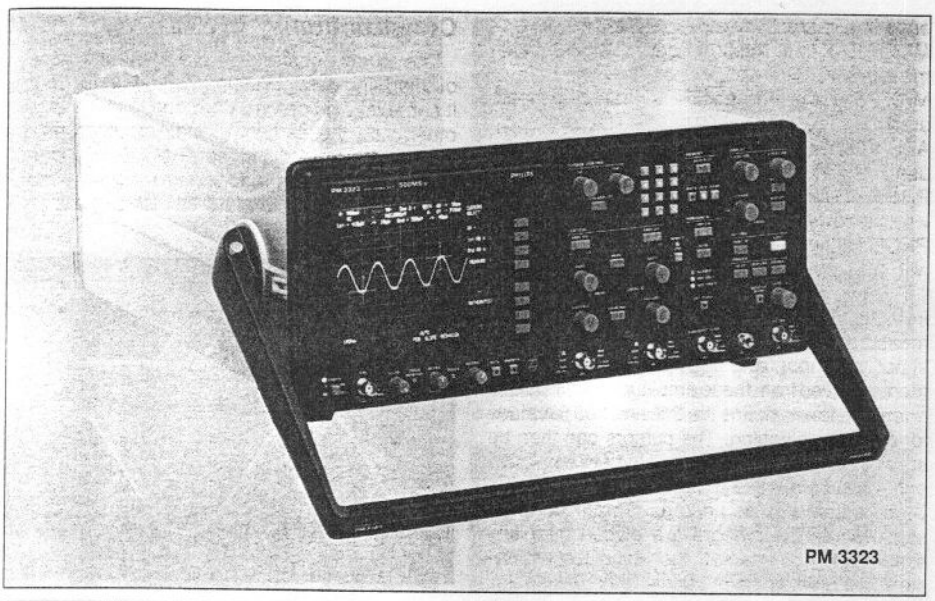


PM 3323 300 MHz, 500 MS/s Digital Storage Oscilloscope
PM 3320A 200 MHz, 250 MS/s Digital Storage Oscilloscope

- Up to 300 MHz Bandwidth
- 250 MS/s or 500 MS/s sampling rate on each channel
- 2 ns or 4 ns single shot resolution on each channel
- 10 bit vertical resolution
- Four 4k deep memories
- Horizontal expansion of up to 64 times
- Automatic cursor positioning and measurements of amplitude, time, frequency and phase
- Signal processing including algebraic functions, FFT and histogram

Extensive Acquisition and Display Functions

The PM 3323 and PM 3320A have extensive acquisition, calculation and display functions to capture exactly the signals of interest and quickly extract the information and measurements required. Both models offer an absolute min/max mode ('envelope' mode) that creates a cumulative record of signal amplitudes over the measuring period. Also available are stop on difference and save on difference modes. These allow signals outside a predetermined band to be captured, after which acquisition either stops (stop on difference) or continues after saving the waveform in a register (save on difference). In both cases the signals are time and date stamped to help relate intermittent faults to possible external causes. In combination with the other acquisition modes such as pre- and post-triggering, offset and restart, the PM 3323 and PM 3320A offer exceptional versatility in capturing and analyzing exactly the signal of interest. A complete measurement center in one unit.

Inputs and Signal Acquisition

The PM 3323 and PM 3320A have the power and versatility to cover a wide range of applications. Two signal inputs are provided, each with a choice of 1 MΩ or 50Ω input impedance. The built-in 50Ω terminations are protected against damage through overloads by a combination of software and thermal protection.

Calibrated voltage offset of up to 1000 x each input sensitivity permits the full utilization of the instrument's 10 bit vertical resolution even when examining small signals present on large DC offsets. Even if the magnitude of this DC offset is unknown the PM 3323 or PM 3320A can make the compensation automatically using their AUTO-OFFSET facility. To enable accurate measurements on noisy signals, which is often the case with high bandwidth low level signals, the averaging mode is indispensable. The averaging mode reduces the noise drastically, enabling a clean display to be achieved even at the highest sensitivities. Further, the PM 3323's fast 500 MS/s sampling rate (250 MS/s on PM 3320A) applies to both channels, simultaneously, and synchronously. It offers a full 2 ns resolution for each channel, for repetitive signals and single events! And random sampling permits the use of higher time base speeds for repetitive signals, so that the full 300 MHz of the instrument can be used and stored. Each channel is also provided with a dual, fast peak-detector which permits the capture of events down to 3 ns, even when slow time base speeds are used. This is not only useful to catch short glitch-type signals over longer time windows, it also allows the instrument to accurately digitize and display high frequency signals which are modulated in amplitude by a lower frequency, without aliasing. For the slowest of signals, a roll mode is provided. The roll mode can be triggered, if desired, to stop at any significant signal detail.

