

## Technical Data

### Environmental Conditions

-10° C to +55° C (optional -30° C to +55° C)  
Relative humidity: 0 to 95 %, not condensing  
Protection: IP 20 (IEC 529)

### Power Supply

230 V ± 15 %, 50 Hz, 150 W resp. 115 V ± 15 %, 60 Hz  
Cable length: 2 m

### Operation Elements

1 Key ON/OFF, lockable by key switch  
4 Keys "↑" "↓" "ENT" "ESC"  
LC-Display 100 x 25 mm, clear text reading (2 lines 16 characters)  
RS 232 respectively RS 485 Interface for computer aided operation

### Programs and Parameters

Parameter	Setting Possibilities
Basic settings:	12 sets
Sensitivity:	10,000 steps
Volume:	16 steps
Alarm frequency:	9 steps
Alarm duration:	0.04 sec to 6.0 sec (150 steps)

Persons counter total:	0-100,000
Persons counter per flight:	0-1,000 (count up/count down)
Running time meter:	Hours, minutes
Date:	Day, month, year
Time:	Hours, minutes, seconds
Quota alarm:	0 % to 100 % 1000 steps
Language:	English, German, French, Spanish

### Efficiency

more than 1,800 persons per hour  
(walkthrough speed 0.1 to 15 m/s)

### Alarm Signals

Bargraph display on the control field (green and red)  
Audio signal with adjustable volume  
LED-display with 40 elements each on both lateral sides  
(5 cm distance, red)  
Indication of the relative object size and position  
External Display or PC  
Alarm output via RS 232 or optional relay contact

### Setting-up, Safety

Side panels scratch resistant in colour RAL 7004 lightgrey with frames colour RAL 5021 waterblue with integrated red LED arrays.  
Overturning moment 150 Nm at 1.2 m height  
Electrical design conforms to VDE 0100, VDE 0800 and VDE 0871 (frequency emission), EMC-tested, CE-sign and BGV B11.  
Certificate: Safe for persons with for heart pacemakers. Safe for magnetic data carriers (PC-disks, magnetic tapes etc.)  
Meets NILECJ-STD-0601.00 and other standards as for example EN 55011, EN 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11.

### Versions

Surface inside: scratch resistant Resopal  
Surface outside: painted metal screening

### Options

External LED-display  
PC-Software DEF-Control 2000  
Video camera, person's height sensor,  
Other colours, other dimensions, other cable lengths

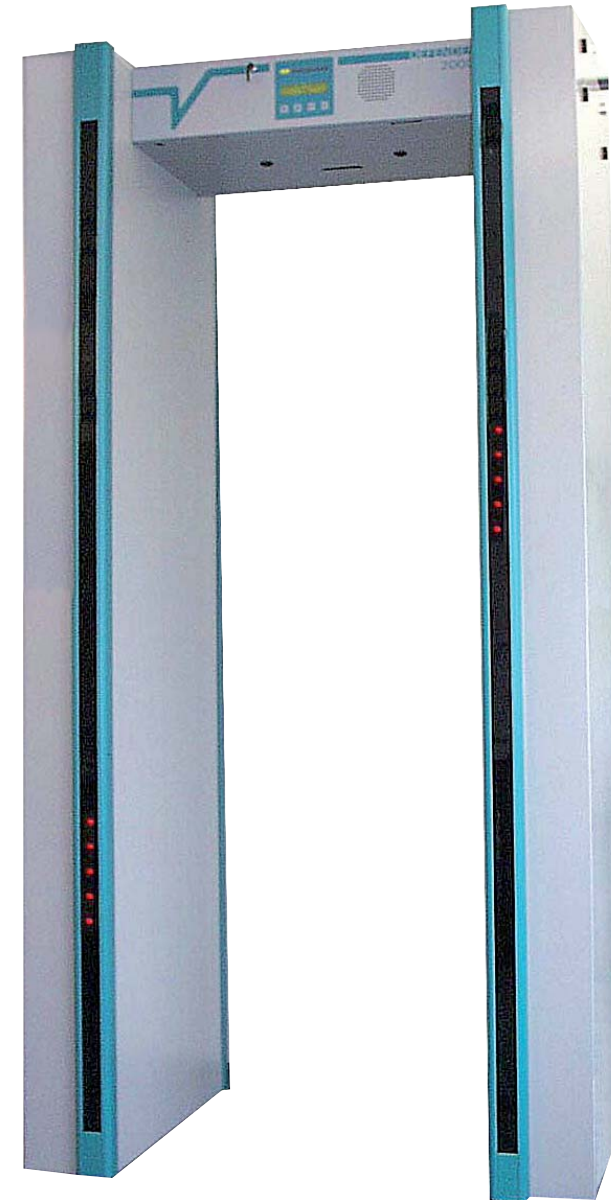
All technical data are subject to change without prior notice 03/2007



