

100 MHz general-purpose oscilloscope PM 3267

- Wide input voltage range**
- Trigger view as third display channel**
- ALternate main and delayed time bases**
- Automatic triggering**
- Robust, fully enclosed cabinet for difficult environments**
- Double insulated power supply**

PM 3267 has been designed for a wide range of applications – from the simple to the sophisticated – in workshops, laboratories or tough field conditions. In particular those engineers with non-specialist experience in electronics seeking easy-to-operate test equipment will find the PM 3267 a most useful, uncomplicated tool, well within the scope of their understanding.

Its vertical deflection characteristics make it more than adequate to use with modern logic techniques, whilst its wide trigger bandwidth allows the display of very high frequency, complex signals.

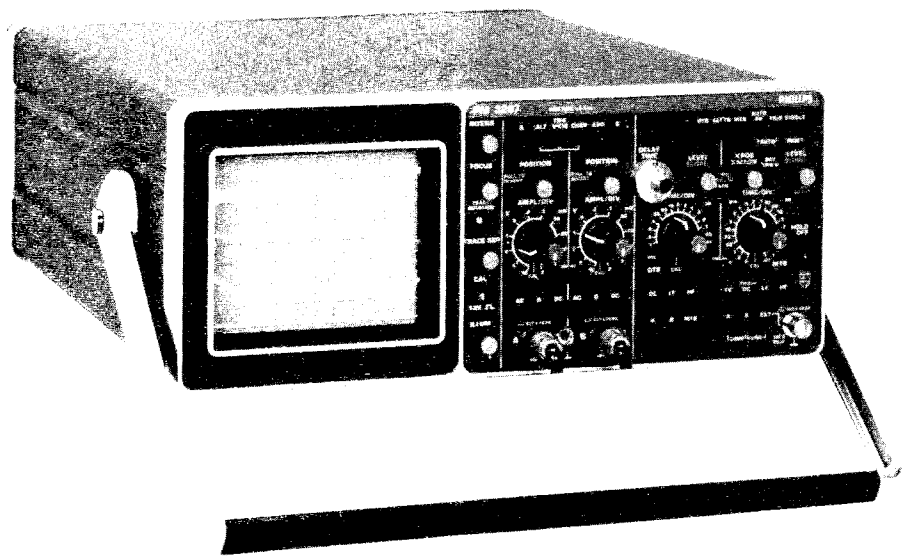
Its many attractive features include:

- **Trigger view** which allows the active trigger point to be observed on a third channel
- **Alternate time base switching** for simultaneous display of a complete signal and magnified detail over the full screen width
- **Independent triggering** of the main and delayed time bases, very important in digital applications
- **Automatic triggering** including video waveform applications
- **External Z-modulation** facility allowing an additional timing facility via blanked markers
- **'Out of calibration'** warnings indicated by front panel lamps

The instrument will operate from an external 24VDC power supply as well as standard line voltages between 90V and 270V (up to 440 Hz). This facility, plus the completely sealed sturdy metal case, increase the application possibilities beyond the laboratory or workbench, into more hostile environments.

Flexible triggering

Main and delayed time bases can be triggered independently and composite triggering is possible. TV triggering with automatic changeover from line to



frame is standard. Capturing single shot signals is simplified by a LED indicator which illuminates when the instrument has triggered.

Automatic triggering of ECL or TTL levels is an optional extra.

TECHNICAL SPECIFICATION

CRT

Type: Philips rectangular tube with 10kV acceleration potential and metal-backed phosphor

Screen type:

P31(GH) phosphor standard
P7(GM) phosphor optional

Graticule:

Internal
8 x 10 div. (each equals 1cm).
Dotted lines to facilitate rise time measurements

Illumination continuously variable

Trace rotation: Screw-driver adjustment at front panel aligns X-trace with hor. graticule lines

VERTICAL OR Y-AXIS

Display modes

Two identical channels
Channel A only
Channel B only

Triggerview only
Channels A and B chopped
Channels A and B and triggerview chopped
Channels A and B and triggerview alternated
Channels A and B alternated
Channels A and B added

Polarity inversion

Both channels can be inverted

Chopping frequency:

approx 500kHz
Display time per channel in chopped mode: 900ns

CMRR: 100: 1 at 2 MHz

Bandwidth

DC: 0...100 MHz
AC: 2 Hz...100 MHz
In the 2, 5 and 10mV settings, upper bandwidth is 80MHz.

Risetime: ≤3.5ns

Pulse aberration: ≤3% or 4% pp

Deflection coefficients

2mV/div...10V/div. calibrated in 1-2-5 steps

Deflection accuracy: ±3%

Continuous control: 1:>2.5 (non-calibrated)

Vert. positioning: + and -8 div. from screen centre

Input impedance: 1MΩ//25pF

Input coupling: AC, 0, DC

Max. input voltage

400V (DC + AC pk)
Test voltage: 500V (RMS)

Visible signal delay: 30ns

TRIGGERVIEW

Bandwidth: 0...60 MHz

Sensitivity

Ext.: 200mV/div. $\pm 3\%$
Int.: depending on setting of Y channel

Trigger point: Screen centre ± 0.3 div.

Delay between EXT trigger view and Y channels:
6ns

HORIZONTAL OR X-AXIS**Display**

Main time base
Main time base intensified
Delayed time base
Alternated between time base intensified and delayed time base
X-Y operation

Trace separation in ALT TB mode: 5 div.

Horizontal positioning range: + and -5 div.

