

PRODUCT MANUAL

EIGHT-CHANNEL STRAIN GAGE
SENSOR PLATE WITH ID

SG-8



PRODUCT MANUAL

EIGHT-CHANNEL STRAIN GAGE SENSOR PLATE WITH ID

SG-8

INTRODUCTION

DISCLAIMER	V
PRIVACY	V
ALERTS	V

PRODUCT DESCRIPTION

APPLICATIONS	1
MULTI-CHANNEL STRAIN GAGE SENSOR SYSTEM	1
BUTTON-STYLE SENSORS	1
OPERATION	2
INDIRECT/UNDER-PIN SENSORS	2
STRAIN GAGE SENSORS	2
DIMENSIONS	3
CABLE LENGTHS	3
COMPATIBLE CABLES	3

INSTALLATION

INSTALLATION OVERVIEW	5
CLAMP PLATE INSTALLATIONS	5
EJECTOR PLATE INSTALLATIONS	6
INSTALLATION SPECIFICATIONS	7
CLAMP PLATE INSTALLATIONS	7
EJECTOR PLATE INSTALLATIONS	10
SENSOR CONNECTOR SUPPORT WALL	13
EXCESS CABLE POCKET	13
MOUNTING	14
HIGH-TEMPERATURE SENSOR (MCSG-50/125/500/2000-H) PLATE INSTALLATION	15

PRODUCT MANUAL

EIGHT-CHANNEL STRAIN GAGE SENSOR PLATE WITH ID

SG-8

MAINTENANCE

CLEANING	17
REGULAR CLEANING	17
TESTING & CALIBRATION	17
SENSOR TESTING	17
WARRANTY	18
RJG, INC. STANDARD WARRANTY	18
PRODUCT DISCLAIMER	18

TROUBLESHOOTING

COMMON ERRORS	19
INTERMITTENT CONNECTIONS	19
TROUBLESHOOTING SOFTWARE FOR INTERMITTENT CONNECTIONS	19
SENSOR LOCATIONS MENU	19
RAW DATA VIEWER EDART TOOL	20
TROUBLESHOOTING HARDWARE FOR INTERMITTENT CONNECTIONS	21
CHECKING eDART SYSTEM LYNX PORTS AND FUSES FOR CONNECTION ISSUES	21
CHECKING LYNX CABLES AND CONNECTIONS FOR CONNECTION ISSUES	22
INTERFERENCE	23
INTERFERENCE WITH MACHINE INTERFACE MODULES AND SENSORS	23
INTERFERENCE FROM MOLD SENSORS	24
CUSTOMER SUPPORT	25

PRODUCT MANUAL

EIGHT-CHANNEL STRAIN GAGE SENSOR PLATE WITH ID

SG-8

RELATED PRODUCTS

COMPATIBLE PRODUCTS	27
C-SG/LX8-S-0.5/1M/2M	27
LYNX STRAIN GAGE EIGHT-CHANNEL ADAPTER WITH MOLD ID SG/LX8-S-ID	27
LYNX MULTI-CHANNEL STRAIN GAGE BUTTON SENSORS MCSG-50/125/500/200 AND MCSG-4000	27
SIMILAR PRODUCTS	28
LYNX EMBEDDED SENSORS	28
PIEZOELECTRIC FOUR-CHANNEL PZ-4 & PZ/LX4F-S	28
PIEZOELECTRIC EIGHT-CHANNEL PZ-8 & PZ/LX8F-S	28

INTRODUCTION

Read, understand, and comply with all following instructions. This guide 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.

PRIVACY

Designed and developed by RJG, Inc. Manual design, format and structure copyright 2022 RJG, Inc. content documentation copyright 2022 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:

-  **DEFINITION** *A definition or clarification of a term or terms used in the text.*
-  **NOTES** *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 DESCRIPTION

The eight-channel strain gage sensor plate with mold ID SG-8 interfaces up to eight multi-channel strain gage (MCSG) sensors with the RJG, Inc. eight-channel strain gage sensor adapter SG/LX8-S-ID and the eDART® or CoPilot® systems. The built-in mold identification (ID) enables the software to automatically identify the mold for easy setup.

