USER GUIDE

Sensor eValuator

Testing and diagnostics.

Error Reporting.

Sensor Validation.

Training and Technology for Injection Molders



USER GUIDE Sensor eValuator

USER GUIDE INTRODUCTION	Ш	OVERVIEW	7
DISCLAIMER	111	SENSOR EVALUATOR HARDWARE	8
PRIVACY	III	AP 32C	8
ALERTS	Ш	LYNX SENSOR CABLE	9
PRODUCT OVERVIEW	IV	TABLET	9
QUICK START GUIDE	1.0	SENSOR EVALUATOR APPLICATION	10
QUICK CIAKI COIDE	•	AUTOMATED SENSOR TEST	- 11
START EQUIPMENT AND APPLICATION	2	MANUAL STRAIN GAGE SENSOR FORCE TEST	12
RUN AN AUTOMATED SENSOR TEST	3	MANUAL PIEZOELECTRIC SENSOR FORCE TEST	13
RUN A MANUAL SENSOR FORCE TEST	4	SENSOR TEST RESULTS	14
STRAIN GAGE SENSORS	4	SENSOR TEST REPORTS	15
PIEZOELECTRIC SENSORS	5		
GENERATE AND DISTRIBUTE REPORTS	6		

USER TOOLS	17	TROUBLESHOOTING	29
AUTOMATED SENSOR TESTS	18	STRAIN GAGE SENSORS	30
MULTIPLE SENSORS	18	COMMUNICATION FAILURE	30
MANUAL SENSOR FORCE TESTS	19	GAGE/WIRE TEST FAILURE	30
STRAIN GAGE SENSORS	19	ZERO SHIFT FAILURE	30
PIEZOELECTRIC SENSORS	20	FORCE TEST FAILURE	30
SENSOR TEST REPORTS	21	PIEZOELECTRIC SENSORS	31
SETTINGS	23	COMMUNICATION FAILURE	31
		FORCE TEST FAILURE	31
INSTALLATION AND SETUP	24	FORCE TEST PASS WITHOUT APPLICATION OF FORCE	31
APPLICATION DOWNLOAD AND INSTALL FROM TABLET	24	DRIFT FAILURE	32
REFRESH APPLICATION	25	KNOWLEDGE BASE	33
REFRESH SENSOR EVALUATOR LIST	25	CUSTOMER SUPPORT	34
REFRESH SENSOR LIST	26	COSTONERSOTTORT	34
UPDATES	27		
APPLICATION	27		
FIRMWARE	27		

USER GUIDE INTRODUCTION

Read, understand, and comply with all following instructions. These instructions must be kept available for reference at all times.

DISCLAIMER

Inasmuch as RJG, Inc. has no control over the use to which others may put this material, it does not guarantee that the same results as those described herein will be obtained. Nor does RJG, Inc. guarantee the effectiveness or safety of any possible or suggested design for articles of manufacture as illustrated herein by any photographs, technical drawings, and the like. Each user of the material or design or both should make his own tests to determine the suitability of the material or any material for the design as well as the suitability of the material, process, and/or design for his own particular use. Statements concerning possible or suggested uses of the material or designs described herein are not to be construed as constituting a license under any RJG, Inc. patent covering such use or as recommendations for use of such material or designs in the infringement of any patent.

COMPLIANCE

The CoPilot™ System (including Sensor eValuator Version 2.0)" has been designed and tested in accordance with the following standards:

EN 61326-1:2013

EMC Requirements for electrical equipment for measurement, control, and laboratory use. Intended for use in industrial locations.

IEC 61010-1:2010

Safety requirements for electrical equipment for measurement, control, and laboratory use.



The Sensor eValuator system conforms to European Conformity (CE) requirements and is eligible for sale in the European Union (EU).

PRIVACY

Designed and developed by RJG, Inc. Manual design, format and structure copyright 2020 RJG, Inc. content documentation copyright 2020 RJG, Inc. All rights reserved. Material contained herein may not be copied by hand, mechanical, or electronic means, either whole or in part, without the express written consent of RJG, Inc. Permission will normally be granted for use in conjunction with inter-company use not in conflict with RJG's best interests.

ALERTS

The following three alert types are used as needed to further clarify or highlight information presented in the manual:



Term

A definition of a term or terms used in the text.



NOTE A note provides additional information about a discussion topic.



CAUTION A caution is used to make the operator aware of conditions that can cause damage to equipment and/or injury to personnel.

PRODUCT OVERVIEW

The Sensor eValuator provides testing of up to 30 Lynx cavity pressure sensors simultaneously, including the following:

Automatic Testing

- Strain Gage Sensors
 Lynx Communication, Zero Offset, and Broken Wire/Failed Gage Tests
- Piezoelectric Sensors
 Lynx Communication and Drift Tests

Manual Testing

Strain Gage Sensors
Piezoelectric Sensors
Basic Force Test
Basic Force Test

Specifications

Compatible Sensor Models

• Strain Gage

LS-B-I27-50/I25/500/2000, LS-B-I59-4000, LES-B-I27-50/I25/500/2000, LES-B-I59-4000, MCSG-B-60-50, MCSG-B-I27-I25/500/2000, & MCSG-B-I59-4000

Piezoelectric
 6157, 6159, 9204, 9210, & 9211

Hardware

• Power Requirements 12 V DC

• Max Lynx Sensors 30

Application

Tablet Samsung Galaxy Tab 4
 OS Requirements Android 4.4 KitKat or Later

Memory Required 10 MB

This Product Includes:

- I RJG, Inc. AP 32C with USB WiFi Adapter (TP Link TL-WN7225N v3.8)
- I 7" Samsung Tablet with USB cable
- | OtterBox Tablet Case
- I 12 V DC Power Supply Cable
- I Lynx Cable



QUICK START GUIDE

START EQUIPMENT AND APPLICATION	2
RUN AN AUTOMATED SENSOR TEST	3
RUN A MANUAL SENSOR FORCE TEST	4
STRAIN GAGE SENSORS	4
PIEZOELECTRIC SENSORS	5
GENERATE AND DISTRIBUTE REPORTS	6

START EQUIPMENT AND APPLICATION

Connect the power supply cable to the AP 32C 1 power port and a power source. The green 2 power indication light will indicate that the AP 32C is on; if no green light is visible the AP 32C is off.

Connect the Lynx cable to the AP 32C 3 Lynx input, and the sensor(s) to be tested; ensure the provided USB WiFi adapter is inserted in the AP 32C USB port.

Select the RJG Sensor eValuator 4 application icon on the tablet home page to start the application.

NOTE WiFi must be enabled on the tablet to connect to the Sensor eValuator.

NOTE For optimal performance the tablet should be physically near the Sensor eValuator and the sensors being tested.



