PRODUCT CATALOGUE

INDUSTRIAL MEASUREMENT TECHNOLOGY

EmWeA

CONTENTS

CONTROL BELTSCALE IDEA

Control Beltscale
Thermo Ramsey IDEA 10-101.

Low-priced, rugged beltscale for
in-company belt weighing.

Accuracy: ±1%.

Rugged, low-priced Beltscale

Specifically designed for operations where economy and ease of installation are important considerations, the Thermo Ramsey IDEA beltscale provides basic rate and totalization functions. The IDEA belt scale is ruggedly designed and outstandingly easy to install.

The IDEA belt scale lets you monitor production output and inventory, or regulate product loadout, while providing vital information for the effective management and efficient operation of your business.

The weighing assembly consists of the modular IDEA weighing frame and the speed sensor ZA-11. It also utilizes the modern MINI CK series electronic integrator.

The IDEA beltscale is suited for basic registration and monitoring of continuously conveyed bulk materials. Accuracy is normally ±1%.

CONTROL BELTSCALE IDEA

System Components

The Ramsey IDEA beltscale consists of three major components: control unit (integrator), weighing frame, and belt speed sensor.

Control Unit (Integrator)

As control units, the modern MINI CK series integrators are used. These devices are characterized by their high accuracy, their ruggedness and their easy handling. Interfaces and expandabilities make it easy connecting the beltscale with process control systems.

Weighing Frame

The IDEA weighing frame is designed for one idler station. The weighing frame consists of either one or two weighing modules, depending on conveyor width. Compact and designed to attach to the conveyor's stringers, the modules support the weigh idler and measure the weight of material on the conveyor belt.

IDEA Weighing Frame Advantages:

- Factory installed and calibrated overload protection.
- Pivotless design.
- No moving or wearing parts to cause potential maintenance problems.
- Compact design for easy installation and alignment.
- No place for material to build up and cause measurement errors.
- Identical weighing modules fit on any belt width and are interchangeable.

Belt Speed Sensor

For belt speed measurement, the ZA-11 digital lower belt measuring wheel is being used which stands out due to very simple installation. The PTFE measuring wheel reduces soilings and adhesions.

As an alternative, the 60-12 digital belt speed sensor without measuring wheel can be used.

ZA-11 Lower Belt Measuring Wheel Advantages:

- Simplest installation.

60-12 Belt Speed Sensor Advantages:

- Rugged housing, suitable for outdoor installations.
- A/C pulse generator means no brushes to adjust or replace.

Standard Weighing Module IDEA 10-101

Stainless Steel Weighing Module IDEA LPSS

Performance Guarantee

On installations approved by EmWeA, we warrant that the Thermo Ramsey IDEA beltscale will weigh and totalize to a value within ±1% of the test load when calibrated to our specifications.

IDEA-1 Weighing Frame:

294 mm
Load cell cable
Support beam
Weighing idler

> 10 mm
25 mm
Internal dimension

64 mm
96 mm
Weighing idler

–3 * –2 * –1 * * * +1 * +2 * +3

* All idler spacings in scale area must be equal.

Belt travel →

235 mm
130 mm
Unroundness max. 0.4 mm

220 mm

Idlers from -2 to +2 must be shimmed 5 mm ±0.5 mm above belt line.

IDEA-2 Weighing Frame:

Weighing idler

> 10 mm
25 mm
Internal dimension

–3 * –2 * –1 * Weighing idler * +1 * +2 * +3

* All idler spacings in scale area must be equal.

Belt travel →

235 mm
130 mm
Unroundness max. 0.4 mm

33 mm
62 mm
220 mm

Idlers from -2 to +2 must be shimmed 5 mm ±0.5 mm above belt line.

CONTROL BELTSCALE IDEA

Technical Specifications:

IDEA Weighing Frame:

No. of weighing idlers:	1
No. of weighing modules:	1 (IDEA-1) or 2 (IDEA-2)
Clearance requirements:	fits any standard conveyor; no space required above belt line
Belt width:	up to 800 mm (IDEA-1) / up to 1600 mm (IDEA-2)
Construction:	compact module, steel / aluminium (option: stainless steel)
Mounting:	4 bolts to conveyor stringers

Load Cell:

Quantity:	1 per weighing module
Enclosure:	environmentally-protected load cell, stainless steel, IP 67
Mounting:	welded bending beam type load cell
Excitation:	10 V DC
Output:	2 mV/V
Accuracy:	±0.02 % / 3000 d
Operating temperature:	-40°C ... +80°C
Nominal temperature:	-10°C ... +40°C
Safe load:	150 % full span
Certificates (standard):	CE

ZA-11 Lower Belt Measuring Wheel:

Type:	digital, brushless
Mounting:	lower belt measuring wheel
Housing:	weatherproof, IP 65
Mounting hardware:	supplied with coupling, restraint arm and restraint spring
Certificates (standard):	CE
Certificates (optional):	ATEX

60-12 Belt Speed Sensor:

Type:	digital, brushless
Mounting:	direct to stub shaft with M16 thread hole or 16 mm trunnion, on tail pulley or bend pulley
Housing:	weatherproof, IP 65
Mounting hardware:	supplied with coupling, restraint arm and restraint spring
Certificates (standard):	CE
Certificates (optional):	ATEX, FM, PTB, OIML, MID

Control and Display Unit (Integrator):

Various control units for variant requirements are available. Choose a wheatherproof field mount enclosure or a DIN panel mount housing. Optional interfaces and expandabilities (binary and analog outputs, RS232, RS485, Profibus DP, or Ethernet/IP allow connecting the beltscale with customer's process control systems. We would be happy to prepare an individual quotation for you!

PROCESS BELTSCALE SERIES 20

Process Beltscale Thermo Ramsey Series 20.

The industry standard in bulk weighing on belt conveyors.

Accuracy: ±0.5%.

Rugged Precision Belt Scale

The Thermo Ramsey series 20 process beltscale monitors feed to crushers, mills, screens and other processes with an accuracy of ±0.5%, even in the harshest applications.

The series 20 process beltscale lets you monitor production output and inventory, or regulate product loadout, while providing vital information for the effective management and efficient operation of your business.

The Industry Standard in Beltscales

The Thermo Ramsey series 20 process beltscale incorporates the one-piece, drop-in style 10-20 weighing frame and the 60-12C or 60-12EN belt speed sensor. It also utilizes the Micro-Tech 9000 series or Micro-Tech 3000 series electronic integrator.

The series 20 process beltscale represents the world standard of accuracy and performance for loadout, inventory monitoring and fee-holder type applications requiring certification.

PROCESS BELTSCALE SERIES 20

System Components

The Thermo Ramsey series 20 process beltscale consists of four major components: control unit (integrator), weighing frame, load cell(s) and belt speed sensor.

Control Unit (Integrator)

As control units, the modern Micro-Tech 9000 and Micro-Tech 3000 series integrators are used. These devices are characterized by their high accuracy, their ruggedness and their easy handling. Various interfaces and expandabilities make it easy to connect the beltscale with process control systems.

Weighing Frame

Rigid and rugged, the 10-20 weighing frames remain permanently aligned within the conveyor frame. This one-piece, drop-in style weighbridge is completely assembled at the factory and is quickly and easily installed and aligned properly on the conveyor. It is designed to provide additional stiffening and support to minimize conveyor deflection. Both the single and the dual-idler models offer three-point suspension and employ trunnion-type, frictionless pivots. These sealed units are impervious to vibration, moisture and product build-up, which eliminates problems commonly associated with knife edges and bearings.

10-20 Weighing Frame Advantages:

● No moving or wearing parts lead to a longer life span and low maintenance costs.
● Precision strain-gauge load cell applied in tension to guarantee load cell alignment and accuracy.
● Total deflection of idler(s) less than 0.1 mm.
● Slim profile to minimize material build-up.
● Optional integrated calibration weights for quick check of weighing frame and accuracy.

Belt Speed Sensor

The Thermo Ramsey 60-12 digital belt speed sensor is one of the most reliable and accurate speed-sensing devices ever developed for beltscale service. Direct-coupling the sensor to the conveyor tail pulley, snubbing roll, or a large diameter return roller ensures an accurate belt-travel readout. No wheels ride on the belt, which eliminates problems related to material build-up and slippage.
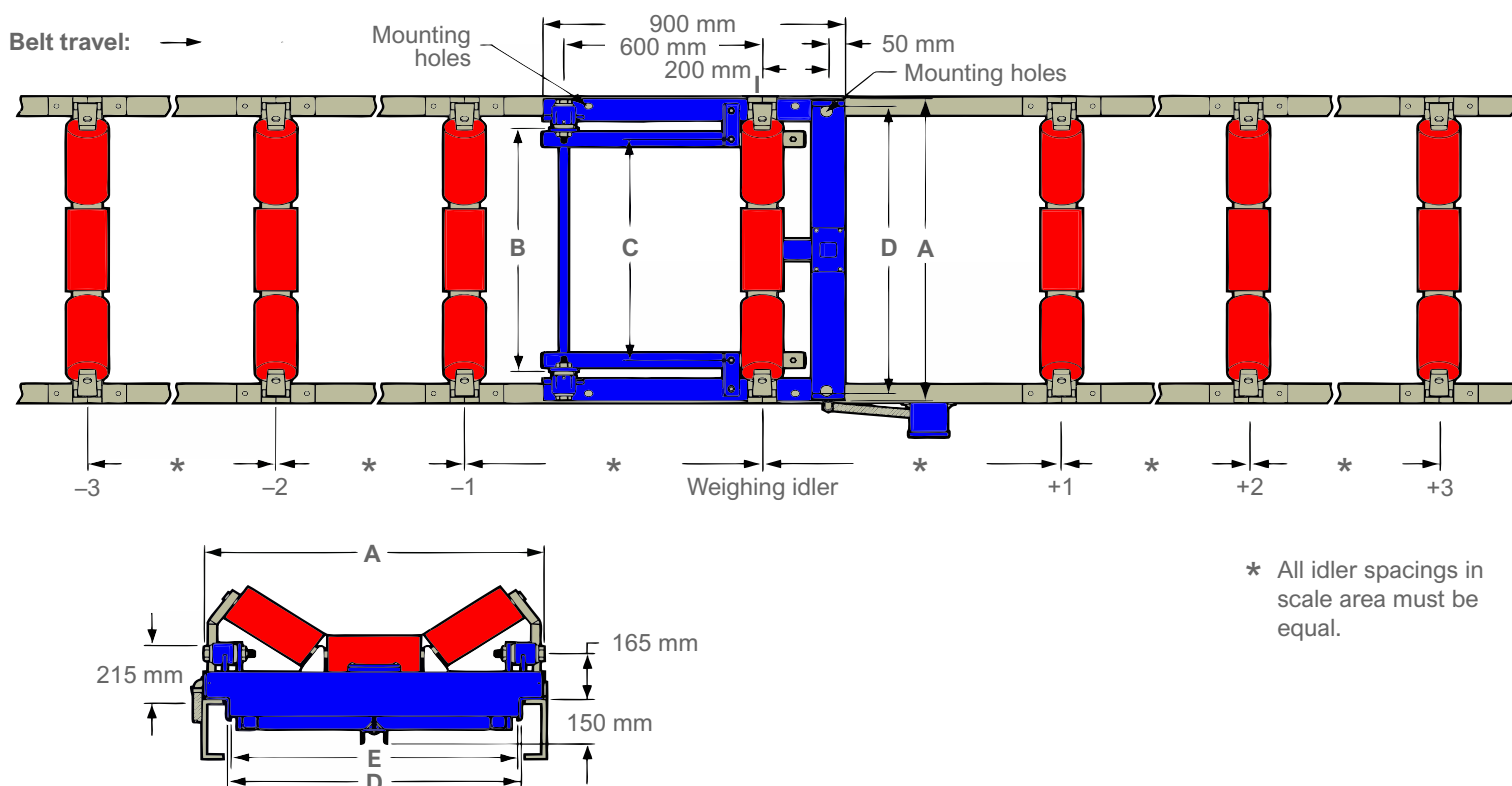
60-12 Belt Speed Sensor Advantages:

