HIOKI

Recorder 1994

NEW

For confident measurement from circuit testing to industrial power lines
Safety-oriented tester complying with IEC348

Two-channel digital multimeter with graphical display function for at-a-glance monitoring of fluctuations

8220

MULTI HiPLAY

Convenient display of signal changes over pe

The 8220 MULTI HiPLAY is a digital multimeter, capable of measuring true effective values, and with an additional display function which shows signal changes graphically.

The unit can simultaneously measure two channels, AC or DC voltage or current, and record changes in the measured values on the liquid crystal display. There is also a read-off function, to obtain a numerical reading for a point on the graph, simultaneous display of numerical values, and instant access to minimum, maximum and average values from data held in memory.

With no paper recording, it is possible to hold in memory the data for a maximum of six days, making the unit ideal for more long-term monitoring of signal changes.

The unit is, meanwhile, of compact design for total portability, with safety features including a floating voltage design, and is thus well suited not only to circuit testing, but also for safe measurements on industrial power lines.

The Centronics interface can be used with any standard printer if it is necessary to make hard-copy recordings

Ease of use

Simple operation
- Handles like a digital multimeter
- Scaling function

Safety features
- High floating voltage (up to 650V AC, DC)
- Equivalent safety standards to industrial tester

Clear display
- Large liquid crystal display with backlighting

Power supply
- Battery/AC adaptor (100 - 240V AC)

Viewing variations

Signal variations
- Graphical display function
- Reading numerical values from graph
- Comparison of two channels

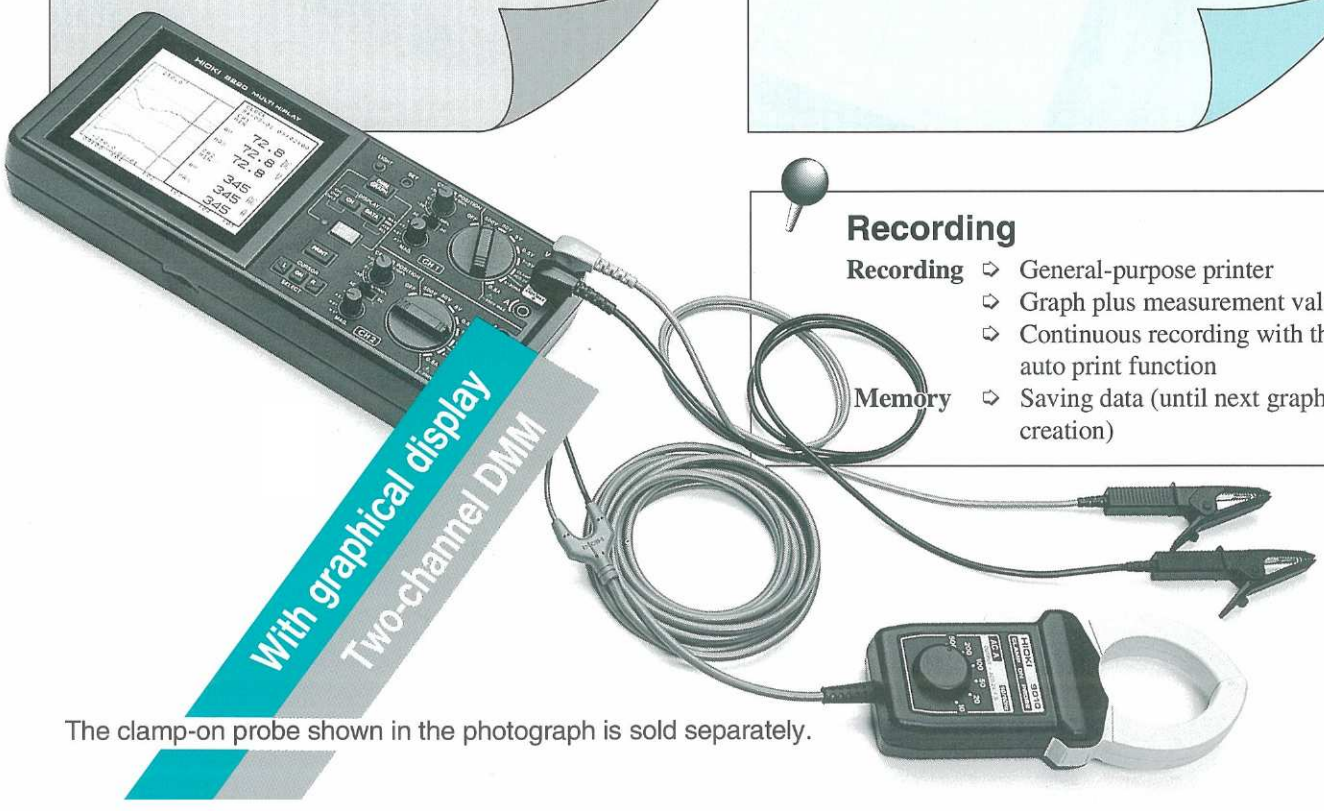
Error-free measurement
- Post-editing of graphs
- Measurement possible to 120% of range