**DEFENDER 2000S**  
Mass approx. 104 kg.

# DEFENDER 2000S

Test Report T17.24.4  
MOT Rheinland/Berlin-Brandenburg e.  
V.



The new digital  
Generation of  
Walk Through  
Metal Detectors

## DEFENDER 2000S

Security today in airports, seaports, embassies, prisons, military installations, banks, industries, sports centres, data processing centres, and public offices is needed to guarantee efficient operations and to prevent illegal actions.

Complete security conceptions always contain metal detectors as the most important and accepted method in addition to other scanning methods.

The DEFENDER 2000S walk through metal detector of the newest generation allows a fast scanning of the persons passing through providing a maximum on digital information about metals carried in any pockets, under a hat, in the shoes or anywhere on the body, even under heavy clothes and coats.

The task of the walkthrough metal detector is to scan a person in a split second and indicate the exact position of metallic weapons of any kind.

Extreme difficulties are generated by metallic doors, barriers and other installations near the detector. The DEFENDER 2000S offers many possibilities to suppress or even eliminate such interferences.

What is unique with the DEFENDER 2000S?

The high end scanning method by the digital magnetic pulse induction principle with an extreme resolution of 5 cm. That means a small compact metallic target can be located at any place inside the detector gate with an accuracy of 5 cm. Several targets can be separated and indicated simultaneously.

The location of the target and its relative magnetic size is indicated. The number of scanned persons, the number of alarms and other statistical information is available, long term or just for one flight in the data memory.

The settings of the DEFENDER 2000S can be made through a large number of preselectable parameters respectively programs or indirectly by a commercial laptop/PC with software DEF-Control 2000. With software DEF-Control 2000 the PC/Laptop can display also the detection results during the operation.

The standard display consists of each 40 red LED's

on both sides of the gate.

A remote display unit (optional accessory) indicates the alarms in the same way.

The complete electronics including the digital signal



processing unit is located in the top of the gateframe including a bargraph alarm display and monitoring display as well as operation elements.

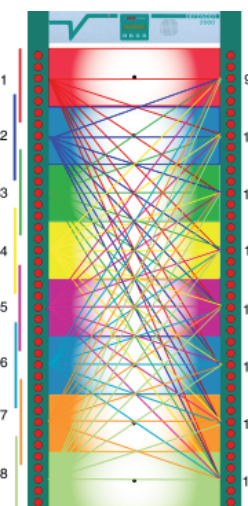


### Scanning principle

The DEFENDER 2000S is working with the most modern DMPI (Digital Magnetic Pulse Induction) method and has 16 independent sensor systems providing 256 scanning channels (send/receive channels).

Each of the 16 independent sensors is sending and receiving simultaneously in the following way: Sensor 1 is sending a pulse and all 16 sensors are receiving the result. Then sensor 2 is sending a pulse and all 16 sensors are receiving the result. The sensor 3 is sending etc. until all sensors have sent their pulses. The important scanning channels are shown in the picture on the right.