● Rugged housing, suitable for outdoor installations.
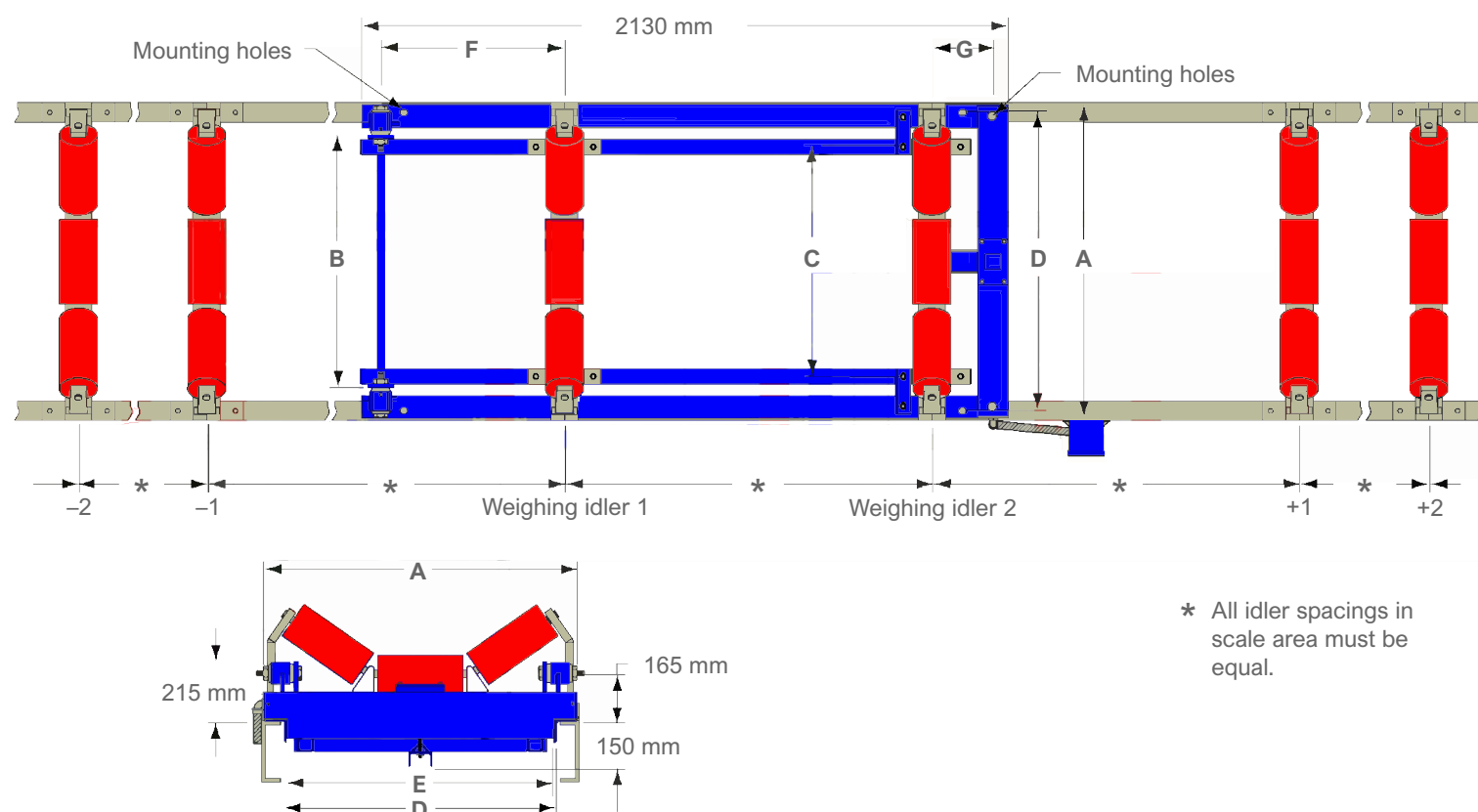● A/C pulse generator means no brushes to adjust or replace.

Performance Guarantee

On installations approved by EmWeA, we warrant that the Thermo Ramsey series 20 process beltscale will weigh and totalize to a value within ±0.5% of the test load when calibrated to our specifications.

10-20-1 Single Idler Weighing Frame:

Belt travel: →

Mounting holes

900 mm
600 mm
200 mm
50 mm
Mounting holes

B C D A

−3 * −2 * −1 * Weighing idler * +1 * +2 * +3

A

215 mm
165 mm
150 mm

E
D

* All idler spacings in scale area must be equal.

10-20-2 Dual Idler Weighing Frame:

Mounting holes

2130 mm

F G

Mounting holes

B C D A

−2 * −1 * Weighing idler 1 * Weighing idler 2 * +1 * +2

A

215 mm
165 mm
150 mm

E
D

* All idler spacings in scale area must be equal.

Technical Specifications:

10-20 Weighing Frame:

No. of weighing idlers:	1 or 2
Clearance requirements:	fits any standard conveyor; no space required above belt line
Belt width:	from ca. 400 mm (no upper limit)
Construction:	mechanical steel tubing, coated (option: stainless steel)
Mounting:	4 or 6 bolts to conveyor stringers

Load Cell(s)

Quantity:	1 or 2
Enclosure:	environmentally-protected „S" type cell, stainless steel, IP 68
Mounting:	tension type
Excitation:	5 V D
Output:	2 m
Accuracy:	±0.02 % / 3000 d
Non-Linearity:	<0.03 % full span
Non-Repeatability:	<0.01 % full span
Hysteresis:	<0.02 % full span
Operating temperature:	-20°C ... +65°C (standard); different temperatures on request
Temperature sensitivity:	span: 0.0014 % full span / °K
	zero: 0.0027 % full span / °K
Safe load:	150 % full span
Ultimate load:	300 % full span
Sideload:	50 % full span
Certificates (standard):	CE
Certificates (optional):	ATEX, FM, OIML, MID

60-12 Belt Speed Sensor:

Type:	digital, brushless
Mounting:	direct to stub shaft with M16 thread hole or 16 mm trunnion, on tail pulley or bend pulley
Housing:	weatherproof, IP 65
Mounting Hardware:	supplied with coupling, restraint arm and restraint spring
Certificates (standard):	CE
Certificates (optional):	ATEX, FM, OIML, MID

Control and Display Unit (Integrator):

Various control units for variant requirements are available. Choose a wheatherproof field mount enclosure or a DIN panel mount housing. A wide range of optional interfaces and expandabilities (binary and analog inputs and outputs, RS232, RS485, Profibus DP, Ethernet/IP, or USB make it easy to connect the belt scale with customer's process control systems. We would be happy to prepare an individual quotation for you!

DATA SHEET

Precision Beltscale
Thermo Ramsey Series 14.

High-precision beltscale
for industrial applications.

Accuracy: ±0.25%.

Rugged, high-precision Beltscale

The Thermo Ramsey Series 14 precision beltscale is specifically designed for highest accuracy or basis-of-payment applications requiring certification by government and regulatory agencies. This beltscale is extremely accurate to within ±0.25% (optional 0.125%) and is the most widely certified beltscale in the world.

The Series 14 precision beltscale lets you monitor production output and inventory, or regulate product loadout, while providing vital information for the effective management and efficient operation of your business.

The weighing assembly consists of the 10-14 low-deflection, full-floating unitized weighing frame and the speed sensor 60-12. It also utilizes the Ramsey Micro-Tech 9000 series or Micro-Tech 3000 series electronic integrator.

The Series 14 precision beltscale represents the world standard of accuracy and performance for loadout, inventory monitoring and fee-holder type applications requiring certification.

System Components

The Thermo Ramsey Series 14 precision beltscale consists of four major components: control unit (integrator), weighing frame, load cells and belt speed sensor.

Control Unit (Integrator)

As control units, the modern Micro-Tech 9000 and Micro-Tech 3000 series integrators are used. These devices are characterized by their high accuracy, their ruggedness and their easy handling. Various interfaces and expandabilities make it easy connecting the beltscale with process control systems.

Weighing Frame

The 10-14 weighing frame is normally designed for four idler stations. For special applications, the weighing frame may be designed for two, three, six or more idler stations as well. All series 10-14 weighing frames are constructed of structural steel tubing and are factory pre-assembled with checkrods to facilitate fast and easy field installation. Only eight bolts are required to mount the unit to conveyor stringers. Four environmentally-sealed precision strain gauge load cell assemblies are applied in tension to support the weigh platform.

10-14 Weighing Frame Advantages:

- Rigid structural steel tubing construction with check rods maintains positive alignment.
- No moving or wearing parts lead to a longer life span and low maintenance costs.
- Factory pre-assembled and easily installed.
- Four strain gauge load cells applied in tension.
- Full-floating, pivotless weigh platform.

Belt Speed Sensor

The Thermo Ramsey 60-12 digital belt speed sensor is one of the most reliable and accurate speed-sensing devices ever developed for beltscale service. Direct-coupling the sensor to the conveyor tail pulley, snubbing roll, or a large diameter return roller ensures an accurate belt-travel readout. No wheels ride on the belt, which eliminates problems related to material build-up and slippage.
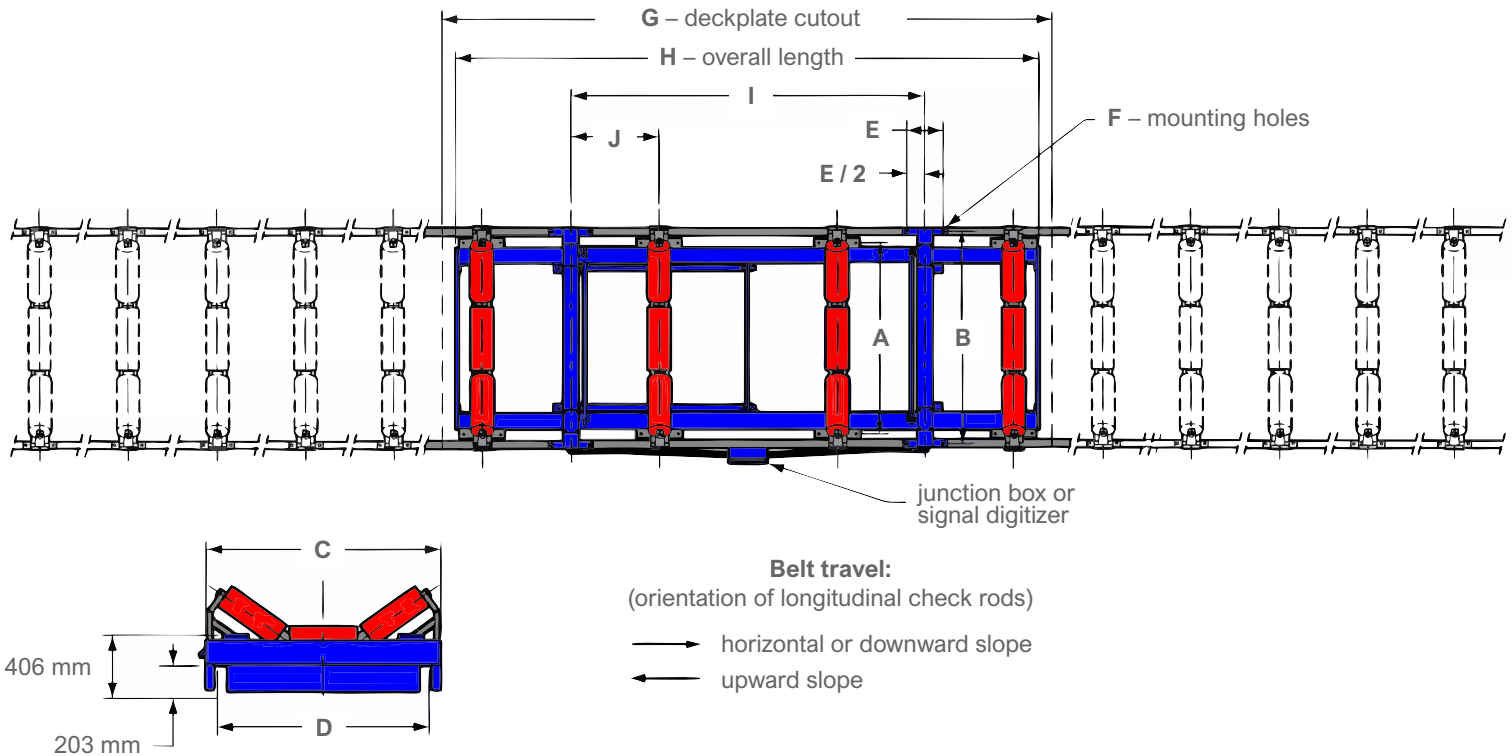
60-12 Belt Speed Sensor Advantages:

- Rugged housing, suitable for outdoor installations.
- A/C pulse generator means no brushes to adjust or replace.