Triggering and Delay Capabilities

The PM 3323 or PM 3320A can be triggered from a choice of internal and external signal sources. Pre-trigger of up to one full screen is possible, not only in the direct acquisition modes, but also at the higher time base speeds, thanks to the instrument's random sampling technique. Extensive post-trigger recording with delays of up to 1000 screen lengths permits analysis of small signal details out of long and complex signals. In addition, the RESTART function, which enables the user to quickly 'zoom in' on a point of interest, make analysis fast and simple and provide a better alternative to the traditional Delayed Sweep arrangement. Trigger level can be checked in the CRT display for fast setup, for all selected trigger sources, whether internal, or external. In addition to normal trigger delay, the delay can also be used to give an internal time delay after an external event. Both models also offer excellent TV trigger capabilities. (See also PM 8917.)

Storage

Signals from each channel can be stored in each of four 4k memories. This allows for easy comparison of waveforms, or the display of references. A unique, multiple-single-shot mode allows for quick and automatic storage of up to four dual-channel acquisitions which occur rapid succession. All waveforms are kept with all relevant acquisition parameters, such as sensitivity, time base, and delay settings at the moment of recording. A real-time clock provides automatic 'time stamps'. Full compatibility with GPIB/IEEE-488* and RS-232C enables almost unlimited recording of waveform data on external devices.

Display and Soft Keys

The PM 3323 and PM 3320A have a large 10 x 12 cm CRT screen. The center 8 x 10 cm area is exclusively used for waveforms. The edges of the screen the show acquisition parameters of live signals, or of previously recorded wave-

forms. This clear separation of signal traces and parameters eases interpretation of results. All softkey displays are to the right of the display and adjacent to the softkeys. A separate numeric keypad allows direct input of pertinent data such as offset and delay.

Operation and User Friendliness

All main functions are directly accessible to the user, without the need to learn soft-key menus. This also eliminates the time consuming need to back up through various levels of menus to change instrument settings.And Philips 'Green-button' Autoset provides for even faster set-ups by automatically determining the optimum acquisition parameters for any input signal. This is a great help in finding and viewing unknown signals.Once captured, waveforms are immediately displayed, and without interference from text or menus. All texts are displayed along the screen edges, with only channel identification (A or B) displayed with the relevant trace. The PM 3323 and PM 3320A even show a warning when aliasing due to undersampling is detected! The logical front panel layout follows the traditional concepts of clearly grouping input channels, time base functions and trigger functions. This logical approach makes the use of this advanced DSO possible right from the start.

SetUp Memories

Both models have user-programmable setup feature allows even greater ease of use, providing automation without a computer. This ensures repeatability of tests and their results.Up to fully 250 user-defined instrument setups can be stored for measurements of user-specific interest. These instrument setups can also be linked together to form sequences of test steps, or can be recalled at random.

Versatile Measurement Functions

Once a signal has been acquired, a full range of measurement and calculation functions to extract exactly the information needed from the signal are available. Measurements of voltage and time differences between the cursors positioned on a single waveform are possible. In addition comparative measurements to be made between two waveforms recorded on channel A and channel B, or between separate waveforms stored in any of the instrument's four memory registers.Not only absolute and relative time and voltage measurements are possible,but also phase measurements. In each case, all that's necessary is to position the cursors on the desired part of the signal or signals concerned, make a simple menu selection of the required measurement, and the numeric result is immediately displayed on-screen. To enhance and quicken specific application measurements the PM 3323 and PM 3320A also offer full automatic cursor positioning. In this mode the cursors are automatically positioned with respect to user defined reference levels. The choice of reference levels are:

MIN PEAK the most negative signal value measured

MAX PEAK the most positive signal value measured

ABS VOLT an absolute voltage level set by the user

PROB LOW the voltage level that corresponds with the lower flat part of a pulse

PROB HIGH the voltage level that corresponds with the upper flat part of a pulse

The two PROB reference levels are derived from the amplitude histogram of the signal being measured. This eliminates the influence of overshoot, preshoot, and ringing on time measurements derived from these amplitude levels. These reference levels define the 0 % and 100 % values for cursor positioning. The cursors can then be automatically placed at any value between -50 % and +150 % relative to these reference levels. Cursors can also be used as 'Smart-Start cursors'. When the cursors are placed over any signal detail of interest, the activation of 'Restart', automatically reestablishes proper delay and sampling speed to acquire that detail with maximum resolution.

