MDP Series
Megger Distribution Profilers

- **Choice of three models that record currents up to 1000 amps, with an additional 200 amp over-range**
- **Waveform capture and harmonic analysis up to the 32nd order**
- **Power factor/power and relative voltage RMS magnitude**
- **Accurate data capture via advanced MDP software**
- **Lightweight, durable unit housed in a weatherable urethane case**
- **Sturdy battery compartment with easy plug-in access for quick data retrieval**

DESCRIPTION

The Megger MDP series of distribution profilers provides power utilities with the most accurate and extensive information ever to precisely evaluate loading on feeders/overhead lines and to identify needed upgrades or replacement. Three different models range from a simple "current-only" version to the most advanced unit that offers a number of market-requested features. Each MDP can be easily upgraded to the next model at any time.

MDP1 (basic)

- Records actual current RMS magnitude up to 1000 amps, with an additional 200 amp over-range

MDP2 (mid range)

Records:

- Actual current RMS magnitude up to 1000 amps, with an additional 200 amp over-range
- Relative voltage RMS magnitude
- Power factor and power

MDP3 (advanced)

Records:

- Actual current RMS magnitude up to 1000 amps, with an additional 200 amp over-range **and** waveform capture
- Relative voltage RMS magnitude **and** waveform capture
- Power factor and power
- Harmonics
- THD (Total Harmonic Distortion)

System planners, distribution engineers and troubleshooters can easily access, review and record (via a date and time stamp) the following:

- Peak load value/time growth studies
- Phase/load imbalance surveys
- Time/day fluctuation analysis
- Capacitor bank placement analysis

Each MDP unit has a large non-volatile memory which allows for nearly unlimited data recording. The RMS Response Interval is user-selectable from 10 to 60 cycles and the RMS storage interval may be set from 2 seconds to 6 hours. The waveform capture is synchronized with the RMS storage interval with a selectable number of sequential waveforms from 1 to 60 cycles per sample, dependent on mode. An internal set of four easily replaceable commercial "AA" batteries powers the unit. In the event of a battery failure, there is no potential loss of information.

Depending on the response and RMS storage intervals selected, the Profilers can record for days, weeks, or even months. For example, with a response interval of ten minutes (data averaged and stored every ten minutes), the Profiler would allow recording for more than 60 days when powered by a new set of batteries. If the battery reaches a low charge condition, the unit automatically stops recording and saves all data for later recovery.

A mounted LED located on the bottom of the installed unit indicates battery status.

APPLICATIONS

The Profilers are quickly installed at any point on the distribution line. An arrow on the back of the MDP unit should point towards the load. Since all units are mechanically identical and weigh less than 4.6 lbs (2.1 kg), they are easily mountable to many readily available clamp sticks for installation on live lines. Cable diameters from 0.2 in. to 1.2 in. (.5 cm to 3.0 cm) can be accommodated.

The Profilers are quickly installed at any point on the distribution line and are mountable to many readily available clamp sticks

FEATURES AND BENEFITS

- **Virtually unlimited data recording** — Depending on the RMS storage interval selected, the Profiler can record for days, weeks, or even months. The unit offers virtually unlimited data recording/storage capacity with no potential loss, even with battery failure.
- **Wide range of data recording options** — Record necessary data ranging from a simple survey study to a complete circuit analysis including conductor sizing and capacitor placement.
- **Effective performance and protection** — Each Profiler performs effectively when in direct exposure to all weather conditions. The molded unit offers the greatest protection against water ingress, a major issue encountered by power utilities using other line recording devices.
- **Easy battery replacement and plug-in access** — Lightweight, durable unit with simple plug-in access and trouble-free battery replacement.
- **Easy installation** — The light weight of the Profiler allows for quick and easy installation on live lines. It is easily mountable to many readily available clamp sticks.

