C TECHNICAL SPECIFICATIONS

C.1 Specification of the SVAN 974 as vibration level meter

System configuration

SVAN 974 with **Svantek SV80** accelerometer and **SC 27** cable.

Accelerometer Svantek SV80	10 mV/m/s^2, IEPE accelerometer (see C4 for details)

Accessories included

SC 27	TNC (plug) to TNC (plug) 2 m coil cable
SA 27/10-32	Mounting magnet base for SV 80,
SC 56	USB 1.1 cable,

Accessories available

SA 27-FF	Permanent magnet.
SVRPM_PROB	Laser Tachometer with SC 69 cable,
SC 61	TNC plug to BNC socket integrated connector,
SA 47	Carrying bag for SVAN 974 and accessories,
SA 54	Power supply unit by USB interface using cables SC 56 (cables not included),
SC 96	Output cable for I/O connector, miniJack to 2 x BNC

Measured quantities

The measured quantities in the vibration meter mode are **RMS**, **PEAK**, **P–P** and **MAX**. The definitions for mentioned parameters are given in Appendix D.

Mounting for vibration tests

The accelerometer can be connected with the VLM using proper cable provided by the manufacturer.

The accelerometer can be mounted on the plate in various ways:

- using threaded stud onto a flat, smooth surface,
- using thin layer of bees-wax for sticking the accelerometer into the plate,
- using mica washer and isolates stud, where the body of accelerometer should be electrically isolated from the measuring object,
- using permanent magnet.

Linear operating ranges for the acceleration
for the:

the **IEPE accelerometer** with sensitivity equal to 10mV / ms^{-2} (e.g. the SV80)
the **Charge Mode accelerometer** with sensitivity equal to 10pC / ms^{-2}

Single measuring range with the nominal value: **316ms^{-2}** (170 dB related to 10^{-6} ms^{-2}).

- Linear measurement with the **HP, HP1**, **HP3** and **HP10**filters:

  from 0.01 ms^{-2} to 316 ms^{-2} (the sinusoidal signal RMS)
  from 0.1 ms^{-2} to 500 ms^{-2} (PEAK)

Table C.1.1 Linear operating ranges with the , HP1, HP3 and HP10filters filter

Range (RMS)	Linear operating ranges (RMS) With the 10 mV / ms^{-2} (or 10pC / ms^{-2}) accelerometer sensitivity @ 79.58 Hz Measured at the reference environmental conditions

SINGLE	from 10 mms^{-2} (80 dB)	to 316ms^{-2} (170 dB)

- Linear measurement with the **Vel1** filter:
  from 0.02 ms^{-1} to 56 ms^{-1} (the sinusoidal signal RMS)
  from 0.2 ms^{-1} to 79 ms^{-1} (PEAK)

Table C.1.2 Linear operating ranges with the Vel1 filter

Range (RMS)	**Linear operating ranges (RMS)** With the 10 mV / ms^{-2} (or 10pC / ms^{-2}) accelerometer sensitivity @ 79.58 Hz Measured at the reference environmental conditions	
SINGLE	from 20 mms^{-1}	to 56 ms^{-1}

- Linear measurement with the **Vel3** filter:
  from 0.01 ms^{-1} to 26.5 ms^{-1} (the sinusoidal signal RMS)
  from 0.1 ms^{-1} to 37.4 ms^{-1} (PEAK)

Table C.1.3 Linear operating ranges with the Vel3 filter

Range (RMS)	**Linear operating ranges (RMS)** With the 10 mV / ms^{-2} (or 10pC / ms^{-2}) accelerometer sensitivity @ 79.58 Hz Measured at the reference environmental conditions	
SINGLE	from 10 mms^{-1}	to 26.5 ms^{-1}

- Linear measurement with the **Vel10** and **MFVel** filters:
  from 0.01 ms^{-1} to 5.6 ms^{-1} (the sinusoidal signal RMS)
  from 0.1 ms^{-1} to 7.9 ms^{-1} (PEAK)

Table C.1.4 Linear operating ranges with the Vel10 and MFVel filters

Range (RMS)	**Linear operating ranges (RMS)** With the 10 mV / ms^{-2} accelerometer sensitivity @ 79.58 Hz Measured at the reference environmental conditions	
SINGLE	from 10 ms^{-1}	to 5.6 ms^{-1}

- Linear measurement with the **Dil1** filter
  from 320 um to 8.9 m (the sinusoidal signal RMS)
  from 3.2 mm to 12.6 m (PEAK)

Table C.1.5 Linear operating ranges with the Dil1 filter

Range (RMS)	**Linear operating ranges (RMS)** With the 10 mV / ms^{-2} (or 10pC / ms^{-2}) accelerometer sensitivity @ 79.58 Hz Measured at the reference environmental conditions	
SINGLE	from 320 μm	to 8.9 m

- Linear measurement with the **Dil3** filter
  from 100 um to 3 m (the sinusoidal signal RMS)
  from 1 mm to 4.2 m (PEAK)

Table C.1.6 Linear operating ranges with the Dil3 filter

Range (RMS)	**Linear operating ranges (RMS)** With the 10 mV / ms^{-2} (or 10pC / ms^{-2}) accelerometer sensitivity @ 79.58 Hz Measured at the reference environmental conditions	
SINGLE	from 100 μm	to 300 cm

- Linear measurement with the **Dil10** filter
  from 16 μm to 47 cm (the sinusoidal signal RMS)
  from 160 μm to 67 cm (PEAK)

Table C.1.7 Linear operating ranges with the Dil10 filter

Range (RMS)	**Linear operating ranges (RMS)** With the 10 mV / ms^{-2} (or 10pC / ms^{-2}) accelerometer sensitivity @ 79.58 Hz Measured at the reference environmental conditions	
SINGLE	from 16 μm	to 47 cm

- Linear measurement with the **Wh** filter:
  from 0.003 ms^{-2} to 352 ms^{-2} (the sinusoidal signal RMS)
  from 0.03 ms^{-2} to 500 ms^{-2} (PEAK)

