

TECHNICAL DATA SHEET

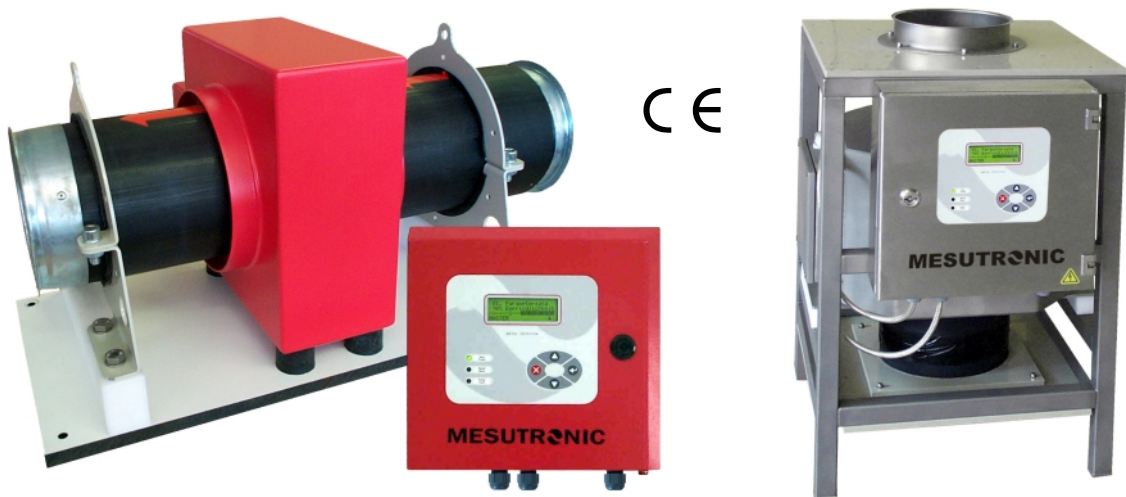
HIGH-FREQUENCY METAL DETECTOR

METRON® 05 CR

RELIABLE DETECTION OF **ALL** METALS (ENCAPSULATED OR FREE)

- FERROUS & NON-FERROUS
- NON-MAGNETIC STEEL
- ALUMINIUM
- COPPER
- BRASS
-

CLOSED, ROUND DETECTOR COIL TO EXAMINE METAL CONTAMINATED MATERIAL



MICRO PROCESSOR TECHNOLOGY INCLUDING DIGITAL 2 CHANNEL SIGNAL PROCESSING, ASSURING RELIABLE DETECTION EVEN AT CONVEYING SPEEDS OF UP TO 30 M/SEC.

INDUSTRIES

- CHEMICAL/PHARMACEUTICAL INDUSTRY
- FOOD INDUSTRY
- SPICE INDUSTRY
- PET FOOD INDUSTRY
- PLASTICS AND RUBBER INDUSTRY

APPLICATION

- INCOMING MATERIALS CONTROL
- PRODUCT INSPECTION
- MACHINERY PROTECTION

SCOPE OF DELIVERY

- DETECTOR HEAD
- CONTROL UNIT
- INTERCONNECTING CABLES
- INSTALLATION ACCESSORIES
- MANUAL, INSTALLATION INSTRUCTIONS, WIRING DIAGRAM AND PARTS LIST
- EC-CONFORMITY DECLARATION

