

METAL DETECTOR

METRON 07 CI

RELIABLE DETECTION OF ALL METALS:

- FERROUS
- STAINLESS STEEL
- ALUMINUM
- COPPER
- BRASS

RELIABLE DETECTION OF FREE OR ENCAPSULATED CONTAMINANTS.

Version 12/17

TUNNEL METAL DETECTOR WITH INTEGRATED ELECTRONICS FOR THE INSTALLATION INTO BELT CONVEYORS, MATERIAL SLIDES AND VIBRATORY CHUTES.



INDUSTRIES

- FOOD INDUSTRY
- HYGIENE PRODUCTS
- CHEMICAL/PHARMACEUTICAL INDUSTRY

APPLICATIONS

- QUALITY INSPECTION
(TO MEET THE REQUIREMENT OF ISO 9000, HACCP, IFS, BRC, SQF, ...)
- MACHINERY PROTECTION

THE INTEGRATED SIGNAL PROCESSOR (DSP) IS THE PRECONDITION FOR DIGITAL, 2 CHANNEL SIGNAL PROCESSING, EVEN WITH CONVEYING SPEEDS AS HIGH AS 30 METERS/SEC.

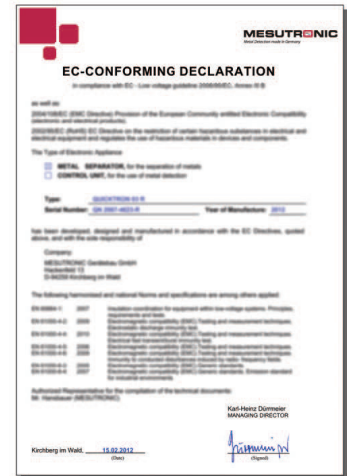
www.mesutronic.de

MESUTRONIC

Metal Detection made in Germany

STANDARD SCOPE OF DELIVERY

- DETECTOR HEAD WITH INTEGRAL CONTROL ELECTRONICS
- USER MANUAL INCL. INSTALLATION INSTRUCTIONS, WIRING DIAGRAM AND SPARE PARTS LIST IN SEVERAL LANGUAGES
- EC CONFORMITY DECLARATION



OPTIONS

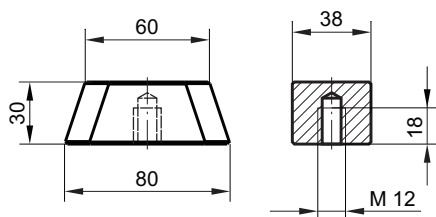
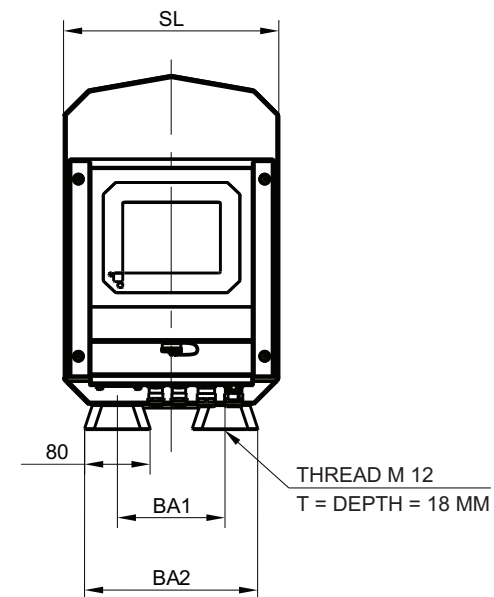
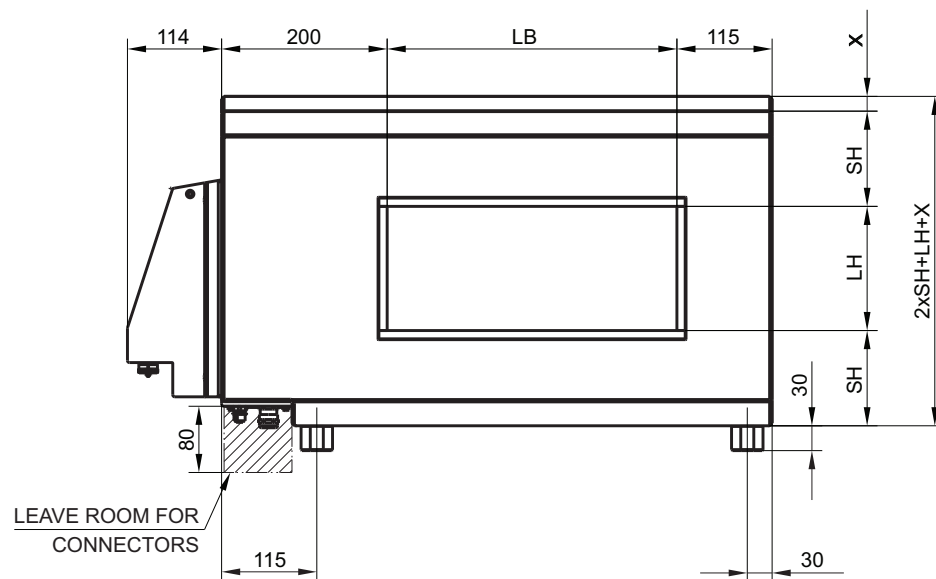
- | | |
|-------------------------------|---|
| ■ WARNING DEVICE | - BEACON
- BUZZER
- BEACON WITH SIREN |
| ■ METAL DETECTOR-TEST SPHERES | - METAL SPHERE(S) ENCASED IN PLASTIC TO VERIFY SENSITIVITY
SEVERAL SIZES AND TYPES – (IF DESIRED WITH CERTIFICATE) |
| ■ WiFi | - COMMUNICATION MODULE FOR WIRELESS CONNECTION ONTO
NETWORKS |
| ■ SOFTWARE SOLUTIONS | - mesuNET (NETWORK INTEGRATION AND REMOTE MAINTENANCE) |
| ■ REMOTE RESET BUTTON | |
| ■ CONVEYOR SYSTEMS | |
| ■ EJECT SYSTEMS | - PUSHER SYSTEMS
- FLAP SYSTEMS
- AIR JET
- BELT REVERSAL
- EJECT ARM
- AND MORE |
| ■ CONVEYOR CONTROLS | - CONVEYOR REVERSE
- AND MORE |