Advanced Signal Processing Modes

The PM 3323 and PM 3320A offer more than signal measurements alone. A wide range of signal-processing modes allow you to explore more deeply into your acquired signals, and perform calculations that reveal hidden data and relationships.The basic arithmetic functions of add, subtract, multiply and divide are supplemented by signal differentiation and integration, as well as amplitude histograms, the application of digital filters and an optional FFT facility for signal representation and analysis in the frequency domain.

System Use

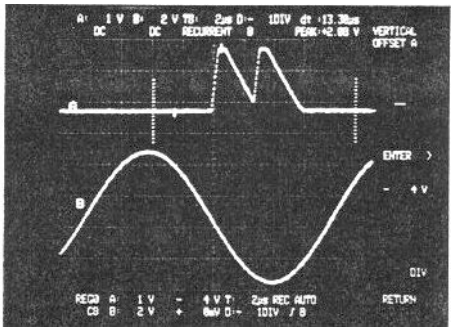
The interface option on both models offers full GPIB/IEEE-488 and RS 232C capabilities. All controls can be set or read. Waveform data can be taken from any of the four memories, or be sent back to the scope ,for example when loading a template for the 'stop on difference ' mode. All 250 user defined setup memories can be set by the controller, as well as called by the controller. This drastically reduces bus traffic and significantly speeds automatic testing applications.

Hard Copy

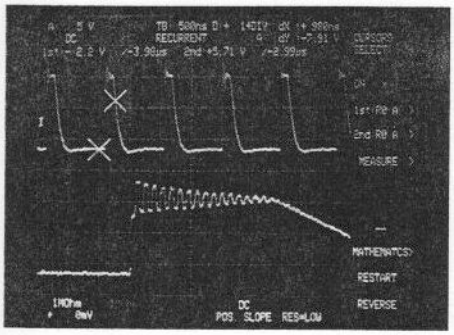
Each model is equipped with an analog output to drive an analog XY recorder. The operator can select any waveform in any memory to be drawn by the recorder. Instruments equipped with the interface option provide direct output to plotters or printers. A digital plot or print of any waveform is possible, along with alphanumeric data pertinent to that waveform.

Construction

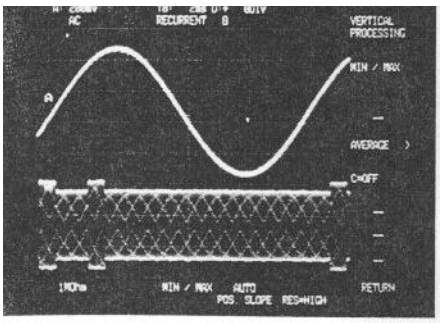
The sturdy construction provides for a variety of operating configurations. At just under 18 kg, it can easily be carried from one location to another, and the carrying handle doubles as an adjustable stand. Scopecart PM 8991/04 offers further mobility. In addition, a rackmountable version for use in standard 19 inch racks is also available.



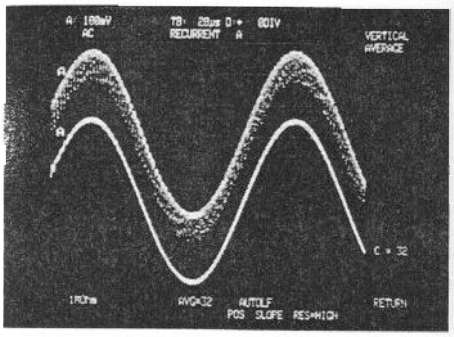
1. The PM 3323 and PM 3320A screen is a complete information center. Because of the 10 x 12 cm. screen size and full 8 x 10 cm dedicated trace area , no text is interfering with the displayed waveforms.



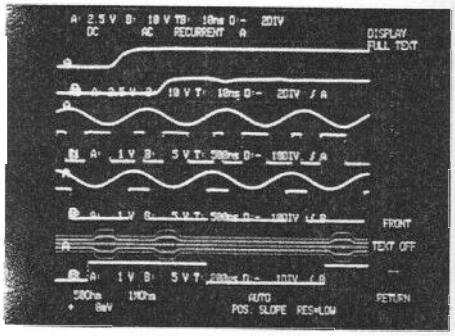
2. Restart allows fast zoom-in on signal detail. All that's necessary is to locate the cursors around the area of interest and press the Restart key. A new acquisition is made at a higher sampling rate so that the area of interest fills the full screen.