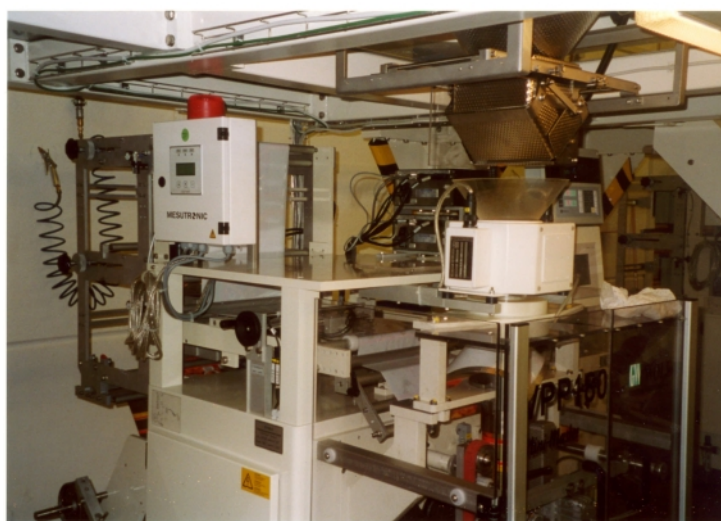
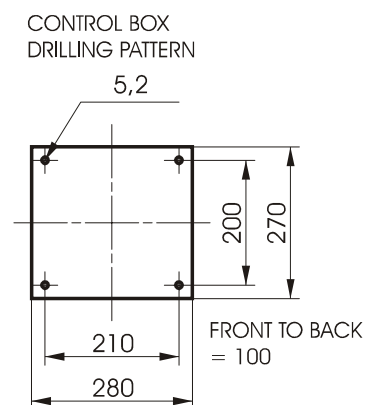
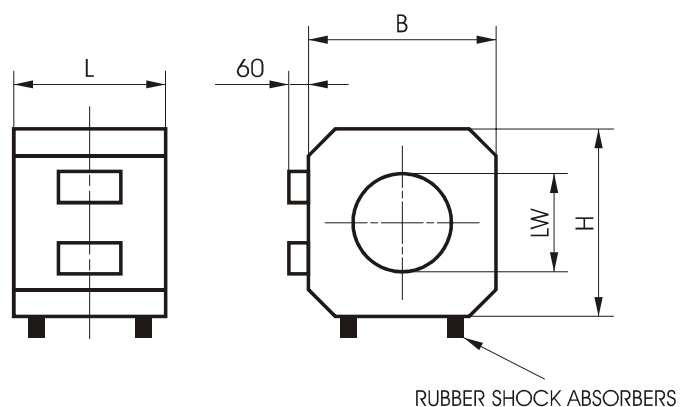
OPTIONAL EQUIPMENT

- METAL DETECTOR-TEST SPHERES
 - METAL SPHERE(S) ENCASED IN PLASTIC TO VERIFY SENSITIVITY
 - SEVERAL SIZES AND TYPES – (IF DESIRED WITH CERTIFICATE)
- WARNING DEVICE
 - BEACON
 - BUZZER
 - BEACON WITH SIREN
- PLASTIC SENSING TUBES
 - WITH TRANSITIONS
 - WITH FUNNEL
 - WITH FLANGES
 -
- DETECTOR FRAME
 - A VARIETY OF VERSIONS TO SUIT REQUIREMENTS
- REJECT SYSTEMS
 - FLAP VALVE SYSTEMS FOR BULK MATERIALS
 - 3-WAY BALL VALVES
 -
- SOFTWARE SOLUTIONS
 - MESUSET (OPERATION OF DETECTOR VIA LAPTOP)
 - MESUNET (NETWORK INTEGRATION AND REMOTE MAINTENANCE)
 - AND MORE
- HARD COPY PRINTER
 - WITH RS 232 CONNECTION (MAX. CABLE LENGTH OF 100 METERS)
 - WITH RS 422 CONNECTION (MAX. CABLE LENGTH OF 1200 METERS)
- REMOTE RESET DEVICE
- VISUAL MARKERS
 - INK JET SYSTEM
 - BAG DROP SYSTEM
 - AND MORE
- POWER CONDITIONER
 - MAGNETIC VOLTAGE STABILIZER
 - ELECTRONIC VOLTAGE STABILIZER

OTHER OPTIONS

- EXPLOSION PROOF
- CUSTOM PAINT
- SPECIAL POWER SUPPLY
- HIGH TEMPERATURE
- DETECTOR HEAD WITH INTEGRAL CONTROL BOX

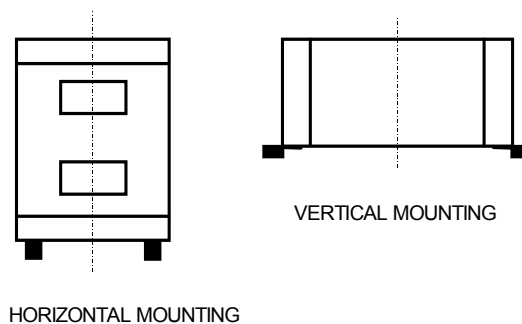
Dimensions



IN CASE OF INSUFFICIENT SPACE CUSTOM BUILT DETECTION COILS WITH SMALLER DIMENSIONS MAY BE MANUFACTURED UPON REQUEST.