SPECIAL VERSIONS

- ☐ EXPLOSION PROOF VERSION
- ☐ CUSTOM PAINT
- ☐ SPECIAL POWER SUPPLY
- ☐ HIGH TEMPERATURE VERSION
- ☐ DETECTOR WITH REMOTE DISPLAY UNIT AND/OR CONTROL UNIT IN A SEPARATE HOUSING



DIMENSIONS



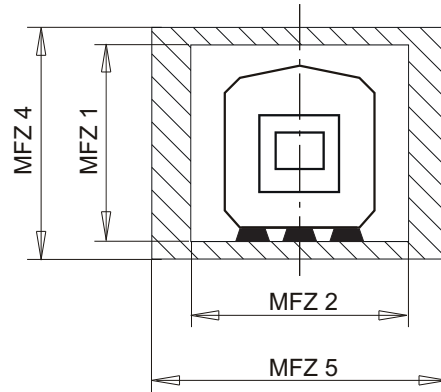
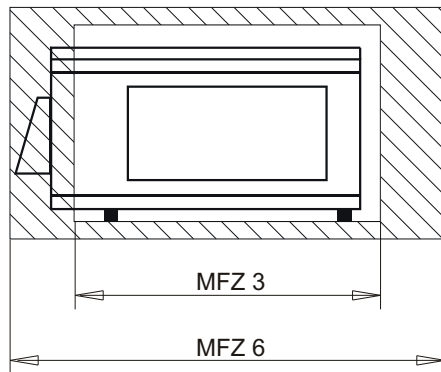
MOUNTING FOOT

LB (APERTURE WIDTH)

LH APERTURE HEIGHT	SL DETECTOR LENGTH	SH TOP/BOTTOM THICKNESS	DISTANCE BETWEEN BORE CENTERS		A NUMBER OF FASTENER BORES	MARK X
			BA 1	BA 2		
50	260	150	130	-	4	18
75	260	130	130	-	4	18
100 - 150	260	115	130	-	4	18
175 - 200	300	115	170	-	4	22
225 - 250	350	115	220	-	6	26
275 - 300	400	115	230	-	6	27
325 - 350	450	115	280	-	6	31
375 - 400	500	115	110	330	8	36
425 - 450	550	115	190	380	10	40
475 - 500	600	115	215	430	10	44
550 - 600	650	115	240	480	10	49

ALL DIMENSIONS IN MM.

METAL FREE ZONE (MFZ)



CALCULATING THE METAL FREE ZONE:

FOR NON-MOVING METALS:

$$\text{MFZ 1} = \text{LH} + 2 \text{ SH} + 60 \text{ MM}$$

$$\text{MFZ 2}^{1)} = \text{SL} + \text{LH}$$

$$\text{MFZ 3} = \text{LB} + \text{LH}$$

FOR MOVING METALS:

$$\text{MFZ 4} = 3 \text{ LH} + 2 \text{ SH} + 60 \text{ MM}$$

$$\text{MFZ 5}^{1)} = \text{SL} + 3,5 \text{ LH}$$

$$\text{MFZ 6} = \text{LB} + 3 \text{ LH}$$

¹⁾ POSITION THE DETECTOR IN THE MIDDLE OF THE METAL FREE ZONE.

