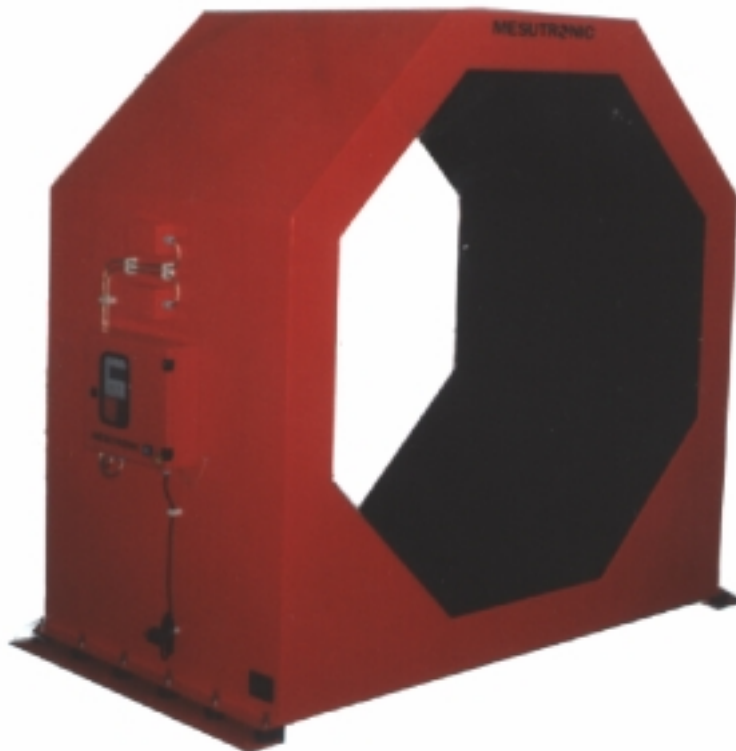


**TECHNICAL DATA SHEET**  
**HIGH-FREQUENCY METAL DETECTOR**  
**METRON® 05 CO**

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

- FERROUS & NON-FERROUS
- NON-MAGNETIC STEEL
- ALUMINUM
- COPPER
- BRASS
- OTHERS

CLOSED TUNNEL TYPE DETECTOR WITH INTEGRAL  
CONTROL BOX SUITABLE FOR INSTALLATION IN BELT CONVEYORS, ...



C E

HIGH-SPEED DIGITAL PROCESSOR TECHNOLOGY USING A TWO CHANNEL SIGNAL COMPERATOR WITH  
CAPABILITIES TO INSPECT MATERIALS CONVEYING AT SPEED UP TO 6 M/SEC.

**INDUSTRIES**

- TIMBER INDSTRY

**APPLICATIONS**

- MACHINERY PROTECTION, SUCH AS  
BANDSAWS  
AND MORE

Our company works according to **ISO 9001** but is not certified at this time.



## **STANDARD SUPPLY**

- DETECTOR HEAD WITH INTEGRAL CONTROL BOX
- INSTALLATION ACCESSORIES
- MANUAL INCLUDING INSTALLATION INSTRUCTIONS, WIRING DIAGRAM AND SPARE PART LIST
- EC-CONFIRMING DECLARATION

