Nut and Stud Sensors
Durable, Sensitive and Cost-saving

Engineering GREAT Solutions
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**Engineering GREAT solutions**

**IMI Precision Engineering** is a world leader in motion and fluid control technologies. Wherever precision, speed and engineering reliability are essential, we deliver exceptional solutions which improve the productivity and efficiency of our customers’ equipment.

We deliver GREAT solutions for our customers tackling the world’s most demanding engineering challenges.

Part of IMI plc, (listed on the London Stock Exchange since 1966), IMI Precision Engineering has $1,214m in sales generated from a sales and service network in 75 countries, as well as manufacturing capabilities in the USA, Germany, China, UK, Switzerland, Czech Republic, Mexico and Brazil. We support this with our global centers of technical excellence and facilities for CFD design and R&D testing. We employ a dedicated team of field engineers, sector specialists and key account managers – all committed to providing excellent service to our customers.

As a business, we aim to UNDERSTAND our customers’ challenges. We then CONNECT our products, people and expertise in order to DELIVER exceptional service and solutions. Together these actions IMPROVE the performance of our customers’ machinery.

We call this Engineering Great. We deliver it to customers through a world-class portfolio of high performance products, and strong partnerships for problem-solving utilizing our global network of support.

The Norgren Automation Solutions (NAS) Team creates capacity by designing and manufacturing automation and tooling that optimize production throughput in the press room and other material handling applications.

www.imi-precision.com/autoinplant
NASInsideSales@imi-precision.com 1-800-272-4511
Partnerships & problem solving
We have a global team of key account managers and over 400 highly experienced engineers – many with in-depth expertise of key industry sectors.

We recruit and develop the industry’s top talent, offering the best training and exposure to world-class products and technologies with some of the world’s leading businesses. The deep and combined experience this gives us means we have the skills, confidence and know-how to get closer to our customers, enabling us to understand their exact challenges and resolve them precisely.

Because of this our problem-solving is more effective, our solutions more targeted, our partnerships more productive.

High performance products
Our world-class products improve performance and productivity.

We have global manufacturing capability and technical centres of excellence, each dedicated to developing and rigorously testing new high performance products to meet precise industry and application needs. Helping improve performance and reduce downtime and energy consumption on production lines across the world, our world-class portfolio includes IMI Norgren, IMI Buschjost, IMI FAS, IMI Herion and IMI Maxseal. Having proven their value over years, they stand amongst the most trusted names in fluid and motion control. We are continuously adding to this portfolio through a programme of innovation and new product development.

Because of this, we’re able help our customers solve the world’s greatest engineering challenges – reliably, safely and efficiently.

Reliability
We deliver and support our high quality products through our global service network.

We have world-class manufacturing and sales and service operations in 75 countries, supported by investment in robust project management systems and lean localised production. Together, with our integrated supply chain, and the speed of our Express service we have the systems, processes and support to deliver quality products and aftersales service precisely, reliably, in full and on time, anywhere.

We get closer to our customers to understand their exact challenges
Our global reach

With established manufacturing facilities globally, we have the capability to cope with the most demanding of international projects. With a sales and service network in 50 countries, we have the reach and capability to ensure continuity of supply and local support where it is needed.
Engineering GREAT Solutions

- Mississauga, Ontario, CA
- Worcester, UK
- Alava, SP
- Barcelona, SP
- Uttar Pradesh, IN
- Shanghai, CN
- Tokyo, JP
- Samutprakarn, TH
- India
- Japan
- Thailand
- China
- Spain
- UK
GLOBAL LOCATIONS AND PARTNERS

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Value Added Resellers (VARs) and Distributors

**USA**

**Kamco, Inc.**
326 Park St.
Troy, MI 48083
Tel: 248-585-7400
Fax: 248-585-7751
Email: sales@kamcocontrols.com
Web: www.kamcosales.com

**Mosier Fluid Power**
2475 Technical Drive
Miami, OH 45342
Tel: 800-232-0676
Email: sales@mosierohio.com

**Motion Industries**
1605 Alton Road
Birmingham, AL 35210
Tel: 800-526-9328
Web: www.motionindustries.com

**Nicholas Press Sales, Inc.**
3077 Nationwide Parkway
Brunswick, OH 44212
Tel: 440-652-6604
Fax: 440-389-8666
Email: sales@nicholaspress.com
Web: www.nicholaspress.com

**Production Resources**
118 Seaboard Lane #106
Franklin, TN 37067
Tel: 800-863-3164

**Sunsource**
2301 Windsor Ct
Addison, IL 60101
Tel: 888-786-7723

**Wyco**
1310 Garlington Road, Suite L
Greenville, SC 29615
Tel: 1-864-458-8000
Fax: 1-864-458-8256
Email: info@wyconet.com

**Canada**

**Dyak Systems Inc.**
6810 Kitimat Road, Unit 889
Mississauga, Ontario L5N 5M2
Canada
Tel: 905-567-4157
Fax: 905-567-4158
Email: salesdesk@dyaksystems.com