APPLICATIONS

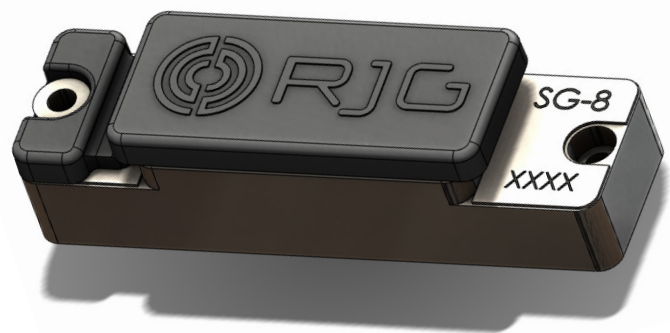
MULTI-CHANNEL STRAIN GAGE SENSOR SYSTEM

The Lynx™ MCSG sensor systems provide quick, convenient connection between multiple sensors in a mold to a single sensor adapter outside of the mold and the eDART system, saving real estate on the mold and minimizing cabling.

BUTTON-STYLE SENSORS

Button-style cavity pressure sensors are suitable for injection molding applications in which the following conditions are met:

- Sensors will be installed behind ejector, blade, or core pins.
- Applied plastic is high enough to prevent poor sensor resolution, but low enough to prevent sensor damage.
- Only one point of contact (single pin) to each sensor.



- Sensor will be kept below 250 °F (120 °C) for standard models or 425 °F (220 °C) for high-temperature models (MCSG-XXXX-H) in the mold; sensor connectors will be kept below 185 °F (85 °C).

CAUTION MCSG-XXXX model sensors *MUST* be used only within the recommended temperature ranges; failure to comply will result in the damage or destruction of equipment.

OPERATION

INDIRECT/UNDER-PIN SENSORS

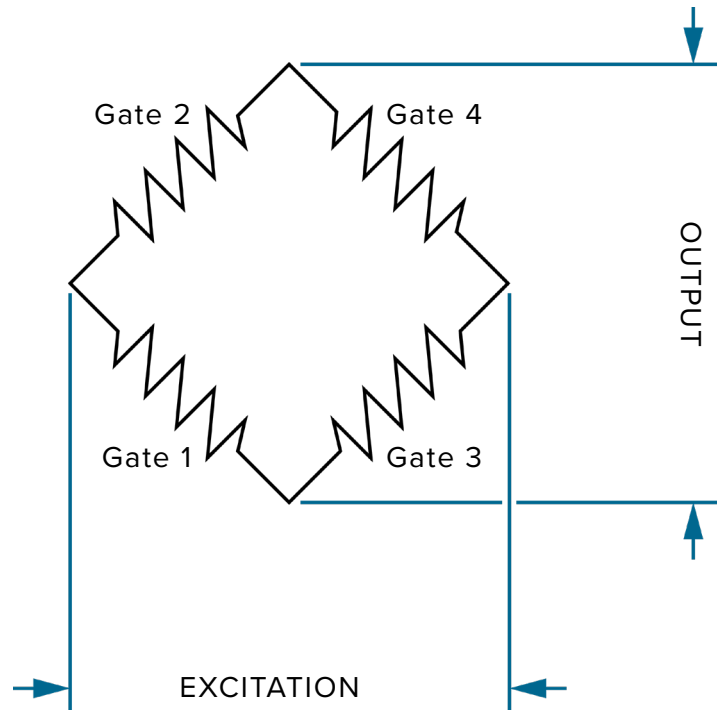
Each Lynx™ multi-channel strain gage sensor is placed in the mold behind an ejector pin. As plastic is injected into the cavity, the pressure of the plastic applies force to the ejector pin; the plastic pressure force is transferred to the strain gage sensor.

