

User Instructions

Part Present Sensor Kit

Micro Catalog #	Pico Catalog #	Description
SGS40042-K	SGS40042P-K	NPN
SGS40043-K	SGS40043P-K	PNP
SGS40042F-K	SGS40042FP-K	NPN Flange Jaw
SGS40043F-K	SGS40043FP-K	PNP Flange Jaw

Note: Whenever any part of the gripper is replaced including pads the sensor will need to be calibrated again.

1. NPN/PNP Sensor Technical Data:

Micro Sensor Connector:	4 - Pin One Key (male) Micro Type Connector
Pico Sensor Connector:	3 - Pin (male) Pico Type Connector
Supply Voltage Range:	10 - 30 VDC
Maximum Continuous load current:	100mA (max)
Operating Temperature Range:	0°C to +60°C
Response Time:	50ms max
Part Present Indicator Light:	Red
Short Circuit Protection:	Yes
Overload Protection:	Current Limits at 325mA Typ.
Reverse Polarity Protection:	Up to 36 volts DC
Interface:	3 - wire device
Sensor Housing:	Aluminum (2-piece)
Housing Seal:	IP68

2. User Interface:



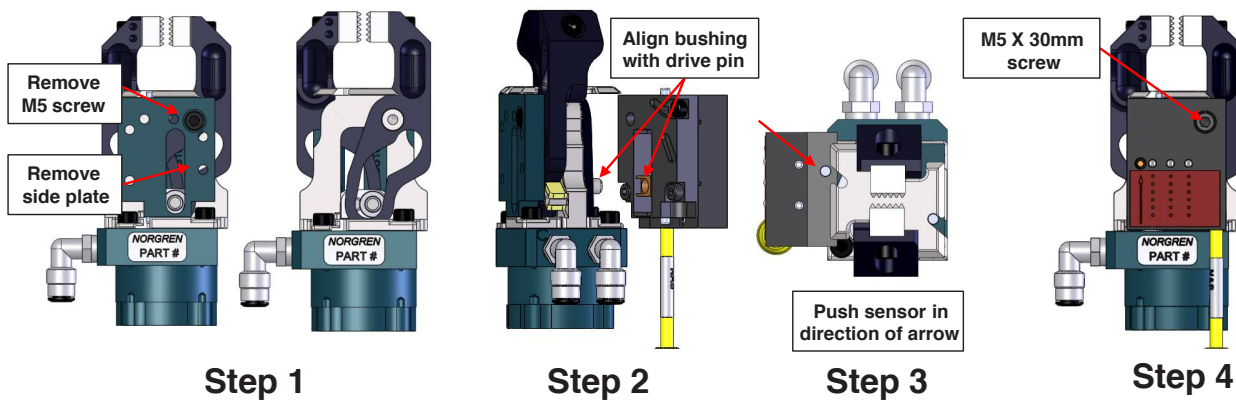
3. Installation:

3.1. (Step 1) Take off the side plate from the side of the gripper which the sensor is to be mounted to by removing the 5mm screw.

(Step 2) Align the brass bushing in sensor to the drive pin in the gripper.

(Step 3) Keeping the sensor parallel to the side of the gripper, move the sensor close enough so that the dowel pins align with the slots in the frame. From that point the sensor is pushed farther onto the gripper with a motion indicated in the Step 3 figure.

(Step 4) Clean and apply Loctite 262 or equivalent to supplied screw (M5 X 1.0 X 30mm SHCS). Insert screw through sensor and tighten to 72in-lb.



4. Wiring:

The part present sensor provides a single output which is activated based on the material thickness detected each time the gripper closes.

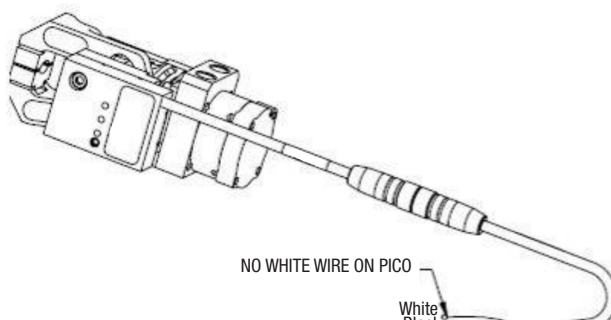
This output will turn on when the gripper is clamped on a sheet having a thickness greater than a threshold determined by the sensor during calibration. This threshold is calculated to provide a reliable indication of part presence while ignoring typical minor variations in sheet thickness.

This output will be off when the gripper is open or when the detected thickness is less than this established threshold.

