V_{DC} accuracy 0.03%
V_{AC} in volts and dB (AC-coupled RMS)
Current measurements with extremely low voltage drop
Frequency measurements up to 10 MHz
Time measurements up to 10^5s
Relative reference measurements
Fast autoranging
Battery version PM 2521/22 available

Digital multimeter PM 2521

Whilst of small dimensions, the PM 2521 offers an unusually comprehensive range of facilities not normally found in modern multimeters. Its unique measurement capabilities are further enhanced by microprocessor control which both speeds and simplifies operation.
The attractive basic specification includes AC_{RMS} and DC voltage with 10μV resolution, AC_{RMS} and DC current ranges having 0.001μA resolution (up to 10A) plus a full resistance range from 10mΩ to 20 MΩ. In addition, there is a special setting for semiconductor measurements. Bandwidth is 100kHz.
All results are displayed on a 4½ digit LCD panel, having 13mm numerals. Parameter selection is by means of a single rotary selector knob and is indicated, together with polarity, on the display panel. Ranging is automatic in the normal mode; manual range selection is also possible.

Even more features

In addition to the basic measuring facilities, PM 2521 will handle AC volts either directly in volts, or in dB, both AC-coupled RMS. Frequency/time measurements can also be made, up to 10 MHz and 10^5s, respectively. Moreover, temperature measurements can be made, using Pt-100 probes.

Relative reference measurements

Another useful feature which can be applied in several ways, is the reference measurement capability for V_{DC}, dB, resistance, temperature and diode applications. Any selected value can be used as the reference "zero". This reference level having been set, all subsequent readings are displayed as either a positive or negative deviation. One typical use of this facility is checking high ohmic value components for long-term stability.

dB measurements

V_{AC} measurements can be expressed in dB by depressing a button. The display will then indicate the value, directly in dB, with 1mW into 600Ω as the 0dB reference. By applying the previously described relative reference technique, any desired "zero" point may now be selected and the measurements will be shown as a dB gain or loss. The fast auto-ranging allows for direct ratio measurements between 1mV and 600V.

Temperature

PM 2521 accepts standard Pt-100 probes which allow direct temperature readings between −60° and +200°C.

Frequency/time

Frequency can be measured up to 10 MHz, with a max. resolution of 0.1 Hz, and time up to 10^5s. Measurement of the signal voltage is first made which causes the input sensitivity of the counters to become automatically adjusted to the level of the applied signal. This setting is then maintained for the subsequent frequency measurement, which is displayed as a direct frequency value. In the time position, both pulse width and pulse repetition time measurements are possible on both positive- and negative-going pulses. The trigger level is adjustable over the whole (internally attentuated) trigger amplitude range and is displayed when selected. At the instant the trigger fires a 'GATE' sign appears on the display. By adjusting the trigger level (using a thumb-wheel) and observing the 'GATE' signal, pulse peak values may be obtained.

Other options

The already comprehensive facilities described may be further extended by the use of optional accessories. Such options include a HOLD probe which will "freeze" the display and allow, e.g., the operator to concentrate on locating the test points. Also, an HF probe is available which extends the frequency range to 700 MHz. For high tension work, an HT probe permits measurements up to 30 kV_{DC} and heavy currents up to 200A may be handled using the current shunt, current probe and transformers. All of which further enhance the already highly versatile capabilities of this very compact instrument.

Model PM 2521

Digits	4½ (V and R) 3½ (I and T) 5 (f and t)
Display	21000 (V and R) 2100 (I and T) 99999 (f and t)
Type	LCD 13mm
Range selection	Automatic and manual
Range limits	Upper 20200; lower 01800

DC voltage

Ranges	200mV, 2V, 20V, 200V, 1000V
Polarity	Automatic '+' and '−' sign
Resolution	10μV in 200mV range
Accuracy	± (0.03% rdng + 0.01% rng) up to 200V ± (0.03% rdng + 0.02% rng) over 200V
Temperature coefficient	0.01% rdng/°C
Input impedance	up to 2V 20MΩ//60pF 20V 11MΩ//85pF 200V...1000V 10MΩ//95pF
SMRR (50Hz ± 1%)	86dB (60dB at 60Hz)
Max. SM signal	2 x range (except 2000V range)
CMRR for DC and 50Hz	100dB
Max. CM signal	$400V_{RMS}$, 560Vpk
Response time	0.7s, with ranging 1.5s
Max. input voltage	Hi to Lo and Hi to ground $1000V_{RMS}$ Lo to ground $400V_{RMS}$

DC Voltage relative reference

When the "zero setting" button is depressed the applied DC voltage is held as "zero" reference point. Subsequent readings indicate positive or negative deviations from this point.

