

MAHLO GRAVIMAT FMI

Beta Transmission
Mass Measurement Device



Continuous, non-destructive determination of Basis Weight / Total weight / Coatings

Beta Transmission technology is used in a variety of different industries to accurately and reliably determine the basis weight of a huge number of web form products, such as paper and board, plastic film, textiles, nonwovens, carpet and calendered rubber/plastic sheet.

The MAHLO FMI series marks the latest technology for Beta transmission sensors developed by Mahlo, summarizing more than 40 years of experience in this specific field.

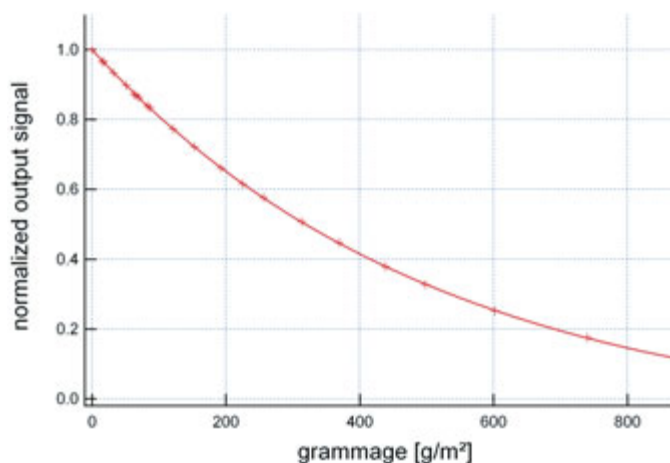
The modern intelligent sensor design approach resolved in a fully microprocessor controlled device with four extremely fast temperature sensors, barometric pressure detectors and a new analog pre-amplifier with outstanding temperature stability and integrated hi-speed 16 Bit A/D converter.

These measures are to ensure the optimal performance and stability of the measurement, even under extreme environmental conditions.

Measurement Principle

A low activity isotopic source is emitting a well defined amount of beta radiation in a specific time interval. The radiation is focussed on the product and partially absorbed.

On the opposite side of the sender a detector head with a high efficiency Argon gas filled ionisation chamber measures the amount of radiation penetrating the product. The signal is normalized to 'zero weight' and will then show a indirect proportional decrease of the output signal with increasing grammage of the product.



Measurement

Control

Automation

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Technical data

Type of measurement	Beta-ray transmission	
Activity	Isotop source Kr-85	Isotop source Sr-90
	3GBq (80 mCi)*	500MBq
Range	Isotop source Kr-85	Isotop source Sr-90
	20 - 1000 g/m ²	400 - 6000 g/m ²
Reproducibility (at 20 °C T _{amb})	Isotop source Kr-85	Isotop source Sr-90
	±0,1 g/m ² (0.5 s, 2 σ)	±0,5 g/m ² (1.0 s, 2 σ)
Scanning gap	10 - 20 - 40 - 60 - 100 mm	
Temperature compensation	at 4 locations (emitter and receiver enclosures, measurement gap at emitter and receiver ends)	
Barometric compensation	electronic	
Power supply	230/115V AC 50/60 Hz	
Max. Ambient condition	max. 60 °C, 0-95% relative humidity (non-condensing)	
Max. current consumption	Emitter	Receiver
	max. 1A (continuous: 0,5A)	max. 2A (continuous: 0,3A)
* higher source activities on request		

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