LW = TYPE	B = H	L
CLEAR WIDTH	DETECTOR HEIGHT = DETECTOR WIDTH	DETECTOR LENGTH
45	150	125
55	150	125
70	150	125
85	200	150
100	200	150
115	250	150
130	250	150
150	250	200
170	300	200
210	350	250
235	400	300
265	450	300
300	500	350
335	550	400
380	600	450
430	650	500
470	700	500
525	750	600
600	850	700

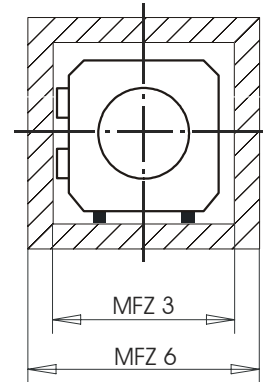
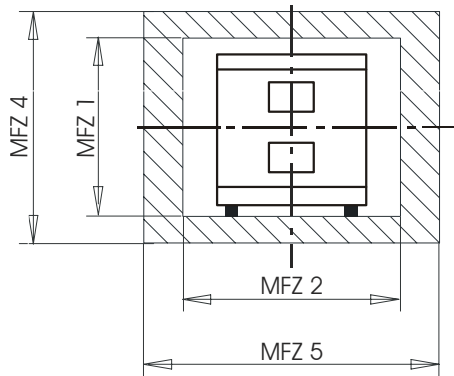
ALL DIMENSIONS IN MM.



NOTICE

THE MANNER OF TIGHTENING DEPENDS ON THE SIZE OF THE DETECTOR AND ON THE WAY OF APPLICATION. WE WILL GLADLY FURNISH YOU INDIVIDUAL DIMENSIONAL DATA SHEETS AFTER CLARIFICATION OF THE DETAILS.

METAL FREE ZONE (MFZ)



CALCULATING THE „METAL FREE ZONE“ ...

FOR NON-MOVING METALS

MFZ 1 = $H + 60 \text{ MM}$
 MFZ 2¹⁾ = $L + LW$
 MFZ 3 = $2 LW$

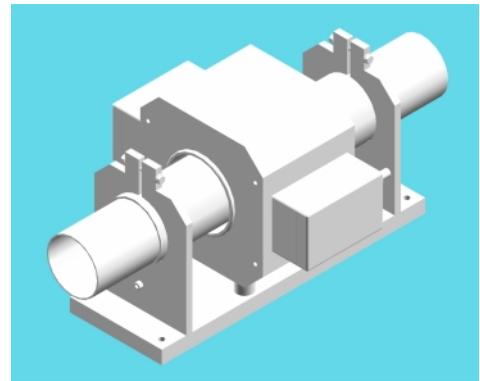
FOR MOVING METALS

MFZ 4 = $4 LW + 30 \text{ MM}$
 MFZ 5¹⁾ = $L + 3,5 LW$
 MFZ 6 = $4 LW$

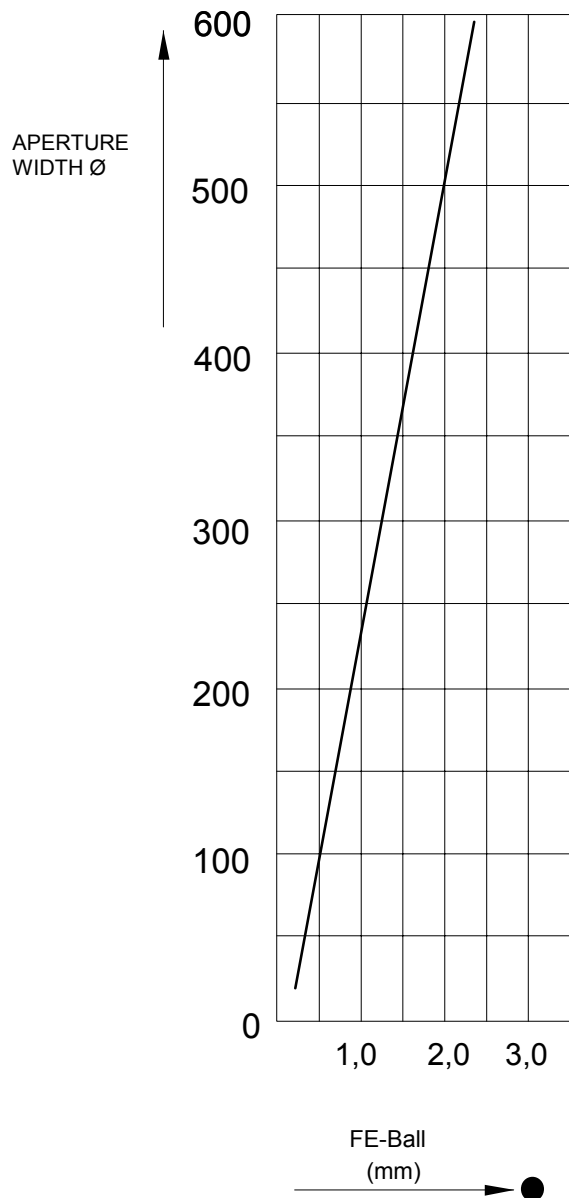
¹⁾ POSITION THE DETECTOR APERTURE IN THE MIDDLE OF THE „METAL FREE ZONE“
 FOR THE OTHER LEVELS (MFZ 1, 3, 4 AND 6): POSITION THE DETECTOR SYMMETRICAL IN RELATION TO THE APERTURE.