**Mexico**

**ART Robotics**
Pioneros del Cooperativismo N° 136
México Nuevo Atizapán de Zaragoza
Estado de México C.P. 52966
Tel.: (52) (55) 5077 5603
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Fax: +34 945 420 841
Email: info@sankyo-sdt.com
Web: www.sankyo-sdt.com
SNS AND SNP SERIES
NUT THREAD DETECTOR

Nut Thread Detector
> Uses non-magnetic inductive proximity detection technology to verify the presence of nuts or threads
> Prevent defective parts from going through
> Prevent manual inspection
> Can be used to verify thread quality
> Capable of thread detection in tapped holes

Toughened Nut Thread Detector
> Used for heavy duty and heavy side loading applications
> Can handle more collisions
> Can be used as a gauging pin

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insidesales@imi-precision.com  1-800-272-4511
# Fast Find Guide

- **Nut Thread Detector**

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- **SMH: Toughened Nut Sensor Monitor**
- **SCE and SCF: Cables**
- **SAB: Spring Mounts**
- **Additional References**
- **English to Metric Nut Conversion Guide**

- Detects threads in machined castings!
NUT AND THREAD DETECTION APPLICATION

Nut Detection

The probe can be used to verify nut presence prior to allowing the weld process to proceed or immediately after the attachment process to verify nut presence.

Thread Detection in Nuts or Sheet Metal

SNP probes can be calibrated to detect missing threads in nuts or sheet metal.
Thread Detection in Steel Plate of Casting

NAS can help you determine the best combination of Sensors to detect missing threads. We will test your product samples to make the best possible recommendation based on the results of our factory tests.

Good Thread / Bad Thread / Partial Thread Detection

SNP Nut Sensors can detect not only missing threads, but also threads that are not to specification. Variations in tapping operation can result in holes losing the thread on one side at the exit end of the hole. SNP Sensors can be calibrated to detect such incomplete, imperfect, and out of specification threads.
NUT SENSOR SELECTION GUIDE

Applications

- Nut and thread sensing
- Hidden nut detection
- Thread sensing in tapped holes
- Thread quality sensing

Sensors

- M5, M6 & M8 nuts
  - SNP50608
- M10 & M12 nuts
  - SNP01012

Accessories

- Right angle: SCE13001
- Straight: SCE13000
- Spring mount: SAB30403

Monitors

- PNP
  - SMR37005
  - SMR37006
  - SMR37008
  - SMR37010
  - SMR37012
- NPN
  - SMR36005
  - SMR36006
  - SMR36008
  - SMR36010
  - SMR36012

Applications

- Nut and thread sensing
- Used as gauging pin
- Quality checking (nut size)
- Heavy duty/harsh environments
- Heavy side loading applications
- IP67 Rated

Sensors

- M4 nuts
  - SNS04
- M5 nuts
  - SNS05
- M6 nuts
  - SNS06
- M8 nuts
  - SNS08
- M10 nuts
  - SNS10
- M12 nuts
  - SNS12

Accessories

- Right angle
  - SCE13001 for SNS04/SNS05/SNS06/SNS08
- Straight
  - SCE13000 for SNS04/SNS05/SNS06/SNS08

Monitors

- PNP
  - SMH37004
  - SMH37005
  - SMH37006
  - SMH37008
  - SMH37010
  - SMH37012
- NPN
  - SMH36004
  - SMH36005
  - SMH36006
  - SMH36008
  - SMH36010
  - SMH36012

Spring mount SAB30403 for SNS04/ SNS05/ SNS06/ SNS08 only
NUT SENSOR
SNP50608

- Detects M5, M6 or M8 nut or thread presence
- Abrasion and impact resistant
- For light duty applications with sensor tip radial loads up to 30 lbs.
- Exceptional for thread detection and thread quality detection
- Immune to weld fields and resistant to weld slag

Technical Data
Minimum nut thickness:
- 4.0 mm (0.16") for M5 nut
- 5.0 mm (0.20") for M6 nut
- 6.5 mm (0.26") for M8 nut

Sensor connector:
- 3-pin (male) 8 mm (pico) connector

Operating temperature range:
- 32°F to 212°F (0°C to 100°C)

Target material:
- Ferrous/Non-Ferrous*

Seal:
- IP67

Dimensions

M5 Nut Detector System

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNP50608</td>
<td>SMR36005 (NPN)</td>
<td>SCE13000 2m (6ft)</td>
<td>0.029 lbs / 13 gm</td>
</tr>
<tr>
<td></td>
<td>SMR37005 (PNP)</td>
<td>SCE13001 2m (6ft) (Angled)</td>
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M6 Nut Detector System

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<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNP50608</td>
<td>SMR36006 (NPN)</td>
<td>SCE13000 2m (6ft)</td>
<td>0.029 lbs / 13 gm</td>
</tr>
<tr>
<td></td>
<td>SMR37006 (PNP)</td>
<td>SCE13001 2m (6ft) (Angled)</td>
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M8 Nut Detector System

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<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>SNP50608</td>
<td>SMR36008 (NPN)</td>
<td>SCE13000 2m (6ft)</td>
<td>0.029 lbs / 13 gm</td>
</tr>
<tr>
<td></td>
<td>SMR37008 (PNP)</td>
<td>SCE13001 2m (6ft) (Angled)</td>
<td></td>
</tr>
</tbody>
</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only

www.imi-precision.com/autoinplant
NASInsideSales@imi-precision.com 1-800-272-4511
NUT SENSOR
SNP01012

