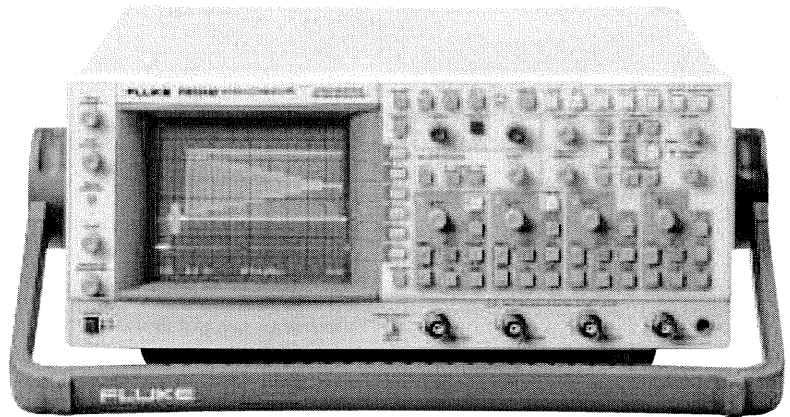


PM 3370B, PM 3380B, PM 3384B, PM 3390B and PM 3394B CombiScope® Instruments

Technical Data



Autoranging DSO with a built-in analog oscilloscope

This range of instruments comprises a total of 5 models. All are digital storage oscilloscopes with a real-time analog oscilloscope built-in. They are equipped with screen read-out, cursors and a fully triggered delayed timebase. They can be switched to the familiar analog mode, giving all the advantages of a real time signal display, from the digital mode and back, at the push of a button.

For optimum user convenience, this can be done from the front panel or from the probe-mounted command switch. The digital mode offers unique AUTORANGING capabilities for all channels as well as for the timebase. Autoranging allows for hands-free operation of the scope, with continuously optimized settings matching the signals applied.

All DSO benefits apply: trace storage, pre-trigger view, calculated measurements, hardcopy facilities, advanced trigger modes, averaging and FFT. The probe operated Touch-Hold-and-Measure™ freezes the display and instantly displays measured signal parameters V_{DC} , V_{RMS} , V_{pk-pk} and frequency.

Autoranging

Continuously adjusts the vertical deflection factor and the timebase sweep speed to keep an optimum display of the input signals. Autoranging can be selected individually for each of the input channels and for the timebase (responding to trigger signal).

Continuously variable timebase

Unique variable timebase works in both the DSO mode (down to 1 μ s/div.) as well as in analog mode. When combined with autoranging, the variable timebase will keep a fixed number of cycles of the input waveform on screen, even with changing input signal frequency. This is ideal when looking at frequency dependent phenomena, or when used with rotating machines and engines.

Autoset

Selects proper channel-, timebase- and trigger settings for all channels, including the PM 3370B's, PM 3380B's and PM 3390B's external trigger input. Triggering is automatically on the lowest frequency input signal. The function can be customized by the user to support personal preferences in the set-up.

Fast sampling

The sampling technique used in these instruments, gives a sample rate of up to 25 GS/s in PM 339xB for repetitive signals (10 GS/s in the other models). This results in a time resolution of 40 ps for the PM 339xB (100 ps for the other models). The single shot sample rate of 200 MS/s is also applied in the digital oversampling peak-detect mode, to capture fast transients and spikes as narrow as 5 ns at correct amplitude. At any timebase setting!

Autocal

Automatic fine adjustment for enhanced accuracy to get optimum performance even under extreme environmental conditions.

Automatic testing

The additional pass / fail testing offered by the Math+ firmware, as well as the GPIB/IEEE-488.2 interface make these scopes a powerful and fully programmable tool in automatic test applications.

Memory

The long memory allows acquisition and storage of traces up to 32K samples for the analysis of long time windows, or storage of up to 200 traces of 512 samples each. See table "Record length and trace storage" for details.

Technical Specifications

ANALOG MODE

VERTICAL DEFLECTION

Input channels

Full attenuator control on all four input channels (PM 33x4B), or on both input channels (PM 33x0B). External trigger input signal can be displayed for "trigger view" (PM 33x0B). On screen channel identifiers with ground level indicator.