SPECIFICATIONS

All specifications at 25° C unless otherwise specified

Conductor Size
0.2 in. to 1.2 in. (.5 cm to 3.0 cm) cable outside diameter

Current Range
10 to 1000 Amps: 1% ± 2A

Conductor Voltage
4 kV to 35 kV

Data Retention
10 years with no power

Real Time Clock Accuracy
0.005% over one year

Operational Temperature
-40° F to +140° F (-40° C to +60° C)

Storage Temperature
-58° F to 185° F (-50° C to +85° C)

Operating Humidity
0 to 90% noncondensing

Storage Humidity
0 to 95% noncondensing

Accuracy
Harmonics analyzed out to the 32nd harmonic
Current accuracy: ±1% of reading ±2 A
Electric field accuracy: relative voltage

Phase angle accuracy, low ranges:	±1% from 50 to 200 A, ±2% from 10 to 50 A
Phase angle accuracy, high ranges:	±1% from 200 to 1000 A, ±2% from 50 to 200 A
Current THD accuracy, low ranges:	10 to 25 A ±5% 25 to 40 A ±2% >40 A ±1%
Current THD accuracy, high ranges:	10 to 20 A ±10% 20 to 50 A ±5% 50 to 80 A ±2% >80 A ±1%

Voltage THD accuracy: >4000 V ±1%

Frequency Range
40 Hz to 2 kHz

Fundamental Frequencies
50 Hz to 60 Hz

Sample Rate
128 samples/cycle

Statistics Stored
RMS current, electric field values, waveform data, internal battery

Input Power
6 V dc to 30 mA MAX

Communications
All MDPs have both a standard high speed USB 2.0 channel and a conventional RS-232 serial data channel for legacy computers

Memory
Storage Capacity: 8 Meg flash
Data Storage Modes: stop when memory full or wrap around

EMF
IEC61326:2002

Safety
IEC61010

Min. Distance between Conductors (lines) or Units
3 ft (914 mm)

Encapsulation
Weatherproof/UV stable

Battery
Any 4 commercial "AA" batteries. For extended temperature applications (below 0° and above +40° C) Lithium high range "AA" batteries are recommended

Physical
Dimensions: 12 H x 5 L x 3 W in. (30 H x 13 L x 8 W cm)
Weight: 4.6 lbs (2.1 kg)

MDP METROSOFT® SOFTWARE

A new version of Metrosoft has been designed for use with these Profilers. This newest version of Metrosoft is completely menu-driven and includes many powerful features. The new Metrosoft is compatible with the new MDP and other older Megger Distribution Profilers, allowing customers with legacy units to view old data files using the newest software.

Software Features

This software offers many powerful features specifically designed to save time. Features include:

- Easy, fill-in-the-form instrument setup and configuration
- Data retrieval from up to 4 Profilers at a specific site, merged into one data file
- Specific data file location using the integrated search function
- Voltage/current and demand data chart access
- Harmonic and waveform analysis
- Individual harmonics, THD, frequency and imbalance charting
- Zoom/unzoom on specific graphical areas of interest
- Several built-in analysis reports

Quick Recorder Setup

With Metrosoft, all Profilers can be set up for different test conditions in a matter of seconds. By simply filling in a form, you choose which parameters will be recorded. Parameters include current, voltage, phase angle, waveform capture, response interval and storage interval. The software is smart enough to know what the specific MDP is capable of measuring and will automatically limit the configurations available. A unique scheduled run feature allows the Profilers to be pre-set to automatically start recording and then stop recording at specified dates and times.

As an added convenience, the software computes the recording time, based on the selections made.

Harmonic Analysis

This new software also graphically charts and reports harmonic data including:

- **Charts** of actual waveforms recorded
- **Bar Chart** of the harmonics magnitude and signature for any selected waveform cycle through the 32nd harmonic
- **Harmonic Analysis Report** for the selected waveform cycle
- **Harmonic Trending** – Total Harmonic Distortion (THD) and all individual harmonic voltages and currents through the 32nd order

Create Detailed Reports

Metrosoft provides comprehensive reports of all recorded data which can be viewed, printed, or exported as text files.

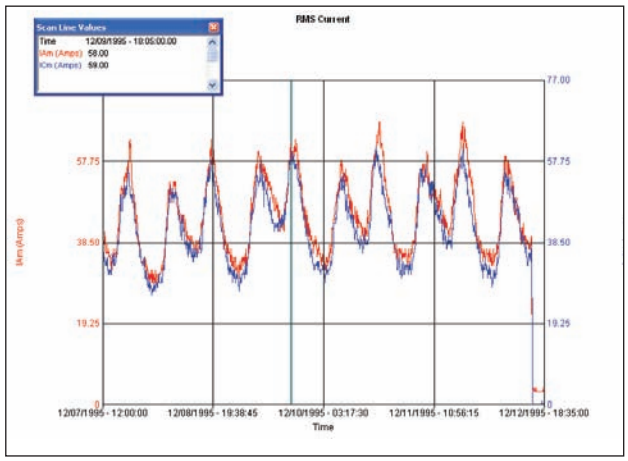
- **Summary and Setup Report** lists the instrument setup information and overall data summaries.
- **Tabular Report: Power** – includes all power recorded for each phase and total.
- **Tabular Report: Voltage and Current** – includes all trended true RMS values throughout the test.
- **Total Harmonic Distortion (THD) Summary Report** includes the THD for each input as a percentage of fundamental for the first cycle of each waveform capture snap shot.