THE CALCULATED DIMENSIONS ARE TO BE TAKEN AS ORIENTATION VALUES (MINIMUM VALUES WHICH SHOULD 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 FOR EXAMPLE, PARTS OF THE COIL FRAME. „MOVING METAL PARTS“ ARE AXLES AND ROLLERS. 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



THE SENSITIVITY DEPENDS ON THE APERTURE SIZE
I.E. THE SMALLER THE APERTURE HEIGHT THE
GREATER THE SENSITIVITY.

BASE SENSITIVITY

THE SENSITIVITIES SHOWN IN THE ADJACENT DIA-
GRAMM WERE ACHIEVED IN THE APERTURE CENTRE
UNDER SIMULATED PROCESS CONDITIONS - POSSI-
BLE PRODUCT EFFECTS HAVE NOT BEEN CONSID-
ERED.

SENSITIVITY UNDER OPERATING CONDITIONS

IF YOU SEND US SOME PRODUCT SAMPLES, WE
WOULD BE PLEASED TO DO A TEST AND QUOTE THE
BEST SENSITIVITY.

TO CALCULATE SENSITIVITY FOR OTHER METALS
USE THE FOLLOWING MULTIPLICATION FACTOR.

VA (STAINLESS STEEL) = FE-BALL X 1 TO 2
(FACTOR DEPENDS ON THE METAL ALLOY)

CU, ALU, BRASS... = FE-BALL X 1,2 TO 1,8
(FACTOR DEPENDS ON THE METAL TYPE)

CONTROL UNIT AMD 05 (Version 5.0)

SINGLE BOARD DESIGN WITH BUILT IN REGULATED POWER SUPPLY FOR RELIABLE PERFORMANCE AND EASE OF SERVICE.

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

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

MULTI-FILTER SYSTEM USING DIGITAL FILTRATION 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)

SELF MONITORING SYSTEM ENSURES ALL COMPONENTS ARE FUNCTIONING PROPERLY. IN CASE OF A FAULT, RELAY OUTPUTS ARE AVAILABLE AS WELL AS A ALPHA-NUMERIC DISPLAY ON SELECT MODELS.

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

TOUCHPAD CONTROLS MODERN DESIGN. RUGGED TOUCH SCREEN FOIL WITH ERGONOMIC CONTROLS.

4 BUTTON TOUCHPAD CONTROLS SUPPORTED BY EASY TO UNDERSTAND MENUS FAST ACCESS TO ALL OPERATING PARAMETERS. USER SELECTABLE DIALOG LANGUAGE.

4-LINE BACK-LIT LCD DISPLAY WITH METAL SIGNAL INDICATION. ADDITIONAL LED INDICATOR LAMPS ARE BUILT IN TO INDICATE METAL DETECTION OR FAULTS.



PRODUCT STORAGE MEMORY BACKUP FOR UP TO 50 INDIVIDUAL PRODUCTS. EACH PRODUCT HAS A COMPLETE SET OF ADJUSTMENT DATA ASSIGNED, SUCH AS SENSITIVITY, REJECT TIME ETC. THE DISPLAY OF TIME RELEVANT DATA IS IN REAL-TIME. INDIVIDUAL PRODUCT NAMES CAN BE STORED AS WELL.

