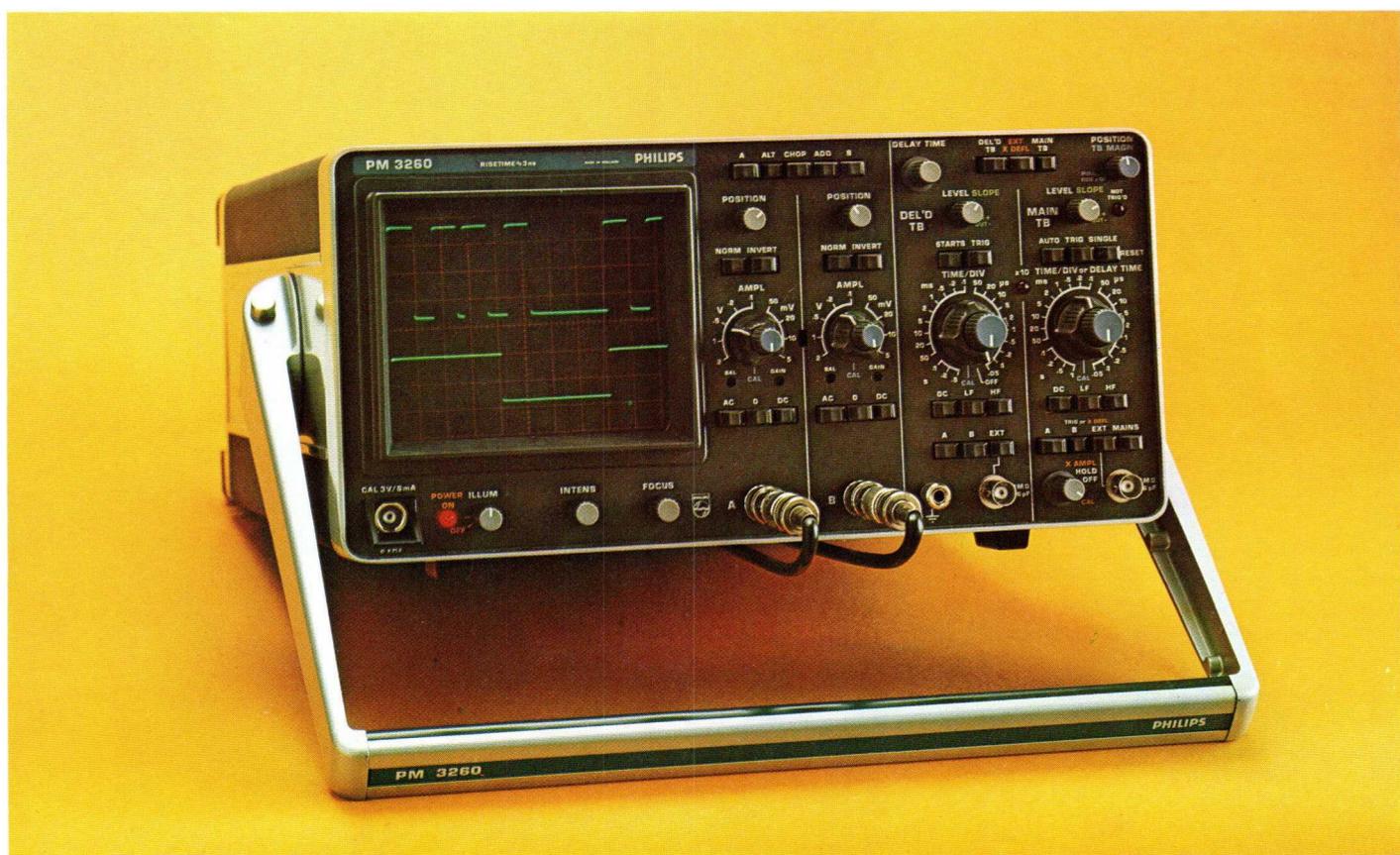


D14-240

120 MHz portable oscilloscope PM 3260



- 120 MHz/5 mV**
- Extremely light 9 kg (20 lb) weight**
- Logical front panel layout for easier measurement**
- Bright 20 kV 8 × 10 cm display**
- Total power consumption only 45 W**
- Service conscious internal design**

