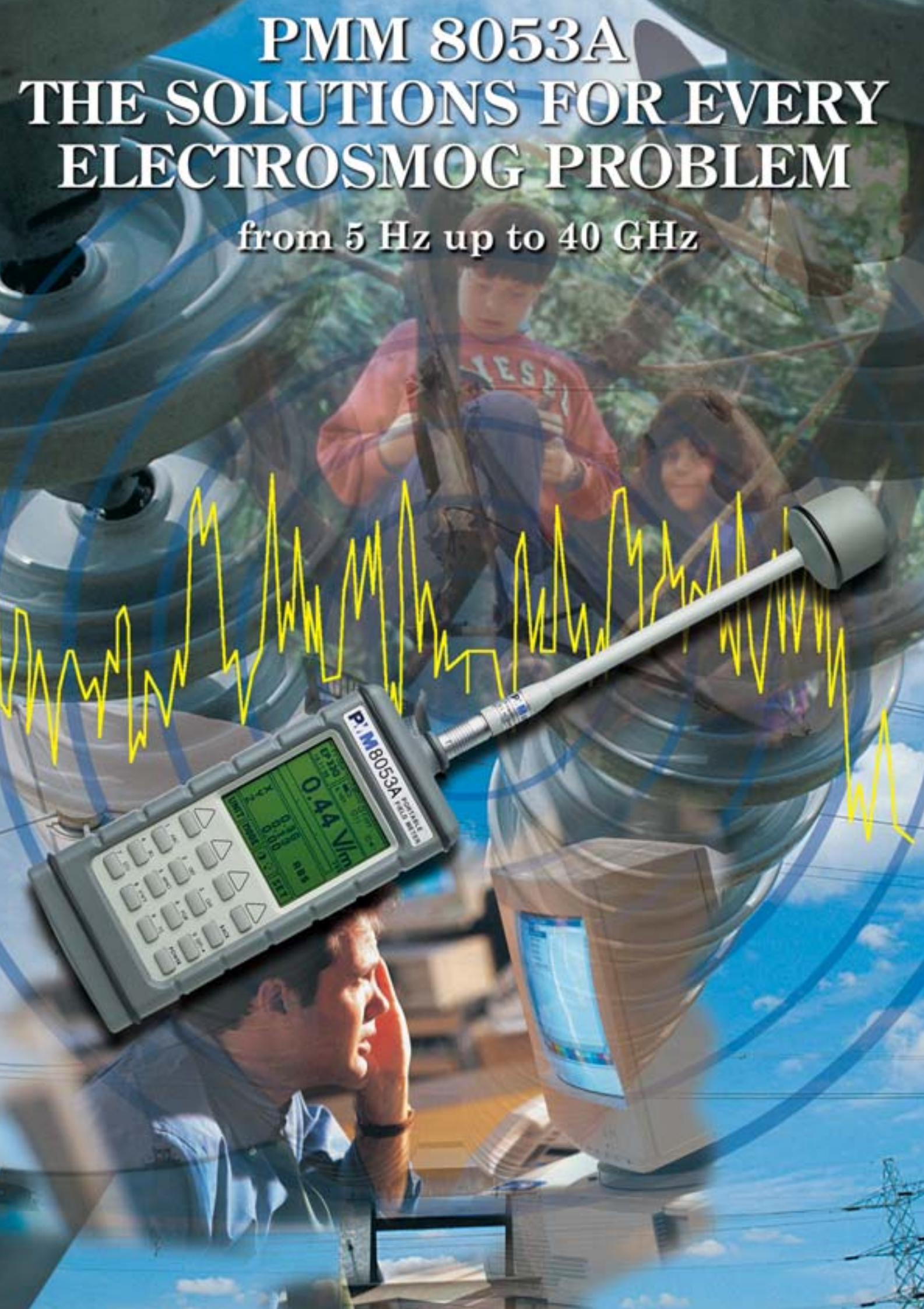
PMM 8053A
THE SOLUTIONS FOR EVERY ELECTROSMOG PROBLEM

from 5 Hz up to 40 GHz



PMM 8053A: THE ANSWER FOR ALL ENVIRONMENTAL ELECTROMAGNETIC MEASUREMENTS

WHAT IS IT ?

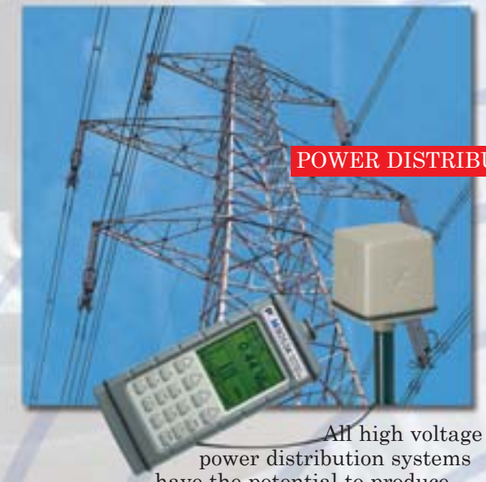
Elettrosmog is a popular term used to describe any phenomena or problem associated with artificially generated electric and magnetic pollution.
Any electric or electronic device may cause an environmental risk.
All motors, electronic workstations, AM or FM broadcasting transmitters, ovens, production machinery, TV or cellular stations and even an electrical wiring can generate potentially dangerous electric or magnetic fields.

RISK CONSIDERATION

Anybody, as an employee or population, could be exposed to fields high enough to be a danger to health. Several studies confirm the risk of being radiated by high magnetic or electric fields, many papers have been written and doctors confirm their findings.
In fact, IEC, ICNIRP, WHO, CENELEC and individual national agencies are now taking such problems in to account, implementing new standards to protect workers and citizens worldwide.

PMM EXPERIENCE

PMM, with almost 10 years of experience in this field, is active in several committees related to EM pollution. Hundreds of PMM field sensors have been installed everywhere world-wide, measuring any kind of fields from 10 Hz to 40 GHz.



POWER DISTRIBUTION

All high voltage power distribution systems have the potential to produce hazardous electric and magnetic fields. With the unique PMM 8053A electric sensor the measure of these fields - doesn't matter if they are very low or very high - becomes easy, fast and precise.

IN THE FACTORY

Many types of production equipment (industrial ovens, RF dryers, soldering equipment, induction furnaces, etc.) use RF frequency to operate. All these are potential sources of electric or magnetic fields that could be quite dangerous for health. High fields must be monitored and, whenever possible, reduced and controlled to provide a safe working environment.