- Detects M10 or M12 nut or thread presence
- Abrasion and impact resistant
- For light duty applications with sensor tip radial loads up to 35 lbs.
- Exceptional for thread detection and thread quality detection
- Immune to weld fields and resistant to weld slag

Technical Data

Minimum nut thickness:
- 8.0 mm (0.31") for M10 nut
- 10.0 mm (0.39") for M12 nut

Sensor connector:
- 3-pin (male) 8 mm (pico) connector

Operating temperature range:
- 32°F to 212°F (0°C to 100°C)

Target material:
- Ferrous/Non-Ferrous*

Seal:
- IP67

M10 Nut Detector System

<table>
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<th>Sensor</th>
<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
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<td>SNP01012</td>
<td>SMR36010 (NPN)</td>
<td>SCE13000 2m (6ft)</td>
<td>0.037 lbs / 17 gm</td>
</tr>
<tr>
<td></td>
<td>SMR37010 (PNP)</td>
<td>SCE13001 2m (6ft) (Angled)</td>
<td>0.037 lbs / 17 gm</td>
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</table>

M12 Nut Detector System

<table>
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<th>Sensor</th>
<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNP01012</td>
<td>SMR36012 (NPN)</td>
<td>SCE13000 2m (6ft)</td>
<td>0.037 lbs / 17 gm</td>
</tr>
<tr>
<td></td>
<td>SMR37012 (PNP)</td>
<td>SCE13001 2m (6ft) (Angled)</td>
<td>0.037 lbs / 17 gm</td>
</tr>
</tbody>
</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only
MONITOR FOR NUT SENSOR
SMR3XXXX

- LED for on/off status of sensor
- Interface directly to programmable controllers

Technical Data

Sensor connector:
2 X 3-pin terminal strips

Supply Voltage Range:
10VDC to 30VDC

Maximum Load Current:
150mA

Operating temperature range:
32°F to 140°F (0°C to +60°C)

Response time:
25ms turn-on, 25ms turn-off

Indicator lights:
GREEN: DC power connect
AMBER: Target detected

Seal
IP65

Short circuit protection:
Yes

Overload protection:
Yes

Weight:
0.091 lbs / 41 gms

Dimensions

System | Sensor | Monitor | Switch type | Cable |
-------|--------|---------|-------------|-------|
M5 Nut Detector | SNP50608 | SMR36005 (NPN) SMR37005 (PNP) | Current sinking Current sourcing | SCE13001 2m (6ft) (Angled) |
M6 Nut Detector | SNP50608 | SMR36006 (NPN) SMR37006 (PNP) | Current sinking Current sourcing | SCE13001 2m (6ft) (Angled) |
M8 Nut Detector | SNP50608 | SMR36008 (NPN) SMR37008 (PNP) | Current sinking Current sourcing | SCE13001 2m (6ft) (Angled) |
M10 Nut Detector | SNP01012 | SMR36010 (NPN) SMR37010 (PNP) | Current sinking Current sourcing | SCE13001 2m (6ft) (Angled) |
M12 Nut Detector | SNP01012 | SMR36012 (NPN) SMR37012 (PNP) | Current sinking Current sourcing | SCE13001 2m (6ft) (Angled) |

Dimensions in inches (mm) are for reference only.
TOUGHENED NUT SENSOR
SNS04

- Detects M4 nut or thread presence
- For heavy duty applications with sensor tip radial loads up to 32 lbs.
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag

Technical Data

Minimum nut thickness:
4.0 mm (0.16")

Sensor connector:
3-pin (male) 8mm (pico) connector

Operating temperature range:
32°F to 212°F (0°C to 100°C)

Target material:
Ferrous/Non-Ferrous*

Seal:
IP67

Dimensions

Minimum nut thickness: 4.0 mm (0.16")

Sensor connector: 3-pin (male) 8mm (pico) connector

Operating temperature range: 32°F to 212°F (0°C to 100°C)

Target material: Ferrous/Non-Ferrous*

Seal: IP67

M4 Nut Detector System

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNS04</td>
<td>SMH36004 (NPN)</td>
<td>SCE13000 2m (6ft)</td>
<td>0.019 lbs / 9 gm</td>
</tr>
<tr>
<td></td>
<td>SMH37004 (PNP)</td>
<td>SCE13001 2m (6ft) (Angled)</td>
<td></td>
</tr>
</tbody>
</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only
TOUGHENED NUT SENSOR
SNS05

- Detects M5 nut or thread presences
- For heavy duty applications with sensor tip radial loads up to 38 lbs.
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag

Technical Data

Minimum nut thickness: 4.0 mm (0.16")
Sensor connector: 3-pin (male) 8mm (pico) connector
Operating temperature range: 32°F to 212°F (0°C to 100°C)
Target material: Ferrous/Non-Ferrous*
Seal: IP67

