

1 INTRODUCTION

The **SVAN 959** is digital, Type 1 sound & vibration level meter along with analyser. The instrument is intended to general acoustic and vibration measurements, environmental monitoring, occupational health and safety monitoring.

Three acoustic or vibration profiles allow parallel measurements with independently defined filters and RMS detector time constants. Each profile provides significant number of results (like **Leq**, **LMax**, **LMin**, **LPeak**, **Spl**, **SEL** in the case of sound measurements or **RMS**, **PEAK**, **VDV**, **MTVV** in the case of vibration measurements). Advanced time history logging for each profile provides complete information about measured signal in non-volatile 32 MB internal memory or external USB Memory Stick and can be easy downloaded to any PC using the USB interface and SvanPC+ software.

All required weighting filters (e.g.: **A**, **C**, **Z** in the case of sound measurements and **Wk**, **Wd**, **Wc**, **Wj**, **Wm**, **Wh**, **Wg**, **Wb** in the case of vibration measurements) including the latest ISO 2631-1&2 standard are available with this instrument. The general vibration measurements (like acceleration, velocity and displacement) and HVM meeting ISO 8041:2005 standard are possible. The RMQ detector enables direct measurement of the Vibration Dose Value (**VDV**).

Using computational power of its digital signal processor the **SVAN 959** instrument can, simultaneously to the meter mode, perform real time **1/1 OCTAVE** or **1/3 OCTAVE** analysis including the calculations of the statistical levels. Following functions are also available as options: **FFT** analysis, **DOSE METER** measurements, acoustic **LOUDNESS** measurements, **TONALITY** analysis, reverberation time (**RT60**) measurements, **ENVELOPING** analysis, **AEM** measurements and user programmable second order band pass filters. The time history logging of **1/1 OCTAVE**, **1/3 OCTAVE** and **FFT** analysis are also provided.

The time domain signal recording on the external USB memory stick is also available as an option. Built-in sophisticated signal generator (option) enables to perform advanced measurement techniques like MLS, TDS etc. Advanced trigger and alarm functions are available in the standard version of this, currently the most sophisticated, one channel instrument from Svantek. The rotation measurements including laser tachometer is furnished as an option.

Fast USB 1.1 interface (12 MHz) creates real time link for the PC "front-end" application of the **SVAN 959** instrument. The **HOST USB** functionality is also available. The USB HOST controller installed in the instrument enables the user to connect to this meter the USB memory sticks, USB hard disks, USB printers etc. A PC using the optional interfaces (RS 232 or IrDA) can also remotely control the instrument. The measurement results can be downloaded to PC using all mentioned above interfaces. The instrument is powered from four AA standard or rechargeable batteries (i.e. NiMH - separate charger is required). The powering of the instrument from the External DC power source or the USB interface is also provided. Robust and lightweight design accomplishes the exceptional features of this new generation instrument.

1.1 SVAN 959 as Sound Level Meter & Analyser

- noise measurements (**SPL**, **LEQ**, **SEL**, **Lden**, **Ltm3**, **Ltm5** and statistics) with Type 1 IEC 61672:2002 accuracy in the frequency range 3.15 Hz ÷ 20 kHz with GRAS 40AE microphone
- parallel **IMPULSE**, **FAST** and **SLOW** detectors for the measurements with **A**, **C** or **Z** filters
- two measurement ranges 22 dB RMS(A) ÷ 123 dB PEAK (**LOW**) and 30 dB RMS(A) ÷ 140 dB PEAK (**HIGH**)
- **1/1 OCTAVE** and **1/3 OCTAVE** real time analysis (optional) - 15 filters with centre frequencies 1 Hz ÷ 16 kHz, Type 1 – IEC 1260 and 45 filters with centre frequencies 0.8 Hz ÷ 20 kHz, Type 1 – IEC 1260
- **RT 60 Reverberation Time** measurements (option)
- **FFT** real time analysis - 1920 lines in up to 22.4 kHz band (option)
- **DOSE METER** measurements
- Acoustic **LOUDNESS** measurements (option)
- **TONALITY** analysis (option)