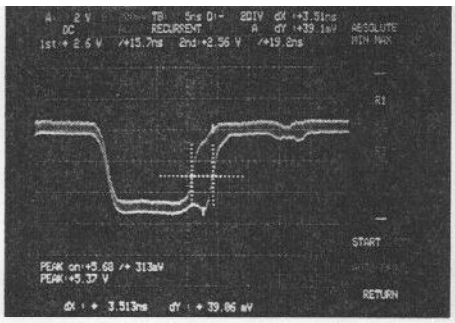
Vertical signal processing includes averaging, andwidth limit and MIN/MAX incorporating a fast Track nd Hold circuit in each channel to reveal spikes or litches down to 3 ns, even at low timebase speeds. This icility also enables accurate display of HF signals hich are LF amplitude modulated without aliasing.



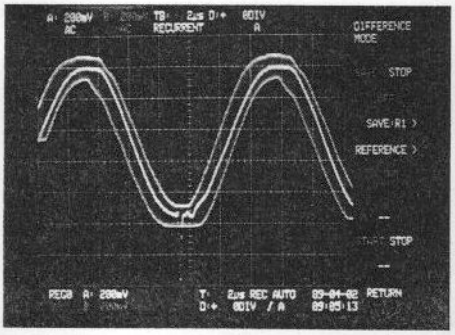
The 'running average' not only reduces random noise it allows the user to get the most out of the 10-bit solution even at the full bandwidth.



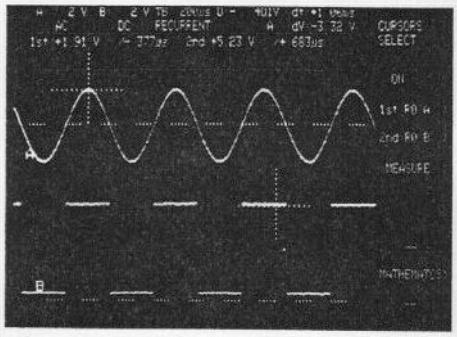
Signals from each channel can be stored in each of e four 4k deep memories, along with all the relevant setting parameters.



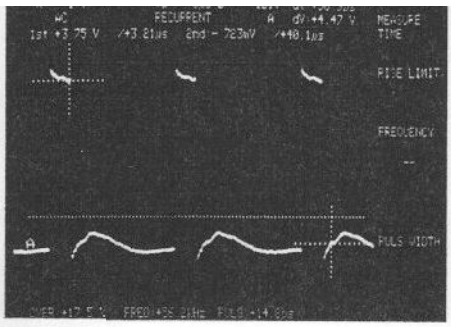
6. The envelope mode makes it easy to track signal variations over time, for example changes caused by temperature drift, interference, stability problems etc.



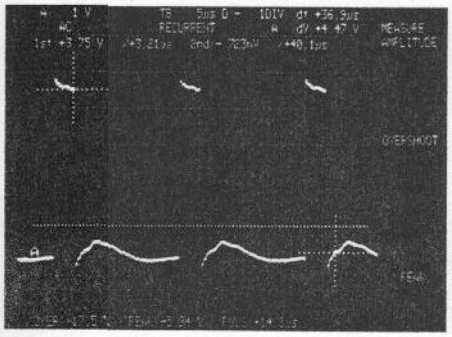
7. Built in 'envelope' functions provide a powerful capability for the testing of components or assemblies. With 'Stop on Difference' items not conforming to specification are easily identified.



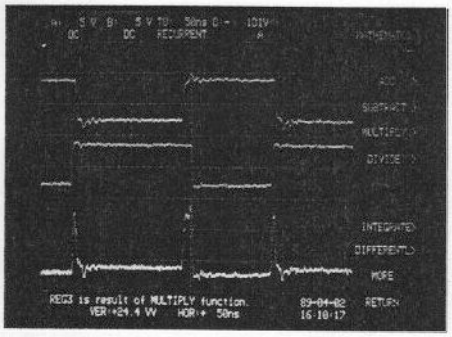
8. As should be expected of any high performance DSO, a wide range of measuring facilities are offered. Absolute ground referenced results are achieved on up to two traces selectable from any of the 8 displayable waveforms.



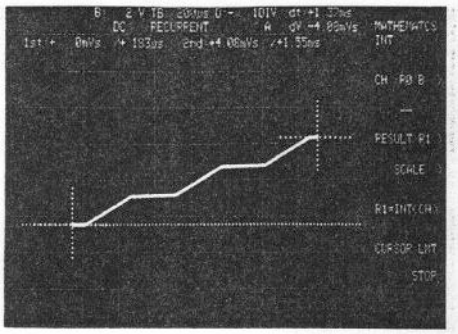
9. Together with the cursor measurements on a single trace, selection can be made from a wide variety of automatic and calculated results. Amplitude measurements of RMS, mean, peak-peak, pulse overshoot and preshoot can be readily selected.



