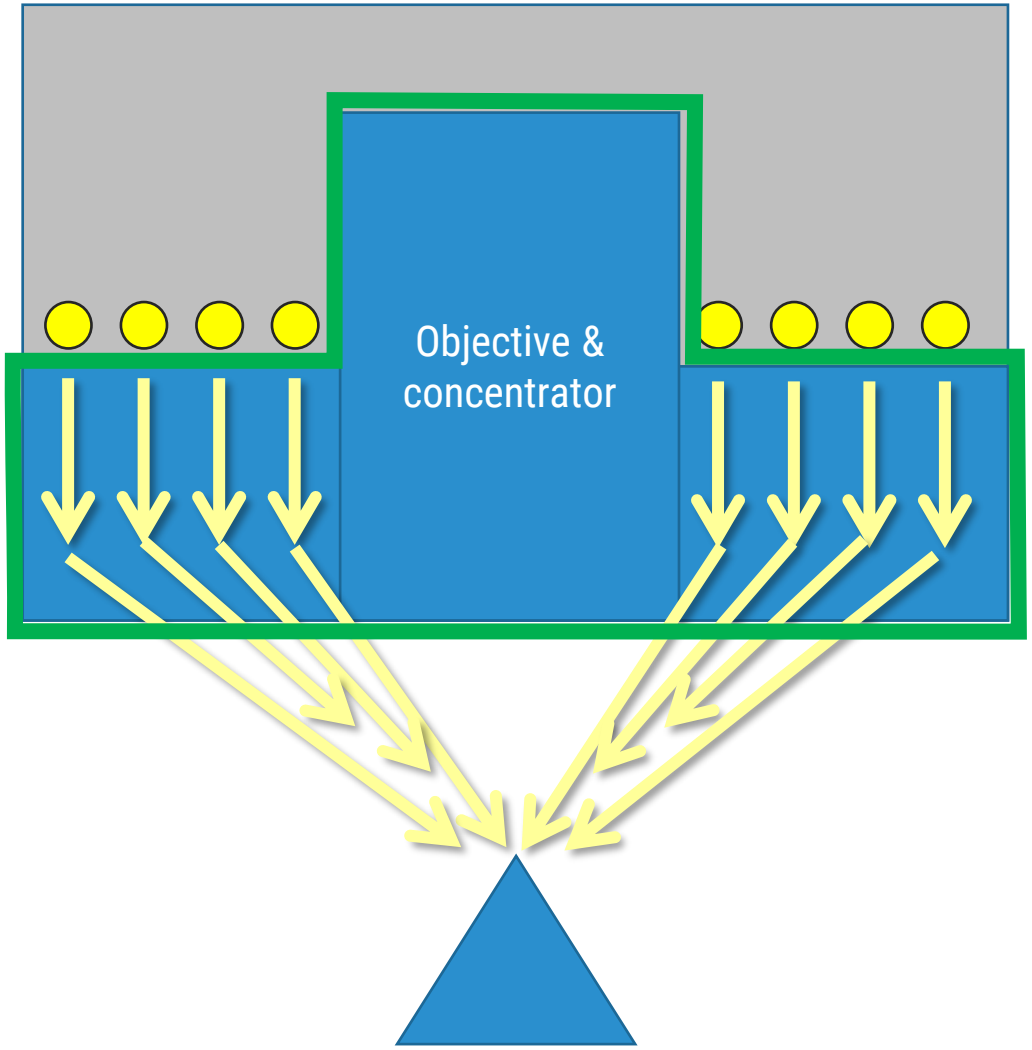






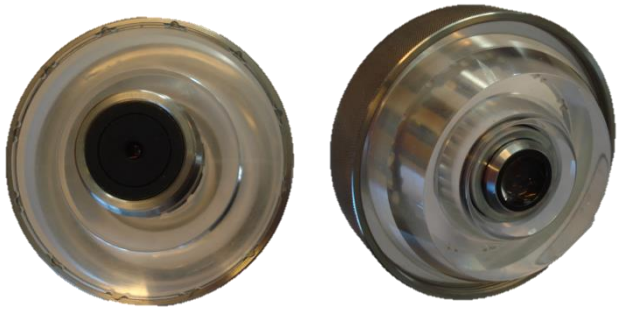
Optimallly illuminated specimen

Objective with Light Concentrator



Advantages:

