

In the digital (D) version of the VG-type Rotation Sensor the special PCB is installed to digitize sensor's analog signal. Rotation rate data and some extra (X) data are sent via RS232 serial interface. D- sensor has start-up period 1s.

#### Electrical interface

Definition	Contacts	Comments
Power Supply	Power supply (+5V) Power ground (Gnd)	+5 VDC (0.5A max) regulated from 4.90 to 5.25. Ripple (0...1MHz) < 10mV
Analog output	Output signal Signal ground (AGnd)	not available in some D-models
Digital output	Tx of RS232 Digital ground (DGnd)	Asynchronous, 8 data bits, 1 stop bit, no parity control. Digital ground is shortened to power ground in some models

#### Operating mode

Sensor sends digital data continuously at 0.3 kHz repetition rate, 38 kbps transmission rate (default mode). The rotation rate data has instantaneous bandwidth about 100 Hz.

Repetition/ transmission rates may be factory set to 1.2 kHz/115 Kbps "fast mode" or 0.07kHz/9.6kbps "slow mode".

The instantaneous bandwidth in a fast mode is 400Hz (slow mode-30Hz).

#### Digital data content

Rate data - Output of analog sensor (Volt)=  $2.5 \cdot \text{RATE} / 2^{23}$ ; RATE is a binary complementary 24-bit word (table 1).

Xdata - temperature (taken from AD TMP36 sensor), supply voltage, analog sensor's consumption current, diagnostics signal (option for some models). These data (16 bits each) are transmitted completely in series of 16 sendings according to the status of COUNTER as shown in table 2.

Table 1. Digital data format and data block content

SOD (1 byte)	"Start of Data" DD-hex
Data Block (5 bytes)	1 <sup>st</sup> byte - RATE lowest byte (L) 2 <sup>nd</sup> byte - RATE highest byte (H) 3 <sup>rd</sup> byte - RATE middle byte (M) 4 <sup>th</sup> byte - COUNTER status 5 <sup>th</sup> 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	HL-250 / 2 <sup>15</sup> - 50
02	H	Supply voltage (V)
03	L	HL-2.5 / 2 <sup>15</sup> / K <sub>U</sub>
04	H	Consumption current (A)
05	L	HL-2.5 / 2 <sup>15</sup> / K <sub>I</sub>
06	H	Diagnostics signal (V)
07	L	HL-2.5 / 2 <sup>15</sup> / K <sub>D</sub>
08 ... 0F		Reserved