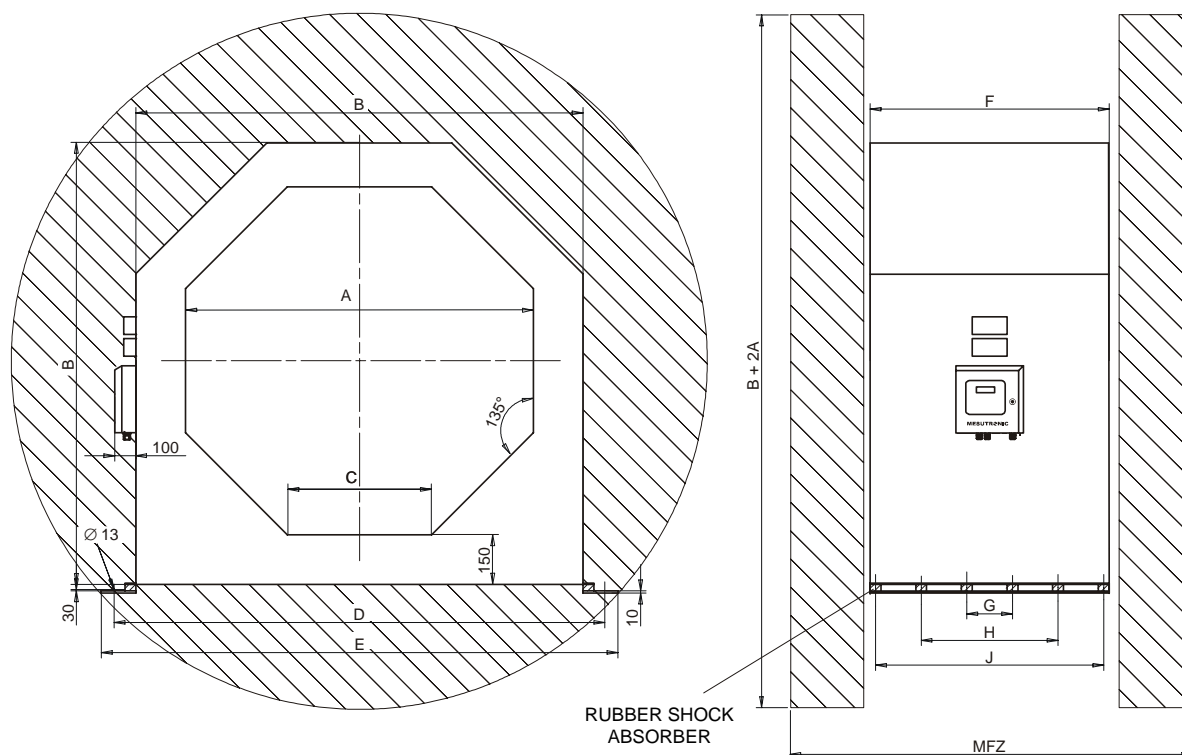
## **OPTIONAL EQUIPMENT**

- WARNING DEVICE
  - BEACON
  - BUZZER
  - BEACON WITH SIREN
- REMOTE RESET DEVICE
- VISUAL MARKERS
  - INK JET SYSTEM
  - .....
- ADDITIONAL LINE FILTER

## **OTHER VERSIONS**

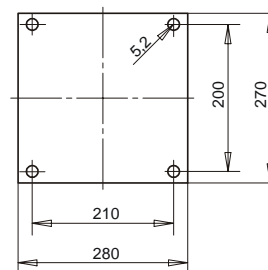
- CUSTOM PAINT
- SPECIAL POWER SUPPLY
- DETECTOR HEAD WITH REMOTE CONTROL BOX

## DIMENSIONS



CONTROL BOX  
(DRILLING PATTERN)

STANDARD VERSION:  
CONTROL BOX BUILD  
TO SEARCH COIL



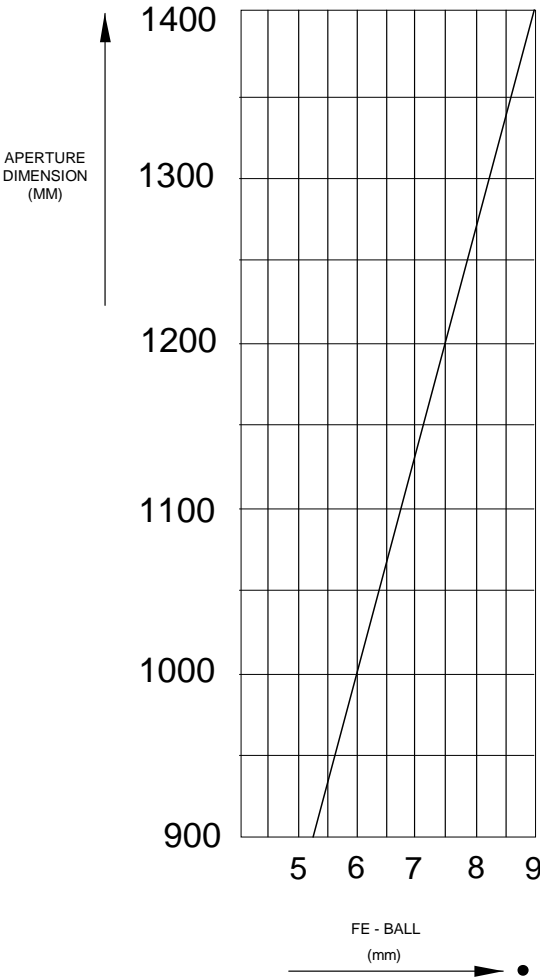
MFZ = METAL FREE ZONE

A = TYP

A	B	C	D	E	F	G	H	J	MFZ
900	1200	372	1360	1400	800	150	450	750	3600
1000	1300	414	1460	1500	900	170	510	850	3900
1100	1400	455	1560	1600	900	170	510	850	4200
1200	1500	497	1660	1700	900	170	510	850	4500
1300	1600	538	1760	1800	1000	190	570	950	4800
1400	1700	580	1860	1900	1000	190	570	950	5100