Table C.17 Linear operating ranges with the Wh filter

Range (RMS)	**Linear operating ranges (RMS)** With the SV80 (10 mV / ms^{-2}) accelerometer sensitivity @ 79.58 Hz Measured at the reference environmental conditions	
SINGLE	from 3.16 mms^{-2} (70 dB)	to 316 ms^{-2} (170 dB)

Notice: *In the measurement of the signal with the* ***crest factor n > 1.41 the upper linear operating range for the RMS value is reduced****. Its value can be calculated from the equation:* $A_n = A + 10 - 20\log(n / \sqrt{2})$ *[m], where* ***A*** *is the given range for the sinusoidal signal. E.g. for* ***n = 10*** *and* ***A*** *=* ***180*** *the value of* A_{10} *is equal to* ***= 173 dB****.*

Frequency range for the acceleration measurement (+/- 10%)

1 Hz ÷ 5 kHz in the linear measurements with the **HP** or **HP1**filter

Notice: *With the application of another vibration transducer, the frequency range given above for the **HP** filter can be different (i.e. wider).*

Basic error for the acceleration measurement

< ± 0.5 dB

Calibration

Direct: by the measurement of the standard signal generated by the external vibration calibrator.

Indirect: by the declaration of the transducer's sensitivity (according to the calibration chart).

Notice: *Calibration procedure is given in Chapter 4 of the Manual.*

Accelerometer input "IEPE"

Connector	TNC
Impedance	320 kΩ / 100 pF (typical)
Vibration transducers powering	IEPE type, 28 V / 1.5 mA or 3.0 mA or 4.5 mA selectable current source
Range of the measured voltage	3.35 V_{RMS}
Maximum input voltage	4.47 V_{PEAK}

Accelerometer input "Charge"

Connector	TNC
Impedance:	220 Ω / 255 pF (with the SC 08A cable).
Time constant of the integration circuit:	1.6 s.
Measurement range:	single range with the nominal value - 3.16 nC.
Range of the measured charge:	30 fC_{RMS} ÷ 4.47 nC_{PEAK} (**HP1** filter).
Range of the measured charge:	50 fC_{RMS} ÷ 4.47 nC_{PEAK} (**HP3, HP10** filters).

Maximum input voltage

The **SVAN 974** is the instrument with the Measurement circuit safety category I according to IEC 61010-1.
The input voltage should be within the 30 V Peak – Peak

RMS detector

- Digital — "**True RMS**" **with Peak detection**
- Resolution — **0.1 dB**
- Range — **327.7 dB**
- Crest Factor — **unlimited** for signals within 20 kHz band

Overload detector

The instrument has the built-in overload detectors. The overload in the measurement channel (in its analogue part) and the overload of the analogue / digital converter are both detected. The “overload” indication is when the input signal amplitude **is 0.5 dB above** the declared “Peak measurement range”.

Underrange detector

The instrument has the built-in underrange detector. The “underrange” indication appears when the minimum value of the RMS detector output goes below the specified lower linear operating range.

Analogue/Digital conversion

24 bits resolution.@ 48 kHz

Antialiasing filter

Built-in antialiasing filter (eighth-order elliptic type) ensuring correct sampling of the measured signal.

Pass band(-1 dB)	**22.200 kHz** or **44.4 kHz**
Pass band(-3 dB)	**23.520 kHz** or **47.0 kHz**
Stop band	**26.256 kHz** or **52.53 kHz**
Attenuation in the stop band	**> 100 dB**.

Reference conditions

- Reference frequency **79.58 Hz**,
- Reference temperature **+23°C**,
- Reference relative humidity **50 %**,

Pre-heating time

1 minute (for 0.1 dB accuracy).

Typical stabilization time after change in environmental conditions is 1 minute.

Notice: *When the instruments are moved from a warm environment with high humidity, to a colder environment, care should be taken not to produce condensation inside the instruments. In this case, much longer stabilization periods may be necessary.*

Digital filters

High-pass filters

HP filter	(see part C.3 for the filter characteristics).
HP1 filter	(see part C.3 for the filter characteristics).
HP3 filter	(see part C.3 for the filter characteristics).
HP10 filter	(see part C.3 for the filter characteristics).

Frequency weighting filters (filter includes Band Limiting filter).
(Conforms to ISO 8041:2005 , see part C.3 for the frequency response characteristics).

- **Wh** from 0.8 Hz to 4000 Hz

Integrating filters (see part C.3 for the frequency response characteristics):

- **Vel1** from 0.2 Hz to 4100 Hz
- **Vel3** from 0.2 Hz to 4100 Hz
- **Vel10** from 0.2 Hz to 4100 Hz
- **Dil1** from 0.1 Hz to 260 Hz

- **Dil3** from 0.2 Hz to 510 Hz
- **Dil10** from 1 Hz to 2050 Hz

Special filter

Filter for the evaluation of the machinery condition:
- **VelMF** from 0.2 Hz to 4100 Hz; conforms to the ISO 10816 standard (see part C.3 for the frequency response characteristics)

Environmental, electrostatic and radio frequency criteria

Notice: In the measurement conditions with the strong electromagnetic disturbances *(e.g. near the high-voltage transmission lines)* ***the lower measurement limit can be drastically shifted as the result of the external field influence on the measurement cables.*** *In such cases,* ***the careful shielding of the measurement cables is strongly recommended.*** *It is worth to underline that the estimation of the external influence can be performed in-site by the observations of the measurement signal spectrum.*

Effect of humidity **< 0.5 dB** (for 30% < RH < 90% at 40°C and 1000 Hz)

Effect of radio frequency fields (meets requirements of the ISO 8041:2005)

The greatest susceptibility (the least immunity) is achieved when in the VLM the **HP1** filter is selected and the RMS measurements are considered.
The greatest susceptibility is achieved when the VLM and accelerometer with cable is placed along field and the cable is coil as solenoid.

Effect of electrostatic discharge (meets requirements of the ISO 8041:2005)

During electrostatic discharge, the influence of the displayed results could be observed.
No changes in instrument operation state, configuration or stored data corruption were found out.

