

Front view length sensor MLS-5000

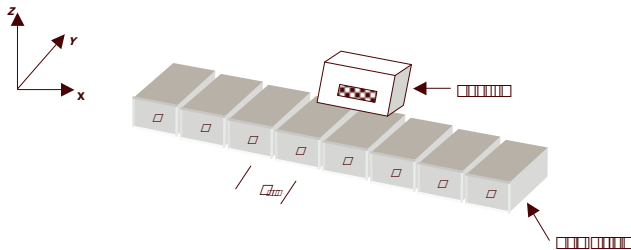
### Advantages

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

### Applications

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

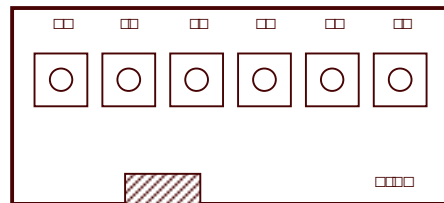
### Application principle



### 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.

### Pin out



Pin	Mean	Typ
OR	Output signal	$V_{\cos 2+}$
SW	Supply voltage	$V_B$
BR	Ground	GND
GN	Output signal	$V_{\sin 2-}$
GE	Output signal	$V_{\sin 1+}$
RT	Output signal	$V_{\cos 1+}$

### Specification

Parameter	Condition	Symbol	Min	Typ	Max	Unit
Supply voltage		$U_{cc}$		5	10	V
Sensor resistance		$R_s$	1	1.5	2	$k\Omega$
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		$ U_{off}/U_{cc} $			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	$^{\circ}C$
Storage temperature		$T_{storage}$	-55		+125	$^{\circ}C$
Dimension		$W \times D \times L$		17.8 x 8.1 x 2.2		mm