METAL DETECTOR

METRON 05 D

Version 02/18

RELIABLE DETECTION OF ALL METALS:

- **FERROUS**
- **STAINLESS STEEL**
- **ALUMINUM**
- **COPPER**
- **BRASS**

RELIABLE DETECTION OF FREE OR ENCAPSULATED CONTAMINANTS.

DIVISIBLE TUNNEL TYPE DETECTOR FOR INSTALLATION IN BELT CONVEYORS, VIBRATORY CONVEYORS AND MATERIAL CHUTES.

INDUSTRIES

- RECYCLING INDUSTRY
- RUBBER- AND PLASTIC INDUSTRY
- TIMBER INDUSTRY
- QUARRY INDUSTRY
- TEXTILE INDUSTRY

APPLICATION

- MACHINERY PROTECTION
- PRODUCT INSPECTION
- GRINDERS, CRUSHERS, MILLS
- BANDSAWS
- CHIPPERS
- AND MORE

BUNTING®

GLOBAL. MAGNETIC. FORCE.™

SCOPE OF DELIVERY

BUNTING

EC-CONFORMING DECLARATION

- DETECTOR HEAD
- ELECTRONICS MOUNTED IN A METAL CABINET
- CONNECTING CABLES
- INSTALLATION ACCESSORIES
- USER MANUAL INCL. INSTALLATION INSTRUCTIONS, WIRING DIAGRAM AND SPARE PARTS LIST IN SEVERAL LANGUAGES
- EG CONFORMITY DECLARATION

OPTIONAL EQUIPMENT

WARNING DEVICE	- BEACON - BUZZER - BEACON WITH SIREN
REMOTE RESET DEVICE	
CONVEYOR CONTROLS	- CONVEYOR REVERSE - .....
VISUAL MARKERS	- INK JET SYSTEM - BAG DROP SYSTEM - .....
REJECT SYSTEMS	- PUSHER SYSTEMS - FLAP SYSTEMS - CUT-OUT DEVICE - .....
CUSTOMIZED SOFTWARE SOLUTIONS	- SPECIAL CONTROL OPERATIONS - DATA TRANSFER
POWER CONDITIONER	- MAGNETIC VOLTAGE STABILIZER - ELECTRONIC VOLTAGE STABILIZER

- TURN KEY SYSTEMS CONSISTING OF CONVEYOR - DETECTOR - REJECT

SPECIAL VERSIONS

ZERTIFIKAT • CERTIFICATE • CERTIFICADO • CERTIFICAT

EG – Konformitätsbescheinigung

- DETECTOR HEAD AND CONTROL BOX IN STAINLESS STEEL
- EXPLOSION PROOF (PROTECTION TYPE IP 65)
- CUSTOM PAINT
- SPECIAL POWER SUPPLY
- HIGH TEMPERATURES
- ALUTRON-VERSION (NO FALSE TRIPPING BY METALLIC FILMS SUCH AS CUP LIDS, ...), PATENT-NO. 4342826
- NEUTRAL DELIVERY WITH INDIVIDUAL LABELING

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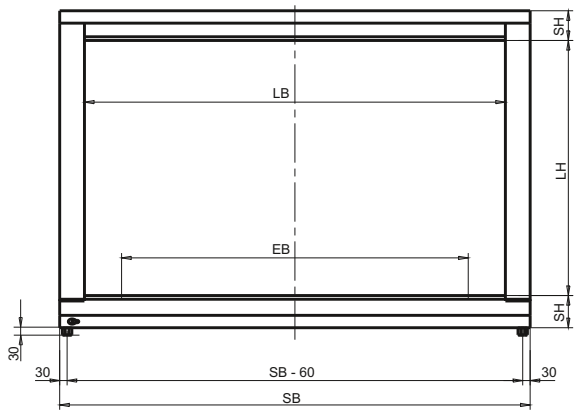
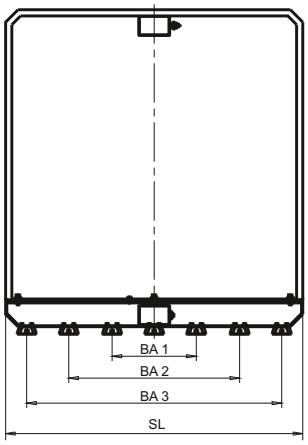
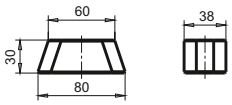
DIMENSIONS