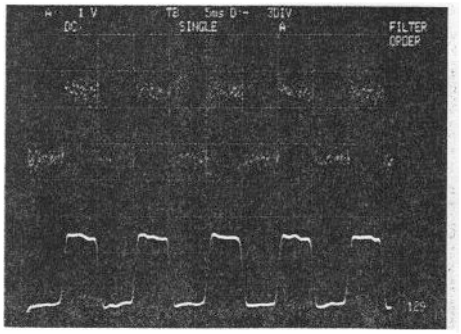
10. Further time measurements of frequency, period, pulse width, duty cycle and rise time are available to give timer/counter results. Even phase can be measured between channels and/or waveforms.



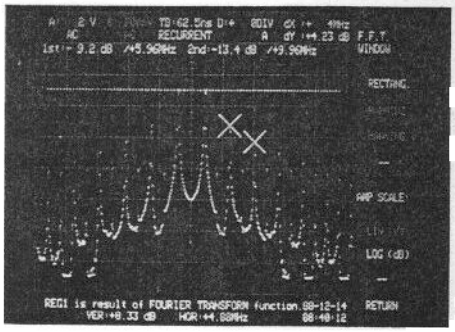
11. The basic arithmetic operation add, subtract, multiply and divide can be performed on captured waveforms allowing quick, convenient calculations.



12. A further example of the math facility -integrate - seen here as the integral of the signal between the cursors. A convenient display for use in 'energy' measurements for example.



13. Further processing gives a new dimension to single shots buried in noise. These signals, unlike repetitive waveforms that can be 'averaged' if noise exists, are once off, and average cannot be used. With the PM 3323's or PM 3320A post acquisition filtering, the true signal can be revealed.



14. The optional FFT function with selectable windowing (rectangular, Hamming or Hanning) and linear or logarithmic scaling gives fast calculation and display of the power spectra in the frequency domain.

Specifications

Technical Specifications

Unless stated all specifications refer to both PM 3323 and PM 3320A.

CRT

Philips 180 mm rectangular tube with 16 kV acceleration potential and P31 phosphor (GH). 100 mm x 120 mm useful screen area. 80 mm x 100 mm for traces.
Readout: Three separate areas reserved for front panel setting information, register parameters on softkey menus
Graticule: Internal with % indications. Illumination continuously variable

Autoset

Sets display, text, vertical mode, horizontal mode and trigger coupling in a predefined position. Other parameters depending on signal so that available signals are correctly recorded and displayed.

Signal Acquisition

Sampling Type:
Real time: PM 3323 100 ns/div...360s/div.
PM 3320A 200 ns/div...360s/div.
Equivalent time: PM 3323 5 ns/div...50 ns/div.
PM 3320A 5 ns/div...100 ns/div.
Maximum Sample Rate:
Real time: PM 3323 500 MS/s.
PM 3320A 250 MS/s.
Equivalent time: 10 GS/s.
External clock: 50 kS/s.
Vertical Resolution:
10 bits or 0.1% of full scale
Voltage resolution: 50 µV
Maximum Horizontal Resolution
Single channel (single shot)
PM 3323 100 ns/div...500 µs/div: 512 samples/acquisition; 1 ms/div...360s/div: 4096 samples/acquisition
PM 3320A 200 ns/div...500 µs/div: 512 samples/acquisition; 1 ms/div...360s/div: 4096 samples/acquisition
Single channel (repetitive or single scan)
PM 3323 5 ns/div...50 ns/div: 512 samples/acquisition; 100 ns/div...360s/div: 4096 samples/acquisition
PM 3320A 5 ns/div...100 ns/div: 512 samples/acquisition; 200 ns/div...360s/div: 4096 samples/acquisition
Dual channel (single shot)
PM 3323 100 ns/div...500 µs/div: 512 samples/acquisition; 1 ms/div...360s/div: 2048 samples/acquisition
PM 3320A 200 ns/div...500 µs/div: 512 samples/acquisition; 1 ms/div...360s/div: 2048 samples/acquisition
Dual channel (repetitive or single scan)
PM 3323 5 ns/div...50 ns/div: 512 samples/acquisition; 100 ns/div...360s/div: 2048 samples/acquisition
PM 3320A 5 ns/div...100 ns/div: 512 samples/acquisition; 200 ns/div...360s/div: 2048 samples/acquisition
Acquisition Time: Real time 10.24 x time/division (exclusive delay time). Equivalent time 2s for 5 ns/div. (input signal dependent): 10 ms for 100 ns/div. (99% probability of all samples being updated).
Sources: ChA, -ChA, ChB, -ChB
Modes: ChA, ChB, ChA and ChB, ChA + ChB, ChA - ChB, ChB - ChA, -ChA -ChB. Average and MIN/MAX possible in all modes.
Sample Difference Between ChA and ChB: Both channels are sampled simultaneously ±200 ps.
Acquisition Processing:
Absolute min./max. (envelope)
Averaging
Save on difference
Stop on difference