RUN AN AUTOMATED SENSOR TEST

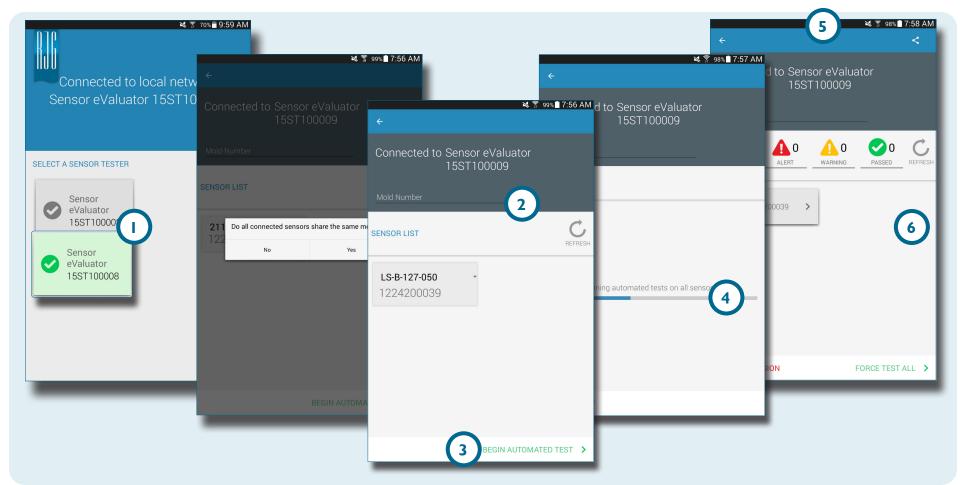
Select a Sensor eValuator icon from the application home page with which to connect. The Sensor eValuator icon will be grey until selected, and will turn green after selection. If multiple sensors are attached for testing, a pop-up window will appear to determine if each connected sensor is the same or different model(s). Select the appropriate response for the connected sensor(s) to continue.

Enter the 2 Mold Number in the provided field. **Select**3 Begin Automated Test to test the sensor(s). The 4

Progress Bar will indicate the test progress. Wait for the test to complete.

The sautomated test complete page will indicate any alerts, warnings, and the number of sensors that passed the test.

Select a sensor to enter the sensor information, including Location, Cavity Name, Pin Size, Sensitivity, Sensor Model, and Sensor Serial Number. Complete the testing by running a force test (page 4).



RUN A MANUAL SENSOR FORCE TEST

Sensor force tests require the operator to physically press on the sensor(s) being tested in order for the Sensor eValuator to evaluate if the sensor is detecting force.

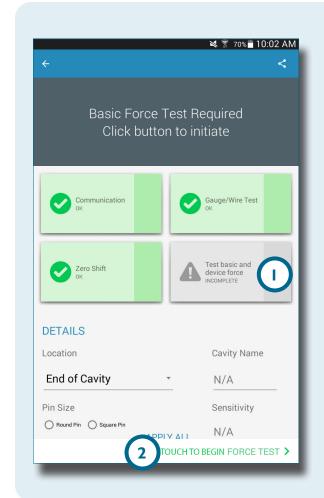


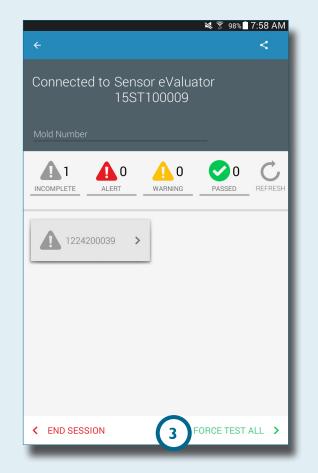
NOTE The application will time out if no signal is received from the sensor in a specified length of time; be ready to apply force to the sensor(s).

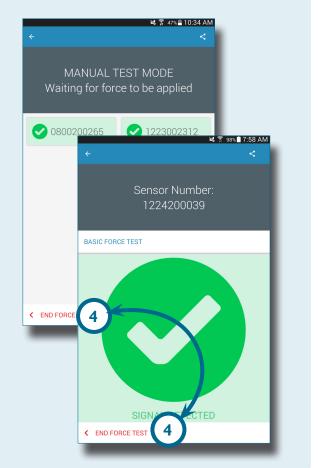
STRAIN GAGE SENSORS

After completing an automated test, **select** ① 1 Test Basic and Device Force **OR** 2 Touch to Begin Force Test to force test a single sensor, **OR** 3 Force Test All to force test all sensors.

Select **4** End Force Test to return to the test results screen when the force test is complete.







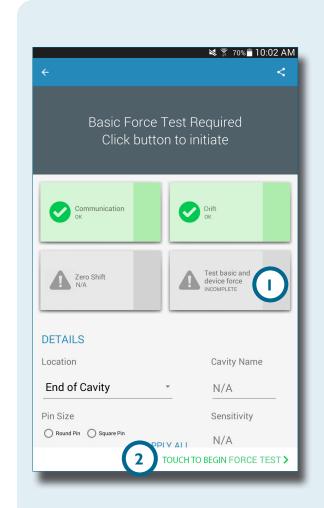
PIEZOELECTRIC SENSORS



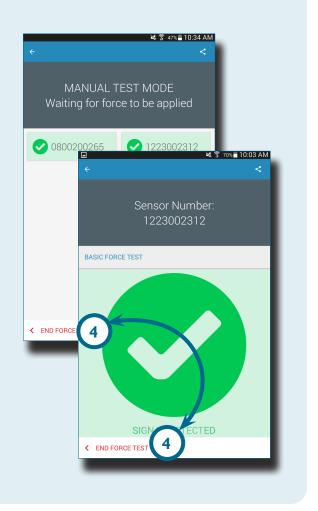
NOTE Do not move the sensor adapter cable during multi-channel piezoelectric sensor testing. Moving the sensor adapter cable during multi-channel piezoelectric sensor testing will create false test results.

After completing an automated test, **select** ① 1 Test Basic and Device Force **OR** 2 Touch to Begin Force Test to force test a single sensor, **OR** 3 Force Test All to force test all sensors.

Select 4 End Force Test to return to the test results screen when the force test is complete.







GENERATE AND DISTRIBUTE REPORTS

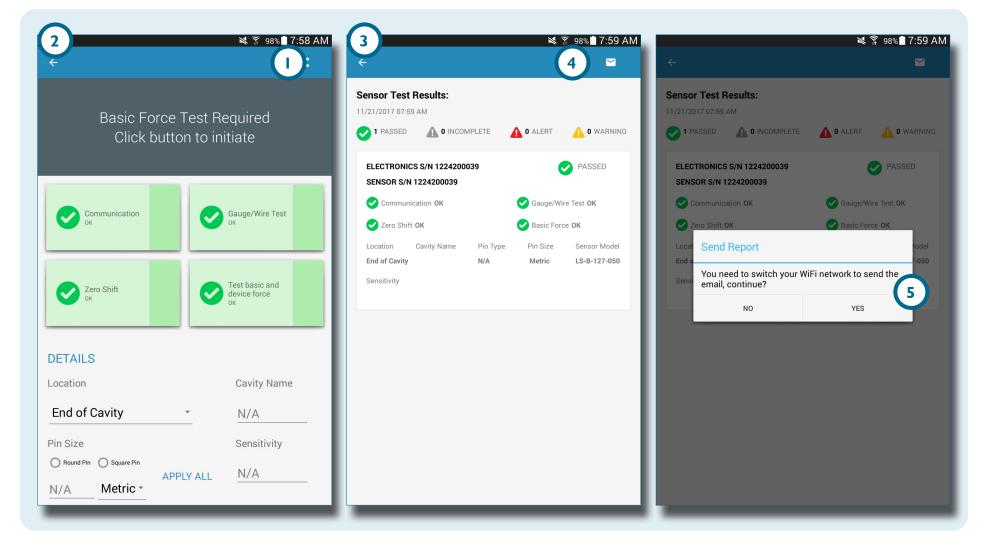
The Sensor eValuator application generates a report file for tested sensors.

