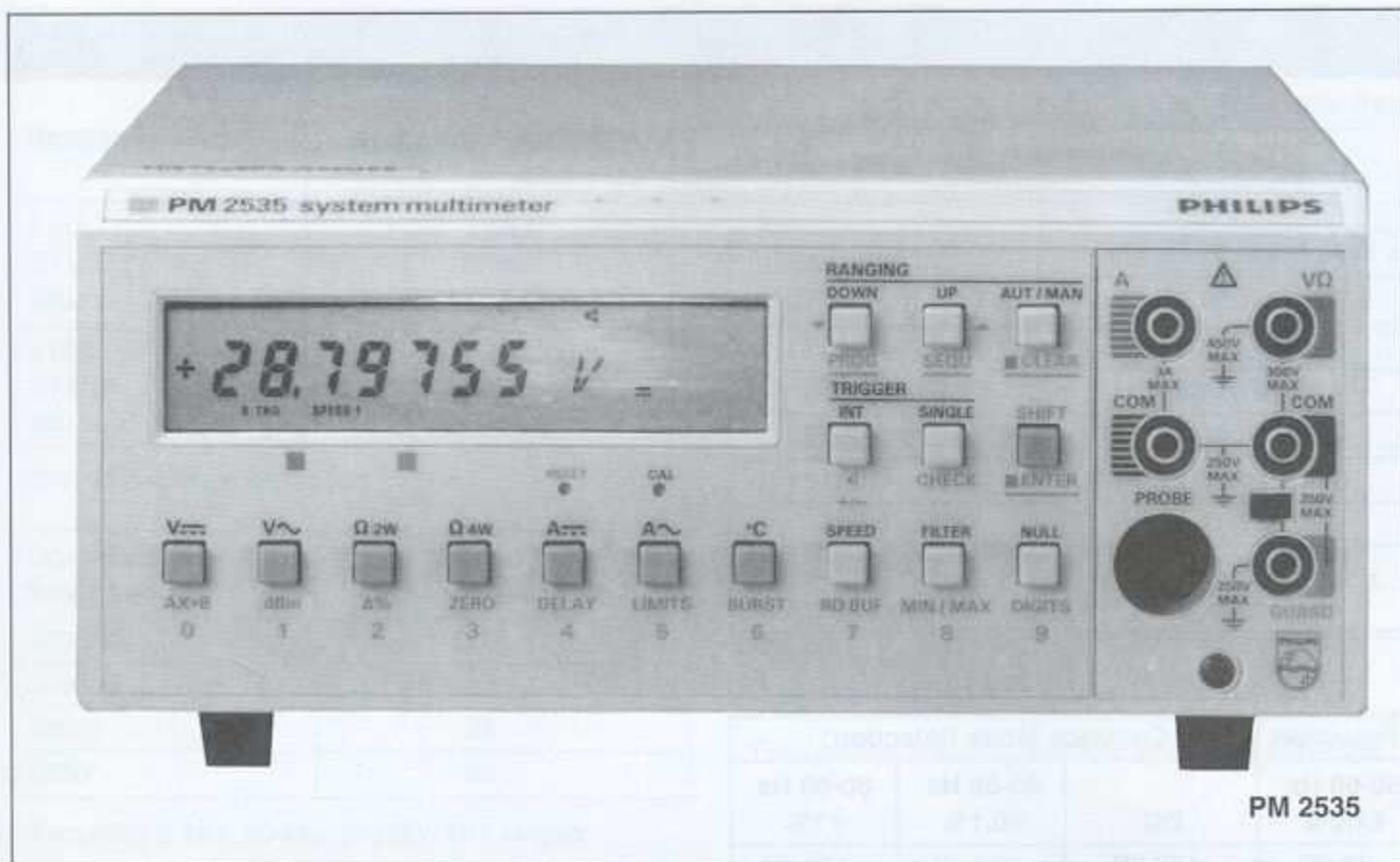




RS-232



### Measurement Capabilities

The performance of these instruments cover more than dc voltages alone. In fact, seven measuring functions, including temperature are standard.

