



High-precision metal separator for examining tablets and dragees

Technical data sheet

Version 02/20

Users

- Pharmaceutical Industry

Application

- Tablet presses
- Tablet de-dusters

Arguments that convince

- Detects and separates the tiniest metal contamination (e.g., stamp or screen fragments).
- All parts in contact with the product are FDA-compliant.
- Meets the stringent hygiene requirements of the pharmaceutical industry.
- Rapid decontamination of all parts in contact with the product, without any tools.
- Compatible with nearly all tablet presses and de-dusting systems.
- Flexible working height and inclination enable easy integration and retrofitting in almost every production system.
- Only minimal material loss due to the responsive and powerful electromagnetic drive of the separation flap.
- Extended system monitoring of the damper positions ensures maximum functional reliability.
- Forced separation upon power failure or fault.
- Evaluation electronics with backlit LCD graphic display and touch-screen control panel with clear menu interface.

Detection accuracy

Nominal width (mm)	Max. Sensitivity * (mm)		
	Fe	NFe	SS
40	0,20	0,20	0,35
50	0,25	0,30	0,40

* The specified values were measured in the center of the passage opening under simulated production conditions. In exceptional cases, there may be slight deviations as different device settings may be required. If you provide our Application Department with suitable product samples, we will be happy to inform you about the maximum possible scanning sensitivity values for the product.

Flow rate

Pieces per hour		Description	Size (mm)
Nominal size 40 mm	Nominal size 50 mm		
1.280.000	2.000.000	Round tablet	Ø 5
320.000	500.000	Round tablet	Ø 8
224.000	350.000	Round tablet	Ø 13
320.000	500.000	Oblong tablet	8 x 4
96.000	150.000	Oblong tablet	19 x 7

Technical data

■ Operating voltage:	100 to 240 VAC, 50/60 Hz
■ Power consumption:	max. 75 W
■ Device fuse:	1.25 A (slow-blow fuse), 5x20 mm according to DIN
■ Degree of protection:	IP 65
■ Ambient temperature:	+5° C to +40° C
■ Storage temperature:	-10° C to +60° C
■ Relative humidity:	0 to 95 % (without water condensation)
■ Pulse length metal signal:	adjustable from 0,1–30 s
■ Device weight:	approx. 60 kg
■ Power supply:	approx. 2.9 m cable with a Schuko plug (the US version comes with a standard US plug)

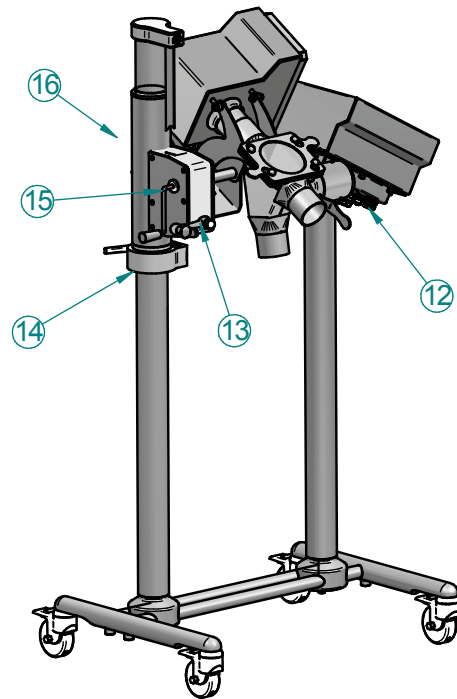
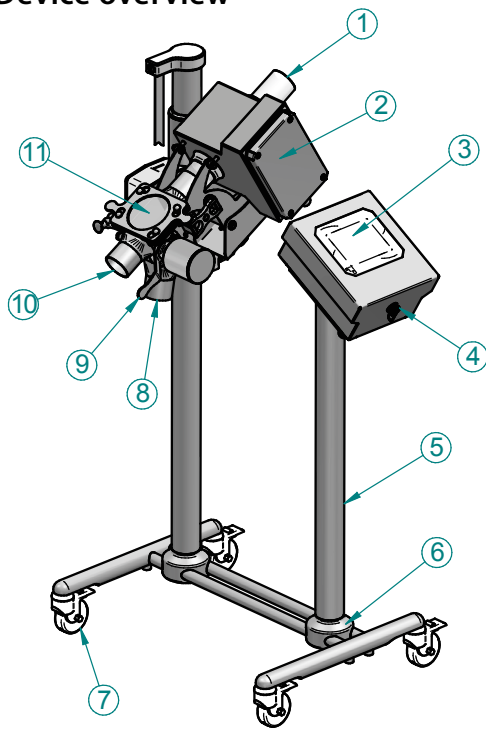
Standard scope of delivery