Dimensions

Note 1 2X M8X 1.0
Note 2 2X M8 JAM NUTS
Note 3 SOLD SEPARATELY
Note 4 SOLD SEPARATELY
Note 5 SENSING AREA

M5 Nut Detector System

<table>
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<tr>
<th>Sensor</th>
<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
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<tbody>
<tr>
<td>SNS05</td>
<td>SMH36005 (NPN)</td>
<td>SCE13000 2m (6ft)</td>
<td>0.019 lbs / 9 gm</td>
</tr>
<tr>
<td></td>
<td>SMH37005 (PNP)</td>
<td>SCE13001 2m (6ft) (Angled)</td>
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*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only
TOUGHENED NUT SENSOR
SNS06

- Detects M6 nut or thread presence
- For Heavy Duty Applications with sensor tip radial loads up to 50 lbs.
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag
- Can be used as a locating pin

Technical Data

Minimum nut thickness:
5.0 mm (0.20")

Sensor connector:
3-pin (male) 8 mm (pico) connector

Operating temperature range:
32°F to 212°F (0°C to 100°C)

Target material:
Ferrous/Non-Ferrous*

Seal:
IP67

Dimensions

- 2X 0.04 (1)
- 0.18 (4.5)
- 0.20 (5.1)
- 2.70 (68.6)
- 2.15 (54.6)
- 1.85 (47)
- 0.35 (8.9)

M6 Nut Detector System

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Monitor</th>
<th>Cable</th>
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<tbody>
<tr>
<td>SNS06</td>
<td>SMH36006 (NPN)</td>
<td>SCE13000 2m (6ft)</td>
<td>0.037 lbs / 17 gm</td>
</tr>
<tr>
<td></td>
<td>SMH37006 (PNP)</td>
<td>SCE13001 2m (6ft) (Angled)</td>
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</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only
TOUGHENED NUT SENSOR
SNS06-01

- Detect M6 nut or thread presence, with additional locating pin feature
- For Heavy Duty Applications with sensor tip radial loads up to 50 lbs.
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag
- Sensor sized for more accurate positioning of nut

Technical Data

Minimum nut thickness:
5.0mm (0.20")

Sensor connector:
3-pin (male) 8mm (pico) connector

Operating temperature range:
32°F to 212°F (0°C to 100°C)

Target material:
Ferrous/Non-Ferrous*

Seal:
IP67

Dimensions

Note 1
M8 X 1.0

Note 2
2X M6 JAM NUTS

Note 3
SOLD SEPARATELY

Note 4
SOLD SEPARATELY

Note 5
SENSING AREA

M6 Nut Detector System

<table>
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Dimensions in inches (mm) are for reference only

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TOUGHENED NUT SENSOR
SNS08

- Detects M8 nut or thread presence
- For heavy duty applications with sensor tip radial loads up to 38 lbs.
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag

Technical Data

Minimum nut thickness: 6.5mm (0.26")
Sensor connector: 3-pin (male) 8 mm (pico) connector
Operating temperature range: 32°F to 212°F (0°C to 100°C)
Target material: Ferrous/Non-Ferrous*
Seal: IP67

Dimensions

M8 Nut Detector System

<table>
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<tbody>
<tr>
<td>SNS08</td>
<td>SMH36008 (NPN)</td>
<td>SCE13000 2m (6ft)</td>
<td>0.033 lbs / 15 gm</td>
</tr>
<tr>
<td></td>
<td>SMH37008 (PNP)</td>
<td>SCE13001 2m (6ft) (Angled)</td>
<td></td>
</tr>
</tbody>
</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only.
TOUGHENED NUT SENSOR
SNS08-01

- Detect M8 nut or thread presence, with additional locating pin feature
- For heavy duty applications with sensor tip radial loads up to 38 lbs.
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag
- Sensor sized for more accurate positioning of nut

Technical Data

Minimum nut thickness:
6.5mm (0.26")

Sensor connector:
3-pin (male) 8 mm (pico) connector

Operating temperature range:
32°F to 212°F (0°C to 100°C)

Target material:
Ferrous/Non-Ferrous*

Seal:
IP67

Dimensions

M8 Nut Detector System

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNS08-01</td>
<td>SMH36008 (NPN)</td>
<td>SCE13000 2m (6ft)</td>
<td>0.82 lbs / 37 gm</td>
</tr>
<tr>
<td></td>
<td>SMH37008 (PNP)</td>
<td>SCE13001 2m (6ft) (Angled)</td>
<td></td>
</tr>
</tbody>
</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only
TOUGHENED NUT SENSOR
SNS10

- Detects M10 nut or thread presence
- For heavy duty applications with sensor tip radial loads up to 40 lbs.
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag

Technical Data
Minimum nut thickness
8.0 mm (0.31")

Sensor connector:
4-pin (male) 12mm (micro) connector

Operating temperature range:
32°F to 212°F (0°C to 100°C)

Target material:
Ferrous/Non-Ferrous*

Seal:
IP67

Dimensions

M10 Nut Detector System

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNS10</td>
<td>SMH36010 (NPN)</td>
<td>SCF12060 2m (6ft)</td>
<td>0.082 lbs / 37 gm</td>
</tr>
<tr>
<td></td>
<td>SMH37010 (PNP)</td>
<td>SCF12160 2m (6ft) (Angled)</td>
<td></td>
</tr>
</tbody>
</table>