ALL DIMENSIONS IN MM

**SENSITIVITY DIAGRAM**



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

THE SENSITIVITIES SHOWN IN THE ADJACENT  
DIAGRAMM WERE ACHIEVED IN THE APERTURE  
CENTER UNDER BEST PROCESS CONDITIONS.

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 1.4 TO 1.6  
(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.

**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 TOUCHSCREEN FOIL WITH ERGONOMIC CONTROLS.

**4 BUTTON TOUCHPAD CONTROLS** SUPPORTED BY EASY TO UNDERSTAND MENUS FAST ACCESS TO ALL OPERATING PARAMETERES. 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.

**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.



C E

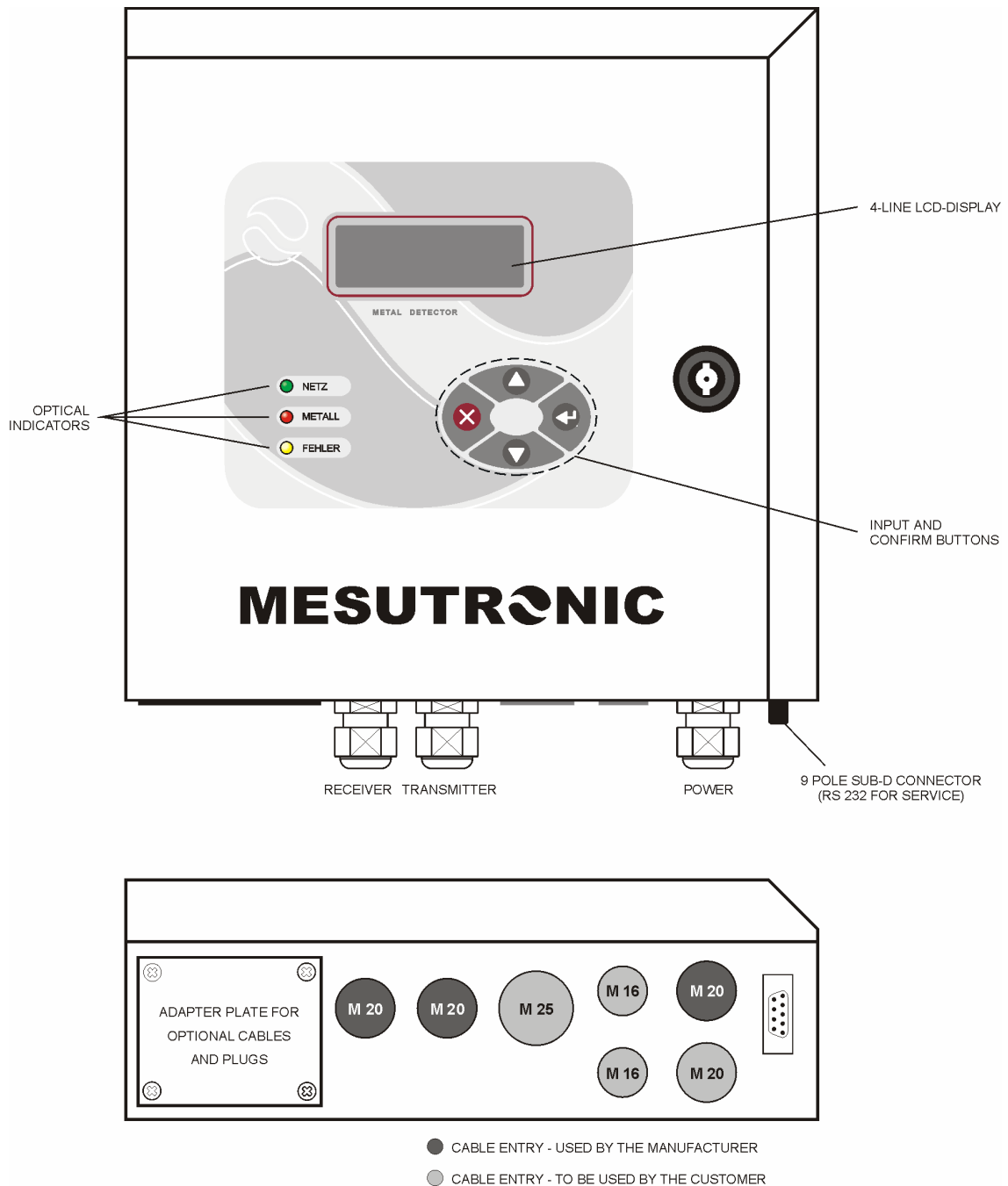
**PRODUCT STORAGE MEMORY BACKUP** FOR UP TO 6 INDIVIDUAL PRODUCTS. EACH PRODUCT HAS A COMPLETE SET OF ADJUSTMENT DATA ASSIGNED, SUCH AS SENSITIVITY, REJECT TIME ETC. THE DISPLAY OF TIME RELEVANT DATA IS IN REAL-TIME. INDIVIDUAL PRODUCT NAMES CAN BE STORED AS WELL.