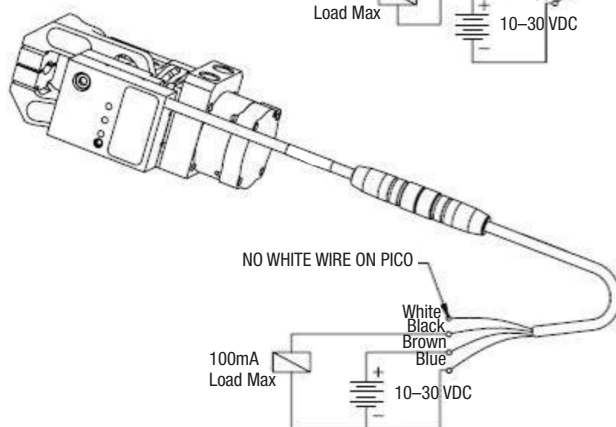
Table 1 outlines the various states of the Sensor LED and Part Present Output.

Table 1		
Gripper state	Red LED State	Part Present Output
Un-calibrated	Off	Off
Gripper Closed (no material)	Off	Off
Clamped on 1 sheet or more	On	On
Gripper Open	Off	Off

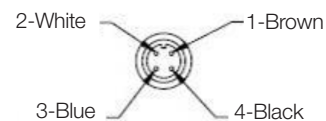
Wiring for NPN Sensors:



Wiring for PNP Sensors:



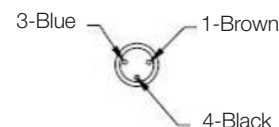
4 Pin Male Micro



Connector for PNP/NPN

- 1-V+
- 2-No Connect
- 3-Common
- 4-Part Present Output

3 Pin Male Pico



Connector for PNP/NPN

- 1-V+
- 3-Common
- 4-Part Present Output

5. Calibration

5.1. Setup

- 5.1.1.** If the sensor has never been calibrated, the Red LED will be off regardless of the position of the jaws. The Part Present output will be off. Before programming the sensor, the correct set of pads must be installed, and for chisel jaws, the correct jaw must be in place. The pad ranges are listed below.

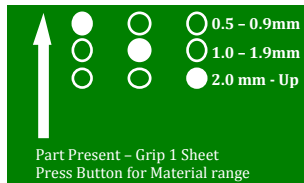
Single Blank Thickness	Chisel Jaw		Regular/Flange Jaw	
	Movable Jaw Pad Color	Opposing Fixed Jaw Color	Moveable Jaw Pad Color	Opposing Jaw Pad Color
0.50mm to 2.0mm	Black (note 1)	Black	Black	Black
2.01mm to 3.5mm	Silver	Black	Silver	Silver
3.51mm to 5.0mm	Black (note 1)	Silver	Gold	Silver
5.01mm to 6.5mm	Silver	Silver	n/a	n/a
6.51mm to 8.0mm	Black (note 1)	Gold	n/a	n/a
8.01mm to 9.5mm	Silver	Gold	n/a	n/a

Note 1: A spacer shim is required under a black pad when it is installed on a chisel jaw gripper. This shim is included in all black replacement pad kits for the chisel jaw gripper.

- 5.1.2.** The gripper orientation must be adjusted to allow the pads to close flat against the panel. Calibration using small sample sheets allows the sheet to conform to the gripper pad position for accurate calibration. However, calibration using actual panels in the machine requires accurate adjustment of the transfer finger for full closure of the gripper jaws during calibration and in-process measurements.
- 5.1.3.** For best results its is recommended that the blanks be lifted off of the station prior to calibration. This will help to ensure that the gripper has a proper grip on the panel which helps to obtain an accurate calibration point.

5.2. Calibration

- 5.2.1.** To program the sensor for a particular material thickness, apply air to the gripper and grip on the material thickness which is to be used for the particular job. With an object such as a small Allen wrench, press the button until the Red LED corresponding to the material range of the job lights as shown on the label.



5.2.2. Verify Calibration:

- 5.2.2.1. Close the gripper with no material between the pads. The Led should be off.
- 5.2.2.2. Close the gripper on a single blank of material. The Red LED corresponding to your material range should be on.

Warning

Improper selection, misuse, age or malfunction of components used in systems can cause failure in various modes. The system designer is warned to consider the failure modes of all component parts and to provide adequate safeguards to prevent personal injury or damage to equipment or property in the event of such failure modes. System designers and end users are cautioned to consult instruction sheets and specifications available from the factory. The system designer/end user is responsible for verifying that all requirements for the application are met.

Warranty

The products described herein are warranted subject to seller's Standard Terms and Condition of Sale, available at seller's website.

Proposition 65: These products may contain chemicals known to the state of California to cause cancer, or birth defects, or other reproductive harm.