METAL DETECTOR NETWORK AND REMOTE SERVICE EVERYTHING IS DO-ABLE! SEVERAL OPTIONAL SOFTWARE-PACKAGES ARE AVAILABLE EXAMPLE: WITH THE BUILT-IN CAN-BUS-DATA PORT A NETWORK OF UP TO 63 METAL DETECTORS / SEPARATORS CAN BE OPERATED. THE UNITS CAN THEN BE REMOTE CONTROLLED AND OPERATED VIA A CENTRAL PC. ALSO REMOTE DIAGNOSIS, PARAMETER CHANGE AND SOFTWARE UPDATES VIA MODEM ARE POSSIBLE.

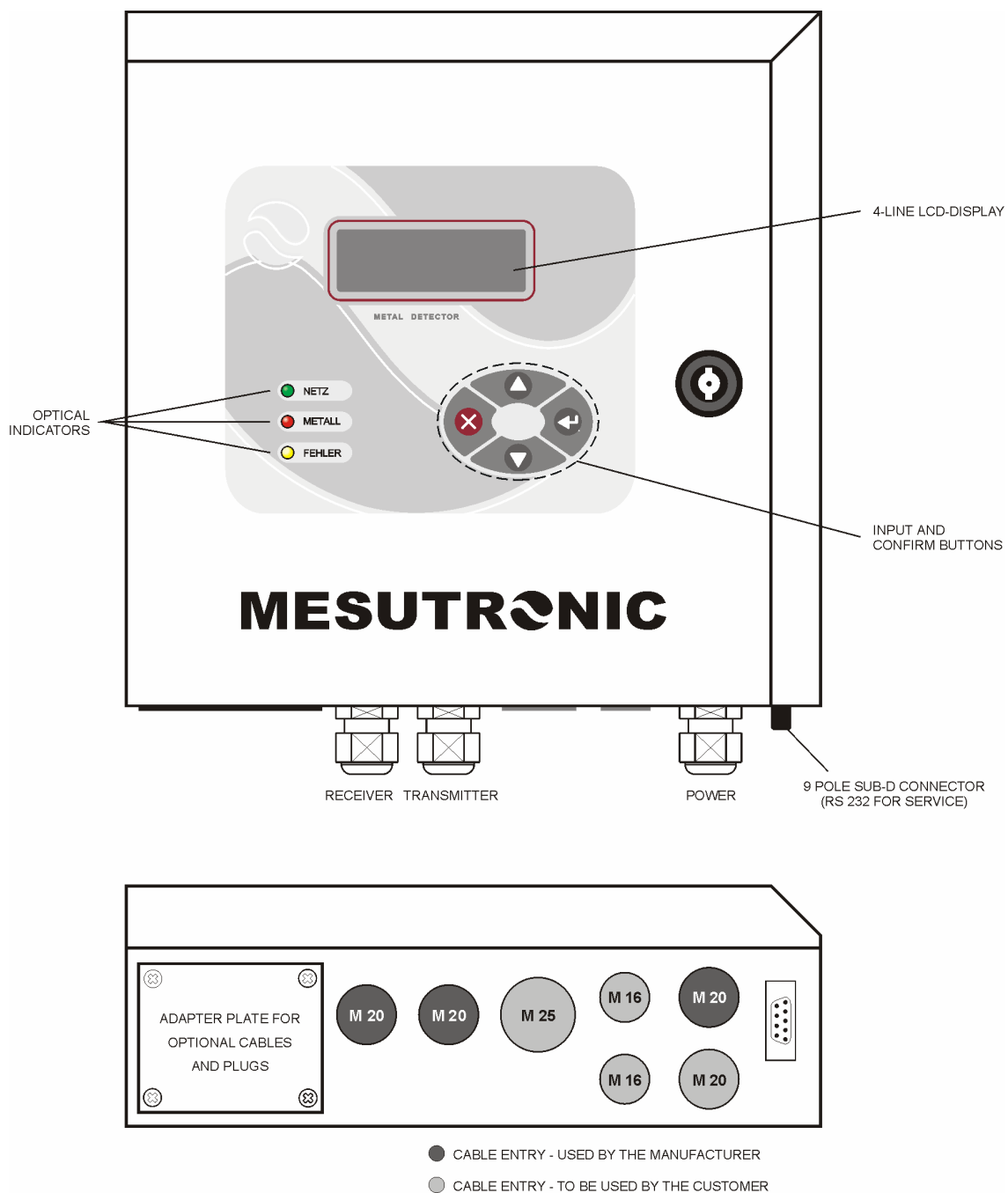
SERIAL DATA PORTS FOR DIFFERENT TASKS. THE DETECTOR IS EQUIPPED WITH 3 SERIAL DATA PORTS. ONE OF THE PORTS (RS 232) IS RESERVED FOR FACTORY SERVICE (PRODUCT DATA PROTECTION, LOCAL SOFTWARE UPDATES ETC.) THE OTHER 2 PORTS ARE AVAILABLE FOR PRINTERS AND SUCH. THE PROTOCOL LAYOUT CONFORMS TO ISO 9000 AND HACCP GUIDELINES. BI-DIRECTIONAL DATA COMMUNICATION WITH CUSTOMER'S SPS OR PC SYSTEMS IS AVAILABLE. (OPTIONAL SOFTWARE PACKAGE)