**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 )

**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

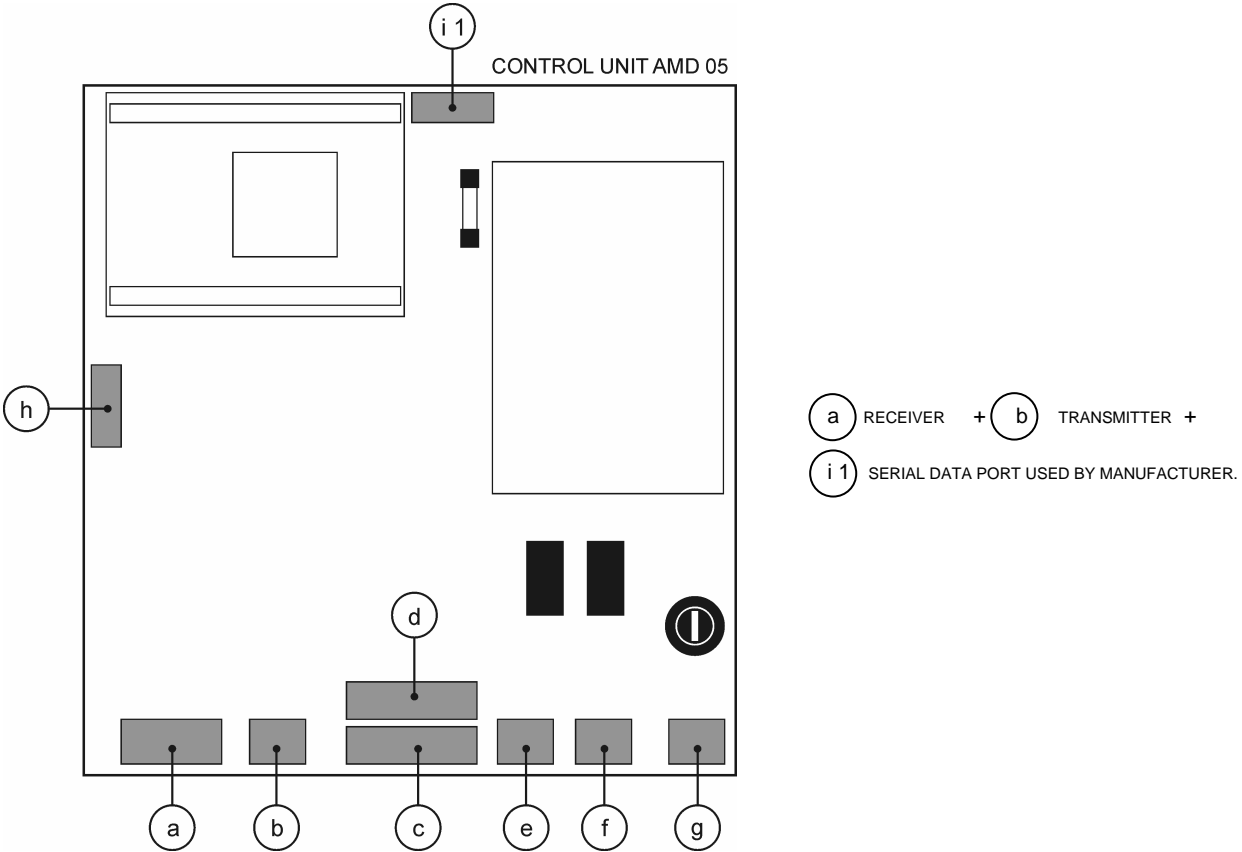


## TECHNICAL DATA

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	: 0.05 TO 30 M/SEC.
MATERIALS	: DETECTOR HEAD AND CONTROL BOX MADE OF CARBON STEEL, SENSING AREAS MADE OF DUROPLEX
PAINT	: RAL 3027 = RASPBERRY RED
POWER CABLE	: APP. 1,8 M CABLE WITH PLUG (TWO POLE AND EARTHING PIN) (US-VERSION WITH US-STANDARD PLUG)