Operating range from -10°C to + 50°C

Storage and Transportation from -20°C to + 60°C

Effect of temperature **< 0.5 dB** (from -10°C to + 50°C)

Operating range from -10°C to + 50°C

Storage from -20°C to + 60°C

Effect of Vibration **< 0.1** dB (measured at the instrument vibration 1m/s2 in the 2 kHz band)

C.2 Specification of the SVAN 974 as 1/1 OCTAVE , 1/3 OCTAVE and FFT analyzer

See Chapter C,1 for electrical input specification

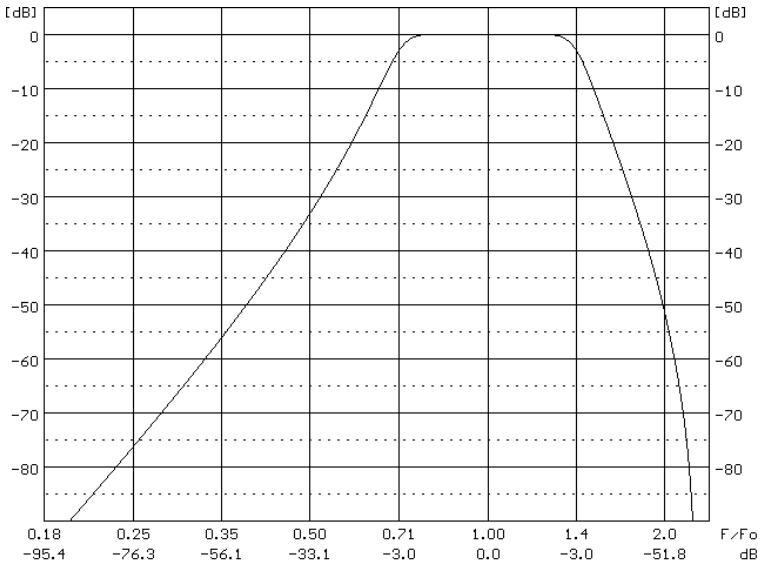
Low-pass filters

8 eighth-order elliptic filters with the cut-off frequencies from 10 kHz to 78.125 Hz in the binary sequence.

Ripple in the pass band ± **0.1 dB**.

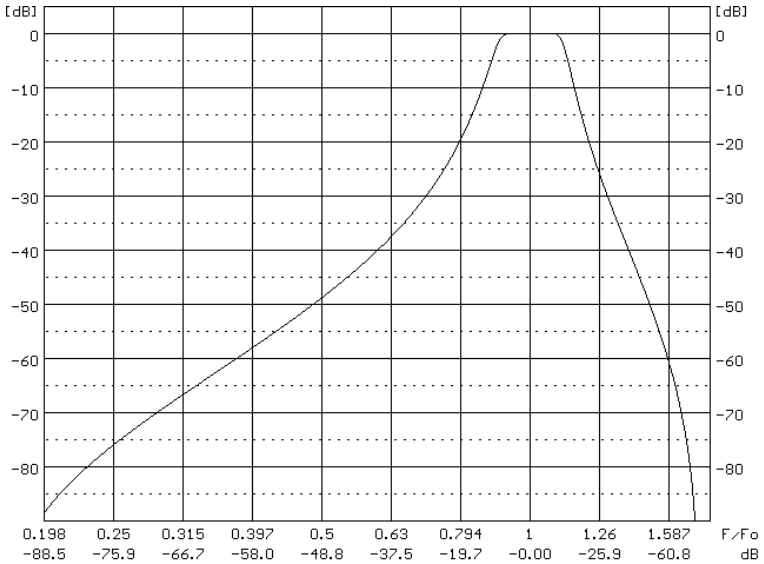
Attenuation in the stop band **> 100 dB**.

1/1 Octave filters 15 filters with centre frequencies from 1 Hz to 16 kHz (base 2), meeting DIN 45651, IEC 61260:1995 and ANSI S1.11-1986 for Class 1.

