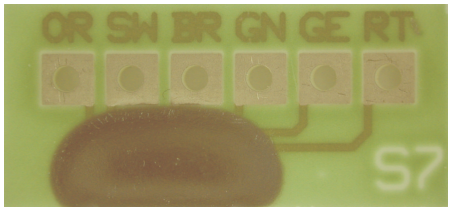
HL PLANAR TECHNIK

Magnetic Length Sensor MLS-5000 - Preliminary -



Front view length sensor MLS-5000

Description

The magnetoresistive strong field sensor MLS-5000 consists of two against each other shifted Wheatstone bridges. The chip is assembled on the edge of a ceramic hybrid. The resistance position at the bridge is optimized to a magnetic scale with a period length (pole distance) of 5 mm.
The pole stripe with its changing magnetization is guided along the sensor in a distance of z<2.5 mm. Thereby output signals with a sine and cosine characteristic will be received. By sine/cosine analysis precise displacements between the pole stripe and sensor can be detected. The reachable measurement precision depends on the distance between sensor and pole stripe.

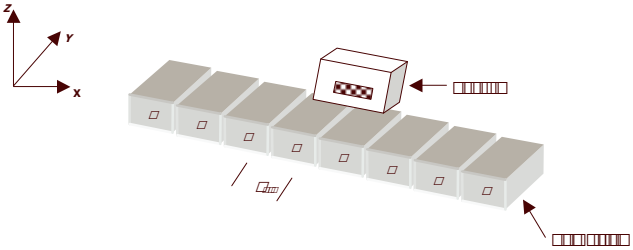
Advantages

- high resolution
- low noise
- low current consumption
- low interference field sensitivity

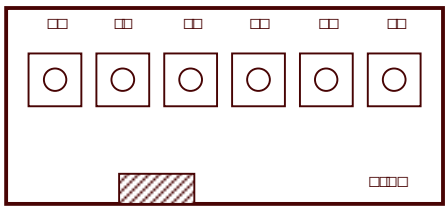
Applications

- Length measurement for direction identification
- Angle measurement with pole wheels

Application principle



Pin out



Pin	Mean	Typ
OR	Output signal	V_{cos2+}
SW	Supply voltage	V_B
BR	Ground	GND
GN	Output signal	V_{sin2-}
GE	Output signal	V_{sin1+}
RT	Output signal	V_{cos1+}

Specification

Parameter	*Condition*	*Symbol*	*Min*	*Typ*	*Max*	*Unit*
Supply voltage		U_{cc}		5	10	*V*
Sensor resistance		R_s	1	1.5	2	*kΩ*
Pole distance		d_{N-S}		5		*mm*
Signal amplitude	*by H_{appl}=32kA/m, T=RT*	$\Delta U/U_{cc}$	16			*mV/V*
Offset voltage		$\lvert U_{off}/U_{cc}\rvert$			1.5	*mV/V*
Applied magnetic field	*Magnet strip distance z<2.5mm*	H_{appl}	10			*kA/m*
Temperature coefficient of amplitude		*TCSV*	-0.37	-0.33	-0.29	*%/K*
Temperature coefficient of resistance		*TCBR*	0.29	0.33	0.37	*%/K*
Operating temperature		T_{op}	-40		+85	*℃*
Storage temperature		$T_{storage}$	-55		+125	*℃*
Dimension		*W x D x L*		17.8 x 8.1 x 2.2		*mm*