Chart Load Profiles and Identify Problems

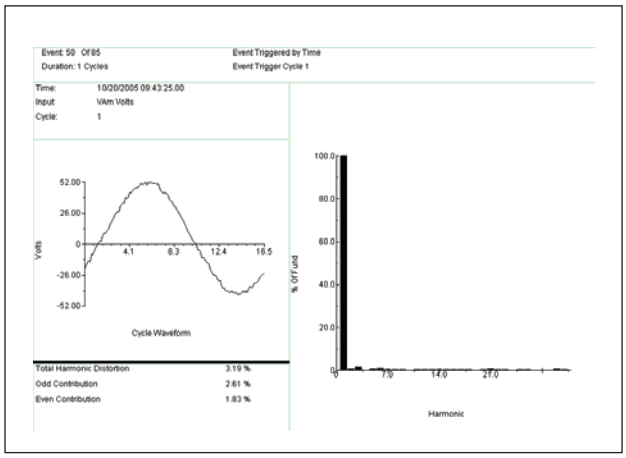
Metrosoft allows you to generate graphical chart presentations of all measured values, providing load profiles for the entire test in one graph. Power trends and possible network problems are quickly identified. Even view load profiles from several different locations simultaneously. This is a very useful tool for comparing magnitude against power factor.

An exceptional graphing feature is the ability to zoom-in and enlarge specific time periods of the graph for a closer look. A scan line feature lets you move a line across the graph and the software instantly displays the values for the specific date/time on the graph. This gives you exact numbers and eliminates the need to approximate. All graphs can be printed out for hard copy reports on any printer supported by Windows.

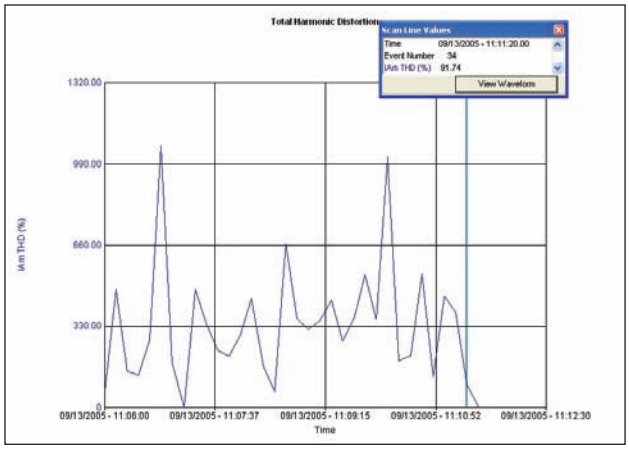
Following are a few of the charts (waveform, bar) that you can access using the MDP Metrosoft software.



