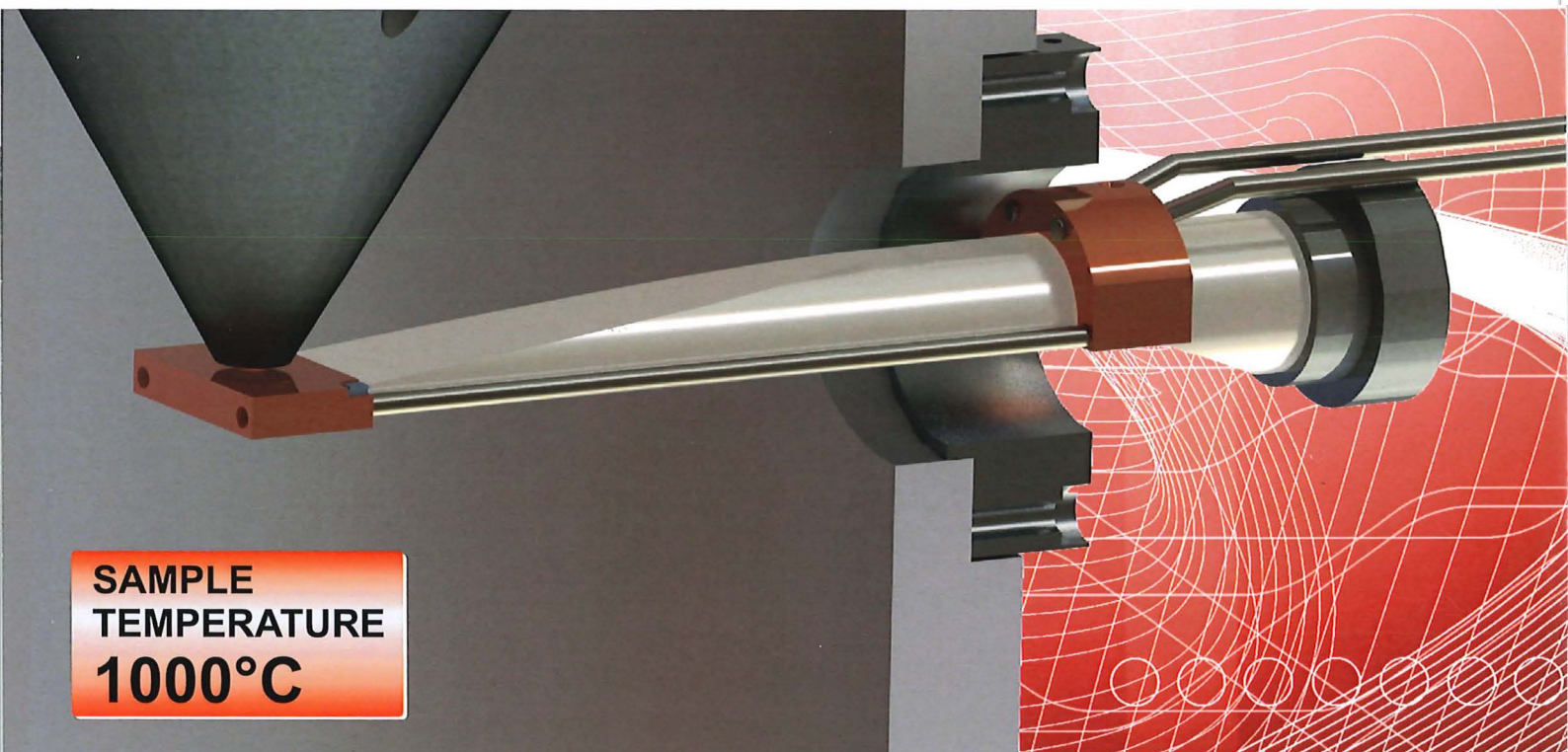




# KARMEN

## Retractable BSE detector for SEM for **hot stage** sample



**SAMPLE  
TEMPERATURE  
1000°C**

### RELIABLE SENSOR & PRECISE MECHANICS

- ✓ Single crystal sensor
- ✓ Scintillator/PMT principle for ultimate image quality
- ✓ Excellent S/N ratio
- ✓ Unlimited sensor lifetime
- ✓ HV + LV + ESEM operation
- ✓ Sample temperature over 1000°C
- ✓ Motorized retraction mechanism
- ✓ Bellows-sealed system
- ✓ Retraction 140 mm
- ✓ Compact design
- ✓ Precise alignment
- ✓ Customized connection to SEM