Display modes

PM 33x4B: CH1, +/- CH2, CH3, +/- CH4, Add, Subtract; Alternate or chopped automatically selected.

PM 33x0B: CH1, +/- CH2, Add, Subtract; External Trigger View; Alternate or chopped automatically selected.

Bandwidth (+5..... +40°C)

PM 339xB: >200 MHz @ -3 dB,
PM 338xB: >100 MHz @ -3 dB,
PM 3370B: > 60 MHz @ -3 dB.

Bandwidth limiter

20 MHz @ -3 dB on all fully controllable channels simultaneously.

Rise time

(calculated from the bandwidth)

PM 339xB: < 1.75 ns,
PM 338xB: < 3.5 ns,
PM 3370B: < 5.8 ns.

Deflection Settings

Step attenuator:

2 mV/div..... 5V/div. in a
1-2-5 sequence
(full bandwidth).

Calibrated vernier:

2 mV/div.... 12.5 V/div.

External Trigger View (PM 33x0B):

100 mV/div. and
1 V/div.

Error limits

1.3% (measured over central 6 divisions).

Input impedance

All models, all channels:

1 MΩ ± 1% // 25 pF
± 2 pF

PM 339xB: user selectable 50Ω ± 1%.

Max. rated input voltage

In 1 MΩ position:

±400 V (DC + ACpeak;
< 10 kHz).

In 50Ω position: 5 V_{RMS}; 50 Vpeak

Dynamic range

PM 339xB: 24 div. at 50 MHz
PM 338xB: 24 div. at 25 MHz
PM 3370B: 24 div. at 15 MHz

CMRR

100:1 at 1 MHz, 25:1 at 50 MHz.

Channel isolation

PM 339xB: 50:1 at 200 MHz
PM 338xB: 50:1 at 100 MHz
PM 3370B: 50:1 at 60 MHz

HORIZONTAL

(Main and Delayed Timebase)

Display modes

Main Timebase (MTB),
Delayed Timebase (DTB),
Alternate Timebase (= MTB and DTB),
X-Y mode.

Sweep speeds (magn. x1)

PM 339xB: MTB: 0.5 s/div..... 20 ns/div.
in a 1-2-5-sequence.
Calibrated vernier gives
1.25 s/div..... 20 ns/div.
DTB: 0.5 ms/div... 20 ns/div.
in a 1-2-5 sequence.

PM 338xB and PM 3370B:

MTB : 0.5 s/div... 50 ns/div.
in a 1-2-5-sequence.
Calibrated vernier gives
1.25 s/div 50 ns/div.
DTB: 0.5 ms/div... 50 ns/div.
in a 1-2-5-sequence.

Fastest sweep speed (magn. x10)

PM 339xB: 2 ns/div.
PM 338xB and
PM 3370B: 5 ns/div.

Error limit (magn. x1)

≤ [1.3% of reading + 0.5% of 8 divisions].

DELAY TIME MULTIPLIER

Resolution

1 : 40,000

Error limit (magn. x1)

≤ [0.8% of reading + 0.3% of 8 divisions +
4 ns].

Jitter

< 1 : 25,000

TRIGGERING

(Main and Delayed timebase)

Trigger modes

Auto free run, Triggered, Single;
Edge triggering, TV Triggering.

EDGE TRIGGERING

MTB trigger source

PM 33x4B: CH1.... CH4, Line. External
trigger input optional,
replacing "Line".
PM 33x0B: CH1, CH2, External, Line.

DTB trigger source

Starts after delay or triggered on any
channel or on External Trigger input
(PM 33x0B only).

Slope

Positive (+), Negative (-).

Coupling

DC, AC (<10 Hz), LF-rej. (30 kHz),
HF-rej. (30 kHz).

Trigger gap

0.4 div., user selectable 0.8 div. for
triggering on noisy signals.

Level range

± 8 div. or automatically within signal
peak-peak amplitude range.

Level indication

On screen level indicators and numerical
read-out.