Ranges	both reference and subsequent signals have to be in one range (autoranging is switched off)
Max. reading	40000
Accuracy	max. error equal to sum of errors of the two measurements

AC Voltage

AC to DC conversion	true RMS, AC coupled
Ranges	200mV, 2V, 20V, 200V, 600V
Max. resolution	10μV in 200mV range
Lowest reading	0.5% of full scale
Accuracy (between 3% and 100% of range)	for ranges up to 200V ± (0.3% rdng + 0.15% of rng) for 40Hz...500Hz ± (1% rdng +0.15% of rng) for 500Hz...20kHz ± (5% rdng + 1% of rng) for 20kHz...100kHz for 600 rng ± 0.3% rdng + 0.3% of rng for 40Hz...60Hz
Temperature coefficient	± (0.03% rdng + 0.01% rng)/°C
Input impedance	200mV...2V 20MΩ//60pF 20V 11MΩ//85pF 200V...600V 10MΩ//95pF
CMRR	100dB for DC 80dB for AC (50...60Hz)
Max. CM signal	$400V_{RMS}$, $560V_{pk}$
Response time	1.5s, with ranging 3s
Crest factor	2 at full scale
Max. input voltage	Hi to Lo $600V_{RMS}$ Hi to ground $1000V_{RMS}$ Lo to ground $400V_{RMS}$
Max. DC voltage	400V
Max. V Hz product	10^7

AC Voltage in dB

0dB reference	1mW in 600Ω or last measured value
Range	−57.7dB to +57.7dB
Resolution	0.1dB
Accuracy	for range −31.7...+47dB ± 0.2dB for 40Hz...20kHz ± 1dB for 20kHz...100kHz for range +47...+57.7dB ± 1.5dB for 40Hz...500Hz for range −50...+31.7dB ± 2dB for 40Hz...20kHz Values under −57.7dB are displayed as −99.9dB
Other data as AC voltage	

AC Voltage in dB relative reference

When the "dB" button is depressed for a second time the applied AC voltage is held as "zero dB" reference point. Subsequent readings indicate positive or negative deviations from this point.

Ranges	−99.8dB... +99.8dB both reference-and subsequent signal-have to be in the range from 1mV...600V
Accuracy	max. error equal to the sum of the errors of the two measurements

Resistance

Ranges	200Ω, 2kΩ, 20kΩ, 200kΩ, 2MΩ, 20MΩ
Max. resolution	0.01Ω in 200Ω range
Accuracy	200Ω...200kΩ (0.2% of rdng ± 0.1% of rng) 2MΩ...20MΩ ± (1% of rdng ± 0.1% of rng)
Temperature coefficient	± (0.02% rdng +0.01% rng)/°C for 200Ω...200kΩ ± (0.05% rdng/°C +0.01% rng) for 2MΩ...20MΩ
Max. open circuit voltage	4V
Measuring current	10mA, 1mA, 100μA, 10μA, 1μA, 100nA
Response time	200Ω...200kΩ 0.7s (without ranging) 200Ω...200kΩ 2.5s (with ranging) 2MΩ 2s (without ranging) 20MΩ 7s (without ranging)
Overload protection	$265V_{RMS}$

Resistance relative reference

When the "zero setting" button is depressed the applied resistance value is held as "zero" reference point. Subsequent readings indicate positive or negative deviations from this value.

Ranges	Both reference signal and subsequent signals have to be in one resistance range (autoranging is switched off)
Max. reading	20000
Accuracy	max. error is equal to sum of errors of two measurements

Diode measurements

Measuring systems	Voltage across diode forward resistance at 1mA current

Diode selection with relative reference mode.
The voltage difference is indicated.

DC current

Ranges	2μA, 20μA, 200μA, 2mA, 200mA, 2A, 10A
Max. resolution	1nA in 2μA range
Accuracy	± (0.2% rdng +0.05% of rng) up to 2A ± (0.2% rdng +0.1% rng) over 2A
Temperature coefficient	± (0.02% rdng +0.005% rng)/°C
Voltage drop	< 2.5mV 2μA...mA < 25mV 20mA...200mA < 250mV 2A...10A
Overload protection	$250V_{RMS}$ up to 20mA range 200mA, 2A and 10A not protected max current 20A for 20s
Response time	0.7s (without ranging) 1.5s (with ranging)