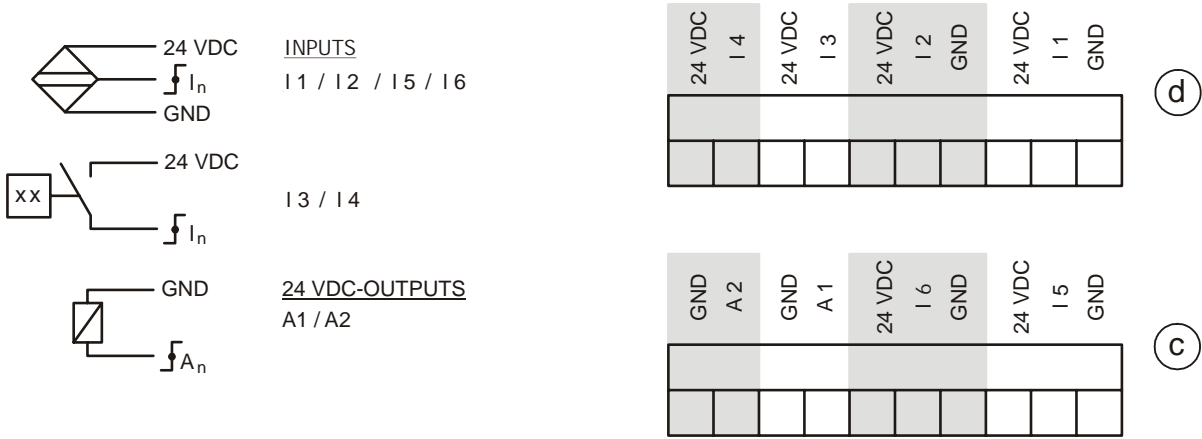
OTHER VERSIONS AVAILABLE

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<sub>TOTAL</sub> = 300 mA CUMULATIVE !

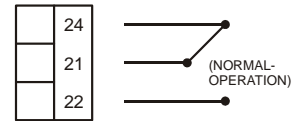
STANDARD LAYOUT

- I 1 NOT CONNECTED
- I 2 NOT CONNECTED
- I 3 NOT CONNECTED
- I 4 RESET BUTTON, EXTERN
- I 5 NOT CONNECTED
- I 6 NOT CONNECTED
- A 1 METAL
- A 2 UNIT OPERATIONAL INDICATOR

## INPUTS AND OUTPUTS

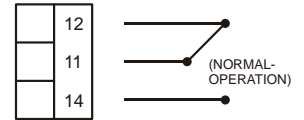
### e RELAY 2 (Operational)<sup>1)</sup>