- A single part
- Concentrator is optimized for every objective



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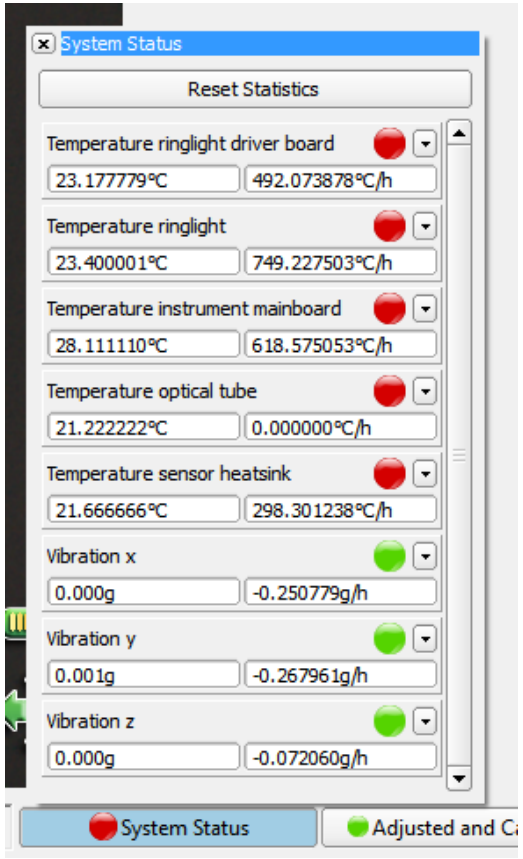
Environmental sensors

- Temperature sensors
  - Depth Sensor
  - Optics
  - Ring light
- Vibration sensor



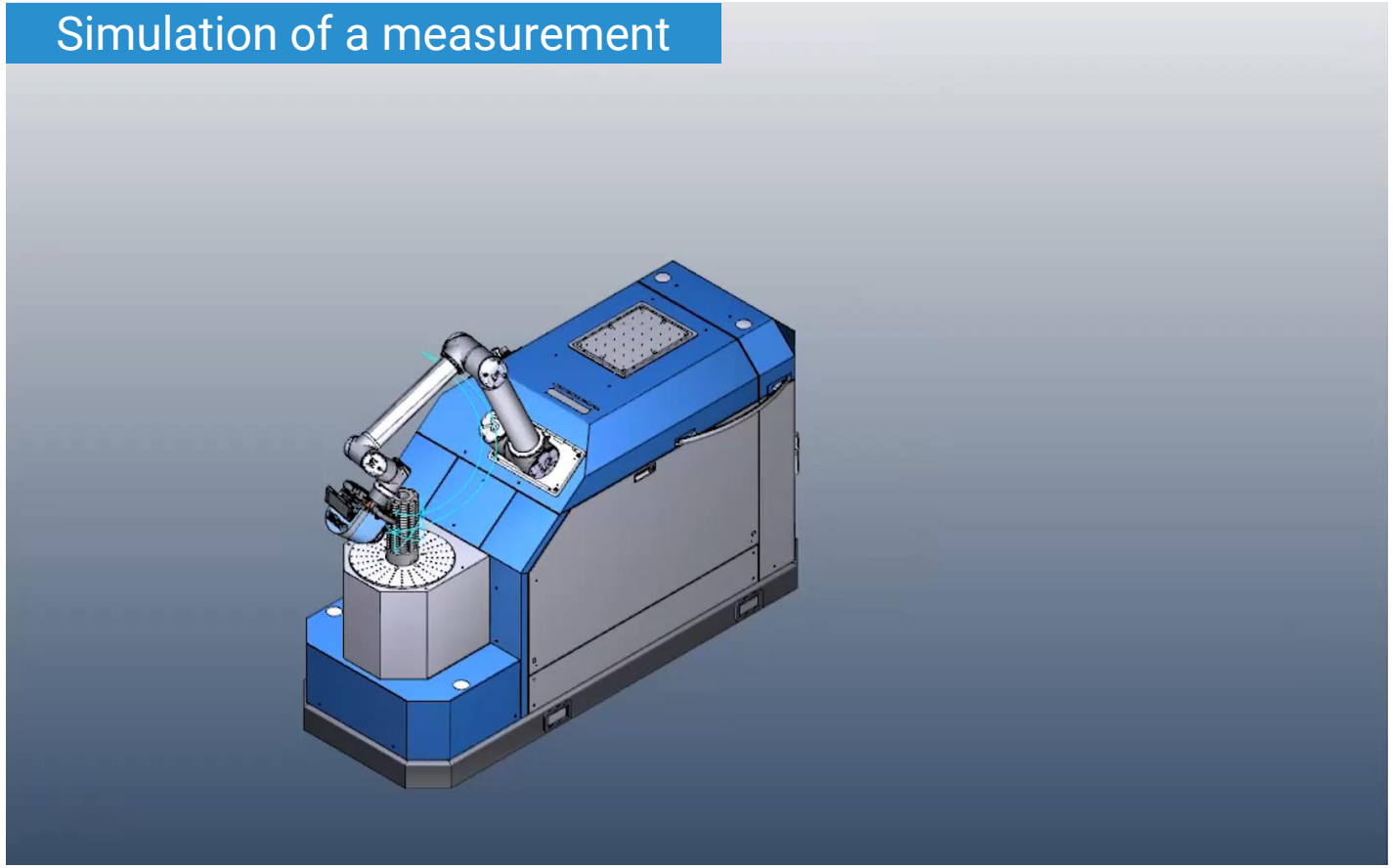
With the useful sensors it is possible to evaluate the vibrations and temperatures during a measurement. Therefore valid or invalid conditions are visible for the user.