Immediate grasp of whole measurement period
- All variations shown on a single screen
- Maximum/minimum/average value selectable
- Display of envelope of maximum and minimum values

Recording

Recording
- General-purpose printer
- Graph plus measurement values
- Continuous recording with the auto print function

Memory
- Saving data (until next graph creation)



The clamp-on probe shown in the photograph is sold separately.

iods up to six days, and minimum, maximum a

Compact and lightweight, yet function-packed triple power supply specification

At only 120 mm by 280 mm, and 45 mm thickness, the unit weighs in at a mere 750 g. At the same time, it can utilize any of three power sources: batteries, a 12 V DC external supply, or an AC adaptor (100 to 240 V AC), for enhanced functionality.

Two channels allow relative comparisons

The 8220 has two input channels, and allows easy comparison of the voltage or current fluctuations on the two input circuits.

Measurement of true effective values, plus clamp-on sensor, and special-purpose industrial power measurement range

In addition to measurement of AC and DC voltages and currents (0.5 A), by adding a clamp-on sensor, measurement of large AC currents is also possible. Additionally, there are 1 to 5 V, and 4 to 20 mA industrial special-purpose ranges. True effective AC values can be measured, and accurate measuring of distorted signals is also possible.

Wide display of values up to ±6000, and support for measurement from electronic circuits to domestic power supply voltages anywhere in the world

Even inputs outside the nominal range can be recovered by post-editing of the graphical display, thanks to the display value range of up to ±6000. The input impedance is 1 MΩ, and this single unit can cover measurements from low-voltage electronic circuits to power distribution lines. The resolution in the 0.5 V range is 100 µV, and in the 500 V range it is 0.1 V. This tester can be used on almost any domestic power supply line in the world.

Safety-oriented tester complying with IEC348

The two input channels are isolated from each other, and are floating with respect to any parts which could be touched. The maximum floating voltage is high, at 650V AC, DC, and in the unlikely event of an incorrect operation, there are protective functions to shut off the circuit safely. Thus the tester can safely be used on industrial power lines.

Large liquid crystal display with backlighting

Although the unit is very compact, it includes a 5-inch liquid crystal display panel. Both numeric indications and the graphical displays are very clear, with backlighting ensuring ease of use even in difficult lighting conditions.