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



### f RELAY 1 (METAL)<sup>1)</sup>

- ♦ 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



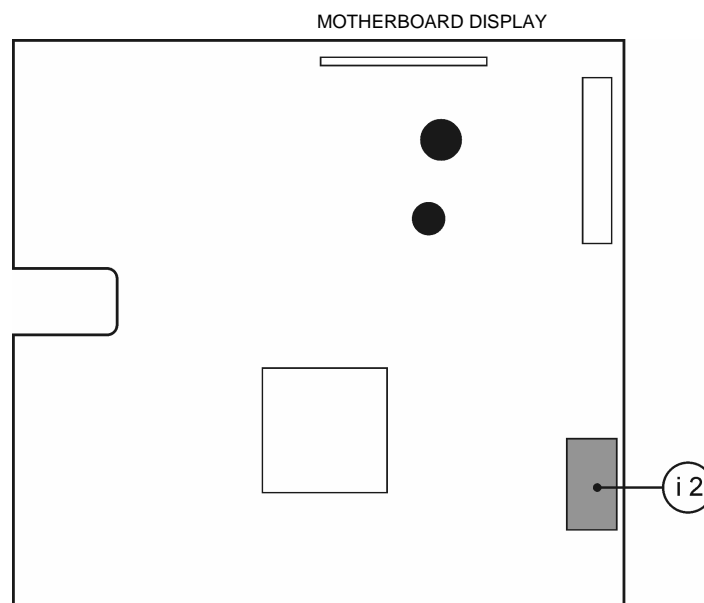
### h CAN – BUS DIGITAL INTERFACE

### i 2 SERIAL DIGITAL INTERFACES

- ♦ 1 x as selected: RS 232, 422, 485  
(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)





## ASSEMBLY AND OPERATION GUIDELINES

THE CONVEYOR BELT HAS TO BE EQUIPPED WITH A LARGE ENOUGH „METAL FREE ZONE“ (SEE - SPECIFICATION DATA SHEET - DIMENSIONS). THE METAL DETECTOR HAS TO BE CENTERED WITHIN THE „METAL FREE ZONE“. FURTHERMORE, IT IS ALSO IMPORTANT NOT TO ALLOW DIRECT MECHANICAL CONTACT BETWEEN THE SCANNER HEAD (SEARCH COIL) OR ANY OTHER MOTOR AND FACILITY PARTS.

WITHIN THE „METAL FREE ZONE“ ONLY ELECTRICAL NON-CONDUCTING MATERIAL SHOULD BE USED SUCH AS WOOD OR PLASTICS. PLEASE CONSIDER THAT EMPLOYING A PLASTIC SLIDING PLATE WILL PROMOTE A STATIC CHARGE. THE CONVEYOR BELT ALSO NEEDS TO BE FREE OF ALL METAL (E.G. RUBBER BELT WITHOUT STEEL ROPE INSERTS AND METAL CLIP JOINTS).

THERE CANNOT BE ANY MECHANICAL CONTACT BETWEEN THE PRODUCT, CONVEYING BELT AND THE SLIDING PLATE. THE SLIDING PLATE HAS TO BE SIZED OR SUPPORTED SO THAT THERE IS NO MECHANICAL CONTACT WITH THE SENSORY PLANE BELOW. PRODUCTION RESIDUE, WHICH IS DEPOSITED DURING PRODUCTION, IS TO BE REMOVED REGULARLY. AVOID CONTACT OF THE RETURNING CONVEYOR BELT WITH THE DETECTOR HOUSING (THIS CAN HAPPEN WHEN OVERSTRETCHING THE BELT AT STARTING MOMENTUM).

A FOUNDATION BASE IS TO BE DESIGNED AT THE CONSTRUCTION SIGHT. THE FOUNDATION BASE WILL HOLD THE DETECTOR COILS AND WILL NEED TO BE MOUNTED ON CLAMPING LATHES. THERE HAVE TO BE SEPARATE FOUNDATIONS FOR THE CONVEYING INSTALLATION AND THE METAL DETECTOR TO ENSURE THAT NO VIBRATIONS ARE CARRIED OVER TO THE METAL DETECTOR.

POWER-DRIVEN PULLEYS, DIVERSION PULLEYS, AND NECK PULLEYS ARE POTENTIAL SOURCES OF INTERFERENCE, BECAUSE DEFECT OR POOR BEARINGS SUBJECT THE ELECTRICAL CONTACT TO HIGH VARIATIONS. ATTENTION: TO BYPASS THE POOR CONTACTS WITH GROUNDING STRIP OR GROUNDING WIRE WILL NOT REMEDY THE SITUATION. THE SAME IS TRUE FOR ROTARY-BEARING BOTTOM CORD STRIPPERS, WHOSE PARTS HAVE TO BE PLACED OUTSIDE OF THE „METAL FREE ZONE“.