Note 1 2X M12X 1.0
Note 2 2X M12 JAM NUTS
Note 3 SOLD SEPARATELY
Note 4 SOLD SEPARATELY
Note 5 SENSING AREA

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only

www.imi-precision.com/autoinplant
NASInsideSales@imi-precision.com 1-800-272-4511
TOUGHENED NUT SENSOR
SNS10-01

- Detect M10 nut or thread presence, with additional locating pin feature
- For heavy duty applications with sensor tip radial loads up to 40 lbs.
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag
- Sensor sized for more accurate positioning of nut

Technical Data

Minimum nut thickness:
8.0 mm (0.31")

Sensor connector:
4-pin (male) 12mm (micro) connector

Operating temperature range:
32°F to 212°F (0°C to 100°C)

Target material:
Ferrous/Non-Ferrous*

Seal:
IP67

Dimensions

M10 Nut Detector System

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNS10-01</td>
<td>SMH36010 (NPN)</td>
<td>SCF12060 2m (6ft)</td>
<td>0.082 lbs / 37 gm</td>
</tr>
<tr>
<td></td>
<td>SMH37010 (PNP)</td>
<td>SCF12160 2m (6ft) (Angled)</td>
<td></td>
</tr>
</tbody>
</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only
TOUGHENED NUT SENSOR

SNS12

- Detects M12 nut or thread presence
- For heavy duty applications with sensor tip radial loads up to 60 lbs.
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag

Technical Data

Minimum nut thickness: 10.0 mm (0.39")

Sensor connector:
4-pin (male) 12mm (micro) connector

Operating temperature range:
32°F to 212°F (0°C to 100°C)

Target material:
Ferrous/Non-Ferrous*

Seal:
IP67

Dimensions

M12 Nut Detector System

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Monitor</th>
<th>Cable</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNS12</td>
<td>SMH36012 (NPN)</td>
<td>SCF12060 2m (6ft)</td>
<td>0.082 lbs / 37 gm</td>
</tr>
<tr>
<td></td>
<td>SMH37012 (PNP)</td>
<td>SCF12160 2m (6ft) (Angled)</td>
<td></td>
</tr>
</tbody>
</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only
MONITOR FOR TOUGHENED NUT SENSOR
SMH3XXXX

- LED for on/off status
- Interface directly to programmable controllers

Technical Data

Power/sensor connector:
2 x 3-pin terminal connector

Supply voltage range:
10 VDC to 30 VDC

Maximum load current:
150mA

Seal
IP65

NOTE 1
SOLD SEPARATELY

NOTE 2
SOLD SEPARATELY

Dimensions in inches (mm) are for reference only

<table>
<thead>
<tr>
<th>System</th>
<th>Sensor(s)</th>
<th>Monitor(s)</th>
<th>Switch type</th>
<th>Cable(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M4 Toughened Nut Detector</td>
<td>SNS04</td>
<td>SMH36004 (NPN)</td>
<td>Current sinking</td>
<td>SCE13000 2m (6ft)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SMH37004 (PNP)</td>
<td>Current sourcing</td>
<td>SCE13001 2m (6ft) (Angled)</td>
</tr>
<tr>
<td>M5 Toughened Nut Detector</td>
<td>SNS05</td>
<td>SMH36005 (NPN)</td>
<td>Current sinking</td>
<td>SCE13000 2m (6ft)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SMH37005 (PNP)</td>
<td>Current sourcing</td>
<td>SCE13001 2m (6ft) (Angled)</td>
</tr>
<tr>
<td>M6 Toughened Nut Detector</td>
<td>SNS06</td>
<td>SMH36006 (NPN)</td>
<td>Current sinking</td>
<td>SCE13000 2m (6ft)</td>
</tr>
<tr>
<td></td>
<td>SNS06-01</td>
<td>SMH37006 (PNP)</td>
<td>Current sourcing</td>
<td>SCE13001 2m (6ft) (Angled)</td>
</tr>
<tr>
<td>M8 Toughened Nut Detector</td>
<td>SNS08</td>
<td>SMH36008 (NPN)</td>
<td>Current sinking</td>
<td>SCE13000 2m (6ft)</td>
</tr>
<tr>
<td></td>
<td>SNS08-01</td>
<td>SMH37008 (PNP)</td>
<td>Current sourcing</td>
<td>SCE13001 2m (6ft) (Angled)</td>
</tr>
<tr>
<td>M10 Toughened Nut Detector</td>
<td>SNS10</td>
<td>SMH36010 (NPN)</td>
<td>Current sinking</td>
<td>SCE12060 2m (6ft)</td>
</tr>
<tr>
<td></td>
<td>SNS10-01</td>
<td>SMH37010 (PNP)</td>
<td>Current sourcing</td>
<td>SCE12160 2m (6ft) (Angled)</td>
</tr>
<tr>
<td>M12 Toughened Nut Detector</td>
<td>SNS12</td>
<td>SMH36012 (NPN)</td>
<td>Current sinking</td>
<td>SCE12060 2m (6ft)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SMH37012 (PNP)</td>
<td>Current sourcing</td>
<td>SCE12160 2m (6ft) (Angled)</td>
</tr>
</tbody>
</table>
SENSOR CABLES WITH 3 PIN PICO CONNECTORS
SCE13000, SCE13001, SCE13005