Channels A and B

Input Impedance (High Z): 1 MΩ in parallel with 14 pF
Input Impedance (50Ω): V.S.W.R. 1.2:1 at 200 MHz
Maximum Input Voltage (High Z): 300V (DC + AC peak) at 1 MHz
Maximum Input Voltage (50Ω): 5V DC and r.m.s.; 50 V AC peak. Protected against selection with unsafe voltage on input: connector.
Deflection Coefficients: 5 mV/div...5V/div. in 1-2-5 sequence. (Continuous control between steps)
Error Limit (Variable Calibrated): Overall 2%. Add 2% in min./max. mode and in 100 ns/div range
Dynamic Range: 10 divisions
DC Offset

	Range	Resolution
5 mV/div...20 mV/div.	±5V	5 mV
50 mV/div...200 mV/div.	±50V	50 mV
500 mV/div...5V/div.	±300V	500 mV

Shift Range: ±5 divisions
Frequency Response:
PM 3323 DC...300 MHz (-3 dB)
PM 3320A DC...200 MHz (-3 dB)
AC coupled lower -3 dB point with 50Ω input 10 Hz; AC coupled lower -3 dB point with high Z input 1 Hz. Bandwidth limiter reduces bandwidth to 20 MHz.
Risetime (0.35/Bandwidth): PM 3323 1.16 ns
PM 3320A 1.75 ns
CMRR: 100:1 at 1 MHz; 20:1 at 50 MHz
MIN/MAX Function: Accuracy for pulse longer than 3 ns is 50%. Reset time 20 ns
Average: Continuous average where:

$$\text{New Value} = \text{Old Value} + \frac{\text{New Sample - Old Value}}{\text{Constant}}$$

And constant is: 32 x in roll mode; 2...64 x in other modes.

Time Base

Modes and Time Coefficients:
Recurrent: 5 ns/div...5s/div
Single shot: PM 3323 100 ns/div...5s/div
PM 3320A 200 ns/div...5s/div
Single scan: 5 ns/div...5s/div
Multiple shot: PM 3323 100 ns/div...5s/div
PM 3320A 200 ns/div...5s/div
Multiple scan: 5 ns/div...5s/div
Roll: 50 ms/div...360s/div.
Absolute min./max.: 5 ns/div...5s/div.
Stop/save on difference: 5 ns/div...5s/div.
Error Limit:
In equivalent time mode ± 1.0%
In real time mode ± 0.01%
Save/Stop on Difference: Time between end of last comparison and ready for next: 100-150 ms dependent on memory resolution
Absolute Min./Max: Auto resets after 100 acquisitions or after 10s whichever occurs last (can be switched off)

Triggering

Sources: ChA, ChB, External, Line and External events
Ext. Input Impedance: 1 MΩ in parallel with 14 pF
Ext. Maximum Input Voltage: 300V (AC + DC peak) at 1 MHz
Coupling: Signal triggering; AC, DC, LF rej., HF rej., Auto level or TVF. Events triggering; TTL, ECL or adjustable voltage
Triggering Sensitivity

	Internal	External
30 MHz	0.5 div.	50 mV
100 MHz	1.5 div.	100 mV
300 MHz	4.0 div	300 mV

Slope: Positive, negative or dual slope
Level Range:
Channel A and B: ±8 div.
External: ±0.8V
External/10: ±8V
Any source in AUTO: related to p-p value
Frequency Range:
Trigger coupling in DC: DC...300 MHz
Trigger coupling in AC: 10 Hz...300 MHz
Trigger coupling in LF rej.: 50 kHz...300 MHz
Trigger coupling in HF rej.: DC...50 kHz
Trigger Delay:
Range:
PM 3323 -10...9999 divisions (100 ns/div...360s/div.); -10...500 divisions (5 ns/div... 50 ns/div.)
PM 3320A -10...9999 divisions (200 ns/div...360s/div.); -10...500 divisions (5 ns/div... 100 ns/div.)
1...9999 events (max. frequency 5 MHz), Internal delay after event count

Memory

4 memories of 4k x 10 bit-words each

Display

Sources: Register R0, R1, R2 or R3 in any combination
Expansion
Horizontal: In steps 1x...64x (8x in A vs B). Continuously between 1x and 2x
Vertical: 0.2x, 1x and 5x
Display Handling:
Smoothed
Dots only
Dot join
All registers can be inverted
Position: ±5 div. horizontally and vertically from screen center for each register and/or individual trace.

