Rapiscan systems

An OSI Systems Company

Metor 300
Installation and Operating Manual

9100 518 REV 1.13 EN

Author	Rev.	Code
P. Stordell	1.13	9100 518
Approved	Date 11.6.2009	Document
Product Metor 300		Archives M300

CONTENTS

1. PREFACE

Thank you for choosing a Metor product. These installation and operation instructions are intended for the installation and normal daily use of the equipment. In addition to these instructions, local laws and regulations, and requirements by authorities shall be observed.

The user should read this manual and understand the contents before the installation or use of the equipment. This manual contains information the user will need on the structure of the equipment, and its installation and use. The equipment can be kept in reliable operating condition by following the correct operating and maintenance procedures.

Definition of terms

Some special terms used in this manual are explained below.

WTMD - Walk Through Metal Detector

Sensitivity - Parameter for defining the size of the metal items that will generate an alarm. When sensitivity is increased smaller metal items will be detected.

Discrimination - The WTMD's ability to differentiate harmless items from weapons. The alarm rate of a WTMD at a security check point indicates the discrimination ability of the equipment. Discrimination is affected by several factors e.g. sensitivity level, passenger profile, season (cold or warm) etc.

Unwanted alarm - (=nuisance alarm). Alarm caused by harmless metal items that people carry with them through the WTMD.

False alarm - Alarm caused by some other reason than metal objects (e.g. electrical interferences). Alarms caused by metal objects (wanted or unwanted) are not false in the case of a metal detector.

Alarm rate - The amount of alarms due to metal items in percentage of the total number of people passing through the WTMD. The alarm rate is affected by the discrimination ability of the WTMD. If discrimination is poor i.e. there are a lot of alarms due to harmless items the alarm rate is higher. **Note! Alarms caused by electrical interferences or reasons other than items taken through the WTMD, are not included in the alarm rate.**

Throughput rate - The maximum number of people in a given time that can pass through without affecting the detection performance of the WTMD. Represents the WTMD's ability to return to stand-by condition after a person has walked through. In practice, the maximum throughput rate is only theoretical and can usually not be reached because it is limited by the checking prosedure and maximum walking speed of people.

Object speed response - The ability of a WTMD to maintain the sensitivity level unchanged when people pass through at different speeds.

Calibration - Procedure to set the parameter values of the WTMD for reaching the optimal performance according to the requirements of the application.

Side-by-side use - Two or more WTMD's are operated so closely-spaced that their electromagnetic fields affect each other's operation. The effect of the adjacent WTMD can be minimized by using different operating frequencies.

Operating frequency - The frequency of the electromagnetic field generated by a WTMD. Usually WTMD's have several different operating frequencies. When calibrating a WTMD at the installation site the operating frequency with lowest interference level is chosen. Several operating frequencies enable also side-by-side use of multiple WTMD without synchronization cables.

Detection uniformity - The ability of a WTMD to maintain uniform sensitivity throughout the whole detection area regardless of the shape and orientation of the metal item. Detection uniformity directly affects the discrimination capability of a WTMD. The sensitivity of a WTMD is usually set according to the weakest position of the detection area. In case of poor detection uniformity this may lead to unnecessary high sensitivity in other parts of the passage, considerably degrading discrimination. When the detection uniformity of a WTMD is tested it should always be done with real objects e.g. a weapon, or their simulators. Cylinders or spheres as test items can give wrong indications on the true detection uniformity of a WTMD.

Interference immunity - The operation of a WTMD can be affected by electrical or mechanical interferences. Electrical interferences are caused by other electrical equipment which are usually located near the installation site. Electrical interferences can be conducted through the mains power line or radiated. Mechanical interferences are caused by e.g. moving metal items near the WTMD or vibrating behind wall or underneath floor constructions. Good interference immunity can only be achieved through effective hardware and software filtering as well as specialized coil design.

Critical test object - The most difficult object to be detected from a group of test objects. Requires the highest sensitivity for detection.

2. IMPORTANT INSTRUCTIONS

Read through this chapter carefully before operating the equipment. Keep this manual so that it is always readily available to the user.

- The instructions in this manual shall be followed in all situations, when installing, using, or servicing the equipment.
- Rapiscan Systems cannot be held responsible for any material or personal damage caused by use contradicting the instructions given in this manual.

All safety regulations must be observed. A dangerous or unsafe manner of operation may cause health risk.

Installation may only be carried out by a qualified person.

Before installing, operating or servicing the equipment, make sure that it causes no risk of personal or material damage.

Do not operate the unit unless you are fully trained to do so. The operator must know the use, service, and safety instructions of the unit, and local safety regulations.

Only authorized service personnel are allowed to do maintenance work. Make sure that there are no unauthorized persons in the working area when servicing and repairing the equipment.

It is forbidden to operate the equipment when ill, or under the influence of alcohol or drugs.

The equipment may not be connected to mains supply until all other connections necessary for the installation are completed.

The equipment shall always be connected to an earthed socket outlet.

The equipment shall be disconnected from mains supply before servicing, cleaning, or moving it.

Original Metor spare parts shall be exclusively used.

Use a damp cloth for cleaning the equipment. Do not use any chemicals or liquid detergents.

The end user is responsible for the final calibration of the equipment for the intended application. It is also the end user's responsibility to regularly verify calibration to the desired sensitivity level by using a suitable test object /test objects.

If there is any reason to suspect that the security level of the equipment may have deteriorated due to incorrect operation or external damage, the equipment shall be removed from operation and an authorized service mechanic shall be called in.

These symbols are used when it is important to follow the specified instructions.

3. WARRANTY

RAPISCAN SYSTEMS (RS) warrant their Products against defects in materials and workmanship in normal use for a period of **two (2) years** from the delivery to the customers, however, not more than twenty-six (26) months from the dispatch from the RS factory. Within this warranty RS will at their option replace or repair any part of the Products that has become defective within two years from the date of delivery because of a defect in material or workmanship, and that has been returned freight prepaid.

This warranty is the only warranty given by RS and is given in lieu of any other warranty, express or implied.

RS's responsibility to repair or replace defective Products is the sole and exclusive remedy under this warranty.

RS will not be liable for any indirect, special, incidental or consequential damage, including loss of profit.

RS disclaims liability for any express or implied warranty of merchantability or fitness of the Product for a particular purpose.

The manufacturer reserves the right to change the structure, software, or spare parts of the equipment, or this manual without a prior notice.

4. INTRODUCTION

Intended use

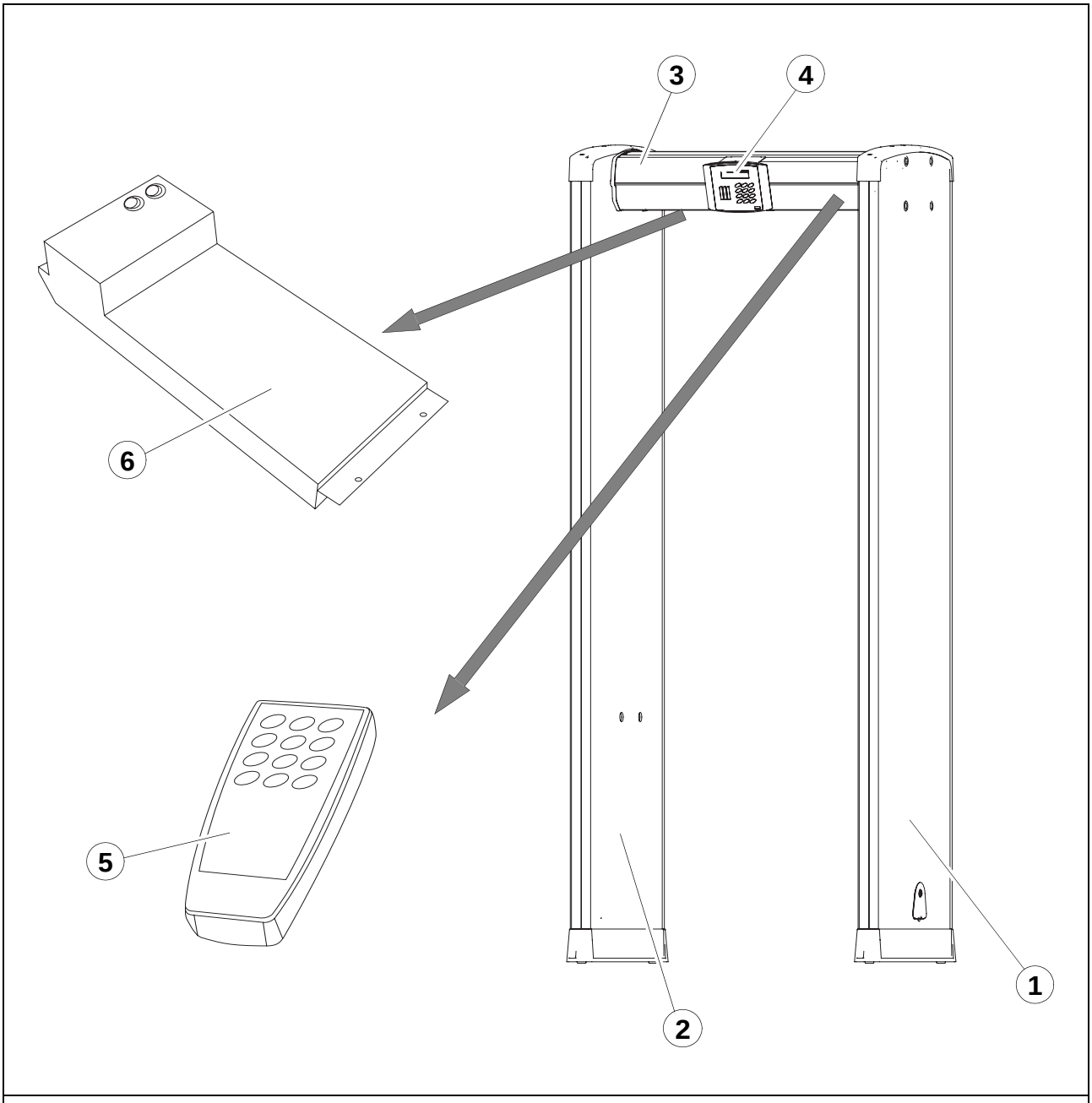
The Metor 300 is a walk-through metal detector (WTMD) designed to detect metal objects people are carrying with them. The system is used primarily for weapons detection. Typical applications are:

- Airports, seaports: passenger screening.
- Courthouses: visitor screening.
- Prisons: visitor screening.
- Conferences, public buildings, sports events: access control.
- Power plants: employee, visitor screening.
- Industry: loss prevention.
- Hotels, restaurants, casinos, discotheques: visitor screening.

The manufacturer disclaims all liability if the equipment is used for purposes incompatible with the above descriptions.

The engineering and manufacture of this product is based on long experience and research. The equipment is designed so that its use according to the instructions does not, pursuant to currently available knowledge, cause any health risks to pregnant women, persons with a pacemaker, or any other people walking through the detector.

Main components



1. Transmitter panel (Tx)
2. Receiver panel (Rx)
3. Cross piece
4. Display Unit
5. Remote control unit
6. Electronics unit

Technical data

Power supply

- Mains, nominal: ..... 100 - 240 VAC
- Mains, max:..... 90 - 264 VAC
- Mains frequency (nominal):..... 47 - 63 Hz
- Battery (optional):..... 12 V DC
- Max. power consumption: ..... 72 W (AC), 55 W (DC)
- Fuse:..... 2 x T2AL250V
- Power cord length:..... 2.5 m

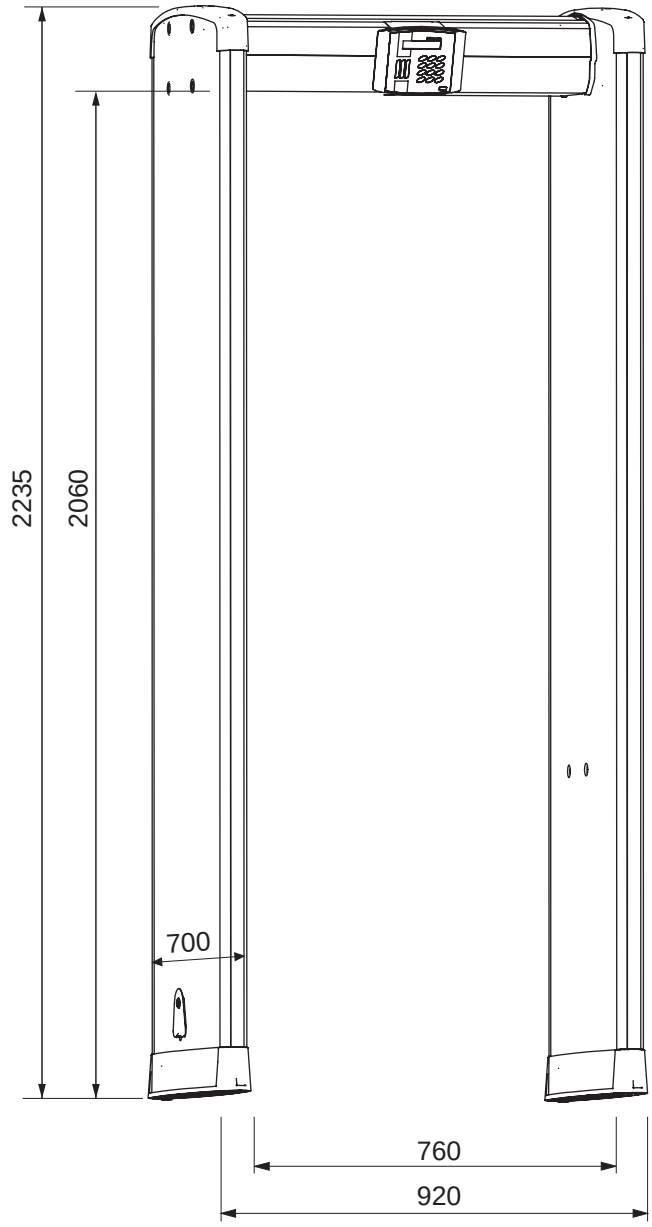
Recommended operating conditions

- Ambient temperature: ..... from -10 °C to 55 °C (14 °F to 131 °F)
- Relative humidity:..... 0 to 95 %, no condensation
- Protection:..... IP 41 (EN 60529)
  Equipment designed for use in dry premises.

CAUTION

DOUBLE POLE / NEUTRAL FUSING

Dimensions and weight

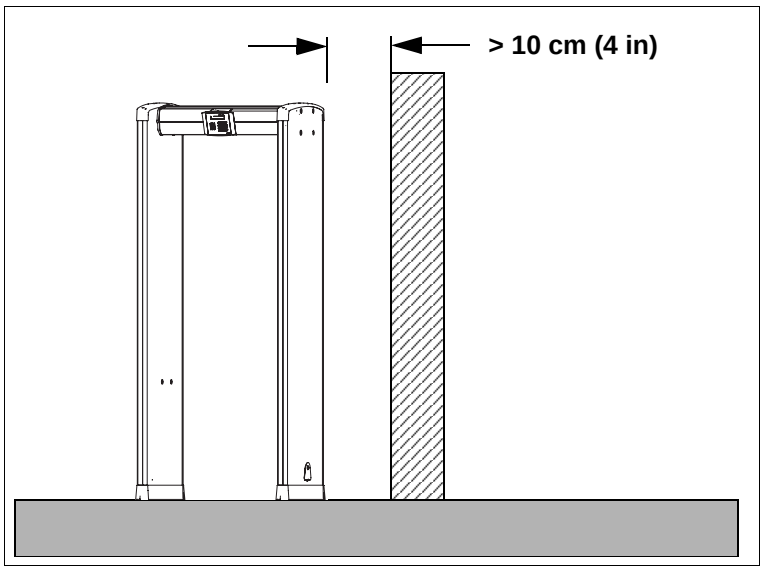


Dimension	[mm]	[in]
Max. height	2235	88
Max. width	920	36.2
Internal height	2060	81.1
Internal width	760	30
Depth	700	27.6
	[kg]	**[lbs]**
Weight	71.0	156.5

5. INSTALLATION SITE

When planning the installation site of the Metor 300 there are a few important things that should be considered. The optimum operation of the WTMD as well as maximum traffic flow at the security checkpoint can be ensured only when these factors have been taken into account.

It is important to minimize the effect of different sources of interference that may have influence on the operation of the WTMD. The following recommendations should be considered when selecting the installation site.

