

PMM



- ▶ Continuously monitors and stores the levels of Electromagnetic fields
- ▶ Up to four simultaneous bands: GSM 900 / 1800 MHz / UMTS / Broadband 100 kHz – 3 GHz
- ▶ Magnetic fields monitoring from 10 Hz to 5 kHz
- ▶ Automatic & manual data download to PC base station by internal GSM modem
- ▶ Cost-effective, error-free communication
- ▶ Sends warning and alarm messages to PC and mobile phones
- ▶ Small, lightweight, weatherproof
- ▶ Traceable calibration

APPLICATIONS

The Area Monitor PMM 8057 offers the ultimate, reliable, accurate solution for the remote and continuous monitoring and logging of electric (E) and magnetic (H) fields generated by low and high frequency sources like TV, GSM, UMTS, broadcast, high-voltage lines etc., in order to assess the long-term population exposition to potentially hazardous Electromagnetic Fields (EMF).

Several 8057 Area Monitors connected to the base station through the GSM network can be used to build reliable monitoring systems to cover large, even Nationwide geographical areas.

Get updated by SMS: The Area Monitor PMM 8057 can automatically send SMS reporting the daily maximum field to two mobile phones.

Easy to install: The Area Monitor PMM 8057 is weatherproof, lightweight (< 3 kg) and can be installed easily outdoor or indoor by means of the specially designed pole and base.

No external power supply: thanks to its exceptionally low power consumption, the 8057 does not require any external power supply, and can provide unlimited, maintenance-free operation.

The 8057 is available with two power supply options:

- solar panel and internal rechargeable battery, for unlimited operation
- internal Li-Ion disposable battery, up to one year operation

All-in-one concept: one single, small-size housing (60 mm dia. x 780 mm length) includes:

- ◆ a **high-sensitivity probe** which measures the EMF on three axis (isotropic)
- ◆ a **sophisticated data logger** which stores in its non-volatile memory the measured values, the events (alarms, communications) and the settings
- ◆ a **dual-band GSM modem** (according to the version)

Warning & Alarms: trespassing preset thresholds, tampering or failure events are displayed on the PC Base Station as well as on the users' mobile phone by SMS messages.

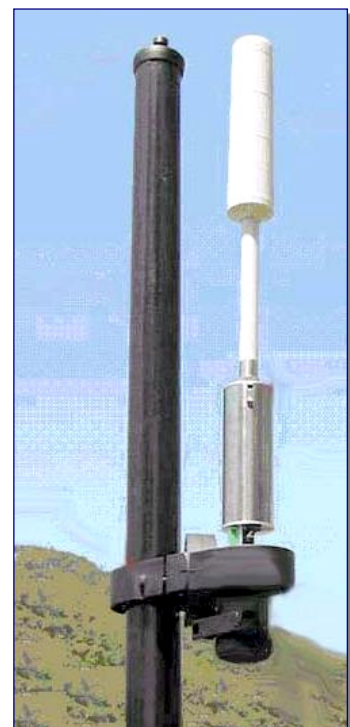
Remote control: The PC Software allows programming all parameters and to upload on PC the data stored in the 8057 Area Monitor. Data can be displayed as graphics or tables, and exported in standard ASCII format.



Area Monitor with solar panel



With Li-Ion disposable battery



Internal view

THREE-AXIS ISOTROPIC PROBES

UNIQUE FEATURES:

- Exceptional isotropy for correct spatial measurements
- Exceptional flatness
- Simultaneous measurement of all axis / bands
- Self-check
- Internal Analog to Digital conversion
- Digital output signals for maximum reliability
- Calibration factors stored in the internal E²prom
- Internal temperature sensor



Length 450 mm, diameter 55 mm; 180g

ELECTRIC FIELD, BROADBAND PROBE MODEL EP-1B-01

Frequency range	0,1 – 3000 MHz
Reading range	0,2 – 200 V/m
Overload	600 V/m
Dynamic range	> 60 dB
Resolution	0,01 V/m
Sensitivity	0,2 V/m
Typical accuracy @ 6V/m	± 0,8 @ 50 MHz
Flatness @ 20V/m	1 – 200 MHz ±0,8 dB 150 kHz - 3 GHz ±1,5 dB
Anisotropy @ 6V/m	± 0,8 dB @ 50 MHz (typical 0,6 dB)
Rejection to magnetic fields	> 20 dB
Temperature error	0,1 dB/°C