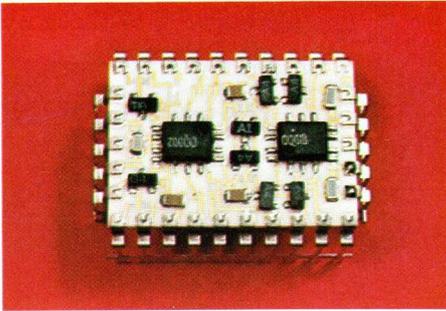
The PM 3260 is a light-weight, versatile laboratory oscilloscope incorporating special technical and operating features that make it ideal for developing, testing and servicing communication, control and computer systems. Developments in these areas are proceeding so rapidly that what is adequate today is often insufficient tomorrow. Therefore Philips supply a 120 MHz bandwidth to more than match advances in component technologies (like Schottky TTL.)

Making it lighter

A service scope should obviously be as light as possible without losing rigidity. Pick up the PM 3260 and you'll be surprised at its light 9 kg weight. Take off the covers and you'll see that nothing was sacrificed to achieve it. A special tapless power supply was developed that not only weighs less but also dissipates less. Total consumption is just 45 W. Therefore no fan was needed, nor the



PHILIPS



The PM 3260 makes wide use of thin film circuits in order to reduce weight and the number of adjustment points.

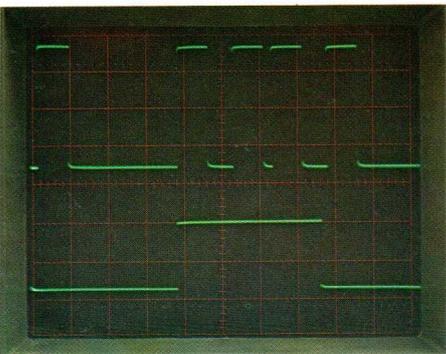
associated filters. We also developed thin film circuits to give further weight reductions.

First in a new family

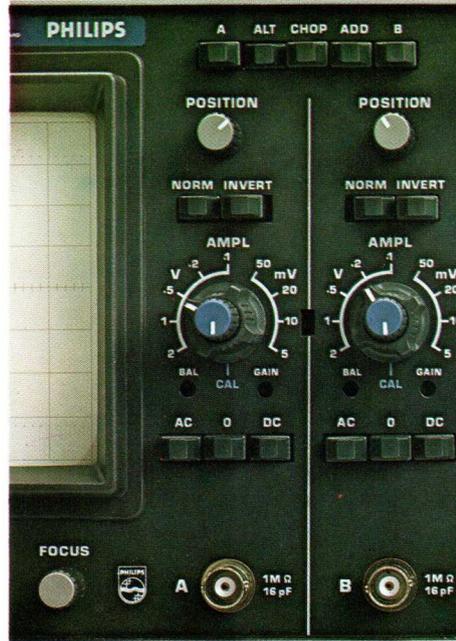
The PM 3260 is the first in a new family of instruments that will include higher and lower bandwidth models having multiplier and storage options. Manufacturers can therefore standardise on these new generation instruments knowing that they will meet a wide range of requirements.

Making it more logical

An oscilloscope is only a tool, even though it is a highly sophisticated one. It is therefore important that the front panel controls be logically grouped and placed in such a way that they fall naturally to hand. Only in this way can full concentration be given to the screen and the measurement or test. Ideally the operator would be able to use the most complex controls such as the delayed time base and vernier, without even referring to them. This can be done with the Philips PM 3260 which results in easier, quicker and more accurate measurements.



The large 8x10 cm screen is shown here. Note the well-defined, bright, 20 kV display that does not 'spread' even at the highest writing speeds.