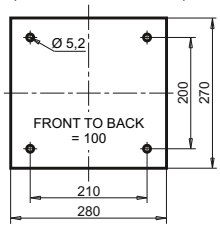






DETECTOR SUPPORT LEGS
MAX. DEPTH OF THREAD 18 MM
SCREW THREAD M 12

CONTROL BOX
(DRILLING PATTERN)

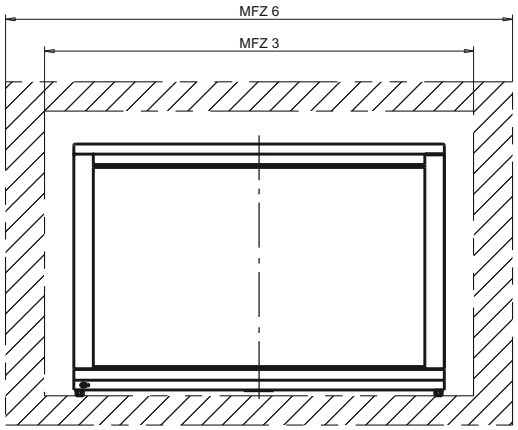


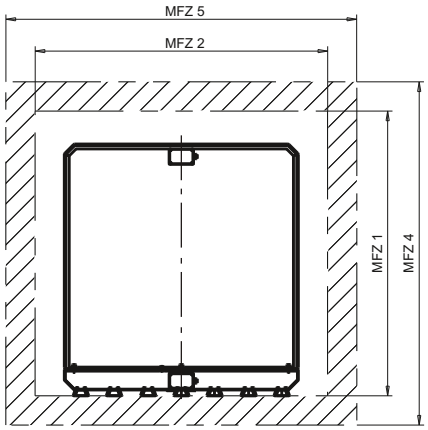
SB (DETECTOR WIDTH = LB + 200
EB (SENSING AREA)

APERTURE HEIGHT	APERTURE WIDTH	TOP/BOTTOM THICKNESS	DETECTOR LENGHT	DISTANCE BETWEEN BORE CENTRES			NUMBER OF THREADED BORE HOLES IN TOTAL	COIL SUPPORT CENTERED
LH	LB	SH	SL	BA 1	BA 2	BA 3	A	
TO 200	EB + 220	115	400	230			6	YES
TO 300	EB + 220	115	500	110	330		8	NO
TO 400	EB + 240	115	600	215	430		10	YES
TO 500	EB + 240	115	700	265	530		10	YES
TO 600	EB + 240	115	750	290	580		10	YES
TO 700	EB + 280	115	800	150	390	630	12	NO
TO 800	EB + 280	120	850	150	420	680	12	NO
TO 900	EB + 280	120	900	150	440	730	12	NO
TO 1000	EB + 280	120	1000	280	560	830	14	YES
> 1000	EB + 300	120	1200	340	690	1030	14	YES

ALL DIMENSIONS IN MM.