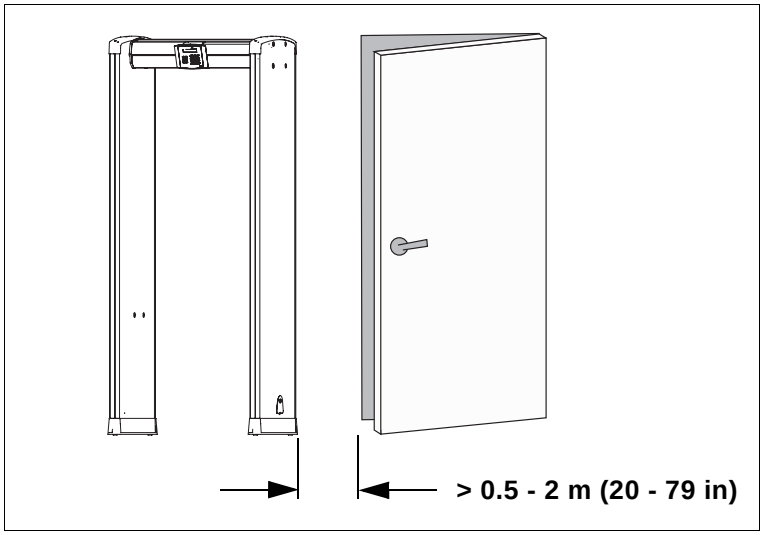


Static metal

Large static or stationary metal objects should be at least 10 cm (4 in) away from the WTMD. The effect on sensitivity is small but may make the WTMD more prone to the effects of vibration.

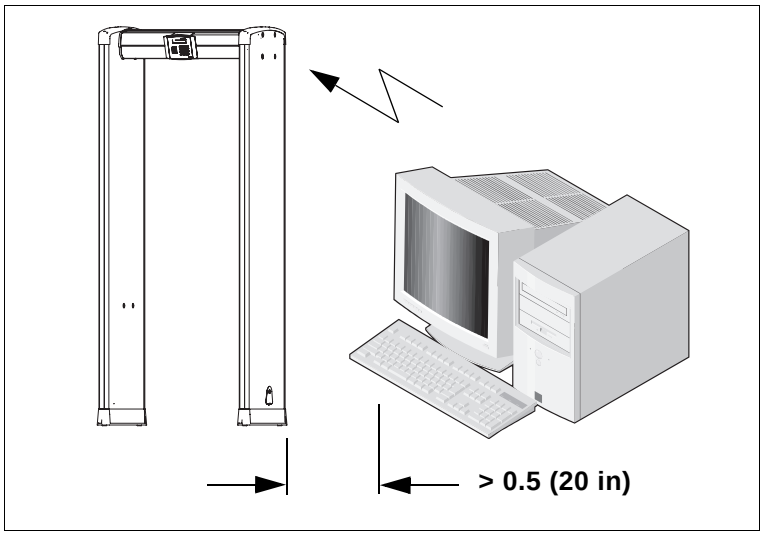
Floor vibration

The floor should be even and solidly supported to prevent vibration. Especially when there are vibrating metal constructions beneath the floor, people walking through the WTMD can cause unnecessary alarms.



Moving metal objects

Large moving metal objects outside the WTMD should be kept 0.5 - 2 m (20 - 79 in) away from the WTMD to avoid false alarms. The required distance between the moving metal and the WTMD may vary depending on the size of the metal object.



Radiated electrical interferences

The distance between electrical interference sources and the receiver coil should be maximized. Recommended minimum distance is from 0.5 m to 4 m (20 in - 157 in). However, the exact distance has to be determined for each case separately, i.e. by moving the WTMD and the interference source in respect to each other until the optimal position is found.

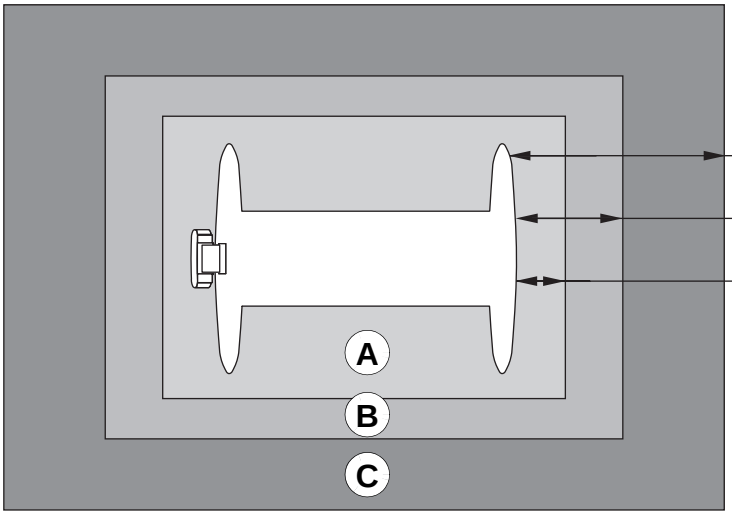
Interference may be generated by electrical control panels, radio and computer equipment, video monitors, powerful electric motors and transformers, AC power lines, thyristor control circuits, flickering fluorescent lighting, and arc welding equipment.

Conducted electrical interferences

Plug the power cord to a line not sharing any heavy loads, like large electric motors. They can cause major power or voltage surges in the line.

NOTICE

When the equipment is in stand-by state, and no more than 2 - 4 boxes are flashing on the display, the distance to sources of interference is sufficient.



Recommended minimum distances from interference sources

>0.5 - 4 m / 20 - 157 in.

>0.5 - 2 m / 20 - 79 in.

>0.1 m / 4 in.

A: Distance from static metal
B: No moving metal objects
C: No electrical interference sources

The above distances are recommendations. The final installation distances are determined by the installation site.

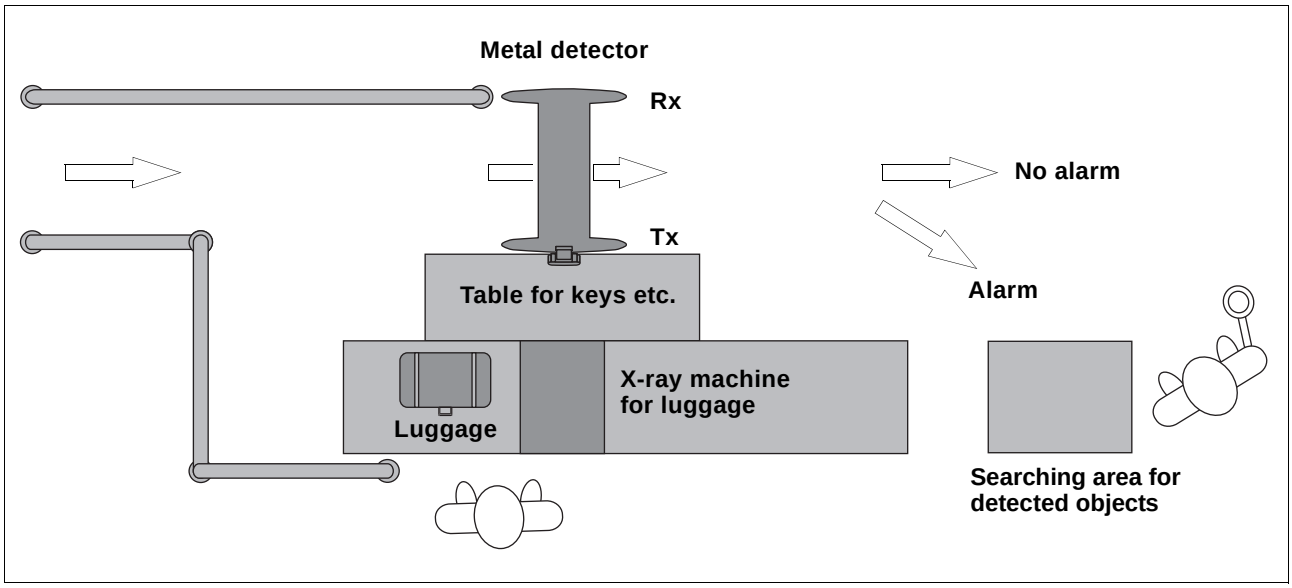
Always install the equipment so that the receiver coil (Rx) is further away from the source of interference.

Checkpoint layout

The layout of a security checkpoint should be planned carefully before installing the equipment in order to maximize the traffic flow. In addition to the considerations regarding mechanical and electrical interferences (see chapter 5.) at the installation site, operative security checking should be organized properly. The functionality of a checkpoint is very much affected by the following:

- Queuing to enter the WTMD should be arranged so that only one person is inside the WTMD at a time
- The searching of detected metal objects should not disturb the normal checking by the WTMD.
- The checking of hand luggage should be arranged so that it does not cause false alarms

Example of security checkpoint layout



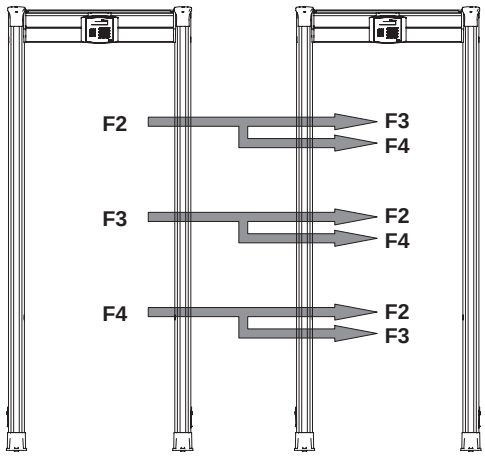
- If no X-ray equipment is available, luggage shall be examined by hand.
- Alternatively, items can be left in lockers located before the metal detector, if no examination cannot be arranged or is not desired (e.g. offices, banks).
- The passage past the gate should always be arranged from the receiver panel (RX) side as there the magnetic field from the metal detector is the weakest.

Side-by-side operation

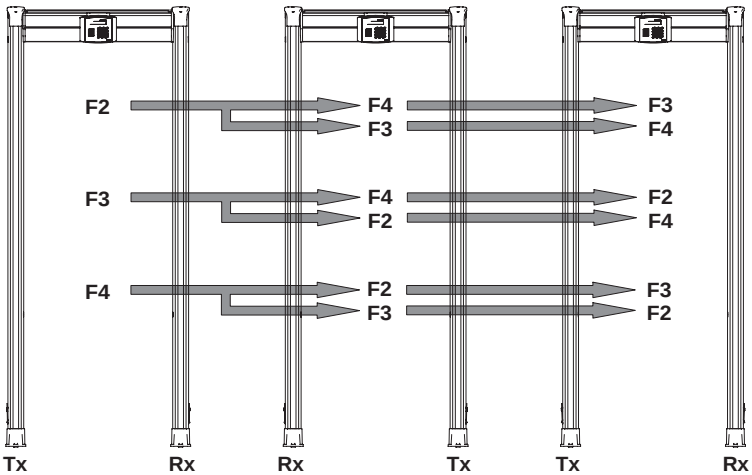
Side-by-side operation means that two or more metal detectors operate close to each other. When operated side-by-side, WTMD's (Walk Through Metal Detectors) may interfere each other to some extent. The level of interference depends on the distance between the WTMD's, their operating frequency and sensitivity.

Metor 300 has different operating frequencies to minimize the interference between the adjacent WTMD's and enable the side-by-side use.

Two WTMD's operating side-by-side



Three WTMD's operating side-by-side

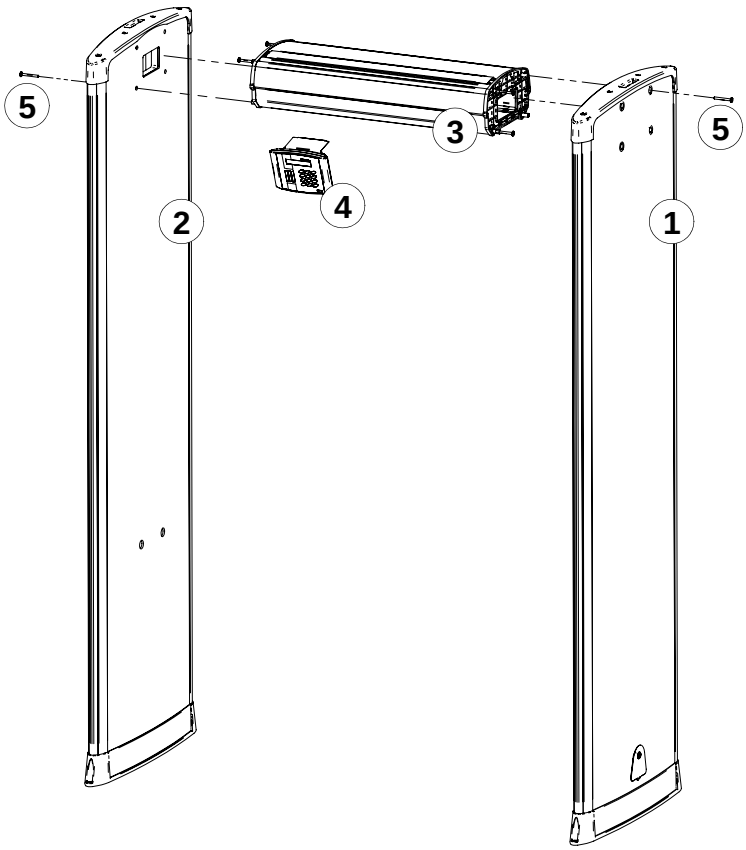


- Install WTMD's as illustrated in the figures.
- In order to reach the minimum side-by-side distance always place two Rx-panels or Tx-panels closest to each other. (If possible install Rx-panels closest to each other and maximize the distance between Tx-panels.)
- Install Tx-panel closer to the possible interference source.
- Use frequency combination which gives lowest interference level.

Side-by-side operating distances depend on the sensitivity level and frequency combinations used. The minimum operating distances are determined in each case separately at the installation site.

6. ASSEMBLY

Mechanical assembly



The items needed in installation are packed in the box containing the cross piece.

Remote control unit batteries are packed separately. They are located with other accessories.

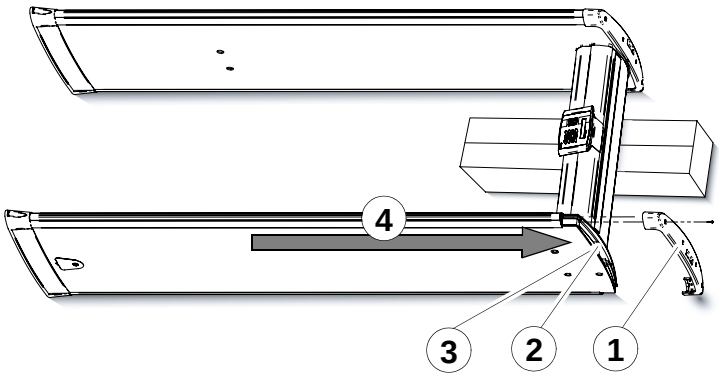
For checking the distance of the coil panels there is a pasteboard gauge in the crosspiece package.

Ref	Part	Pc
1	Tx-coil panel	1
2	Rx-coil panel	1
3	Cross piece	1
4	Display	1
5	Mounting screws	8
	Allen key	1

Assembly:

Assembly is easier with the coil panels (1) and (2) lying flat. **Note! The marked end of the cross piece has to assemble towards the Tx-panel.**

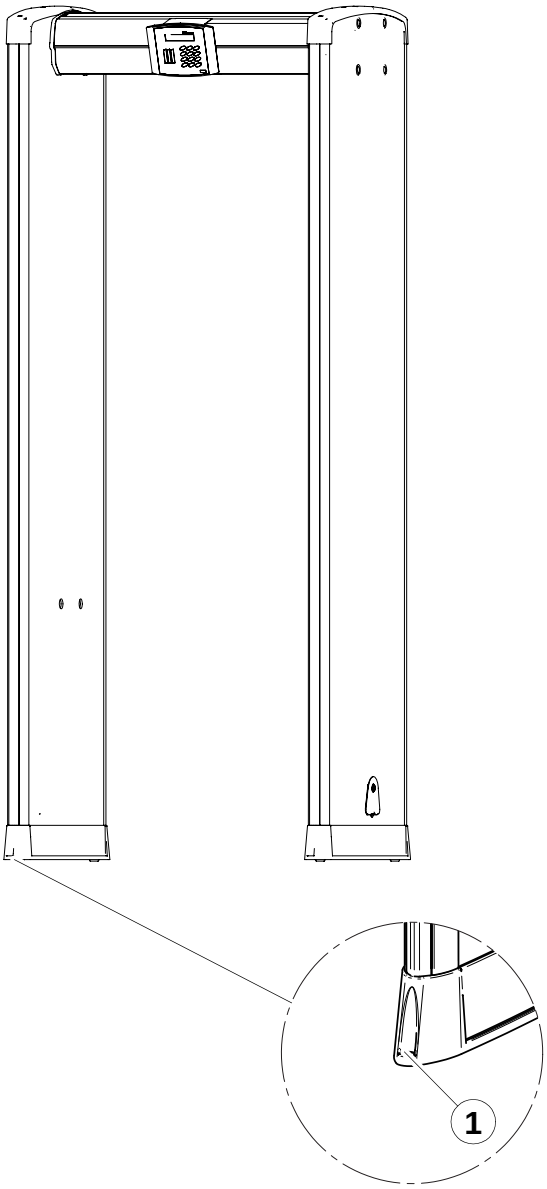
- Zone display (6) is located on one side of both panels. The traffic lights are located on the opposite side.
- Assemble the cross piece to either of the coil panels using the screws (5) and the Allen key included in the delivery.
- Assemble the other coil panel to the cross piece using the screws and the Allen key.
- Finally connect the Display Unit cable to the Display Unit and hang the unit on the cross piece or on either coil panel. (The cable is under the lid on top of the cross piece.)