The front panel of the PM 3200 has been designed to an extremely high ergonomic standard. Both Y channels, for example, are logically grouped together, but clearly distinguishable. Note too the wide choice of display modes—chopped and alternate, with normal and inverted positions for both channels.



The main and delayed time base controls are separated in order to avoid ambiguity and possible errors. The controls are on the same level as those of the Y channels but clearly distinguishable. Note also that the vernier control of delay time is positioned so that the setting cannot be accidentally changed.

TECHNICAL SPECIFICATION

C.R.T.

Type

Philips D 14-240 rectangular domed mesh type tube, with 20 kV acceleration potential and metal backed phosphor.

Screen type

P 31 (GH) phosphor standard
P 7 (GM) phosphor optional

Useful screen area

8x10 div. of full centimeters

Graticule

Internal graticule with centimeter divisions and 2 mm subdivisions along the central axes. 10% and 90% lines are indicated. Illumination continuously variable.

Y-AXIS

Response

Freq. range DC: 0 Hz...120 MHz (-3 dB)
AC: 10 Hz...120 MHz (-3 dB)
Risetime \approx 3 ns

Deflection coefficients

5 mV/div...2 V/div, 1-2-5 sequence. Uncalibrated, continuous control between the steps 1: >2.5

Display modes

Channel A normal and inverted
Channel B normal and inverted

Alternate

Chopped at approx 1 MHz
Added.

Accuracy

\pm 3%

Input impedance

1 MOhm//15 pF
RC time AC coupled 17 ms.

Maximum input voltage

400 V (DC+AC peak), 800 V_{p-p} AC, de-rating above 500 kHz

Maximum deflection

Undistorted deflection of 24 div.
Shift range 16 div.

Signal delay

30 ns visible delay.

CMR-factor

100:1 at 100 kHz
100:1 at 2 MHz
20:1 at 50 MHz
+A -B added mode 8 div. CM signal

X-AXIS

Horizontal deflection can be obtained from either one of the Main time base or the Delayed time base or a combination of the two, or from the signal source selected for X-deflection. In this case X-Y diagrams can be displayed using Y_A, Y_B, the Ext. connector or the mains as a signal source.

Display modes

Main time base

Main time base intensified by delayed time base

Delayed time base

X-Y or X-Y/Y operation with X-deflection by: Y_A - Y_B -External or Mains (line)

Horizontal amplifier

Bandwidth

DC... 2 MHz (-3 dB) over 5.6 div.

Deflection coefficient

300 mV/div. using Ext. connector

Uncalibrated continuous control 1: ≈ 3

Vertical attenuator coefficients apply when Y_A or Y_B is used for X-deflection.

Measuring accuracy

$\pm 5\%$ using Y_A input

Phase error

3° at 100 kHz, using Y_A input

Main time base

Modes

Auto-Triggered-Single shot

Time coefficients

1 s/div... 50 ns/div., 1-2-5 sequence.

Uncalibrated continuous control between steps.

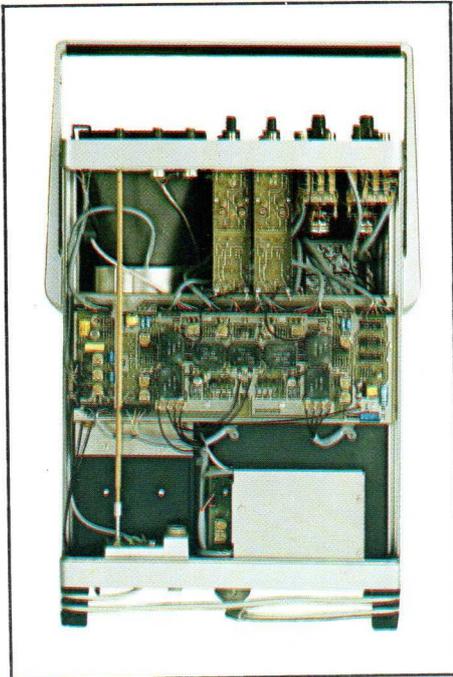
$\times 10$ magnifier extends max. sweep rate to 5 ns/div.