Setting Memory

Memory Size: 251 front panel settings maximum
Functions: SAVE, INSERT or DELETE for storage or erasure of settings. RECALL, NEXT or PREVIOUS for recall of programmed settings.
Configuration: Front panel settings can be grouped as main and sub settings in order to reach up to 10 closed sequences each with an own number of steps.

Calculation Functions

All waveform calculations can be performed with results stored in different registers from source register. Original waveform need never be affected.
Add
Subtract
Multiply
Divide
Differentiate
Integrate
Delay channel
Amplitude histogram
Digital filter
FFT (optional)
Digital Filter: Breakpoint related to filter order and TB by (0.72/N+1)*f sample, where N=filter order and f sample=sample rate (dependent on [TB*10]/memory depth).
FFT (option): Range of amplitude display 49.8 dB. Positive spectrum display resolution 2000 points single channel, 1000 points dual channel. Frequency resolution related by TB/10.24. DC point is mid-memory.
FFT Windowing: Rectangular, Hanning or Hamming with linear or logarithmic vertical scaling.
FFT Calculation Time: No windowing; linear display 6 secs; windowing and logarithmic display, 15 secs.

Cursors

Max. Horizontal Resolution: Single channel mode 1:4096; Dual channel mode 1:2048
Vertical Resolution: 1:1024
Read Out Resolution: 3 digits
Error Limit: < 2% of voltage; < 0.2% of time
Range: Visible part of signal
Readout on screen: V1, V2, dV, T1, T2, dT, 1/dT
Positioning : Time, voltage, relative voltage
References for Relative Voltage cursors: MIN PEAK, MAX PEAK, PROB HIGH, PROB LOW, GND, ABSolute VOLTage

Measurement Capabilities

dV	dt
RMS	1/dt
Max	Rise/fall
Min	Rise/fall-ECL
Overshoot	Rise/fall-VAR
Preshoot	Frequency
Mean	Period
Absolute volts	Pulse width
Volts Ch-Ch	Duty cycle
Volts Reg-Reg	Phase
Relative time	Time Ch-Ch
Relative volts	Time Reg-Reg

Calibration Output

Output voltage: 1 Vp square wave
Frequency: 2 kHz
Internal impedance: 50Ω
Output current: 20 mA

Interface (optional)

Interface board contains IEEE-488 interface, RS 232C interface and a real time clock.
IEEE-488: Bus driver. E2 (Three-state).
Interface Functions

Source handshake	SH1	Complete capability
Acceptor handshake	AH1	Complete capability
Talker	T5	Basic talker, Serial poll, Talk only and Unaddress if MLA.
Listener	L3	Basic listener, Listen only and Unaddress if MTA.
Service request	SR1	Complete capability
Remote/local	RL2	No local lock out
Parallel poll	PP0	No parallel poll
Device clear	DC1	Complete capability
Device trigger	C0	No controller
Default address	8	

RS 232C

Connector: RFI/EMI shielded 25 pole
Bus drivers: Data circuits Spacing '0' +3V;Marking '1' -3V (TxD and RxD lines)
Control circuits: ON +3V; OFF -3V (RTS, CTS, DSR and DTR lines)
Current Output: 10 mA
Impedance: Output 300Ω ; Input 3 k...7 k
Voltage: Output -7V...+7V; Input -25V...+25V
Interface Functions
Baud-rate: 75, 110, 150, 300, 600, 1200, 2400, 4800, 9600 or 19200 (input and output separately selectable)
Stop-bits: 1 or 2
Parity: odd, even or none
Length: 7 or 8 bits
Transmission mode: Asynchronous, full duplex
Handshake: Software, XON/XOFF; Hardware DSR/DTR and CTS/RTS
Serial Poll: ESC 7

Go to Remote: ESC 2
Go to Local: ESC 1
Device Clear: ESC 4
Device Trigger: ESC 8
Digital Plot (option /40n and /80n)
Language: Selectable HPGL or Philips GL dependent on plotter type
Plotter select: Philips PM 8153/1, PM 8153/6, PM 8154, PM 8155,
HP 7450, HP 7475A
Pen select: Pen 1 for ChA
Pen 2 for ChB
Pen 3 for Register ChA
Pen 4 for Register ChB
Pen 5 for graticule and alphanumerics
Plot area: Softkey selectable
Dot Matrix Printer
Screen Dump: Compatible with Epson FX 80 and HP Thinkjet®
Drawing Area: 10 cm x 10 cm
Analog Plot Output
Screen dump or register dump possible.
Output voltage: 1V horizontal and vertical (±3%). Pen lift: TTL compatible.
Plot time: adjustable between 20 ms...2 sec per dot.