Changing the position of the zone display:

If necessary the zone display can be moved to the opposite side of the coil panel.

- Lay the Metor 300 down. Place a support under the crosspiece so that only the coil panel bottoms touch the ground (e.g. crosspiece cardboard package it came in)
- Detach the top piece (1) which is held in position by four pz2 screws.
- Detach the zone display cable (2) from the top of the coil panel. First fully open the latches that hold the connector in place, then gently remove the connector from its socket.
- Detach the traffic light cable (3) from the top of the coil panel, gently squeeze the locking clasp and remove the connector from its socket.
- Gently slide out the zone display and traffic light tubes to the direction indicated (4).
- Slide the zone display and traffic light tubes gently in on the opposite sides of the coil panel.
- Gently reconnect the cables in corresponding connectors. The connectors should be automatically locked in position. Press the cables in the grooves on the coil panel.
- Re-install the top piece and fasten it with the four screws.
- The traffic light cable can be left unconnected if only one traffic light is wanted operational. Turning both traffic lights off is done through user interface (super user priviledges needed).



- Lift the metal detector up to vertical position in its final mounting location.

NOTICE

Make sure that the coils are parallel, i.e. the distance at the top and at the bottom is equal.

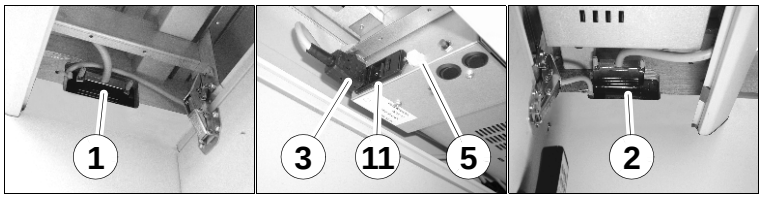
- If necessary, fasten the WTMD to the floor with screws (1).
- The mounting holes (1) are useful when you want to ensure that the coil panels stay parallel and to prevent gate from falling.

DANGER

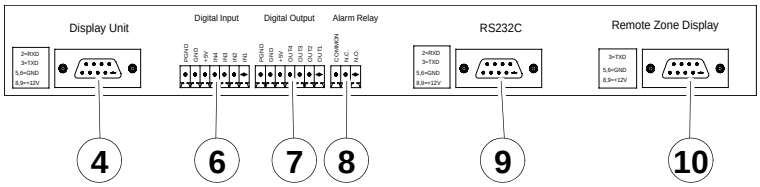
It is absolutely forbidden to make any holes on the equipment elsewhere than the points indicated by the manufacturer. If holes must be made elsewhere, contact the manufacturer or your local representative.

Electrical connections

Connectors inside the cross piece



Connectors on top of the cross piece



Cable connections

1. Tx-panel
2. Rx-panel
3. Power cord
4. Display unit

Connectors for optional devices

5. Battery backup
6. Digital input
7. Digital output
8. Alarm relay
9. MetorNet
10. Remote zone display

- Connect the Tx- and Rx-panels (cables inside the cross piece).
- Connect the power cable. A separate cable runs through each panel – use the one best suited to the site. Alternatively, you can use the lead-through on top of the cross piece.
- Mains voltage and frequency between 100 and 240 VAC (50 or 60 Hz) is accepted automatically.
- Turn the AC mains switch (11) is on.
- Close the lid using the key.

AC mains switch is normally used for maintenance purposes only. During operation, it is always in the ON-position.

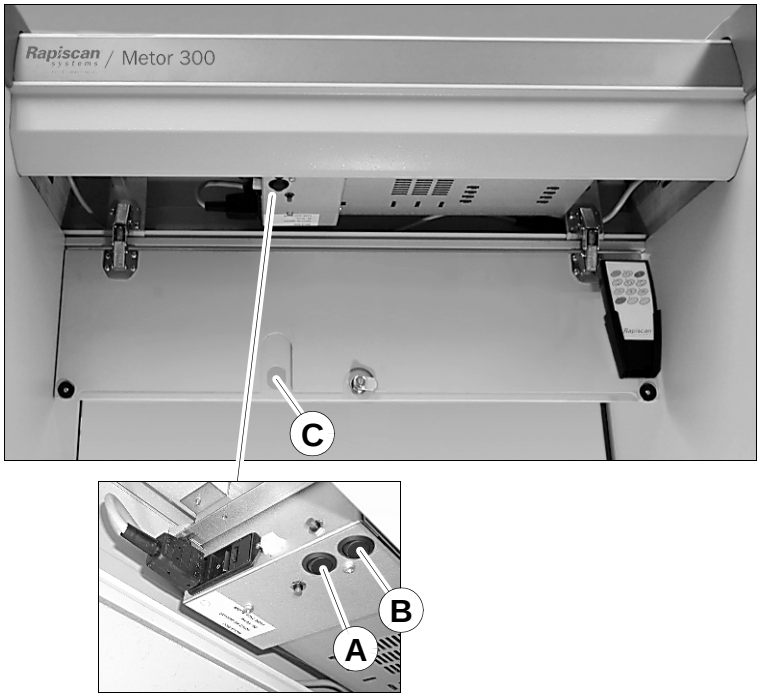
Do not force the coil panel cable connections to avoid damaging the contacts.

7. SWITCHING ON

Insert batteries to the remote control unit before operation.

The control unit uses two 1.5 V AA size batteries.

- Open the lid.
- Insert batteries.
- Close the lid.



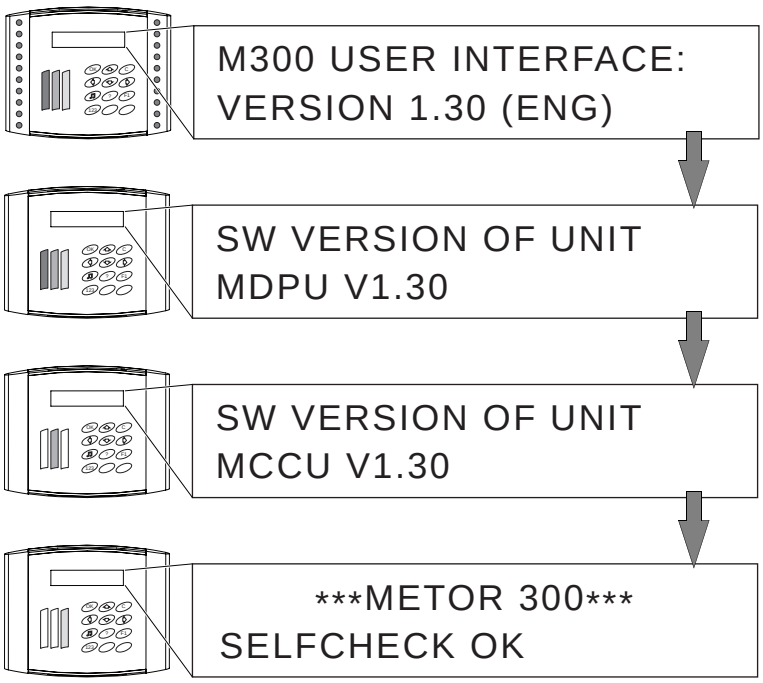
Power switches A and B are connected in *parallel*. This makes it possible to prevent switching off of the unit when the lid is closed, if desired.

Option 1

- Switch on the unit using switch A.
- Close the cross piece lid, hiding switch A.
- The unit cannot be switched off using switch B.

Option 2

- Switch on the unit (WTMD) using switch B.
- You can switch the unit off and on normally using switch B without opening the lid. (Switch A must be in the off position.)



The WTMD will now run a self-test. The WTMD tests all signal lamps at first. Then the test display will show:

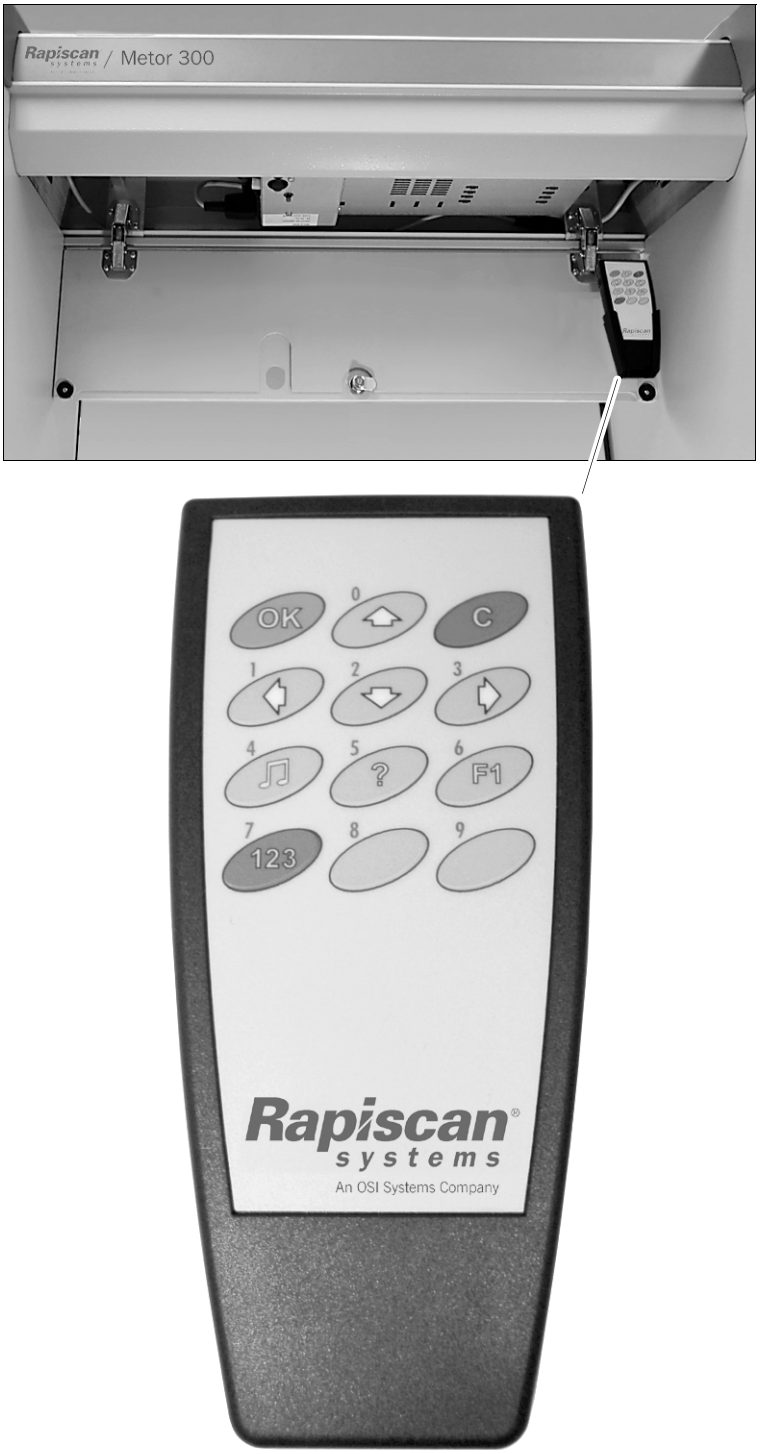
- user interface version
- software versions
- selfcheck ok (system ready for operation).

SW versions may differ from the ones in the pictures.

NOTICE

If version number is 1.30 or higher User Interface version and software versions of both MDPU and MCCU must match.

Remote control unit functions



All functions of the equipment are controlled with the remote control unit. The remote control unit operates within a distance of 3 m (120 in.) from the detector when the IR-beam is aimed at the display.

One remote control unit can be used for controlling one equipment but also several metal detectors.

When the batteries are about to run out, a red light will blink on the display each time a remote control button is pressed.

OK This button is used to accept the functions selected and the changes made to settings, as well as to navigate the menus.

0 1 2 3 The arrow keys are used for navigation of menus and to change the settings.

C This button is used to return to a higher menu level or to cancel the current function without changing the settings.

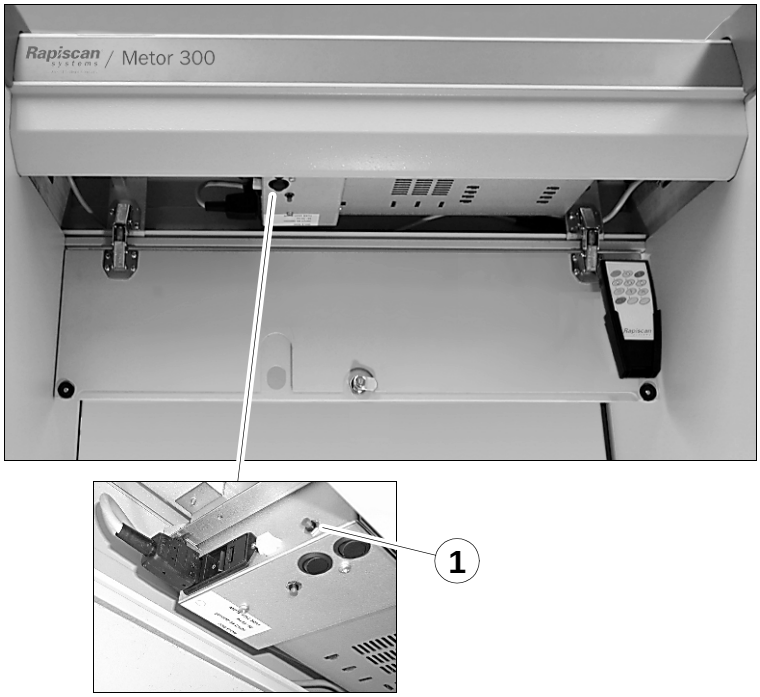
4 This button is used to set the volume (no access code required).

5 This button can be pressed to receive instructions.

6 F1 You can program in a customer-specific function for this button, i.e., use it as a hot key (no access code required).

7 123 This button is used to access the unit's settings for editing or to directly enter numeric values. You can enter a value by pressing the corresponding number key(s).

Remote control unit - electronics unit communication



Before using the Remote Control Unit its serial number must be taught to the electronics unit. The remote control unit included in the delivery has already been programmed at the factory.

- Press the red (Learn) button (1) at the end of the electronics unit until you hear **one** beep.
- Message "*Validate remote. Press any key*" appears on the display.
- Point the Remote Control Unit towards the Display Unit and press any key to send its serial number to the Electronics Unit.

After completing the above process the Metor 300 can be operated with the remote control unit.

Up to ten remotes can be validated for Metor 300 following the same procedure with each one.

NOTICE

Using function 3.2 Remove All Valid Remotes will erase the validation of every remote taught to that Metor 300.