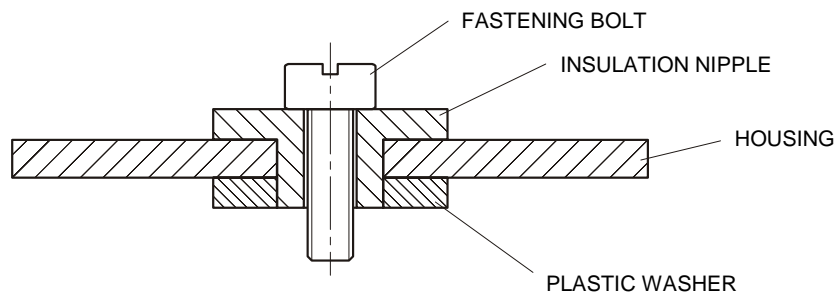
FOR OUTDOOR USAGE (CONSTRUCTION OUTDOORS), THE METAL DETECTOR HAS TO BE PROTECTED FROM THE INFLUENCES OF THE WEATHER (DIRECT SUNLIGHT, WIND). A WOODEN HOUSING SHOULD BE USED. (DO NOT USE METAL IN THE CONSTRUCTION OF THE WALLS AND ROOFING MATERIAL). THE WOODEN HOUSING HAS TO BE SIZED LARGE ENOUGH SO IT DOES NOT COME IN CONTACT WITH THE DETECTOR COIL.



EXAMPLE

THE METAL DETECTOR SHOULD NOT BE EXPOSED TO HIGH ELECTROMAGNETIC FIELDS. POTENTIAL SOURCES OF INTERFERENCE ARE: DIRECT CURRENT VOLTAGE MOTORS, AS WELL AS POWER EFFICIENT THREE PHASE ALTERNATING CURRENT MOTORS, IF THEY ARE LOCATED CLOSELY TO THE METAL DETECTORS. IN ADDITION, FREQUENCY REGULATED MOTORS, AS WELL AS SERVODRIVES. OTHER SOURCES OF INTERFERENCE ARE CABLE TRENCHES, WHICH RUN SUPPLY LINES TO AND FROM FREQUENCY REGULATED MOTORS.

IF USING DETECTORS WITH SEPARATE ELECTRONICS, THE JUNCTION CABLES, TRANSMITTER/RECEIVER HAVE TO BE INSTALLED SEPARATELY (SUITABLE PLASTIC WASHERS AND INSULATION NIPPLES ARE INCLUDED WITH THE ASSEMBLY ACCESSORIES).



TO ENSURE STABLE OPERATING CONDITIONS, THE METAL DETECTOR SHOULD BE CONTINUOUSLY SUPPLIED WITH POWER (ESPECIALLY USING IT FOR OUTDOOR PURPOSES). WE ALSO URGENTLY RECOMMEND TO CHECK THE SELF-MONITORING SYSTEMS (WHICH DETECTS FAULTS). THIS GUARANTEES THE OPTIMAL SAFETY OF THE FOLLOWING EQUIPMENT.

THE TRANSPORTING EQUIPMENT (CONVEYOR BELT) HAS TO BE CONTROLLED, SO THAT THERE ARE NO PRODUCTS (TREE TRUNKS) ON THE PASSAGE AREA OF THE CONVEYOR BELT, AFTER SWITCHING IT OFF. IF THIS CANNOT BE REALIZED, THERE IS A CHANCE OF LOSS OF SENSITIVITY AFTER RESTARTING.

IF SEVERAL METAL DETECTORS ARE OPERATING IN THE SAME PRODUCTION HALL, NECESSARY SPACING HAS TO BE MAINTAINED. OTHERWISE FREQUENCY DEVIATIONS COULD CAUSE INTERFERENCE.

FOR CLOSED TUNNEL DETECTORS, TYPE C, CO AND CR NOTE:

MINIMUM SPACING = 10 BY LH (WH), IF THE DETECTOR COILS ARE PLACED IN PARALLEL (ROW).

FOR TUNNEL DETECTORS WHICH CAN BE DIVIDED TYPE D AND SINGLE LAYER DETECTORS TYPE S AND SC NOTE: THE MINIMUM SPACES CAN BE IGNORED ONLY IF WORKING WITH FREQUENCY SHIFTING. WE RECOMMEND DISCUSSING THIS EARLY ON WITH OUR DISTRIBUTION OR APPLICATIONS DEPARTMENT.

THE METAL DETECTOR SHOULD BE LIFTED ONLY WITH TEAR-PROOF MOVING BELTS.

**IF YOU HAVE FURTHER QUESTIONS, DO NOT HESITATE TO CONTACT OUR APPLICATION DEPARTMENT.**

## 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.



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SUBJECT TO MODIFICATION!