ELECTRIC FIELD, TRI-BAND PROBE MODEL EP-3B-01

	Wide band	Low pass	High pass
Frequency range	0,1 – 3000 MHz	0,1 – 862 MHz	933 – 3000 MHz
Reading range	0,2 – 200 V/m		
Overload	600 V/m		
Dynamic range	> 60 dB		
Resolution	0,01 V/m		
Sensitivity	0,2 V/m		
Typical accuracy @ 6V/m	± 0,8 @ 50 MHz		± 0,8 @ 1 GHz
Flatness @ 20V/m	1 – 200 MHz ±0,8 dB 150 kHz - 3 GHz ±1,5 dB	1 – 200 MHz ±0,8 dB 150 kHz - 862 MHz ±1,5 dB	933 – 3000 MHz ±1,5 dB
Anisotropy @ 6V/m	± 0,8 dB @ 50 MHz (typical 0,6 dB)		+/- 0,8 dB @ 1 GHz (typical 0,6 dB)
Out of band attenuation	Not applicable	933 MHz – 3 GHz > 23 dB (respect to 50 MHz)	0,1 – 862 MHz > 23 dB (respect to 1 GHz)
Rejection to magnetic fields	> 20 dB		
Temperature error	0,05 dB/°C		

ELECTRIC FIELD, QUAD-BAND PROBE MODEL EP-4B-01

	Wide band	EGSM 900 Bandpass	EGSM 1800 Bandpass	UMTS Bandpass
Frequency range	0,1 – 3000 MHz	925 – 960 MHz	1805 – 1880 MHz	2110 – 2170 MHz
Reading range	0,2 – 200 V/m	0,02 – 20 V/m		
Overload	600 V/m	40 V/m		
Dynamic range	> 60 dB	> 60 dB		
Resolution	0,01 V/m	0,001 V/m		
Sensitivity	0,2 V/m	0,02 V/m		
Typical accuracy @ 6V/m	± 0,8 @ 50 MHz	± 0,8 @ 942,5 MHz	± 0,8 @ 1842,5 MHz	± 0,8 @ 2140 MHz
Flatness	@ 20V/m 1–200 MHz ±0,8 dB 150 kHz - 3 GHz ±1,5 dB	@ 2V/m 925 – 960 MHz +0,2 / -1,8 dB	@ 2V/m 1805 – 1880 MHz +0,2 / -1,8 dB	@ 2V/m 2110 – 2170 MHz +0,2 / -1,8 dB
Anisotropy	± 0,8 dB (typical 0,6 dB) @ 50 MHz, 6V/m	± 0,8 dB (typical 0,6 dB) @ 942,5 MHz, 2V/m	± 0,8 dB (typical 0,6 dB) @ 1842,5 MHz, 2V/m	± 0,8 dB (typical 0,6 dB) @ 2140 MHz, 2V/m
Out of band attenuation	Not applicable	>10 dB @ 860 / 1025 MHz referred to 942,5 MHz	>10dB @ 1580 / 2010 MHz referred to 1842,5 MHz	>10dB @ 1880 / 2320 MHz referred to 2140 MHz
Center frequency drift	Not applicable	40 ÷ 60 °C = ±100 kHz -20 ÷ +40 °C = ±100 kHz / °C		
H-field rejection	> 20 dB			
Temperature error	0 ÷ +60 °C = ±0,2 dB/°C -20 ÷ 0 °C = -0,1 dB/°C			

CALENDAR-STYLE DATA MEMORY

Easy selection of the time period to be analysed

May							May	2005
Mon	Tue	Wed	Thu	Fri	Sat	Sun		
25	26	27	28	29	30	1	Week 17	
2	3	4	5	6	7	8	Week 18	
9	10	11	12	13	14	15	Week 19	
16	17	18	19	20	21	22	Week 20	
23	24	25	26	27	28	29	Week 21	
30	31	1	2	3	4	5	Week 22	