- Detector coil with built-on separation mechanism
- Base frame, mobile
- Power cord with connector
- Evaluation electronics
- An operating manual including assembly instructions, electrical connection diagram and a spare parts list in different languages
- EU Declaration of Conformity

Available accessories and special designs (optional)

■ Device documentation	FMEA IQ-OQ
■ Certificates	UL CSA
■ Interface	WLAN module for wireless connection to networks, etc.
■ Optical signal device	Indicator lamp
■ Acoustic signal device	Warning siren
■ Special versions	Dust Tight (DT) Wash in Place (WIP)

Device overview

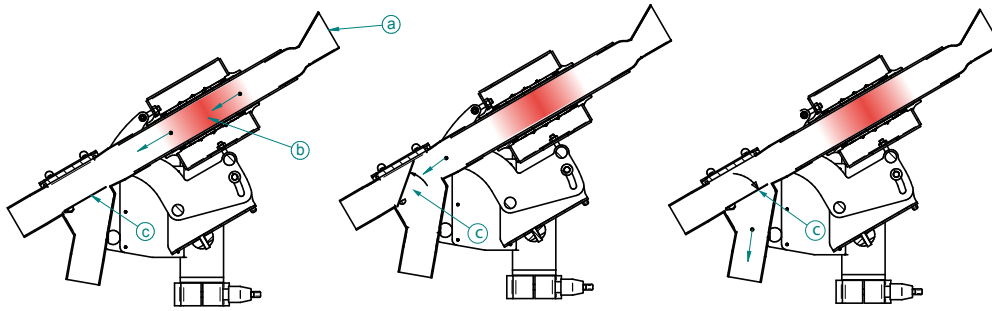


- | | |
|-----------------------|--|
| 1 Inlet | 9 Locking drive |
| 2 Coil | 10 Good material outlet |
| 3 Operating unit | 11 Viewing window (separation mechanism) |
| 4 USB connection | 12 Pilot port |
| 5 Chassis | 13 Locking hand crank |
| 6 Clamping fastening | 14 Fuse terminals |
| 7 Castors (lockable) | 15 Hand crank |
| 8 Bad material outlet | 16 Height adjustment |

Material overview

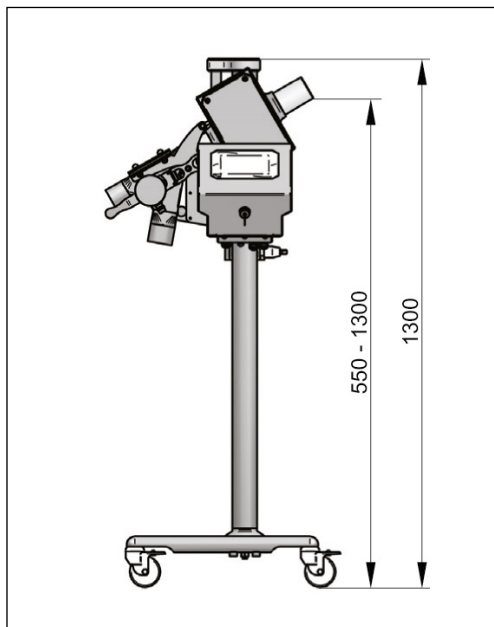
- | | |
|--|--|
| ■ Detector coil: | Stainless steel 1.4301, 304, polished |
| ■ Device carrier: | Stainless steel 1.4301, 304, polished |
| ■ Base: | Stainless steel 1.4301, 304, polished |
| ■ Probe tube: | PTFE virginal |
| ■ Separation mechanism (flap, shaft, housing): | Stainless steel 1.4404 316L, PTFE virginal, silicone, polished stainless-steel parts |
| ■ Separation mechanism cover: | PMMA |
| ■ Inlet funnel (optional): | Stainless steel: 1.4404, 316L |