METAL FREE ZONE (MFZ)





CALCULATING THE „METAL FREE ZONE“ …

FOR NON-MOVING METALS		FOR MOVING METALS	
MFZ 1	= LH + (2 x SH) + 60 mm	MFZ 4	= 4 x LH
MFZ 2 [1)]	= SL + LH	MFZ 5 [1)]	= SL + 3,5 x LH
MFZ 3	= LB + 300 mm	MFZ 6	= LB + 1000 mm

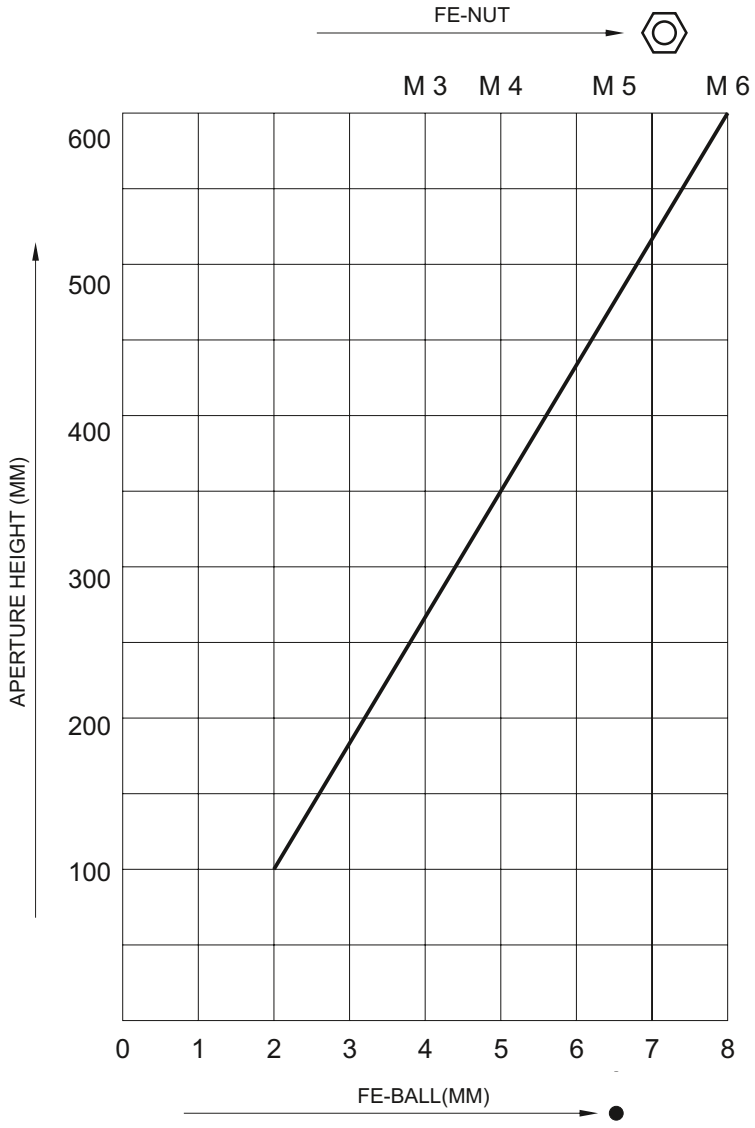
[1)] POSITION THE DETECTOR APERTURE IN THE MIDDLE OF THE „METAL FREE ZONE“
FOR THE OTHER DIMENSIONS: POSITION THE DETECTOR SYMMETRICAL IN RELATION TO THE APERTURE.

THE CALCULATED DIMENSIONS ARE TO BE TAKEN AS ORIENTATION VALUES (MINIMUM VALUES WHICH 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 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 A REJECT 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 ≤ 1,5 x LH



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

THE SENSITIVITIES SHOWN IN THE ADJACENT DIAGRAM WERE ACHIEVED IN THE APERTURE CENTRE UNDER SIMULATED PROCESS CONDITIONS - POSSIBLE PRODUCT EFFECTS HAVE NOT BEEN CONSIDERED.