Trigger sensitivity and bandwidth

(+5..... +40°C)

| Sensitivity | PM3370B | PM338xB | PM339xB |
|-------------|---------|---------|---------|
| 0.6 div. | 30 MHz | 50 MHz | 100 MHz |
| 1.2 div. | 60 MHz | 100 MHz | 200 MHz |
| 2.0 div. | 150 MHz | 200 MHz | 300 MHz |

TV Triggering

MTB trigger source

PM 33x4B: CH1.... CH4; Lines, Field 1,
Field 2, specific line using built-in line
counter. External trigger input optional,
replacing "Line"
PM 33x0B: CH1, CH2, Ext.; Lines, Field 1,
Field 2, specific line using built-in line
counter.

Video standard

NTSC, PAL, SECAM, HDTV.

Delayed TB trigger source

Starts after delay or triggered on any input
channel or on External Trigger input
(PM 33x0B only); DTB triggers on edge or
on TV line. The Delayed TB can be used to
expand any part of the line selected with
the video line selector.

Signal polarity

Positive or negative video.

Sensitivity

0.7 div. (amplitude of sync. pulse).

X-Y MODE

X-deflection source

PM 33x4B: CH1.... CH4, Line.
PM 33x0B: CH1, CH2, External, Line.

X-deflection coefficient

Same as for vertical deflection, error limit
5% over central 6 div.

Dynamic range

20 div. up to 100 kHz,
> 10 div. up to 2 MHz.

ANALOG MODE (cont.)

Frequency response

≥ 2 MHz @ -3 dB.
Phase shift < 3° up to 100 kHz.

CURSOR MEASUREMENTS

Cursor modes and Read-out

Vertical: dV, V1 to ground, V2 to ground, ratio.

Horizontal: dT, 1/dT (in Hz), ratio, phase.

Horizontal and vertical cursors can be used together.

Accuracy (magn. x1)

± 1% of full scale within the central 8 horizontal and 6 vertical divisions.

DIGITAL MODE

ACQUISITION

Repetitive Sample Rate

Random sampling gives an equivalent sample rate up to 25 GS/s (PM 339xB) or up to 10 GS/s (PM 337OB and PM 338xB) on all input channels, over the full bandwidth.

Single Shot Sample Rate

Real time sampling up to 200 MS/s (single channel), 100 MS/s (dual channel). In PM 33x4B, a fast chopper offers 200 ns horizontal resolution in 4 channel single shot mode.

Bandwidth (+5..... +40°C)

PM 339xB: 200 MHz (repetitive and single shot)
PM 338xB: 100 MHz (repetitive and single shot)
PM 337OB: 60 MHz (repetitive and single shot)

Calculated Maximum Captured Frequency in single shot mode

- Using sine interpolation to reconstruct signals at 5 samples per period: 40 MHz in 1 channel mode, 20 MHz in 2 channel mode, 1 MHz in 4 channel mode or when trigger view (PM 33xOB) is active.
- For 10 samples per period with linear interpolation: 20 MHz in 1 channel mode, 10 MHz in 2 channel mode, 0.5 MHz in 4 channel mode or when trigger view (PM 33xOB) is active.

ADC Resolution

ADC resolution 8 bit, Memory resolution 16 bit. All mathematical operations and averaging increase waveform resolution beyond 8 bits.

Memory

Memory resolution 16 bit; Acquisition and reference memory can be segmented offering the choice between long acquisition records or a maximum screen update rate and a maximum number of traces in memory. See table for full details on acquisition length selections and total

Record length and trace storage

| PM 3384B, PM 3394B | | | | |
|------------------------------|------------|------------|---------------------|-----------------------|
| Acquisition length | 1 CH x 32K | 2 CH x 16K | 4 CH x 8K | 4 CH x 512s |
| Trace storage | 3 traces | 6 traces | 12 traces | 208 traces |
| PM 3370B, PM 3380B, PM 3390B | | | | |
| Acquisition length | 1 CH x 32K | 2 CH x 16K | 2 CH + Tr.View x 8K | 2 CH + Tr.View x 512s |
| Trace storage | 3 traces | 6 traces | 9 traces | 156 traces |

number of traces that can be stored in back-up memory. Figures include the MTB acquisition memory as well as DTB acquisition memory (available with 512 samples acquisition length only).