Performance Guarantee

On installations approved by EmWeA, we warrant that the Thermo Ramsey Series 14 precision beltscale will weigh and totalize to a value within ±0.25% (optional ±0.125 %) of the test load when calibrated to our specifications.

10-14-4 Weighing Frame:

G – deckplate cutout
H – overall length
I
J
E
E / 2
F – mounting holes
A
B
junction box or signal digitizer

406 mm
203 mm
C
D

Belt travel:
(orientation of longitudinal check rods)

→ horizontal or downward slope
← upward slope

Dimensions (Examples):

Belt Width	Dimensions (ca.)					
	A	B	C	D	E	F
500 mm	600 mm	750 mm	800 mm	650 mm	190 mm	14 mm
650 mm	750 mm	900 mm	950 mm	800 mm	190 mm	14 mm
750 mm	850 mm	1,000 mm	1,050 mm	900 mm	190 mm	14 mm
850 mm	950 mm	1,100 mm	1,150 mm	1,000 mm	190 mm	14 mm
1,000 mm	1,100 mm	1,250 mm	1,300 mm	1,150 mm	250 mm	18 mm
1,200 mm	1,300 mm	1,450 mm	1,500 mm	1,350 mm	250 mm	18 mm
1,400 mm	1,500 mm	1,650 mm	1,700 mm	1,550 mm	250 mm	18 mm
1,600 mm	1,700 mm	1,850 mm	1,900 mm	1,750 mm	250 mm	18 mm
1,800 mm	1,900 mm	2,050 mm	2,100 mm	1,950 mm	250 mm	18 mm
2,000 mm	2,100 mm	2,250 mm	2,300 mm	2,150 mm	250 mm	18 mm

Idler Spacing	Dimensions (ca.)			
	G	H	I	J
900 mm	3,250 mm	3,050 mm	1,800 mm	450 mm
1,000 mm	3,550 mm	3,350 mm	2,000 mm	500 mm
1,200 mm	4,250 mm	4,050 mm	2,400 mm	600 mm

Technical Specifications:

10-14 Weighing Frame:

No. of weighing idlers:	4 (standard)
Clearance requirements:	fits any standard conveyor; no space required above belt line
Belt width:	from 400 mm (no upper limit)
Construction:	mechanical steel tubing (option: stainless steel)
Mounting:	8 bolts to conveyor stringers

Load Cells:

Quantity:	4
Enclosure:	environmentally-protected „S" type cell, stainless steel, IP 67
Mounting:	tension type
Excitation:	5 V DC
Output:	3 mV/V
Accuracy:	±0.02 % / 3000 d
Operating temperature:	-40°C ... +80°C
Nominal temerature:	-10°C ... +40°C
Safe load:	150 % full span
Ultimate load:	300 % full span
Sideload:	50 % full span
Certificates (standard):	CE
Certificates (optional):	ATEX, FM, OIML, MID

60-12 / 61-12 Belt Speed Sensor:

Type:	digital, brushless
Mounting:	direct to stub shaft with M16 thread hole or 16 mm trunnion, on tail pulley or bend pulley
Housing:	weatherproof, IP 65
Mounting hardware:	supplied with coupling, restraint arm and restraint spring
Certificates (standard):	CE
Certificates (optional):	ATEX, FM, OIML, MID

Control and Display Unit (Integrator):

Various control units for variant requirements are available. Choose a wheatherproof field mount enclosure or a DIN panel mount housing. A wide range of optional interfaces and expandabilities (binary and analogue inputs and outputs, RS232, RS485, Profibus DP, Ethernet/IP, or USB make it easy to connect the beltscale with customer's process control systems. We would be happy to prepare an individual quotation for you!

OPTICAL BELTSCALE FLO-3D II

Optical Beltscale FLO-3D II.

The smart volume flow meter for bulk materials on belt conveyors, vibratory conveyors, ...

Limestone measurement on a vibrating conveyor

Description:

The FLO-3D II Optical Belt Scale is a valuable, easy-to-install alternative to a belt scale or flow meter. This volume flow meter is perfect for e.g. internal control applications, gantry scraper's control, large open-pit mine equiment's control and much more.

The EmWeA FLO-3D II sensor has to be fixed above the conveyor. The integrated 3D camera continuously takes three-d pictures of the bulk material. The empty belt's profile is „teached" with the help of the semi-automatic zeroing function.

On the EmWeA FLO-3D II sensor's display, the actual volume flow rate is shown in m³/h. It is even possible to display t/h if material's bulk density is constant.

Advantages:

- rigid design
- easy installation and start-up
- valuable price
- low-maintenance
- optional dust protection housing
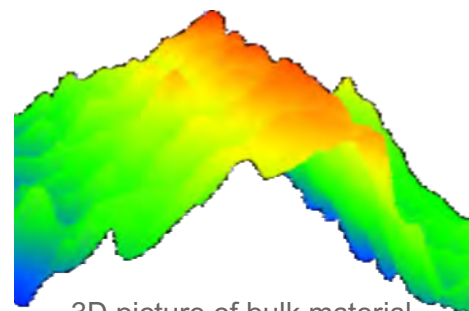
3D picture of bulk material

OPTICAL BELTSCALE FLO-3D II

Typical Scope of Delivery:

Dust protection housing, stainless steel, with purge air connection and temperature sensor.

Junction box 100 ... 240 V AC including power supply, terminal block for inputs and outputs, ethernet jack. Protection: IP 65.

Operating program and documentation.

FLO-3D Sensor II. Protection: IP 67.

10 m pre-assembled cables to the sensor.

Technical Specifications:

Display:
4 LED, yellow
4 LED, green
Four-digit numeric display

Supply Voltage:
100 ... 240 V AC ±10 %
Optional 24 V DC ±10 %

Ambient Temperature:
-10 °C ... +50 °C
Optional 0 °C ... +70 °C

Material:
Sensor housing: die-cast aluminium
Front window: PMMA
Display window: PC
Junction box: PC

Sensor Connections:
M12 plug-in connector IP 67

Junction Box Connections:
Terminal blocks, RJ45

Type of Protection:
Sensor: IP 67
Junction box: IP 65

Inputs:
2 binary (24 V PNP) for belt stop and product change

Outputs:
2 binary (24 V PNP), or
1 binary (24 V PNP) and 1 analog (4-20 mA or 0-10 V)

Binary Output Functions:
Counting pulses
Min. threshold
Max. threshold

Analog Output Functions:
Volume flow rate (m³/h)
Mass flow rate (t/h, at constant bulk density)

Ethernet Port:
PC operating software
Data transfer

OPTICAL BELTSCALE EHS

Optical Beltscale EHS.

Volumetric bulk measurement
for mobile and stationary conveyors.

Accuracy: ±2%.

Rigid optical belt scale
for mobile systems and industrial applications

The optical belt scale's sensor is mounted above the belt or the drive pulley. It has no bulk material contact, and as a consequence it is no subject to wear. Belt speed is determined by a transducer directly mounted near the drive pulley. The system is insensitive to dust and vibrations. The optical belt scale does its job at any conveyor angle even if it varies during measurement. The sensor has no display or operating option, just a signal lamp is indicating the operational status. All measured values are stored up to one year. The included smartphone is used for operation, as well as for displaying measuring values and counter readings.
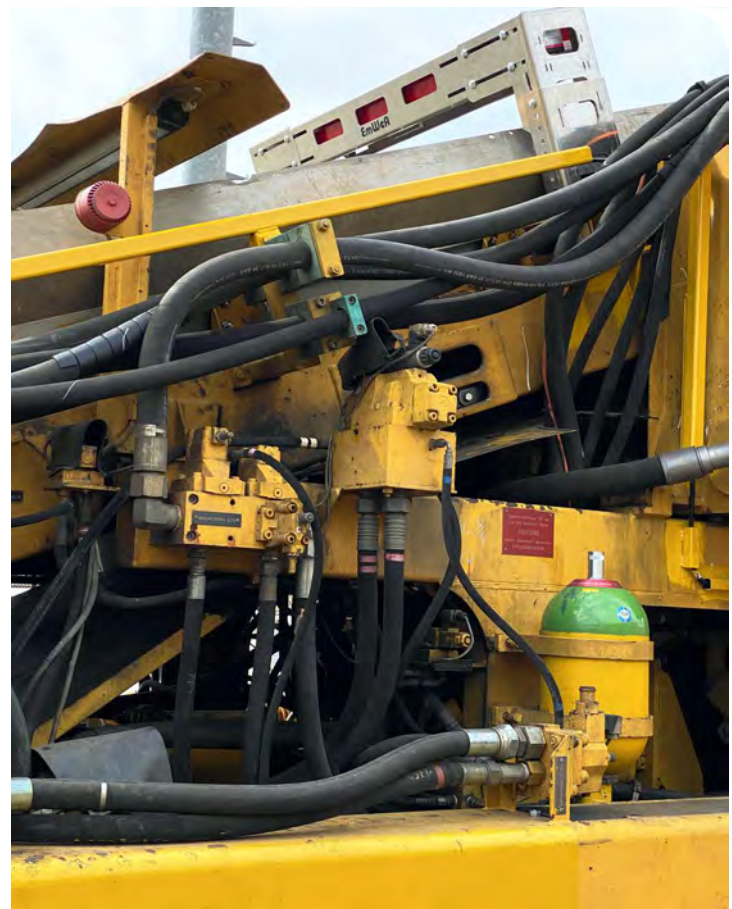
Smartphone and mobile printer

- CAT®-Smartphone, shockproof, waterproof IP 67
- Android app „SensorManager"
- Wireless data transmission via Bluetooth
- Connection to the office PC using a USB cable
- USB cable and charging station 110 / 230 V AC
- Portable thermal printer
- Customer - date / time
- User - location
- Material - measurement data printout / e-mail

OPTICAL BELTSCALE EHS

Technical specifications:

Sensor:

Operating voltage:	24 V DC ±20%; 5 A (other voltages as an option)
Ambient temperature:	-45 °C ... +70 °C
Measuring rate:	200 measurements per second
Storage capacity:	More than one year
Interfaces:	Bluetooth Class I (standard)
	Analogue output 4-20 mA (optional)
	Serial interface RS 422 (optional)
Laser:	Class 3B according to IEC 60825-1: 2001
Pulse power:	60 mW
Pulse duration:	400 µs
Wavelength:	785 nm
Pulsfrequenz:	200 Hz

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SOLIDS FLOW DETECTOR

FLOW NO FLOW
Solids Flow Detector.