2-LEVEL PASSWORD PROTECTION WITH INTER-CHANGEABLE CODE NUMBERS.

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

QUALITY SMD (SURFACE MOUNTED DEVICES) HAVE BEEN USED IN THE PRODUCTION OF THE CONTROLS. THEY NOT ONLY OFFER A COMPACT DESIGN, BUT ALSO PROVIDE A HIGHER QUALITY AND MORE ROBUST PERFORMANCE UNDER HARSH CONDITIONS. ALL MESUTRONIC PRODUCTS MEET THE REQUIREMENT OF EN, DIN, VDI/VDE, UVV AND CE REGULATIONS.

CONTROLS

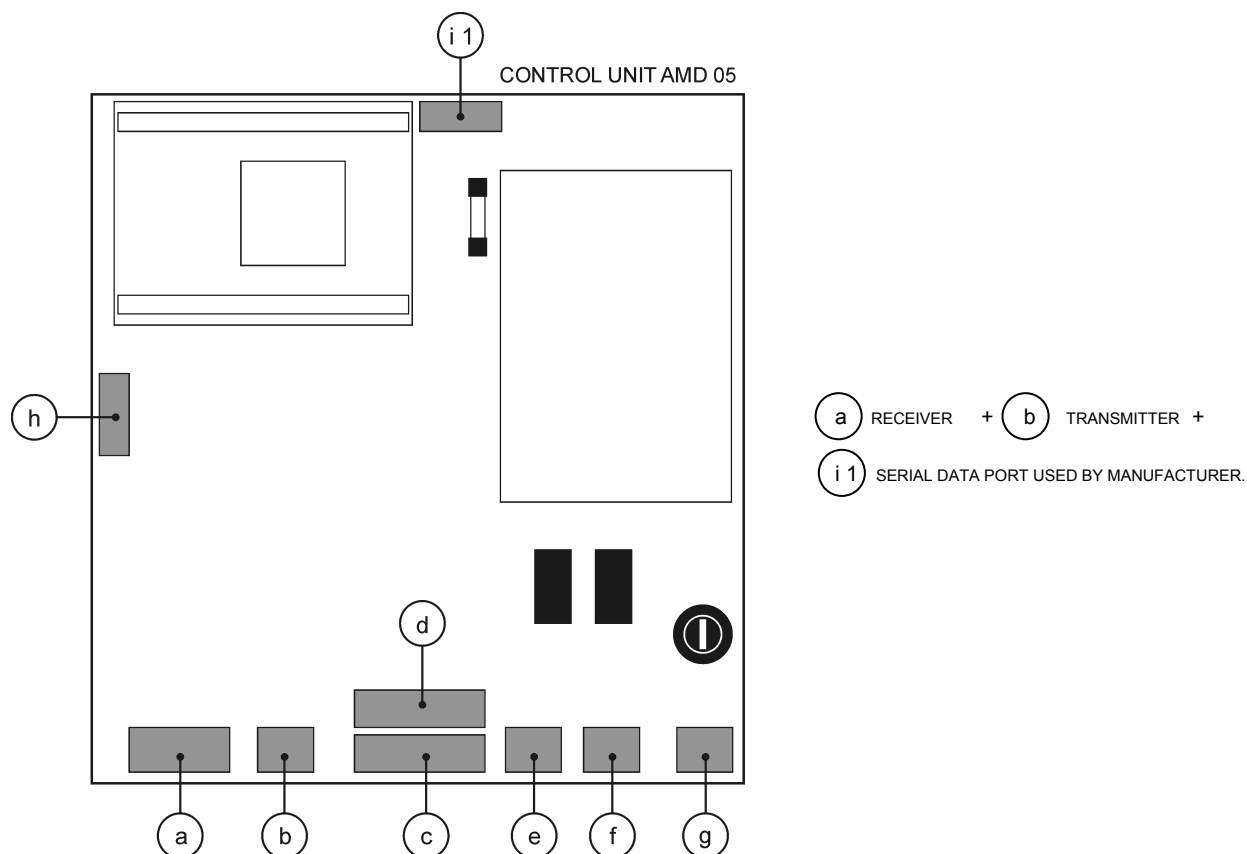


TECHNICAL DATA

POWER SUPPLY	: 100 – 240 V AC, 50/60 HZ
CURRENT CONSUMPTION	: MAX. 0,75 A
FUSE	: 315 MA (SLOW BLOW)