Simple graphic display

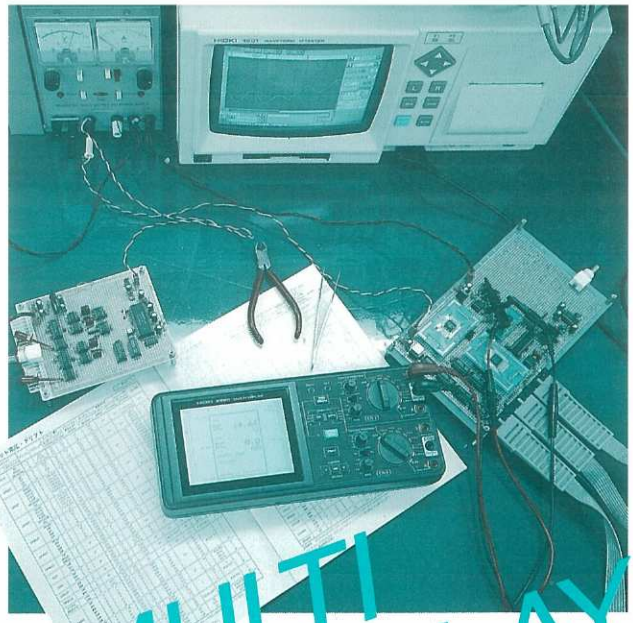
After making the DMM/GRAPH mode selection, it is only necessary to press the graph start key, and the graphic display begins, graphically displaying fluctuations over time. There are also graph manipulation functions which allow selection of the graph center position, enlargement factors, and a display centered on a particular level.

Level indicators

The unit has level indicators which during measurement provide an analog indication of the level of a voltage input within the current range. This makes it easier to set the center position and enlargement factors for the graphical display.

Shown actual size.

d average values



MULTI HiPLAY

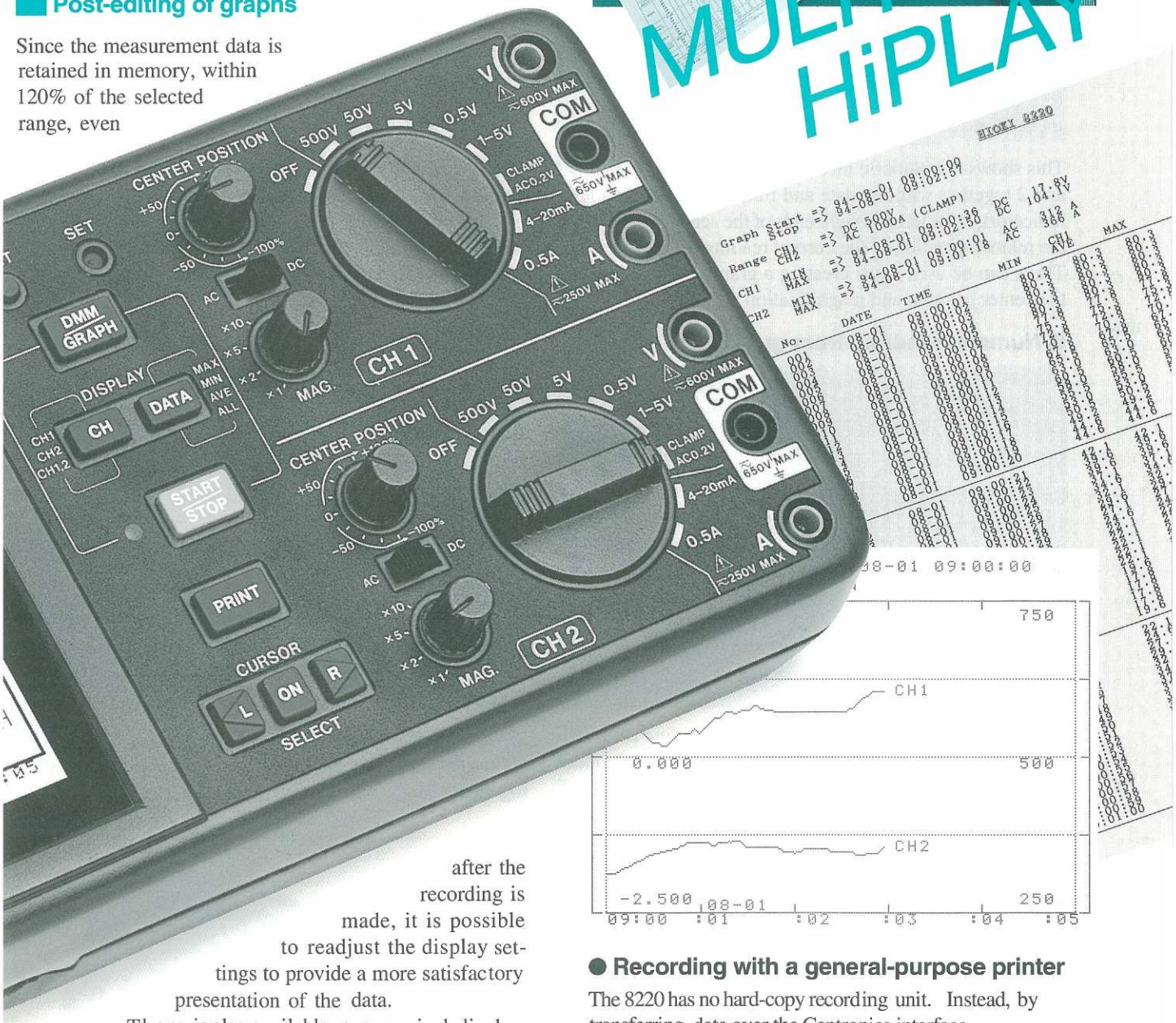
During measurement all variations shown on a single screen (up to six days)