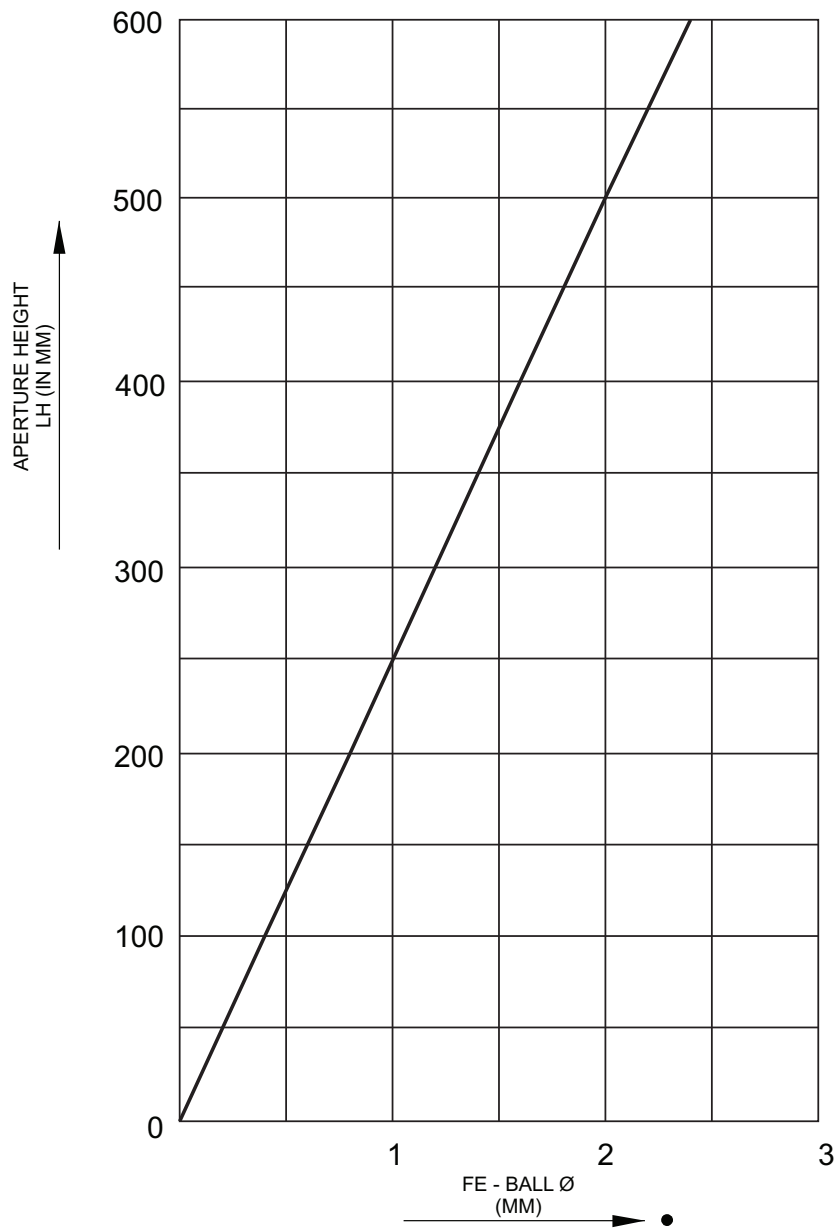
FOR THE OTHER DIMENSIONS: POSITION THE DETECTOR SYMMETRICAL IN RELATION TO THE APERTURE.

THE CALCULATED DIMENSIONS ARE TO BE TAKEN AS ORIENTATION VALUES (MINIMUM VALUES WHICH CAN BE EXCEEDED.) AND HAVE TO BE VERIFIED BY THE MANUFACTURER, DEPENDING ON THE PROJECT. MAKE THE „METAL FREE“ ZONE AS LARGE AS POSSIBLE. „NON-MOVING“ METALS ARE CONVEYOR FRAMES AND COIL SUPPORTS. (BUT NOT THE TRAVERSE CONNECTIONS BETWEEN SUCH EQUIPMENT!) MOVING METALS ARE DIVERTER AND DRIVE ROLLERS OR FOR EXAMPLE THE AXIS OF AN EJECT PUSHER. PAY PARTICULAR ATTENTION TO MOVING GATES AND MACHINES OR MACHINE PARTS WHICH CHANGE THEIR DISTANCE TO THE METAL DETECTOR OR WHICH MOVE IN THE VICINITY OF THE APERTURE. IF THE METAL FREE ZONE CANNOT BE MAINTAINED DUE TO SPACE RESTRICTIONS FALSE REJECTS AND OR REDUCED SENSITIVITY CAN BE EXPECTED.