Averaging

Averaging reduces random noise contained in the signal, while increasing the vertical resolution. Averaging factor user selectable: 2, 4, 8, 4096; Max. resolution: 14 bit.

Peak detection

Captures glitches as narrow as 5 ns at any timebase setting (single channel) or 10 ns (dual channel and multiple channel, alternating) and at correct amplitude. Also very useful to capture high-frequency components (like a modulated carrier) at low timebase settings.

Envelope mode

For continuous tracking of changing waveforms.

VERTICAL

Same as analog mode, unless specified otherwise.

Auto-ranging vertical deflection

Automatically and continuously adapts vertical deflection setting to have 2.... 6.4 division display of input signal. Can be selected on any input channel individually. Minimum deflection setting automatically selected is 50 mV/div.

Vertical Magnification

Up to 32x magnification for higher deflection sensitivity; can be combined with averaging for increased resolution (averaging factor selectable up to 4096x resulting in a vertical resolution of 14 bit).

Display modes

PM 33x4B: CH1, +/- CH2, CH3, +/- CH4; Calculated Add and Subtract.
PM 33xOB: CH1, +/- CH2; Calculated Add and Subtract. External Trigger Input signal can be displayed acting as a third input channel.

Bandwidth limiter

20 MHz @ -3 dB.

Window mode

2 or 4 windows to display two or four traces above each other while using the full dynamic range of the ADC (8 bit).

HORIZONTAL

Acquisition modes

Recurrent (Auto and Triggered), Single Shot, Multiple single shot, Roll, Triggered Roll. User selectable AUTO-RANGING timebase in recurrent modes.

X-Y mode

X-source: any trace in memory or any of the input channels.

AUTO-RANGING timebase

Continuously adapts sweep speed to the frequency of the trigger signal in order to keep 2..... 6 cycles on screen; User selectable function. Autoranging Timebase can work with timebase in 1-2-5 range or with continuously variable timebase, stabilizing the number of cycles on screen.

Timebase modes

Main TB (MTB), Delayed TB (DTB), Alternate TB (= MTB and DTB). Delayed timebase starts after delay or triggered on channel. Trigger coupling: same as for analog mode.

Timebase (magn. x1)

Real time sampling:
200 s/div.... 500 ns/div.,
250 ns/div.
Recurrent: 200 ns/div.... 2 ns/div.
(5 ns/div. for PM 338xB and PM 337OB)
Roll mode: 200 s/div.... 50 ms/div.

Variable timebase

Continuously variable sweep speed:
1 µs/div.... 500 ms/div. in 1 µs increments;
500 ms/div.... 200s/div. better than 0.2% increments.

Display resolution

Horizontal resolution (per trace) for x1 magnification: 500 samples = 10 divisions = 1 screen width. Compression allows a compact display of larger records.

DIGITAL MODE (cont.)

Magnification

x2, x4, x32 (expansion) of any part of a record;
x1/2, x1/4, x1/64 (compression) of records exceeding 512 samples.

Interpolation

- Dots only (shows acquired samples only).
- Linear interpolation.
- Sine interpolation (offers natural representation of expanded single shot acquisitions up to <10 ns/div.).

TRIGGERING

Edge triggering

Same as for analog mode, plus dual slope triggering when used in single shot, real time only mode.

TV triggering

Same as for analog mode.

Logic triggering modes

State (4 bit), Pattern (4 bit), Glitch (time qualified pulse).

- **State triggering** (PM 33x4B only)

Any of the 4 channels can be selected as the clock. Each of the other channels can be monitored for being "high", "low" or "don't care". The scope triggers if the combination of the remaining channels matches the user defined description during a transition (+ or -, user selectable) of the clock.

Max. clock rate: 150 MHz typical.
Sensitivity: 1.0 div. if time present ≥ 10 ns (≥ 20 ns for PM 3384B), 2 div. if time present ≥ 2 ns (≥ 4 ns for PM 3384B).