Function	Maximum Resolution	Maximum Range	Accuracy (90-Day)
V dc	100 nV	300V	0.005%
V ac	10 $\mu$ V	300V	0.2%
I dc	100 nA	3A	0.03%
I ac	10 $\mu$ A	3A	0.2%
$\Omega$ 2-wire	1 m $\Omega$	300 M $\Omega$	0.02%
$\Omega$ 4-wire	1 m $\Omega$	3 M $\Omega$	0.02%
$^{\circ}$ C via Pt-100	0.1 $^{\circ}$ C	-100 $^{\circ}$ C to +850 $^{\circ}$ C	0.3%

### Operator and Application Friendly

Single button selection of function, range and trigger modes make the PM 2534 and PM 2535 very simple to use. Precise measurements are always made very quickly thanks to the 'NULL' key to compensate for small offsets and the 'FILTER' key to eliminate small instabilities on dc signals.

Access to the GPIB address and mode of operation is under the 'CHECK' function but to prevent unauthorized use in systems application this can be 'locked-out' resulting in a 100% tamper free front panel.

And emphasizing the system-oriented design even further, the standard facility for full electronic calibration allows simple recalibration either via the GPIB bus, or manually, without the need to open the case.

### Data Collection

The PM 2535 also has a 999-point buffer which is constantly active. This ensures that the last 999 measurements can be reviewed at any time.

The PM 2535 can measure at up to 150 measurements/sec, and by storing these directly in the internal buffer, more than 6 seconds of high-speed measurements can be collected regardless of the controller's speed.

### Controlling System 21 Modules

With the PM 2534 and PM 2535, System 21 can be added to any GPIB application to provide a modular and cost-effective solution to system switching. Both the PM 2534 and the PM 2535 have a System 21 master unit built-in, enabling them to control the PM 2120 universal switches or the PM 2121 low level switches.

## PM 2534 & PM 2535 System Multimeters

3 $\frac{1}{2}$  to 6 $\frac{1}{2}$  digits

100 nV resolution

100 measurements/second

GPIB/IEEE-488 interface standard, RS-232C optional

Front or rear input

Scanner extension

Data calculation, collection and control (PM 2535)

The PM 2534 and PM 2535 Systems Multimeters cover a broad range of applications. While both are suitable for a wide range of general purpose measurements, the PM 2535 offers additional functions for applications demanding data gathering, and fast measurement collecting and processing.

### Basic Features

Both the PM 2534 and PM 2535 offer seven measurement functions, front or rear inputs, and 6 $\frac{1}{2}$  digit guarded sensitive measurements or up to 3 $\frac{1}{2}$  digit high speed measurements. The units can operate in scan mode under external control via the standard GPIB/IEEE-488\* interface.

### Extra Capabilities of the PM 2535

As well as the above features, the PM 2535 has built-in data collection, control facilities and calculations including Ax + B,  $\Delta\%$ , dBm and relative measurements. Maximum and minimum values can be stored over a time interval, and warnings can be given if specified limits are exceeded.

Burst mode provides up to 150 measurements/sec. Sequence programming allows repetition of the same measurement cycle.

### Fast Measurement and Output

At a touch of the 'speed' button, the PM 2534 and PM 2535 step through 6 $\frac{1}{2}$ , 5 $\frac{1}{2}$ , 4 $\frac{1}{2}$ , and 3 $\frac{1}{2}$  digit modes, enabling the optimum speed/resolution combination to be selected for every application. At a 3 $\frac{1}{2}$  digit resolution the instrument makes 100 measurements per second and can transmit the measured values through its standard GPIB interface at the same rate.

### V DC Measurement Speed (Incl Controller)

Digits	Trigger Mode	Measurements/s
3 $\frac{1}{2}$	Internal	100
3 $\frac{1}{2}$	IEEE-488	50
4 $\frac{1}{2}$	IEEE-488	30
5 $\frac{1}{2}$	IEEE-488	3
6 $\frac{1}{2}$	IEEE-488	0.3

Typical measurement speeds



# Bench/System Multimeters

## PM 2534 & PM 2535

### Specifications

#### Technical Specifications

##### DC Volts/DC Amps

Ranges	Maximum Resolution	Accuracy: 5 <sup>1</sup> / <sub>2</sub> or 6 <sup>1</sup> / <sub>2</sub> Digits in % Rdg + % Range		
		24 Hrs (tcal ±1°C)	90 Days (tcal ±5°C)	1 Year (tcal ±5°C)
300 mV	100 nV	0.0025 + 0.0013*	0.007 + 0.0017*	0.012 + 0.0017*
3V	1 μV	0.0020 + 0.0010	0.005 + 0.0013	0.010 + 0.0013
30V	10 μV	0.0025 + 0.0013	0.006 + 0.0017	0.015 + 0.0017
300V	100 μV	0.0025 + 0.0010	0.006 + 0.0013	0.010 + 0.0013
30 mA	100 nA	0.01 + 0.005	0.03 + 0.005	0.05 + 0.005
3A (<1A)	10 μA	0.01 + 0.005	0.03 + 0.005	0.05 + 0.005
3A (>1A)	10 μA	0.10 + 0.0	0.15 + 0.01	0.20 + 0.01