This scanning happens at an extreme high speed providing 128,000 scanning informations per second. The data are processed by the high speed digital signal processor and displayed by the LED's on the side panels of the gateframe. These information can also be displayed by computer and a special software illustrates graphically the metal objects hidden in the scanning area. The scanning information of a target contains data on the location in the scanning area along with the relative size of the target. Metal targets are detected independent from their relative orientation and there are no



„blind“ zones because of the scanning density of 256 send/receive channels.

This leading technology is also used in the VALLON Mine Detectors providing an extremely high detection sensitivity.

The DEFENDER 2000S is the most important link in the chain of security personnel and equipment. It is working fast and its indications are simple, clear and reliable. Due to its screening the DEFENDER 2000S can be integrated into metallic environments like locks, doors, gates, walls, vehicles etc. and even in close vicinity to X-ray-detectors. Upon request optional output signals can be generated to control barriers, doors, gates or escalators etc.



Mobile Security Gate with DEFENDER 2000S

The walking speed of a person can be as fast as 15 m/s and several detectors can operate near to each other with only a short distance between them. Individual audio alarms can be used for each detector. Detection results can be stored on a computer for statistics.

### Software DEF-Control 2000 (Option)

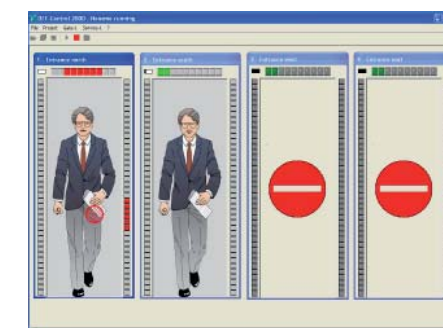
The PC-Software DEF-Control 2000 is running on each PC with Windows 98/2000/XP/ME/NT and a display resolution of at least 800x600 pixels (SVGA standard).

### Remote Control of several DEFENDER 2000S

If several DEFENDER 2000S are in simultaneous operation (max. 8), they have to be connected with a data cable RS485. The first or the last DEFENDER 2000S is in addition connected to the PC (RS232) via an interface converter. Via PC the operator can control each DEFENDER 2000S, read and change the parameters. Parameters are for example: Detection

sensitivity, noise filter, persons counter, alarm period, menu language, etc.

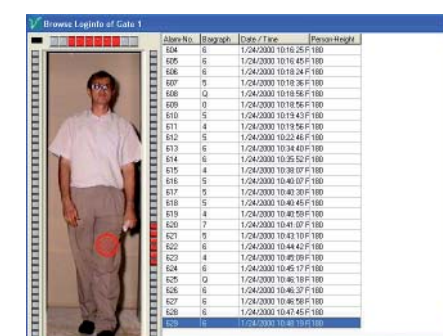
The selected gateframe/gateframes are displayed on the screen to indicate exactly the position of the detected metal object carried by the person who is passing through the gateframe. To display a computer graphics with the real height of the person, a person's height sensor (option) must be installed in the gate.



Example of a display of 4 Walkthrough Metal Detectors on the screen. Two gateframes are switched OFF. The display of the person is a computer graphics the height of which corresponds to the height of the original person. The red circle and the right and left LED-arrays indicate the position and the size of a detected metal object.

### DEFENDER 2000S with Video-Aided Alarm Surveillance

By means of a video camera with video adapter respectively video card in the PC the real person (max. 4) can be



Example of a display of 1 Walkthrough Metal Detector on the screen. The display shows the original video shot of the person entering the gateframe. The red circle and the right and left LED-arrays indicate the position and the size of a detected metal object.

### Remote Transmission (Option)

The data transfer (without video shot) to a PC installed somewhere else can be effected by telephone line via modems. For this purpose, each metal detector respectively each network must be connected to a PC with modem.