- **Pattern triggering** (PM 33x4B only)

The scope triggers if the combination of the four channels matches the user defined description. Each channel can be monitored for being "high", "low" or "don't care".

Modes: Enter, Exit, Time qualified (lower limit, upper limit, range).

Range of limits: 20 ns.... 167.7 ms;

Smallest resolution: 10 ns;

Sensitivity: 1.0 div. if time present ≥ 10 ns, (≥ 20 ns for PM 3384B), 2 div. if time present ≥ 2 ns, (≥ 4 ns for PM 3384B).

- **Glitch triggering** (all models)

Minimum glitch width:
2 ns (PM 339xB), 4 ns (PM 338xB) or 6 ns (PM 3370B).

Pulse width time qualification:
lower limit, upper limit, range.

Limits must be in the range
20 ns... 167.7 ms; Smallest resolution
10 ns.

DELAY

Time delay

0.... 1000 div., continuously adjustable.

Pre-trigger view

Up to 1 full record (= 160 div. for an 8K record, or 640 div. for a 32K memory)

Event delay

1.... 16384 events;
Max. count rate 50 MHz (typical);
Source: any channel (including External Trigger on PM 33x0B); Modes: Event delay,
Time delay after event delay.

Delay modes

Start after time delay, Wait for trigger after time delay.

CURSOR MEASUREMENTS

Cursor modes

Horizontal, Vertical, Both; Free or coupled to trace. Cursors can be used throughout the memory.

Read-out

Vertical: dV, V1 to ground, V2 to ground, dVratio

Horizontal: dT, 1/dT (in Hz), T1&T2 to trigger moment, dT-ratio, phase.

For phase measurements, the cycle is automatically referenced to trigger signal.

CALCULATED MEASUREMENTS

General

Measurements can be performed over a complete record or within a cursor limited area. Statistics mode provides minimum, mean and maximum measurement result per measurement.

Volt

DC, RMS, Minimum, Maximum, Peak to Peak, Low level, High level, Overshoot (pos. or neg.), Preshoot (pos. or neg.).

Time

Frequency, Period, Pulsewidth, Rise time, Fall time, Duty cycle.

Delay

Between channels; Rising and falling edges independently selectable.

Quick Measurement

Probe mounted "Command Switch" operates "Touch, Hold and Measure", giving calculated measurements of frequency, V_{DC} , V_{RMS} and V_{PKPK} .

PROCESSING

Standard

Add, Subtract, Multiply, Digital filter (for noise reduction and increased resolution by means of digital low pass filtering after single shot capture), Integrate, Differentiate, FFT, Histogram.

FFT is equipped with Hamming, Hanning and rectangular window. Relative level (dB) or absolute signal level read-out (mV_{RMS}, dBm in 50 Ω , dBm in 600 Ω , dBmV).

Pass / Fail testing

- Tests waveforms against reference envelope (created internally using cursor

controls, or externally in a PC);

- Tests calculated measurements against preset limits;
- Tests cursor measurement against preset limits.

Gives audible warning, hardware output signal, Locks, Saves waveform, Prints, or Plots if test fails. If connected to PC with FlukeView® CombiScope software running, consecutive failing waveform plots can be stored automatically in the PC for long term process monitoring.

Multiple single shot

Captures and stores in internal memory consecutive single shot acquisitions, with time and date stamps.

Max. number of single shots stored:

PM 33x4B: 200 traces
PM 33x0B 50 sets of up to 3 traces each

Advanced cursors

Amplitude qualified cursors for timing measurements with time cursors automatically positioned at a signal level relative to the signals Max.peak, Min. peak, High level, Low level, or on absolute levels.

GENERAL

INTERFACING

RS-232C SERIAL INTERFACE

Interface installed as a standard. Enables printing and plotting as well as full remote control of the instruments. Also allows for serial communication trace dump to arbitrary waveform generator.
DB-9 male connector.

Handshake

DSR/DTR, CTS/RTS, or Xon/Xoff.

Baudrate

75.... 19k2 full duplex, 38k4 dump only.

Format

1 stopbit; 7 or 8 databits; odd/even/no parity.

Protocol

CPL = Compact Programming Language; A reduced set of powerful instruction for full remote control through RS-232C.