Select the 1 share button located at the top right-hand corner of the 2 completed test screen. The 3 report screen will display.

Select the 4 email function from the 3 report screen.

Select (5) YES to disconnect from the Sensor eValuator hardware and connect to a WiFi network.

Email the report to the desired email address.



OVERVIEW

SENSOR EVALUATOR HARDWARE	8
AP 32C	8
LYNX SENSOR CABLE	9
TABLET	9
SENSOR EVALUATOR APPLICATION	10
AUTOMATED SENSOR TEST	П
MANUAL STRAIN GAGE SENSOR FORCE TEST	12
MANUAL PIEZOELECTRIC SENSOR FORCE TEST	13
SENSOR TEST RESULTS	14
SENSOR TEST REPORTS	15

SENSOR EVALUATOR HARDWARE

AP 32C

The **1** AP 32C verifies proper operation of Lynx cavity pressure sensors, and includes the following:

- 2 Lynx Connector
- 3 Power Supply Connector
- 4 Power Supply Indicator
- 5 USB WiFi Adapter



LYNX SENSOR CABLE

The Lynx sensor cable provided with the AP 32C provides a physical connection between the AP 32C and strain gage or piezoelectric sensors for testing.

TABLET

The tablet provided with the AP 32C is preloaded with the Sensor eValuator application, and provides a user interface for testing sensors and generating sensor test reports. Refer to the tablet manufacturer's manual for operating and troubleshooting instructions.



NOTE For optimal performance the tablet should be physically near the Sensor eValuator and the sensors being tested.

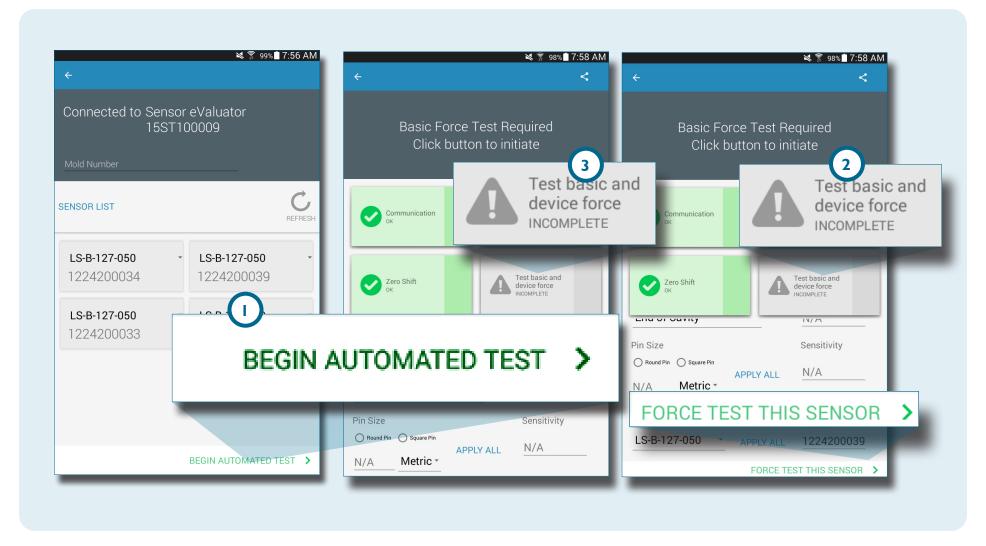


SENSOR EVALUATOR APPLICATION

The Sensor eValuator application tests, labels, and generates a report for up to 30 sensors simultaneously.

The application provides the following tests:

- Automated Sensor Tests (Multiple or Single Sensor)
- 2 Manual Strain Gage Sensor Force Tests
- 3 Manual Piezoelectric Sensor Force Tests

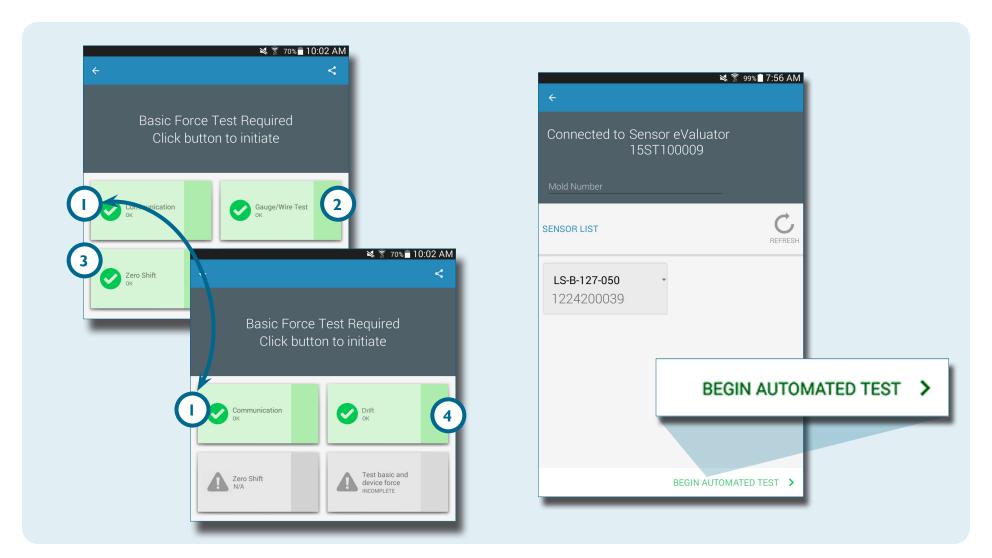


AUTOMATED SENSOR TEST

The automated sensor test will test each sensor connected to the Sensor eValuator simultaneously for the following:

- Communication
- 2 Gage/Wire Test (for Strain Gage only)

- 3 Zero Shift (for Strain Gage only)
- 4 Drift (for Piezoelectric Sensors only)