Operating principle

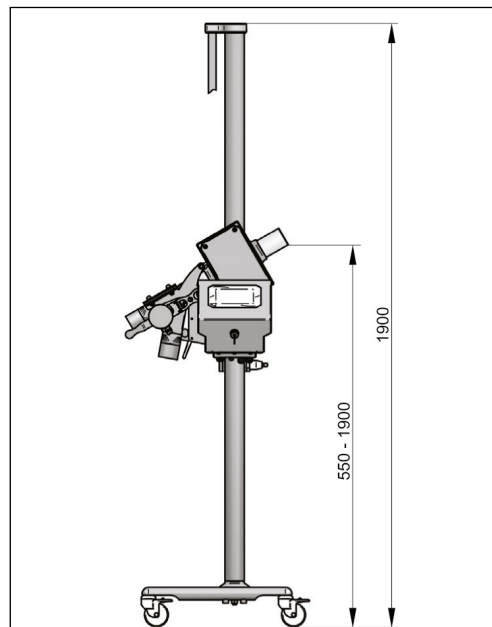


Electronic metal separators of the PHARMATRON series remove metallic impurities (a) from a stream of tablets or dragees fully automatically and without interrupting production. Clean product, without metal contamination, passes freely through the metal separator. Metal contamination in the product stream changes the high-frequency electromagnetic field (b) inside the detector coil. With the help of the evaluation electronics, a switching impulse is triggered to activate the separation flap (c) via the electrical rotating magnet. The lightning-fast redirection of the product flow removes the metal contamination reliably and with little material loss. The rejection time (dwell time of the separation flap) can be adjusted. If several metal parts follow within the set time, the separation period is extended by the set value. After the metal has been separated, the separation flap (c) automatically swings back into the normal position.

a) a) Inlet heights (details: see „Dimensions“)

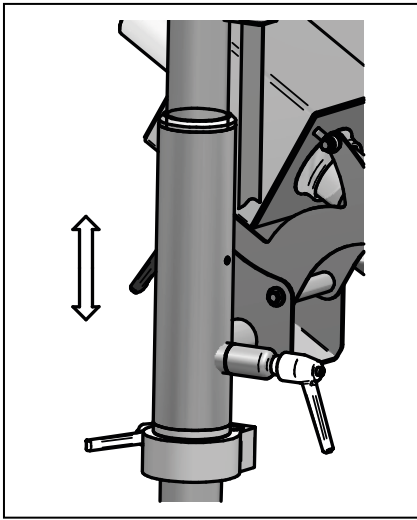


Variation 1:
550 mm to 1300 mm

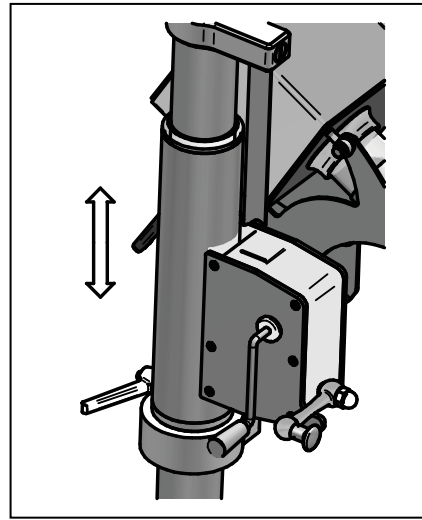


Variation 2:
550 mm to 1900 mm

b) Height adjustment



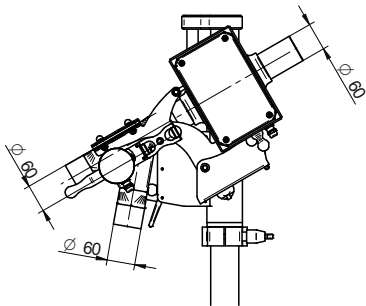
Variation 1:
Can be manually adjusted (approx. 18 kg). Only recommended for stationary operation (one-time setting).