\*Valid when using "NULL"

Operation Modes Scale Length	Speed Measurements/Sec	Normal Mode Rejection		Common Mode Rejection*		
		50-60 Hz ±0.1%	50-60 Hz ±1.0%	DC	50-60 Hz ±0.1%	50-60 Hz ±1%
3000000	0.3	>80 dB	>60 dB	>140 dB	>160 dB	>140 dB
300000	3.0	>70 dB	>50 dB	>140 dB	>150 dB	>130 dB
30000	30	>60 dB	>40 dB	>140 dB	>140 dB	>120 dB
3000	100 (150)**	—	—	>140 dB	>80 dB	>80 dB

\*Measured with 1 kΩ unbalance and guard connected to CM voltage

\*\*For PM 2535 using internal buffer

##### Temperature Coefficient

**Input Impedance:** DC volts, 10 MΩ

**DC Volts:** ±(0.002% reading + 0.0005% range)

**DC Amps:** ±(0.005% reading + 0.001% range)

**Maximum Input Voltage:** 600V peak, 300V continuous

**Maximum NM Voltage:** 140% of selected range

**Maximum CM Voltage:** 350V peak, lo to guard;

350V peak, guard to ground

**Filters:** User selectable digital

**Clip Indication:** † is displayed when input circuitry clips during measuring cycle

**Null Range:** ±100 μV

**Protection:** 3.15A fuse

##### AC Volts (RMS)/AC Amps

Ranges	Maximum Resolution	Input Characteristics	Accuracy: 4 <sup>1</sup> / <sub>2</sub> or 3 <sup>1</sup> / <sub>2</sub> Digits in %Reading + %Range Valid from 1% to 100% of Range			
			Frequency Range	24 Hrs (tcal ±5°C)	90 Days (tcal ±5°C)	1 Year (tcal ±5°C)
300 mV 3V	10 μV 100 μV	1.2 MΩ//30 pF	40/400 Hz - 5 kHz	0.10 + 0.10	0.20 + 0.10	0.30 + 0.10
30V 300V	1 mV 10 mV	0.93 MΩ//30 pF	5 kHz-100 kHz (per kHz)	0.02 + 0.02	0.04 + 0.02	0.06 + 0.02
30 mA	1 μA	<250 mV drop	*40/400 Hz - 1 kHz	0.1 + 0.1	0.2 + 0.10	0.3 + 0.1
3A	100 μA	<600 mV drop	*40/400 Hz - 1 kHz	0.1 + 0.1	0.2 + 0.10	0.3 + 0.1

\*Analog Filter on/off

Operation Modes Scale Length	Speed Measurements/Sec
30000	2.5
3000	25

**Protection:** 3.15A fuse

**Crest Factor:** 3.3 at full scale, increasing down scale. Crest factor overload indicated by 1 on display.

**Temperature Coefficient:** <0.03%/°C

**Maximum Volt-Hertz Product:** 10<sup>7</sup>

**CMRR:** With 1 kΩ unbalance and guard to '0': >120 dB for dc signals; >80 dB for 50/60 Hz ac signals

**Maximum Input Voltage:** 600V peak, 400V continuous

**Input Impedance**

300 mV & 3V: 1.2 MΩ//30 pF

30V & 300V: 0.93 MΩ//30 pF





### Ohms (2-Wire and 4-Wire)

Ranges	Maximum Resolution	Accuracy 6 <sup>1</sup> / <sub>2</sub> or 5 <sup>1</sup> / <sub>2</sub> Digits in % Reading + % Range			Input Characteristics (Non-Linear)
		24 Hours (tcal ±1°C)	90 Days (tcal ±5°C)	1 Year (tcal ±5°C)	
3 kΩ 30 kΩ 300 kΩ	1 mΩ 10 mΩ 100 mΩ	0.010 + 0.0033	0.02 + 0.0033	0.03 + 0.0033	1 mA drive 100 μA drive 10 μA drive
3 MΩ 30 MΩ* 300 MΩ*	1Ω 100Ω 10 kΩ	0.020 + 0.0033 0.060 + 0.0033 0.8 + 0.033	0.04 + 0.0033 0.10 + 0.0033 1.6 + 0.033	0.05 + 0.0033 0.15 + 0.0033 2.0 + 0.033	1 μA drive 100 nA drive 10 nA drive