NOTICE

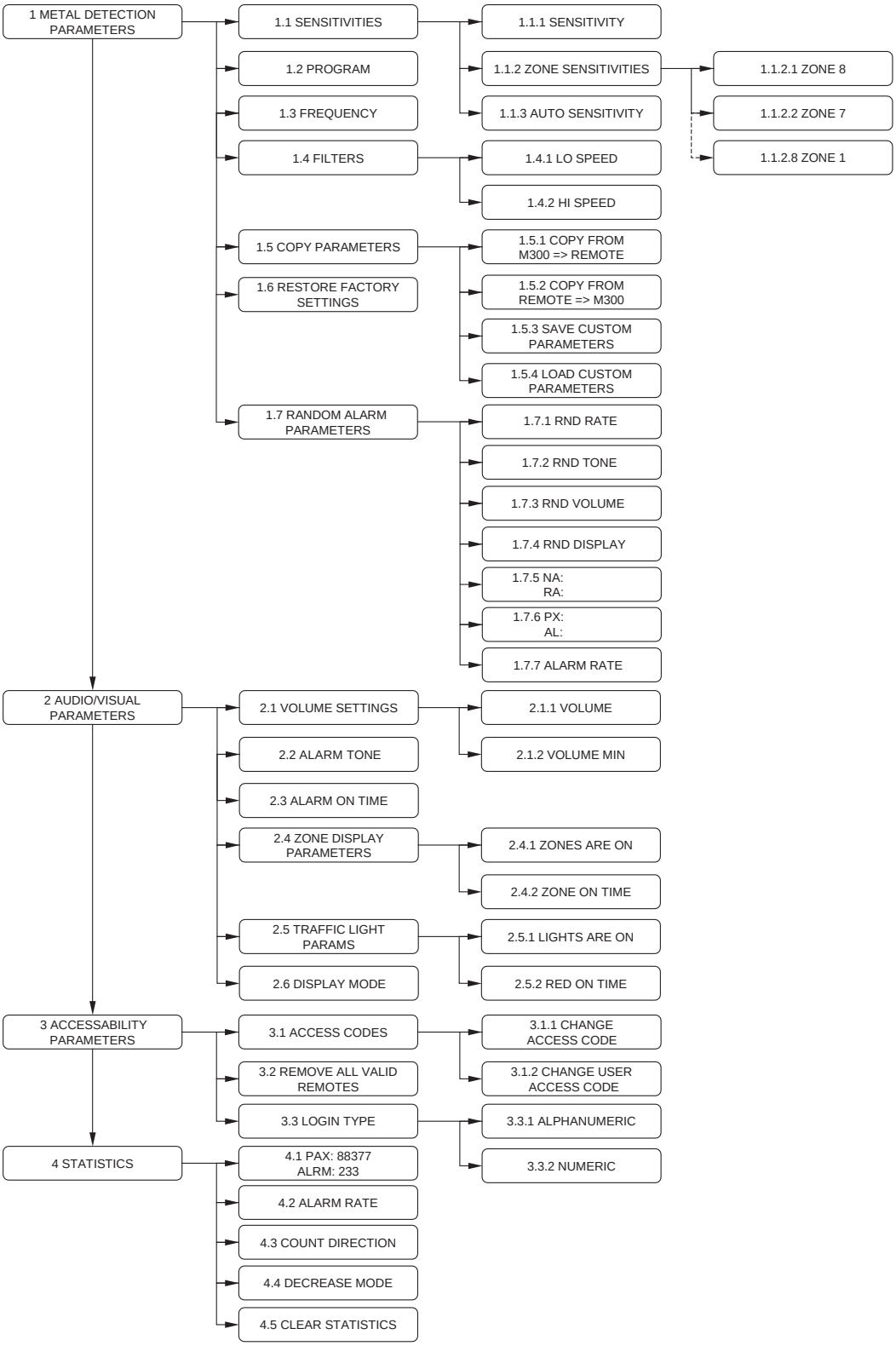
The Learn button has two functions: if it is pressed for more than five seconds, all access codes are reset to factory defaults.

Access code

The equipment uses two access code levels. The User level access code allows access to check the counter readings and changing the User level access code. Factory setting is "7, 8, 9".

The SuperUser level access code allows access to change any setting of the equipment. Factory setting is "1, 2, 3".

Super User menu structure



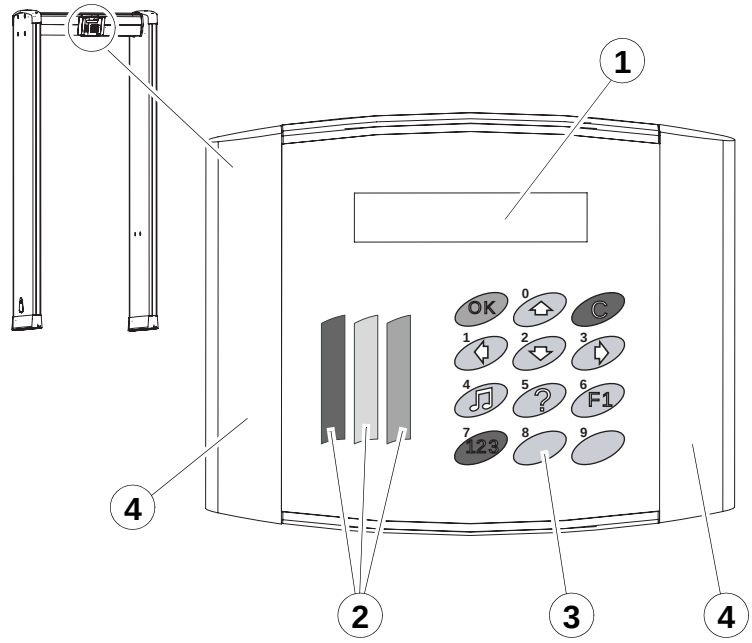
Keying example 1 - Changing the sensitivity setting:

1. Press 7 123. When program asks “ENTER: 0= SUPER USER 1=USER”, enter “0”.
2. Enter the SuperUser level access code (the factory default is 1, 2, 3). Press OK .
3. “Metal detection parameters” is displayed on the screen. Press 3 twice to display “Sensitivity”.
4. Press OK . Set the desired value by using the arrow keys. (Alternatively, press 7 123 and directly enter the value using the number keys.) Accept the selected value by pressing OK .
5. Hold C down for a moment to return to normal mode.

Keying example 2 - Changing the zone 1 sensitivity setting:

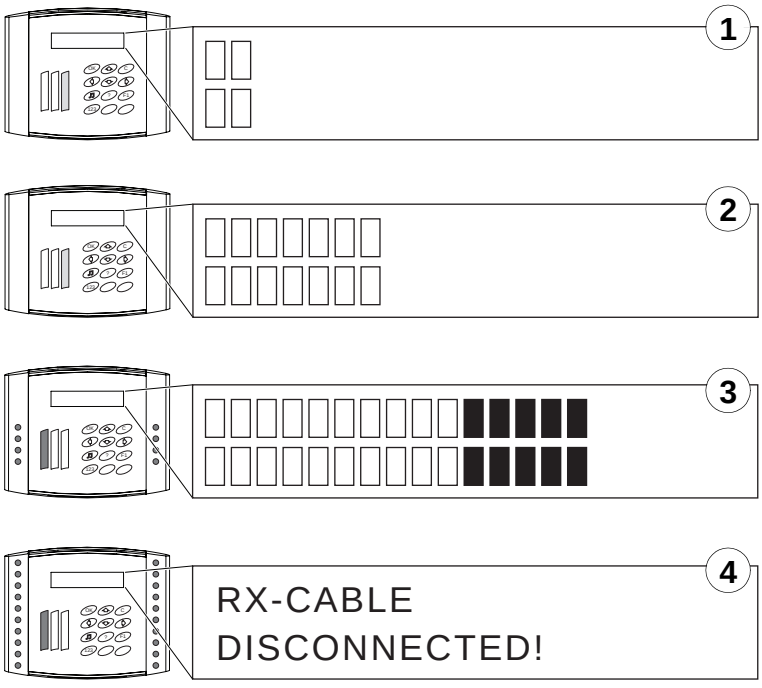
1. Press 7 123. When program asks “ENTER: 0= SUPER USER 1=USER”, enter “0”.
2. Enter the SuperUser level access code (the factory default is 1, 2, 3). Press OK .
3. “Metal detection parameters” is displayed on the screen. Press 3 twice to display “Sensitivity”.
4. Press 2 , to display “Zone sensitivities”, then press 3 .
5. “Zone 1” is displayed on the screen. Press OK . Set the desired value by using the arrow keys. (Alternatively, press 7 123, and directly enter the value using the number keys.) Accept the selected value by pressing OK .
6. Hold C down for a moment to return to normal mode.

Display unit



The display unit consists of an alphanumeric display (1), status lights (2), keypad (3) and zone displays (4).

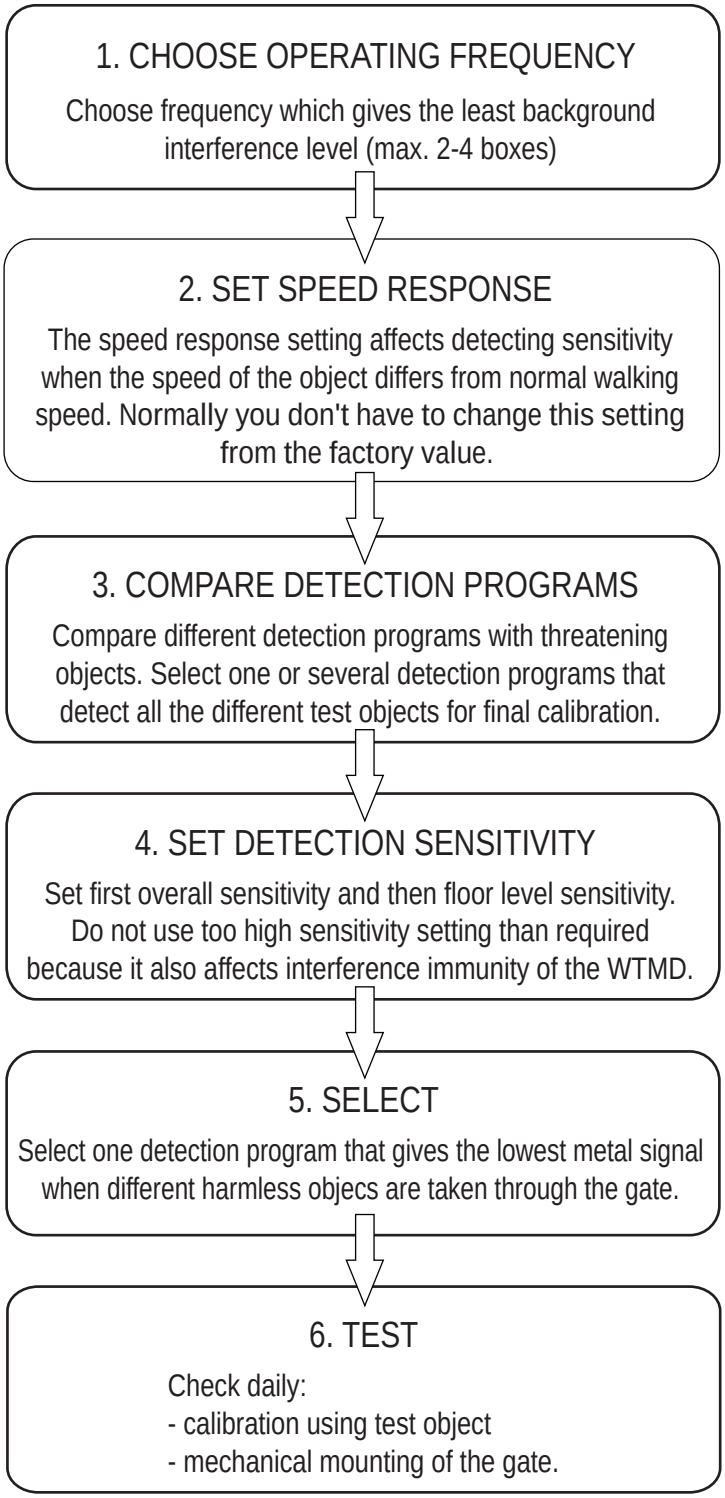
- The alphanumeric display has two rows with 20 characters each. It displays the proportional signal volume and any fault messages and is used to assist in controlling the unit.
- The traffic lights consist of a red, yellow, and green light. The red light is blinking when the WTMD raises an alarm. The yellow light is on when browsing menus or when the WTMD is not ready for operation. When the green light is on, the unit is ready.
- The zone displays function in the same way as those of the coil panels - see “Zone display” on page 46.



Examples of display signals:

1. Normal operating situations, minor background interferences are shown on display. For optimal operation of the equipment in normal operating situations no more than 2-4 boxes should be illuminating when nobody is passing through. Otherwise, the operating frequency should be changed or the effect of the source of interference minimized.
2. A situation where a person passing through does not cause an alarm, but the changes in the signals caused by allowed metal objects (buckle, shoes, eye wear) are shown on the display.
3. The alarm limit has been exceeded. The traffic lights are flickering (red light) and the zone display LEDs are on at the level of the object causing the alarm.
4. The display also shows possible error codes that indicate operating errors or faults. See “Error Messages” on page 55.

8. CALIBRATION



The purpose of calibration is to set the WTMD's operating characteristics to meet the required security level. The calibration is done before introduction of the WTMD at the security check point. Before calibration the detection requirements have to be determined i.e. what are the most likely threat objects. The reference objects representative of the threat level should be selected for calibration of the WTMD.

Calibration procedures

1. Choosing operating frequency
2. Setting speed response
3. Choosing detection program
4. Setting detection sensitivity:
   - Setting overall sensitivity
   - Setting floor level sensitivity
5. Testing

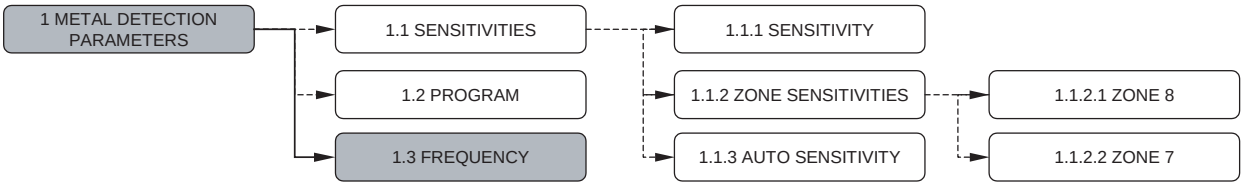
Before commencing calibration

1. Make sure that the metal detector is installed according to the instructions in this manual.
2. Make sure that you are not wearing any articles of clothing that contain metal parts, such as a belt, footwear with metal reinforcing, etc., and that you have no metal objects in your pockets.

Read through the whole chapter before commencing calibration.

All parameter settings are not fixed to the selected detection program in the Metor 300. If the program is changed the settings will remain unchanged.

Choosing operating frequency

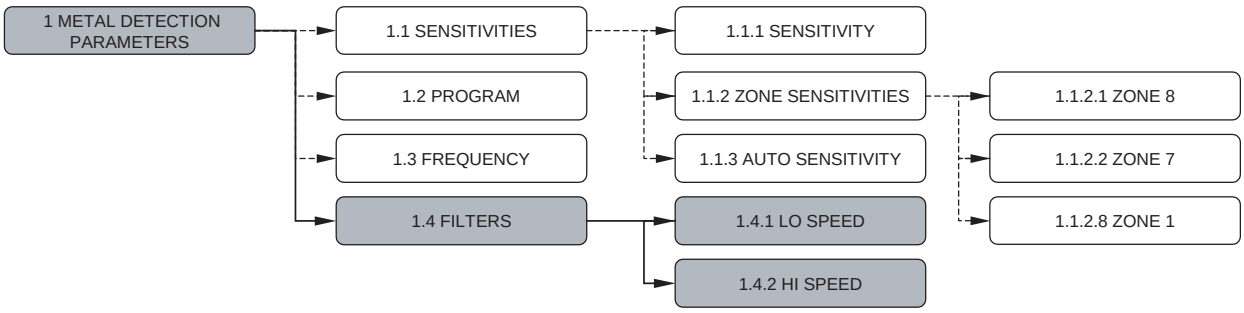


Start calibration of the equipment by choosing the best operating frequency. This means searching for the frequency that gives the least possible background interference level. Interference may be caused by other electric devices near the installation site, or another metal detector in side-by-side operation (See "Side-by-side operation" on page 17). The ideal operating frequency may vary depending on the installation environment and the sources of interference.

While searching for the ideal frequency, you can increase the sensitivity level so that the differences between frequencies are easier to observe. See also "Manual setting of overall sensitivity" on page 38.

1. Set operating frequency F1 into use.
2. Observe the number of bright boxes illuminating on the display.
3. Select each operating frequency (F1 - F4) one at a time, and observe the amount of background interference on the display. For optimal operation of the equipment, the number of illuminating bright boxes should not exceed 2 - 4 when nobody is passing through the gate.
4. Set into use the operating frequency that gives the smallest number of bright boxes illuminating on the signal display.