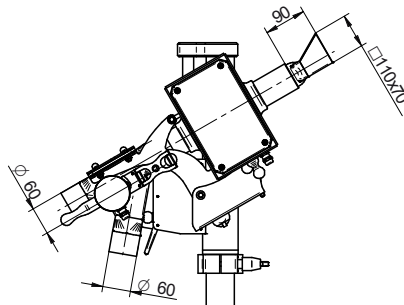
Variant 2 (optional):
Comfortable and precise height adjustment using a hand crank with locking. Ideal for frequently changing locations and operations.

c) Connection variants (inlet - good outlet - bad outlet)

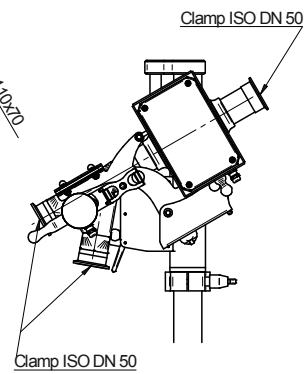
(1) Hose connections



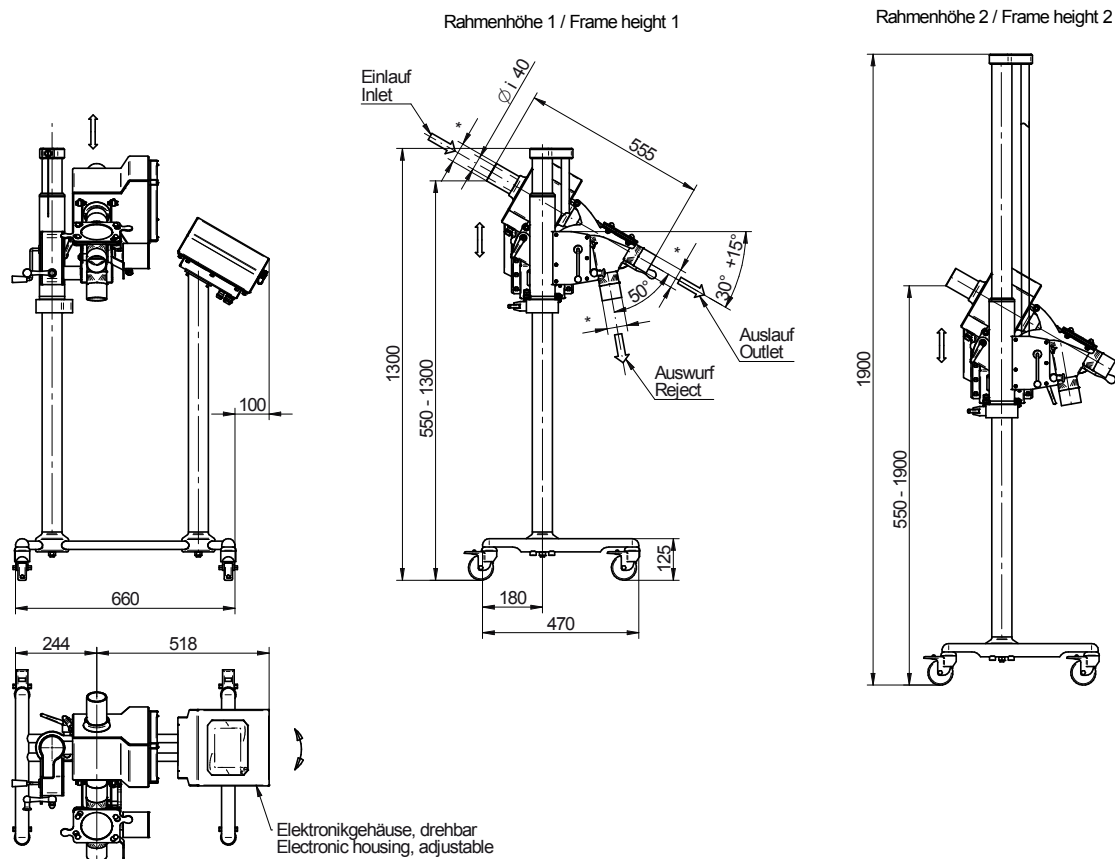
(2) Inlet funnel



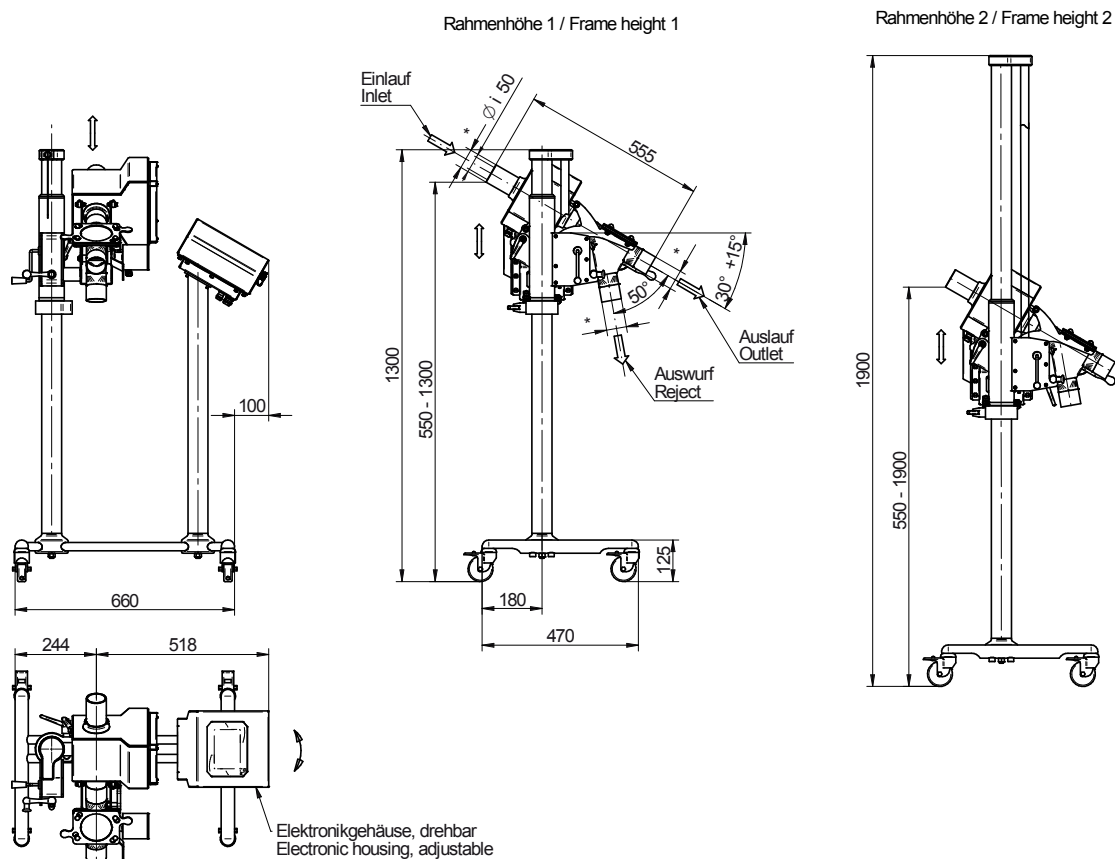
(3) Clamp



Dimensions nominal size 40



Dimensions nominal size 50



Evaluation electronics AMD 07

Advantages that will convince you too!

Unlimited flexibility thanks to network-enabled system components. The metal sensor, control panel and control unit communicate via Ethernet and can be combined as required. If the metal sensor is integrated in a device, individual system components can be omitted entirely. Distance is no longer a problem. The highest detection accuracy and maximum operational reliability are guaranteed at all times.

Automated setup routine with a noise measurement function and automatic sensitivity control.

Fully automatic product effect fade-out through real product parameter measurement made possible after a single measurement cycle.

Dynamic auto-tracking (product tracking) guarantees maximum scanning sensitivity even if the product effects have been changed due to production-related requirements.

Multi-functional filtration system (a highly selective digital filter and a dynamic response filter) for smooth operation even in harsh industrial environments.