Accuracy

$\pm 2\%$ +20°C to +30°C

$\pm 3\%$ +5°C to +40°C

Additional error for magnifier $\pm 1\%$



Variable hold off

Sweep hold off time can be increased by at least a factor of 10.

Delayed time base

Modes

'Starts': Directly starting after selected delay interval.

'Trig': Triggered by delayed time base trig circuit after selected delay interval.

Time coefficients

0.5 s/div... 50 ns/div., 1-2-5 sequence

Uncalibrated continuous control between steps.

$\times 10$ magnifier extends max. sweep rate to 5 ns/div.

Accuracy

Same as for Main time base.

Calibrated sweep delay*)

Continuous calibrated control between 0 and $10\times$ main time base setting

Delay time accuracy $\pm 2\%$

Delay time jitter

Better than 1:20,000, typical 1:30,000

*) Not available with economy model PM 3260 E

The covers of the instrument can be removed in a few seconds, giving good access to the interior. The PM 3260 has a service conscious design as is clearly illustrated by the single printed board that carries the complete vertical amplifiers and that is easy to remove. Note the convenient manner in which the supply cable can be wrapped around the feet and then plugged into a 'keeper' socket.

Main time base triggering

Trigger source

Internal Y_A , Y_B , Mains (line), external.

Slope

+ or -

Trigger mode

Auto: 10 Hz... 200 MHz

DC : 0 Hz... 200 MHz

LF : 0 Hz... 30 kHz

HF : 30 kHz... 200 MHz

Trigger sensitivity

Internal: < 0.5 div. up to 120 MHz, typically 1 div. at 200 MHz

External: < 150 mV up to 120 MHz

Level range

Internal 24 div. typical

External -3.6 V to +3.6 V typical

Delayed time base triggering

Trigger source

Internal: Y_A , Y_B ; external

Other trigger specifications of delayed time base are identical to that of the main time base. There is no provision for Auto triggering.

CALIBRATION

Calibrated voltage

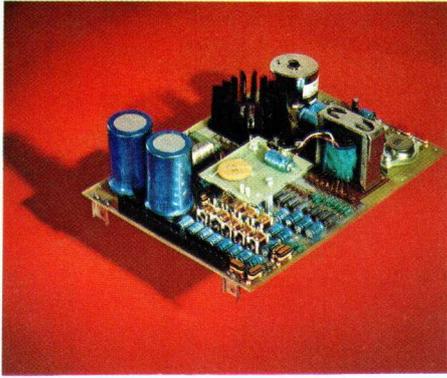
$3 V_{p-p} \pm 1\%$ square wave

Calibrated current

$6 mA_{p-p} \pm 1\%$

Frequency

2 kHz $\pm 2\%$



The new light weight, low dissipation power supply unit

POWER SUPPLY

Mains voltages

Accepts any voltage between 100 and 240 V $\pm 10\%$, and any frequency between 46 and 440 Hz in one range, without switching

Power consumption

45 W

Probe power *)

Two sockets at vertical amplifiers providing +24 and -24 V for active probes

ENVIRONMENTAL CAPABILITIES

Ambient temperatures

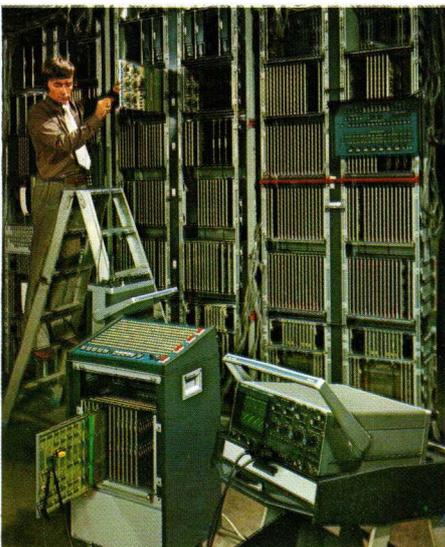
+ 5°C...+40°C rated range of use
-10°C...+55°C operating
-40°C...+70°C storage and transport

Altitude

To 5.000 m operating
To 15.000 m not operating

*) Not available with economy model PM 3260 E

1. This marine radar installation is housed in a sphere-shaped housing that is entered using a ladder. The light weight and small dimensions of the oscilloscope are therefore extremely convenient.



