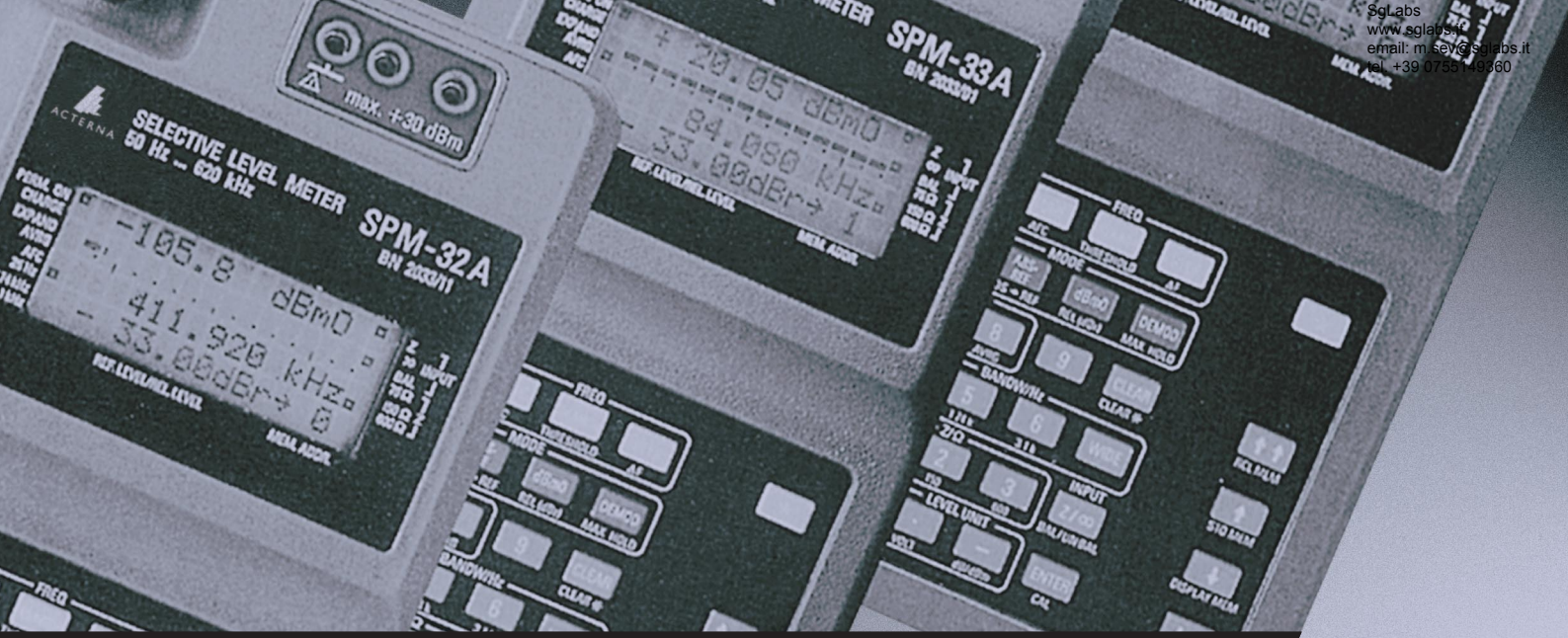

Acterna SPM-32A/-33A/-34A/-35A/-36A

Selective Level Meters

Manufacturers, service providers, operators, and integrators qualifying copper lines require high performance instruments that will maximize testing efficiency and minimize training requirements for technicians.

The Acterna SPM-32A, SPM-33A, and SPM-36A Selective Level Meters are handheld instruments for selective and wideband measurements on FDM transmission systems with up to 600 channels. When combined with the Acterna PS-33A Level Generator (2 MHz), each instrument forms a test setup for measuring level, gain, attenuation, and crosstalk. This test setup is the ideal tool for verifying the local loop performance of services such as ISDN, PCM, and xDSL. In addition to the basic functions, the SPM-34A Selective Level Meter also includes four special bandwidths for in-service measurements of FM-VFT systems, in accordance with ITU-T recommendations.