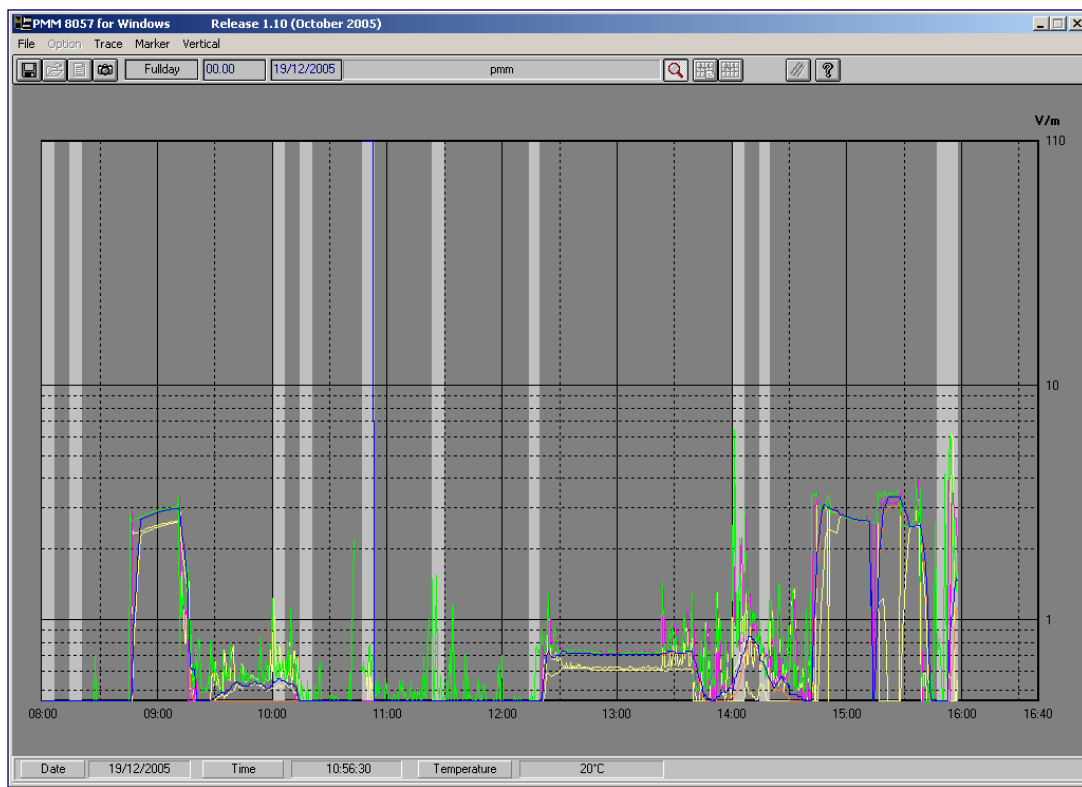
GRAPH DISPLAY

White bands

Highlight when the internal GSM modem is transmitting an RF signal

All trace colours are user-selectable

Zoom and cursors



Models available

Model	Power supply type	Communication
8057-02	Li-Ion disposable battery	Serial + GSM Modem
8057-03	Rechargeable Pb battery + solar panel	Serial + GSM Modem

Standard Accessories supplied with the 8057 Area Monitor:

- Serial cable, 2 m
- Charger 230 VAC / 6VDC (model 8057-03 only)
- Operating Manual
- Test and Calibration Certificate
- Rotating joint for installation on mast
- Software 8057-SW02

Accessories to order

- Probe (see available models above)
- 8057-MAST kit, including: Metallic T-shaped basement 60 x 60 cm; Fiberglass mast, h = 2 m; 3 ballast bags; Kit of screws and ties

Specifications *

Field measurement method	RMS, AVG and Peak
Sampling	1 measurement / 3 seconds
Data storing rate	30 sec to 15 min, programmable
Max logging before overwriting data	The formula shows the max. logging time (<u>for the EP-3B-01 probe</u>) before the stored data are overwritten, in reference to the selected storing rate:

$$32512 * [\text{storing rate interval (min)}] / [\text{minutes/days}] = \text{Logging time period (days)}$$

Example:

Data storing rate	Logging time
30 sec	11.3 days
6 min	135.5 days
15 min	338.7 days

Data upload	- Manual - Automatic, controlled by the Area Monitor in preset intervals - Automatic, by PC Automatic generation of a TXT file during upload
Measuring functions	AVG, RMS, max peak; daily report via SMS Display and data marking when GSM is transmitting
Alarms	Two set-points (warning and alarm) with detection of out-of-limit and return-in-limit
Clock	Internal, real time
Messages	SMS, sent to 2 mobile phones
Field probe	Displaying of model in use and calibration date
Probe input	Direct, with connector
GSM modem	Dual Band
SIM Card	Must be provided by the user. Must be enabled to send/receive data from/to fixed & mobile terminals
Communication	RS232C / GSM modem
Anti-tampering protection	Micro-switch, activated when the case is open
Alarms	Open case, internal over-temperature, low battery, overcharged battery, probe fault
Current absorption	0,65 mA with GSM off 16 mA with GSM in stand-by 300 mA max with GSM in transmission mode
Rechargeable battery (8057-03 only)	Lead-acid; 4 V, 2,5 A/h
Recharging time	48 hours by external charger
Primary Li-Ion battery (8057-02 only)	3,6 V – 13 Ah, Type LSH20 SAFT or equivalent
Battery operating time	8057-03: > 80 days of backup if in total darkness (with 30 min. GSM Stand-by, 1 min. of transmission / day) 8057-02: > 6 months (with 30 min. GSM Stand-by, 1 min. of transmission / day)
Battery check	Battery voltage is stored at each sampling
Temperature data	Stored at sample rate
Self-test	Continuous
Conformity	89/336; 73/23; CEI 211-6; CEI 211-7
Operating temperature	-10 / +50 °C
Dimensions	60 mm dia. x 780 mm (height)
Weight	2,4 kg (7,5 kg with mast and base)
Protection	IP54

NOTE ON MEMORY OPERATION:

- ◆ The internal memory can be read at the time of each new data upload to the central unit, at preset hours or by remote command.
- ◆ An alarm is generated when the EMF data not yet uploaded to the controller PC reach the 75% of the memory depth.
- ◆ When the memory is full, old data are overwritten by the new ones.
- ◆ Up to 200 events are saved in the 8057 memory to trace operations.

* Specifications may change without prior notice.