Waveform dump

Trace dump to PM 5150, PM 5138A and PM 5139 arbitrary waveform generator (requires generator to be equipped with RS-232C interface).

GPB/IEEE-488.2 INTERFACE

Factory installed option (next to RS-232C). Remote control conform SCPI (Standard Commands for Programmable Instruments) = standardized protocol. Fully compatible with IEEE-488.2.

Waveform dump

Trace dump to PM 5150, PM 5138A and PM5139 arbitrary waveform generator (requires generator to be equipped with IEEE interface).

GENERAL (cont.)

HARDCOPY

Using RS-232C (standard) or GPIB/IEEE-488.2 (optional) interface. Centronics output optionally available through PAC33 Print Adapter Cable, giving RS-232 to Centronics conversion.

Output

Printed or plotted hardcopy of the screen (digital mode) in sizable format. If selected, with status report of the complete instrument setting and date- and timestamp of the trigger moment and the moment the hardcopy action was started. Two lines of on-screen text (32 characters per line) can be added for user documentation.

Printers

9 pin matrix printers (FX-80 compatible), 24 pin matrix printers (LQ-1500 compatible), ThinkJet (HP2225) and compatibles, HP LaserJet (series II & III) and compatibles incl. HP DeskJet, HP540 DeskJet compatibles.

Plotters

HP7440, HP7470A, HP7475A, HP7550, standard HPGL, PM8277, PM8278 and compatibles.

Camera

Camera kit including bezel adapter available as optional accessory.

MISCELLANEOUS

Setting Memory

10 complete instrument set-ups, with battery back-up.

Probe adjustment output

600 mV peak-peak ($\pm 1\%$), 2 kHz ($\pm 20\%$) squarewave.

Z-modulation input

BNC, 10 k Ω , < 0.5V unblanked, >2.4 V blanked (in analog mode only).

Time between calibrations

2000 hours or 1 year with error limits specified. 4000 hours or 2 years at double the error limits.

Probe

Automatic detection of probe attenuation factor using indication ring and manually selectable scale factors. Probe mounted Command Switch for control of user selectable function: initiate Autoset, initiate Quick Measure function, switch from analog mode to Digital Storage mode or back, select setting from memory.

POWER SUPPLY

Line voltage

100.... 240V ($\pm 10\%$) in one range.

Line frequency

50.... 400 Hz ($\pm 10\%$).

Power consumption

115 W (130 W with all options installed).

MECHANICAL DATA

Fan

Proportionally regulated forced air.

Width x Height x Length

excluding handle and feet:
341 x 139 x 481 mm
(13.4 x 5.5 x 18.9 inch),
including handle and feet:
391 x 147 x 551 mm
(15.4 x 5.8 x 21.7 inch).

Weight

9.5 kg = 21 lb.

ENVIRONMENTAL DATA

Meets requirements of

MIL-T-28800D Type III, Class 3, Style D, Color R, as specified:

Temperature range

0°C..... +50°C (operating),
-40°C..... +70°C (storage).

Humidity

95% (storage).

Altitude

Max. 3 km = 10,000 ft (operating),
12 km = 40,000 ft (non-operating)

Vibration

Frequency 5.... 55 Hz;
Max. acceleration at 55 Hz: 30 m/s².

Shock

6 shocks along each axis, half sine wave,
6.... 9 ms, peak acceleration 400 m/s².

Bench handling

Meets requirements of MIL-ST-810,
method 516, procedure V.

Safety

Meets requirements of EN61010-1, UL3111
and CSA C22.2 No. 1010-1 (Category II,
Pollution degree 2).

EMI

Meets MIL-T-28800D Type III, Class 3;
meets MIL-STD-461C: CE01 Part 2 (narrow
band), CE03 Part 4, CS01 Part 2, CS06 Part
5 (300 V max.) RE01 Part 5 and 6, RE02
Part 2 (1 GHz max.).

Meets harmonized product requirements of
89/336 EEG: EN 50081.1 and EN50082.1,
with restrictions (details available on
request).