1.2 SVAN 959 as Vibration Meter & Analyser

- General vibration measurements (acceleration, velocity and displacement) and optionally HVM meeting ISO 8041:2005 and ISO 10816-1 standards in the frequency range depends on the parameters of the attached accelerometer, i.e. with DYTRAN 3185D general purpose transducer is equal to 2Hz ÷ 20 kHz
- parallel **RMS**, **VDV**, **MTVV** or **MAX**, **PEAK**, **PEAK-PEAK** measurements
- **Z**, **HP1**, **HP3**, **HP10**, **KB**, **Wk**, **Wd**, **Wc**, **Wj**, **Wm**, **Wh**, **Wg**, **Wb** weighting filters
- **1/1 OCTAVE** and **1/3 OCTAVE** real time analysis (optional) - 15 filters with centre frequencies 1 Hz ÷ 16 kHz, Type 1 – IEC 1260 and 45 filters with centre frequencies 0.8 Hz ÷ 20 kHz, Type 1 – IEC 1260
- optional **FFT** spectra calculation (1920 lines in real time up to 22.4 kHz with Hanning, rectangle, flat top or Kaiser-Bessel window and linear averaging) parallel to the **VLM** operation

1.3 General features of SVAN 959

- Advanced **Data Logger** including spectra's logging on the **USB Memory Stick** providing almost unlimited logging capacity
- Time domain signal recording (option)
- Advanced trigger and alarm functions
- **USB 1.1 Host & Client interface** (real time PC "front end" application supported)
- **RS 232** and **IrDA** interfaces (options)
- Built-in **signal generator** (option)
- Integration time programmable up to **24 h**
- Power supply by **four AA** rechargeable or standard **batteries**
- Hand held, light weight and robust case
- Easy in use

1.4 Accessories included

- **GRAS 40AE** - prepolarised ½" microphone with nominal sensitivity 50 mV/Pa
- **SV 12L** - microphone preamplifier
- **SC 16** - USB 1.1 cable
- **SC 59** - I/O cable
- **four AA** batteries
- **SvanPC+** for windows 2000/XP software

1.5 Accessories available

- **SA 17A** - external battery pack
- **SA 22** - windscreen
- **SA 43** - carrying case for SVAN 95x and accessories
- **SA 45** - carrying case for SVAN 9xx and accessories (waterproof)
- **SA 46** - carrying belt-bag for SVAN 94x and SVAN 95x (leather)
- **SA 47** - carrying bag for SVAN 95x and accessories (fabric material)
- **SV 55** - RS 232 option for the SVAN 955

1.6 Software options available

- **SVAN959_1** - SVAN 959 including FFT, RT60 and TONALITY options
- **SV 959_4** - FFT analysis option for the SVAN 959
- **SV 959_5** - RT60 option for the SVAN 959
- **SV 959_6** - Tonality analysis option for the SVAN 959
- **SV 959_7** - Loudness analysis option for the SVAN 959
- **SV 959_8** - Rotation measurement option including Laser Tachometer (RPM)
- **SV 959_9** - Human Vibration filters option
- **SV 959_11** - Enveloping analysis option
- **SV 959_12** - Balancing (RPM option required) *
- **SV 959_15** - Time domain signal recording (to the USB Flash Disk: *.srt or *.wav format)
- **SV 959_16** - User programmable second order band pass filters*



Notice: The software options can be purchased in any time as only the introduction of the special code is required for their activation.



SVAN 959 instrument with the preamplifier, the microphone and the USB Memory Stick

1.7 Current list of SVAN 959 options and accessories

The current list of SVAN 959 options and accessories are presented below:

SVAN959	Type 1 Sound & Vibration Analyser including 1/1 & 1/3 octave filters
SVAN959_1	SVAN 959 including FFT, RT60 and TONALITY options
SV 959_4	FFT analysis option for the SVAN 959
SV 959_5	RT60 option for the SVAN 959
SV 959_6	TONALITY analysis option for the SVAN 959
SV 959_7	LOUDNESS analysis option for the SVAN 959
SV 959_8	Rotation measurement option including Laser Tachometer (RPM)
SV 959_9	Human Vibration filters option
SV 959_11	ENVELOPING analysis option
SV 959_12	Balancing (RPM option required)*
SV 959_15	Time domain signal recording (to the USB Flash Disk: *.srt or *.wav format)
SV 959_16	User programmable second order band pass filters*
SV 55	RS232 interface option for the SVAN 95x
SV 56	IrDA interface option for the SVAN 95x
SA 22	Windscreen for 1/2" microphone
SA 43	Carrying case for SVAN 95x and accessories
SA 45	Carrying case for SVAN 9xx and accessories (waterproof)
SA 46	Carrying belt-bag for SVAN 94x and SVAN 95x (leather)
SA 47	Carrying bag for SVAN 95x and accessories (fabric material)
*	option under development
SVAN 959 -	accessories included: GRAS 40AE prepolarised microphone, SV 12L preamplifier, SC 16 cable, SC 59 cable, SA 22 windscreen, SvanPC+ (version 1.xx) for Windows 2000/XP software