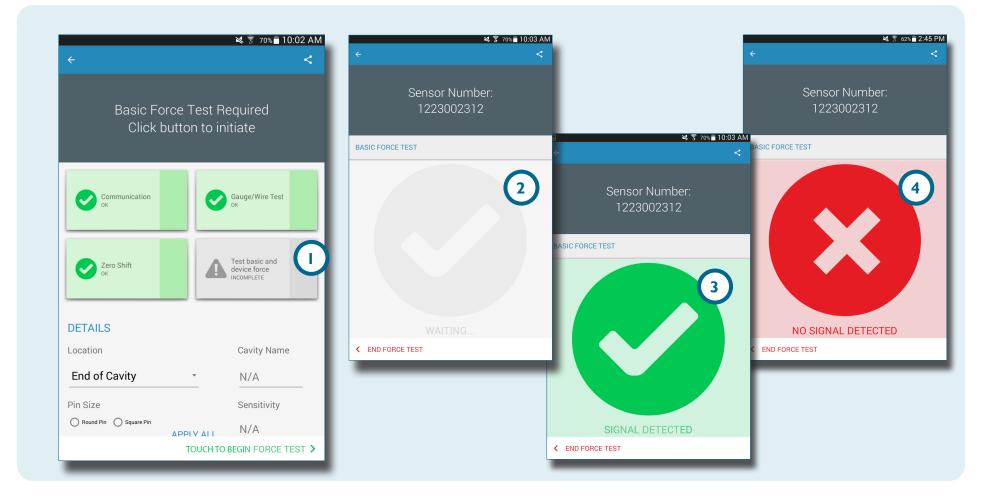
MANUAL STRAIN GAGE SENSOR FORCE TEST

The manual strain gage sensor force test tests for 1 Basic and Device Force. The operator must physically press on the sensor(s) being tested in order for the Sensor eValuator to evaluate if the sensor is detecting force.

0

NOTE The application will time out if no signal is received from the sensor within a specified length of time; be ready to apply force to the sensor(s).

The manual strain gage sensor force test will display a 2 test in progress page, then a 3 Signal Detected **OR** 4 No Signal Detected screen to indicate if a sensor signal is or is not detected.



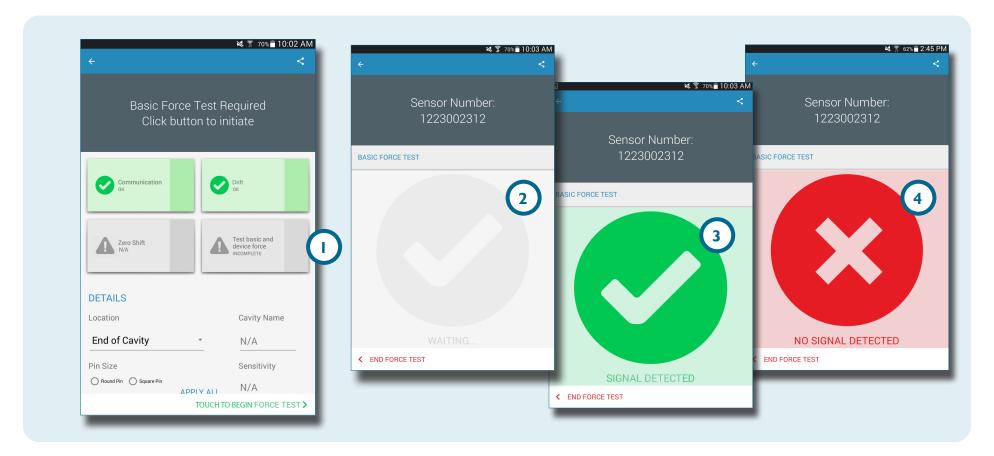
MANUAL PIEZOELECTRIC SENSOR FORCE TEST

The manual piezoelectric sensor force test tests for 1 Basic and Device Force. The operator must physically press on the sensor(s) being tested in order for the Sensor Tester to evaluate if the sensor is detecting force.

NOTE The application will time out if no signal is received from the sensor within a specified length of time; be ready to apply force to the sensor(s).

The manual piezoelectric sensor force test will display a 2 test in progress page, then a 3 Signal Detected OR 4 No Signal Detected screen to indicate if a sensor signal is or is not detected.

NOTE Do not move the sensor adapter cable during multi-channel piezoelectric sensor testing. Moving the sensor adapter cable during multi-channel piezoelectric sensor testing will create false test results.



SENSOR TEST RESULTS

The 1 multiple sensor test results page indicates any 2 incomplete tests, 3 alerts, 4 warnings, and the 5 number of sensors that passed testing.

2 Incomplete tests indicates sensors that have not been force tested. Sensor names will be grey until force tested.

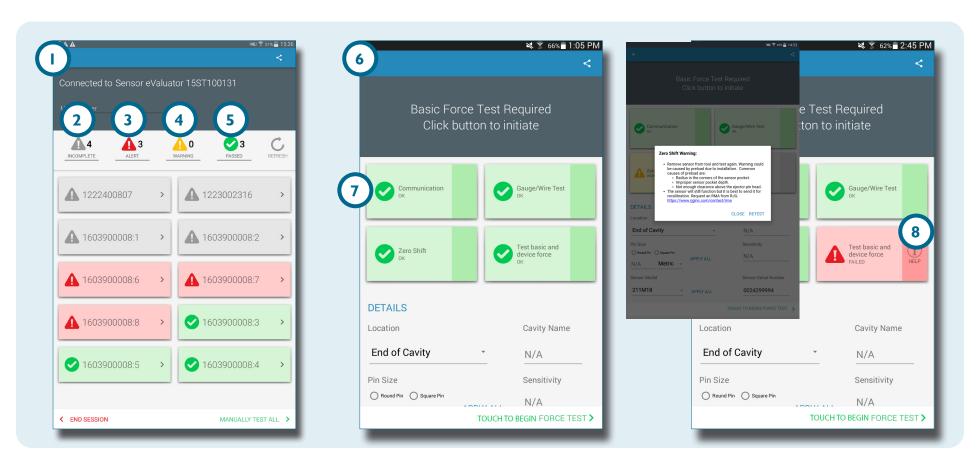
3 Alerts indicate a sensor is outside $\pm 5\%$ (strain gage) or ± 40 picocoulombs/min (piezoelectric) normal.

4 Warnings indicate a sensor is outside $\pm 2\%$ (strain gage) or ± 20 picocoulombs/min (piezoelectric) normal.

The 6 single sensor test results page indicates if the tested sensor has passed communication, gage/wire, zero shift (strain gage only), drift (piezoelectric only), and basic force testing successfully.

Successful tests are indicated by 7 green check marks. If a box is red the sensor is in the 3 alerts state. If a box is yellow, the sensor is in 4 warnings state.

Select the 8 help icon for information on an 3 alert or 4 warning, or to retest the sensor.

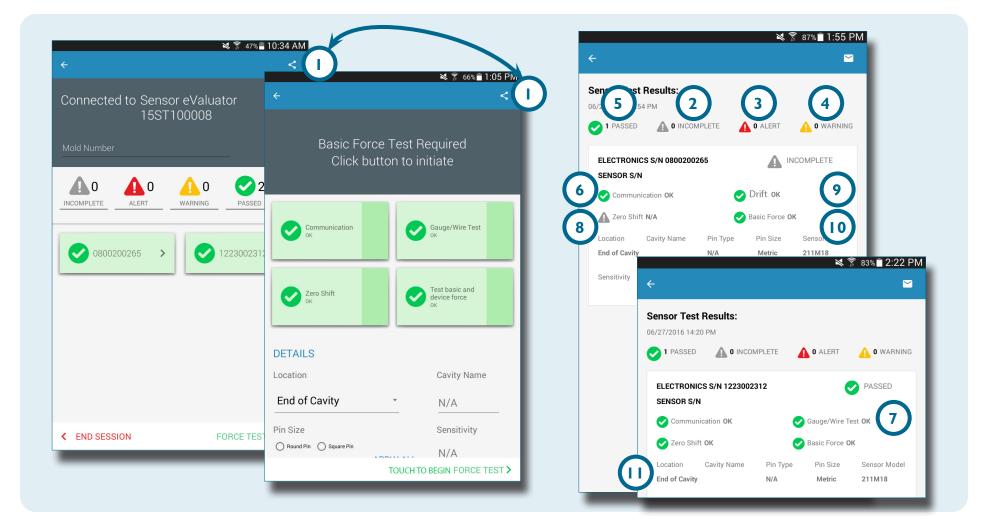


SENSOR TEST REPORTS

Sensor test reports are generated automatically and stored in the tablet's Device Storage/Downloads folder. The reports can be viewed while in the Sensor eValuator application, or opened or emailed from the tablet's file directory.