IN ADDITION, PLEASE OBSERVE OUR „ HINTS FOR THE INSTALLATION OF SEARCH COILS“

SENSITIVITY DIAGRAM

VALID IF $LB \leq 1,5 \times LH$



THE SENSITIVITY DEPENDS ON THE DETECTION COIL APERTURE - THE SMALLER THE OPENING, THE HIGHER THE SENSITIVITY.

BASIC SENSITIVITY

MANY METAL DETECTOR MANUFACTURERS STATE IN THEIR OFFERS OR BROCHURES SENSITIVITIES ACHIEVED UNDER LABORATORY CONDITIONS WHICH DO NOT TAKE PROCESS CONDITIONS, SUCH AS PRODUCT EFFECT OR THE PROCESS ENVIRONMENT INTO CONSIDERATION. SUCH SENSITIVITIES DO NOT ALLOW FOR CONCLUSIONS TO THE REAL CAPABILITIES OF THE UNIT. ONLY THE SENSITIVITY UNDER OPERATING CONDITIONS ALLOWS FOR CONCLUSIONS HOW WELL A METAL DETECTOR PROTECTS AGAINST LOSS OF IMAGE AND LIABILITY CLAIMS.

OPERATIONAL SENSITIVITY

THE SENSITIVITY LISTED IN THE DIAGRAM ARE ACHIEVED WITH MOST DRY PRODUCTS IN THE CENTER OF THE DETECTOR APERTURE UNDER TYPICAL PROCESS CONDITIONS. THE VALUES WITH HUMID OR FRESH PRODUCTS MAY DEVIATE CONSIDERABLY FROM THE VALUES STATED IN THE DIAGRAM. IF YOU SUBMIT PRODUCT SAMPLES TO OUR APPLICATIONS LAB WE WILL EVALUATE THE HIGHEST POSSIBLE SENSITIVITY FOR YOUR PRODUCT.

SENSITIVITY FOR OTHER METALS:

STAINLESS STEEL (SS 316) = FE-BALL x 1,6
ALLOYS SUCH AS BRASS (MS) = FE-BALL x 1,2

CONTROL UNIT AMD 07

ADVANTAGES THAT WILL CONVINCE YOU !

UNLIMITED FLEXIBILITY DUE TO NETWORK-ENABLED SYSTEM COMPONENTS, THE METAL SENSOR, THE DISPLAY AND THE CONTROL UNIT COMMUNICATE VIA ETHERNET AND CAN BE COMBINED AS REQUIRED. SOME COMPONENTS MAY NOT BE REQUIRED, IF THE METAL DETECTOR IS INTEGRATED IN OTHER MACHINERY DISTANCES ARE IRRELEVANT. HIGHEST SENSITIVITY AND AVAILABILITY ARE GUARANTEED.

AUTO-SETUP-ROUTINE WITH INTERFERENCE SIGNAL SUPPRESSION AND AUTOMATIC SENSITIVITY CALIBRATION.

AUTOMATIC PRODUCT-EFFECT CANCELLATION WITH REAL TIME PRODUCT PARAMETER MEASUREMENT CAPABILITIES.

DYNAMIC AUTO-TRACKING (PRODUCT CHARACTERISTIC CHANGE TRACKING) GUARANTEES MAXIMUM SENSITIVITY IN OPERATION.

MULTI-FILTER SYSTEM USING DIGITAL FILTERS FOR MAXIMUM STABILITY IN HARSH ENVIRONMENTS.

AUTO-BALANCE AUTOMATICALLY DETECTS AND COMPENSATES FOR ANY CHANGES IN THE SIGNAL DURING NORMAL OPERATION. (E.G. TEMPERATURE VARIATIONS)