Auto-balance is a fully automated component that works continuously to compensate for disruptive environmental influences (e.g. temperature fluctuations) and ageing-related changes to the search coil.

Precise metal detection for metal parts of various sizes.

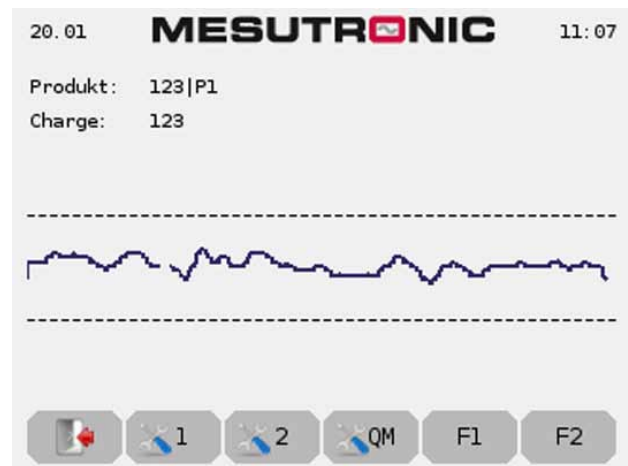
Touch-screen control panel – the maximum amount of information combined with a convenient and readily accessible user interface! The 5.7" VGA color touch-screen with backlighting offers enough space for the clearly legible display of various types of information, such as parameter data sets or logging data. Input key-pads and other operating tools are dimensioned generously and laid out in a straightforward manner. Very easy operation thanks to clearly defined operating structures and a freely selectable operating language.

Active quality assurance through SMD components, because they not only save space, but also offer top quality and maximum reliability for our users. Faulty component placement is largely ruled out thanks to a fully automated component installation process. In addition, each circuit board is checked meticulously for defects (100% testing) and aged artificially. All MESUTRONIC products are CE-compliant and developed in accordance with the relevant technical guidelines and standards such as EN, DIN and UVV.

Self-monitoring system for ongoing control of device functions and for monitoring of the separation process. Error output via a relay and additionally via a text message.

Power failure-proof parameter memory for 500 different products. A complete data set with all configuration parameters (sensitivity, duration of separation, etc.) is assigned to each product. Time-related data is displayed in real time. Different product names can also be entered.

Detector test function - can be performed either manually or automatically. In automatic mode, the device reports automatically when the test is to be carried out. The corresponding test results are documented in the printer log along with time and date stamps.



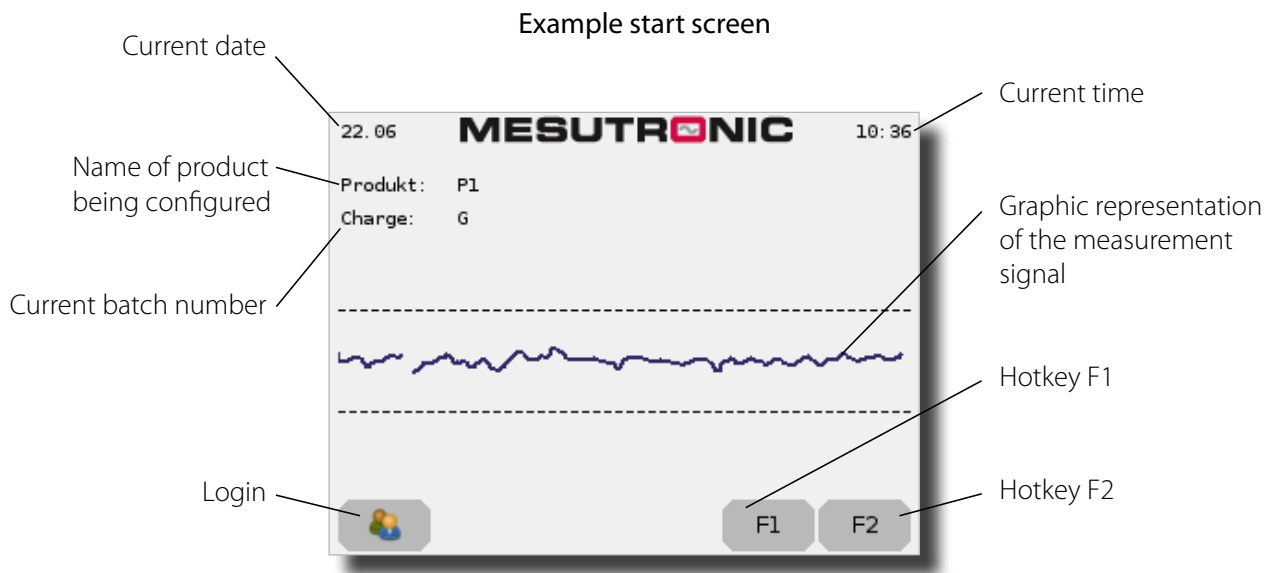
USB storage support for portable data storage media. The default configuration features a USB socket which is compatible with all standard USB storage devices. Modern media offer sufficient space for the storage of all configuration and product parameter data, as well as event data.