Select the **1** share button to view a sensor test report after completing sensor testing.

Reports detail 2 incomplete tests, 3 alerts, 4 warnings, and the 5 number of sensors that passed testing. The reports also show if the tested sensor has passed 6 communication, 7 gage/wire (strain gage only), 8 zero shift (strain gage only), 9 drift (piezoelectric only), and 10 basic force testing successfully. The report will include any entered 11 sensor information, such as Location, Pin Type, and Pin Size.





USER TOOLS

AUTOMATED SENSOR TESTS	18
MULTIPLE SENSORS	18
MANUAL SENSOR FORCE TESTS	19
STRAIN GAGE SENSORS	19
PIEZOELECTRIC SENSORS	20
SENSOR TEST REPORTS	21

AUTOMATED SENSOR TESTS

MULTIPLE SENSORS

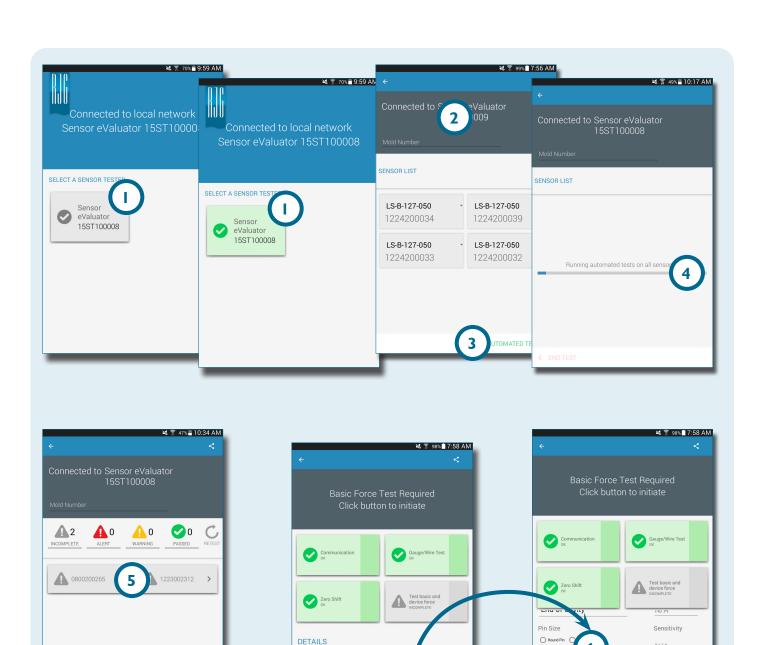
Select a Sensor eValuator from the application home page with which to connect. The Sensor eValuator will be grey until selected and will turn green after selection.

If desired, enter the mold number in the 2 Mold Number field.

Select (3 Begin Automated Test to test all sensors.

The 4 Progress Bar will indicate the test progress. Wait for the test to complete.

Select a sensor to enter the sensor information including Location, Cavity Name, Pin Size, Sensitivity, Sensor Model, and Sensor Serial Number in the provided fields. Run a manual force test to complete testing.



Location

Pin Size

N/A

FORCE TEST ALL >

End of Cavity

Metric

APPLY ALL

N/A

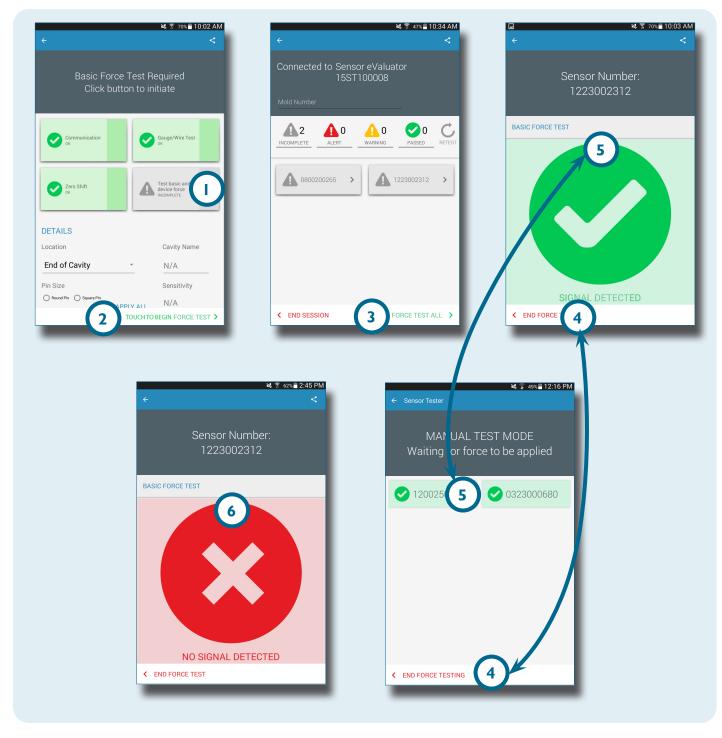
Sensor Model

LS-B-127-050

N/A

FORCE TEST THIS SENSOR

1224200039



MANUAL SENSOR FORCE TESTS

STRAIN GAGE SENSORS

After running an automated test, **select** one of the following:

- Test Basic and Device Force
- 2 Touch to Begin Force Test
- 3 Force Test All
 - NOTE The application will time out if no signal is received from the sensor in a specified length of time; be ready to apply force to the sensor(s).

Select 4 End Force Test after the 5 Signal Detected screen is displayed.

The 6 No Signal Detected screen will be displayed if the test was unsuccessful. Refer to **PAGE 30** for troubleshooting.

PIEZOELECTRIC SENSORS

NOTE Do not move the Lynx cable during piezoelectric sensor testing, as it will create false test results.