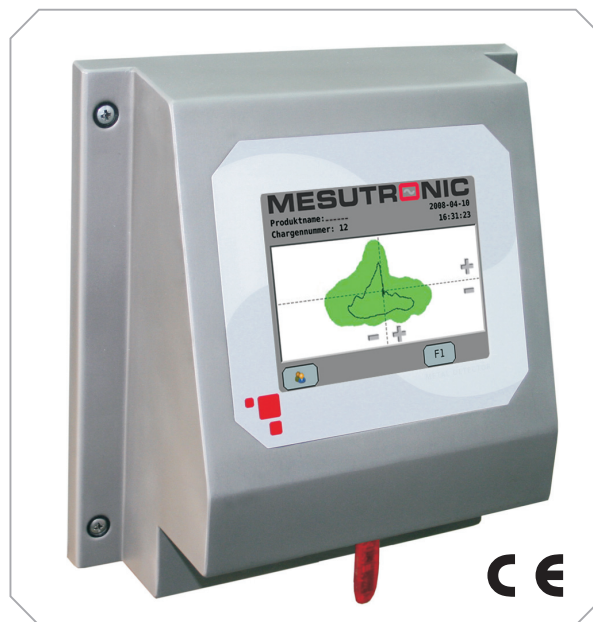
NARROW DETECTION ZONE PROVIDES AN ACCURATE LOCATION OF THE METALLIC PARTICLE IN THE DETECTION FIELD ALLOWING PRECISE SEPARATION.

TOUCH SCREEN CONTROL PANEL – MAXIMUM INFORMATION, EASY AND FAST OPERATION! THE 5,7" BACKLIT VGA COLOR-TOUCH-DISPLAY IS LARGE ENOUGH TO DISPLAY SUCH INFORMATION AS PARAMETER DATA AND PROTOCOL CONTENTS IN A LEGIBLE MANNER. INPUT FIELDS AND OTHER OPERATING TOOLS HAVE GENEROUS DIMENSIONS AND ARE ERGONOMICALLY ARRANGED. EASY TO OPERATE WITH CLEAR MENUS AND SELECTABLE OPERATING LANGUAGE THE OSCILLOSCOPE FUNCTION MAKES THE SIGNAL WAVES VISIBLE BY PROJECTING THEM ONTO THE DISPLAY!

3 LEVELS OF USER ACCESS (INDIVIDUAL PIN CODES UP TO 4 LEVELS) GUARANTEE PROTECTION AGAINST UNAUTHORIZED ACCESS DUE TO INTELLIGENT USER MANAGEMENT. INDIVIDUAL ACCESS FOR AUTHORIZED PERSONNEL WITH PERSONALIZED ACCESS CODE (USER ID) IN ADDITION 2 FREE CONFIGURABLE FUNCTION KEYS.

METAL COUNTER CAN BE DISPLAYED ON THE LCD SCREEN OR INTERFACED WITH A PRINTER OVER A SERIAL INTERFACE.

QUALITY SMD's (SURFACE MOUNTED DEVICES) ARE USED IN THE PRODUCTION OF THE CONTROLS. THEY NOT ONLY OFFER A COMPACT DESIGN, BUT ALSO PROVIDE HIGHER QUALITY AND MORE ROBUST PERFORMANCE UNDER HARSH CONDITIONS. ALL MESUTRONIC PRODUCTS CONFORM TO THE CE STANDARDS AND ARE DEVELOPED ACCORDING TO TECHNICAL STANDARDS AND NORMS SUCH AS EN, DIN AND UUV.



METAL DETECTOR NETWORK AND REMOTE SERVICE EVERYTHING IS POSSIBLE! SEVERAL OPTIONAL SOFTWARE-PACKAGES ARE AVAILABLE. WITH THE AID OF MODERN NETWORK SOLUTIONS SUCH AS ETHERNET OR WI-FI YOU CAN ESTABLISH A SECURE AND EFFICIENT DATA MANAGEMENT SYSTEM WITH AN UNLIMITED NUMBER OF DETECTORS. THE UNITS CAN BE REMOTE CONTROLLED VIA A CENTRAL PC. WE CAN ALWAYS BE PRESENT LOCALLY WITH **mesuREMOTE**, THE MESUTRONIC REMOTE SERVICE MODULE.

SELF MONITORING SYSTEM ENSURES ALL IMPORTANT COMPONENTS ARE FUNCTIONING PROPERLY. IN CASE OF A FAULT, RELAY OUTPUTS ARE AVAILABLE. FAULTS ARE DISPLAYED AS TEXT IN REAL TIME.

PRODUCT STORAGE MEMORY BACKUP FOR UP TO 500 INDIVIDUAL PRODUCTS. EACH PRODUCT HAS A COMPLETE SET OF SETUP PARAMETERS ASSIGNED, SUCH AS SENSITIVITY, EJECT TIME ETC. THE DISPLAY OF TIME RELEVANT DATA IS IN REAL-TIME. INDIVIDUAL PRODUCT NAMES CAN BE STORED AS WELL.