RAILWAYS

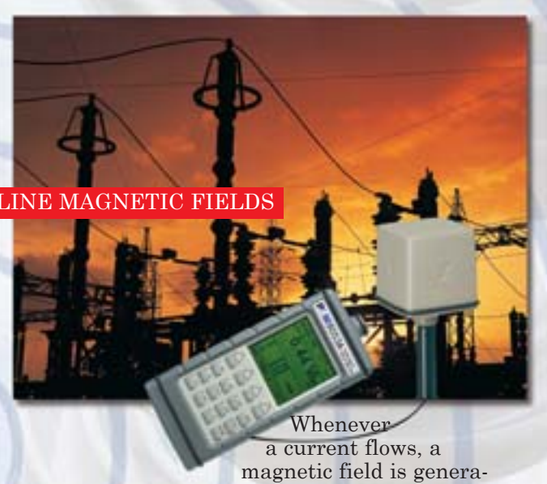
All trains, metros and similar means of transport use high power devices and a lot of regulating electronic circuitry. Eventually, high electrical and magnetic fields are generated inside the passenger compartments, in the locomotive and along the railways when the train passes.
The PMM 8053A offers a simple and portable measurement system to collect data and enter associated report text, to describe the location where the data has been gathered. Back in the office, the information can be easily downloaded into any PC to produce a nice and complete test report. Thanks to the Spectrum analysis capability offered by EHP-50A sensor, you can discriminate the 16,66 Hz of the train or 50/60 Hz generated by the mains power line.

WHILE TRAVELLING

While driving along the roads it is possible to pass under power distribution lines, close to broadcasting towers or through tunnels where RF repeaters operate. All these sources can generate very high electromagnetic fields at levels which could be unsafe for the body or potentially interfering with the on board electronic.

PMM SOLUTION

The PMM 8053A is the perfect solution for monitoring electric and magnetic fields everywhere: outdoors, at the workplace or at home.



POWER LINE MAGNETIC FIELDS

Whenever a current flows, a magnetic field is generated. For instance, electric appliances, tools, machineries and power line transformers produce magnetic fields at power line frequency (50 or 60 Hz). With the unique PMM 8053A magnetic sensor the measure of these fields - doesn't matter if they are very low or very high - becomes easy, fast and precise.

CELLULAR PHONES

Communications using cellular phones is becoming more and more popular. The ability to be reached everywhere at any time is highly convenient but not without some risks.
Measurements are quick and easy with the new PMM 8053A.

BROADCAST AND TELECOM TRANSMITTERS

Nowadays, public and private broadcasting and telecom stations cover virtually every single piece of land over all territories. Unless they are protected, all these transmitting stations can be a potential danger for those leaving nearby or who are involved with their service and maintenance. Thanks to its light weight and acoustic alarm feature the PMM 8053A can be used to monitor these electromagnetic fields against exceeding safety thresholds.

PMM GLOBAL PARTNER

ISO 9001 certification and SIT calibrations offer a reliable, easy to use and accurate instruments.

HOSPITALS

Hospitals and surgeries are a very delicate environment for our care and health and need to be carefully protected. The latest electronic medical devices are highly sensitive to electromagnetic fields and patients need to be defended against any accidental electromagnetic risk. The PMM 8053A provides a continuous monitoring system and alarm for your peace of mind.

PMM 8053A - POWERFUL, LIGHT AND EASY TO USE

PMM is an official certified calibration lab (SIT 08) within the Italian Calibration Scheme (SIT)

The PMM laboratory, traceable to Italian Metrological Institute, features high performance equipment to deliver test certificates with the highest confidence in the results of the calibrations.
The use of automatic calibration procedures allows PMM to calibrate the field sensors in a minimum time, giving precise and low calibration cost with a fast turnaround time.

The PMM 8053A is a state of the art instrument.
Thanks to its powerful microprocessor and large graphic display it achieves high performances combined with small dimensions and simplicity of use.
The internal architecture uses three high density circuit boards which are easy to replace and repair.
The internal firmware is loaded through a PC and can be easily updated by downloading the newest release via Internet from the PMM WebSite.

PMM 8053A MAIN FEATURES	BENEFITS
• Three axis probes	• Precise measurements
• Automatic antenna diodes checking	• High confidence of correct operation
• Internal Calibration data	• Greatest accuracy
• Low frequency filters	• Highly reliable measurements
• Large graphic LCD display (7x7 cm)	• Plenty of data available simultaneously
• Dynamic range >100 dB	• High resolution
• Arithmetic, Quadratic and Spatial averaging (30s, 1, 2, 3, 6, 10, 12, 30 min. etc.)	• Field data can be evaluated by different types of user for different applications
• Analog indication (lin & log scale)	• Accurate perception of fluctuating field levels
• Alphanumeric keyboard	• Entering of information about data and location report
• Fiber optic output	• Operations interference free and with higher user safety
• Acoustic and display blinking alarm	• Personal safety operation
• Labelled and partitioned internal memory (32.700 readings)	• Easy to save different data with comments and setups according to location where data are gathered
• Acquisition software	• Easy way to manipulate data and generate reports
• Battery status	• Minimum troubles with battery
• Optical repeater	• Long data acquisition
• Programmable auto-off	• Battery saving
• One year warranty	• Low maintenance cost

PMM EP-330
Three axis Isotropic probe
with internal E²PROM
storing all calibration data

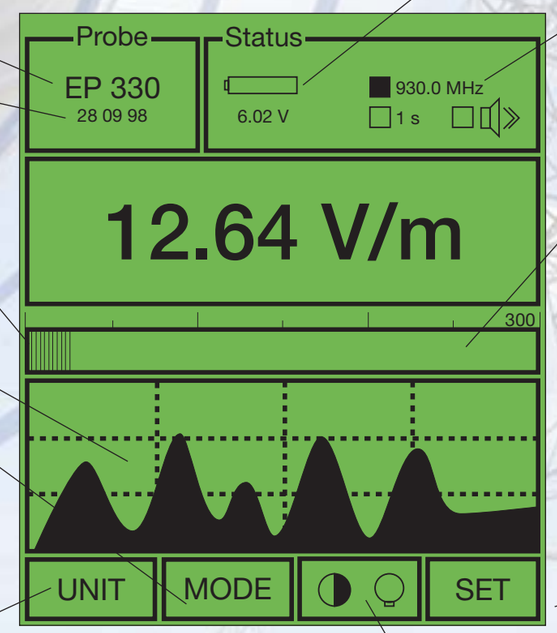
Convenient alphanumeric keyboard

Tripod connection

Battery charger input.
Any DC from 10 to 15 VDC

Fiber optic input/output for additional sensor probes

Two RS232 interfaces (wire and optical)



Battery status

Correction factor frequency

Probe used

Date of calibration

Linear or logarithmic analog indication

Alarm threshold

Three axis in absolute or relative values

Selection of modes:
- Average
- Spatial
- PC transfer
- Autocheck
- Comment
- Graph