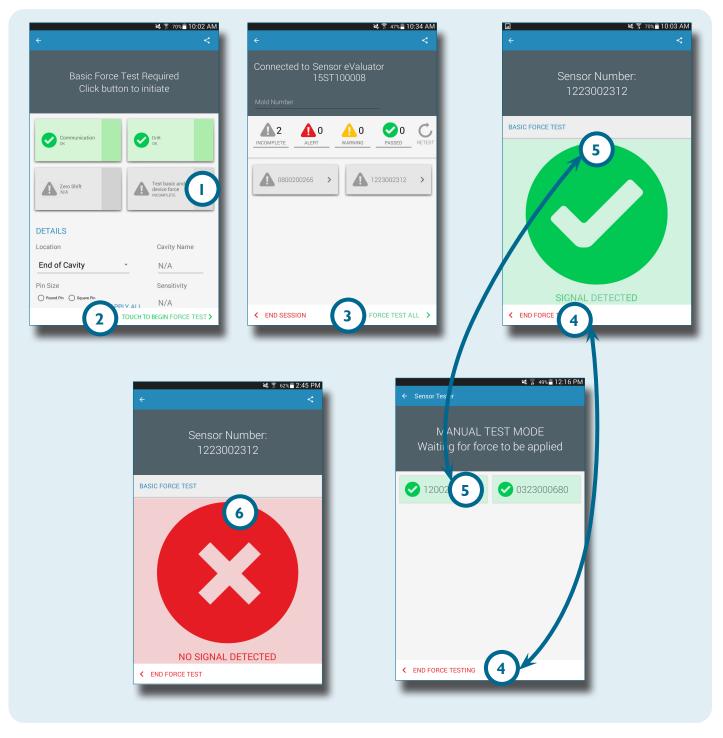
After running an automated test, **select** one of the following:

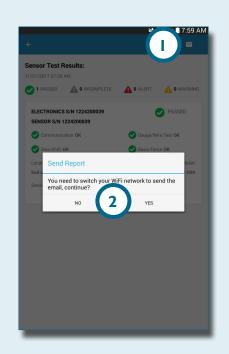
- Test Basic and Device Force
- 2 Touch to Begin Force Test
- 3 Force Test All

NOTE The application will time out if no signal is received from the sensor in a specified length of time; be ready to apply force to the sensor(s).

Select 4 End Force Test after the 5 Signal Detected screen is displayed.

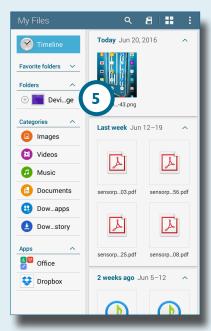
The 6 No Signal Detected screen will be displayed if the test was unsuccessful. Refer to PAGE 31 for troubleshooting.

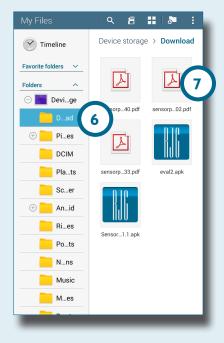








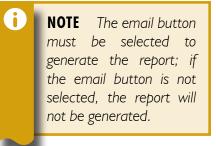




SENSOR TEST REPORTS

Sensor reports are stored in the tablet's Device Storage/ Downloads folder after the report is generated.

Select the 1 Email button, then select either 2 NO to remain connected, or YES to disconnect from the Sensor eValuator and email the report.



Select the 3 Applications icon from the tablet home page.

Select 🖰 4 My Files.

Select 🖰 🍮 Device Storage.

Select 🖰 6 Downloads.

Select the desired report.



SETTINGS

INSTALLATION AND SETUP	24
APPLICATION DOWNLOAD AND INSTALL FROM TABLET	24
REFRESH APPLICATION	25
REFRESH SENSOR EVALUATOR LIST	25
REFRESH SENSOR LIST	26
UPDATES	27
APPLICATION	27
FIRMWARE	27

INSTALLATION AND SETUP

APPLICATION DOWNLOAD AND INSTALL FROM TABLET

Select the **1** Applications icon from the tablet home page.

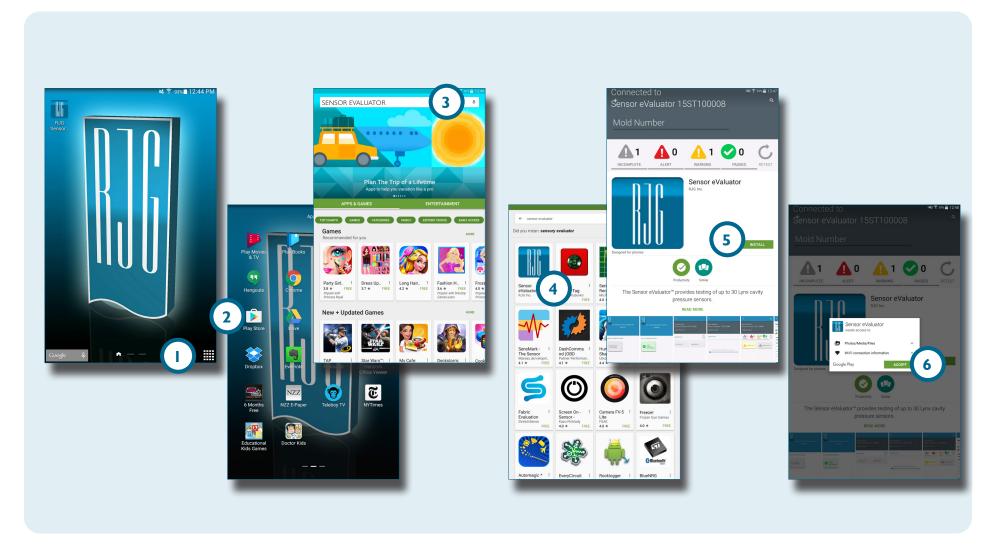
Select the 2 Play Store from the list of Apps.

Enter 3 sensor evaluator in the search bar.

Select the 4 Sensor eValuator application.

Select **5** Install from the application page.

Select 6 Accept from the permissions pop-up window.



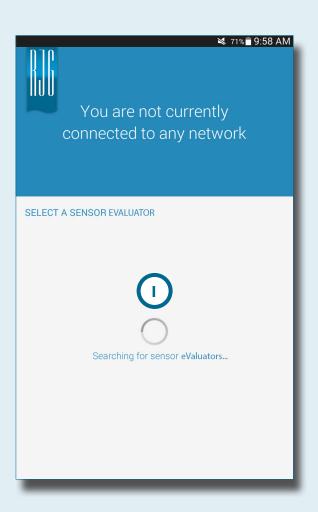
REFRESH APPLICATION

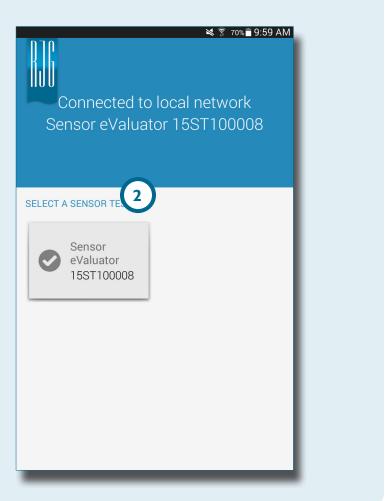
REFRESH SENSOR EVALUATOR LIST

If no Sensor eValuators appear upon application start-up, or if a recently connected Sensor eValuator does not appear on the list of Sensor eValuators, swipe the tablet screen in a downward motion to 1 refresh the application for any recently added or removed Sensor eValuators.

Any 2 connected Sensor eValuators will display in the window.