DETECTOR TEST FUNCTION (VALIDATION) YOU MAY CHOOSE BETWEEN THE MANUAL OR AUTOMATIC MODE. IN THE AUTOMATIC MODE THE DETECTOR WILL ADVISE AUTOMATICALLY, WHEN THE DETECTOR TEST IS TO BE PERFORMED. THE CYCLE TIME CAN BE ADJUSTED FROM 1 MINUTE TO 11 HOURS IN REAL TIME. THE TEST RESULTS ARE DOCUMENTED IN THE EVENT LOG INCLUDING DATE AND TIME STAMP.

USB DATA MEDIA AS MOBILE DATA CARRIER. A USB CONNECTION IS STANDARD EQUIPMENT TO STORE DATA ON A COMMERCIALLY AVAILABLE DATA STORAGE MEDIA. MODERN DATA STORAGE DEVICES HAVE SUFFICIENT CAPACITY TO STORE ALL ADJUSTMENT AND PRODUCT PARAMETER DATA AS WELL AS THE RESULTS. IN ADDITION SOFTWARE UPDATES AND ADDITIONAL LANGUAGE FILES CAN BE UPLOADED EASILY AND COMFORTABLY.

MULTI-MODE-FUNCTION (OPTIONAL) IMPROVES SENSITIVITY IF PRODUCTS IN STANDARD PACKAGING AND METALIZED FOIL PACKING ARE EXAMINED WITH THE SAME METAL DETECTOR. THE DETECTOR SELECTS THE OPTIMAL FREQUENCY AUTOMATICALLY DURING THE PRODUCT PARAMETER MEASUREMENT. ALL PRODUCT SPECIFIC VALUES CAN BE STORED AND CAN BE RETRIEVED IMMEDIATELY AFTER A PRODUCT CHANGE

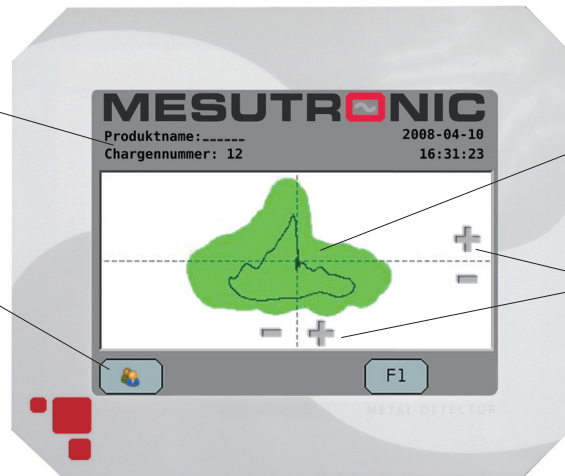
DATA PORTS FOR DIFFERENT TASKS. THE METAL DETECTOR IS EQUIPPED WITH 2 DATA PORTS, WHEREAS ONE OF THE DATA POINTS (ETHERNET) IS RESERVED FOR SERVICE SUCH AS SECURING DATA, LOCAL SOFTWARE UPDATES AND SUCH. THE OTHER DATA POINT (RS232) IS FREELY AVAILABLE. BI-DIRECTIONAL DATA COMMUNICATION WITH CLIENTS SPS OR PC SYSTEMS IS POSSIBLE. (SOFTWARE PACKAGES ARE OPTIONAL).

CONTROLS

EXAMPLE OF AN INPUT DISPLAY (DEPENDING UPON THE SELECTED MENU THE DISPLAY SHOWS DIFFERENT FUNCTIONS !)

DISPLAY (PRODUCT NAME, BATCH NUMBER, ETC.)

SENSITIVE KEY CONTROL
(HERE TO SELECT
FOR THE USER LEVELS)



ENVELOPE imagePHASE

ZOOM (VERTICAL UND HORIZONTAL)

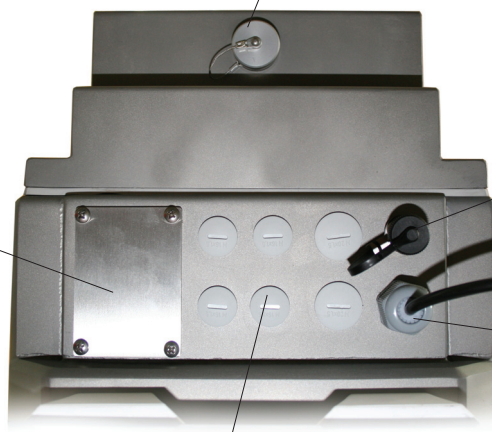
5,7" COLOR-TOUCH DISPLAY (320 X 240 PIXEL)