Bulk solids flow detection
in closed pipes free-fall applications.

**Alternative to the former
Thermo Ramsey DTR 131 detector.**

SOLIDS FLOW DETECTOR
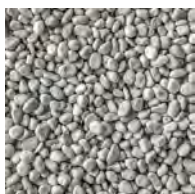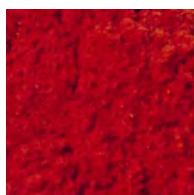
FLOW NO FLOW Solids Flow Detector

Solids flow detectors detect if bulk material is flowing or not. EmWeA flow detectors are using the last microwave technologies to insure the best accuracy, independent of the process or product variations.

Application Examples:

Screw feeder output

Phases of a process

Drying | Grinding
Screening | Mixing

Production
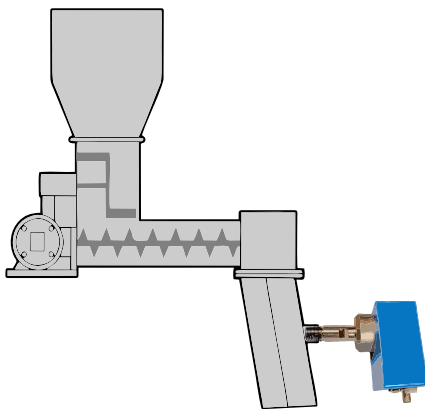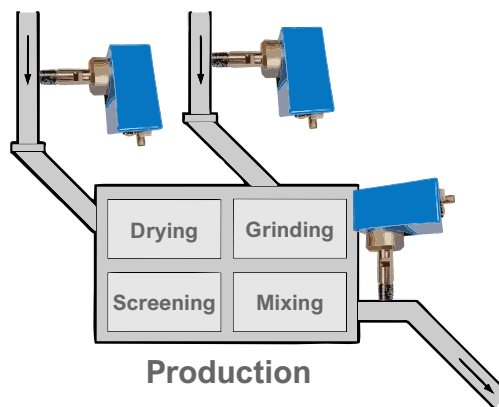
Silo discharge
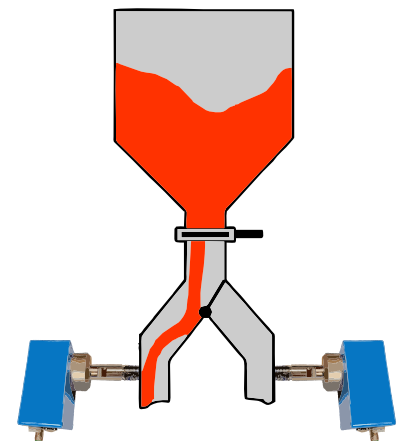
Pneumatic injection
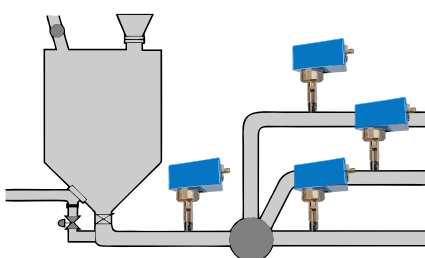
Manifold / Diverter

Transfer point
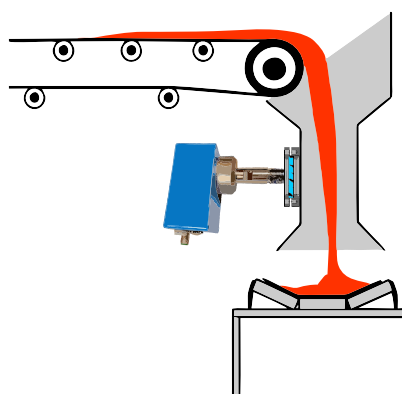
Bag filter monitoring
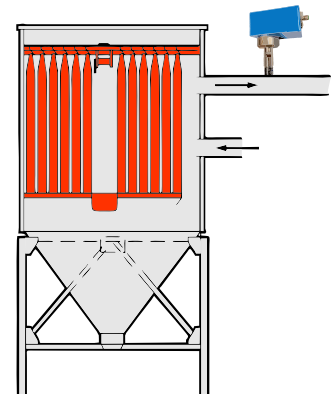
SOLIDS FLOW DETECTOR

Messprinzip

Measuring Principle:

The FLOW NO FLOW solids flow detector uses the Doppler effect. A microwave signal is emitted and creates an electromagnetic field. The particles moving through this field generate a signal whose amplitude and frequency change depends on the particle flow.

Benefits:

In addition to the actual detection, the DYNAMIC FLOW solids flow detector also compensates for all changes in:

- Particle concentration
- Velocity
- Grain size
- Temperature

High reliability and reproducibility - high long-term stability.

- Non-contact measurement
- Easiest operation
- Maintenance free
- Without an external control unit

FLOWcontrol Software included:

After calibration using FLOWcontrol, the device works completely independently, without any PC connected.

SOLIDS FLOW DETECTOR

Technical Specifications:

Housing material:	Aluminum, painted; or stainless steel 1.4404 (depending on model)
Dimensions:	Housing: 134 x 90 x 52 mm;
	Probe: 150 x Ø 20 mm
	(other lengths on request)
Weight:	1.2 kg
Type of protection:	IP 66
Ambient temperature:	-20 °C ... +60 °C
Product temperature:	Standard: -20 °C ... +70 °C;
	Optional: -20 °C ... +200 °C
Pressure:	< 80 bar
Outputs:	1 relay output, max. 30 V AC / DC, 80 mA
Certifications:	Standard: $C \epsilon$
	Optional: ATEX II 1 / 2 D; $\langle Ex \rangle$ ta/tb IIIC T100°C Da/Db IP67
Cables included:	1 connection cable M12, length 5 m
	1 USB cable, length 1.8 m
Operating software:	*FLOWcontrol*
Software languages:	German, English, French, Hungarian
Optional accessories:	Sight glass fitting with bracket, power supply unit
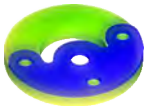
Installation (Example in Pipe):

1) Drilling.

2) Welding.
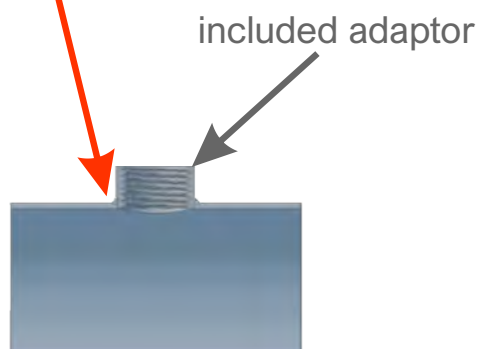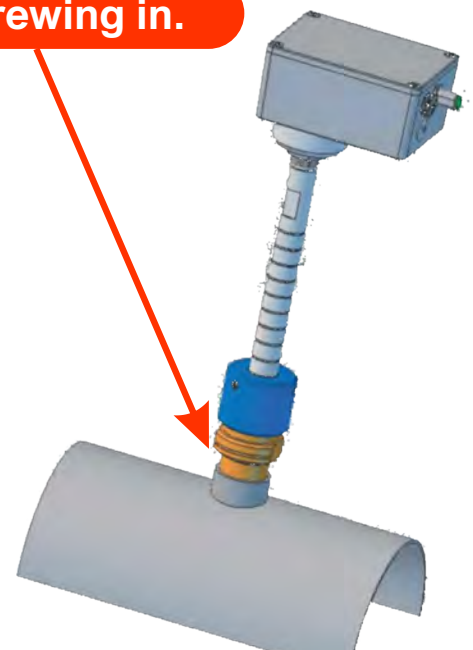
3) Screwing in.

included adaptor

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www.emwea.de

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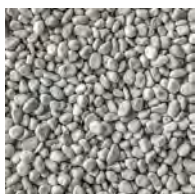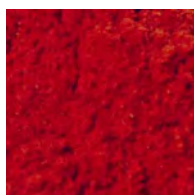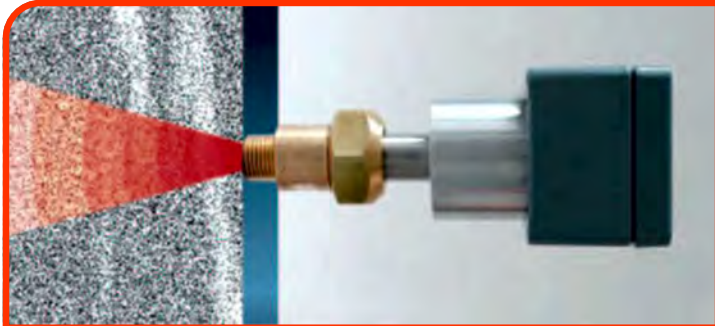
SOLIDS FLOW METER

Solids Flow Meter DYNAMIC FLOW.

Bulk flow measurement in pipes: pneumatic conveying, or freefall.

Accuracy: ca. ±5%.

SOLIDS FLOW METER

Measuring Principle

Measuring Principle:

DYNAMIC FLOW uses the principle of the Doppler effect. A microwave signal is emitted, thereby generating an electromagnetic field inside the pipe. The particles moving through this field generate a signal that varies in amplitude and in frequency.

The rate of flow is deduced from a mathematical analysis combined with a calibration (with real measures).

Advantages :

Beyond the working principle, the technology developed for DYNAMIC FLOW allows the equipment to compensate for variations in:

- Particle concentration
- Speed of particles
- Grain size
- Temperature

Better accuracy and repeatability – better long-term stability.

- Non-contact measurement
- Easy-to-use device
- maintenance-free
- without external control unit

Included *FLOWcontrol* software:

Once calibrated using *FLOWcontrol,* the device runs completely autonomously, without a PC connected.
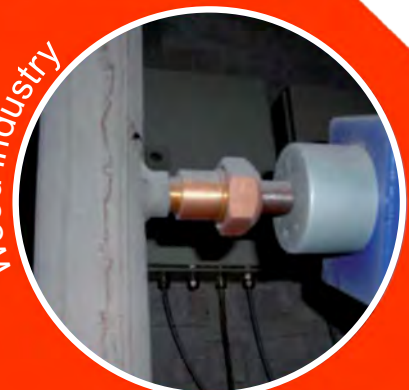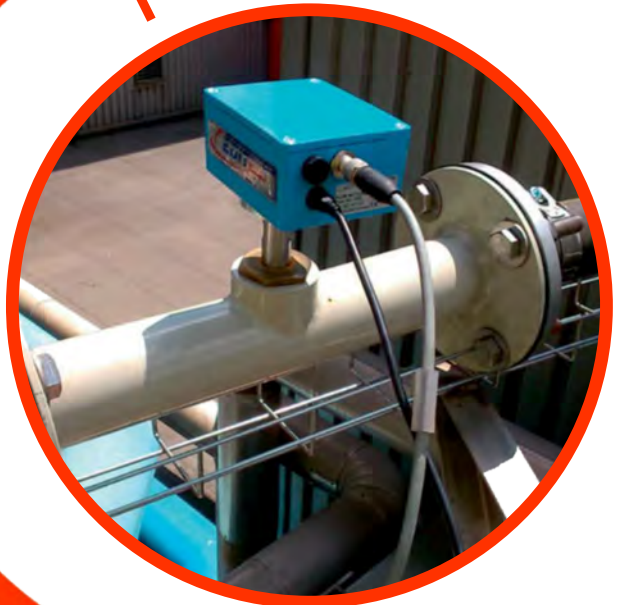
Application examples:

Cement

Coal

Bauxite

Flow

Animal feed

Power plant

Wood industry

SOLIDS FLOW METER

Technical Specifications:

|	
Housing material:	Aluminum, painted; or stainless steel 1.4404 (depending on the model)
Dimensions:	Housing: 134 x 90 x 52 mm;
	Wave guide: 150 ... 300 x Ø 20 mm
	(other lengths on request)
Weight:	1.2 kg
Protection:	IP 66
Ambient temperature:	-20 °C ... +60 °C
Product temperature:	Standard: -20 °C ... +70 °C;
	Optional: -20 °C ... +200 °C
Pressure:	< 80 bars
Outputs:	2 analogue outputs, 4 ... 20 mA, max. charge 500 Ω;
	1 pulse output for counter pulses
	(for external voltage max. 300 V AC / DC)
	Optional: MODBUS
Certifications:	Standard: CE
	Optional: ATEX II 1 / 2 D; (Ex) ta/tb IIIC T100°C Da/Db IP67
Supplied cables:	1 connection cable M12, length 5 m
	1 USB cable, length 1.8 m
Operating software:	*FLOWcontrol*
Software languages:	German, english, french, hungarian
Optional accessories:	Valve set, sight glass fitting with mounting bracket, display, power supply
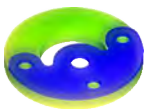
Pipe Mount Installation:

1) Drilling.