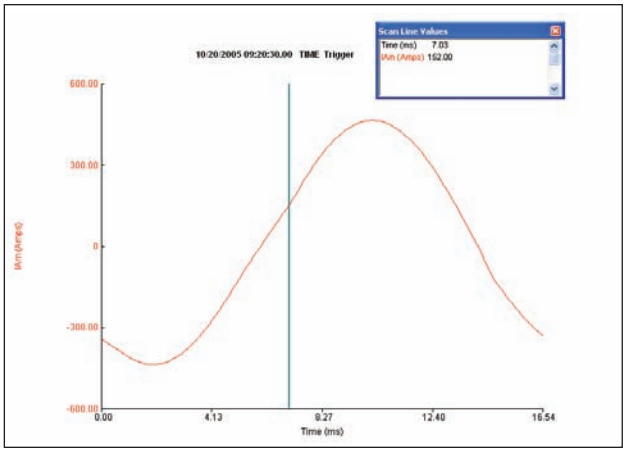
RMS Current



Harmonics Analysis Bar Chart



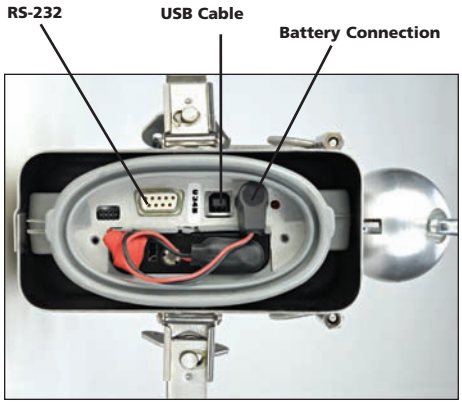
Total Harmonic Distortion



Waveform

PARAMETERS MEASURED

	MDP1	MDP2	MDP3
Recording controls			
Storage Interval	2 sec to 6 hours	2 sec to 6 hours	2 sec to 6 hours
Response Interval	10 to 60 cycles	10 to 60 cycles	10 to 60 cycles
Values Recorded			
Current Measurement			
Range	10-200 / 200-1000	10-200 / 200-1000	10-200 / 200-1000
A to D Resolution Low Range	0.165703125	0.165703125	0.165703125
A to D Resolution Low Range	0.828515625	0.828515625	0.828515625
Recorded Resolution	1 A	1 A	1 A
Current Accuracy	1% ± 2 A	1% ± 2 A	1% ± 2 A
Voltage	None	Relative	Relative
Voltage Range	NA	4 kV to 35 kV	4 kV to 35 kV
Phase Angle	None	Yes	Yes
Resolution	NA	0.1°	0.1°
Accuracy 10-50 A	NA	2%	2%
Accuracy >50 A	NA	1%	1%
Power	None		
KW	NA	Yes	Yes
KVAR	NA	Yes	Yes
KVA	NA	Yes	Yes
PF	NA	Yes	Yes
Other Values Recorded			
Waveform Capture	None	None	Yes
THD	None	None	Yes
Harmonic Analysis	None	None	Yes
Imbalance	Yes	Yes	Yes
Internal Battery Voltage	Yes	Yes	Yes



Easy plug-in access allows for quick data retrieval via RS-232 and USB cable ports. The battery compartment is specifically designed for simple removal and installation

Starter Kit shown consists of 3 MDP Profilers, ac adapter, nylon carrying case, Phase ID label kit, RS-232/com port cable, USB cable,"AA" batteries, Metrosoft software, and instruction manual

MDP with battery pack removed

ORDERING INFORMATION

Item (Qty)	Cat. No.
Single Channel 1000 Amp Distribution Profiler CE approved; isolated, single channel recording Profiler for distribution line primary up to 35 kV ac. Hot-stick mountable. Unit records time stamped values of current magnitude with 1 amp resolution for days, weeks or months depending upon data storage interval. True RMS through the 50th harmonic.	MDP1
Single Channel 1000 Amp Distribution Profiler CE Approved; same as MDP1 in addition to recording relative voltage RMS magnitude, power factor and power	MDP2
Single Channel 1000 Amp Distribution Profiler CE approved; same as MDP1 in addition to recording RMS magnitude and waveform capture, relative voltage RMS magnitude and waveform capture, power factor and power, harmonics and THD	MDP3

Note: An RS-232 computer interface cable or USB cable and AC adapter are required for individual units.

Item (Qty)	Cat. No.
Options and Accessories	
Battery holder	36164
RS-232/com port cable	CA-RS232
Nylon carrying case for up to three Profilers and accessories	36133
Phase ID label kit; includes 2 sets of 3 labels, Alpha A, B & C / Numeric 1, 2 & 3	35863
USB 2.0 A-B cable	CA-USB
"AA" battery (4 required)	23415
Metrosoft Software for Windows 32-bit applications software for IBM and compatible computers. Programs unit, provides data retrieval, generates graphs, reports and data files, compatible with Excel software, and saves recorder setup files. Compatible with Windows NT, WIN2000 and XP	36175-1
Instruction manual	AVTMMDP
Starter Kits	
Consists of 3 MDP1 Profilers, (1) AC adapter, (1) nylon carrying case, Phase ID label kit, (1) RS-232/com port cable, (1) USB 2.0 A-B cable, (12) "AA" batteries, Metrosoft software, (1) instruction manual	SK-MDP1
Same as SK-MDP1 except includes 3 MDP2 Profilers instead of MDP1 Profilers	SK-MDP2
Same as SK-MDP1 except includes 3 MDP3 Profilers instead of MDP1 Profilers	SK-MDP3

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