General Specifications

Power Supply

Nominal AC Voltage Range: 100...240 V
Nominal Frequency: 50 Hz...400 Hz
Power Consumption: With options 170 W nominal
Memory Backup for Settings and Traces: Two rechargeable batteries are supplied with the instrument
Retention Time: 8 weeks (recharged when instrument is powered)

Mechanical Data

Height: 176 mm (6.9 in); 250 mm (9.8 in) with feet and pouch; 4E (7 inch) in 19-inch rackmount version
Width: 419 mm (16.5 in); 465 mm (18.3 in) with handle
Depth: 570 mm (22.5 in); 670 mm (26.4 in) with handle extended
Weight: 18 kg (39.6 lb) excl. accessories

Environmental Characteristics

Meets environmental requirements of MIL-T-28800C Type III Class 5, Style D.
Temperature: Operating 0°C...+50°C; Storage -40°C...+70°C
Maximum Humidity: 95% relative humidity
Maximum Altitude: Operating 4.5 km (15 000 ft); Non-operating 12 km (40 000 ft)
Vibration: Frequency 5...55 Hz, 15 minutes along each of the 3 axes, with a maximum acceleration of 3 g. Resonance dwell of 10 minutes at each frequency where resonance occurs, or at 33 Hz when no resonance found
Shock: Operating and non operating: Max acceleration 30 g, 1/2 sine, 11 ms duration, 6 shocks on each axis, 3 shocks on each face giving a total of 18 shocks
Bench Handling: MIL-STD-810 method 516, procedure V
EMI: MIL-STD-461 Class B. VDE 0871 and VDE 0875.
Safety: The instrument meets the requirements of IEC 345 class 1, VDE 0411 class 1, UL 1244 and CSA 556B.
Included With instrument: 2, 10:1 passive probes, Blue contrast filter, Operating Manual,2 rechargeable penlight batteries, reply card for free Service Manual.

Ordering Information

Model

PM 3323/00n 300 MHz 500 MS/s Digital Storage Oscilloscope
PM 3320A/00n 200 MHz 250 MS/s Digital Storage Oscilloscope
Note :n defines the power cord option

Optional Configurations

When ordering, select basic 'PM' model, and substitute the configuration option number listed below as a suffix.
PM 332./.1n Adds FFT Option to any configuration
PM 332./3.n Adds 19 inch Rackmount only
PM 332./4.n Adds IEEE 488/RS 232C Interface Option only
PM 332./8.n Adds Rackmount and IEEE 488/RS232C Interface option
Example, Ordering Configuration
To order a 300 MHz, 500 MS/s Digital Storage Oscilloscope with rackmount and FFT, select:

Basic model	PM 3323/00n
Rackmount only	PM 3323/3. n
FFT option	PM 3323/ .1n
110 V Power cord option	PM 3323/ . .3
Complete model number	PM 3323/313

Accessories

Passive Probes

PM 8911/091 500Ω,10:1 Probe with readout, cable length 1.5 m (5 ft)
PM 8912/091 5 kΩ, 100:1 Probe with readout, cable length 1.5 m (5 ft)
PM 8924/001 1:1 Probe, cable length 1.5 m (5 ft)
PM 8924/201 1:1 Probe, cable length 2.5 m (8 ft)
PM 8929/191 10:1 Probe with readout, cable length 1 m (3 ft)
PM 8929/291 10:1 Probe with readout, cable length 2.5 m (8 ft)
PM 8929/391 10:1 Probe with readout, cable length 1.5 m (5 ft)
PM 8931/091 20 MΩ, 100:1 Probe with readout, cable length 1.5 m (5 ft)
PM 9599/091 Set of VHF Attenutators Active Probes
PM 8940/09n High Voltage Isolation Amplifier with readout
PM 8943/00n 650 MHz FET Probe
PM 9355/09n AC Current Probe with readout

Other Accessories

PM 8917/00n Video Line Selector
PM 8956A/001 Retrofittable IEEE-488 (GPIB) and RS 232C interface
PM 8992/801 Accessory Pouch
PM 8991/041 Oscilloscope Cart
PM 9051/001 BNC to 4 mm Banana Adapter
PM 2122/01 50Ω Coaxial Switch
PM 2195/09 Probe Switch 400 MHz
PM 2230/001 Series Instrument Drivers Software
PM 2240/001 TestTeam Software
PM 2260/001 Oscilloscope Signal Processing Software

For full details of all accessories, see page 44