Setting speed response



The ability of the Walk Through Metal Detector to maintain the detection performance at different object speeds is called object speed response. The object speed response of the Metor 300 can be affected by two parameters: High Speed and Low Speed. In practice, the effect of these parameters can be noticed only at the extreme limits of object speeds, i.e. at very fast and very slow speeds. At normal walking speeds the effect of these parameters is very small.

Hi Speed setting influences the detection ability of the Metor 300 at very high object speeds. This parameter can be set from H1 to H3. The fastest speed response is achieved with Hi Speed setting H3. The factory setting is H2 which covers the highest walking speeds of a normal security checkpoint.

Lo Speed setting influences the detection ability of the Metor 300 at very slow object speeds. This parameter can be set from L1 to L2. The lowest speed response is achieved with Lo Speed setting L1. The factory setting is L2 which covers the lowest walking speeds of a normal security checkpoint.

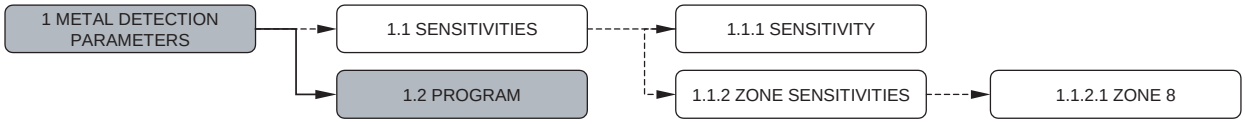
The Hi Speed setting also affects attenuation of electrical interferences. When the value is increased, interference attenuation is lower. Due to the effect on interference attenuation, the Hi Speed parameter should not be set to a higher value than needed for the application. The Lo Speed setting does not have any effect on the attenuation of electrical interference.

In normal use these settings generally need no adjustments.

Affect of Hi Speed and Lo Speed parameters on interference attenuation

Guide for object speed response setting				
SETTING	**OBJECT SPEED**		**INTERFERENCE ATTENUATION**	
HI SPEED	Fast moving objects		Highest	Lowest
	Fastest	Slowest		
H1		X	X	
H3	X			X
LO SPEED	Slowly moving objects		No effect	
	Fastest	Slowest		
L1		X		
L2	X			

Choosing detection program



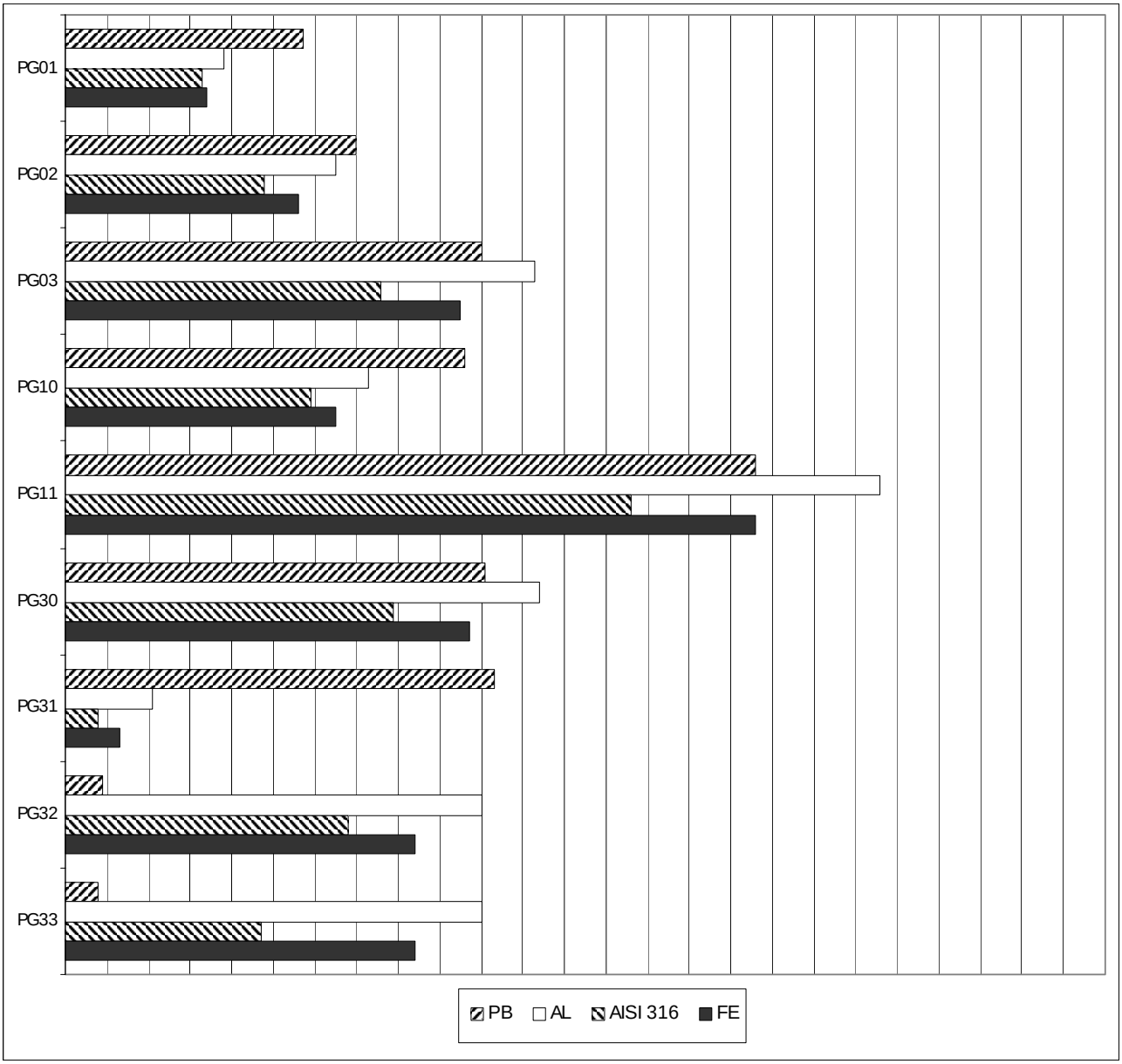
Detection Programs of the Metor 300 are divided into three groups. The first group contains programs that are intended for general security use. The second group contains programs that are designed according to the requirements of various security organisations and security standards. The third group contains material selective programs that are intended for pilferage applications and for applications where a specific object(s) needs to be detected.

Metor security programs are general purpose programs designed to detect threat items made of various alloys (magnetic or non-magnetic) or a combination of alloys (magnetic and non-magnetic).

The relative sensitivity and throughput of the Metor security programs are given in the table below. These programs have been compared to each other using factory set sensitivity and zone sensitivity values.

NO	DETECTION PROGRAM	DESCRIPTION
METOR SECURITY PROGRAMS		
1	METOR 1	For detection of large caliber hand guns
2	METOR 2	For detection of small caliber hand guns
3	METOR 3	For detection of small concealed carry hand guns
4 - 9	Reserved	
INTERNATIONAL SECURITY PROGRAMS		
10	FAA 3-GUN	Fulfills requirements of the FAA 3-gun test
11	US AIRPORTS	
12 - 29	Reserved	
MATERIAL SELECTIVE PROGRAMS		
30	ALL METALS	Selective to all metal types
31	STEEL	Selective to iron and magnetic steels
32	NON-MAGNETIC	Selective to non-ferrous metals and non-magnetic steels
33	NON-FERROUS	Selective to non-ferrous metals (e.g. aluminum, copper, gold)

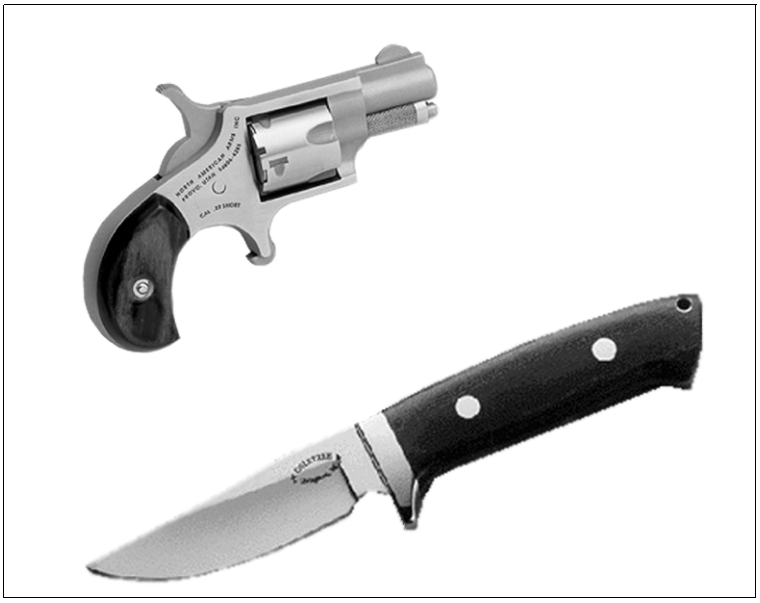
Relative material sensitivity of detection programs



Test conditions

- Settings: ..... SE = 50, Z1-8 = 100 %.
- Test place: ..... middle of the WTMD, height of 1 m, speed of 1 m/s
- Test objects: ..... metal cylinders (dia. 40 mm): steel (Fe37), stainless steel (AISI316), aluminium, and lead.

Several different detection programs have been installed into the equipment. It is recommended that you compare several different programs unless you select a program based on requirements of a security organization that you are familiar with. When comparing different programs use several different threatening and harmless objects relevant to your application.



Choosing threatening objects

For the tests, choose the threatening objects that are the most likely to be detected. Usually these include various hand guns or knives. Choose at least 3-5 different objects. The objects should be made of different metals, both magnetic and non-magnetic. (You can identify magnetic metals and non-magnetic metals using a magnet: a magnet attracts magnetic metals but not non-magnetic metals.)

Remember that the required detecting sensitivity especially with small knives made of non-magnetic metal is generally considerably higher than that for the detection of hand guns. This will also increase the number of unwanted alarms caused by harmless objects.

Choosing harmless objects

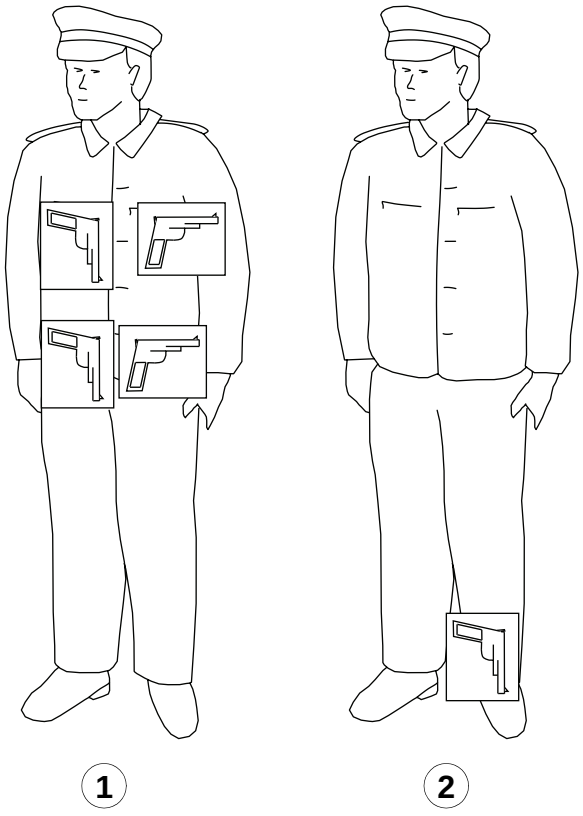
In addition to threatening objects, define also a comprehensive set of harmless objects that you can use for comparing the discriminating capacity of the different programs during calibration. Harmless objects may include, for example, footwear with metal reinforcing, a bunch of keys, a belt buckle, eyewear with metal temples, etc.

Setting detection sensitivity

The purpose of detection sensitivity setting is to find the lowest sensitivity setting that still detects reliably the test objects using the detection program in question. This way, it is possible to reach high throughput rates, because unwanted alarms caused by harmless objects are minimized.

The sensitivity setting also affects interference immunity of the WTMD. Therefore it is recommended not to use higher sensitivity setting than required for the application.

To adjust detection sensitivity test objects are taken through the gate attached to different parts of the body and in different orientations.



The adjustment of detecting sensitivity is done in two phases. **Overall sensitivity** is defined first (all zones), either manually or using automatic sensitivity adjustment, except at ankle level (1).

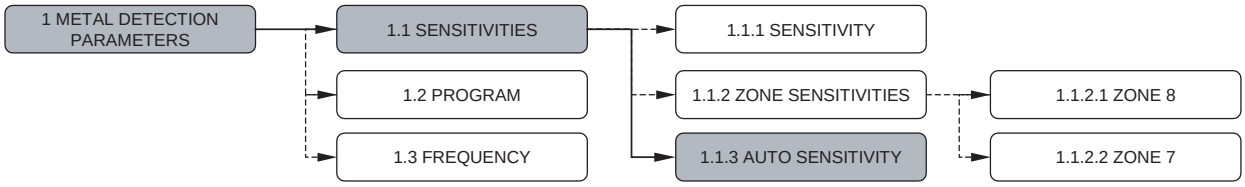
In the second phase (2) **sensitivity at ankle level** is defined (zones 1 and 2). Sensitivity is adjusted manually.

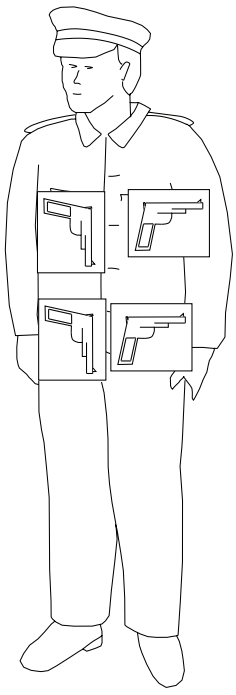
NOTICE

Ankle level sensitivity (2) shall always be calibrated separately, because floor structures usually contain metal reinforcements that may affect the sensitivity setting.

The amount and orientation of the metal in the floor in relation to the gate varies between different installation sites. Therefore, the required sensitivity setting at floor level may also vary.

Setting overall sensitivity





Setting overall sensitivity using Auto Sensitivity function (recommended)

1. Select Auto Sensitivity function
2. Walk through the WTMD with a test object. After each pass display shows the total number of walks, the sensitivity needed to alarm on the last walk and the sensitivity needed to alarms on all walks.

Wait a couple of seconds between successive walks. Walk in the direction of intended use of the WTMD. In case of bi-directional use walk in both directions.

The display of last sensitivity value can be used to determine the critical test object. Concentrate of those test objects that need highest sensitivity values. Take them through the WTMD on several positions and orientations.

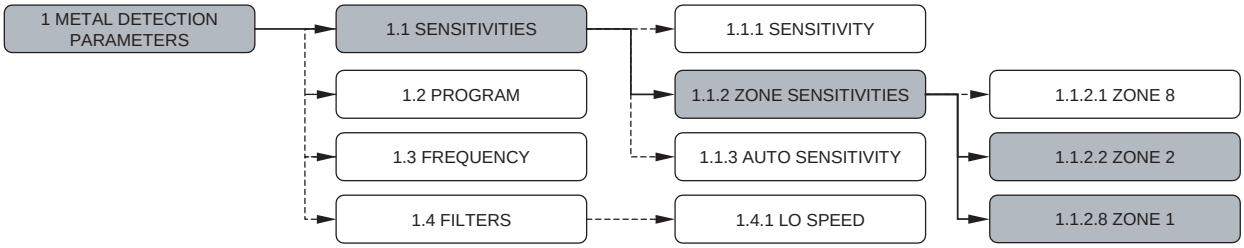
When you have finished walking press OK to accept the new sensitivity setting. A minimum of three (3) walks is needed. If you choose to exit without accepting the new sensitivity setting, press C . If there are no walks in five (5) minutes, the WTMD will return to normal operation mode without changing the sensitivity.

In case the detection program is not suited for the test object and the required sensitivity would be over the set range a warning is given. Exit auto sensitivity mode and choose a different program. Check also that zone sensitivities have not been adjusted to low values.

