

# Hall Effect Position Sensor Threaded

**multicomp** PRO

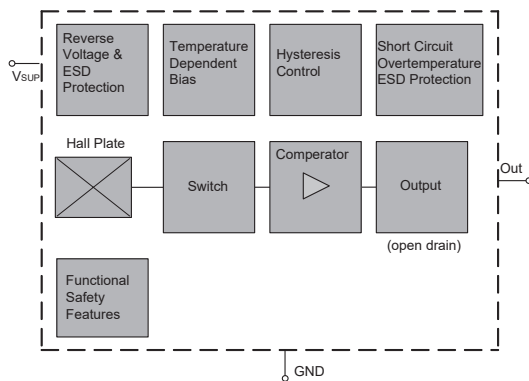
**RoHS  
Compliant**



## Features

- Compact size
- Various switching sensitivities
- Customized types available

## Block Diagram



## Absolute Maximum Ratings

Stresses beyond those listed in the “Absolute Maximum Ratings“ may cause permanent damage to the device  
Functional operation of the device at these conditions is not implied. Exposure to the absolute rating conditions for extended periods will affect device reliability

Symbol	Parameter	Wire colour	Min.	Max.	Unit	Conditions
V <sub>SUP</sub>	Supply voltage	Red	- 18		V	t < 1000 h <sup>1)</sup>
			--	28		t < 96 h <sup>1)</sup>
			--	32		t < 5 min <sup>1)</sup>
			--	40		t < 5 x 400 ms <sup>1)</sup> with series resistor R <sub>v</sub> > 100Ω
V <sub>OUT</sub>	Output voltage	White	- 0.5		V	t < 1000 h <sup>1)</sup>
			--	28		t < 96 h <sup>1)</sup>
			--	32		t < 5 min <sup>1)</sup>
			--	40		t < 5 x 400 ms <sup>1)</sup> with series resistor R <sub>v</sub> > 100Ω
I <sub>O</sub>	Output current	White	--	65	mA	
I <sub>OR</sub>	Reverse output current	White	- 50			

1) No cumulative stress All voltages listed are referenced to ground (GND)

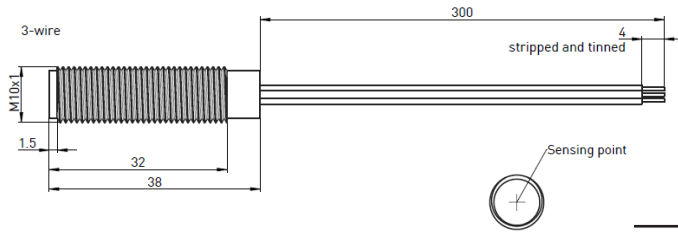
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## Dimensions



Wire Assignment		
Name	Function	Cable colour
VSUP	Supply voltage	Red
OUT	Output	White
GND	Ground	Black

## Environmental Characteristics

Operating temperature - 20°C to + 85°C

Material Information		
	Material	Colour
Housing	Nickel plated brass	Nickel
Cable	UL1007/1569, AWG 24	Red, White, Black
Potting compound	Epoxy	Black

## Characteristics

At recommended operation conditions if not otherwise specified in the column "Conditions".

Typical characteristics for  $T_J = 25^\circ\text{C}$  and  $V_{SUP} = 12\text{ V}$

Symbol	Parameter	Wire colour	Min.	Typ.	Max.	Unit	Conditions	
$I_{SUP}$	Supply current	Red	--	1.6	2.4	mA	for $V_{SUP} = -18\text{ V}$	
$I_{SUPhi}$	Reverse current	--			1			
<b>Output</b>								
$V_{ol}$	Port low output voltage	White		0.13	0.4	V	$I_o = 20\text{ mA}$	
					0.5	V	$I_o = 25\text{ mA}$	
$t_f$	Output fall time <sup>1)</sup>	--		1	$\mu\text{s}$		<sup>1)</sup> $V_{SUP} = 12\text{ V}$ ; $R_L = 820$ ; $C_L = 20\text{ pF}$	
$t_r$	Output rise time			1				
$t_d$	Delay time <sup>1)</sup>			16				--
$t_{smp}$	Output refresh period		1.6	2				2.66
$t_{en}$	Enable time of output after settling of $V_{SUP}$			50				

## Recommended Operating Conditions

Symbol	Parameter	Wire colour	Min.	Max.	Unit
$V_{SUP}$	Supply voltage	Red	2.7	24	V
$V_{OUT}$	Output voltage	White			
$I_{OUT}$	Output current			25	mA

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## Magnetic Characteristics Overview

Symbol	Parameter	Min.	Typ.	Max.	Unit
B <sub>ONth</sub>	ON thresholdrange <sup>1)</sup>	-30		30	mT
B <sub>OFFth</sub>	OFF thresholdrange <sup>1)</sup>	-30		30	
B <sub>th</sub>	Adjustable step size <sup>2)</sup>		0.5		
T <sub>C</sub>	Temperature compensation of magnetic thresholds <sup>3)</sup>	0		-3000	ppm/K

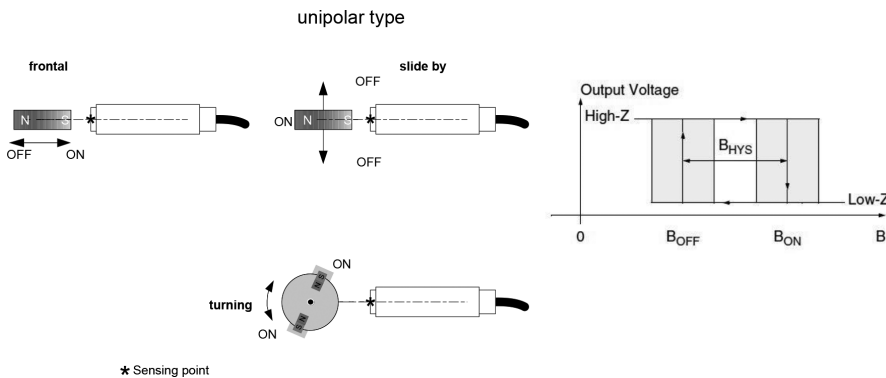
1) Available range  
 2) Small steps at small values, bigger steps at higher values. May not be undercut  
 3) Different temperature compensation available on request

## Magnetic Characteristics

SwitchingType	Temp. coeff. of magnetic thresh. TC [ppm/K]	On point B <sub>ON</sub> [mT]			Off point B <sub>OFF</sub> [mT]			Hysteresis B <sub>HYS</sub> <sup>1)</sup> [mT]		
		Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.
unipolar	0	3.8	5.5	7.1	2.1	3.7	5.5	-	1.8	-
		A	B	C	D	E	F			

<sup>1)</sup>The hysteresis is the difference between the switching points B<sub>HYS</sub> = B<sub>ON</sub> - B<sub>OFF</sub>

## Magnetic Approach (for example)



## Part Number Table

Description	Part Number
3 Wire, M10 Threaded Hall Sensor, Unipolar	MP-HS-2210M-3-0300

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