



SPM-32A, SPM-33A, SPM-36A

For line qualification tests (ISDN, PCM, XDSL) and measurements on analog transmission systems up to 3.5 MHz

- **Straightforward operation with large digital display**
- **Synthesizer for accurate, stable frequency settings**
- **Balanced and unbalanced inputs with common standard impedances**
- **Battery operation up to 8 hours**

The SPM-32A, SPM-33A and SPM-36A Selective Level Meters are hand-held instruments for selective and wideband measurements on FDM transmission systems with up to 600 channels. When combined with the PS-33A Level Generator (2 MHz), each of the instruments forms a test setup for measuring level, gain, attenuation and crosstalk.

The test setup is the ideal tool for verifying the local loop performance of services such as ISDN, PCM and xDSL.

Accurate, stable frequency settings

The built-in synthesizer and 1 Hz frequency resolution allow accurate, stable frequency settings across the entire range. This greatly simplifies tuning to pilots using a narrow resolution band-

width. The instrument key with user-selectable stepsize is useful for measurements on evenly spaced channels. Fixed frequencies such as pilots can be stored in memory to speed up routine tests.

Absolute and relative level measurements

The digital display indicates absolute and relative level with 0.01 dB resolution, allowing measurements of very small level differences. The fast bargraph is very useful for alignment work.

Straightforward operation

The display provides a quick overview of all functions currently in use. Other functions such as frequency scan, AFC, demodulation, setups and storage of fixed frequencies contribute to fast and error-free test procedures.

Field application

The instrument is ideal for field applications (e. g. in-service testing, maintenance) due to its simple operation, wide temperature range, rugged design and flexible powering options (a. c. line or batteries).

Inputs

Frequency range, SPM-32A 50 Hz to 620 kHz
 SPM-33A 50 Hz to 2 MHz
 SPM-36A 50 Hz to 3.5 MHz

Coaxial input * Versacon 9 Universal Connector
 Input impedance, selectable 75 Ω, high impedance

Balanced input
 Connectors see ordering information
 Input impedance, selectable 75 Ω, 150 Ω^{*)}, 600 Ω, high impedance
^{*)} 135 Ω for BN 2033/02, /12 and /37
 Signal balance ratio to ITU-T O.9, f ≤ 620 kHz ≥ 40 dB

Frequency

Frequency setting
 numeric via keypad, in steps, resolution 1 Hz
 Quasi-analog with up/down keys
 Automatic search (adjustable threshold)
 AFC
 Frequency display LCD, 7 digits
 Error limits for tuning frequency ± 3 × 10⁻⁶ ± 1 Hz

Level and voltage measurements

Level display
 Digital display, max. resolution 0.01 dB
 Quasi-analog bargraph detects signal trends
 Display range
 Intrinsic spurious noise up to max. test level (dBm), battery power

Input	Selective	Wideband
Coaxial 75 Ω	<-120 ¹⁾ to +20 dBm	<-50 ¹⁾ to +20 dBm
Bal- anced 75 to 150 Ω	<-105 ¹⁾ to +20 dBm	<-50 ¹⁾ to +20 dBm
	600 Ω	<-110 ¹⁾ to +10 dBm
Voltage	< 8 μV ¹⁾ to 3,8 V	1 mV to 3,8 V

1) For a bandwidth of 25 Hz, f ≥ 10 kHz; bal. 75 Ω: -100 dBm

Error limits of the level display

for Z_{in} = Z_{out} = Z₀, after calibration, with noise averaging, MAX. HOLD off, battery mode, includes rounding errors

Intrinsic error and variation with level at 10 kHz and (23 ± 3) °C (table values in dB)

Bal., all bandwidths	±0.4			±0.9	—
Co-axial	Bandwidth > 100 Hz				
	100 Hz bandwidth	±0.3	±0.1	±0.3	±0.4
	25 Hz bandwidth				±0.4

Level range/dBm +20 0 0 -70 -80 -90 -100 (75, 135, 150 Ω)
 Level range/dBm, dB +20 -80 -90 -100 -110 (600 Ω)