Additional features

Units selection

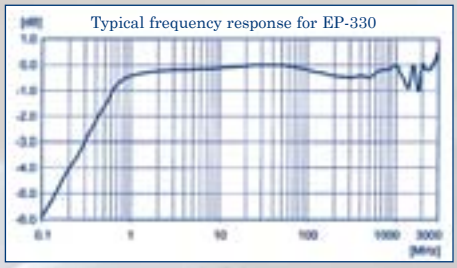
Contrast control

PMM EP-330
ELECTRIC FIELD PROBE

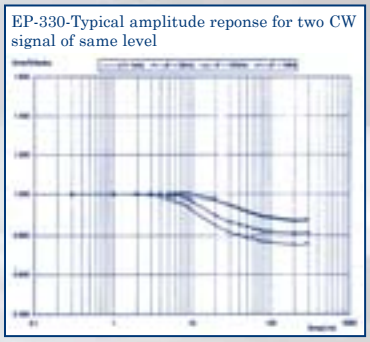
Technical specifications

Frequency range	100 kHz - 3 GHz
Level range	0,3 to 300 V/m
Overload	> 600 V/m
Dynamic range	> 60 dB
Resolution	0,01 V/m
Sensitivity	0,3 V/m
Absolute error @ 50 MHz and 20 V/m	± 0,8 dB
Flatness (10 to 300 MHz)	± 0,5 dB
Flatness (0,3 to 3 GHz)	± 1,5 dB
Isotropicity	± 1 dB
Temperature error	0,05 dB/°C
H-field rejection	> 20 dB
Calibration	internal into E²PROM
Size	317 mm length, 58 mm ø
Weight	100 g

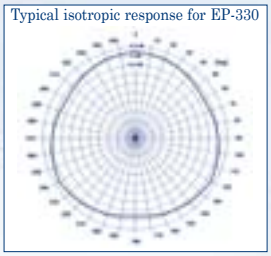
Typical frequency response for EP-330



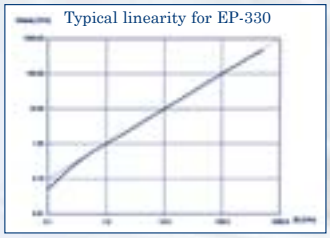
EP-330-Typical amplitude reponse for two CW signal of same level



Typical isotropic response for EP-330

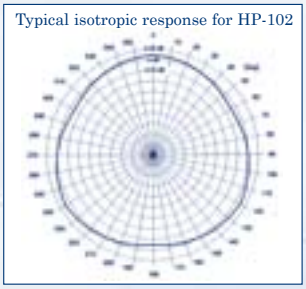


Typical linearity for EP-330



PMM HP-102
MAGNETIC FIELD PROBE

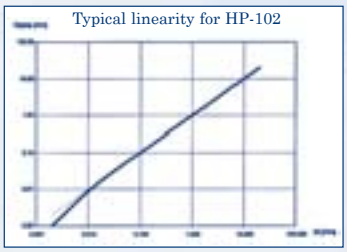
Typical isotropic response for HP-102



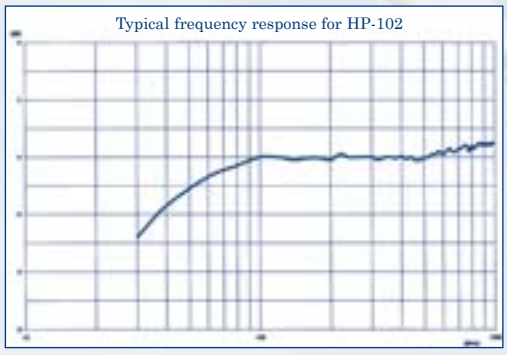
Technical specifications

Frequency range	30 - 1000 MHz
Level range	0,01 to 20 A/m
Overload	> 40 A/m
Dynamic range	> 60 dB
Resolution	1 mA/m
Sensitivity	0,01 A/m
Absolute error @ 100 MHz and 2 A/m	± 1 dB
Flatness (50 to 900 MHz)	± 1 dB
Isotropicity	± 1 dB
E-field rejection	> 20 dB
Calibration	internal into E²PROM
Temperature error	0,05 dB/°C
Size	317 mm length, 58 mm ø
Weight	110 g

Typical linearity for HP-102



Typical frequency response for HP-102

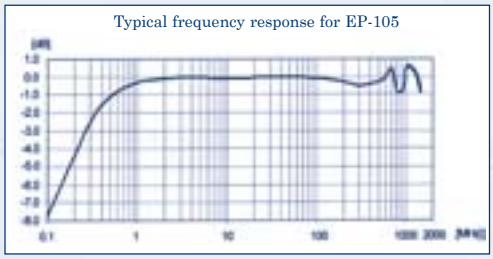


PMM EP-105
ELECTRIC FIELD PROBE

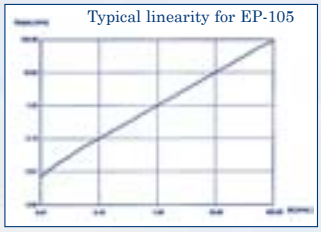
Technical specifications

Frequency range	100 kHz - 1000 MHz
Level range	0,05 - 50 V/m
Overload	> 100 V/m
Dynamic range	> 60 dB
Resolution	0,01 V/m
Sensitivity	0,05 V/m
Absolute error @ 50 MHz and 6/Vm	± 0,8 dB
Flatness (10 to 300 MHz)	± 0,5 dB
Flatness (0,3 - 1 GHz)	± 1 dB
Isotropicity	± 1 dB
H-field rejection	> 20 dB
Calibration	internal into E²PROM
Temperature error	0,05 dB/°C
Size	350 mm length, 133 mm ø
Weight	290 g

