

J30 | P/N: 81401003

Integrated Sensors, Enhanced Feedback, Part Differentiation and Detection

Specifications

Maximum Breakaway Force ^{1,2}	124 lb / 56.3 kg
Maximum Shear ^{1,2}	42 lb / 19 kg
Thickness for De-Stack ³	0.157 in / 4 mm
Maximum Allowable Pressure	90 psi / 0.62 MPa
Off Target Actuation Pressure	80 psi / 0.55 MPa
Net Weight	1.76 lb / 0.8 kg
Air Port Thread	2x G1/8
Mounting Options	Side: 2x Ø8-M8-Ø8
Magnetic Pole Footprint	54 x 31 mm



Material Thickness - mm (in)	0.5 (.019)	1 (.039)	2 (.078)	3 (.118)	4 (.157)	5 (.196)	6+ (.236)
Maximum Force - kg (lbs)	6.97 (15.3)	17.2 (38)	30.93 (68)	44.63 (98.5)	51.93 (114.5)	56.13 (123.7)	56.3 (124)
Required Air Pressure ⁴ - bar (psi)	3.72 (54)	2.55 (37)	2.06 (30)	2.06 (30)	2.06 (30)	2.06 (30)	2.06 (30)

$$\text{SWL (Safe Working Load)} = \frac{\text{Maximum Force}^5}{\text{Safety Factor} (\geq 5)}$$

¹ Determined in laboratory environment on 2" thick SAE1018 Steel with surface roughness 63 micro inches with optimized pole shoes. Many factors contribute to the actual breakaway force and safe working load in each application. Consult a Magswitch Applications Engineer and test the Magswitch in each application before deployment.

² All data applies to unit with flat pole shoes installed.

³ Determined with SAE1018 Steel L=200mm W=200mm.

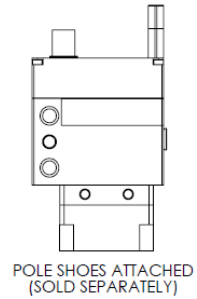
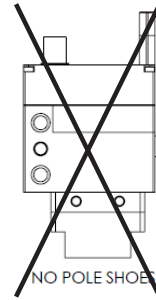
⁴ Values may vary by +/- 5%.

⁵ Maximum forces listed above are not safe lifting forces. Designer must take into account safety factor when specifying tool. Magswitch recommends SWL = 5:1 for most applications.