● Part Number
SCE13000, SCE13005
Straight cable, 3-pin PICO for SNP50608, SNP01012, SNS04, SNS05, SNS06, SNS06-01, SNS08, SNS08-01

Technical Data
Weight: 74 grams

Note 1

---

Part Number
SCE13001
Right angle cable, 3-pin PICO for SNP50608, SNP01012, SNS04, SNS05, SNS06, SNS06-01, SNS08, SNS08-01

Technical Data
Weight: 68 grams

Note 1

---

Dimensions in inches (mm) are for reference only.
## SENSOR CABLES

### Part Number

SCF12060  
Straight cable, 4-pin MICRO for SNS10, SNS10-01, SNS12

### Technical Data

**Weight:**  
84 grams

<table>
<thead>
<tr>
<th>DIM</th>
<th>MM</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1828.8</td>
<td>72.0</td>
</tr>
<tr>
<td>B</td>
<td>43.4</td>
<td>1.71</td>
</tr>
</tbody>
</table>

*Note 1*

4-Pin (female), micro

---

### Part Number

SCF12160  
Right angle cable, 4-pin MICRO for SNS10, SNS10-01, SNS12

### Technical Data

**Weight:**  
84 grams

<table>
<thead>
<tr>
<th>DIM</th>
<th>MM</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2000.0</td>
<td>78.7</td>
</tr>
<tr>
<td>B</td>
<td>39.0</td>
<td>1.54</td>
</tr>
<tr>
<td>C</td>
<td>26.5</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*Note 1*

4-Pin (female), micro

---

*Dimensions in inches (mm) are for reference only*
NUT SENSOR SPRING MOUNT
SAB30403

- Mounts to any nut sensor except for SNS10 and SNS12
- Allows sensor probe to retract when nut is out of place
- Allows sensor tip to offset up to 5° off centerline of spring mount to locate misaligned holes

Technical Data

Weight:
53 grams

Dimensions

- 0.15” (3.8mm)
- 1.15” (29.2mm)
- 18mm Jam Nut
- 2 Places
- M 18 x 1.0
- 1.32” (33.5mm)
- 0.7” (17.8mm)
- Spring Travel
- 0.44” Ø (11.1mm)
- 5° offset

Application

Dimensions in inches (mm) are for reference only
NSS SERIES STUD THREAD DETECTOR

- Durable- stainless steel stands up to welding environments and resists weld slag
- Sensitive- wide sensing area that checks threads on a longer portion of a stud
- Cost-saving- prevents scrap, reduces downtime
- Proven- extension of existing and proven IMI Norgren Nut Sensor Line

Durable, all stainless steel

Cost-saving

Wide sensing range

Proven technology

www.norgren.com/automationsolutions
insidesales@imi-precision.com 1-800-272-4511
Fast Find Guide

- Stud Thread Detector

<table>
<thead>
<tr>
<th>Stud Thread Detector Selection Guide</th>
<th>NSS: Stud Thread Detector</th>
<th>SCE: Cables</th>
<th>SMS: Monitors</th>
<th>SAB: Spring Mounts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Page 34</td>
<td>Page 35</td>
<td>Page 37</td>
<td>Page 38</td>
<td>Page 39</td>
</tr>
</tbody>
</table>

Additional References

Page 41
**STUD THREAD DETECTOR SELECTION GUIDE**

- **Applications**
  - Stud and thread sensing
  - Quality checking (stud size)
  - Heavy duty/harsh environments
  - Heavy side loading applications

- **Sensors**
  - M5 & M6 studs
    - NSS0506
  - M8 & M10 studs
    - NSS0810

- **Accessories**
  - Right angle
    - SCE13001
  - Straight
    - SCE13000
  - Spring mount for NSS0506
    - SAB30413
  - Spring mount for NSS0810
    - SAB30414

- **Monitors**
  - PNP
    - SMS37005
    - SMS37006
    - SMS37008
    - SMS37010
  - NPN
    - SMS36005
    - SMS36006
    - SMS36008
    - SMS36010
M5/M6 STUD SENSOR
NSS0506

- Detects M5 or M6 stud or thread presence
- For heavy duty applications
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag

Technical Data

<table>
<thead>
<tr>
<th>Sensor connector:</th>
<th>Operating temperature range:</th>
<th>Target material:</th>
<th>Diameter:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-pin (male) 8mm (pico) connector</td>
<td>32°F to 212°F (0°C to 100°C)</td>
<td>Ferrous/Non-Ferrous*</td>
<td>0.29&quot; (7.4mm)</td>
</tr>
</tbody>
</table>

| Seal: | IP67 |

Dimensions

Order Information
M5 and M6 Stud Thread Detection System

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Monitor for M5</th>
<th>Monitor for M6</th>
<th>Spring Mount</th>
<th>Cable</th>
<th>Weight (Sensor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSS0506</td>
<td>SMS36005 (NPN)</td>
<td>SMS36006 (NPN)</td>
<td>SAB30413</td>
<td>SCE13000 6ft (2m)</td>
<td>0.096 lbs (44 gm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>SCE13001 6ft (2m) 90° angle</td>
<td></td>
</tr>
</tbody>
</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only
M8/M10 STUD SENSOR
NSS0810