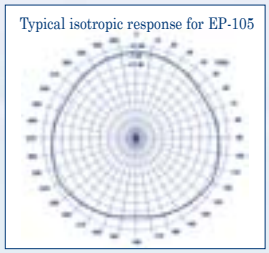
Typical frequency response for EP-105



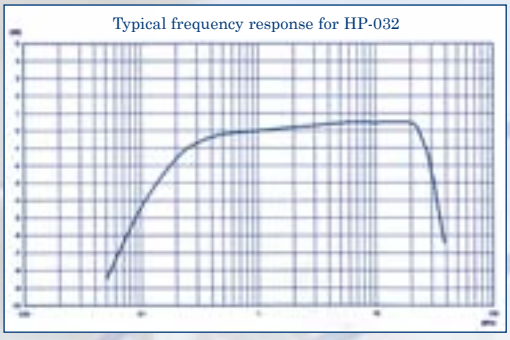
Typical linearity for EP-105



Typical isotropic response for EP-105



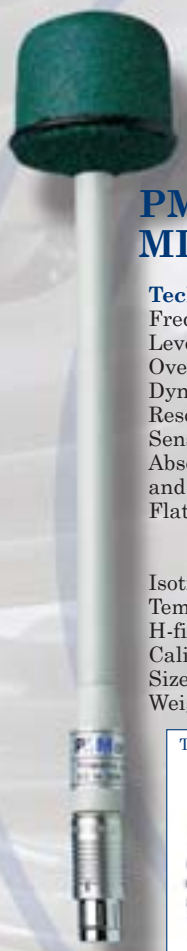
Typical frequency response for HP-032



PMM HP-032
MAGNETIC FIELD PROBE

Technical specifications

Frequency range	0,1 - 30 MHz
Level range	0,01 to 20 A/m
Overload	> 40 A/m
Dynamic range	> 60 dB
Resolution	1 mA/m
Sensitivity	0,01 A/m
Absolute error @ 1 MHz and 2 A/m	± 1 dB
Flatness (1 to 25 MHz)	± 1 dB
Isotropicity	± 1 dB
E-field rejection	> 20 dB
Calibration	internal into E²PROM
Temperature error	0,05 dB/°C
Size	350 mm length, 133 mm ø
Weight	400 g

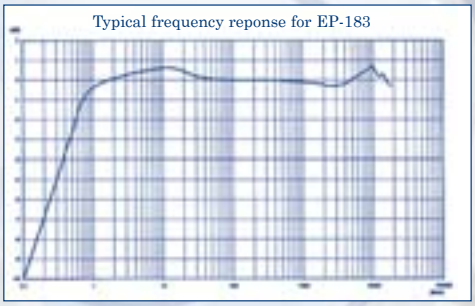


PMM EP-183
MICROWAVE ELECTRIC PROBE

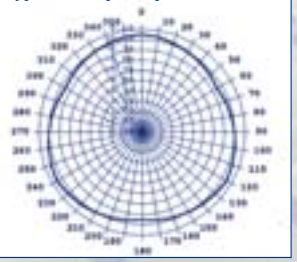
Technical specifications

Frequency range	1 MHz - 18 GHz
Level range	0,8 to 800 V/m
Overload	> 1200 V/m
Dynamic range	60 dB
Resolution	0,01 V/m
Sensitivity	0,8 V/m
Absolute error @ 200 MHz and 6 V/m	± 0,8 dB
Flatness (1MHz to 1 GHz)	± 1,5 dB
(1GHz to 3 GHz)	± 2,0 dB
(3GHz to 18 GHz)	± 2,5 dB
Isotropicity at 200 MHz	± 1 dB
Temperature error	0,02 dB/°C
H-field rejection	> 20 dB
Calibration	internal into E²PROM
Size	317 mm length, 50 mm ø
Weight	90 g

Typical frequency reponse for EP-183

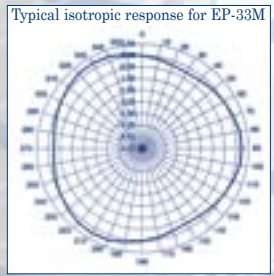


Typical isotropic response for EP-183

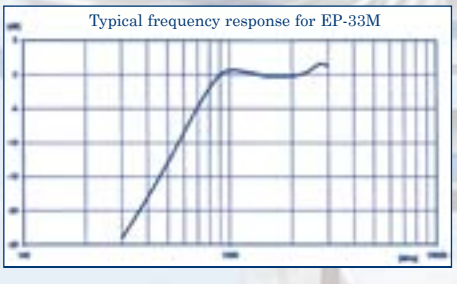


All probes can be mounted directely to PMM 8053 or via fiber optic using the optical repeater OR-02/OR-03

Typical isotropic response for EP-33M



Typical frequency response for EP-33M

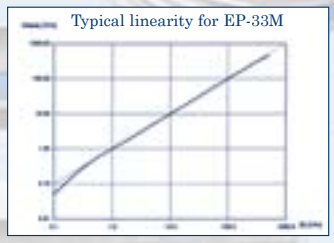


PMM EP-33M
ELECTRIC FIELD PROBE

Technical specifications

Frequency range	700 MHz - 3 GHz
Level range	0,3 to 300 V/m
Overload	> 600 V/m
Dynamic range	> 60 dB
Resolution	0,01 V/m
Sensitivity	0,3 V/m
Absolute error @ 930 MHz and 20 V/m	± 1 dB
Flatness (900 MHz to 3 GHz)	± 1,5 dB
Isotropicity @ 930 MHz	± 1 dB
Temperature error	0,05 dB/°C
H-field rejection	> 20 dB
Calibration	internal into E²PROM
Size	317 mm length, 58 mm ø
Weight	100 g

Typical linearity for EP-33M

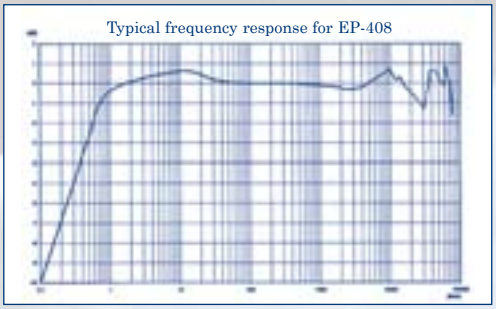


PMM EP-408
ELECTRIC FIELD PROBE

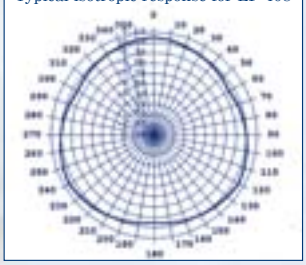
Technical Specifications

Frequency range	1 MHz - 40 GHz
Level range	0,8 to 800 V/m
Overload	> 1000 V/m
Dynamic range	60 dB
Resolution	0,01 V/m
Sensitivity	0,8 V/m
Absolute error @ 200 MHz and 6 V/m	± 0,8 dB
Flatness (1MHz to 1 GHz)	± 1,5 dB
(1GHz to 3 GHz)	± 2,0 dB
(3 GHz - 18 GHz)	± 2,5 dB
(18 - 26,5 GHz)	± 3 dB
(26,5 - 40 GHz)	± 4 dB
Isotropicity @ 200 MHz	± 1 dB
Temperature error	0,02 dB/°C
H-field rejection	> 20 dB
Calibration	internal into E²PROM
Size	317 mm length, 52 mm ø
Weight	90 g