TRIGGERING OF THE MAIN TIMEBASE

Coupling: DC, LF, HF, TV

Source: Y_A , Y_B , Composite, External and Line

Trigger bandwidth

DC: 0...100 MHz
LF: 10 Hz...25kHz
HF: 25kHz...100 MHz

Trigger sensitivity:

	30 MHz	100 MHz
Int	0.5div	1.5div
Ext	100mV	300mV

TV: INT: 0.7div sync pulse
EXT: 150mV sync pulse

Level range

in normal internal mode: +8 and -8div
in normal external mode: +1.6 and -1.6V
in Auto_{pp} mode: related to peak-to-peak value of the trigger signal
in TV: fixed level

Triggering slope: + or -

External input impedance: 1M Ω //25pF

Maximum input voltage: 400V (DC + AC pk)
Test voltage: 500V (RMS)

MAIN TIME BASE**Time coefficients**

0.5s/div...50ns/div.
23 calibrated pos. in 1-2-5 sequence

Continuous control: 1: ≥ 2.5 (non-calibrated)

Magnifier: x 10

Coefficients error: $\leq 3\%$ (5% including magn.)

Linearity error: $\leq 5\%$

Mode: AUTO_{pp}, AUTO, TRIG, SINGLE

Variable hold off time

The sweep hold off time can be varied between 1 and 10 times the time/div. settings.

"Not triggered" LED

LAMP is on when sweep is in free run mode
In single shot mode LAMP is on when sweep is waiting for trigger signal

TRIGGERING OF THE DELAYED TIMEBASE

Coupling: DC, LF, HF

Source: Y_A , Y_B

Trigger bandwidth

DC: 0...100 MHz
LF: 10 Hz...25kHz
HF: 25kHz...100 MHz

Trigger sensitivity

	30 MHz	100 MHz
Int	0.5div	1.5div

Level range: In normal internal mode: -8 and +8div

Trigger slope: + or -

DELAYED TIMEBASE**Operation**

Delayed timebase starts either immediately after delay time or is triggerable after the delay time

Time coefficients: 1ms/div...50ns/div.
15 calibrated pos. in 1-2-5 sequence

Continuous control: 1: ≥ 2.5 (non-calibrated)

Coefficients error: $\leq 3\%$ (5% including magn.)

Delay time

Variable between 5s and 500ns
Incremental accuracy 0.5%

Delay time jitter: 1: $> 20\ 000$

X-Y OPERATION

Mode (X-deflection): Y_A , Y_B , External, Line

Deflection coefficients

In channel A or B mode as selected by A or B
ampl./div. $\pm 10\%$
In external mode 0.5V/div. $\pm 10\%$
In line mode 8div. at 50Hz...60Hz

Magnifier: x 10

Bandwidth

DC: 0...100kHz (0.5dB)
LF: 10 Hz...25kHz
HF: 25kHz...100kHz

Phase shift between X and Y ampl.

$< 3^\circ$ at 100kHz in DC mode

CALIBRATION UNIT

Amplitude: 1.2V_{pp} $\pm 1\%$

Frequency: approx. 2kHz square wave, output short-circuit protected

POWER SUPPLY**Line voltages**

110V: 90...130V
220V: 195...245V
240V: 210...270V

Line frequencies: 46...440Hz

DC power source: 20...32V_{DC}

Power consumption: 45W

Safety: According to IEC 348 Class II requirements for power supply

Z-modulation

TTL compatible
"1" is normal intensity
"0" blanks display
(min. pulse width required: 10ns)

DIMENSIONS AND WEIGHT

(w x h x d) 335 x 137 x 445mm
(13.2 x 5.4 x 17.5-in)
10.6 kg (23.3lb)

ENVIRONMENTAL CAPABILITIES**N.B.:**

The environmental data are valid only if the instrument is checked in accordance with the official checking, procedure. Details on these procedures and failure criteria are supplied on request by the PHILIPS organisation in your country, or by PHILIPS' TEST AND MEASURING DEPARTMENT, EINDHOVEN, HOLLAND.

Ambient temperatures

Rated range of use: 0°C...+40°C
Limits for operation: -10°C...+55°C
Storage and transport: -55°C...+70°C

Altitude

Limit range of operation 5000m (15 000ft)
Limit range of transport 15000m (50 000ft)

Humidity: According to IEC 68Db

Shock

Operating: 30g, half-sine, 11ms duration, 3 shocks per axis per direction for a total of 18 shocks

Vibration: 20 minutes in each of 3 directions, 5...55 Hz; 1mm_{pp} and 4g max. acceleration

Recovery time

30 minutes if ambient temperature is raised from -10°C to +20°C at 60% relative humidity

Electromagnetic interference

Meets VDE 0871 and VDE 0875 grenzwertklasse B.

ACCESSORIES SUPPLIED

Operating manual
2 x 10:1 attenuator probe PM 8927A
Front cover
Contrast filter
Collapsible viewing hood
BNC-banana adapter 4mm

OPTIONAL ACCESSORIES

PM 8935 HF passive probe set 10:1 (1.5m)
PM 8935L HF passive probe set 10:1 (2.5m)
PM 8927A Passive probe set 1:1 (1.5m)
PM 8927AL Passive probe set 1:1 (2.5m)
PM 8932 Passive probe set 100:1
PM 9355 Current probe
PM 9381 Oscilloscope camera
PM 8972 Camera adapter for stationary use
PM 8963 19-inch rack mount adapter
PM 8992 Accessory pouch
PM 8910 Polaroid anti-glare filter
PM 8980 Long type viewing hood
PM 8991 Oscilloscope trolley
PM 8901 Battery pack 24V_{DC} and 280V_{DC}
PM 8991 Oscilloscope trolley
PM 8994 Set of accessories for probes
PM 8943 Active FET probe 1:1, 10:1, 100:1
PM 9366 Collapsible viewing hood
PM 8940 Isolation amplifier
Service Manual 9 499.445.01111

AVAILABLE VERSIONS

PM 3267 Standard versions
PM 3267R 19-in rackmount version