Other data values can be collected, including maximum, minimum and average values and the envelope of the maximum and minimum values. The recording period ranges from a minimum of 5 minutes (1 second/pixel) to a maximum of 6 days (30 minutes/pixel), and all of the fluctuations within the recording period appear on a single screen.

Post-editing of graphs

Since the measurement data is retained in memory, within 120% of the selected range, even after the recording is made, it is possible to readjust the display settings to provide a more satisfactory presentation of the data.

There is also available a numerical display of the minimum and maximum values in the recording period together with the time points at which they occurred.



Reading numerical values from the graph

Using the cursor function, it is also possible to convert values on the graphical display back to numerical values.

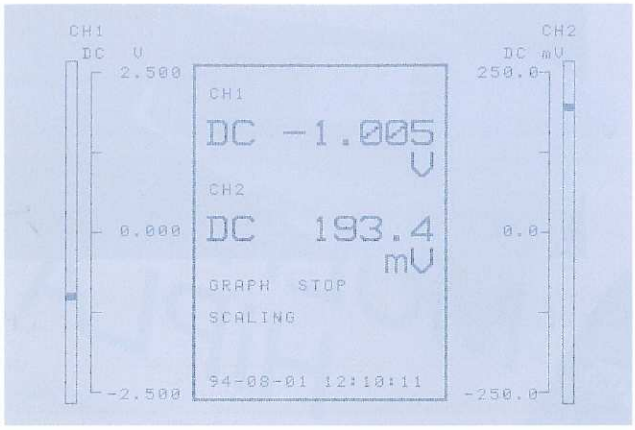
● Recording with a general-purpose printer

The 8220 has no hard-copy recording unit. Instead, by transferring data over the Centronics interface, it is possible to make copies of the graphical display, screen dumps of the cursor read-out indications, and numerical data. In the auto print settings, the graph screen is copied continuously at regular intervals.

Five screen configurations of numeric and graphical displays

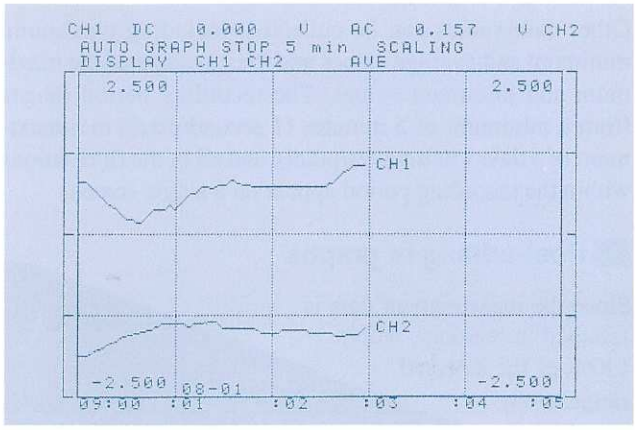
The 8220 provides both numerical and graphical displays of measurement values on the 5-inch LCD screen. It also allow comparison of the graphical or numeric indications for the voltage or current fluctuations on two channels. There are five different screen configurations, and it is possible to make a hard copy of each of these on a printer attached to the unit.

