100 MHz general-purpose oscilloscope PM 3267

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 440Hz). 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/GMI 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

**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

**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: 0.6...60 MHz

Sensitivity
Ext: 200mV/div; ±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...25 kHz
HF: 25 kHz...100 MHz

Trigger sensitivity:

<table>
<thead>
<tr>
<th></th>
<th>30 MHz</th>
<th>100 MHz</th>
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<tbody>
<tr>
<td>Int</td>
<td>0.5 div</td>
<td>1.5 div</td>
</tr>
<tr>
<td>Ext</td>
<td>100 mV</td>
<td>300 mV</td>
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TV: INT: 0.7 div sync pulse
EXT: 150 mV sync pulse

Level range
in normal internal mode: +8 and −8 div
in normal external mode: +1.6 and −1.6 V
in AUTO pp mode: related to peak-to-peak value of the trigger signal
in TV: fixed level

Triggering slope: + or −

External input impedance: 1MΩ/25pF

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

MAIN TIME BASE

Time coefficients
0.6/div...50 m/s/div.
23 calibrated pos. in 1-2-5 sequence

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

Magnifier: x 10

Coefficients error: ≤3% (5% including magn.)

Linearity error: ±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...25 kHz
HF: 25 kHz...100 MHz

Trigger sensitivity:

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<tr>
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<th>30 MHz</th>
<th>100 MHz</th>
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<tbody>
<tr>
<td>Int</td>
<td>0.5 div</td>
<td>1.5 div</td>
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Level range: In normal internal mode: −8 and +8 div

Trigger slope: + or −

DELAYED TIMEBASE

Operation
Delayed timebase starts either immediately after delay time or is triggered after the delay time

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

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

Coefficients error: ≤3% (5% including magn.)

Delay time
Variable between 5 s and 5000 s
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. ±10%
In external mode: 0.5V/div. ±10%
In line mode 8 div. at 50 Hz...80 Hz

Magnifier: x 10

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

Phase shift between X and Y ampl.
<3° at 100 kHz in DC mode

CALIBRATION UNIT

Amplitude: 1 Vpp ±1%

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

POWER SUPPLY

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

Line frequencies: 46...440 Hz

DC power source: 20...32VDC

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: 10 ns)

DIMENSIONS AND WEIGHT

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

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

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, 1 m/s² 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 grenzwertsklasse B.

ACCESSORIES SUPPLIED

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

OPTIONAL ACCESSORIES

PM 8935 HF passive probe set 10:1 (1.5 m)
PM 8953L HF passive probe set 10:1 (2.5 m)
PM 8927A Passive probe set 1:1 (1.5 m)
PM 8927AL Passive probe set 1:1 (2.5 m)
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 24VDC and 280VDC
PM 8991 Oscilloscope trolley
PM 8994 Set of accessories for probes
PM 8943 Active FET probe 1:1; 10:1; 100:1
PM 9368 Collapsible viewing hood
PM 8940 Isolation amplifier

Service Manual 949.446.0111

AVAILABLE VERSIONS

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