

## MEAREG Ultrasonic Basis Weight Measurement

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MEAREG offers excellent worldwide support for a variety of measurement products as well as professional consultation on production issues and the optimization of existing systems.

MEAREG's Ultrasonic sensor technology, **meaSONIC®**, provides a huge cost savings compared to Beta radiometry or X-Ray (gamma radiometry) basis weight measurement technologies.

The **meaSONIC®** sensor is based on the ultrasonic absorption measurement method. The built-in processor calculates the basis weight in real time regardless of material, color, position and is suitable for paper, metals, plastic, technical fleece, fabrics and many more.

Another unique **meaSONIC®** feature is the automatic adjustment to changing environmental conditions, such as temperature, humidity, air pressure and air movement.



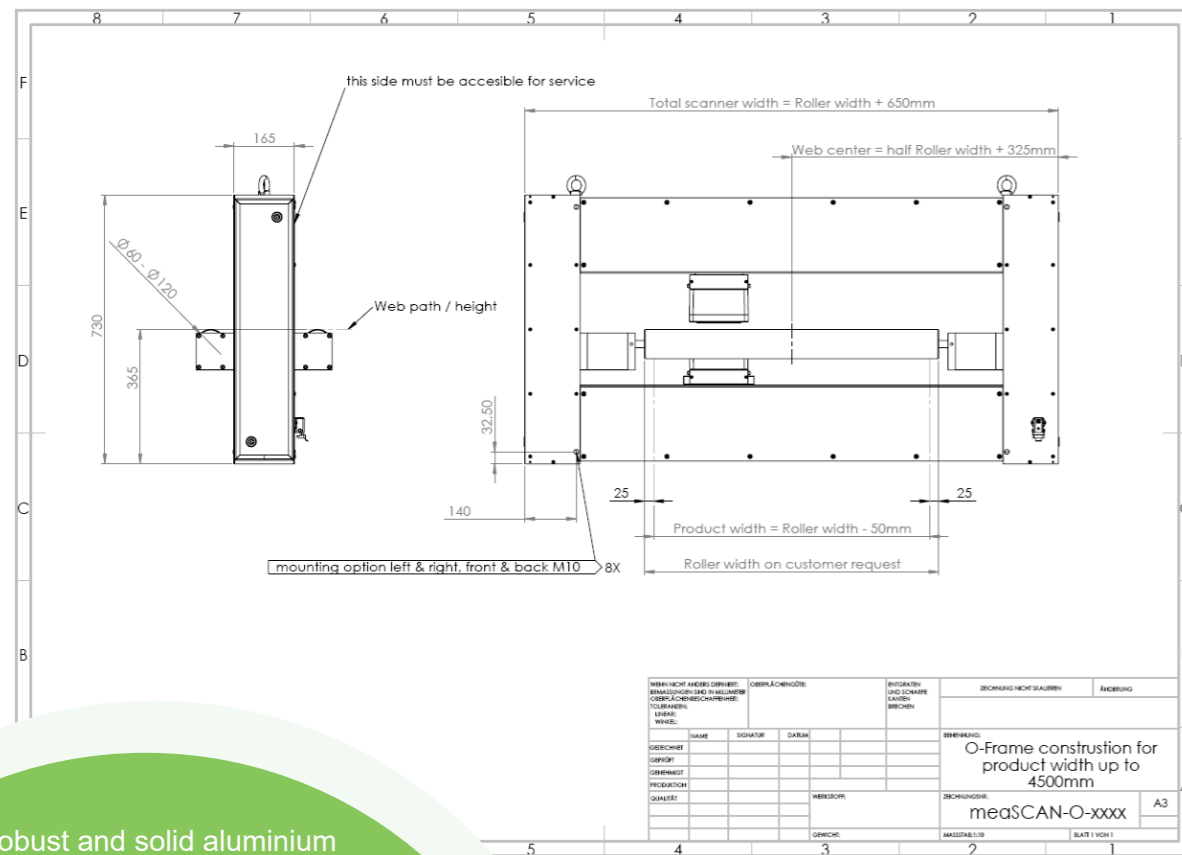
The **meaSONIC®** sensors use ultrasonic wave technology and do not emit any radiation that is used in beta radiometry or high-energy electromagnetic X-ray basis weight measuring scanners, which require radiation shielding integrated into these systems and special radiation training for the operating personnel.

Beta radiometry and x-ray scanner systems can be particularly difficult and expensive to repair and maintain because of the radioactive materials that produce beta and gamma rays.



## meaSONIC® compared to Radiometry or X-ray gauges

Optical procedures are inadequate for very thin films due to spectral problems. Capacitive, X-ray and infrared measuring methods are very sensitive to material properties and environment.



- ✓ Robust and solid aluminium scanner construction
- ✓ Space saving
- ✓ Easy one side service access
- ✓ Maintenance free sensor construction
- ✓ Large Measurement Range: 0 – 1500g/m<sup>2</sup>
- ✓ Automatic calibration and setup
- ✓ No calibration standard required for different materials
- ✓ Extremely accurate on - line measurements: Better than 0.3% of the measured value, resolution 0.02 g/m<sup>2</sup> (at full range 1500 g/m<sup>2</sup>)\* \*\*

MEAREG's scanner system **meaSCAN®** is designed for low maintenance, with only one scheduled maintenance activity recommended per year.

Extremely low energy consumption (Sensor 24V, 3.5W max.).

Mains connection: 100-240VAC/50-60Hz  
Easy and convenient to install and operate.

**meaSCAN®** sizes are manufactured to meet customer and production line requirements.

	Radiometry or X-Ray	meaSONIC®
Measuring procedure	Absorption measurement - dependent on material property no coating measurement	Measurement of weight, independent of material, color, layers, suitable for paper, metals and other conductive materials, plastic, etc.
Contact	none	none
Accuracy	Accuracy decreases with decreasing material thickness. Problem with very thin films.	< 0.3% of the measured value, resolution 0.02. Very high accuracy with low product thickness. Decreasing thickness has no effect on the accuracy of the measurement!*
Error pass line	High influence	< +5 mm no effect
Measuring frequency	Low, integration of noise	high, 5ms or 200Hz (max.)
Calibration and adjustment	Material dependent	Material independent
Measuring window	Small measuring gap	Large measuring gap (>35mm)
Maintenance, service:	Radiation protection, authorized operators, difficult repair, radiation source half-life, complex technology, follow-up costs due to the disposal of radioactive sources, as well as costs for radiation protection officers and from continuous radiation protection tests.	Simple and modern sensor technology, no disposal of radioactive waste, very low-cost maintenance.
Biggest differences are:	Radiation hazard! High capital and operating expenditure Large field of view, small field of view is only possible with lens apertures, which in turn requires a higher intensity of radiation	Long lifetime, easy to clean, rugged and robust sensor. Very small field of view (small measurement spot) Laboratory unit with passage device for samples available Sensor with a MEAREG unique modern design. Interfaces are: RS232, Ethernet, USB, also for re-fitting for old radiometry plants suitable!
Specs meaSONIC® :	Measurement Range: 0 – 1500g/m <sup>2</sup> Measurement speed: 200Hz Measurement spot: 90% within 5mm, 100% within 25mm Transducer diameter: 25mm (Sensor diameter) Measurement noise: 0.05%** of the measured value Temperature ; 0.1% / °C Power requirement: Scanner 220VAC/6A, Sensor: 24VDC/0.14A	
	*down to 1 g/m <sup>2</sup> - accuracy lower 20g/m <sup>2</sup> better 0.1%	**assuming stable environmental conditions