USB (A)
CONNECTION

ADAPTER PLATE (PROJECT SPECIFIC
ASSIGNABLE WITH ADDITIONAL
CABLE CONNECTIONS,
BUSHINGS AND SUCH)

ETHERNET SERVICE CONNECTION
USED BY MANUFACTURER

POWER CONNECTION



CABLE CONNECTION AS NEEDED
2 x M 20 x 1,5 AND 4 x M 16 x 1,5

TECHNICAL DATA

POWER SUPPLY:

100 V - 240 V AC, 50 OR 60 HZ

AS SPECIAL VERSION 24 V DC

CURRENT CONSUMPTION:

MAX. 75W

FUSED:

1,25 A (SLOW BLOW), 5 X 20 MM ACCORDING TO DIN

TYPE OF PROTECTION:

IP 66 (OPTIONAL IP 69K)

TEMPERATURE RANGE:

- 10° C TO + 50° C (WORKING TEMPERATURE)

- 10° C TO + 60° C (STORAGE- / TRANSPORT TEMPERATURE)

RELATIVE HUMIDITY:

0 bis 95 % (WITHOUT CONDENSATION)

CONVEYING SPEED:

0,02 TO 30 M/SEC.

REJECT DURATION:

0,1 SEC. TO 30 SEC. (ADJUSTABLE)

POWER CABLE:

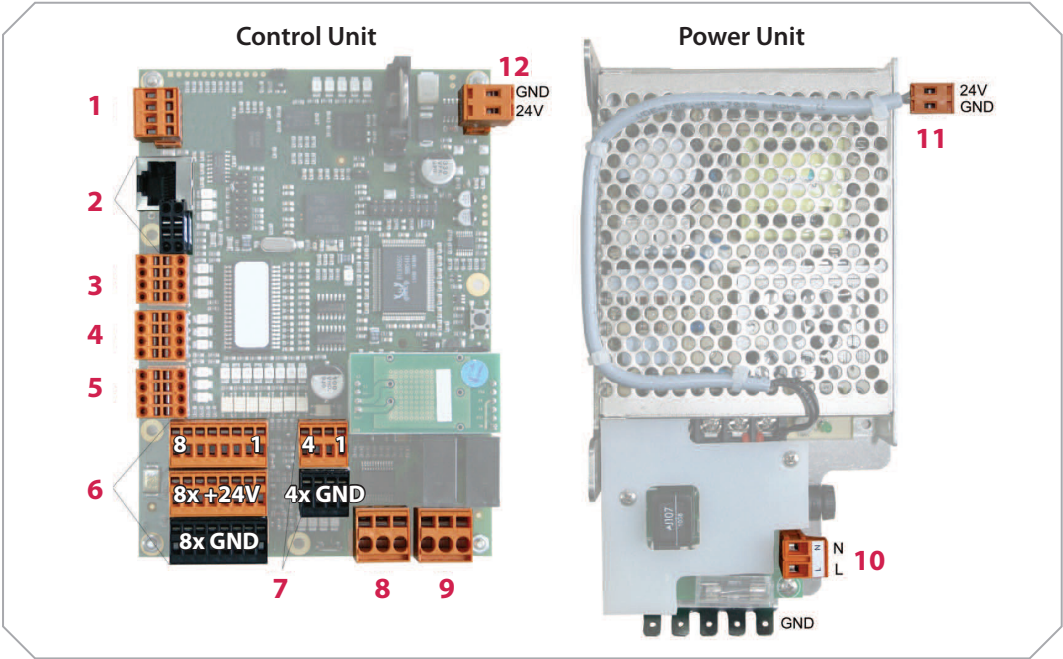
APP. 1,8 M CABLE WITH PLUG (TWO POLE AND EARTHING PIN)
(US-VERSION WITH US-STANDARD PLUG)

VERSION:

STAINLESS STEEL, SAND BLASTED

OTHER VERSIONS AVAILABLE

POSITIONS



- 1 SERIAL PORT RS 232 (OPTIONAL)
- 2 ETHERNET INTERFACE (USED BY THE MANUFACTURER)
- 3 ETHERNET INTERFACE FOR NETWORK (SUCH AS mesuNET)
- 4 ETHERNET CONNECTION FOR THE SENSOR-UNIT (USED BY THE MANUFACTURER)
- 5 ETHERNET CONNECTION FOR THE DISPLAY-UNIT (USED BY THE MANUFACTURER)
- 6 EIGHT (8) FREE PROGRAMMABLE INPUTS (24V DC)

INPUTS (STANDARD LAYOUT)