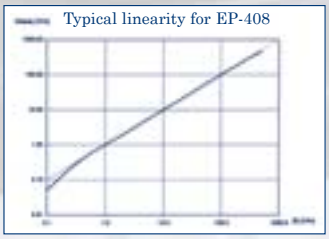
Typical frequency response for EP-408



Typical isotropic response for EP-408



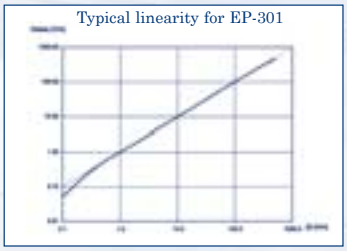
Typical linearity for EP-408



PMM EP-301
ELECTRIC FIELD PROBE

Typical isotropic response for EP-301

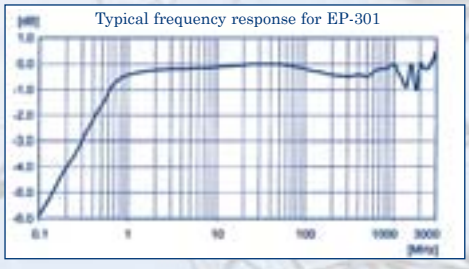
Typical linearity for EP-301



Technical Specifications

Frequency range	100 kHz - 3 GHz
Level range	1 to 1000 V/m
Overload	> 1200 V/m
Dynamic range	> 60 dB
Resolution	0,1 V/m
Sensitivity	1 V/m
Absolute error @ 50 MHz and 20 V/m	± 0,8 dB
Flatness (10 to 300 MHz)	± 0,5 dB
Flatness (0,3 to 3 GHz)	± 1,5 dB
Isotropicity	± 1 dB
Temperature error	0,05 dB/°C
H-field rejection	> 20 dB
Calibration	internal into E²PROM
Size	317 mm length, 58 mm ø
Weight	100 g

Typical frequency response for EP-301

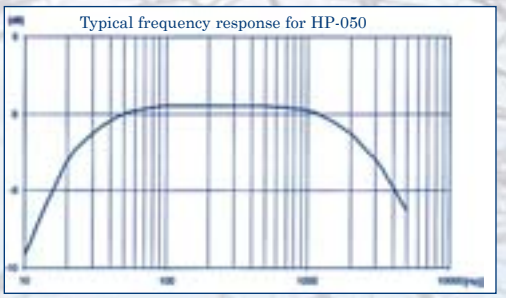


PMM HP-050
MAGNETIC FIELD PROBE

Technical specifications

Frequency range	10 Hz - 5 kHz
Level range	10 nT - 40 µT
Overload	400 µT
Dynamic range	> 72 dB
Resolution	1 nT
Sensitivity	10 nT
Absolute error @ 50 Hz 200 nT 25 °C	± 0,4 dB
Flatness (40 Hz to 1 kHz)	± 1 dB
Isotropicity @ 50 Hz 200 nT	± 0,3 dB
Temperature error	0,015 dB/°C
E-field rejection	> 20 dB
Calibration	internal into E²PROM
Size	350 mm length, 133 mm ø
Weight	400 g

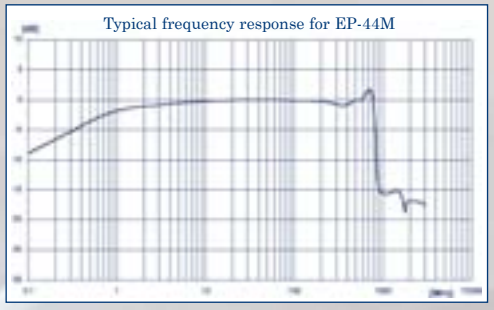
Typical frequency response for HP-050

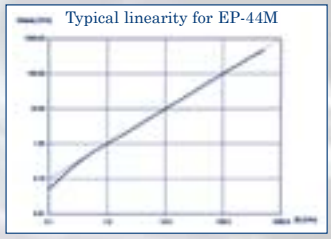


PMM EP-44M
ELECTRIC FIELD PROBE

Technical specifications

Frequency range	100 kHz - 800 MHz
Level range	0,25 - 250 V/m
Overload	> 500 V/m
Dynamic range	> 60 dB
Resolution	0,01 V/m
Sensitivity	0,25 V/m
Absolute error @ 50 MHz and 6 V/m	± 0,8 dB
Flatness	
(10 MHz to 200 MHz)	± 1,5 dB (typical ± 0,8 dB)
(200 MHz to 800 MHz)	± 2,0 dB (typical ± 1,5 dB)
Isotropicity @ 50 MHz and 6 V/m	± 0,5 dB
Out band attenuation respect to 50 MHz - 900 MHz - 3 GHz	> 12 dB (typical > 15 dB)
Temperature error	0,02 dB/°C
H-field rejection	> 20 dB
Calibration	internal into E²PROM
Size	317 mm length, 58 mm ø
Weight	100 g





PMM OR-03
PROGRAMMABLE OPTICAL REPEATER

The PMM OR-03 is a programmable optical repeater that allows the connection of every 8053A probe (electric and magnetic fields) to the user's Personal Computer via an optical fiber cable. The OR-03 is an easy programmable device mainly designed for EMC applications together with the SW-03 or WIN-OR-03 software or with a software developed directly by the user.

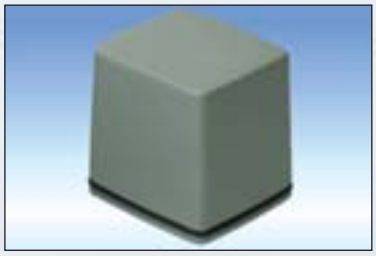
Technical specifications

Output	connector for optic fiber (maximum length of optic fiber, 80 m)
Input	fischer connector for PMM probes
Data output	X, Y, Z axis and total field; probe model and calibration date; frequency correction value; battery voltage and filter used
Compatibility	with all PMM 8053A probes and SB-04
Programmability	all functions are programmable
Internal battery	rechargeable NiMH batteries (5 x 1,2 V)
Operating time	> 48 - 72 hours (depends on the filter chosen) 10 Hz filter > 72 hours 20 Hz filter > 61 hours 40 Hz filter > 53 hours 80 Hz filter > 48 hours
Recharging time	< 4 hours
External power supply	DC, 10 - 15 V, I = around 300 mA
Self testing	automatic function checks during switch-on; automatic connection check of the instrument; automatic check of each individual sensor diode

Operating temperature	from -10 to +40°C
Storing temperature	from -20 to +70°C
Dimensions	130 mm x 55 mm ø
Weight	270 g

Standard accessories included

Battery charger	8053-BC
Plug international adapter	
Optical adapter RS232	8053-OC
Optical fiber cable (10 m)	FO-8053/10
Conical Tripod support	
Software diskette	WINOR03



PMM 8053-GPS
AUTOMATIC GLOBAL POSITIONING SYSTEM

PMM 8053-GPS is an Optional Accessory for the PMM 8053A system or SB-04 that enables the co-ordinates of the positions where measurements are taken to be shown on the display of the PMM 8053A meter or acquired by SB-04 into the PC. It is especially useful in mapping a field over an area as the user can accurately assign the position of each measurement taken. When the system is mobile, at a speed exceeding 3 km an hour, the speed of movement and the direction in degrees (compass function) are also available. PMM 8053-GPS can be used with the PMM SW02 Data Acquisition Software and with the SB-04 Switching Control Box, in which case the program displays further accessory data relating to the satellites of the GPS system, useful for verifying the location of antennas.