SYSTEM INTEGRATION

Smart Manufacturing

Collaborative robots

Simulation of a measurement



Disc Cobot

Tool Cobot

More at YouTube /aliconaimaging

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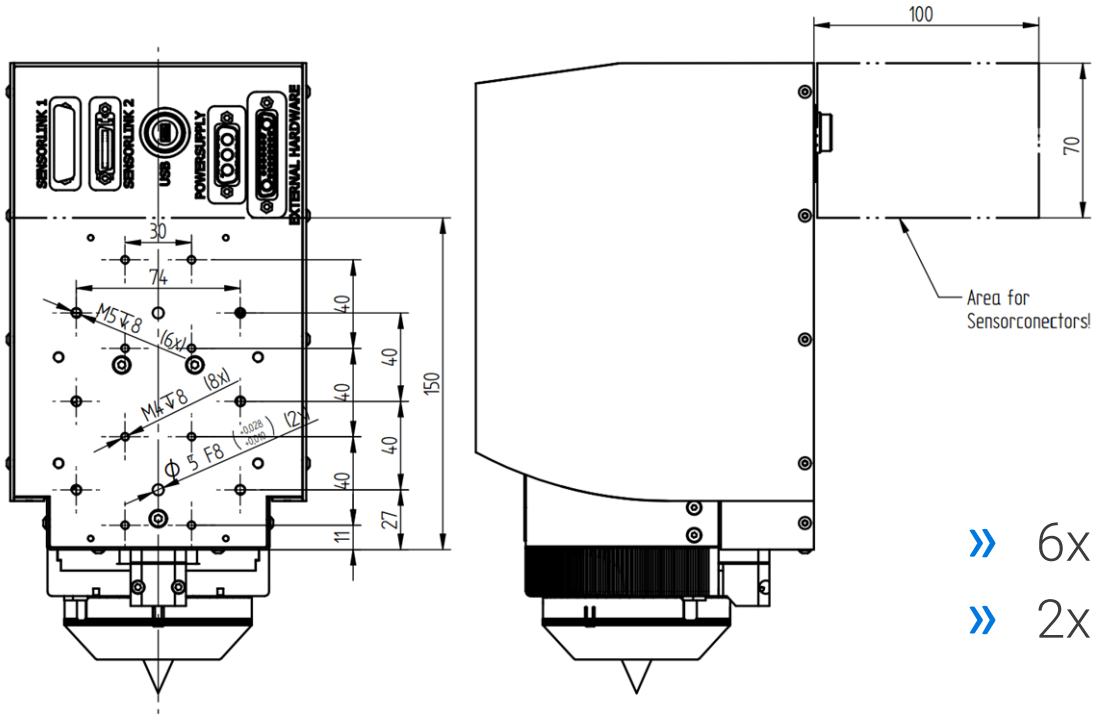
IF-SensorR25
Electrical Interface

- Sensorlink1 (IF-ControlServerHP)
- Sensorlink2 (IF-ControlServerHP)
- USB (IF-ControlServerHP)
- Power supply (IF-ControlServerHP)
- External Hardware (for additional X,Y,R and T-axis)