Data interfaces for various tasks. The metal detector features various data interfaces. An additional interface (Ethernet) is freely available.

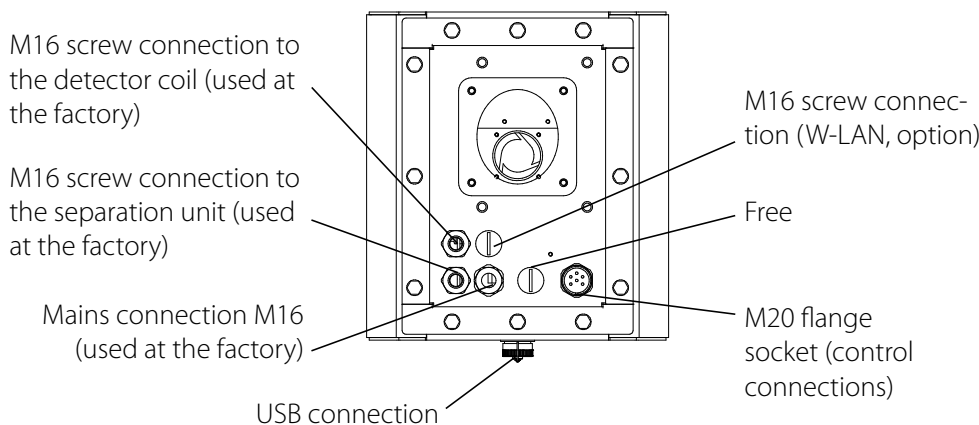
Metal event and piece counter - shown on the display and/or in the printer log.

Comprehensive user management Guaranteed protection against unauthorized access to the metal detector through intelligent user management. Individual access rights for authorized persons with a personal login password (user ID).

