



MOUNTING AND CONNECTING

1. Installation base requirements

- temperature 75 deg C max
- flatness 0.02 mm
- fundamental frequency 2 kHz min

2. Mounting screws

- torque 8-12 kG*cm

3. Do not hit the housing -

- fragile components inside

4. Treat as electrostatic sensitive

- 5. Power must be off during connecting

- 6. After installation calibrate bias and scale factor

7. Soldering to contacts:

- permissible at 180 deg.C, 3 sec.

- 8. Do not shield top cover from air flow to avoid overheating.

VG949PD MAIN PARAMETERS (analog core)

Input range	$\pm 300 \text{ deg/s} \pm 15\%$
Scale Factor (SF)	$7 \text{ mV/deg/s} \pm 15\%$
Frequency range	0...1000 Hz
Noise (PSD)	$0.02 \text{ mV}/\sqrt{\text{Hz}}$
Bias variation (steady state)	0.05 mV (RMS)
SF variation (steady state)	$0.05 \% \text{ (RMS)}$
SF change (over temp. range)	5 %
Readiness time	$0.01\text{s (analog output)}$ $1 \text{ s (digital output)}$

ENVIRONMENT

Temperature operating	$-30^{\circ}\text{C} \dots +70^{\circ}\text{C}$
non-operating	$-40^{\circ}\text{C} \dots +75^{\circ}\text{C}$
Vibration	2 g (RMS), 20Hz...500Hz
Shocks	90 g, 1 ms

RELIABILITY

MTBF	20000 hours (20°C, predicted)
Lifetime (predicted)	15 years

INFO

1. Ω - sensing axis, $90^{\circ} \pm 0.5^{\circ}$ to the mounting surface M
2. Dissipation - 1 W.
3. Weight - 50 gram.
4. Volume - 65 cl.
5. Housing material - plastic.
6. Tolerances - H12; h12, T12.

DIGITAL OUTPUT

Asynchronous RS232 port, 8 bit data, 1 stop bit, no parity control.
Transmission rate (default) - 38 kBod (repetition rate ~ 0.3 kHz).
Instantaneous bandwidth 100 Hz

Sensor output voltage = $2.5 \text{ RATE} / 2^{23} \text{ V}$,

RATE is a binary complementary 24-bit word (see Table 1).

Additional data (Xdata) - temperature (taken from AD TMP36 sensor),
supply voltage, consumption current, diagnostics signal (option).

These data (16 bits each) are transmitted in series of 16 sendings
According to the status of COUNTER (see Table 2).

Table 1. Digital data format and data block content

SOD (1 byte)	Start of Data	DD hex
Data Block (5 bytes)	1 st byte	RATE lowest byte (L)
	2 nd byte	RATE highest byte (H)
	3 rd byte	RATE middle byte (M)
	4 th byte	COUNTER status
	5 th byte	some of Xdata
LCC (2 bytes)	Lower 2 bytes of sum of Data Block	
Total - 8 bytes		

Table 2. Xdata content

Counter	Byte	Xdata
00	H	Temperature (C)
01	L	$HL250 / 2^{15} - 50$
02	H	Supply voltage (V)
03	L	$HL2.5 / 2^{15} / K_v$
04	H	Consumption current (A)
05	L	$HL2.5 / 2^{15} / K_i$
06	H	Diagnostics signal (V)
07	L	$HL2.5 / 2^{15} / K_b$
08...0F		Reserved

$K_v=0.25; K_i=10; K_b=1$ (+/- 10%, non-calibrated)

Output pins description

Contact	Name	Description
1	RS232 TXD	Digital output RS232
2	+5V	Power input +5V $\pm 0.1\text{V}$, 300mA max, ripple 10mV max within 0-1MHz
3	Service	Service analog output (-), 1V biased to GND
4	Service	Service analog output (+), 1V biased to GND
5	GND	Power return line, ground, electrically connected to the sensor's cover