IF-SensorR25
Mechanical Interface



- 6x M5 threads
- 2x 5F8 dowel hole

IF-SensorR25
IF-ControlServerHP

- Compact control unit (WxHxD) 500x450x190mm
- Simple wiring
- Integrated power supply for IF-SensorR25
- Mountable in 19“ housing

Processor	12 Cores 2x AMD Opteron 4234 3,1GHz
Memory	16 GB
Hard Disk	HD500GB
Graphics Board	Radeon HD7950

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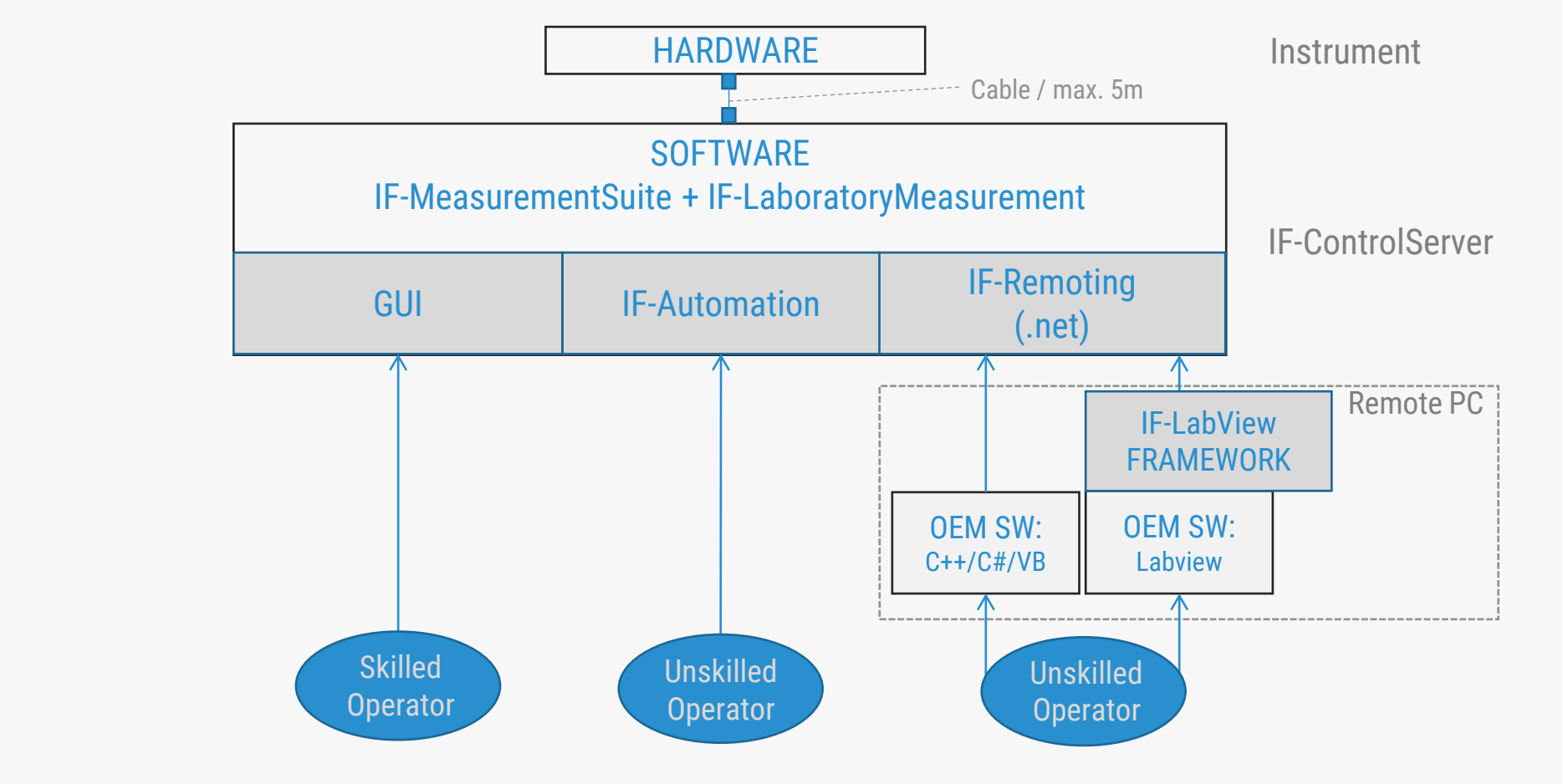
IF-SensorR25
Software Interface

4 x Interface
for flexible use



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Measurement Solutions

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