TYPE OF PROTECTION	: IP 54
WORKING TEMPERATURE RANGE	: -10 °C TO +50 °C
STORAGE TEMPERATURE RANGE	: -10 °C TO +60 °C
REL. HUMIDITY	: UP TO 100 %
CONVEYING SPEED	: RANGE 1: 0.05 TO 1.5 M/SEC RANGE 2: 0.05 TO 30 M/SEC
PAINT	: RAL 9007
POWER CABLE	: APP. 1,8 M CABLE WITH PLUG (TWO POLE AND EARTHING PIN) (US-VERSION WITH US-STANDARD PLUG)

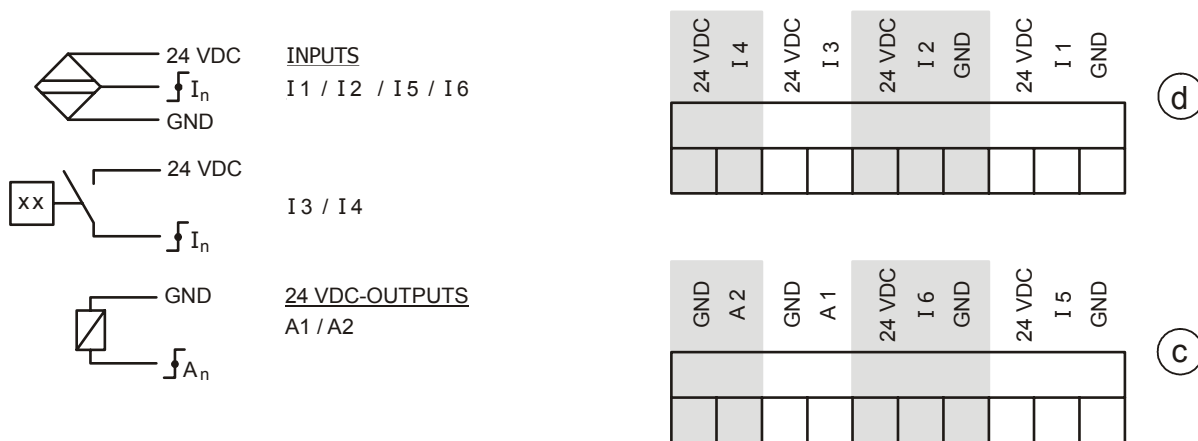
OTHER VERSIONS AVAILABLE

INPUTS AND OUTPUTS



c + **d** FUNCTION BLOCK

CONNECTION EXAMPLES



INPUTS AND OUTPUTS ARE USED ACCORDING TO PRODUCT REQUIREMENTS.
MAX. LOAD FOR ALL INPUTS AND OUTPUTS $I_{TOTAL} = 300$ mA CUMULATIVE !