PMM 8053-GPS General specifications

Control Software	Internal within the PMM 8053A (from Version 2.08) or the PMM SW02 (from Version 1.40)	
	SA On, PDOP =2.5	**SA Off, PDOP < 2.5**
Precision of Horizontal indication	100 m	< 23 m
Precision of Vertical indication	56 m	< 23 m
Precision of Time indication	340 ns	< 340 ns
Simultaneously managed satellites	8 in view	
Resolution	1" time and 0.01" of ° lat/.long (corresp. to abt 0.3m/lat and 0.2m/lon)	
Internal battery	rechargeable NiMH batteries (5 x 1.2 V)	
Operating time	> 12 hours	
Recharging time	< 4 hours	
External DC supply	DC, 10 - 15 V, I = about 400 mA	
Fiber optic connection	up to 40 meters	
Firmware update	update available through the serial port	
Autocheck	automatically when switched on	
Operational temperature	-10 to +40°C	
Storage temperature	-20 to +70°C	
Size (WxHxD)	100 mm x 100 mm x 115mm	
Weight	700 g	
Differential GPS	DARC BTA R003 Standard RTCM SC 104 Ver. 2.1	
Geodetic System	WGS-84	

Standard Accessories included

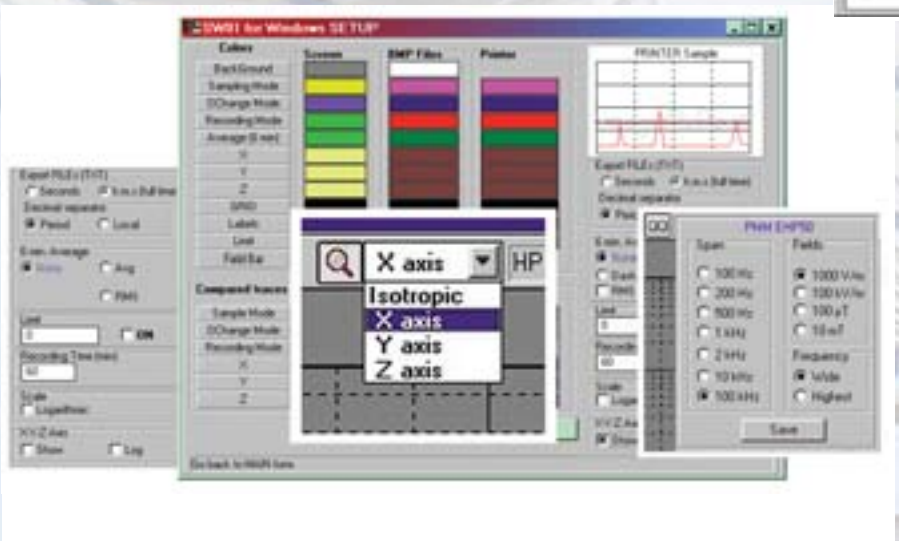
- FO-8053/10 Fiber optic cable (10m)
- 8053-BC Battery charger
- International power supply adapter

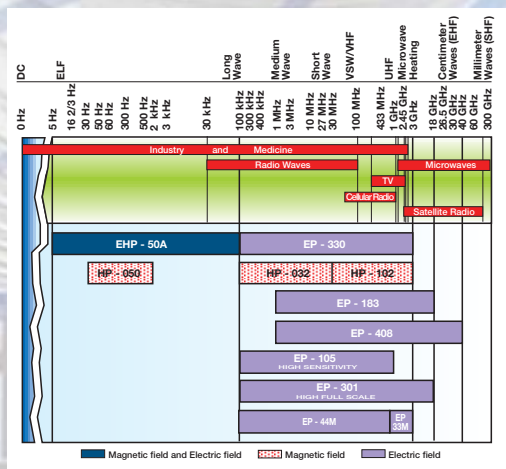
PMM 8053-SW02 - DATA ACQUISITION SOFTWARE

PMM SW02 Software is a computer tool that enhances 8053A system. By means of a simple interface between the meter and the PC and software, based on the Windows™ (95/98) Operating System when using 8053A only or 95/98/NT/2000 when using SB-04, SW02 software broadens the flexibility of use of 8053A by facilitating the acquisition, storage, and graphic and numeric display of the data collected.

Basic functions

- It acquires the readings taken with PMM 8053A or with SB-04 and records the data at sampling intervals of one second for the time duration defined by the user.
- It permits the readings that have been taken to be saved, at the same time, as both an envelope and as an individual data and, later on, to be retrieved and analysed.
- It permits the data of the measurements stored in the Logger of PMM 8053A to be downloaded and saved in files and be displayed graphically.
- It makes a graphic representation of the envelope of the stored and/or saved readings, permitting moment by moment analysis of values with the aid of a marker.
- It permits the measured values to be compared with the limits imposed by the user.
- It permits the readings in progress to be graphically and numerically displayed in real time.
- The files saved on disk, relating to the measurements taken, are recorded with the date and time of measurement and any other useful reference information added by the user, enabling a measurement database to be created very easily. Furthermore, they lend themselves to additional processing with other external programs or spreadsheets, such as Excel™ etc.
- A simple user interface based on the Windows™ Operating System makes its use intuitive and user-friendly.
- The connection between the field meter and the computer via serial cable (used for the connection with 8053A or SB-04) or via fiber optics (only when using 8053A or OR03), guarantees maximum security and flexibility in link-up in all operating conditions.





PMM EHP-50A
ELECTRIC AND MAGNETIC FIELD ANALYZER

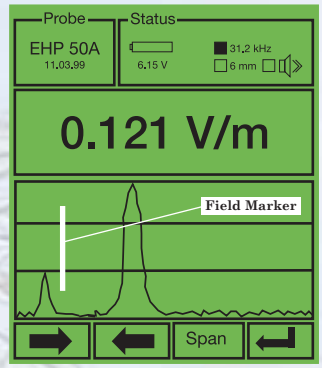
Technical specifications

	Electric field	Magnetic field
Frequency range	5 Hz – 100 kHz	
Level range	0,1 V/m – 100 kV/m	10 nT – 10 mT
Overload	200 kV/m	20 mT
Dynamic	> 120 dB	
Resolution	0,01 V/m	1 nT
Sensitivity	0,1 V/m	10 nT
Absolute error	± 0,8 dB (@ 50 Hz and 1 kV/m)	± 0,8 dB (@ 50 Hz and 0,1 mT)
Flatness (40 Hz – 10 kHz)	± 0,5 dB	± 0,5 dB
Isotropicity	± 1 dB	
SPAN	100Hz, 200Hz, 500Hz, 1 kHz, 2kHz, 10kHz, 100kHz	
Start frequency	1.2% of the SPAN	
Stop frequency	Same as the SPAN	
Firmware update	Via Internet	
Electric field rejection	---	> 20 dB
Magnetic field rejection	> 20 dB	---
Calibration	Internal E²PROM	
Temperature error	0,05 dB/°C	
Battery operation	See table	
Size	96 x 96 x 115 mm	
Weight	780 g	