Manual setting of overall sensitivity

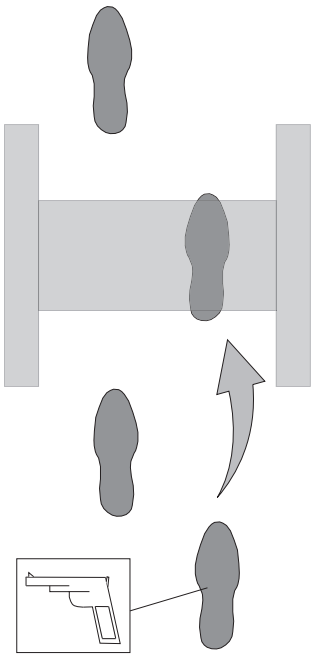
1. Press 7 123. When program asks “ENTER: 0=SUPER USER 1=USER”, enter “0”.
2. Enter the SuperUser access code on the remote control unit (factory setting 1, 2, 3). Press OK .
3. Press 3 two times, “Sensitivity” is now shown on the display. Press OK .
4. Adjust sensitivity with the arrow keys so that all test objects are detected. Press OK .
5. Press C to exit.

Setting floor level sensitivity



The sensitivity of the equipment at floor level is checked and adjusted separately when the overall sensitivity of the gate has been adjusted.

After adjusting overall sensitivity, attach the critical test object to the ankle and test detection by walking through the gate. Walk through the gate in two manners: by placing down the foot with the test object at the middle of the gate (Fig. 1), and by swinging the foot through the gate (Fig. 2). If the test object is reliably detected by the gate, repeat the test for the rest of the test objects. If all test objects are not detected or sensitivity seems to be too high at floor level, adjust floor level sensitivity according to the procedure below.

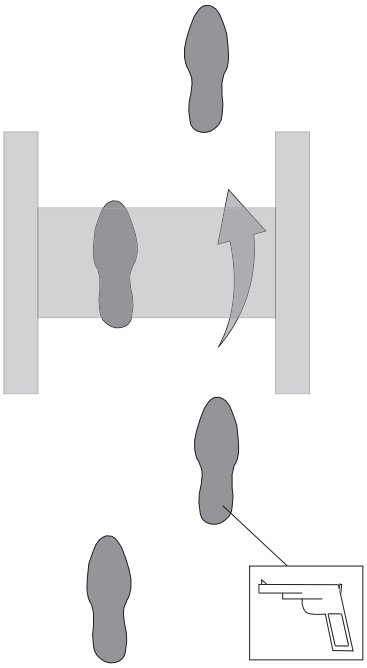


1

Phase 1

Walk through the gate placing down the foot with the test piece at the middle of the gate. Seek the lower limit settings that detect the test object reliably.

1. Test detection by walking through the gate.
2. Adjust ZONE 1 and ZONE 2 sensitivities as follows:
   - 2.1 If the test object caused an alarm each time, lower ZONE 2 sensitivity by 5 percent and ZONE 1 sensitivity by 10 percent. The minimum settings for Phase 1 are, however, ZONE 1=ZONE 2=70%.
   - 2.2 If the test object did not cause an alarm, increase ZONE 2 sensitivity by 5 percent and ZONE 1 sensitivity by 10 percent.
   - 2.3 When approaching the ideal values, adjust ZONE 2 sensitivity in 1 percent and ZONE 1 sensitivity in 2 percent increments.
3. Repeat the walk-through test of Phase 1 until the optimal setting is established.



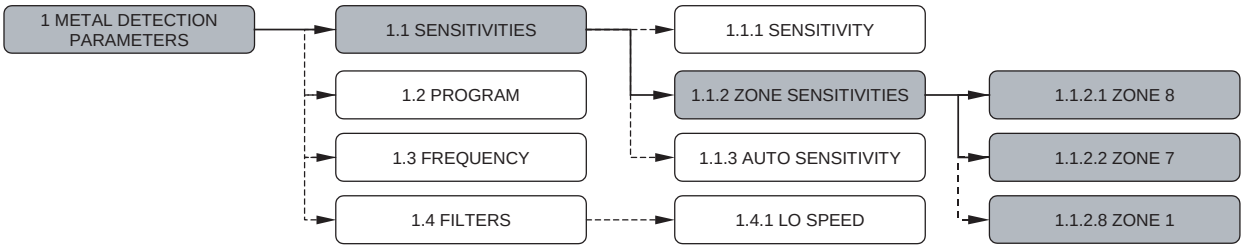
2

Phase 2

Walk through the gate so that the foot with the test object is swung at the gate. Seek the lower limit settings at which the test object is reliably detected.

1. Test detection by walking through the gate.
2. Adjust ZONE 2 sensitivity as follows:
   - 2.1 If the test object caused an alarm each time, lower the ZONE 2 sensitivity by 5 percent.
   - 2.2 If the test object did not cause an alarm increase ZONE 2 sensitivity by 5 percent.
   - 2.3 Close to the optimal settings, make adjustments in 2 percent increments.
3. Repeat the walk-through test of Phase 2 until the optimal setting is reached.
4. Check calibration by taking test objects through the gate.

Setting sensitivity of zones



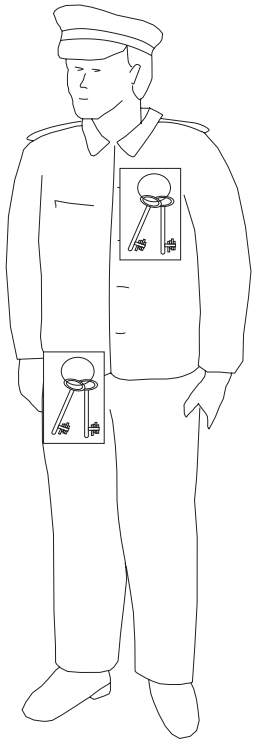
If you want to change the sensitivity of a certain zone to a different level than the others, use the zone sensitivity adjustment.

- The adjustment of zone sensitivity does not affect the overall sensitivity of the equipment.
- Adjustment of zone sensitivity is usually used only in situations where, for example, a large static metal object is very close to the gate.
- In most cases, there is no need to change the sensitivity of separate zones, except when adjusting ankle level sensitivity.

Sometimes zone sensitivities can be used to improve throughput. For example, if critical position of the critical object, i.e. position where critical object gives

smallest signal, happens to be over the head, it is better to increase zone sensitivity of corresponding zone and leave overall sensitivity lower than to increase overall sensitivity.

Selecting the detection program to be used



You have now completed calibrations. If you have carried out the calibrations for more than one detection program, select the one that gives the lowest metal signal when different harmless objects are taken through the gate.

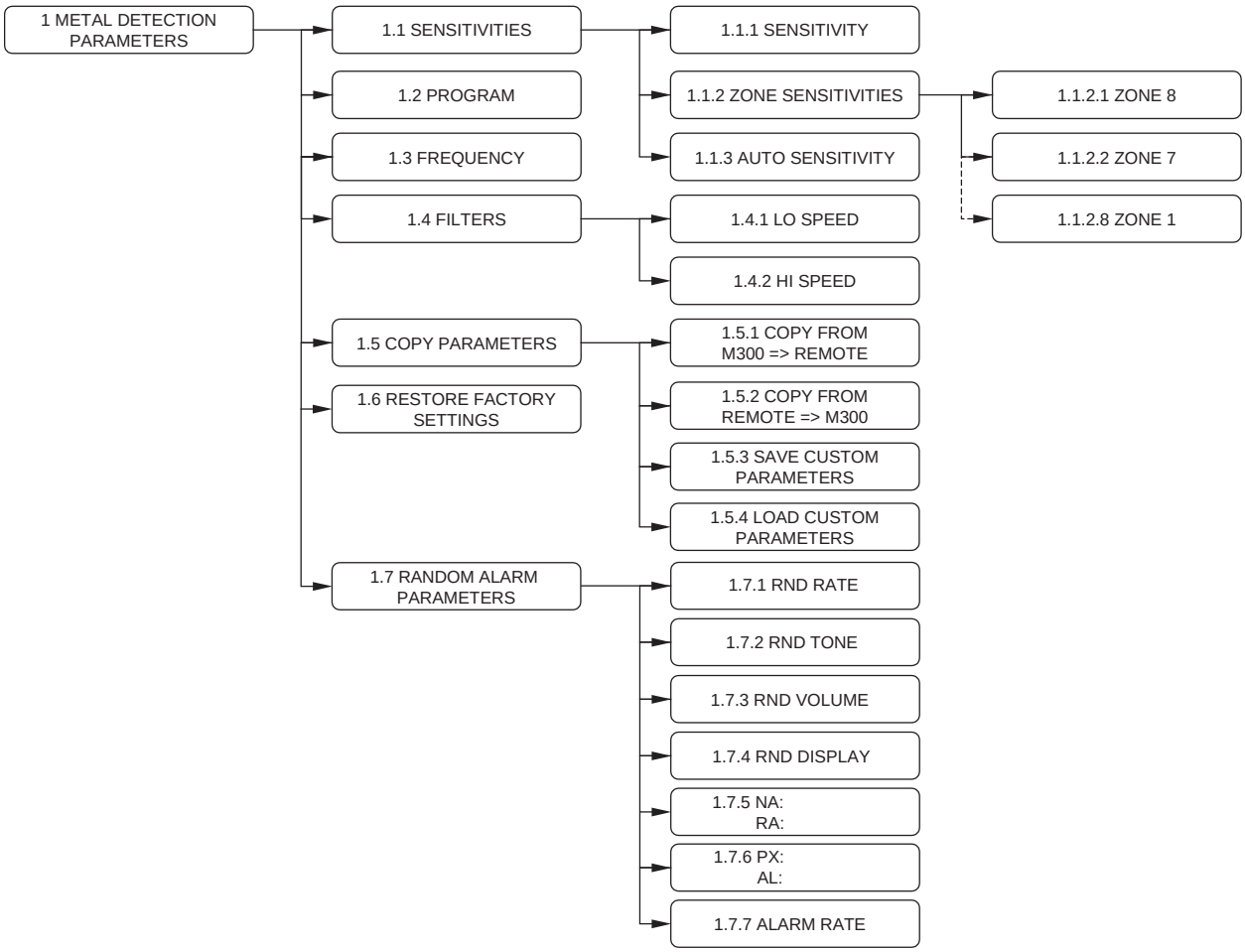
Testing

Check daily e.g. when switching on the equipment:

1. Calibration
   - Using, for instance, one test object.
2. Mechanical mounting of gate
   - Parallelism of coils and tightness of mounting screws. See "Mechanical assembly" on page 18.

The Metor 300 is ready for operation after the mechanical installation, connections and adjustments have been completed. The adjustments that effect on the performance of the detector should be correctly made to optimize operation in each application.

9. METAL DETECTION PARAMETERS



Random Alarm (software version 2.10 or higher)

The random alarm operation is based on groups of 100 non-alarming people passing through the detector. The number of random alarms is a set percentage of every group of 100 non-alarming passes. Random alarms are generated with a 1% accuracy.

E.g. Out of the 120 passes 20 people cause alarms by having metal objects with them. 100 people pass through without activating the alarm. The random alarms occur while the 100 non-alarming people go through. If the random alarm rate is set to 15 %, 15 non-alarming people will cause a random alarm.

The count for 100 non-alarming passes is cleared every time the detector is powered up, counters are cleared, MetorNet PAX clear command is received or the random alarm rate is adjusted.

Random alarm is indicated by:

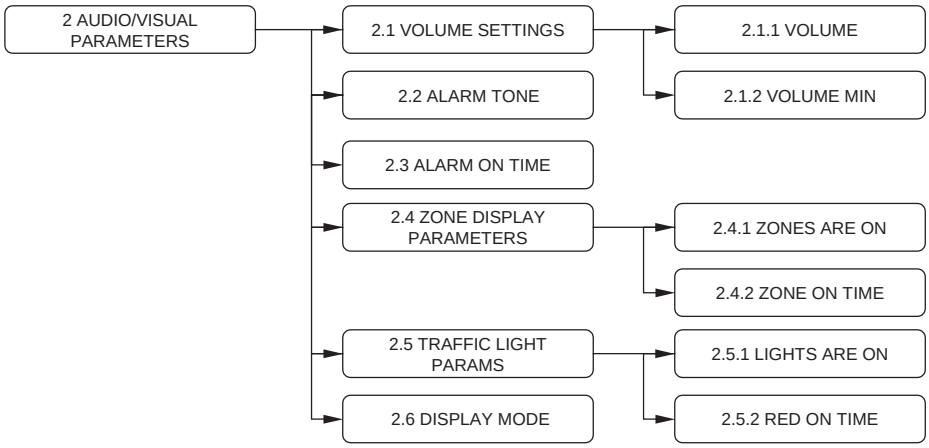
- Flashing red light on the display unit
- Showing the alarm on the display according to the 1.7.4 RND DISPLAY setting
- Sounding an audible alarm, tone and volume depending on parameter settings on 1.7.2 RND TONE and 1.7.3 RND VOLUME
- Lighting up the whole zone display

FUNCTION	POSSIBLE VALUES	FACTORY SETTING	NOTES
SENSITIVITY	1 - 100	50	Sensitivity setting determines the size of objects which are detected and harmless objects which are not detected. A higher sensitivity allows detection of smaller metal objects. The main criterion for detection is the size of metal objects. To some extent, variations in shape and material may affect detection performance, and so do also the orientation of the object and the speed at which it is taken through the detector.
ZONE SENSITIVITIES	0 - 255%	All zones 100%	Separate sensitivity setting for each of the eight zones. The values indicate percentage of the overall sensitivity. When each zone is adjusted to 100 %, zone sensitivities are the same as the overall sensitivity.
PROGRAM		METOR 3	System has different detection programs to select the suitable detection performance for different types of objects and to optimize discrimination.
FREQUENCY	F1 - F4	1	Operating frequency setting to inhibit interference between detectors operating near one another and to minimize the effect of interference from the environment. Use F1 only for single detector installation. F2 - F4 are for proximity operation.
HI SPEED	1 - 3	2	Speed response setting for objects moving fast.
LO SPEED	1 - 2	2	Speed response setting for objects moving slowly.
RND RATE	0 - 100 %	0 % (RANDOM ALARM OFF)	Random alarm rate. The percentage of alarms caused by the non-alarming people.
RND TONE	1 - 6	5	The tone used when a random alarm occurs. By default it is the same as the one used when a natural alarm (caused by metal items) occurs.
RND VOLUME	0 - 8	2	The volume used when a random alarm occurs. By default it is the same as the one used when a natural alarm (caused by metal items) occur. Random alarm volume can not be less than what is set by parameter VOLUME MIN.

RND DISPLAY	NORMAL or PATTERN	NORMAL	If ”NORMAL” is selected (default) display will show random alarm the same way natural alarms are shown (off, lightbar, counters or alarm rate depending on 2.6 DISPLAY MODE parameter). If ”PATTERN” is selected display will show a full ”pattern” bar when a random alarm occurs. “Pattern” bar: <<<<<<<<<<>>>>>>>>>>
NA: 123 **RA: 14**			NA = number of non-alarming people passed through RA = number of random alarms generated These counters are cleared with the 4.5 CLEAR STATISTICS command (Numbers above are examples and might be different on an actual Metor 300).
PX: 234 **AL: 42**			PX = total number of people passed through the detector AL = number of natural alarms caused by people with metal items These counters are cleared with the 4.5 CLEAR STATISTICS command. (Numbers above are examples and might be different on an actual Metor 300)
ALARM RATE			The natural alarm rate caused by people going through with metal items. This is cleared with the 4.5 CLEAR STATISTICS command.