■ Numeric display



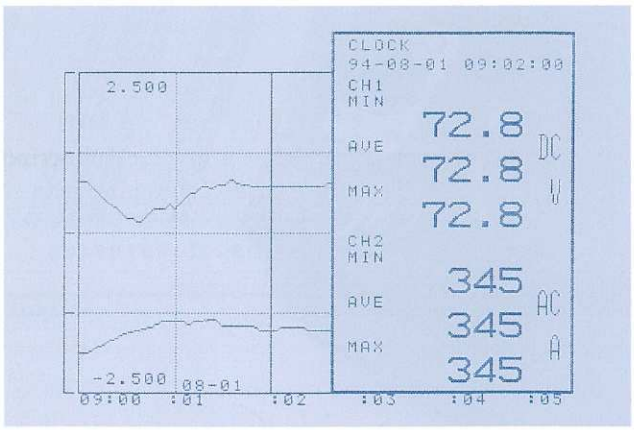
This shows the numeric measurement values on channels 1 and 2 together with the date and time. There are also level indicators at the left and right ends of the screen, which show the relative position of the current reading within the range. These can be used when creating a graph, as guidelines for the center position and magnification scaling.

■ Graphical display



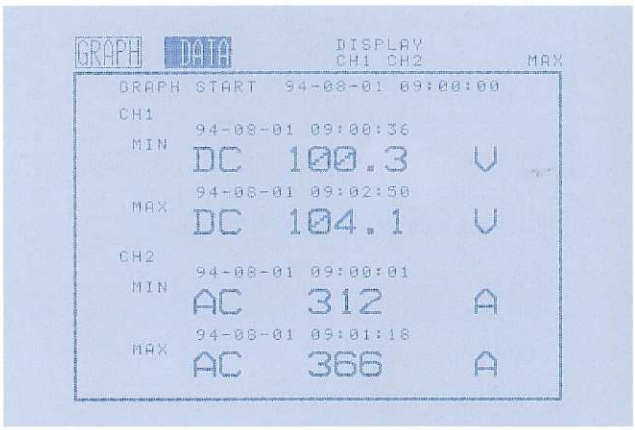
This shows the current values numerically at the top of the screen, together with a graph showing the variations over elapsed time. The whole graph appears on the screen, and with the minimum time axis setting of 5 minutes, the time resolution is 1 second, and at the maximum setting of 6 days, the resolution is 30 minutes.

■ Numeric read-out from graph



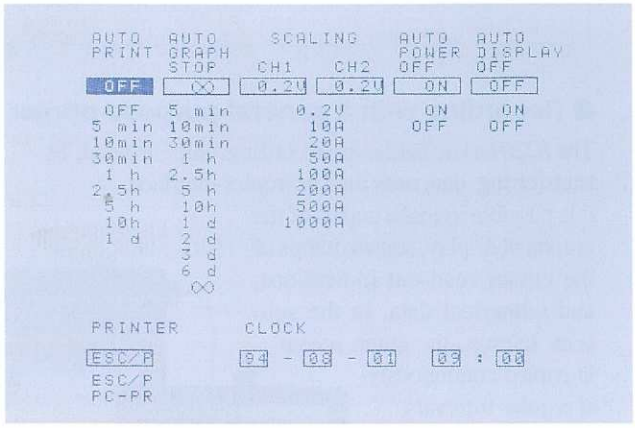
This screen provides a cursor function, providing a numerical reading of values from a graph. The numerical values include the maximum, minimum and average values, as well as the time point of the cursor position.

■ Min/Max values together with time points



Since all of the graph data is held in memory, this screen allows the minimum and maximum values to be displayed together with the corresponding time points.