With bandwidths all the way down to 5 Hz, the SPM-35A Selective Level Meter is ideal for analyzing composite signals. The instrument can be used for measurements on ARI and RDS systems, as well as remote control and FM-VFT systems as per ITU-T recommendations.

Highlights

- For line qualification tests on ISDN, PCM, xDSL, and measurements on analog transmission systems up to 3.5 MHz
- Synthesizer for accurate, stable frequency settings
- Straightforward operation with large digital display
- Balanced and unbalanced inputs with common standard impedances
- Battery operation up to eight hours

Accurate, stable frequency settings
The built-in synthesizer and 1 Hz frequency resolution allows accurate, stable frequency settings across the entire range. This greatly simplifies tuning to pilots using a narrow resolution bandwidth. The instrument key, with user selectable step size, is useful for measurements on evenly spaced channels. Fixed frequencies such as pilots can be stored in the 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 bar graph 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 such field applications as in-service testing and maintenance, due to its simple operation, wide temperature range, rugged design, and flexible options for powering – AC line or batteries.

Specifications

Inputs

Frequency range

SPM-32A	50 Hz to 620 kHz
SPM-33A/-34A/-35A	50 Hz to 2 MHz
SPM-36A	50 Hz to 3.5 MHz
Coaxial input	Versacon 9 Universal Connector (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.)
Input impedance, selectable	75 Ω, high impedance

Balanced input

Connectors	Normally CF but see ordering information
Input impedance, selectable	75 Ω, 150 Ω*, 600 Ω, high impedance *135 Ω for BN 4033/02, /12 and /37
Signal balance ratio to ITU-T O.9	f ≤ 620 kHz, signal balance ≥ 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 ppm of set frequency ±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 to +20 dBm
Balanced 75 Ω to 150 Ω	< –105[(1)] to +20 dBm	< –50 to +20 dBm
Balanced 600 Ω	< –110[(1)] to +10 dBm	< –60 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 $Z_{in} = Z_{out} = Z_0$, 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	–
Coaxial	Bandwidths > 100 Hz						
	100 Hz bandwidth	±0.3	±0.1	±0.3	±0.4		±0.6
	25 Hz bandwidth				±0.4		
Level range/dBm (75, 135, 150 Ω)		+20	0	0	–70	–80	–90	–100
Level range/dBm, dB (600 Ω)		+20			–80	–90	–100	–110

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	$Z_0 = 75\ \Omega$		±0.3	±0.5	±0.6	±0.7	±0.9
Balanced	$Z_0 = 75$ to 150 Ω	±0.6	±0.3	±0.5	±0.6	±0.7	±0.9
Balanced	$Z_0 = 600\ \Omega$		±0.4	±0.6	±0.7	±0.8	±1.0
Frequency range		50 Hz	100 Hz	620 kHz	1.62 MHz	2 MHz	3 MHz	3.5 MHz

Bandwidth selectable

Nominal value: 25 Hz; 1.74 (1.95)* kHz; 3.1 kHz
*BN 4033/02, /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 (supplied)	2 x 9 V IEC 6 LF 22 (6LR61)
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 x h x d)	110 x 60 x 200 mm
Weight with batteries/with BAZ-33	approx. 1 kg/1.5 kg