Humidity

Meets IEC 50 B (CO) 142 requirements

Shock

Meets IEC 68 Eb requirements

Vibration

Meets requirements of IEC 68 F

Recovery time

Operates within 15 minutes coming from -10°C soak, going into 60% relative humidity at +20°C room conditions

DIMENSIONS AND WEIGHT

Height : 154 mm

Width : 316 mm

Depth : 410 mm

Standard colour: dark grey

Weight: 9 kg (20 lb) approx.

ACCESORIES SUPPLIED WITH THE INSTRUMENT

Two contrast filters, one installed, one supplied.

Front cover

Collapsible viewing hood PM 9366

BNC-banana adaptor PM 9051

Cal. terminal to BNC adaptor

Operating and service manual

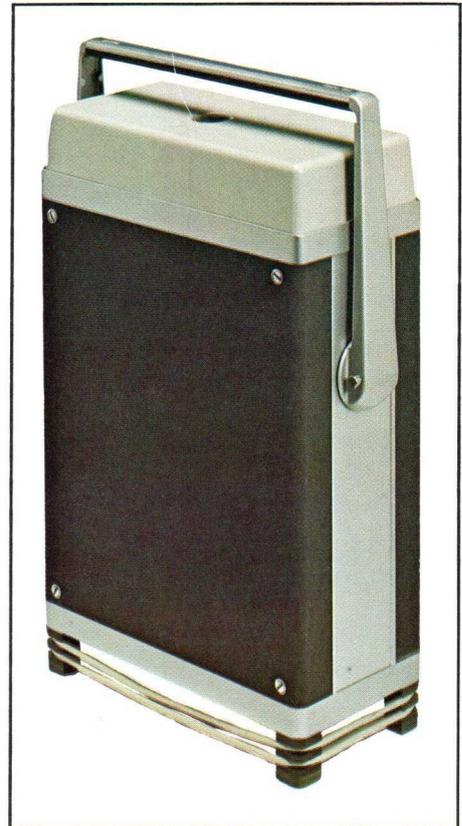
Optional accessories

Probes

PM 9335 Passive probe set 1:1

PM 9351 150 MHz passive probe set 10:1

PM 9358 150 MHz HV probe set 100:1



PM 3260 shown here with the protective front cover that conveniently stores up to three probes.

PM 9347 Active TV triggering probe

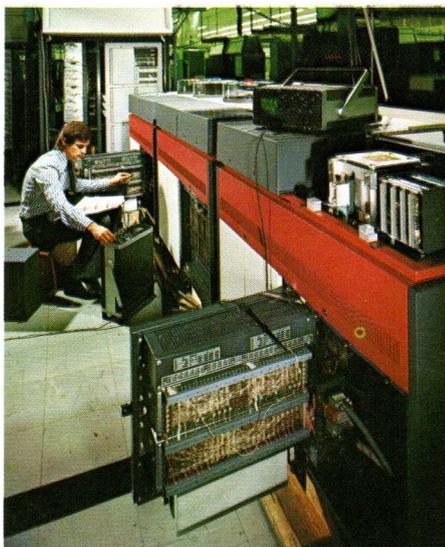
PM 9353 Active FET probe 150 MHz

PM 9380 Oscilloscope camera

PM 8971 Camera adaptor

M3...M5 Steinheil Oscilloscope camera range

2. Another computer peripheral, this time disk memories. It can be seen that the PM 3260 is convenient to operate in both horizontal and vertical positions.



3. Access to telecommunications equipment is not always easy, so once again the light weight is an advantage, as is the large 8x10 cm screen and well defined display.