Variation of level display with frequency referred to 10 kHz, the input level being ≥ 40 dB above the intrinsic noise level (table values in dB)

Coaxial Z ₀ = 75 Ω	Bal- anced Z ₀ = 75 to 150 Ω	±0.3	±0.5	±0.6	±0.7	±0.9	
Z ₀ = 600 Ω		±0.6	±0.3	±0.5	±0.6	±0.7	±0.9
			±0.4	±0.6	±0.7	±0.8	±1.0

Frequency range 50 Hz 100 Hz 620 kHz 1,62 2 3 3.5 MHz

Bandwidth selectable

Nominal value 25 Hz; 1.74 (1.95)^{*)} kHz; 3.1 kHz
^{*)} BN 2033/02, /12, /37

Harmonic ratio a_{k2}, a_{k3}, for level ≤ -10 dBm

for fundamentals ≥ 2 kHz > 60 dB

Demodulator Single sideband demodulation
 Integral loudspeaker, volume adjustable.

Memory

Storage of 100 user-programmable setups, 100 results

General specifications

Power supply
 Dry batteries (fitted) 2 × 9 V IEC 6 LF 22 (6LR61)
 NiMH batteries (2 required) e.g. Varta V7/8 H
 Battery pack (attaches to device) BAZ-33
 Line operation separate LNT-2 adapter/charger
 Operating time with dry batteries/NiMHs approx. 8 h/2 h
 with BAZ-33 battery pack approx. 8 h

Ambient temperature

Nominal range of use 0 to +50 °C
 Limits operating range -10 to +55 °C
 Storage and transport -30 to +70 °C
 Dimensions (w × h × d) in mm 110 × 60 × 200
 Weight with batteries/with BAZ-33 approx. 1 kg/1.5 kg

Ordering information

Type	Frequency range	Connectors Versacon	Bal.	Noise measurement in	Order no.
SPM-32A	50 Hz to 620 kHz	•	CF	dBm/dBm0	BN 2033/11
		•	WECO	dBrnC/dBrnC0	BN 2033/12
SPM-33A	50 Hz to 2 MHz	•	CF	dBm/dBm0	BN 2033/01
		•	WECO	dBrnC/dBrnC0	BN 2033/02
		•	I-214	dBm/dBm0	BN 2033/03
SPM-36A	50 Hz to 3.5 MHz	•	CF	dBm/dBm0	BN 2033/36
		•	WECO	dBrnC/dBrnC0	BN 2033/37

Supplied accessories: two dry batteries, carrying strap

Options¹⁾

124 Ω instead of 150 Ω BN 2033/00.60
 135 Ω instead of 150 Ω BN 2033/00.61
 140 Ω instead of 150 Ω BN 2033/00.62
 100 Hz bandwidth instead of the 25 Hz bandwidth BN 2033/00.52

Accessories

BAZ-33 battery pack, can be recharged with LNT-2 BN 2033/00.10

NiMH batteries (two required) BN 0820/00.50
 with charger contact
 LNT-2 A.C. adapter/charger BN 2071/90.02
 Please specify power cord²⁾ required:
 European plug K 490
 US plug (also suitable for Japan) K 491
 UK plug K 492
 Australian plug K 493
 SDG-40 Balanced Attenuator BN 0608/00.01
PCS-SPM40 Unbalanced Attenuator Replaces PLCP-40
 No. 10 Leather pouch, for one device and BAZ-33 BN 0926/23
 MK-1 Equipment case BN 2090/09
 for one device with BAZ-33, additional LNT-2 or BAZ-33
 MK-4 Equipment case BN 2092/21
 for two devices with BAZ-33, two additional LNT-2 or BAZ-33

* Fitted with the Versacon 9 75 Ω basic connector and BNC insert.
 Other types of insert – see Versacon 9 data sheet – should be ordered with the device.

1) To be ordered together with the device (can only be factory fitted)
 2) For BN 2033/03 on request