2) Welding.
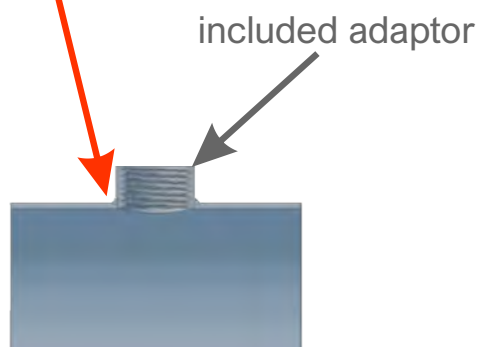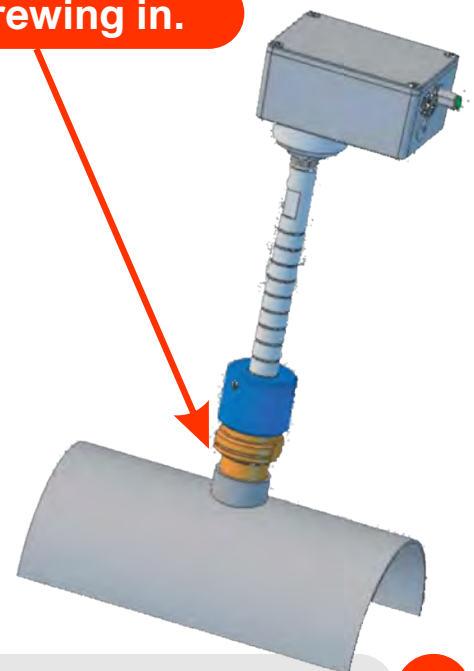
3) Screwing in.

included adaptor

LEVEL INDICATOR C-LEVEL

EmWeA

Continuous Level Indicator Thermo Ramsey C-Level.

Continuous level measurement for bins and vessels.

Accuracy: from ±2%.

Continuous Level Indicator

The Thermo Ramsey C-Level continuous level indicator's unique precision strain gauge sensors are press-fit into a vessel's support structure, so there is no concern for failure or maintenance issues caused by difficult materials or harsh process environments. This ensures that your process operates at its optimum level of performance. Using the C-Level continuous level indicator will minimize the maintenance required.

The C-Level continuous level indicator is ideally suited for inventory monitoring and process control during the load-out or filling of bins and vessels containing bulk solids or liquids. Due to its unique precision strain gauge sensors being press-fit into the vessel's support structure, the system can operate without concern for failure or maintenance issues caused by the monitored material or process environment. This distinctive design also compensates for temperature changes that can affect the accuracy of other types of sensors.

Accurate to within ±2% depending on the application, the C-Level indicator is unaffected by corrosive or abrasive materials, uneven material discharge, build-up on sidewalls, bridging, rat-holing or dusting. This makes it a real alternative to conventional level measuring methods.
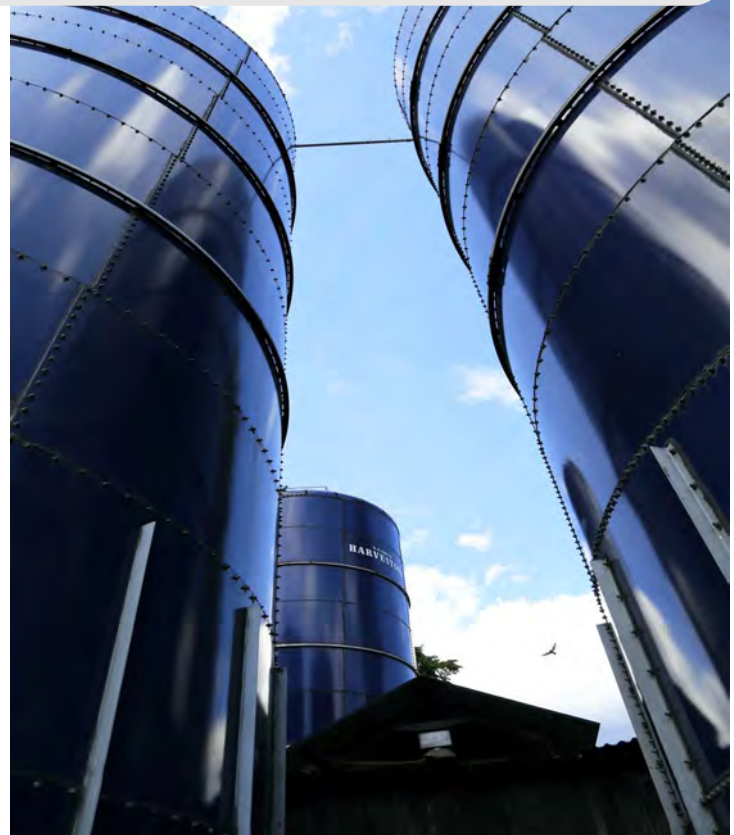
Features and Benefits

- Precision electronic and hermetically-sealed stainless steel strain sensor.
- Sensor mounted externally to the bin, which eliminates contamination or corrosion that can result from contact with the monitored product.
- Incorporation of the sensor as an integral part of the support member cancels temperature effects common to so-called „bolt-on" sensors.
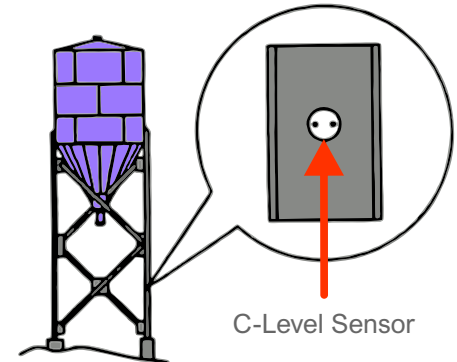
LEVEL INDICATOR C-LEVEL

Technical Specifications:

C-Level Strain Sensor:

Enclosure:	Stainless steel 1.4301 AISI 304
Connection cable:	PVC cable, 30 cm or 10 m
Installation:	Press fit in precision bore
Supply voltage:	10 V DC
Signal output:	1 mV/V
Operating Temperature:	-40°C ... +65°C

C-Level Sensor

C-Level CL100A Control Unit:

Enclosure:	Polystyrene plastic, weather-tight
Type of protection:	IP 64
Operating Temperature:	-10°C ... +50°C
	(temperatures down to -40°C will not damage unit)
Supply voltage:	120 / 240 V AC; -15% ... +10%; 48 ... 62 Hz
Current consumption:	< 10 W
Outputs (standard):	3 SPDT dry contacts, 5 A at 250 V AC (thresholds MIN / MAX / 102%)
Outputs (optional):	Analogue output 0 / 4 ... 20 mA, proportional to level indication
Display:	50-segment LED bar graph; 2% increments
Certifications:	CE

MINI 11-100-DCL-RC-P Control Unit:

Enclosure:	DIN standard 144 x 72 mm
Type of protection:	Front panel: IP 54; enclosure: IP 00
Operating Temperature:	0°C ... +40°C
Storage temperature:	-20°C ... +70°C
Supply voltage:	110 / 220 V AC; -15% ... +10%; 48 ... 62 Hz
Outputs:	4 SPDT; 0.5 A at 240 V AC (thresholds, fault)
	1 analogue output 0 / 4 ... 20 mA or 20 ... 0 / 4 mA
	1 serial interface RS485
Display:	LCD with backlighting;
	8 mm height; 16-digit alphanumeric
Certifications:	CE

MINI 11-100-DCL-RC-F Control Unit:

Enclosure:	Polycarbonate plastic, weather-tight
Type of protection:	IP 64; NEMA-4X
Operating Temperature:	0°C ... +40°C
Storage temperature:	-20°C ... +70°C
Supply voltage:	110 / 220 V AC; -15% ... +10%; 48 ... 62 Hz
Outputs:	4 SPDT; 0.5 A at 240 V AC (thresholds, fault)
	1 analogue output 0 / 4 ... 20 mA or 20 ... 0 / 4 mA
	1 serial interface RS485
Display:	LCD with backlighting;
	8 mm height; 16-digit alphanumeric
Certifications:	CE

DATA SHEET

Tilt Switches (Tilt Sensors) Thermo Ramsey PROLINE.

For Bulk Monitoring.

Mercury-Free Tilt Switches (Tilt Sensors)

The mercury-free tilt sensors use advanced technology inside the tilt probe to replicate the same performance found in traditional mercurybased tilt switches. A combination of opto-electronics and solid state circuitry inside the probe prevents jitter and provides stability not found in the typical non-mercury options.

Reliable and precise Bulk Monitoring

The precision machined tilt switches (tilt sensors) provide sensing of a 15 degree inclination in a full 360 degrees of direction. Multiple models of the tilt switch (tilt sensor) are available for a wide variety of applications.

Control Units:

One system consists of a control unit and a tilt sensor. Due to the nature of the stabilizing electronics, mercury-free tilt switches cannot be used without a controller.