STANDARD LAYOUT

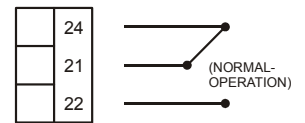
- I 1 INITIATOR "NORMAL POSITION" (REJECT GATE)
- I 2 INITIATOR "REJECT POSITION" (REJECT GATE)
- I 3 PRESSURE MONITOR
- I 4 OFFLINE SWITCH

- I 5 TEST BUTTON
- I 6 NOT CONNECTED
- A 1 SOLENOID REJECT GATE
- A 2 UNIT OPERATIONAL INDICATOR

INPUTS AND OUTPUTS

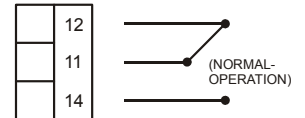
e RELAY 2 (OPERATIONAL)¹⁾

- ♦ FLOATING RELAY-CHANGE OVER CONTACT ACTUATED BY SELF MONITORING SYSTEM
MAX. CONTACT LOAD : 250 V / 3 A



f RELAY 1 (METAL)¹⁾

- ♦ FLOATING RELAY-CHANGE OVER CONTACT ACTUATED WHEN METAL IS DETECTED
MAX. CONTACT LOAD : 250 V / 3 A
PULSE DURATION (AUTO-RESET) : 0,1 SEC. TO 10 SEC. (ADJUSTABLE)
PULSE DURATION (RESET BY HAND) : PERMANENT SIGNAL UNTIL RESET-BUTTON IS PRESSED



g POWER SUPPLY

- ♦ 100 – 240 V AC, 50/60 Hz, CURRENT CONSUMPTION: MAX. 750 MA
OTHER VERSIONS AVAILABLE



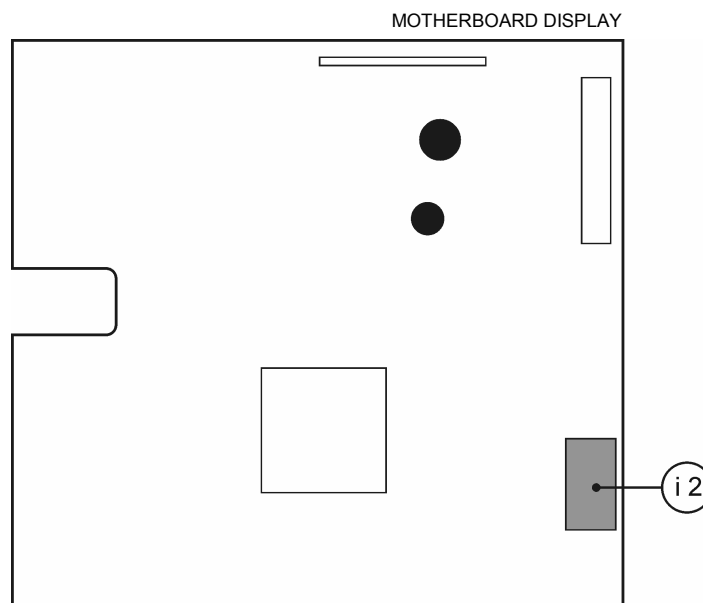
h CAN – BUS DIGITAL INTERFACE

i 2 SERIAL DIGITAL INTERFACES

- ♦ 1 x AS SELECTED: RS 232, 422
(LAID OUT FOR RS 232, UNLESS OTHERWISE SPECIFIED)
- ♦ 1 x ONLY FOR RS 232

1) STANDARD PROGRAMMING

OTHER GIVEN OPERATIONS ARE POSSIBLE
(PLEASE CONTACT OUR APPLICATION TEAM)



MESUTRONIC Gerätebau GmbH

A TEAM OF SPECIALISTS DEDICATED TO DEVELOP, MANUFACTURE AND MARKET THE WORLD'S FINEST ELECTRONIC METAL DETECTION AND SEPARATION EQUIPMENT FOR ALL INDUSTRIES. IT IS OUR GOAL TO PROVIDE THE OPTIMUM SOLUTION TO MEET EVERY CRITERIA. MANY YEARS OF EXPERIENCE PROVIDING HUNDREDS OF DETECTION COILS WITH VARIOUS CONTROLS AS WELL AS A MULTITUDE OF MECHANICAL SEPARATING AND SORTING COMPONENTS, ARE AT YOUR DISPOSAL. WE POOL OUR KNOWLEDGE AND EXPERIENCE TO OFFER A SOLUTION TO VIRTUALLY ANY APPLICATION.

„WHEN OTHERS SAY NO, WE SAY LETS GO!“

LET OUR TEAM PROVIDE YOU WITH THE OPTIMUM SOLUTION FOR YOUR METAL CONTAMINATION.

Our knowledge is our strength

MESUTRONIC

Strength is always being available

MESUTRONIC®

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SUBJECT TO MODIFICATION!