- Detects M8 or M10 stud or thread presence
- For heavy duty applications
- For use in weld applications
- Immune to weld fields
- Resistant to weld slag

Technical Data

<table>
<thead>
<tr>
<th>Sensor connector:</th>
<th>Operating temperature range:</th>
<th>Target material:</th>
<th>Diameter:</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-pin (male) 8 mm (pico) connector</td>
<td>32°F to 212°F (0°C to 100°C)</td>
<td>Ferrous/Non-Ferrous*</td>
<td>0.48&quot; (12.2mm)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Seal: IP67</td>
</tr>
</tbody>
</table>

Dimensions

Note 1  M30 x 1.25
Note 2  2 x M30 JAM NUTS
Note 3  MONITOR SOLD SEPARATELY
Note 4  CABLE SOLD SEPARATELY

Order Information
M8 and M10 Stud Thread Detection System

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Monitor for M8</th>
<th>Monitor for M10</th>
<th>Spring Mount</th>
<th>Cable</th>
<th>Weight (Sensor)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSS0810</td>
<td>SMS36008 (NPN)</td>
<td>SMS36010 (NPN)</td>
<td>SAB30414</td>
<td>SCE13000 6ft (2m)</td>
<td>.188 lbs (86 gm)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th>SCE13001 6ft (2m) 90° angle</th>
</tr>
</thead>
<tbody>
<tr>
<td>SMS37008 (PNP)</td>
<td>SMS37010 (PNP)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511

Dimensions in inches (mm) are for reference only
SENSOR CABLES WITH 3 PIN PICO CONNECTORS
SCE13000, SCE13001, SCE13005

● Part Number
SCE13000
SCE13005

Technical Data
Weight: 74 grams

Note 1

<table>
<thead>
<tr>
<th>DIM</th>
<th>MM</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>30.9</td>
<td>1.21</td>
</tr>
</tbody>
</table>

Part number “L”
SCE13000 2000.0 mm (78.74")
SCE13005 5000.0 mm (196.85")

Note 1
3-PIN (Female), PICO

● Part Number
SCE13001

Technical Data
Weight: 68 grams

Note 1

<table>
<thead>
<tr>
<th>DIM</th>
<th>MM</th>
<th>Inches</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>2000.0</td>
<td>78.74</td>
</tr>
<tr>
<td>B</td>
<td>26.0</td>
<td>1.03</td>
</tr>
<tr>
<td>C</td>
<td>15.9</td>
<td>0.63</td>
</tr>
</tbody>
</table>

Note 1
3-PIN (Female), PICO
MONITOR FOR STUD SENSOR
SMS3XXXX

- LED for on/off status
- Interface directly to programmable controller

Technical Data
Power/sensor connector:
2 X 3-pin terminal connector
Supply voltage range:
10VDC to 30 VDC
Maximum load current:
150mA
Seal
IP65

Operating temperature range:
32°F to 140°F (0°C to +60°C)
Response time:
25ms turn-on, 25ms turn-off
Indicator lights:
GREEN: DC power connect
AMBER: Target detected

Short circuit protection:
Yes
Overload protection:
Yes
Weight:
0.091 lbs / 41 gms

Dimensions

Order Information

<table>
<thead>
<tr>
<th>System</th>
<th>Sensor</th>
<th>Monitor</th>
<th>Switch type</th>
<th>Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>M5 Stud Detector</td>
<td>NSS0506</td>
<td>SMS36005 (NPN)</td>
<td>Current Sinking</td>
<td>SCE13000 2m (6ft.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SMS37005 (PNP)</td>
<td>Current sourcing</td>
<td>SCE13001 2m (6ft) (Angled)</td>
</tr>
<tr>
<td>M6 Stud Detector</td>
<td>NSS0506</td>
<td>SMS36006 (NPN)</td>
<td>Current Sinking</td>
<td>SCE13000 2m (6ft.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SMS37006 (PNP)</td>
<td>Current sourcing</td>
<td>SCE13001 2m (6ft) (Angled)</td>
</tr>
<tr>
<td>M8 Stud Detector</td>
<td>NSS0810</td>
<td>SMS36008 (NPN)</td>
<td>Current Sinking</td>
<td>SCE13000 2m (6ft.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SMS37008 (PNP)</td>
<td>Current sourcing</td>
<td>SCE13001 2m (6ft) (Angled)</td>
</tr>
<tr>
<td>M10 Stud Detector</td>
<td>NSS0810</td>
<td>SMS36010 (NPN)</td>
<td>Current Sinking</td>
<td>SCE13000 2m (6ft.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SMS37010 (PNP)</td>
<td>Current sourcing</td>
<td>SCE13001 2m (6ft) (Angled)</td>
</tr>
</tbody>
</table>