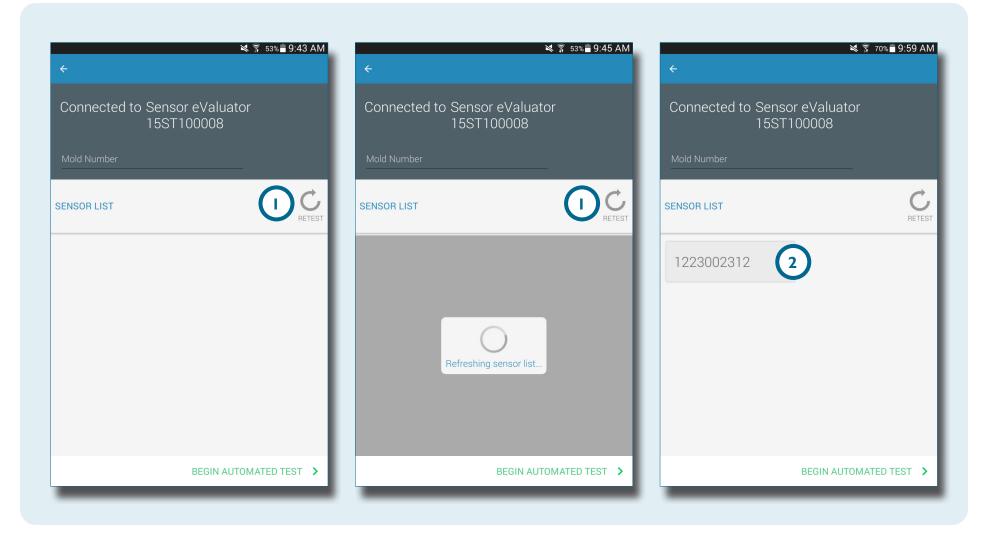




REFRESH SENSOR LIST

If no sensors appear upon application start-up, or if a recently connected sensor does not appear on the list of sensors, select ① 1 Retest to refresh the application for any recently added or removed sensor connections.

Any 2 connected sensors will display in the window.



UPDATES

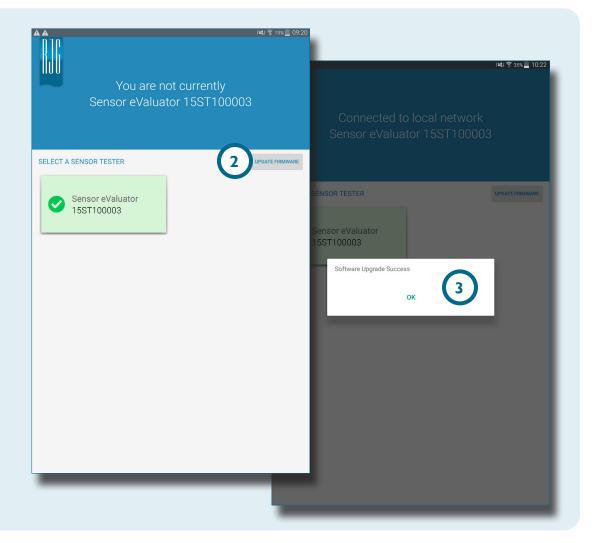
APPLICATION

Check for application updates in the Google Play store. Refer to APPLICATION DOWNLOAD AND INSTALL FROM TABLET ON PAGE 24.

FIRMWARE

Firmware updates for the Sensor eValuator are installed from the tablet. Open and connect to the Sensor eValuator. Select the 2 UPDATE FIRMWARE button. Any firmware updates will be pushed to the Sensor eValuator from the tablet. Once the firmware is updated, a 3 success message is displayed. Restart the Sensor eValuator to complete the update.







TROUBLESHOOTING

STRAIN GAGE SENSORS	30
COMMUNICATION FAILURE	30
GAGE/WIRE TEST FAILURE	30
ZERO SHIFT FAILURE	30
FORCE TEST FAILURE	30
PIEZOELECTRIC SENSORS	31
COMMUNICATION FAILURE	31
FORCE TEST FAILURE	31
FORCE TEST PASS WITHOUT APPLICATION OF FORCE	31
DRIFT FAILURE	32
KNOWLEDGE BASE	33
CUSTOMER SUPPORT	34

STRAIN GAGE SENSORS

COMMUNICATION FAILURE

The Sensor eValuator lost connection to the sensor electronics:

- Replace the Lynx cable and try again.
- If a new cable does not correct the issue, the problem is most likely the sensor electronics.
- If the test fails again, replace the strain gage adapter (SG/LX....) and retest.
- If the test fails again, request an RMA for return from RJG.

GAGE/WIRE TEST FAILURE

There may be a broken wire:

- Perform a visual inspection of the sensor cable.
- If cable is okay the gage may be damaged or overloaded.
- Remove the sensor form the tool and retest the sensor. If the sensor now passes the test, check the sensor pocket installation dimensions.
- If the sensor fails again, request an RMA for return from RJG.

ZERO SHIFT FAILURE

Remove sensor from tool and retest. Failure could be caused by preload due to installation. Common causes of preload are:

- Radius in the corners of the sensor pocket.
- Improper sensor pocket depth.
- Not enough clearance above the ejector pin head.

If the sensor fails after removal from the tool, the sensor needs to be re-calibrated or replaced.

• Request an RMA from RJG.

FORCE TEST FAILURE

Tester did not detect any force being applied;

- apply pressure on pin or directly on sensor head.
- Remove the sensor from the tool and retest the sensor.

If the sensor passes, check that the pin moves freely. The pin should slide forward and backward easily. The pin should also spin easily.

• If the sensor fails again, request an RMA from RJG.

PIEZOELECTRIC SENSORS

COMMUNICATION FAILURE

The Sensor eValuator lost connection to the sensor electronics:

- Replace the Lynx cable and try again.
- If a new cable does not correct the issue, the problem is most likely the sensor electronics.
- If the test fails again, replace the strain gage adapter (SG/LX....) and retest.
- If the test fails again, request an RMA for return from RJG.

FORCE TEST FAILURE

1. Single Channel

Tester did not detect any force being applied;

- apply pressure on pin or directly on sensor head.
- Remove the sensor from the tool and retest the sensor.
- If the test fails again, remove the sensor from the tool and retest the sensor.

If the sensor passes, check that the pin moves freely. The pin should slide forward and backward easily. The pin should also spin easily.

• If the sensor fails again, request an RMA from RJG.

2. Multi Channel

Tester did not detect any force being applied;

- apply pressure on pin or directly on sensor head.
- Remove the sensor from the tool and retest the sensor.

If the sensor passes, check that the pin moves freely. The pin should slide forward and backward easily. The pin should also spin easily.

• If the sensor fails again, request an RMA from RJG.

FORCE TEST PASS WITHOUT APPLICATION OF FORCE

If force was not applied, but the test was passed, be aware that moving the piezoelectric sensor cable during the test can cause false readings. Check the sensor again without moving any of the components.

DRIFT FAILURE

1. Multi-channel

Something happened to cause a change in reading during the test. Be aware that moving the piezoelectric sensor cable during the test can cause false readings. Check the sensor again without moving any of the components.