Control Unit
20-35-NM-DIN
DIN Mount Enclosure IP 20 / NEMA 1

Control Units
20-35-NM-F and 21-35-NM-F-ATEX
Steel Enclosure IP 65 / NEMA 4

Control Unit
20-35-NM-F-4X
Stainless Steel Enclosure IP 65 / NEMA 4X

Tilt Switches | Tilt Sensors:

20-59-NM | 21-59-NM
Cast Ductile Iron, Nickel Plated
Standard

20-55-NM-P
Plastic
Light-Weighted

20-54-NM-SS | 21-54-NM-SS
Stainless Steel
Standard

20-52-NM | 21-52-NM
Steel
Heavy-Weighted

TILT SWITCHES - TILT SENSORS

Dimensions of Tilt Switches (Tilt Sensors):

20-59-NM
21-59-NM

372
210
64
33,5

20-54-NM
21-54-NM

428
260,5
25,5

20-55-NM

338
215
27

20-52-NM
21-52-NM
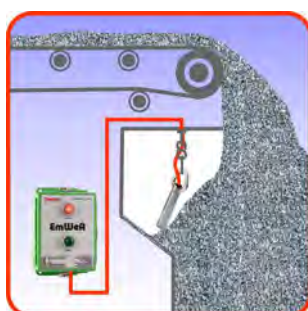
319
188
33,5
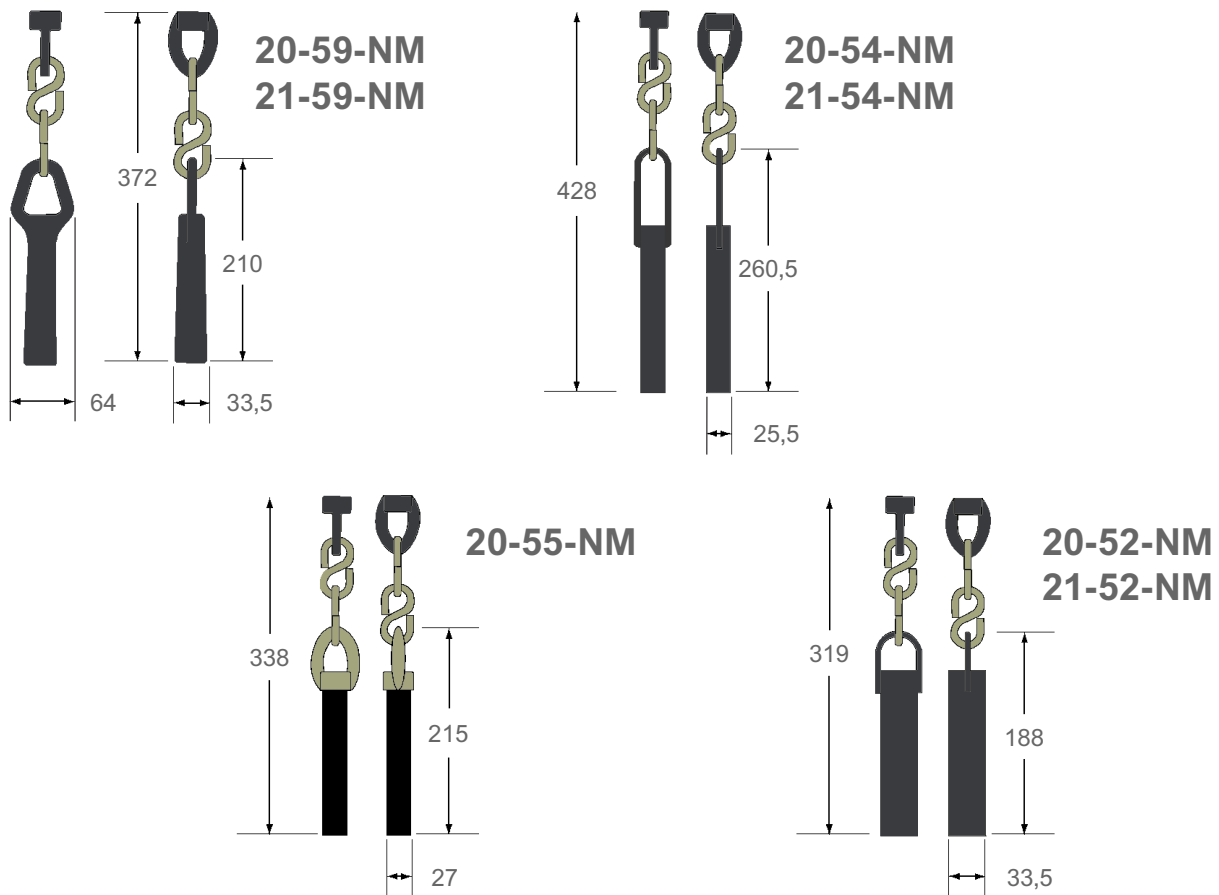
Typical Applications for Tilt Switches (Tilt Sensors):

High Level

High Pile
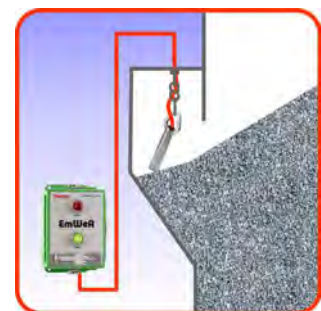
Low Level

Plugged Chute
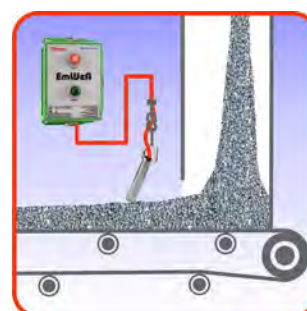
Material Flow

Technical Specifications:

Tilt Switches (Tilt Sensors):

|		
Operating temperature:	(All models)	-40 °C ... +50 °C
Protection:	(All models)	IP 67 / NEMA 4X
Mounting hardware:	(All models)	Hanger and two S-hooks included
Certifications:	(All models)	CE, cCSAus
Certifications:	(21-59-NM, 21-54-NM, 21-52-NM)	ATEX Zone 20 / 21; cCSAus Class I, Div 1 & 2, Groups A, B, C & D; cCSAus Class II, Div 1 & 2, Group E, F & G; CE

Control Units:

Input power:	(All models)	115 / 230 V AC, 50 / 60 Hz
Alarm contact:	(20-35-NM-DIN)	(1) NO, 2 A at 115 / 230 V AC, 3 A at 24 V DC, non-inductive
	(All other models)	(2) SPDT, 6 A at 115 / 230 V AC, 6 A at 30 V DC, non-inductive
Fault contact:	(All models)	(1) NO, 2 A at 115 / 230 V AC, 2 A at 24 V DC, non-inductive
Time delay:	(All models)	1, 2, 4, or 6 seconds, selectable
Operating temperature:	(All models)	-40 °C ... +50 °C
Protection:	(20-35-NM-F, 21-35-NM-F)	IP 65 / NEMA 4
	(20-35-NM-F-4X)	IP 65 / NEMA 4X
	(20-35-NM-DIN)	IP 20 / NEMA 1
Certifications:	(All 20-35 models)	CE, cCSAus
	(21-35-NM-F-ATEX)	CE, ATEX Zone 22

Dimensions of 20-35-NM-DIN Control Unit:
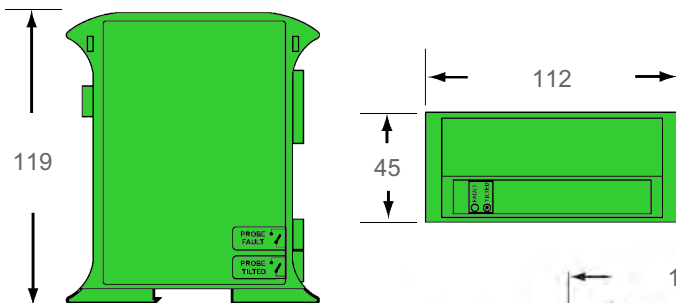
Dimensions of 20-35-NM-F, 20-35-NM-F-4X, and 21-35-NM-F-ATEX Control Units:
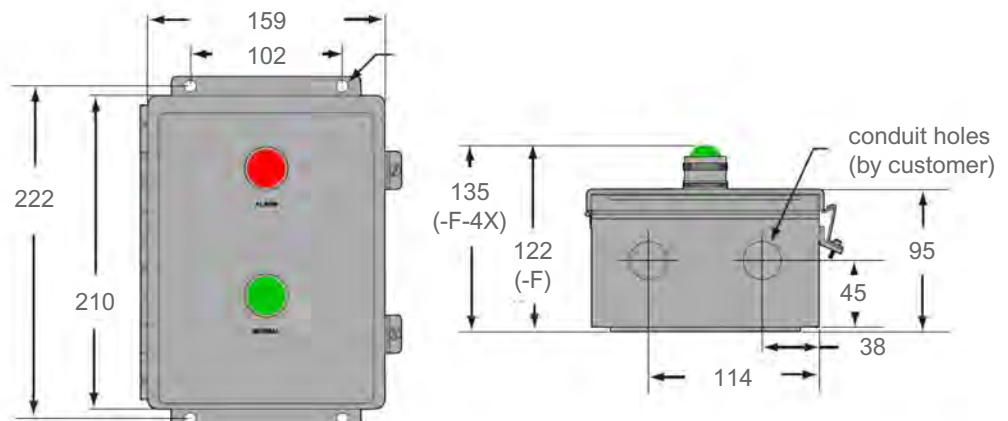
CRANE SCALES

Crane Scales
with Remote Control.

OIML approved, ATEX.

Crane Scales

EmWeA crane scales are intended for easy weighing of suspended loads on cranes, chain blocks etc. Possible max. loads from 150 kg up to 55 t are available.

Use the following for easy operation (optional in some cases):

- Bluetooth port
- Radio transmission
- Wi-Fi
- Remote display
- Remote control, even with integrated printer
- PC software
- Android smart phone app

For weighing by way of legal transaction, OIML approved crane scales are available, optional with integrated alibi memory. We offer versions with ATEX approval for the use in hazardous areas, too.

Compact Multifunction Crane Scales

Compact and versatile crane scale fitted with protection transport case, remote control for teleoperation and rechargable batteries with 40 hours operationg time. Shock-proof painted steel housing. Backlit LCD display ensures high visibility under all conditions.

Industrial Stainless Steel Crane Scales

The best solution to weigh suspended loads in industrial environments. The enclosure is made of stainless steel 1.4301 (AISI 304), protecting the unit against shocks, dust, dirt and rain. The high-brightness LED display is well visible from far-off distance and any direction.

Reinforced Industrial Crane Scales

This crane scale, resistant to any mechanical stress and sources of heat, is suitable for use in foundries as well as in iron and steel industries. The special mechanical system allows a safe load handling in case of unfavourable weather conditions or accidental overloads. High-brightness LED display, protected by a thick Plexiglass panel.

Crane Scale Accessories

External displays and control units, even with integrated printer, for readout from far-off distance, to perform the functions of the crane scale, to printout receipts or labels, or to save data on a USB flash drive. Multicontrol units for bulky items, weighed by multiple crane scales. Extra hooks and shackles.

Software and Apps

- Software „Weigh Console" for PC
- App „ScaleApp" for smart phones and tablet computers

Any question?

ORETRONIC METAL DETECTOR

Tramp Metal Detector
Thermo Ramsey Oretronic IV.

Reliable tramp metal detection
in bulk materials.

Sensitivity from: **Cube 10 mm**
                      Sphere Ø 13 mm
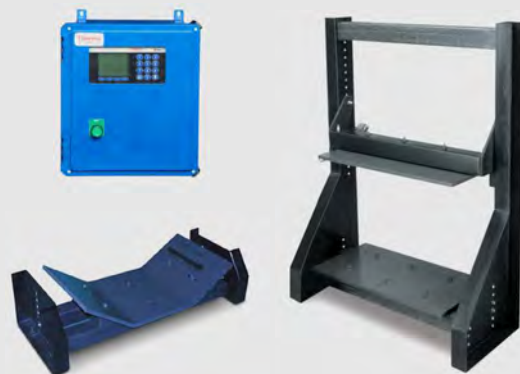
Reliable Protection of your Equipment

Tramp metal can stop your operation, and the damage it causes to equipment can be expensive. The Ramsey Oretronic IV tramp metal detector provides an economical and reliable means to protect expensive crushers, conveyors and other process equipment from damage by tramp metal.

Safe Metal Detection even in Ores, or in wet Bulk Materials

The Ramsey Oretronic IV tramp metal detector is designed especially for belt conveyors moving coal, iron pellets, minerals, aggregates and other bulk materials. It can detect all types of metallic scrap, including bucket teeth, manganese steel mantles, bore crowns, bar scrap, chains and tools. It can even detect tramp metal when buried in wet conductive materials. And, because it is insensitive to materials with high magnetic permeability and electrical conductivity, this tramp metal detector can be used in applications where conventional metal detectors produce an unacceptable false alarm rate.

