

## iMGYR-SN-D

### High Performance MEMS Based Angular Rate Sensor

The series iMGYR-x-D angular rate sensor is realized as an advanced MEMS based gyroscope measuring rotation rate.

- robust MEMS gyro with low noise
- interfaces: CAN, RS232, analog; option: odometer input
- synchronisation input and output available
- wide range of power supply
- used for automatic vehicle guidance (forklifters, AGVs, straddle carriers), ship motion control etc.
- compatible to FOG version iOLFOG-S-D (size, interface)



single element followed by high sophisticated analog and digital signal processing. After a high speed digitization and a microprocessor based signal processing the iMGYR-SN provides an output signal being proportional to angular velocity. The integrated micro-processor reduces the non-linearity to much less than 0.2% f.s and compensates the bias on the digital and analog output

Compared to other gyroscopes the MEMS gyroscope has the advantage of low noise, unsurpassed robustness and long lifetime. iMGYR-SN provides both a compensated digital output (CAN or RS232/422) and an compensated analog output as an option.

The iMGYR-SN comes in an ruggedized aluminum housing and contains the MEMS based sen-

over temperature. As an option an input for an additional incremental encoder (odometer, vehicle motion sensor) is available for applications on autonomous guided vehicles (AGV). In summary the iMGYR-SN-D is created as a "plug & measure" angular rate sensor of the medium precision class for easy handling.

#### Technical data of the iMGYR-SN-D (1 sigma values):

Measuring range:	$\pm 400$ deg/s
Digital output:	CAN, RS232 (option: RS422)
Analog output signal (option only):	0...5 V or -/5 V or +/-10 V (calibrated angular rate, 16 bit resol. DAC)
Data Rate:	0 to 200 Hz (can be filtered internally; 400 Hz as option)
Bias stability:	< 0.000'3 °/s (short time, from Allan Variance / 1'000 sec) < 0.002 °/s (const. temperature [+/- 1 K])
Bias change over temperature:	< 0.005 °/s (over 20 K change with < 2 K/min, measured at static condition); absolute bias: max. +/- 0.07 deg/s day-to-day <sup>1</sup>
Resolution:	< 0.000'1 °/s
Bandwidth:	250 Hz
Noise density:	< 0.2 deg/ $\sqrt{h}$
Cross sensitivity to acceleration:	0.005 °/s/g
Linearity error, scale factor stability:	< 0.2 %
Odometer Interface (option):	A/B quadrature input, RS422 level
Build-in-test and temperature sensor:	integrated
Temperature range:	-40...+65 °C (operating, case temp.), -55...+85 °C storage
Shock, Protection:	60 g, 11 ms; IP54 (SubD) or IP67 (MIL-C-38999 III)
Vibration, MTBF:	6 g, 20...2000 Hz (rms) endurance, > 30.000 hrs
Mechanical dimensions:	approx. 100 x 100 x 80 mm (without mounting plate)
Signal and power connector:	15-pin SUB-D (option: MIL-C-38999 III)
Power supply:	10...34 V DC; P < 4 W

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<sup>1</sup> can be estimated and compensated by application at standstill