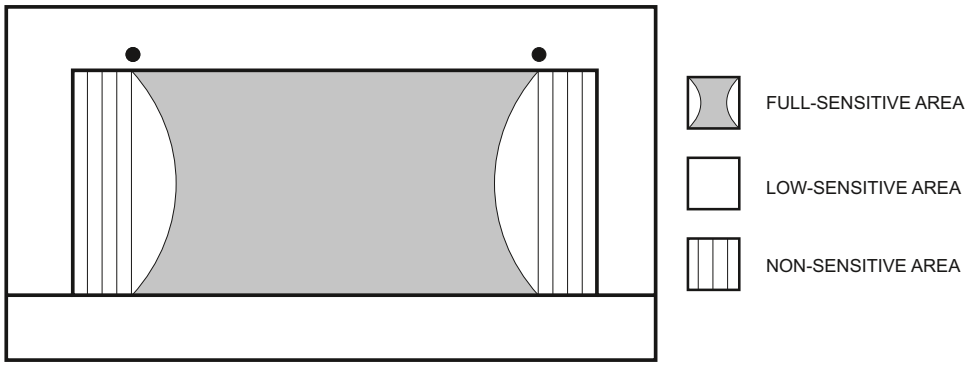
IF YOU SEND US SOME PRODUCT SAMPLES, WE WOULD BE PLEASED TO DO A TEST AND QUOTE THE BEST SENSITIVITY.

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)

SENSITIVITY DISTRIBUTION



CONTROL UNIT AMD 05 (Version 5.2)

ADVANTAGES THAT WILL CONVINCE YOU !

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

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.

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

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

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

PRODUCT STORAGE MEMORY BACKUP FOR UP TO 500 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 125 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 PORT FOR DIFFERENT TASKS. THE METAL DETECTOR IS EQUIPPED WITH 1 SERIAL DATA PORT (RS 232). HOWEVER THIS PORT IS RESERVED FOR FACTORY SERVICE ACCESS SUCH AS ADJUSTMENT DATA LOGGING, SOFTWARE UPDATES ETC.) AS AN OPTION, THIS DATA PORT MAY ALSO BE USED BY THE CLIENT (SWITCHABLE). IT CAN BE USED TO DRIVE A LOCAL OR CENTRAL PROTOCOL PRINTER. 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).

ACTIVE QUALITY ASSURANCE WITH SMD COMPONENTS SAVE NOT ONLY SPACE BUT ALSO ASSURE OPTIMUM QUALITY AND SAFETY FOR THE END USER. WITH AUTOMATED PLACEMENT COMPONENT ERRORS ARE ELIMINATED. IN ADDITION EACH CARD IS 100% TESTED AND ARTIFICIALLY AGED. ALL BUNTING PRODUCTS ARE DEVELOPED UNDER DIN, EN AND UVV STANDARDS AND COMPLY WITH THE STRICT CE STANDARDS AS WELL.

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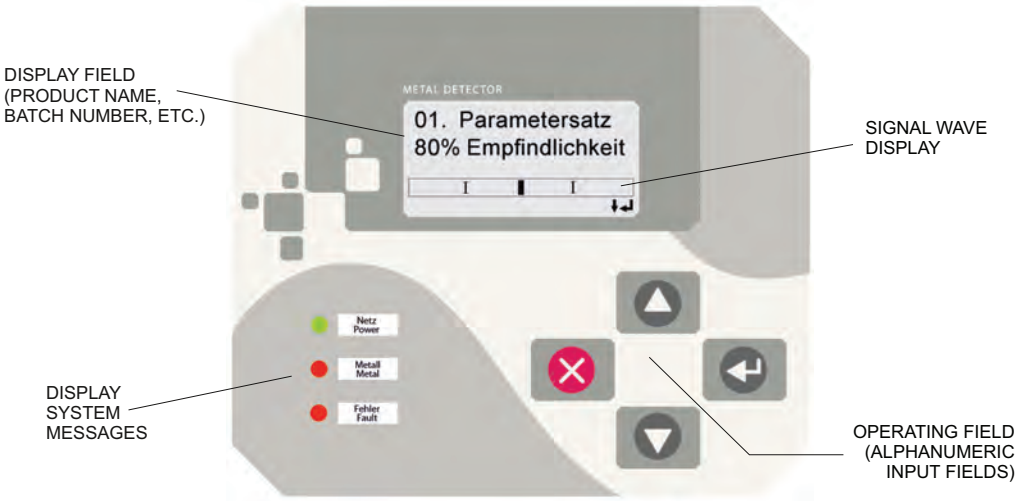
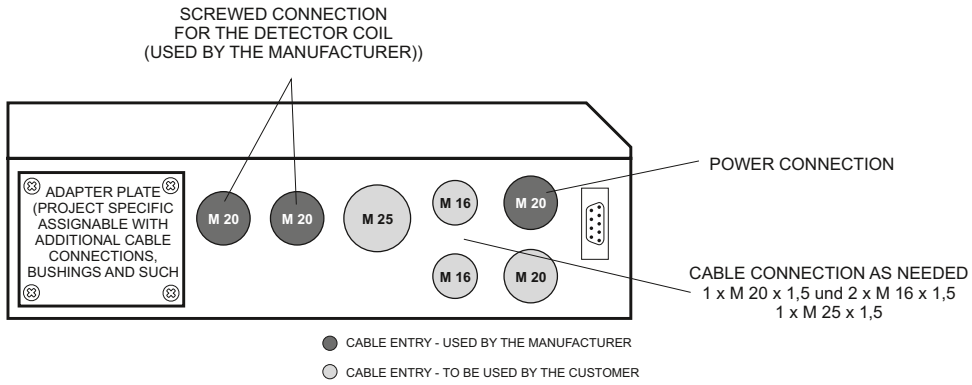
CONTROLS