Operating elements

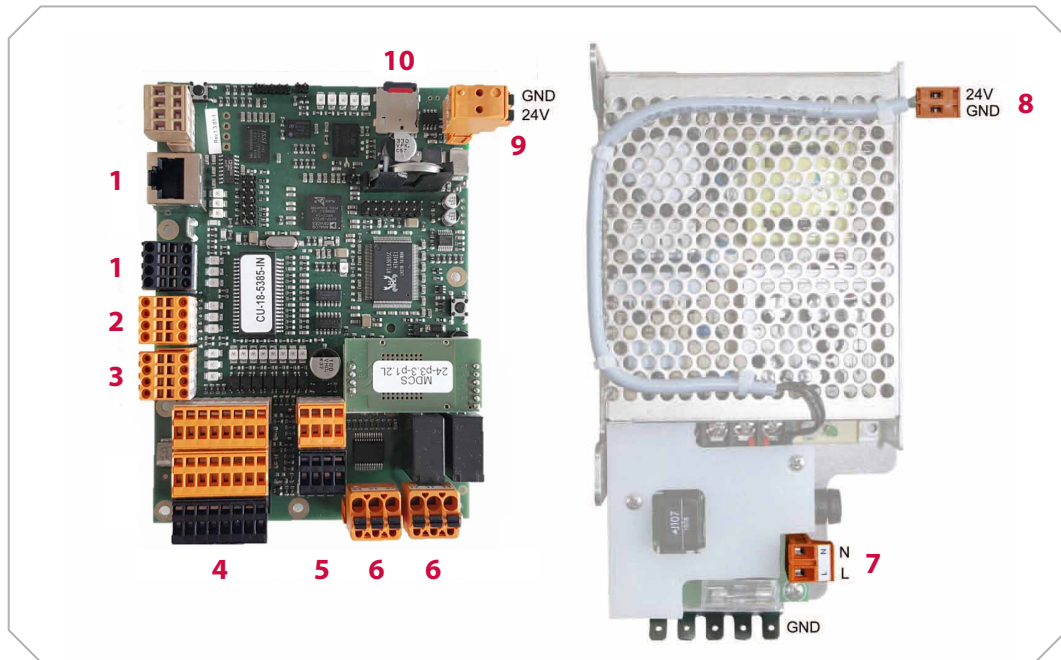


Electronics housing



M 20 plug/control connections incl. dust cap		
	Contact	Pin
Relay 1	14	1
	11	2
	12	3
Relay 2	22	4
	21	5
	24	6

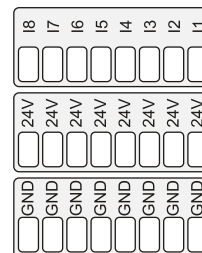
Layout plan



- 1 Ethernet interface for networking (e.g. mesuNET) or autoTEST
- 2 Ethernet connection, sensor unit (used at the factory)
- 3 Ethernet connection, display unit (used at the factory)
- 4 Eight freely programmable inputs (24V DC)

The following assignments are possible:

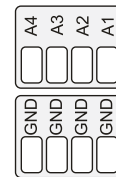
- Reject unit - activation position
- Reject unit - reset position
- Reject unit - product rejection
- Reject unit - test
- Pressure monitoring
- Encoder (only possible at inputs I1 to I4)
- Light barrier
- Reset external
- Metal external
- Reject check sensor
- Disable detection
- Reject unit level sensor
- Reject unit external control
- Collecting container
- External info message
- Test request external



5 Four freely programmable outputs (24 V DC)

The following assignments are possible:

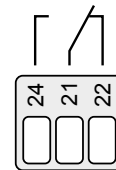
Metal	Conveyor control
Pinch valve 1	Pinch valve 2
Trigger output	Collecting container
Reject unit	Detector ready
Detector test	Test piece detected



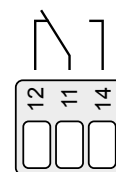
Max. current load of all outputs and inputs $I_{total} \leq 300\text{mA}$!

6 Two freely programmable relays (potential-free)

Relay 2 (switches by default in the event of an error)
 potential-free changeover contact,
 switches when the system monitoring is triggered (normal operation)
 Max. contact current capacity: 250 V/3 A



Relay 1 (switches by default if metal is detected)
 potential-free changeover contact, switches when metal is detected
 Max. contact current capacity: 250 V/3 A
 Pulse length (auto reset): 0.1 s to 30 s (adjustable)
 Pulse length (manual reset): Continuous signal until the reset button is pressed



7 AC power supply connection

8 24V DC power supply / output (used at the factory)

9 24V DC power supply / input (used at the factory)

MESUTRONIC Gerätebau GmbH, headquartered in Germany, is a globally operating company in the field of industrial metal detection.

A team of specialists who have focused successfully for decades on the development, production and sales of electronic metal detectors and separators for all industrial sectors and who, on a daily basis, rise to the challenge of providing reliable and tailor-made solutions to individual customer problems. We start our work at the point where others have long since given up. Very much in line with the motto: „There is No Such Thing as Impossible“.

Thousands of detector coils, various types of evaluation electronics as well as a large number of separator units and mechanical components can be combined freely with each other depending on the specific task at hand to create the foundation for a practically oriented and flexible solution. Our range of products has been fine-tuned over many years of close collaboration with our customers from various sectors of industry, with the result that all MESUTRONIC products today are trend-setting in terms of performance, quality, reliability and handling.

In addition, our worldwide network of service centers and distributors ensures that you always have access to competent and professional contact persons on every continent of the planet.

MESUTRONIC

Metal Detection made in Germany



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