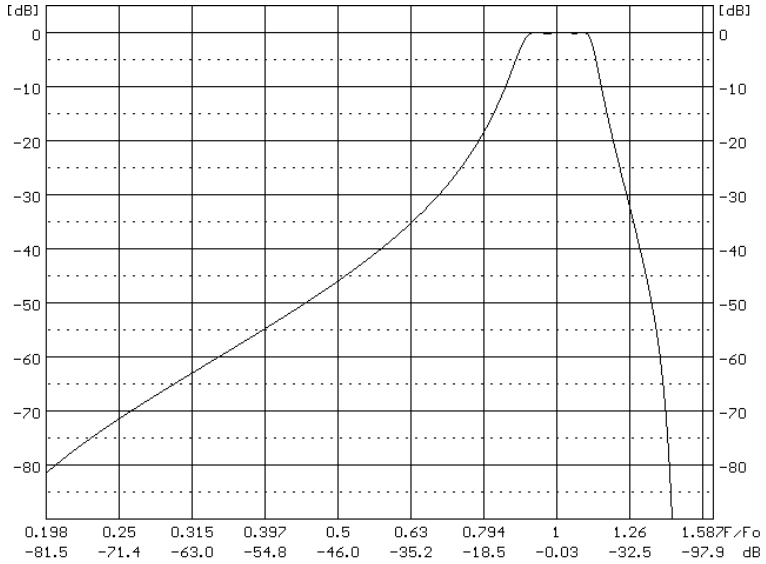


SVAN 974 1/1 octave filters characteristic

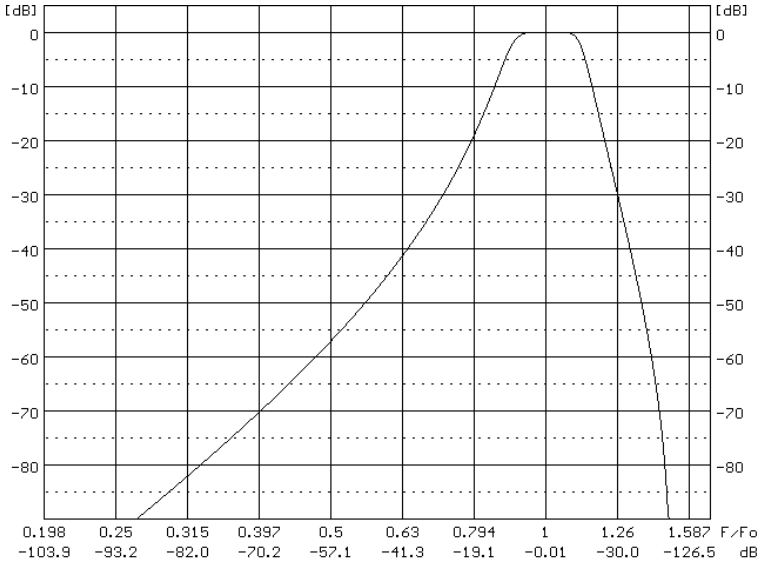
1/3 Octave filters 45 filters with centre frequencies from 0.8 Hz to 20 kHz (base 2), meeting DIN 45651, IEC 61260:1995 and ANSI S1.11-1986 for Class 1.



SVAN 974 1/3 octave filters characteristic – "lower" filter for each octave band.



SVAN 974 1/3 octave filters characteristic – "middle" filter for each octave band



SVAN 974 1/3 octave filters characteristic – "upper" filter for each octave band.

FFT Analysis

1600, 800 or 400 lines of the power spectrum calculated in **real time.**

Sampling frequency	**48 kHz** (internal only).
Time window	**Hanning, Rectangle**.
Averaging	**Linear**.

FFT resolution and calculation time step (no logging)

for 1600 lines,	**80 ms**
for 800 lines,	**40 ms**
for 400 lines.	**20 ms**

Table C.2.1 FFT analysis for the 400 lines spectrum (no-logging)

FFT bandwith [Hz}	Record length (samples)	Frequency resolution [Hz]	Overlapping factor %
20 000	1024	50	6
10 000	1024	25	53
5 000	1024	12.5	76
2 500	1024	6.25	88
1 250	1024	3.125	94
627.5	1024	1.5625	97
313.75	1024	0.78125	98
156.875	1024	0.390625	99
78.4375	1024	0.1953125	>99

Table C.2.2 FFT analysis Table for the 800 lines spectrum (no-logging)

FFT bandwith [Hz}	Record length (samples)	Frequency resolution [Hz]	Overlapping factor %
20 000	2048	25	6
10 000	2048	12.5	53
5 000	2048	6.25	76
2 500	2048	3.125	88
1 250	2048	1.5625	94
627.5	2048	0.78125	97
313.75	2048	0.390625	98
156.875	2048	0.1953125	99
78.4375	2048	0.09765625	>99

Table C.2.3 FFT analysis for the 1600 lines spectrum (no-logging)

FFT bandwith [Hz}	Record length (samples)	Frequency resolution [Hz]	Overlapping factor %
20 000	4096	12.5	6
10 000	4096	6.25	53
5 000	4096	3.125	76
2 500	4096	1.5625	88
1 250	4096	0.78125	94
627.5	4096	0.390625	97
313.75	4096	0.1953125	98
156.875	4096	0.09765625	99

78.4375	4096	0.0488281257	>99

FFT resolution and calculation time step (with spectra logging)

for 1600 lines, **100 ms**
for 800 lines, **50 ms**
for 400 lines. **20 ms**

Table C.2.4 FFT analysis for the 400 lines spectrum (with logging)

FFT bandwith [Hz}	Record length (samples)	Frequency resolution [Hz]	Overlapping factor %
20 000	1024	50	6
10 000	1024	25	53
5 000	1024	12.5	76
2 500	1024	6.25	88
1 250	1024	3.125	94
627.5	1024	1.5625	97
313.75	1024	0.78125	98
156.875	1024	0.390625	99
78.4375	1024	0.1953125	>99

Table C.2.5 FFT analysis Table for the 800 lines spectrum (with logging)

FFT bandwith [Hz}	Record length (samples)	Frequency resolution [Hz]	Overlapping factor %
20 000	2048	25	-17
10 000	2048	12.5	41
5 000	2048	6.25	70
2 500	2048	3.125	85
1 250	2048	1.5625	92
627.5	2048	0.78125	96
313.75	2048	0.390625	98
156.875	2048	0.1953125	99
78.4375	2048	0.09765625	>99

Table C.2.6 FFT analysis for the 1600 lines spectrum (with logging)

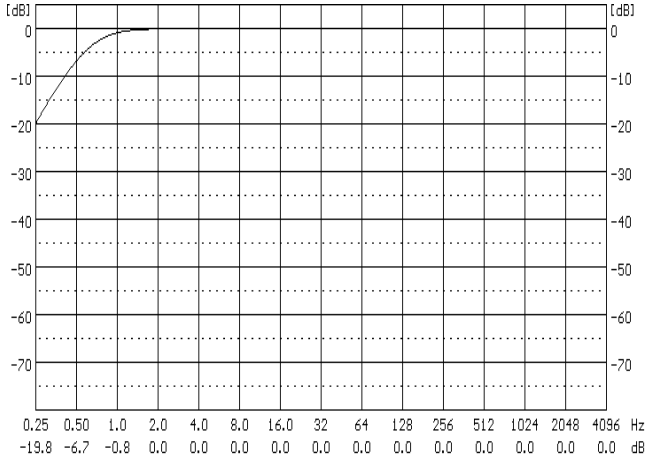
FFT bandwith [Hz}	Record length (samples)	Frequency resolution [Hz]	Overlapping factor %
20 000	4096	12.5	-17
10 000	4096	6.25	41
5 000	4096	3.125	70

2 500	4096	1.5625	85
1 250	4096	0.78125	92
627.5	4096	0.390625	96
313.75	4096	0.1953125	98
156.875	4096	0.09765625	99
78.4375	4096	0.0488281257	>99