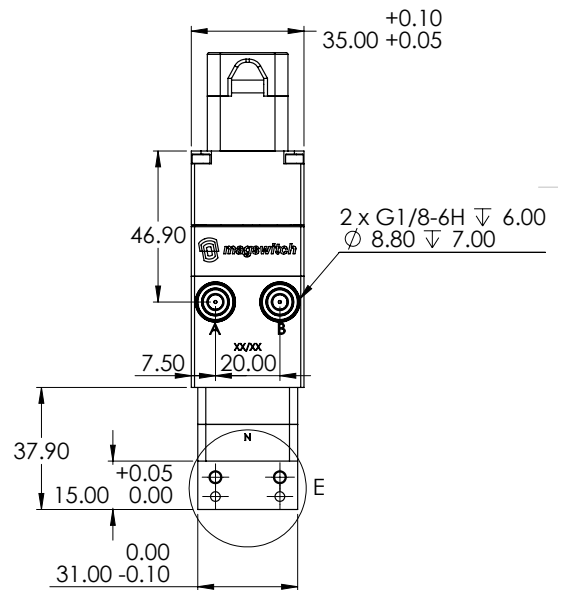
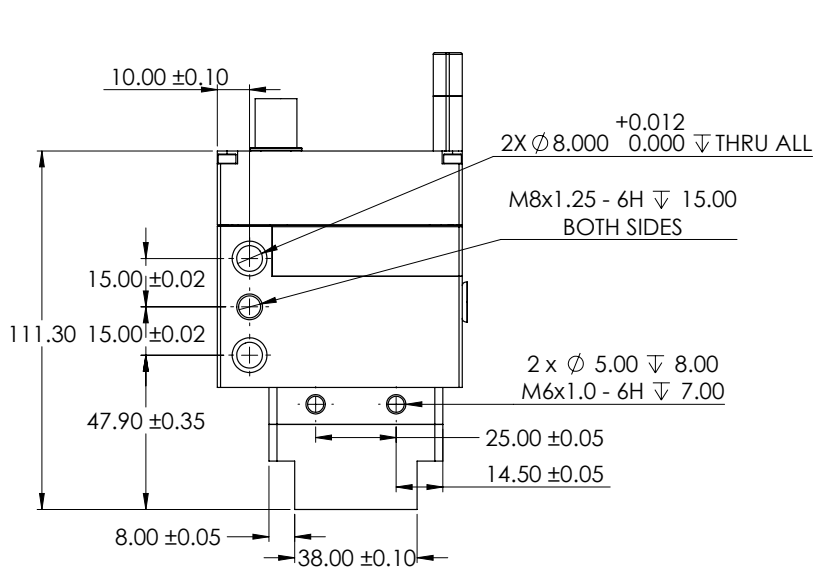
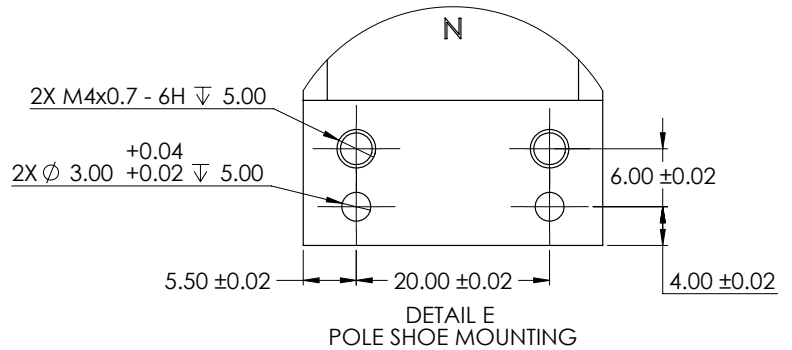
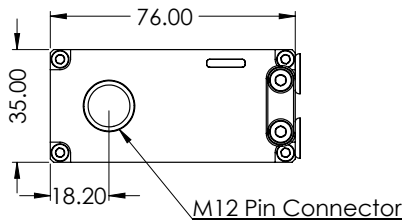
Pole shoes required for operation

Standard kits available:

Standard Flat Pole Shoe Kit	8800767
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WARNING!
 Do Not Operate Unless In Contact With Ferrous Target!



General Electrical Characteristics for J-Series Tools

Input Power Supply for Degauss	24 V @ 4A Max
Input Power Supply for Non-Degauss	7-36VDC @ 1A Max
Typical Degauss Current	<2.5A
Continuous Current Draw for Smart Tool Operation, Nominal	200mA
Connector on Tool	Male M12 – 12 Pin – A-Coded

Inputs

Parameter	Min	Type	Max
Input Voltage	12 VDC	24VDC	24VDC
Input Current	~	5.0mA	5.0mA
Input Type	~	Sinking (NPN)	~
Input Isolation	~	Opto-isolated	~

Outputs

Parameter	Min	Type	Max
Output Voltage	7 VDC	24VDC	36VDC
Output Current	~	100mA	5.0mA
Output Type	~	Sourcing (PNP)	~
Output Isolation	~	Non-isolated	~

Ambient Conditions

Parameter	Max
Max Temperature	60 Deg. C.