The PMM EHP-50A is a low frequency electric and magnetic isotropic field probe-analyzer, providing a high technology solution for field measurements from few V/m or nT to thousands of V/m or mT, in the 5 Hz to 100 kHz range on X, Y and Z axis.
The PMM EHP-50A includes an E²PROM, holding the calibration data, the frequency and level calibration tables, and an internal optical repeater that allows connecting the PMM 8053A field meter through a fiber optic. Connecting the EHP-50A probe to the PMM 8053A field meter, or SB-04 switching box, it is possible to select the type of field to be measured, and the bandwidth between wide and selective mode or see the spectrum of the signals.
The spectral analysis is obtained by mean of a powerful DSP (Digital Signal Processor), it is performed on seven different span values and displayed on the PMM 8053A field meter display; by using a Marker it is possible to measure every spectrum components.

The field meter menu allows different test modes:
- **Highest** to acquire only the highest signal within the selected Span
- **Wideband** to acquire all signals
- Electric field
- Magnetic field

The EHP-50A probe allows the selection of seven different spectrum span ranges, when connected to the PMM 8053A field meter or SB-04.
With such feature you can decide to acquire 50/60 Hz only or to avoid the influence of mains power contribution selecting higher span.



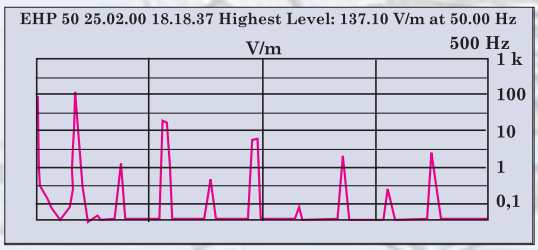
Marker frequency

When storing the data into 8053A, PMM EHP-50A has two modes of operations. In the normal mode the sensor EHP-50A transfer to the Data logger the highest value that happens between two time logging intervals; in Low Power mode (Def LP), you collect the actual field value each time you store the data.

SPAN	Battery operation time in Normal mode (hours)	Time that EHP-50A is ON (in sec.)	Battery operation time with Data logger set at 60 sec in Low Power mode (hours)	Battery operation time with Data logger set at 300 sec in Low Power mode (hours)
100 Hz	>11	25	>24	>72
200 Hz	>11	15	>36	>110
500 Hz	>10	8	>48	>130
1 kHz	>10	5	>72	>150
2 kHz	>9	5	>65	>150
10 kHz	>6	5	>60	>130
100 kHz	>9	4.5	>72	>150

In SPECT mode, the EHP-50A shows all frequencies' components within the selected SPAN. With the Marker function you can measure the frequency and the associated amplitude of each individual component.
The Spectrum can be saved into 8053A and transferred to the PC in BMP format later on.

Spectral analysis displayed on a Personal Computer



Included accessories		Optional accessories	
Fiber optic cable (10 m)	FO-8053/10	Fiber optic cable (20 m)	FO-8053/20
Battery charger	8053-BC	Fiber optic cable (40 m)	FO-8053/40
Operating Manual		Tripod stand	TR-02A
Rod Support		Automatic Switching box	SB-04
		Optical converter	8053-OC

PMM SB-04
SWITCHING CONTROL BOX

Technical Specifications

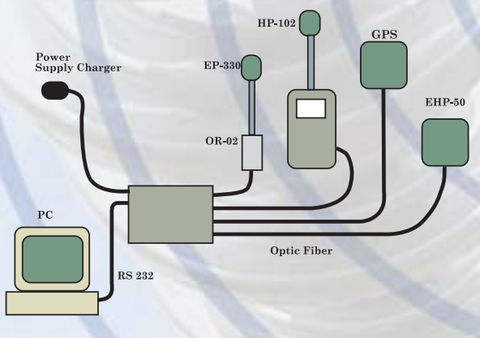
Compatibility	With all 8053A sensors via OR-02 optical repeater or directly (when sensor has its own internal optical repeater)
Input	4 fiber optical connector
Interfaces	RS232 for PC connection and one expansion connection
Internal battery	Rechargeable NiMH batteries (5x1.2 V)
Operating time	> 10 hours
Recharging time	< 12 hours
External DC supply	DC, 10 – 15 V, I= about 200 mA
Optic Fiber connection	Up to 80 m long
Internal Firmware update	Customer upgrade available via serial connection
Self test	Automatic during switching-on operation
Conformity	To directive 89/336 and 72/23 and amendments
Operating temperature	-10 to +40°C
Storage temperature	-20 to +70°C
Size	25 x 148 x 220 mm
Weight	900 g

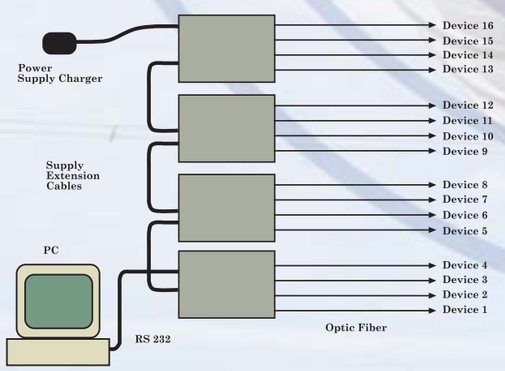
The PMM SB-04 Switching Control Box is a versatile and expandable accessory to monitor, simultaneously, electric and magnetic fields from 5 Hz up to 40 GHz. Thanks to GPS option, you can also measure the position of your system. Either PMM 8053A or all its field probes equipped with the optical repeater OR-02, and EHP-50A analyzer are supported.
PMM SB-04 allows to take field measurements with up to 16 measuring devices connected at the same time, either placed in different measuring points and/or working on different frequency and full scale ranges. Two internal microcontrollers superintend to all operations interfacing the measured data with the PMM SW-02 software, running on a single user's PC. One PMM SB-04 allows to connect up to four devices via optical fiber to the PC by a single RS232 interface.

Included accessories

RS232 serial cable with 9/25 pin adapter
SB-04 to SB-04 expansion cable
Battery charger
Operating manual
Certificate of compliance
Software

Here you can find some examples of SB-04 interconnection:





OPTIONAL ACCESSORIES

A wide range of accessories is available to help the user to perform accurate and reliable measurement.