■ Setting mode



This provides a confirmation of the various current settings.

Specification

Basic specification

Number of channels	: 2 (floating)
Graphical display	: 5-inch backlight LCD Display values ±6000
Sampling rate	: Using one digital multimeter channel 1: 2S/s Using both digital multimeter channels or during graph creation: 1S/s
Floating voltage	: 650 V, AC/DC
Withstand voltage	: 2 kV AC, for 1 minute
Operating environment	: 0 to 40°C, 80%RH max.
Power supply	: Six R6/AA batteries, 12 V DC, or AC adaptor (9418; 12V- 2A) Power consumption approximately 1 W (backlighting off) Maximum continuous operating time 8 hours (using manganese cells) (Depends on LCD display pattern)
Dimensions	: 123 H × 285 W × 45 D mm; 750 g
Accessories	: 9257 Input cables (2), spare fuses (2)

Digital multimeter functions

Measurement ranges	: AC (rms) or DC: 0.5/5/50/500 V/1 - 5 V/0.2 V (for clamp-on sensor) *Input impedance 1 MΩ *Maximum permitted input voltage 600 V AC/DC AC (rms) or DC 0.5 A/4 - 20 mA *With 1 A / 250 V protective fuse *Maximum permitted input voltage 250 V AC
Basic accuracy	: DC: 0.4% rdg. ±5 dgt. AC: 1.5% rdg. ±5 dgt.
Frequency characteristics (tolerances to be added to basic accuracy figures)	: 30 to 50 Hz, 60 Hz to 1 kHz: ±1.5% Up to 10 kHz: -3 dB
Miscellaneous	: Level indicators

Graphical functions

Time axis	: 11 ranges auto selectable; from 5 minutes (1 s/pixel) to 6 days (30 min/pixel), plus continuous
Level axis	: Display range is range value / magnification factor
Level resolution	: Display range / 200 pixels
Level magnification	: ×1, ×2, ×5, ×10
Level center position	: 0, ±25%, ±50%, ±75%, ±100%
Display data	: One of average, maximum, minimum, and maximum-minimum envelope values
Display channels	: 2 channels simultaneously, or either 1 channel

Graph post-editing and print data transmission functions

Post-editing	: Data is retained until creation of next graph starts. Saved data can be redisplayed with different values of following settings: center position, magnification factor, and display data.
Cursor read-out function:	Positioning cursor on time axis gives numeric display of data (maximum, minimum, average) and time point.
Print data transmission Interface	: Centronics (ESC/P, PC-PR)
Data transmitted	: graphical display image, cursor read-out screen image, all numerical data

Setting functions

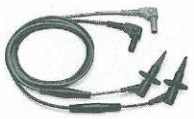
① Clock setting
② Auto power off (DMM function only, after 5 minutes)
③ Auto print
④ Auto graph stop
⑤ Auto display off (graph function only, after 1 minute)
⑥ Printer controll code
⑦ AC clamp-on sensor settings (0.2 V AC range: 10, 20, 50, 100, 200, 500, 1000 A f.s.)

9010 CLAMP ON PROBE

Measurement range	: 10/20/50/100/200/500A AC
Output voltage	: 0.2V AC f.s.
Accuracy	: ±3% f.s.
Max. Core jaw dia	: ϕ46mm
Max. Circuit voltage	: 600V AC
Dimensions	: 185 H × 62 W × 33 D mm; 420g

■ Optional Accessories

9008 Clamp on probe
9010 Clamp on probe
9132 Clamp on probe
9256 Connector cable
9347 Carrying case
9418 AC adaptor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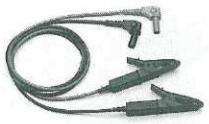
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The 8220 does not include batteries or AC adaptor, which must be purchased separately.

Applications

The unit will find applications in a wide range of fields, from monitoring of voltage and current fluctuations and maximum loads on domestic power supply lines, to testing of circuit offset levels, directional monitoring of battery voltage and current magnitudes, and so forth.

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DISTRIBUTED BY

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