• If the test fails a second time, start testing backwards from the mold to the electronics until drift passes.

Disconnect sensor head from 1645 cable and Retest.

• If the test passes the problem is in the sensor head.

Disconnect 1645 cable from PZ plate and Retest.

• If the test passes the problem is in the 1645 cable.

Disconnect PZ Plate and Retest.

• If the test passes the problem is in the PZ Plate.

Disconnect piezoelectric sensor adapter cable (C-PZ/LX...) and Retest

- If the test passes the problem is in the piezoelectric sensor adapter cable (C-PZ/LX...)
- If the test fails, the problem is in the piezoelectric sensor adapter electronics (PZ/LX...)

Clean the sensor can cable connection points with an approved cleaner. Follow instructions at: https://rjginc.com/paperclip/product_downloads/547/cleaning-connectors_cables.pdf.

Retest after cleaning.

• If the test fails after cleaning, request an RMA from RJG.

2. Single Channel

Something happened to cause a change in reading during the test. Be aware that moving the piezoelectric sensor cable during the test can cause false readings. Check the sensor again without moving any of the components.

• If the test fails a second time, start testing backwards from the mold to the electronics until drift passes.

Disconnect sensor head from 1645 cable

• If the test passes the problem is in the sensor head.

Disconnect 1645 cable from the piezoelectric sensor adapter (PZ/LX1-M) and Retest.

• If the test passes the problem is in piezoelectric sensor adapter.

Disconnect 1661 cable from piezoelectric sensor adapter (PZ/LX-S) and Retest.

• If the test passes the problem is in the piezoelectric sensor adapter.

Clean the sensor can cable connection points with an approved cleaner. Follow instructions at: https://rjginc.com/paperclip/product_downloads/547/cleaning-connectors_cables.pdf.

Retest after cleaning.

• If the test fails after cleaning, request an RMA from RJG.

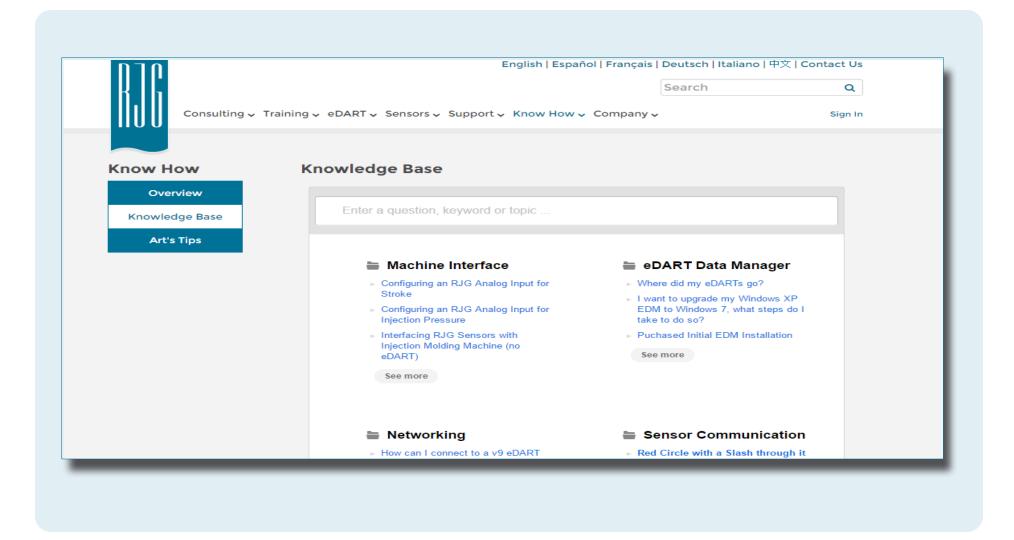
KNOWLEDGE BASE

For further information, visit

https://rjginc.com/know-how/knowledge-base

RJG's searchable virtual help library.

Topics include Machine Interface, eDART Data Manager, Networking, Sensor Communication, Extracting eDART Data, Advanced System Overview, Microsoft Windows, Valve Gate, System Utilities Software, Hardware, and other product-related issues.



CUSTOMER SUPPORT

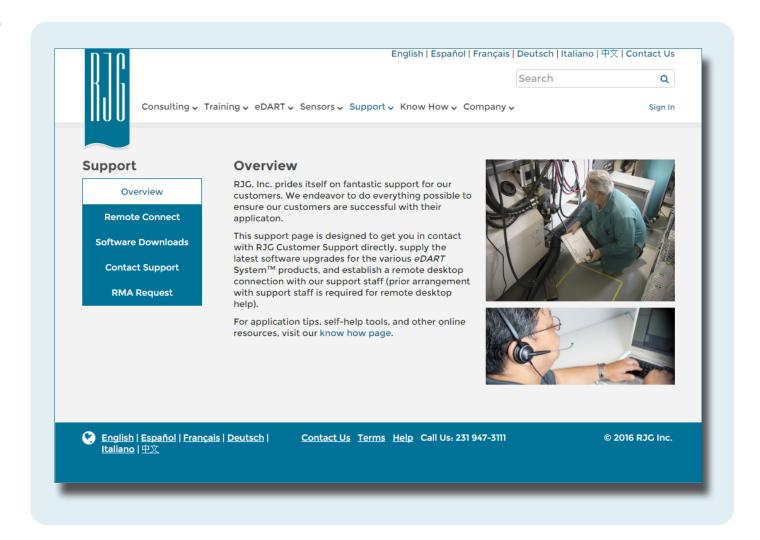
Contact RJG's Customer Support team by phone or email.

RJG, Inc. Customer Support

P: 800.472.0566 (Toll Free)

P: +1.231.933.8170

https://rjginc.com/support



LOCATIONS / OFFICES

USA	RJG USA (HEADQUARTERS) 3111 Park Drive Traverse City, MI 49686 P +01 231 947-3111 F +01 231 947-6403 sales@rjginc.com www.rjginc.com	ITALY	NEXT INNOVATION SRI Milano, Italy P +39 335 178 4035 sales@it.rjginc.com it.rjginc.com
MEXICO	RJG MEXICO Chihuahua, Mexico P +52 614 4242281 sales@es.rjginc.com es.rjginc.com	SINGAPORE	RJG (S.E.A.) PTE LTD Singapore, Republic of Singapore P +65 6846 1518 sales@sg.rjginc.com en.rjginc.com
FRANCE	RJG FRANCE Arnithod, France P +33 384 442 992 sales@fr.rjginc.com fr.rjginc.com	CHINA	RJG CHINA Chengdu, China P +86 28 6201 6816 sales@cn.rjginc.com zh.rjginc.com
GERMANY	RJG GERMANY Karlstein, Germany P +49 (0) 6188 44606 11 sales@de.rjginc.com de.rjginc.com	KOREA	CAEPRO Seoul, Korea P +82 02-2113-1870 sales@ko.rjginc.com www.caepro.co.kr
IRELAND/ UK	RJG TECHNOLOGIES, LTD. Peterborough, England P +44(0) 1733-232211 info@rjginc.co.uk		

www.rjginc.co.uk