OR-02 OPTICAL REPEATER

The optical repeater allows the user to acquire data far away from the measured fiedl in order to avoid the error caused by human presence close to the sensor.

Output	fiber optic connector (Max length 80 m)
Input	direct through probe Fischer connector;
Compatibility	with all 8053A sensors;
Internal battery	rechargeable NiMH batteries (5 x 1.2 V)
Operating time	48 to 72 hours (depending on sampling)
Recharging time	< 4 hours
Ext. DC supply	DC, 10 - 15 V, 300 mA
Thread	1/4" x 20 for mouning on tripod
Self test	automatic during switch-on of all function. Automatic connection check. Automatic check of each individual diode
Operating temp.	-10 to +40°C
Storage temp.	-20 to +70°C
Size	130 mm x 55 mm ø
Weight	270 g
Accessories	battery charger, 10 m fiber optic included

TR-02A TRIPOD

Wooden tripod with swivel and soft carrying case
Height adjustable from 1 to 2 m.
Thread: 1/4" x 20
Size: 1 m (closed)
Weight: 3 kg

FO-8053 FIBER OPTIC

To increase the quality of the measurement and to avoid the influence of the operator, it is possible to connect the sensor to the PMM 8053A via a fiber optic using the dedicated optical repeater OR-02. The same fiber is used to connect the PMM 8053A to the PC equipped with optical to serial converter 8053-OC.
Four sizes of fiber optics are available:
FO-8053/10: 10 m - FO-8053/20: 20 m
FO-8053/40: 40 m - FO-8053/80: 80 m

TT-01 TELESCOPIC SUPPORT

Fiberglas telescopic support for holding sensors or optical repeater expandable from 1,15 to 4 m.
Size: 1,15 m (closed)
Weight: 0,6 kg

8053-CC RIGID CARRYING CASE

This alluminium case has been designed to carry 8053A with few probes and accessories.
Size: 500 x 400 x 170 mm

8053-CAL CALIBRATOR

This device, powered by 8053A, is useful to test the functionality of 8053A's X, Y, Z input.
Readout on 8053A: 57,7 V/m
Accuracy: +/- 2%

8053-TR REMOTE TRIGGER

This device is used to remote trigger the 8053A. At each contact closure, 8053A takes and store a reading. It is useful together with the metric wheel to associate a spatial position to a field.

8053-OC RS232 OPTICAL CONVERTER

This device allows to translate the light coming out from the fiber into a RS232 signal for PC.

PMM 8053A
GENERAL PURPOSE FIELD METER

(see specific probes for dedicated specs.)

Frequency Range

Frequency range	5 Hz – 40 GHz
Dynamic range	> 120 dB (depending on sensor)
Operating range	E-Field: 0,03 V/m to 100 kV/m H-Field: 10 nT to 10 mT
Resolution	0,01 to 100 V/m; 0,1 nT to 0,1 mT
Sensitivity	0,1 to 1 V/m; 10 nT to 0,1 mT
Units	V/m, kV/m, μW/cm², mW/cm², W/m², A/m, nT, μT, mT

LCD Display Function

Field measured	X, Y, Z in absolute values or % and total are displayed
Time & Date	Internal real time clock
Sensor type	Model and calibration date are shown
Graphic bar	An analog sliding bar (either linear or logarithmic) will show: - real time value respect the sensor full scale - field versus time with automatic time scaling - alarm threshold

Measuring Function

Measuring time	150 msec with 80 Hz filter 250 msec with 40 Hz filter 450 msec with 20 Hz filter 900 msec with 10 Hz filter
Internal memory	Up to 32.700 measurements (8.100 standard memory, 21.600 extended memory)
Alarm	Variable threshold 0 to 100% full scale. Internal sound and blinking symbol on the display when the level is greater than the alarm threshold
Function	Max., Min., Averaging
Averaging Mode	Arithmetic, quadratic (RMS), manual, rolling average and spatial over
Averaging time	Definable from 30 sec, 1, 2, 3, 6, 10, 15, 30 min
Data Acquisition (Logger)	**Sampling** mode (1, 10÷900 sec/sample) **Data change** mode (+/- 3 dB variation) **Over the limit** mode **Average on 6 min** (1 or 6 min resolution) **Manual** mode **Spectrum** mode with EHP-50A

General Specifications

Output	LCD display 72 x 72 mm 128 x 128 pixel, RS232 or fiber optic
Input	Direct through Fischer connector or via fiber optic connector
Internal battery	Rechargeable NiMH batteries (5 x 1,2 V)
Operating time	> 20 hours in normal mode; > 40 hours in save mode (display off)
Recharging time	< 4 hours (15 minutes charge = 1 hour operation)
External DC supply	DC, 10 - 15 V, 500 mA
Software update	Free; via Internet
Interface	RS232 for remote operation calibration and firmware update
Selftest	Automatic during switch-on of all functions. Automatic check of each individual diode
Calibration	Inside the built-in E² PROM of the sensor
Conformity	To Directive 89/336 and 73/23 and amendments, etc.
Operating temperature	-10 to +40°C
Storage temperature	-20 to +70°C
Dimensions (WxHxD)	108 x 240 x 50 mm
Weight	1,07 kg

Standard Accessories Included with 8053A

8053-SC	Soft carrying case
8053-BC	Battery charger
8053-RS232	Serial cable (1,5 m)
8053-SW01	Downloading software
8053-8000	Manual (Italian or English)

Optional Accessories

EP-330	Electric field 100 kHz - 3 GHz
EP-301	Electric field 100 kHz - 3 GHz
EP-33M	Electric field 700 MHz - 3 GHz
EP-44M	Electric field 100 kHz - 800 MHz
EP-105	Electric field 100 kHz - 1 GHz
EP-183	Electric field 1 MHz - 18 GHz
EP-408	Electric field 1 MHz - 40 GHz
HP-032	Magnetic field 100 kHz - 30 MHz
HP-102	Magnetic field 30 MHz - 1 GHz
EHP-50A	Electric & Magnetic 5 Hz -100 kHz
HP-050	Magnetic field 10 Hz - 5 kHz
8053-GPS	GPS module
SB-04	Automatic switching Box
8053-RT	Remote trigger
8053-CAL	Calibrator for 8053A
FO-8053/10	Fiber optic cable (10 m)
FO-8053/20	Fiber optic cable (20 m)
FO-8053/40	Fiber optic cable (40 m)
FO-8053/80	Fiber optic cable (80 m)
8053-SW02	Acquisition software
TR-02A	Tripod
8053-CC	Rigid carrying case
8053-CA	Car adapter
TT-01	Telescopic support
OR-02	Optical repeater
OR-03	Programmable optical repeater
8053-OC	RS232 optical converter

PMM
COMPETENT BODY

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