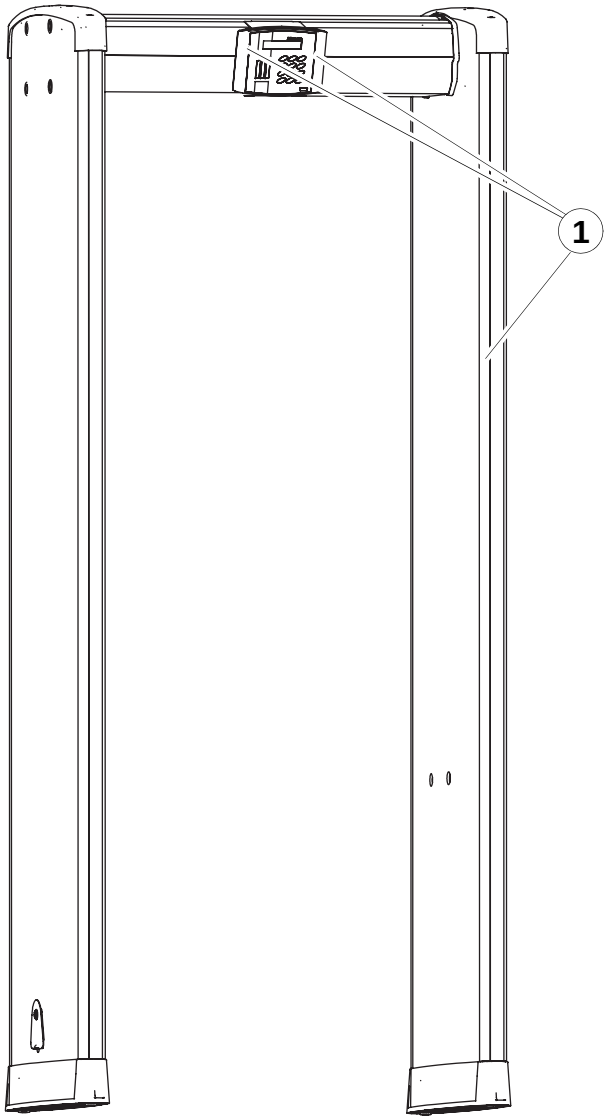
FUNCTION	NOTES
COPY PARAMETERS FROM 300 => REMOTE	Copies the current parameters, excluding the operating frequency (F1-F4), into the remote control unit. The parameters copied into the remote control unit will remain there until new parameters are copied in their place. Aim the remote control unit at the display unit until the WTMD indicates that copying has completed successfully (completed ok). The copying will take a few seconds.
COPY PARAMETERS FROM REMOTE => 300	Copies the parameters from the remote control unit to the WTMD. The parameters overwrite the current parameters in the WTMD and are applied immediately. Aim the remote control unit at the display unit until the WTMD indicates that copying has completed successfully (completed ok). The copying will take a few seconds.
SAVE CUSTOM PARAMETERS	This will save the current parameters in the WTMD’s memory. Saving the parameters will not affect the current parameters, nor the detection. When parameters are saved, the operating frequency too is saved. If changes are made to the current parameters of the WTMD after the parameters are saved, the saved parameters remain unchanged.
LOAD CUSTOM PARAMETERS	Reverts to using the parameters that were saved with the function ‘save custom parameters’. You can change the current parameters and use this function to restore parameters that you have saved earlier. When you select ‘load parameters’, the saved parameters are applied immediately. If no parameters are loaded in the memory, the WTMD will issue an error message and the parameters applied before the loading attempt will then remain in force.

10. AUDIO/VISUAL PARAMETERS



FUNCTION	POSSIBLE VALUES	FACTORY SETTING	NOTES
VOLUME	0 - 8	2	Volume is adjusted above background noise level so that alarms will be audible to the operator. For the preset minimum volume level see "VOL MIN n" setting. No access code is needed for volume setting.
VOL MIN	0 - 8	2	The minimum usable volume setting. The maximum setting is always the same.
ALARM TONE	1 - 6	5	Tone setting helps in identifying the alarms of adjacent detectors.
ALARM ON TIME	0.4 - 3 s	1	The time alarm sounds
ZONES	On/Off	On	
ZONE ON TIME	0.4 - 6 s	1	
LIGHTS	On/Off	On	
RED ON TIME	0.25 - 3 s	1	The time traffic light is on red if there is no alarm. If there is an alarm, traffic light is on red the time that is the higher of "alarm on time" and "zone on time".
DISPLAY MODE	1 - 4	1	1) Screen saver (No signal level bar) 2) Signal level bar 3) Counters 4) Alarm rate

Zone display

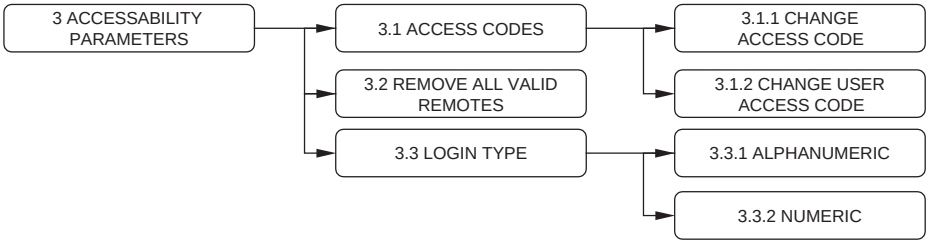


The zone display (1) uses a red light to indicate the approximate height of the object that has caused the alarm.

The zone display has ten vertical light segments which can be lighted separately to indicate the position of the detected item(s). Each of the eight independent detection zones of the Metor 300 consist of three vertical light segments. Due to detection zone overlapping one light segment is associated to more than one detection zone.

All detection zones where the alarm level is exceeded will create an alarm. Depending on the position and the size of the item(s) one or more segments will be lighted up accordingly. In case of a bigger item the alarm level may be exceeded in several zones and a bigger area of the zone display is lighted up.

11. ACCESSABILITY PARAMETERS



FUNCTION	POSSIBLE VALUES	FACTORY SETTING	NOTES
ACCESS CODES	A, B,...Z,0,1,...9, [SPACE]	User 7,8,9 SuperUser 1,2,3	Operator can set new access codes for User and SuperUser levels. The access codes are combinations of one to three key entries except the OK and C keys.
REMOVE ALL VALID REMOTES			You can remove all remote control units from the unit's memory.
LOGIN TYPE	Numeric / Alphanumeric	Numeric	Operator can choose between alphanumeric and numeric type of access code.

Access code

The equipment uses two access code levels. The User level access code allows access to check the counter readings and changing the User level access code. Factory setting is “7, 8, 9”

The SuperUser level access code allows access to change any setting of the equipment. Factory setting is “1, 2, 3”.

Changing the SuperUser level access code

1. Press OK. When program asks “ENTER: 0=SUPER USER 1=USER”, enter “0”.
2. Enter the SuperUser level access code, and press OK .
3. Press 2, twice to display “Accessability parameters”.
4. Press 3, twice to display “Change Access code”, then press OK .
5. Enter the new code, then press OK .
6. Re-enter the new code, and press OK . The text “Operation completed ok” will be displayed.
7. Hold C down for a moment to return to normal mode.

Changing the User level access code (Option 1)

1. Press OK. When program asks “ENTER: 0=SUPER USER 1=USER”, enter “1”.
2. Enter the User level access code, and press OK.
3. Press 2, once to display “Change Access code”, then press OK.
4. Confirm operation, OK = Yes, C = Cancel, press OK.
5. Enter the new access code, and press OK.
6. Re-enter the new access code, and press OK. Text “Operation completed ok” is displayed.
7. Hold C down for a moment to return to normal mode.

Changing the User level access code (Option 2)

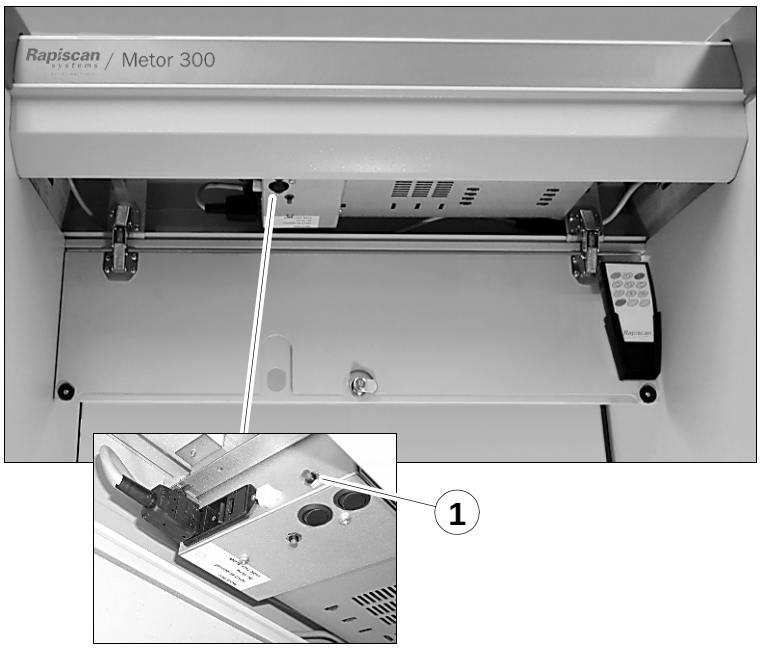
1. Press OK. When program asks “ENTER: 0=SUPER USER 1=USER”, enter “0”.
2. Enter the Super User level access code, and press OK.
3. Press 2, twice to display “Accessability parameters”.
4. Press 3, twice to display “Change Access code”.
5. Press 2, to display “Change User Access code”, then press OK.
6. Confirm operation, OK = Yes, C = Cancel, press OK.
7. “Select User, 1=first user” is displayed. Select user with numeric keys.
8. Enter the new code, and press OK.
9. Re-enter the new code, and press OK. Text “Operation completed ok” is displayed.
10. Hold C down for a moment to return to normal mode.

Using alphanumeric access code (Login type)

Choose the alphanumeric entering of the access code from the menu. Then you can change the access code normally according to the following instructions:

- Select the first character by scrolling down 2 or up 0 the list of characters.
- When the right character is selected, accept it with 3.
- Choose the next character and accept it. If you chose a wrong character, you can delete it with C.
- When the access code is entered, press OK.

Resetting of access codes



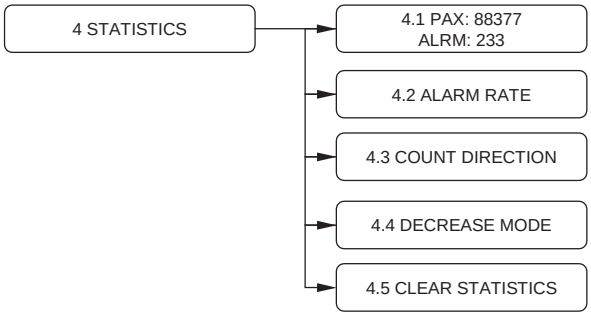
There may be situations when you need to reset all access codes. To do this press and hold the red (Learn) button (1) more than five seconds.

User level locking

If access code for some user level is entered three times incorrectly will that user level be locked. Each user level is handled separately. If USER level is locked is SUPER USER level still accessible and vice versa. Three wrongly entered access codes will lock a user level even if other user levels are accessed between attempts. E.g. a person enters wrong access code for SUPER USER level twice, then enters right access code for USER level and tries wrong SUPER USER access code again, SUPER USER level will be locked.

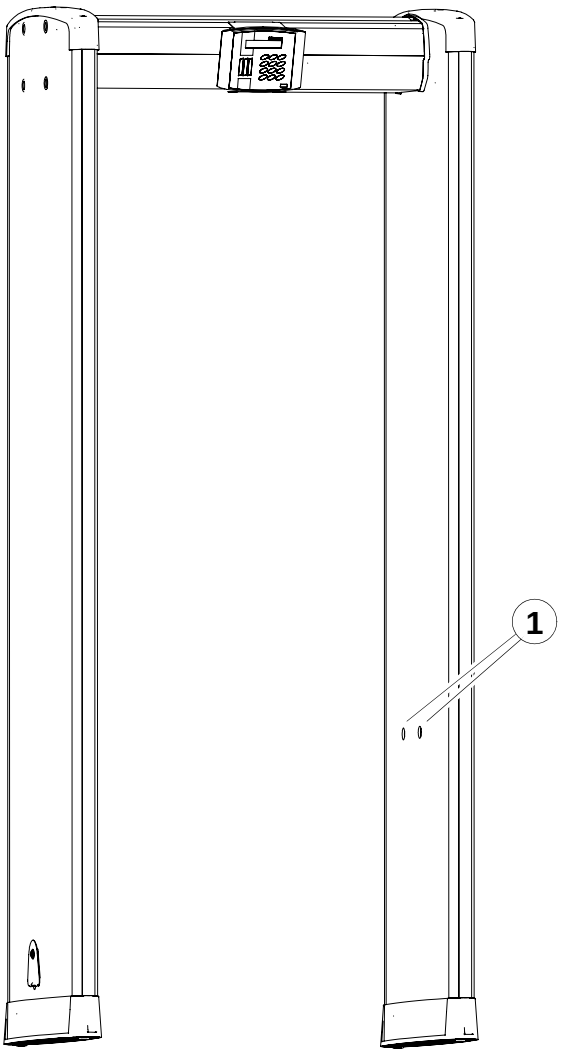
Locked SUPER USER level can be unlocked only by resetting access codes. Locked USER level can be unlocked only by resetting access codes or by changing the USER level access code from SUPER USER menu. Count for wrong access codes entered will be cleared only by entering right access code for that level before that user level is locked or by resetting all access codes.

12. STATISTICS



FUNCTION	NOTES
PAX	Displays passenger counter value (“COUNTS nn”).
ALRM	Displays alarm counter value (“ALARMS nn”)
ALARM RATE	Displays alarm rate percentage (“ALARM%: n”). $\frac{alarms}{passenger} \cdot 100$
CLEAR STATISTICS	Clear passenger and alarm counter.

Traffic counters



The equipment has a counter that registers the number of persons passed through and the number of alarms.

The counters use the photocells (1) shown in the illustration (on Tx-panel).

A counter can be set to two different modes of operation:

- the total reading increases in one direction, but the traffic in the opposite direction does not affect the reading, or
- the total reading increases in one direction while the traffic in the opposite direction decreases it.

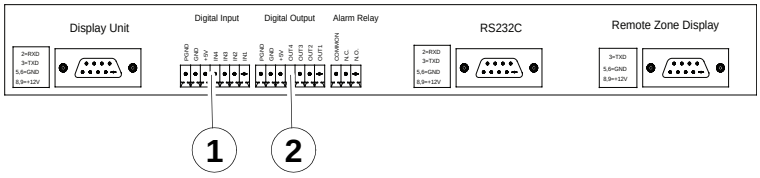
Count Direction function 4.3

Function 4.3 Count Direction is used to choose the direction of traffic flow. The counter reading for passengers will add only when people pass through to this direction. Selecting "off" will turn the counters off, the counter reading will not increase or decrease. Selecting ”DIR 1” the counter reading will increase when people pass through so that the photocells are on their left. Selecting ”DIR 2” increases the counter reading when people pass through with the photocells on their right. To select the direction automatically, function 4.3 is set to "auto". The first pass through will decide the counter direction. If the first pass is made with photocells on the left, counter direction will be set to "DIR 1".

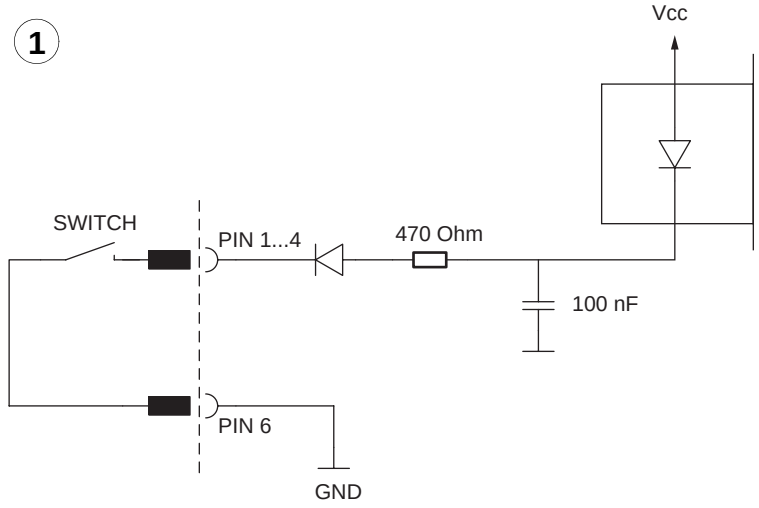
- PAX = The number of persons passed through.
- ALRM = The number of alarms.

- ALARM RATE = The alarm percentage is automatically calculated on the basis of the above figures.

13. SPECIAL FUNCTIONS

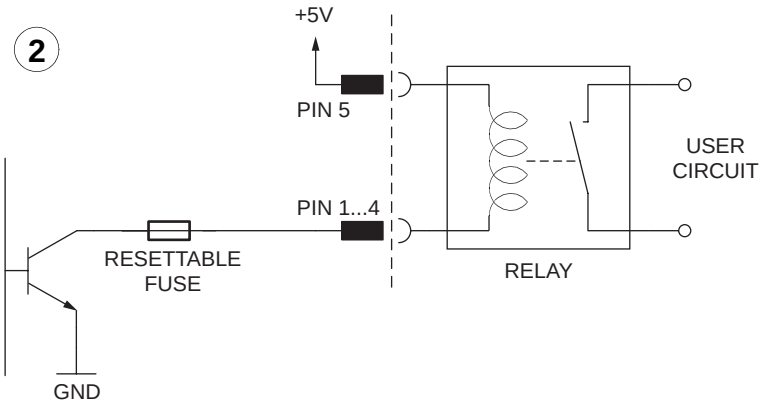


The Metor 300 can be equipped with an optional digital I/O -unit (Type MIOU 5003, order code 8100 004). This unit has four inputs and four outputs and is galvanically isolated from the electronics. The isolation intended only to prevent ground loops.