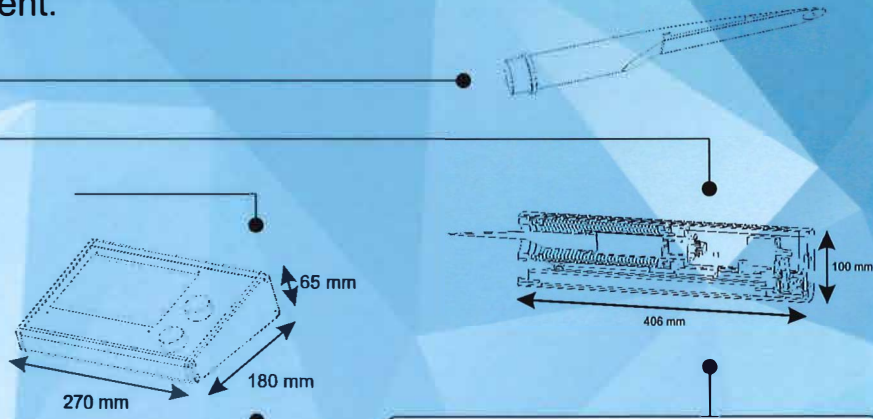
# TECHNICAL PARAMETERS

KARMEN combines state-of-the-art sensorics, mechanics and electronics for BSE detection in SEM environment.

## SENSOR UNIT

## MECHANICAL UNIT

## ELECTRONICS CONTROL UNIT



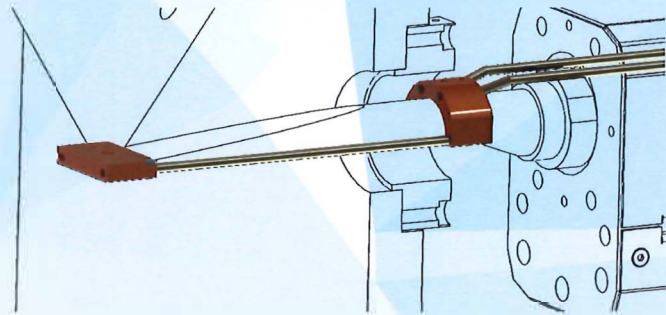
- single crystal scintillator with optimized efficiency and minimized afterglow, exponential decay time 45 ns with 30 photons/keV
- Outer diameter 15 mm
- Inner hole diameter 3 / 2 / 1.5 or 1 mm. This dimension limits the field of view
- Sensitivity down to 10pA beam current
- Allows a 7 mm working distance

- Dimensions 270 x 180 x 65 mm
- Supply 230/110 V
- 3 noise filters optimized for different scanning speeds
- 50 MHz bandwidth
- Internal source 0-1200 V for PMT HV
- Output video signal -1/+1V (-5/+5V)
- Full remote software control
- DC offset up to -20V

- Dimensions 406 x 100 x 72 mm
- Bellows design for ultimate vacuum
- 140 mm motorized retraction
- +/- 2 mm fine adjustment in x, y, z axis
- 0.01 mm repeatability
- Flange adapted to customer's SEM
- Silver / black / blue / red matt surface finish available

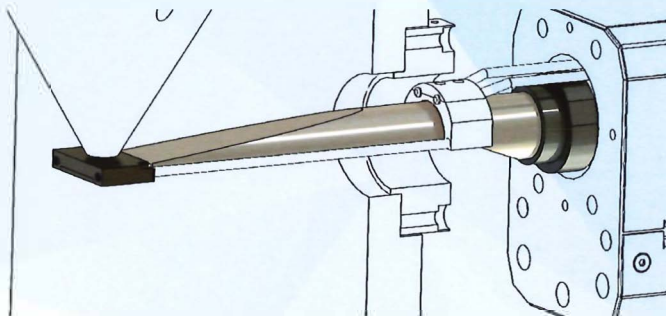
## SENSOR HEAT MANAGEMENT

- ✓ Sample temperature 1000°C
- ✓ Passive cooling by heat-pipe technology
- ✓ Temperature monitoring of the sensor



## SENSOR SHIELDING

- ✓ Sensor and lightguide cooled and shielded against infrared and visible light emitted by the heated sample



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