Ordering Information

Type	*Frequency range*	*Connectors*		*Noise measurement*	*Order number*
		Versacon	*Balance*		
SPM-32A	50 Hz to	•	CF	dBm/dBm0	BN 4033/11
	620 kHz	•	WECO	dBrnC/dBrnC0	BN 4033/12
SPM-33A	50 Hz to	•	CF	dBm/dBm0	BN 4033/01
	2 mHz	•	WECO	dBrnC/dBrnC0	BN 4033/02
		•	I-214	dBm/dBm0	BN 4033/03
SPM-34A	50 Hz to 2 MHz		CF	dBm/dBm0	BN 4033/20
SPM-35A	50 Hz to 2 MHz		CF	dBm/dBm0	BN 4033/20
SPM-36A	50 Hz to	•	CF	dBm/dBm0	BN 4033/36
	3.5 MHz	•	WECO	dBrnC/dBrnC0	BN 4033/37

Supplied accessories: two dry batteries

Options (to be ordered together with the device [can only be factory fitted])	
124 Ω instead of 150 Ω	BN 4033/00.60
135 Ω instead of 150 Ω	BN 4033/00.61
140 Ω instead of 150 Ω	BN 4033/00.62
100 Hz bandwidth instead of the 25 Hz bandwidth	BN 4033/00.52
Bandwidth 300 Hz instead of 400 Hz (for SPM-34A only)	BN 4033/00.24

Accessories	
BAZ-33 battery pack, can be recharged with LNT-2	BN 4033/00.10
LNT-2 A.C. adapter/charger	BN 4071/90.02
Please specify power cord 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 4608/00.01
PLCP-40 Unbalanced Attenuator	BN 9203/01
No. 10 Leather pouch, for one device and BAZ-33	BN 4071/23
Carrying strap	BN 4033/00.01
MK-1 Equipment case for one device with BAZ-33, additional LNT-2 or BAZ-33	BN 4071/09
MK-4 Equipment case for two devices with BAZ-33, two additional LNT-2 or BAZ-33	BN 4071/21

Acterna Advantaℓ
Adding value with global services and solutions

From basic instrument support for your field technicians to management of complex, company-wide initiatives, Acterna's service professionals are committed to partnering with you to help maximize your return on investment. Whatever your needs – education services, consulting and OSS business planning, system management, or product support – we offer programs that will give you every available advantage. This is the foundation of Acterna Advantage.

Acterna is the world's largest provider of test and management solutions for optical transport, access and cable networks, and the second largest communications test company overall. Focused entirely on providing equipment, software, systems and services, Acterna helps customers develop, install, manufacture and maintain optical transport, access, cable, data/IP and wireless networks.

Worldwide Headquarters

20400 Observation Drive
Germantown, Maryland
20876-4023
USA

Acterna is present in more than 80 countries. To find your local sales office go to:
www.acterna.com

Regional Sales Headquarters

North America
20400 Observation Drive
Germantown, Maryland
20876-4023
USA
Toll Free: +1 866 ACTERNA
Toll Free: +1 866 228 3762
Tel: +1 301 353 1560 x 2850
Fax: +1 301 353 9216

Latin America
Av. Eng. Luis Carlos Berrini
936/8° e 9° andares
04571-000 São Paulo
SP-Brazil
Tel: +55 11 5503 3800
Fax: +55 11 5505 1598

Asia Pacific
42 Clarendon Street
PO Box 141
South Melbourne
Victoria 3205
Australia
Tel: +61 3 9690 6700
Fax: +61 3 9690 6750

Western Europe
Arbachtalstrasse 6
72800 Eningen u.A.
Germany
Tel: +49 7121 86 2222
Fax: +49 7121 86 1222

Eastern Europe, Middle East & Africa
Elisabethstrasse 36
2500 Baden
Austria
Tel: +43 2252 85 521 0
Fax: +43 2252 80 727

1st Neopalimovskiy Per.
15/7 (4th floor)
RF 119121 Moscow
Russia
Tel: +7 095 248 2508
Fax: +7 095 248 4189

Note: Specifications, terms and conditions are subject to change without notice.

ACTERNA™
The Keepers of Communications

SPM32-36/DS/ACC/05-02/AE-PDFONLY/ACTERNA

SgLabs
www.sglabs.it
email: m.sev@sglabs.it
tel. +39 0755149360