Note 1 SOLD SEPARATELY
Note 2 SOLD SEPARATELY

Dimensions in inches (mm) are for reference only
SPRING MOUNT
SAB30413

• Mounts to the NSS0506 Stud Sensor
• Allows sensor to retract when stud is out of place
• Allows sensor offset up to 5° off centerline of spring mount to locate misaligned studs

Technical Data

Maximum Axial Travel: 0.20" (5.1 mm)
Maximum Radial Misalignment: 0.04" (1.1 mm)
Maximum Angular Misalignment: 10°

Materials:
- Housing: Stainless Steel
- Slide: Brass
- Spring, and snap ring: Steel

Mounting: M42 x 1.5 Thread
Initial Spring Force: 0.6 lbf. (2.7 N)
Final Spring Force: 1.8 lbf. (8.0 N)

Order Information

<table>
<thead>
<tr>
<th>Spring Mount</th>
<th>Sensor w/cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAB30414</td>
<td>NSS0810</td>
</tr>
</tbody>
</table>
SPRING MOUNT
SAB30414

- Mounts to the NSS0810 Stud Sensor
- Allows sensor to retract when stud is out of place
- Allows sensor offset up to 10° off centerline of spring mount to locate misaligned studs

Technical Data

Maximum Axial Travel: 0.20" (5.1 mm)
Maximum Radial Misalignment: 0.04" (1.1 mm)
Maximum Angular Misalignment: 10°

Materials:
- Housing - Stainless Steel
- Slide - Brass
- Spring, and snap ring - Steel
- Mounting: M42 x 1.5 Thread
- Initial Spring Force: 0.6 lbf. (2.7N)
- Final Spring Force: 1.8 lbf. (8.0N)

Dimensions

Order Information

<table>
<thead>
<tr>
<th>Spring Mount</th>
<th>Sensor w/cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAB30414</td>
<td>NSS0810</td>
</tr>
</tbody>
</table>

Spring Mount (SAB30414) with Stud Sensor (NSS0810)
Case Studies

CAD Files

Videos

Webstore

Visit our website to:

- Download CAD files
- Review User Instructions
- Read Case Studies
- Watch Videos
- Shop the Webstore

Nut/Stud Sensors URL: Click here or visit https://autoinplant.imi-precision.com/en/marvelous-machines/thread-nut-stud-detection
ENGLISH TO METRIC NUT CONVERSION

Use the table below to convert English nuts to metric and determine the compatible nut sensor.

<table>
<thead>
<tr>
<th>Nut Sensor</th>
<th>Target Material</th>
<th>Seal</th>
<th>Tip Diameter</th>
<th>Metric Nut Sizes</th>
<th>SAE Nut Sizes</th>
</tr>
</thead>
<tbody>
<tr>
<td>SNS04</td>
<td>Ferrous/Non-Ferrous*</td>
<td>IP67</td>
<td>0.12&quot;</td>
<td>M4</td>
<td>8-32, 10-24, 10-32</td>
</tr>
<tr>
<td>SNP50608 or SNS05</td>
<td>Ferrous/Non-Ferrous*</td>
<td>IP67</td>
<td>0.16&quot;</td>
<td>M5</td>
<td>12-24, 1/4-20</td>
</tr>
<tr>
<td>SNP50608 or SNS06</td>
<td>Ferrous/Non-Ferrous*</td>
<td>IP67</td>
<td>0.18&quot;</td>
<td>M6</td>
<td>1/4-20, 1/4-28, 5/16-18</td>
</tr>
<tr>
<td>SNP50608 or SNS08</td>
<td>Ferrous/Non-Ferrous*</td>
<td>IP67</td>
<td>0.25&quot;</td>
<td>M8</td>
<td>5/16-24, 3/8-16</td>
</tr>
<tr>
<td>SNP01012 or SNS10</td>
<td>Ferrous/Non-Ferrous*</td>
<td>IP67</td>
<td>0.31&quot;</td>
<td>M10</td>
<td>3/8-24, 7/16-14, 7/16-20</td>
</tr>
<tr>
<td>SNP01012 or SNS12</td>
<td>Ferrous/Non-Ferrous*</td>
<td>IP67</td>
<td>0.38&quot;</td>
<td>M12</td>
<td>1/2-13, 1/2-20</td>
</tr>
</tbody>
</table>

*For non-Ferrous applications please contact our Nut/Thread Sensor experts at 1-800-272-4511
Warning

These products are intended for use in industrial systems only. Do not use these products where pressures and temperatures can exceed those listed under Specifications.

Before using these products with fluids other than those specified, for nonindustrial applications, life-support systems, or other applications not within published specifications, consult Norgren.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes. The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure modes.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided. System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products, or posted on the Norgren website under “Downloads.” System designers should also provide for all OSHA requirements including Title 29 CFR 1910.147 Lockout/Tagout.

It should be recognized that warnings are valid for any product, regardless of manufacturer, and are not restricted to products manufactured by Norgren. Norgren’s reputation for product quality and performance is well established. We feel we have the additional obligation to provide information or warnings to customers to assist them in applying our products in a reasonable and safe manner.

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