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



ELECTRONIC BOX



TECHNICAL DATA

POWER SUPPLY:	100 – 240 V AC, 50/60 HZ
POWER CONSUMPTION:	MAX. 50 W
FUSE:	1,25 A (SLOW BLOW); 5 X 20 MM ACCORDING TO DIN
TYPE OF PROTECTION:	IP 54
WORKING TEMPERATURE RANGE:	-10 °C TO +50 °C
STORAGE TEMPERATURE RANGE:	-10 °C TO +60 °C
REL. HUMIDITY:	0 - 95 % (WITHOUT CONDENSATION)
CONVEYING SPEED:	0,05 TO 1,5 M/SEC. (FASTER SPEED ON REQUEST)
PAINT:	RASPBERRY RED = RAL 3027
MATERIALS:	DETECTOR HEAD AND CONTROL BOX MADE OF STEEL (ST 37), SENSOR AREAS MADE OF DUROPLEX
CONTROL BOX:	MOUNTED (STANDARD) OR OPTIONAL WITH INTERCONNECTING CABLE = 2 M LONG
POWER CABLE:	APP. 1,8 M CABLE WITH PLUG (TWO POLE AND EARTHING PIN) (US-VERSION WITH US-STANDARD PLUG)

OTHER VERSIONS AVAILABLE

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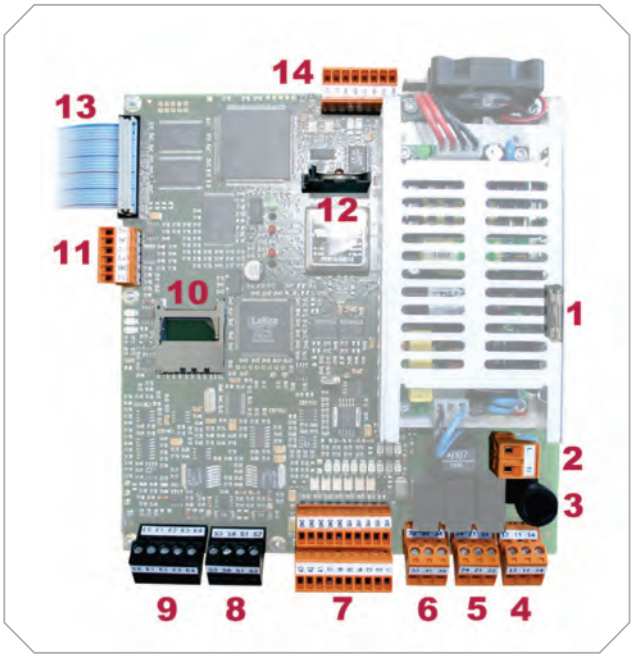
LAYOUT AMD 05