1. Digital Input Functions (Optional)

The Metor 300 has selectable functions for two digital input signals. The function is controlled with a normally open switch by closing its contacts.

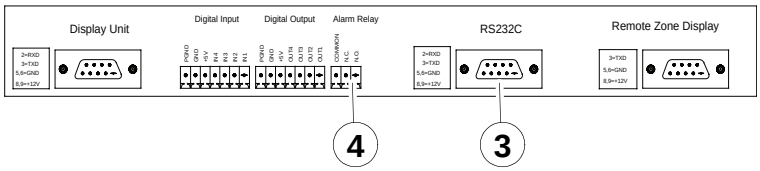


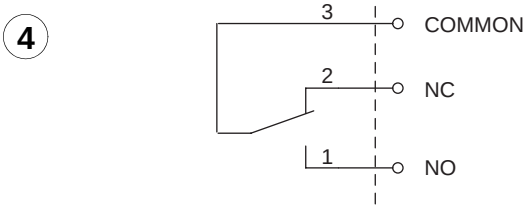
2. Digital Output Functions (Optional)

Total current from +5 V supply (pin 5) is 300 mA max.

Current to any of pins 1...4 is 400 mA max.

Line voltage or any circuit connected to line voltage may not be connected to any of the connectors in the electronics, including the relay output. External isolation circuitry must be used if circuit connected to line voltage must be controlled.





3. Serial I/O

The Metor 300 is compatible with MetorNet 3 Pro (accessory). Metor 300 and MetorNet 3 Pro use RS232 serial bus to communicate with each other.

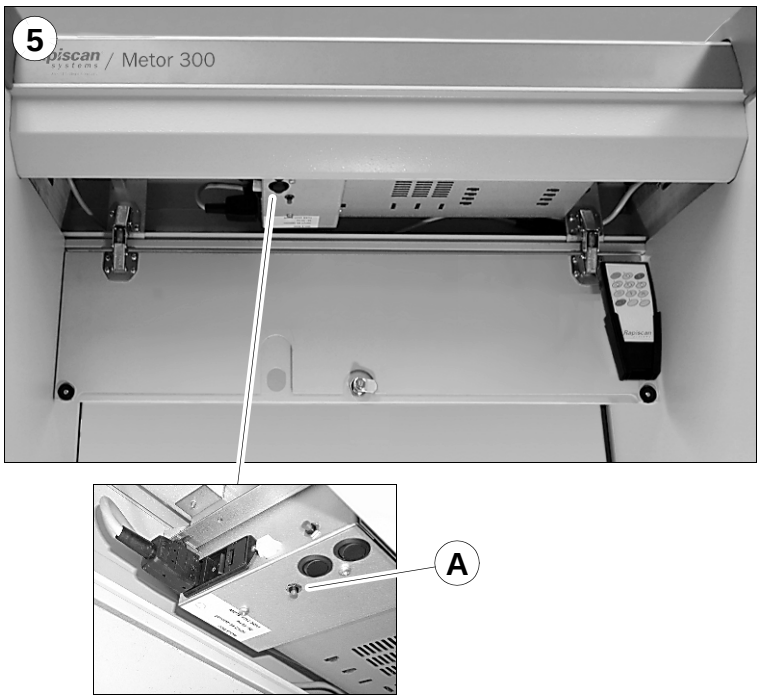
4. Relay output connection

The Metor 300 has an alarm relay to control external devices. For example, it can be used to monitor alarms by controlling external audible and lamp signals.

The relay is a voltage-free changeover contact with screw terminal/plug-in connector on the top of the cross piece.

COMMON terminal is connected to NO terminal everytime an alarm occurs and when the WTMD is powered up until “Metor 300 OK” is shown on display.

COMMON terminal is connected to NC terminal when the WTMD is operating on stand-by mode or is switched off.

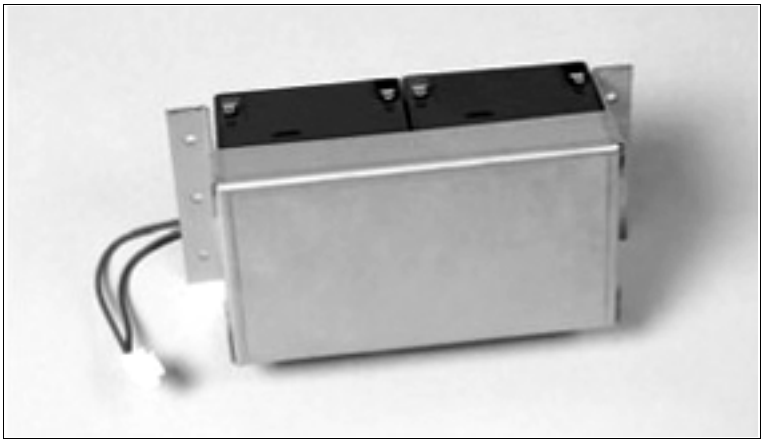


5. Tamper Alarm

The Metor 300 has a tamper switch (A), which detects if the crosspiece lid is opened.

14. ACCESSORIES

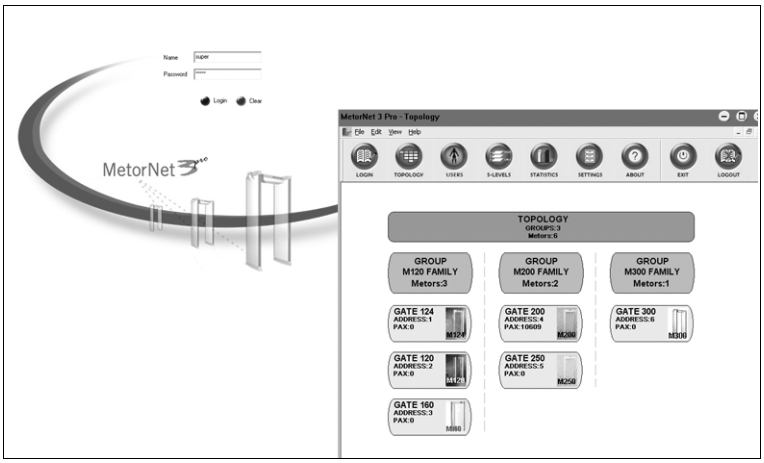
The Metor 300 has the following optional accessories that are not included in the standard setup and can be ordered separately.



Battery Back-Up Set MBBS 5091

The backup battery is designed to secure uninterrupted operation for 2 hours in case of mains voltage failure.

(Part no. 8100421-4OE)



MetorNet MNES 5130

The MetorNet 3 Pro is a Windows based Remote Security Management System for Metor walk-through metal detectors. MetorNet 3 Pro operates through Ethernet and can connect up to 99 Metors into one network.

(Part no. 8100676-4OE)

15. MAINTENANCE

Error Messages

ERROR SITUATION	POSSIBLE CAUSE	CORRECTIVE ACTION
SYSTEM MESSAGE: UNDEFINED ERROR XXX	Old software old internal error	Cycle power on the unit, if reappears contact service to update software
SYSTEM MESSAGE: MDPU Vcc TOO LOW	Display unit cable is too long, power supply failure	Try shorter cable Contact service
SYSTEM MESSAGE: MDPU TEMP TOO LOW	Ambient temperature is too low	Wait for the Display unit to warm up
SYSTEM MESSAGE: MDPU TEMP TOO HIGH	Ambient temperature is too high, Direct sunlight to display unit	Move display unit to shadow
SYSTEM MESSAGE: MDPU EEPROM INIT.	Memory was corrupted	Cycle power on the unit, verify that all parameters are correct!
SYSTEM MESSAGE: ACCESS CODES INIT.	The Learn –button was pressed for more than five seconds	Re-set all access codes
BATTERIES OF REMOTE CONTROL ARE EMPTY!	Empty batteries on remote control	Replace batteries
LOW REMOTE CONTROL BATTERY LEVEL!	Almost empty batteries on remote control	Replace batteries soon
SYSTEM MESSAGE: MCCU Vcc TOO LOW	Power supply failure	Call service
SYSTEM MESSAGE: MCCU TEMP TOO LOW	Ambient temperature is too low	Wait for the electronics to warm up.
SYSTEM MESSAGE: MCCU TEMP TOO HIGH	Ambient temperature is too high. Electrical failure	Move gate to cooler place Call service.
SYSTEM MESSAGE: MCCU EEPROM INIT	Memory was corrupted.	Cycle power on the unit, verify that all parameters are correct!
SYSTEM MESSAGE: RX-CABLE FAILURE!	RX –cable is loose or disconnected.	Connect cable to RX –panel
SYSTEM MESSAGE: TX-CABLE FAILURE!	TX –cable is loose or disconnected.	Connect cable to TX –panel
SYSTEM MESSAGE: RECEIVER FAILURE!	No signal from RX –panel.	Connect cable to RX –panel Call service
SYSTEM MESSAGE: TX 0-3 FAILURE!	No current to transmitter coil 0,1,2 or 3.	Connect cable to TX –panel Call service

ERROR SITUATION	POSSIBLE CAUSE	CORRECTIVE ACTION
SYSTEM MESSAGE: TX 4-7 FAILURE!	No current to transmitter coil 4,5,6 or 7	Connect cable to TX –panel Call service
SYSTEM FPGA NOT RESPONDING!	Electronics failure	Call service
OPERATION FAILED: NO REPLY FROM MCCU	Display unit cannot communicate with electronics	Verify that display unit cable is connected properly
MAX COUNT OF REMOTES ARE VALIDATED!	No more remote control units can be taught to gate	Remove all remotes and try again. NOTE: This disables ALL previously taught remotes
CUSTOM PARAMS ARE NOT SET!	No custom parameters are saved	Save parameters before loading them

Other error situations

ERROR SITUATION	POSSIBLE CAUSE	CORRECTIVE ACTION
Metal detector does not start	Mains voltage is not connected	Check mains connections
	AC mains switch or power switch is off	Check that AC mains switch on electronics (MELS) and power switch are both turned on
Error code 196 displayed, all zone display lights and both green and red traffic lights are lit	MCDS / MDPS cable disconnected, wrong MDPU software version, defective MCDS / MDPS	Re-connect the MCDS / MDPS cable, call service
The interference level too high	Used frequency not suitable for the operating environment	Change operating frequency (Additional reduction of interference level can be achieved by lowering the HI SPEED value)
	Interference source located too close to detector (Video monitors, radio equipment, powerful electric motors, AC power cables, thyristor control circuits etc.)	Move interference source or detector
	Large moving metal object too close to the WTMD	Increase distance between detector and metal object
	Floor vibrating when people walk through the unit	Improve support of the floor or move the detector

16. SERVICE

Service reports

Rapiscan Systems aims to offer reliable, high-quality products to the user. To accomplish this objective, detailed information concerning service operations and problems is needed from the field. It is this communication, in the form of service reporting, that makes it possible to clearly specify the cases and to file them for further use.

Information contained in completed service reports forms the basis for quality control of problem areas and allows us to take corrective action.

The service reporting procedure also communicates to the user the specific actions taken to solve the problem.

In our effort to improve product quality, we need your co-operation in the service reporting procedure.

Service reporting procedure

Multicopy forms are used for reporting. The first copy is the customer copy (white). The second is for technical service and marketing (blue). The third is for quality control (red). The fourth is the service engineer's copy (yellow).

The following reporting principles should be observed:

- If faulty units are sent to us for repair, the first three copies of the service report should be enclosed with information on the symptoms of the fault. The customer copy, with repair information, is returned with the repaired unit.
- If the fault is repaired by the user or a Metor representative, the second and third copies should be sent to the factory.
- All faults that require service operations should be reported. These include faults arising from hardware failures, user mistakes, and application problems.
- Service report forms are supplied by the manufacturer.

Information in Service Request

When service is requested we need detailed information of the problem so that we can offer the best solution to the customer with minimum cost and response time.

Always provide the following information when you contact Rapiscan Systems or send parts to the factory for repair:

1. Identification of faulty product/part. The requested information is:
   - Metor model (for example Metor 300)
   - Type of part (for example MRCU 5108, MDPU 5007) or the name of the part
   - Serial number of the faulty part. If the faulty part is one of the modules inside the electronics unit (MELS), the serial number of MELS is also needed.
   - Software version of the product
   - Date of purchase, installation, and commissioning
2. Description of fault
   - error code
   - symptom(s) of fault
   - circumstances where fault occurs
3. Contact information
   - contact person
   - telephone/fax number
   - e-mail address
4. Requested service
   - repair and return, return of replaced unit or estimate of repair cost prior to repair work being done
   - warranty or non-warranty service
   - priority
   - possible shipping instructions when repaired part is returned to customer (address, way of shipping/carrier)

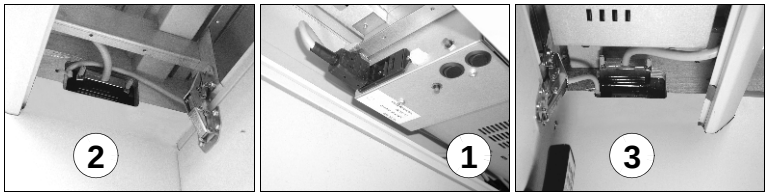
A service report form is recommended as the means to provide the necessary information for processing the repair.

Repairs at factory

Principles of factory repair services:

- Warranty requests cannot be handled without the above information.
- Rapiscan Systems will charge the cost of testing and evaluation, if the part is not faulty.
- If the fault cannot be repaired at a reasonable cost, we will contact the customer to ask if they want to cancel the repair request and buy a new part.
- When parts are sent to the factory for repair they should be properly packed to prevent additional damage during transportation. All damage and additional work due to poor packaging will be charged.

17. ORDERING SPARE PARTS



How to order:

1. Identify the system where the spare part is needed
   - Type of the unit.
   - Serial number of the electronic unit (1), and software version.
   - Serial numbers of left (2) and right coil panel (3).
2. Specify the spare part
   - Item code and description of the part needed. This information is found in the maintenance manual.
   - Number/amount needed
   - Special information of the part
3. Specify delivery and invoicing information.
   - Exact terms of delivery and full address.
   - Consignee's full name and accounting address.
   - Possible order number.

18. DISPOSAL OF EQUIPMENT

88.2 % of the total weight of the equipment is usable for other purposes upon disposal. The amount of recyclable material is 11.1 % of the total weight, and 77.1 % can be incinerated.

When the equipment is taken out of use, it shall be disposed of observing the following environmental aspects:

- The steel and aluminium of the metal detector gate structures, the copper of the cables, and the precious metals in the electronic circuits shall be recycled for raw material and used for production of new metal products.
- Materials that can be incinerated include wood, wood boards, plywood, and plastics, excluding PVC.
- The packaging material of the product, and the accompanying manual are of 100 % recyclable materials.
- Parts made of PVC, electric components, and other hazardous waste shall be disposed of according to the local laws and regulations.

19. CONTACT INFORMATION

Use these addresses when ordering spare parts and in warranty or repair issues.

United Kingdom's Customer Service Center for Europe, Africa, Mid East

Rapiscan Systems Ltd.
X-Ray House
Bonehurst Road
Salfords
Surrey RH1 5GG
UNITED KINGDOM
Tel: +44 (0) 870 777 4301
Fax: +44 (0) 870 777 4302

U.S.A. Customer Service Center for Canada, South America, Caribbean

Rapiscan Systems
2805 Columbia St.
Torrance, CA 90503
USA
Tel: +1 888 258 6684 (toll-free for US customers calling inside USA)

- Press #3 Tech Support
- Press #5 WTMD

Customer Service Center for Asia, Australia

Warranty and repair issues

Rapiscan Systems Sdn. Bhd.
PTD 151290, 6.5km,
Jalan Kampung Maju Jaya,
Kempas Lama. 81300,
Skudai, Johor,
MALAYSIA
Tel: +60 7 554 7770
Fax: +60 7 554 7772

Spare part orders

Rapiscan Systems Pte Ltd.
240 Macpherson Road,
#07-03, Pines Industrial Building,
Singapore 348574
SINGAPORE
Tel: +65 6846 3511
Fax: +65 6743 9915

E-mail

service@rapiscansystems.com
sales@rapiscansystems.com

ALPHABETICAL INDEX

Rapiscan®
systems
An OSI Systems Company