C.3 Frequency characteristics of the implemented digital filters

"**HP1"** filter

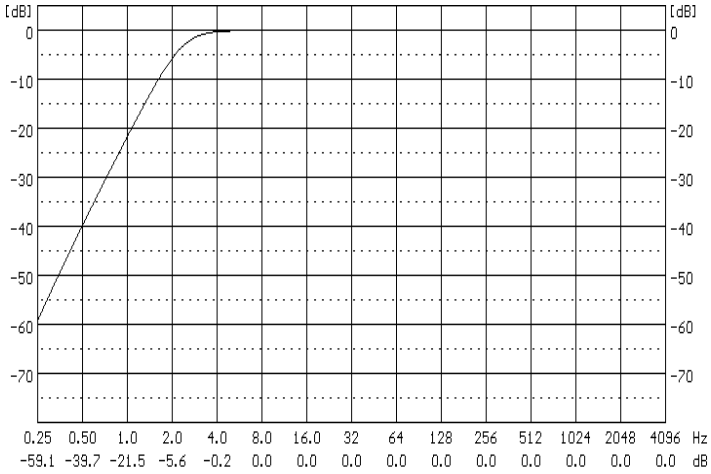
is used for the acceleration measurements (the vibration signal) in the frequency range from 1 Hz to 20 kHz.



"HP1´ filter characteristics

"**HP3"** filter

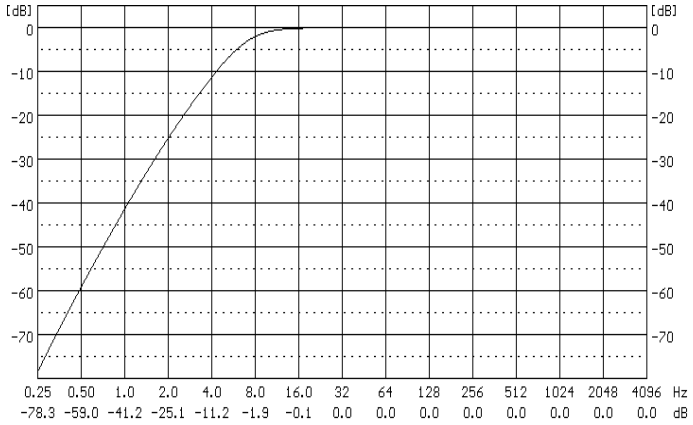
is used for the acceleration measurements (the vibration signal) in the frequency range from 3.5 Hz to 20 kHz.



"HP3" filter characteristics

"HP10" filter

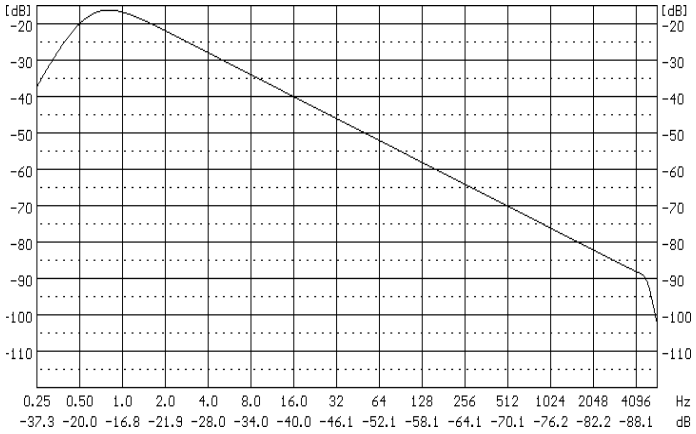
is used for the acceleration measurements (the vibration signal) in the frequency range from 10 Hz to 20 kHz.



"HP10" filter characteristics

"**Vel1"** filter

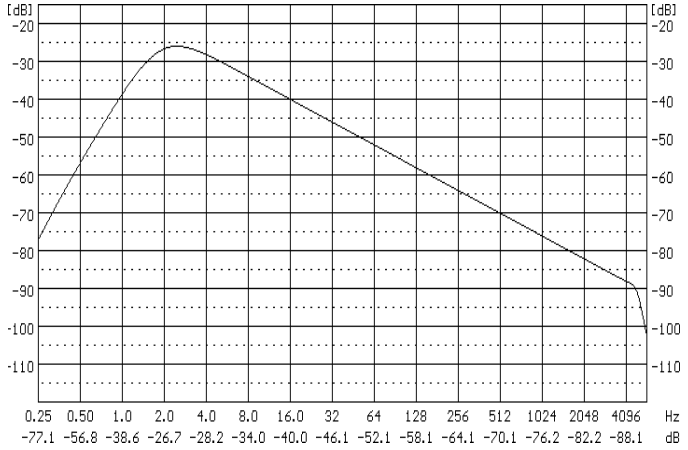
is used for the velocity measurements (the vibration signal) in the frequency range from 1 Hz to 20 kHz.



"Vel1" filter characteristics

"**Vel3"** filter

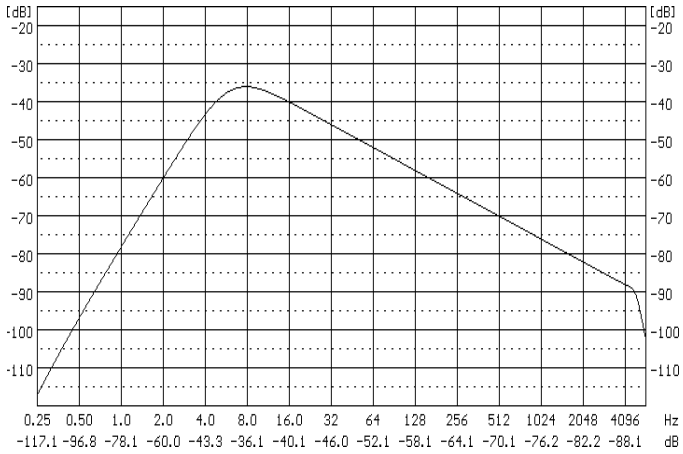
is used for the velocity measurements in the frequency range from 1 Hz to 20 kHz.