STRAIN GAGE SENSORS

The strain gage sensing element inside the sensor body converts the applied force to an electrical signal that can read using the eDART system or CoPilot system software. The sensing element uses a Wheatstone bridge configuration (four strain gage elements positioned in a circuit) to convert small amounts of sensor deformation into a measurable voltage through the change in resistance of the strain gage sensing elements. The sensor sends out a low-level voltage signal which is proportional to the amount of force applied by the pressure placed on the pin and transferred to the sensor.

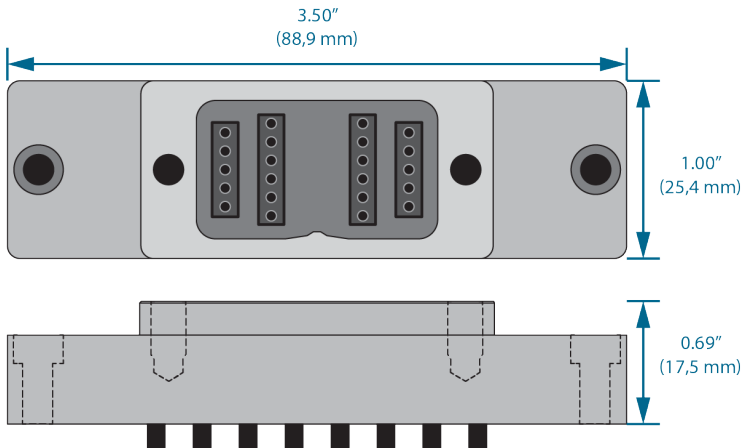
The voltage or measurement is carried through the sensor cable, through the SG-8 plate and C-SG/LX8-S-ID cable, to the SG/LX8-S-ID adapter electronics case mounted outside of the mold. The output voltage signal is calibrated by the sensor's electronics and directly correlates with pressure from within the cavity.

STRAIN GAGE OPERATING PRINCIPLE



The SG/LX8-S-ID is connected to the RJG, Inc. eDART system, which records and displays the sensor's measurement for operator aid in process control. In the eDART and CoPilot® software, the sensor model is assigned to each channel in order to provide correct calibration. This configuration only needs to be completed once, after which the software automatically recalls the configuration each time the SG-8 plate is connected.

DIMENSIONS



CABLE LENGTHS

Length must be longer than needed to facilitate safe installation and removal of connector from tool to prevent tension on the lead wire; generally, 2–3" (50–75 mm) of slack is sufficient. Use good sense to determine the appropriate cable length required for each application. Length is specified at time of order.