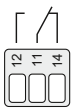
1 SPARE FUSE

2 POWER SUPPLY 100 - 240 VAC, 50/60 HZ

3 DEVICE FUSE 1,25 A (SLOW BLOW) 5 x 20 MM ACCORDING TO DIN

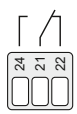
4 RELAY 1 (SWITCHES NORMALLY ON METAL)

POTENTIAL FREE CONTACT
FROM FACTORY (IF NOT REQUESTED OTHERWISE)
RELAY 1 IS DESTINATED AS METAL-RELAY
MAX. CONTACT LOAD: 250 V/3 A



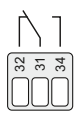
5 RELAY 1 (SWITCHES NORMALLY ON OPERATION)

POTENTIAL FREE CONTACT
ASIDE FROM THE OPTICAL DISPLAY A POTENTIAL FREE
CONTACT IS AVAILABLE TO POLL THE UNIT CONDITION
MAX. CONTACT LOAD: 250 V/3 A



6 RELAY 3 (TO BE CONFIGURED BY THE MANUFACTURER)

POTENTIAL FREE CONTACT
MAX. CONTACT LOAD: 250 V/3 A



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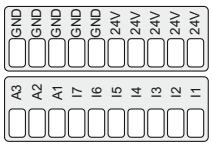
LAYOUT AMD 05

7 SEVEN (7) FREE PROGRAMABLE INPUTS (24V DC)
AND THREE (3) FREE PROGRAMABLE OUTPUTS (24V DC)

In1 - INITIATOR / BUTTON „NORMAL POSITION"
In2 - INITIATOR / BUTTON „EJECT POSITION"
In3 - AIR PRESSURE MONITOR (PRESSURE SWITCH)
In4 - INPUT LIGHT BARRIER
In5 - POSITION SENSOR
In6 - EXTERNAL RESET BUTTON
In7 – NOT CONNECTED



THREE (3) FREE PROGRAMABLE OUTPUTS (24V DC)
OUTPUTS (STANDARD LAYOUT)
OUT 1 - 24 V OUTPUT METAL
OUT 2 - 24 V OUTPUT READY
OUT 3 - NOT CONNECTED

ADDITIONAL CONTACT POSSIBILITIES: LEVEL SENSORS AND MORE

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

8 CONNECTION SENDER (USED BY FACTORY)

9 CONNECTION RECEIVER (USED BY FACTORY)

10 SLOT FOR SD MEMORY CARD

11 CAN – BUS DATA PORT

12 BATTERY

13 CONNECTION DISPLAY (USED BY FACTORY)

14 SERIAL DATA PORT (USED BY FACTORY)

Service and Calibration

Bunting service engineers are available at short notice to service and calibrate our full range of detectors in the UK and overseas. Bunting offers 3 levels of protection designed to provide specific services to optimise the performance and lifespan of metal detection equipment

Pro-Start™

Pro-Start™ commissioning coverage ensures that a metal detector performs to company expectations from its first day on the job. A factory-trained service technician will be on-site to verify the installation, calibrate the metal detector to achieve top performance and train personnel. Pro-Start includes a calibration label for the detector, a complimentary set of test pieces (specify size and type on purchase) and a detailed calibration record for company files. It also extends the original one-year factory warranty to two years and includes two years of phone-based technical support.

Pro-Maintenance™

Pro-Maintenance™ keeps the metal detector operating like new, which is critical, considering the impact of poor performance on customer satisfaction and other consequences. It provides either annual (Gold plan) or biannual (Platinum plan) visits by factory-trained service technicians to service and calibrate the metal detector and ensure the system is running the latest accurate software. The Pro-Maintenance plan also includes significant parts and labour discounts on any needed spares and repair work, on-site training for personnel during service & calibration visits and two years of phone based technical support.

BUNTING®

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