"Vel3" filter characteristics

"**Vel10"** filter

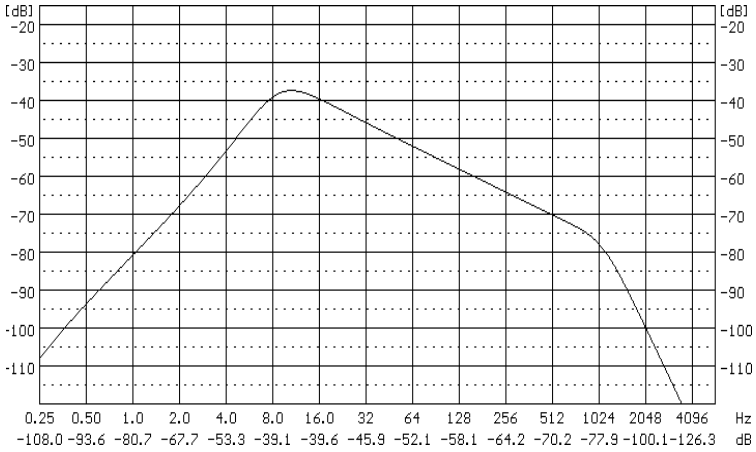
is used for the velocity measurements in the frequency range from 1 Hz to 20 kHz.



"Vel10" filter characteristics

"**VelMF"** filter

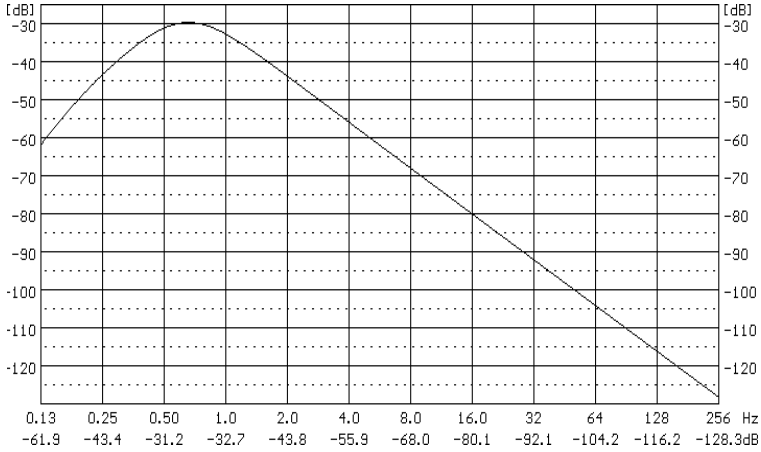
is used for the evaluation of the state of the machines. This filter is used for the measurements in the frequency range from 10 Hz to 1000 Hz and conforms to the ISO 10816 standard.



"VelMF" filter characteristics

"**Dil1"** filter

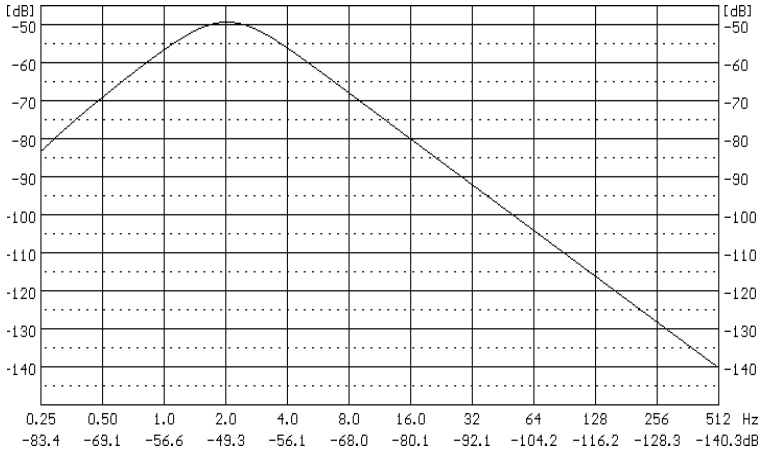
is used for the displacement measurements in the frequency range [1 Hz to 20 kHz].



"Dil1" filter characteristics

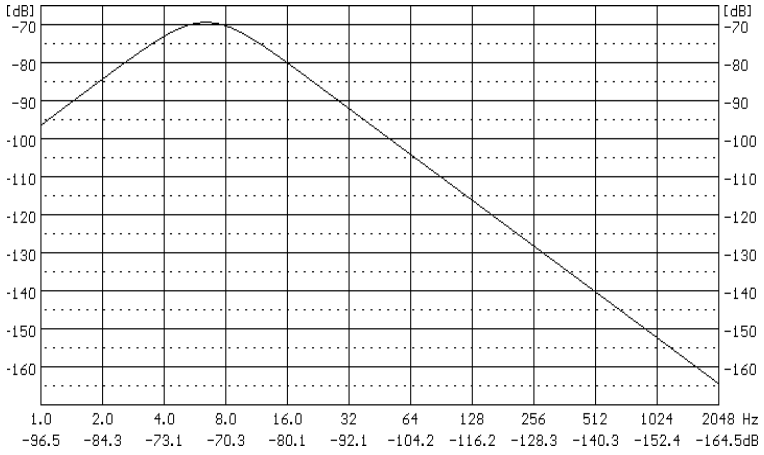
"**Dil3"** filter

is used for the displacement measurements in the frequency range [1 Hz to 20 kHz].



