

HS-2210M-04-0300

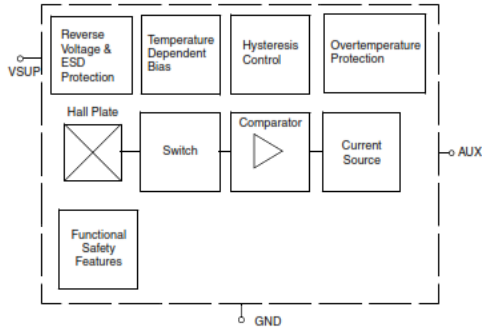


Product image serves as example only.

HS-2210M-04-0300

Latching 2 - Wire
Hall Effect Sensor M10 thread

Block Diagram



Features

- Customized types available
- Operates with magnetic fields up to 12 kHz
- Current interface
- Threaded housing

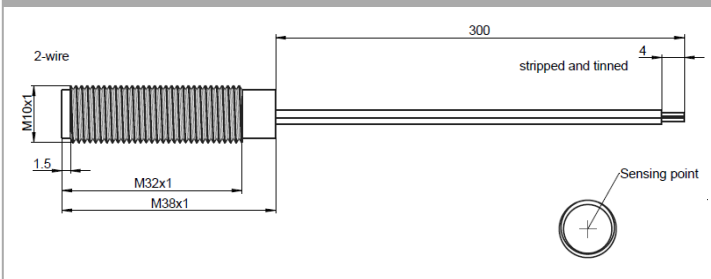
Approvals



Recommended Operating Conditions

Symbol	Parameter	Min.	Typ.	Max.	Unit	Conditions
V _{SUP}	Supply voltage	3	–	24	V	

Dimensions



Wire Assignment

Name	Function	Cable colour
V _{SUP}	Supply voltage and output	red
GND	Ground	black

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wire length (mm)

Material Information

	Material	Colour
Housing	Nickel plated brass	nickel
Cable	UL 1007 AWG 24	red, black
Potting	Epoxy	black

Environmental Characteristics

Operating temperature	°C	- 20 to + 85
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Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Unit	Conditions
Supply						
V_{UV}	Undervoltage threshold	2	–	3	V	
I_{SUPlo}	Low supply current 2	5	–	7	mA	
I_{SUP}	Error current	–	–	–	mA	
		0,8	–	2,2	mA	
I_{SUPhi}	High supply current	12	–	17	mA	
I_{SUPR}	Reverse current	–	–	0,6	mA	for $V_{SUP} = -18$ V
Port Output						
B_{noise}	Effective noise of magnetic switching points (RMS) ²⁾	–	72	–	μ T	For square wave signal with 12 kHz
t_j	Output jitter (RMS) ¹⁾	–	± 0.58	± 0.72	μ s	For square wave signal with 1 kHz. Jitter is evenly distributed between -1μ s and $+1 \mu$ s
t_d	Delay time ²⁾³⁾	–	16	21	μ s	
t_{smp}	Output refresh period ²⁾	1,6	2,2	3	μ s	
t_{en}	Enable time of output after exceeding of V_{UV}	20	50	60	μ s	$V_{SUP} = 12$ V $B > B_{on} + 2$ mT or $B < B_{off} - 2$ mT

¹⁾ Characterized on small sample size, not tested

²⁾ Guaranteed by design

³⁾ Systematic delay between magnetic threshold reached and output switching

Absolute Maximum Ratings

Symbol	Parameter	Min.	Max.	Unit	Conditions
V_{SUP}	Supply voltage	-18	28	V	$t < 96$ h ¹⁾
		–	32	V	$t < 5$ min ¹⁾
		–	40	V	$t < 10 \times 400$ ms "Load- Dump" ¹⁾ with series resistor $R_V > 100 \Omega$.

¹⁾ No cumulative stress

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Magnetic Characteristics

Parameter	On point B_{ON}			Off point B_{OFF}			Hysteresis B_{HYS}			Unit
	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	
T_J										
-40 °C	7.0	12	17	-17.0	-12.0	-7.0	-	24	-	mT
25 °C	7.0	12	17	-17.0	-12.0	-7.0	-	24	-	mT
170 °C	7.0	12	17	-17.0	-12.0	-7.0	-	24	-	mT

The hysteresis is the difference between the switching points $B_{HYS} = B_{ON} - B_{OFF}$

Note: The output turns to low current consumption I_{SUPlo} with the magnetic north pole on the top side of the package and turns to high current consumption I_{SUPhi} with the magnetic south pole on the top side. The output does not change if the magnetic field is removed. For changing the output state, the opposite magnetic field polarity must be applied.

Magnetic Approach (for example)