ORETRONIC METAL DETECTOR

Technical Specifications:

Belt speed:	0.025 m/s ... 9.1 m/s (1.5 m/min ... 550 m/min)
Power supply:	98 ... 253 V AC (Oretronic IV-4A), or 115 ... 230 V AC (Oretronic IV-6A)
	50 .. 60 Hz, single phase, 0.9 A (Oretronic IV-4A), or 2.8 A (Oretronic IV-6A)
Display:	LCD grafic display, 77 mm x 58 mm,
	with permanent backlight for good visibility indoors and outdoors
Alarm outputs:	3 relais outputs (NO and NC), 5 A at 250 V AC
	(alarm Indicator, alarm, marker output)
	2 relais outputs (NO), 5 A at 250 V AC (bypass, ready)
Operating temperature:	-40 °C ... +58 °C
Storage temperature:	-30 °C ... +75 °C
Relative humidity:	10 ... 95%, non-condensing
Control unit's housing:	Oretronic IV-4A: fiberglass plastic, IP 66 / NEMA 4X, 432 x 360 x 184 mm
	Oretronic IV-6A: steel, painted, IP 66 / NEMA 4, 687 x 524 x 230 mm
Serial interface:	RS485 (optional)
Coils:	Sealed in PVC
Support assembly:	FRP reinforced support assembly
Certifications (standard):	CE, RoHS
Certifications (optional):	ATEX

SENTINEL METAL DETECTOR

Metal Detector
Thermo Sentinel™ Multiscan.

Multiscan metal detector
for demanding applications.
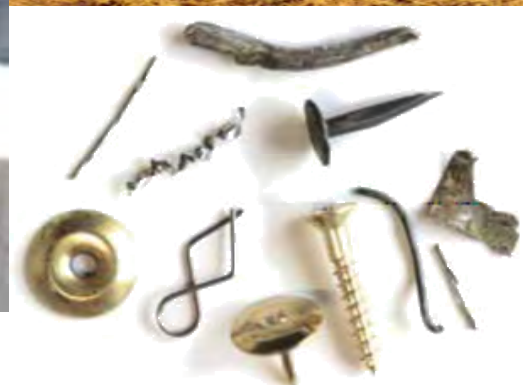
The metal detector you've been waiting for

The Thermo Scientific™ Multiscan Metal Detector Sentinel™ uses innovative technology to overcome the limitations of traditional one or two fixed frequency metal detectors. This avoids undetected contamination, especially in the case of sophisticated, conductive products.

With the Multiscan technology, the metal detector works with up to five selectable search frequencies. This means that impurities can be detected that are up to 70% smaller than with conventional devices. The risk of an undiscovered metal part is thus reduced to almost zero. It's like having five metal detectors in one device.

Various options are available for the Sentinel™ metal detectors, such as compression flanges, certified test pieces, reject confirmation sensors, bin full sensors,as well as a large selection of individual transport systems.

SENTINEL METAL DETECTOR

Technical specifications:

Search frequency range:	50 ... 1000 kHz, Multiscan works with up to five frequencies.
Sensitivity:	Detects metals that have a volume up to 70% smaller than the previous model APEX 500 (if the application test is successful).
Construction:	Housing and operating front made of stainless steel EN 1.4301; HD option: stainless steel EN 1.4401 | AISI 316. Three optional outlet linings for intensive wet cleaning or high temperature.
Product speed:	0.5 m / min ... 80 m / min; Speed sensor strongly recommended.
Outputs:	8 relay outputs: 250 V AC; 2 A; 50 V DC 1 A. 8 PNP outputs: 24 V DC; any two 500 mA, the others 30 mA each.
Assignment of outputs:	Reject 1, reject 2, fail, alarm, warning.
Inputs:	8 inputs: 24 V DC active; NPN or PNP selectable.
Assignment of inputs:	Speed sensor, light barrier, reject confirmation 1, bin full, external alarm, external reset.
USB interface:	USB 2.0, waterproof.
Power supply:	100 ... 240 V AC; 50 ... 60 Hz; 0.6 ... 1.2 A.
Ambient temperature:	–10°C ... +40°C.
Product temperature:	Standard: -10°C ... +55°C HD option: max. 40°C PVDF option: max. 120°C
Max. downwash temperature:	55°C; HD option: 65°C; PVDF option cannot be washdowned (for dry applications only)
Relative humidity:	20% ... 80%, non-condensing
Protection:	IP69K; with HD option including thermal shock protection.

Application examples:

DATA SHEET

Test Pieces for Metal Detectors and X-ray Detectors.

With certificate of conformity.

Certified Test Pieces for Metal Detectors and X-ray Detectors

Test pieces (test sticks, test cards etc.) are used as checking aids for metal detectors and X-ray detectors within the context of quality assurance.

There is a certified sample (ball or wire) made of metal, glass, ceramic, zirconia, plastic, or rubber inside the test piece. When checking a metal detector or an X-ray detector, the test piece must be transported through the detector. By doing this, it is easy to check if this certain detector finds that sample without fail.

A variety of different shapes, sizes and sample materials are available to achieve an optimal adaptation to your production process.

All test pieces will be shipped with a certificate, i.e. for presentation during audit. Test pieces are available in your favoured colour, too. It is even possible to produce variant forms or dimensions according to your wishes.

TEST PIECES

Test Pieces for Metal Detectors:

Type	Dimensions	Material	Housing Colours
Test stick	50 x 10 x 10 mm 50 x 20 x 20 mm 50 x 30 x 30 mm 75 x 10 x 10 mm 75 x 20 x 20 mm 75 x 30 x 30 mm 100 x 10 x 10 mm 100 x 20 x 20 mm 100 x 30 x 30 mm	PMMA (Acrylic)	red yellow orange blue green smoke black glass-clear
Test stick	50 x 10 x 10 mm 50 x 20 x 20 mm 50 x 30 x 30 mm 75 x 10 x 10 mm 75 x 20 x 20 mm 75 x 30 x 30 mm 100 x 10 x 10 mm 100 x 20 x 20 mm 100 x 30 x 30 mm	PTFE (Teflon®)	white with coloured writing
Flexible test stick with one sample	Ø 6 x 500 mm with 100 x 10 x 10 mm handle Ø 10 x 500 mm mit Griff 100 x 20 x 20 mm	PMMA (Acrylic) and PA (Nylon)	red yellow orange blue green smoke black glass-clear
Flexible test stick with two samples	2 x Ø 6 x 300 mm with 100 x 10 x 10 mm handle 2 x Ø 10 x 300 mm with 100 x 20 x 20 mm handle	PMMA (Acrylic) and PA (Nylon)	red yellow orange blue green smoke black glass-clear
Test pin	150 x 10 x 10 mm	PTFE (Teflon®)	white with coloured writing
Test ball	Ø 35 mm Ø 30 mm Ø 25 mm Ø 20 mm	POM (Acetal)	red yellow blue green

Test Pieces for Metal Detectors:

Type	Dimensions	Material	Housing Colours
Test card	80 x 40 x 5 mm 80 x 40 x 10 mm 80 x 40 x 20 mm 80 x 40 x 30 mm	PMMA (Acrylic)	red yellow orange blue green smoke black glass-clear
Test card	80 x 40 x 5 mm 80 x 40 x 10 mm 80 x 40 x 20 mm	PTFE (Teflon®)	white with coloured writing
Test tag	50 x 30 x 5 mm 50 x 30 x 10 mm 50 x 30 x 20 mm	PMMA (Acrylic)	red yellow orange blue green smoke black glass-clear
Test disc	Ø 35 / 30 / 25 / 20 / 15 x 5 mm Ø 35 / 30 / 25 / 20 / 15 x 10 mm Ø 35 / 30 / 25 / 20 / 15 x 20 mm	PMMA (Acrylic)	red yellow orange blue green smoke black glass-clear
Test disc	Ø 35 / 30 / 25 / 20 / 15 x 5 mm Ø 35 / 30 / 25 / 20 / 15 x 10 mm Ø 35 / 30 / 25 / 20 / 15 x 20 mm	PTFE (Teflon®)	white with coloured writing

TEST PIECES

Test Pieces for X-ray Detectors:

Type	Dimensions	Material	Housing Colour
Flexible test card with one sample	96 x 38 mm	Plastic laminate	white with coloured mark
Flexible test card with multiple samples	96 x 38 mm	Plastic laminate	white with coloured mark
Test stick	50 x 10 x 5 mm 75 x 10 x 5 mm 100 x 10 x 5 mm	PMMA (Acrylic)	glass-clear with coloured writing
Testkarte	80 x 40 x 5 mm	PMMA (Acrylic)	glass-clear with coloured writing
Testanhänger	50 x 30 x 5 mm	PMMA (Acrylic)	glass-clear with coloured writing
Testchip	Ø 35 x 5 mm Ø 30 x 5 mm Ø 25 x 5 mm Ø 20 x 5 mm Ø 15 x 5 mm	PMMA (Acrylic)	glass-clear with coloured writing

TEST PIECES

Sample Materials (Metals):

Category	Material	Shape
Ferrous	Chrome steel 1.3505 AISI 52100	Sphere
Non-Ferrous	Brass CuZn35	Sphere
Stainless steel	Stainless steel 1.4401 AISI 316	Sphere, wire
	Stainless steel 1.4301 AISI 304	Sphere, wire
	Stainless steel 1.4034 AISI 420C	Sphere
	Stainless steel 1.4125 AISI 440C	Sphere
Aluminium	Aluminium Al	Sphere
Bronze	Phosphor bronze PB104	Sphere
Titanium	Titanium Ti	Sphere
Lead	Lead Pb	Sphere
Copper	Copper Cu	Wire

TEST PIECES

Sample Materials (Nonmetals):

Category	Material	Shape
Glass	Soda-lime glass (SLG)	Sphere
	Fused quartz (Fused silica)	Sphere
	Borosilicate glass	Sphere
	Lead glass (Crystal glass)	Sphere
Ceramic	Ceramic (Alumina, Al2O3)	Sphere
Zirconia	Zirconia (Fianit)	Sphere
Plastic	PA (Polyamide, Nylon)	Sphere
	POM (Polyoxymethylene, Acetal)	Sphere
	PTFE (Polytetrafluorethylene, Teflon®)	Sphere
Rubber	AB (Nitrile rubber)	Sphere

NIRONE ONLINE ANALYZER

NIRONE Infrared Analyzer.
Online, continuous, contact-free.

Moisture, Fat, Protein, Collagen.

Moisture

Fat

Protein

Collagen

NIRONE ONLINE ANALYZER
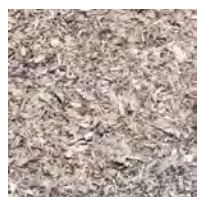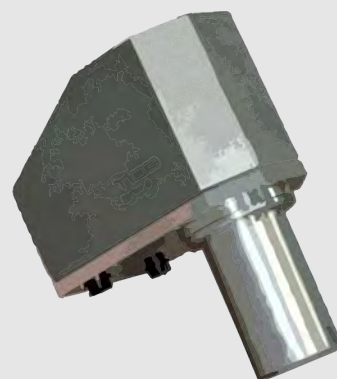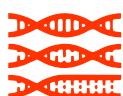
Measuring Principle

The NIRONE analyzer and moisture meter is equipped with interferential filters that select several wavelengths corresponding to certain molecules absorption NIR peaks.

A continuous light source with wide spectral band irradiates the measuring point. A part of this radiation is backscattered and concentrated by a spherical mirror on the sensor. The component of interest absorbs parts of this radiation. These data are processed by the sensor, and stored calibrations are used to determine the current moisture, protein content, or the like.