LED Color Codes

LED #	LED Color	Status	Function
LED 1 (Power, Blue LED)	Blue	Off Solid Flashing	NO POWER TO TOOL POWER TO TOOL CALIBRATION WAS TRIGGERED
LED 2 (State, RG LED)	Red Green Amber	Solid Solid Solid	MAGNET OFF MAGNET ON DEGAUSS IS RUNNING

I/O Organization

Normal IO Functionality

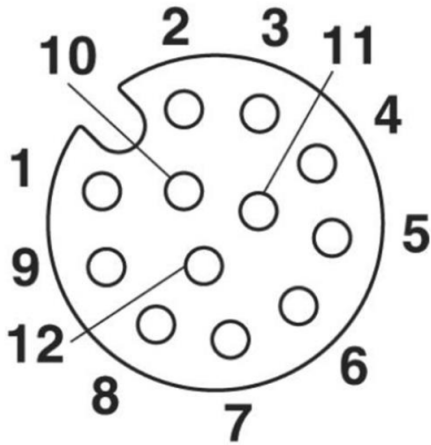
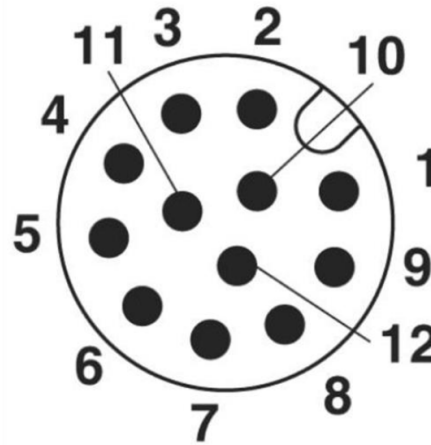
Calibration bits must be set before entering calibration.

Pin #	Function	Logic	Direction
1	Vin		24VDC
2	GND		GND
3	Calibrate	Requires 1 second high to enter	Input
4	Run Degauss	Requires 20ms high to begin-when enabled	Input
5	Calibration Bit 1		Input
6	Calibration Bit 2		Input
7	Magnet On	High when magnet is on	Output
8	Magnet Off	High when magnet is off	Output
9	Calibrated Part Present	High when within calibrated range	Output
10	Degauss Cycle Running	High while Degauss is running - when enabled	Output
11	North Pole	High when within calibrated range	Output
12	South Pole	High when within calibrated range	Output

Calibration IO Functionality

The following output functionality is not included on Degauss Tools.

Pin #	Function	Logic	Direction
1	Vin		24VDC
2	GND		GND
3	Calibrate	Requires 1 second high to enter	Input
4	Exit Calibration	Goes back to sensing, does not store values	Input
5	NA		Input
6	NA		Input
7	Waiting for Limiting Position 1	High when true	Output
8	Limiting Position 1 Saved/Waiting for Limiting Position 2	High when true	Output
9	NA		Output
10	In Calibration	High while in calibration	Output
11	South Pole Position Saved/Waiting for North Pole Position	High when true	Output
12	Limiting Position 2 Saved/Waiting for South Pole Position	High when true	Output


 Cable Side: Pin Assignment M12, 12-pos,
 Female Side View

 Tool Side: Pin Assignment of M12 Male
 Connector, 12-pos., A-coded view of the pin side

Calibration Bit Functionality

Calibration Bit 1	Calibration 2	Calibration #
LOW	LOW	Calibration 1
HIGH	LOW	Calibration 2
LOW	HIGH	Calibration 3
HIGH	HIGH	Calibration 4

4-Step Calibration Procedure

See calibration manual 1101261 and next page for more detail.

Step 1

Limiting Position 1 for Calibration Match Signal

Step 2

Limiting Position 2 for Calibration Match Signal

Step 3

South Pole Position for South Pole Signal

Step 4

North Pole Position for North Pole Signal

Calibration Match Signal will be HIGH (24V) when the contact quality is in between Limiting Position 1 and Limiting Position 2. Minimums and maximums from the two limiting positions will be stored to incorporate the proper range for the Calibration Match Signal.

South Pole Signal will be HIGH (24V) when in equal to or better contact than the stored South Pole Position.

North Pole Signal will be HIGH (24V) when in equal to or better contact than the stored North Pole Position.

Operational Flowchart