Magnetic susceptibility

Deflection for extreme conditions:
<0.7 div/mT, tested at 1.42 mT peak-peak,
45.... 66 Hz, in any direction.

STANDARD ACCESSORIES

Included

- Two 10:1 probes with read-out and command switch, supporting full bandwidth and command switch (PM 9010/092 or PM 9020/092, or equivalent);
- Operating guide;
- Reference manual;
- Front cover;
- Power cord;
- Guide to mathematic functions;
- SCPI/IEEE manual when applicable
- Two LR-6 (AA-size) batteries;

OPTIONS

GPIB / IEEE-488.2 OPTION

Gives full remote control, as well as waveform data transfer. See "Interfacing" for further details.

AUX OUTPUTS AND EXTERNAL TRIGGER INPUT

- Channel 1 output (20 mV/div. into 1 M Ω , 10 mV/div. into 50 Ω)
- MTB Gate output (0 / 5V nominal, >3.7 ± 1.3 V while MTB running); output impedance 1 k Ω .
- DTB Gate output (0 / 5V nominal, >3.7 ± 1.3 V while DTB running); output impedance 1 k Ω .
- External Trigger input (BNC input on rear of the instrument). Input impedance 1 M $\Omega \pm 1\%$ // 25 pF ± 5 pF. Trigger input sensitivity 200 mV at 10 MHz; Max. input voltage ± 400 V. (External Trigger input is part of the Aux. Outputs option with PM33x4B only).

ORDERING INFORMATION

Model numbers

| | |
|----------|---|
| PM 3370B | 60 MHz two channel Autoranging CombiScope |
| PM 3380B | 100 MHz two channel Autoranging CombiScope |
| PM 3384B | 100 MHz full four channel Autoranging CombiScope |
| PM 3390B | 200 MHz two channel Autoranging CombiScope |
| PM 3394B | 200 MHz full four channel Autoranging CombiScope |

Optional configurations

When ordering, select one of the following configuration options and add to the basic typenumber:

- /08n standard instrument, including 32K memory and complete mathematical functions
- /48n standard instrument (as above) plus IEEE-interface
- /99n standard instrument (as above) plus IEEE-interface and Auxiliary Outputs and External Trigger Input Option

The 'n' specifies the power cord option. To order with your power cord, replace the 'n' according to the following table:

| | |
|---|-------------------------------------|
| 1 | Universal Euro 230V/16A |
| 3 | Standard North American 120V/15A |
| 4 | UK 240V/13A |
| 5 | Switzerland 230V/16A |
| 8 | Australia 240V/10A |

A choice of 5 models in Fluke Autoranging CombiScope series

| | PM 3370B | PM 3380B | PM 3384B | PM 3390B | PM 3394B |
|--|---------------------|---------------------|---------------------|---------------------|---------------------|
| Bandwidth | 60 MHz | 100 MHz | 100 MHz | 200 MHz | 200 MHz |
| Sample Rate for repetitive signals for single shot appl. | 10 GS/s 200 MS/s | 10 GS/s 200 MS/s | 10 GS/s 200 MS/s | 25 GS/s 200 MS/s | 25 GS/s 200 MS/s |
| Channels | 2 + Ext.Trig. | 2 + Ext.Trig. | 4 | 2 + Ext.Trig. | 4 |
| Max. acquisition record | 32K | 32K | 32K | 32K | 32K |
| Analog scope built-in | Yes | Yes | Yes | Yes | Yes |
| Autoranging | Yes | Yes | Yes | Yes | Yes |
| RS-232 interface | standard | standard | standard | standard | standard |

Fluke Corporation

P.O. Box 9090, Everett, WA 98206

Fluke Europe B.V.

P.O. Box 1186,
5602 BD Eindhoven,
The Netherlands

For more information call:

In the U.S.A.: (800) 443-8853

or Fax: (425) 356-5116

In Europe/M-East/ Africa:

+31 (0)40 2 675 200

or Fax: +31 (0)40 2 675 222

In Canada: (905) 890-7600

or Fax: (905) 890-6866

From other countries:

+1(425) 356-5500

or Fax: +1 (425) 356-5116

Web access: <http://www.fluke.com>

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