- IN 1 - INITIATOR „NORMAL POSITION“ (EJECT GATE)
- IN 2 - INITIATOR „EJECT POSITION“ (EJECT GATE)
- IN 3 - PRESSURE MONITOR (PRESSURE SWITCH)
- IN 4 - TRIGGER FOR LIGHT GATE (IN)
- IN 5 - RPM SENSOR (SPEED MEASUREMENT)
- IN 6 - RESET-BUTTON (EXTERNAL)
- IN 7 - FREE
- IN 8 - FREE

ADDITIONAL CONNECTIONS SUCH AS LIGHT TRIGGERS, FILL SENSORS AND SUCH

18	17	16	15	14	13	12	11
24V	24V	24V	24V	24V	24V	24V	24V
GND	GND	GND	GND	GND	GND	GND	GND

POSITIONS

7 FOUR (4) FREELY PROGRAMMABLE OUTPUTS (24 V DC)

OUTPUT (STANDARD LAYOUT)

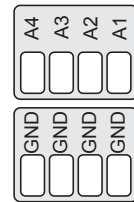
OUT1 - SOLENOID VALVE (EJECT GATE)

OUT2 - UNIT OPERATIONAL INDICATOR

OUT3 - FREE

OUT4 - FREE

ADDITIONAL CONNECTIONS: MAGNET SOLENOID (REJECT MECHANISM),
FAULT INDICATOR, ALARM AND SUCH.



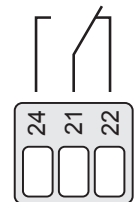
MAX. LOAD FOR ALL INPUTS AND OUTPUTS $I_{TOTAL} \leq 300\text{MA CUMULATIVE!}$

8 RELAY 2 (CONNECT AT FAULT)

FLOATING CHANGE OVER CONTACT

ACTUATED BY SELF MONITORING SYSTEM (NORMAL OPERATION)

MAX. CONTACT LOAD: 250 V/3 A



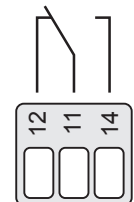
9 RELAY 1 (CONNECT WHEN METAL)

FLOATING CHANGE OVER CONTACT ACTUATED WHEN METAL IS DETECTED

MAX. CONTACT LOAD: 250 V/3 A

PULSE DURATION (AUTO-RESET): 0,001 SEC. TO 30 SEC. (ADJUSTABLE)

PULSE DURATION (RESET BY HAND): PERMANENT SIGNAL UNTIL RESET-
BUTTON IS PRESSED



IF REQUIRED THE RELAYS MAY BE PROGRAMMED DIFFERENT.

10 POWER CONNECTION

11 24V DC TENSION / OUTPUT (USED BY THE MANUFACTURER)

12 24V DC TENSION / INPUT (USED BY THE MANUFACTURER)

THE MESUTRONIC GERÄTEBAU GMBH IS A GLOBALLY ACTIVE COMPANY IN THE FIELD OF INDUSTRIAL METAL DETECTION TECHNOLOGY WITH HEADQUARTERS IN GERMANY.

A TEAM OF SPECIALISTS FOCUSES FOR DECADES SUCCESSFULLY ON THE DEVELOPMENT, MANUFACTURING AND DISTRIBUTION OF ELECTRONIC METAL DETECTORS AND SEPARATORS FOR ALL INDUSTRIES. DAILY WE TAKE UP THE CHALLENGE TO SOLVE INDIVIDUAL PROBLEMS RELIABLE AND TAILORED TO THE CUSTOMER. WHERE OTHERS SAID "NO" LONG AGO OUR TASK JUST STARTS. TRUE TO THE MOTTO: „NOTHING IS IMPOSSIBLE."

THOUSANDS OF DETECTOR COILS, VARIOUS TRANSMITTERS AND A VARIETY OF EJECTORS AND MECHANICAL COMPONENTS CAN BE COMBINED DEPENDING ON THE TASK AND SERVE AS A BASIS FOR PRACTICAL AND FLEXIBLE SOLUTIONS. THROUGH YEARS OF CLOSE COLLABORATION WITH OUR CUSTOMERS FROM VARIOUS INDUSTRIES, WE HAVE SHAPED OUR EQUIPMENT PROGRAM CONTINUAL WITH THE RESULT THAT ALL MESUTRONIC PRODUCTS ARE NOW LEADING THE WAY IN PERFORMANCE, QUALITY, RELIABILITY AND HANDLING.

IN ADDITION, OUR WORLDWIDE SALES AND SERVICE NETWORK ENSURES THAT ON ALL CONTINENTS OF THE WORLD A PROFESSIONAL COMPETENT CONTACT PERSON IS AVAILABLE FOR YOU.

MESUTRONIC

Metal Detection made in Germany

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