NIR sensor
Filter wheel
Condenser
Objective
Halogen lamp
Calibration plate (just for calibration)
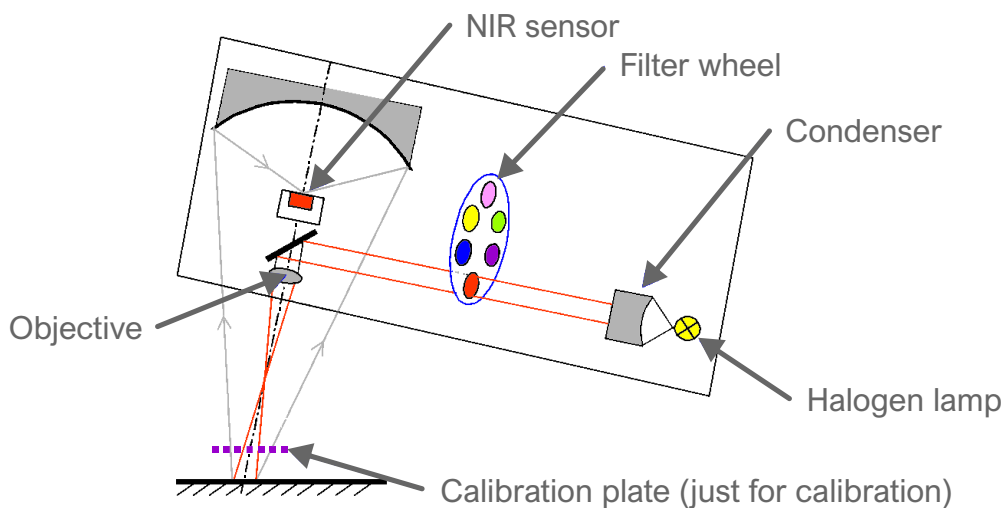
Advantages

- Simulatuous measurement of 1 or 2 ingredients.
- Reliable, precise infrared technology.
- Contact-free online measurement.
- Fast and continuous measurement (3 samples per second).
- Measurement spot up to Ø 70 mm.
- Insensitive to granulometry, colour, and height variations.
- Insensitive to ambient luminosity.
- Easy to install.
- Air blowing system for optical cleaning.

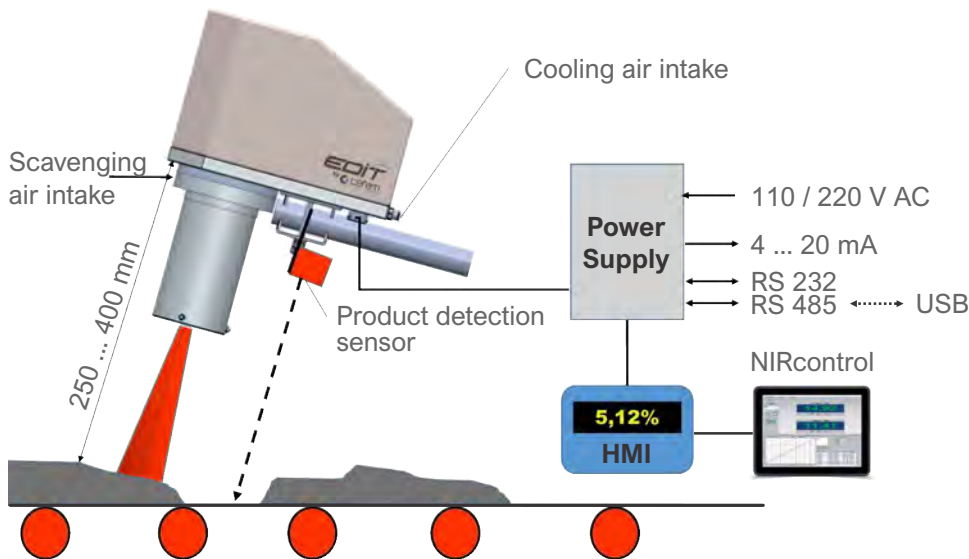# NIRONE ONLINE ANALYZER

NIRcontrol Software

Every NIRONE system comes with the *NIRcontrol* for Windows® software:

- Equipment configuration.
- Simple calibration.
- Measurement visualisation.
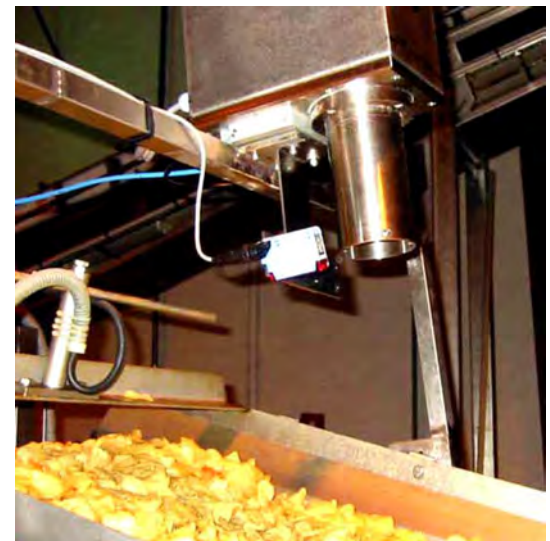- Optional archiving of measurements.

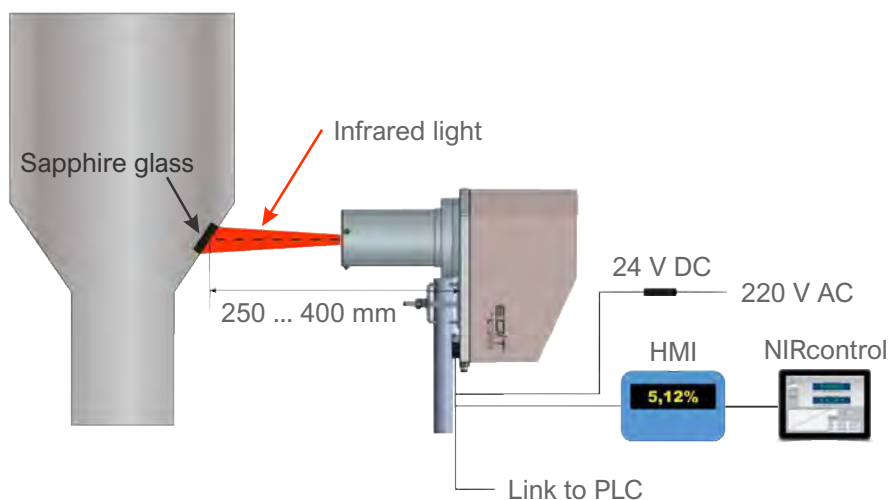**The device works completely autonomous after calibration.**
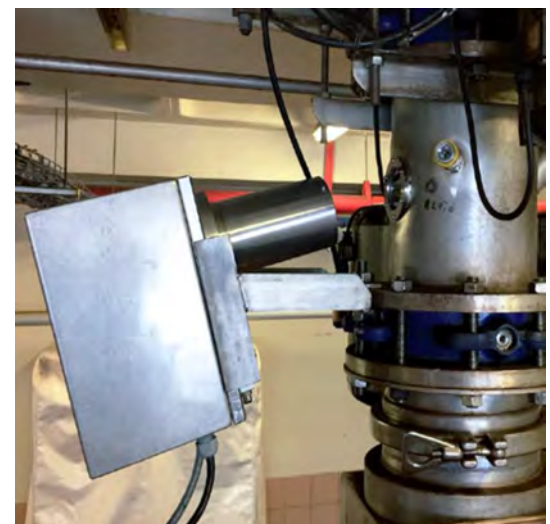
Conveyor Belt Application:

Cooling air intake

Scavenging air intake

250 ... 400 mm

Product detection sensor

Power Supply

110 / 220 V AC
4 ... 20 mA
RS 232
RS 485 ◀┈┈▶ USB

NIRcontrol

5,12%
HMI

Example:

Bin application:

Sapphire glass

Infrared light

250 ... 400 mm

24 V DC — 220 V AC

HMI

5,12%

NIRcontrol

Link to PLC

Example:

NIRONE ONLINE ANALYZER

Technical Specifications:

|	
Housing:	Aluminium (8 kg); optional: stainless steel (10 kg)
Measuring range:	0% ... 100%
Resolution:	0.01%
Measurement of:	1 or 2 ingredients (Moisture, Fat, Protein, Collagen)
Measuring frequency:	3 samples per second
Measurement spot:	Ø 40 mm at 250 mm distance
	Ø 50 mm at 300 mm distance
	Ø 70 mm at 450 mm distance
No. of filters:	6 (for 6 different wave lengths)
No. of recipes:	64 (in automatic mode)
Power supply:	24 V DC
Consuption:	45 W
Ambient temperature:	50 °C (Standard)
	70 °C (with optional cooling)
Protection:	IP 66
Analogue outputs:	2 outputs, 4 ... 20 mA
Interfaces:	RS 232; RS 485
Sensor cable:	5 m (Standard)
Software:	NIRcontrol
Languages:	English, French

Easy Installation:

Fixing flange

260 mm

357 mm

150 mm
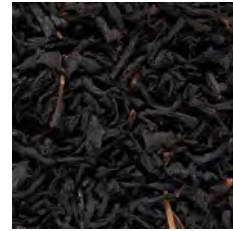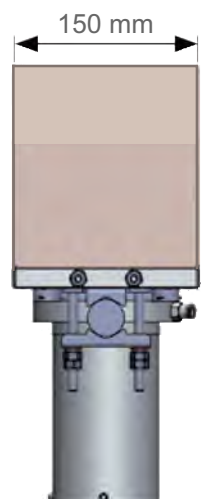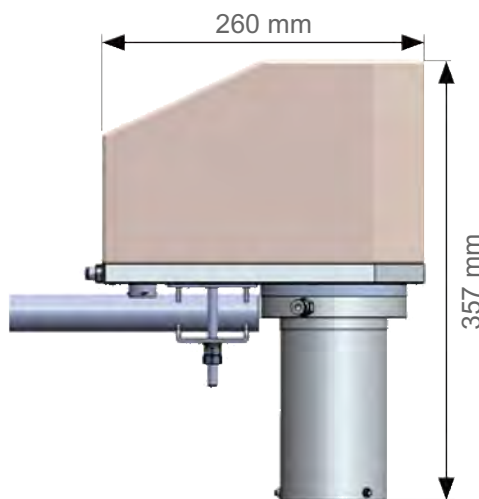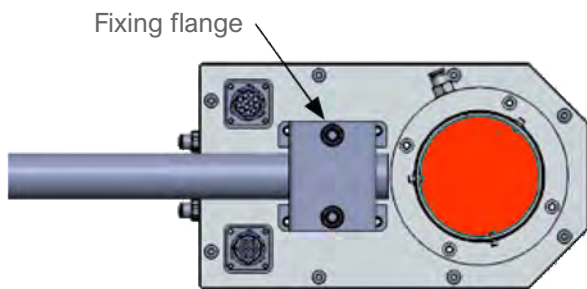
Accessories:

Sampling device
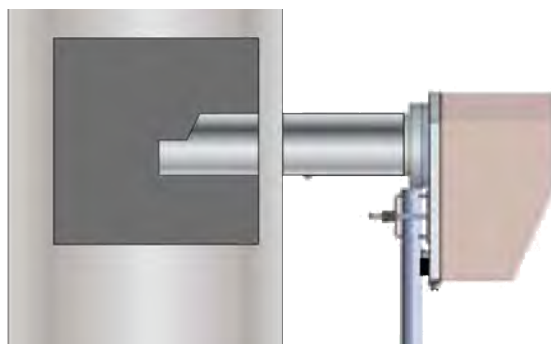
Rotating plate

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Any question?

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