Sensor Plate to Sensor Adapter Cable
C-SG/LX8-S Length

COMPATIBLE CABLES

CABLE NO.	LENGTH
C-SG/LX8-S-0.5M	0.5 m
C-SG/LX8-S-1M	1.0 m
C-SG/LX8-S-2M	2.0 m

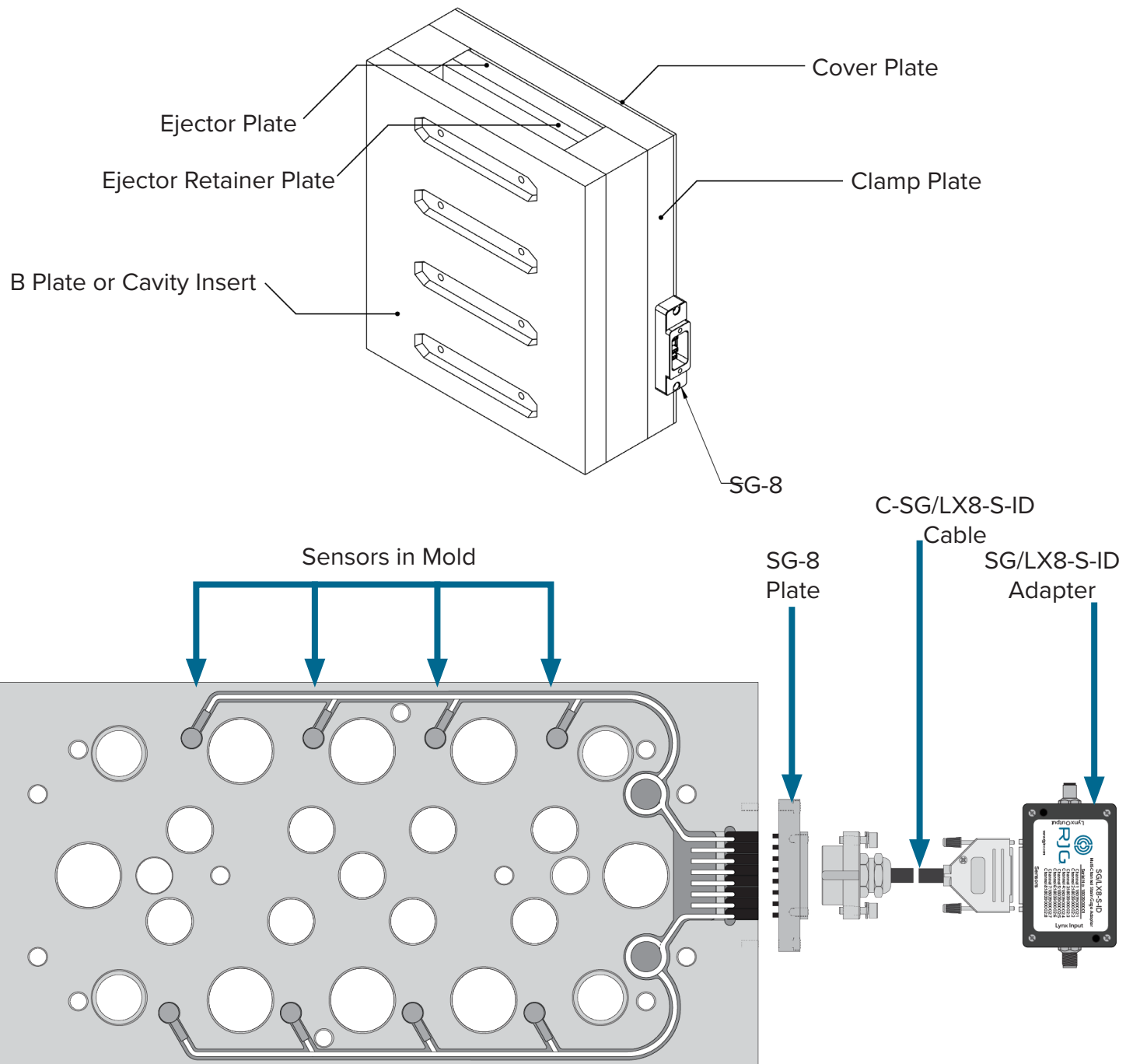
INSTALLATION

INSTALLATION OVERVIEW

CLAMP PLATE INSTALLATIONS

A pocket is machined into the mold clamp plate—in conjunction with sensor pockets and cable channels—for the sensor plate (refer to sensor product manuals for sensor and cable installation). The plate is installed in the pocket where the sensor