\*Only in 2-wire configuration

Operation Modes Scale Length	Speed Measurements/Sec
3000000	0.25
300000	2.5
30000	25
3000*	65

\*Excluding 3 MΩ, 30 MΩ and 300 MΩ ranges

**Maximum Open Circuit Voltage:** 10V  
**Maximum 4-Wire Lead Resistance:** 100Ω  
**Protection 2-Wire Terminals:** 250V ac or dc, 350V peak  
**Protection 4-Wire Terminals:** 30V ac or dc, 42V peak  
**Maximum CM Voltage:** 2-wire: 250V ac or dc, 350V peak between '0' and guard, or between guard and ground; 4-wire: 30V ac or dc, 42V peak between '0' and ground; guard must be connected to '0'  
**Linearization:** According to DIN 43760  
**Max Voltage:** Between '0' and guard 30V ac or dc, 42V peak

### General Specifications

#### Power Requirements

**Power Supply:** 115V or 230V (±10%)  
**Line Frequency:** 50 Hz or 60 Hz (±1%)  
**Power Consumption:** 20 VA  
**Safety Class:** IEC 348 Class I  
**MTBF:** 32,000 hours  
**Calibration Interval:** 1 year

#### Environmental Data

**Reference Temperature:** 23°C ±1°C  
**Rated Range of Use:** 0 to +50°C  
**Operating Range:** 0 to +55°C  
**Storage and Transport:** -25°C to +70°C  
**Limits of Humidity for Operation:** 20 to 80%  
**Max Dew Point:** +25°C

#### Mechanical Data

**Size:** 280 W mm x 210 L mm x 86 H mm (11 W in x 8.3 L in x 3.4 H in.)

[www.valmetronics.com](http://www.valmetronics.com)

### Temperature (via Pt 100 RTD probe)\*

Meter Ranges	Resolution	Accuracy	Measurements/Sec
-100°C to 850°C	1.0°	0.3% reading + 0.2°C	30
-100°C to +850°C	0.1°C	0.3% reading + 0.2°C	3

\*For optional accuracy see PM 9249/01 RTD Probe

## Ordering Information

### Models

**PM 2534/02n** System Multimeter  
**PM 2535/02n** System Multimeter

The n' indicates the required line cord. To select your line cord substitute the n' by:

- 1 Universal Euro 220V/16A, 50 Hz
- 3 Standard North American 120V/15A, 60 Hz
- 4 UK 240V/13A, 50 Hz
- 5 Switzerland 220V/16A, 50 Hz
- 8 Australia 240V/10A, 50 Hz

#### Included with Instrument

One-year product warranty, set of safety test leads with probes, spare fuses, operator and service manuals.

#### Accessories (Also see Section 7)

- HM 9606/00** Rack Kit for PM 2534/5 and PM 6660 Family of counters
- PM 2193/03** Rack Kit for PM 2534/5 and up to 4 system 21 modules (3E height)
- PM 9071** Coax Cable, 135Ω, Banana
- PM 9072** Coax Cable, 135Ω, BNC - Banana
- PM 9190/02** RS-232C Interface
- PM 9193/02** Analog Output Option

**PM 9210** High Frequency 150 mV Probe, 10 kHz to 1 GHz

**83RF** High Frequency Probe, 100 kHz to 100 MHz

**PM 9244** AC and DC Current Shunt up to 31.6A

**PM 9245** AC Current Transformer 10A to 150A

**PM 9246/03** High Tension Probe

**PM 9249/01** Temperature Probe

**PM 9264/01** 4-wire Test Lead for resistor measurement

**PM 9265/01** Shielded 3-wire Test Lead

**PM 9266/03** Set of Test Leads with Probes

**PM 9267/01** Data Hold Probe

**PM 9280/04** 19" Rack Mount Adapter (2E height)

#### Manuals

- PM 2534** Operator\*
- PM 2534** Programming Card
- PM 2535** IEEE Programming Card
- PM 2535** Operator\*
- PM 2535** Programming Guide

\*No charge with purchase of unit

## Customer Support Services

Also see Section 20.

#### Factory Warranty

One-year product warranty.