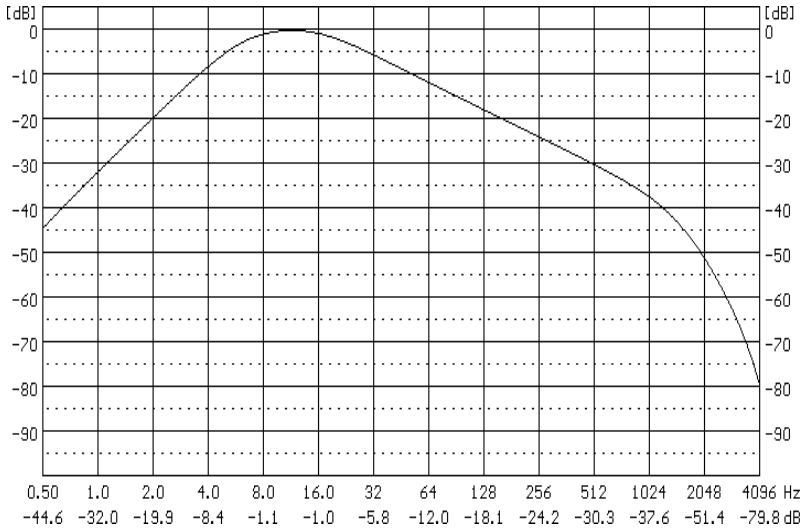
"Dil3" filter characteristics

"**Dil10"** filter
is used for the displacement measurements in the frequency range [1 Hz to 20 kHz].



"Dil10" filter characteristics

"**Wh"** filter
is used for the assessment of the influence of the vibration signal on the human body. It conforms to the ISO 5349 and ISO 8041:2001 standards.



"Wh" filter characteristics

C.4 Miscellaneous specification of the SVAN 974

Display

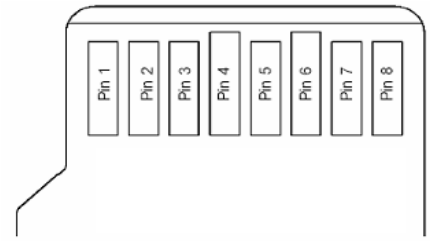
Super contrast OLED color display (320 x 240 pixels).

Memory

2 MB of the RAM memory.

Memory Card

Can be used typical Micro SD or Micro SDHC cards. Supported for up to 16 GB.



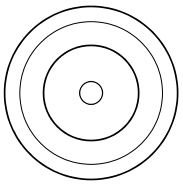
MicroSD contact pad assignment - outer view

Table C.28 Pin out of the MicroSD contact

Pin No.	Name	Description
1	DAT2	Data Line [Bit 2]
2	CD/DAT3	Card Detect / Data Line [Bit 3]
3	CMD	Command / Response
4	V_{DD}	Supply voltage
5	CLK	Clock
6	V_{SS}	Supply voltage ground
7	DAT0	Data Line [Bit 0]
8	DAT1	Data Line [Bit 1]

Signal input

The input of the measured signal (taken form the microphone preamplifier or the vibration transducer):



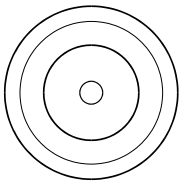
TNC connector (external view)

Pin number	TNC
Central	Input
Shield	Ground

Tacho input :

The input of the measured signal (taken from the vibration transducer):

- Electrically isolated from signal input,
- 50kOhm pull-up to 5V,
- 2.5V voltage threshold,
- frequency band DC to 10kHz.



BNC connector (external view)

Table C.3.2. Pin-out of the BNC connector

Pin number	BNC
Central	Input
Shield	Ground

Power supply

Instrument is dedicated for the operation from the internal replaceable battery.
Power consumption from the 6V source is approx. **130 mA (at + 20°C)**

So, typical operating time from 4 x AA alkaline batteries will be about **12 hours**.

SVAN 974 can be also powered from the AA Type rechargeable batteries.

Notice: For the temperatures below 0°C operating time can decrees (depending on the batteries) !

Notice: *Using of the MicroSD card (memory card) for the continuous time domain recording will increase power consumption.*
In such a case battery operating time will be reduced to approx. 8 hours!

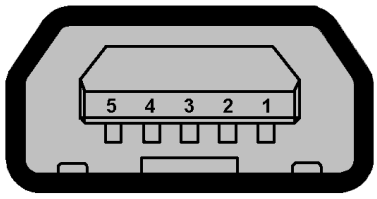
Instrument can be also powered from the external mini USB source with the **DC Voltage from 4.5 V to 5 V.**

Voltage ripple should not exceed ± 5%.

USB Interface

The **SVAN974** USB interface enables remote control of the instrument and data transfer with the speed up to that attainable with 12 MHz clock.

The USB interface can work as external power source of the meter.

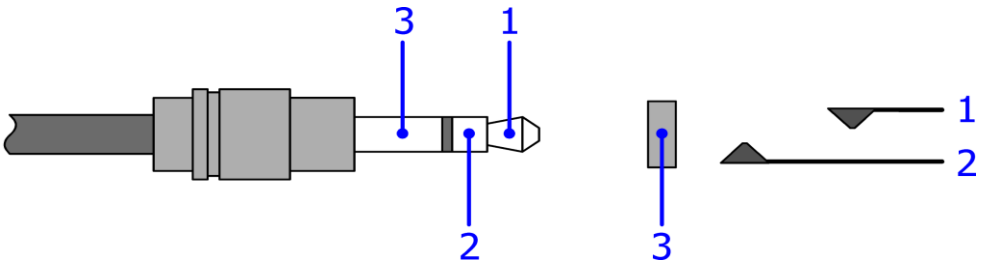


Mini USB socket (external view)

Table C.3.3 Pin-out of the USB-Device connector

Pin number	USB
1	Vbus
2	D-
3	D+
4	ID
5	GND
Shield	Ground

I/O – User programmable Analogue Outputs, Digital Input / Output connector



3.5 mm Mini Stereo Jack type (cable plug and instrument socket are shown)

Table C.3.4 Pin out of the 3.5 mm Mini Stereo Jack

Pin Number	Function
1	Analog Output; Digital Input / Output *
2	Future functions: Analog Output (secondary), Supply Volt. +4.5V (auxiliary)
Chassis (3)	Ground

*depending on instrument set-up

The user may set-up in window *MENU / INSTRUMENT / EXTENDED I/O* one of MODES, which are available in the instrument: **ANALOG**, **DIGITAL IN**, **DIGITAL OUT**

1. **ANALOG** , in this mode analogue signal from the instrument is fed to it's **IO** connector, with following user-selectable options:

   1.1 **Analog** – when this option is selected, the measured signal from the select channel is fed to the terminal [1] of the **I/O** connector. Output voltage, frequency band and the output impedance are following:

a) Output Voltage:
Tthe output voltage is equal to 1.0 V_{RMS} (± 5 %) at 170 dB indication of the instrument, on measurement range, when calibration factor is set to 0.0 dB.
b) Frequency Band (-3 dB): 0.02 Hz ÷ 4 kHz.
c) Output Impedance: 51 Ω / 5%

2. **DIGITAL IN**, when the **EXT. TRIGGER** function is activated, the external triggering of the instrument may be provided. In order to do that the user has to select **TRIGGER** and to set **SOURCE: EXT. IO** (*path: MENU / MEASUREMENT / TRIGGER / MEASURE TRIGGER*). The external signal for triggering is specified as follows:
   2.1. Trigger voltage threshold level is set to +1 V
   2.2. Trigger voltage slope (*path: MENU / MEASUREMENT / TRIGGER / MEASURE TRIGGER / TRIGGER:*) set by the user as **SLOPE+** (uprising as default) or **SLOPE–** (falling, auxiliary)
   2.3. Minimal duration of the trigger impulse: 10 µsec.
   2.4. 100 µsec. release time after previous measurement is necessary before next trigger
   2.5. Recommended trigger voltage should not exceed ± 5 V
   2.6. Input impedance in this **DIGITAL IN** mode - ca. 10 kΩ / 100 pF, ESD type safety
   2.7. When the instrument is switched-off in the **DIGITAL IN** mode, the voltage impulse on the pin [1] will be able to switch-on the instrument, however in this case the minimal duration of the trigger impulse of 100 msec is necessary, with uprising voltage slope

3. **DIGITAL OUT** - two different functions are available in this mode:
   3.1. **FUNCTION: TRIG. PULSE**, when this function is selected, the terminal [1] is set as output, which enables one to trigger another instrument (one instrument or more with trigger inputs connected together in parallel), output trigger impulse meets specification given below:
      a) trigger impulse is generated before every measurement
      b) output voltage range from 0 V or 3 V
      c) triggering slope: uprising
      d) output impedance: 51 Ω
      e) duration of the impulse: ca. 30 µsec.
   3.2. **FUNCTION: ALARM PULSE**, when this function is selected, the terminal [1] is set as an output, which changes its output level, when current result of measurement exceeds user-programmable threshold level. In this case the terminal [1] output operates as an output of analogue comparator with user-programmable threshold. This feature enables one to control an external device as alarm-indicator or similar
      a) electrical specification of this output are as follows: 0 V to 3 V voltage range, 51 Ω output impedance
      b) output produces a voltage level (not impulse)
      c) **ACTIVE LEVEL** setting may be selected by the user in menu as **LOW** or **HIGH**. If **HIGH** is selected, the output alternates from 0 V to 3 V till measurement result is greater than threshold value
      d) **SOURCE** setting selects source of measurement result to be compared with the threshold value. One of three results sources may be selected **RMS(1)**, **VEC13** or **VEC46**
      e) **LEVEL** enables one setting-up threshold value

Real Time Clock

Accuracy better then **1 minute/month.**

Weight with the battery **390 g** (without accelerometer).

Dimensions **140x83x33 mm** (without accelerometer).

Electromagnetic Compatibility (EMC)

The product described above is compliant with the following EMC standards:

1. For the EMC emissions specification:
   applying test methods in accordance with CISPR 22: 2003, Clause 10 and CISPR 16-1-1,
2. For the EMC immunity specification:

applying test methods in accordance with IEC 61000-4-2:2001, IEC 61000-4-3:2002 and IEC 61000-4-8.

Notice: EMC compatibility is guaranteed only with the original accessories supplied by SVANTEK!

Safety

The product described above is compliant with following standards:
EN 61010-1:2001 and IEC 61010-1:2001

Compliance with EU Directives

CE mark indicates compliance with EMC Directive 89/336/EEC and Low Voltage Directive 2006/95/EC.

Environmental parameters

- Working temperature range -10°C ÷ +50°C
- Storing temperature range -20°C ÷ +50°C
- Humidity up to 90% RH (non-condensed)

C.2 Specification of SV 80 accelerometer

Performance:

- Number of axis 1
- Sensitivity (± 5 %) .....10 mV/(ms^{-2}) ~ 100 mV/g
- Measurement range .....0.01 ms^{-2}RMS ÷ 500 ms^{-2} Peak
- Frequency response (by design guideline, ± 3 dB) .....0.5 Hz ÷ 14 000 Hz
- Linearity .....± 1 %
- Residual noise (1 Hz, 24°C) .....30 µg RMS
- Residual noise (1 Hz to 25 kHz, 24°C) .....300 µg RMS
- Transverse response sensitivity (20 Hz, 50 m/s2) .....< 5 %
- Resonant frequency .....25 kHz

Electrical:

- Electrical grounding .....Isolated from machine grounding
- Isolation (Case to Shield) .....> 100 MΩ
- Capacitance to ground (Nominal) .....70 pF
- Supply current .....2 mA ÷ 10 mA
- Supply voltage .....22 V ÷ 28 V
- Bias voltage .....+12 VDC
- Output impedance (Nominal) .....50 Ω
- Charge / discharge time constant (start-up time).....< 1 sec. typ.

Environmental Conditions:

- Maximum vibration (shock survival) .....50 000 ms^{-2} Peak
- Thermal sensitivity coefficient .....0.07 %/^{o} C F.S.
- Operating temperature range .....from -55 °C to +120 °C
- Operating temperature range (recommended) .....from -10 °C to +50 °C
- Humidity / Enclosure .....IP67, epoxy sealed

Physical:

- Connector.....TNC socket, top radially mounted
- Material housing & connector.....Stainless steel
- Dimensions.....drawing above
- Mounting thread.....10-32 UNF 2B
- Weight.....40 grams

Accessories:

- Mounting stud 10-32 to M5 (included)
- SA 27/10-32.....Mounting magnet base (optional)
- SC 27.....Coil cable TNC plug – TNC plug, 2 meters (optional)