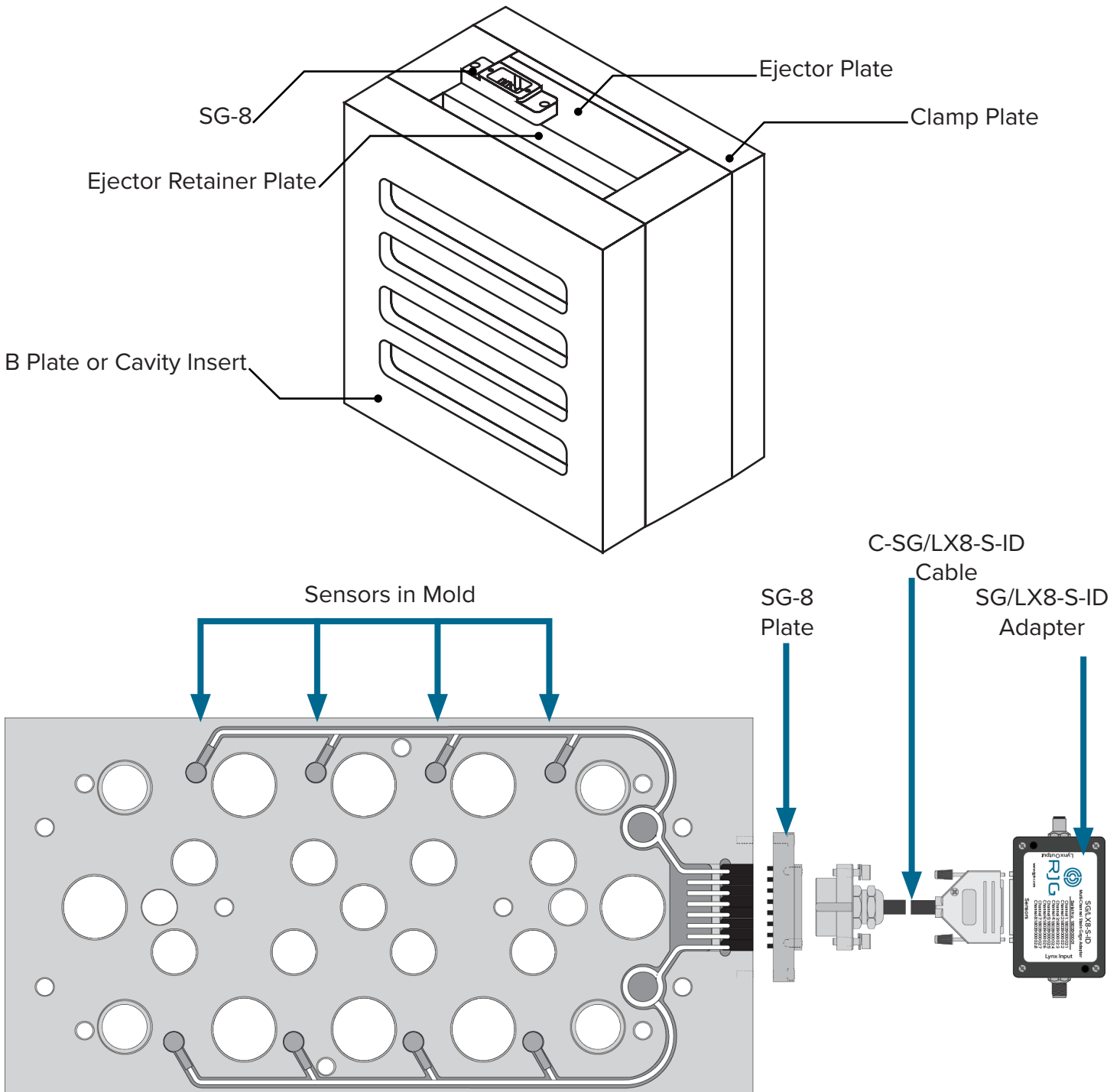
cables are able to connect to the back of the plate. A separate cable, C-SG/LX8-S, is installed on the plate outside of the mold, and joins the plate to the sensor adapter SG-LX8-S-ID, which is attached to the eDART system.



INSTALLATION OVERVIEW *(continued)*

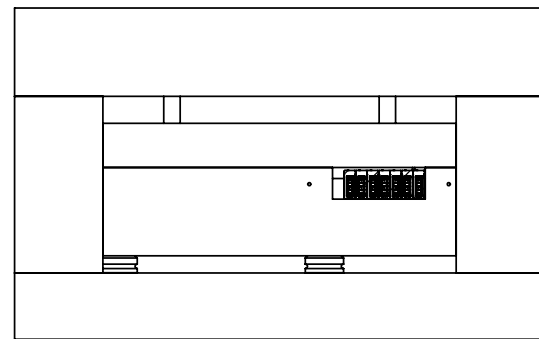
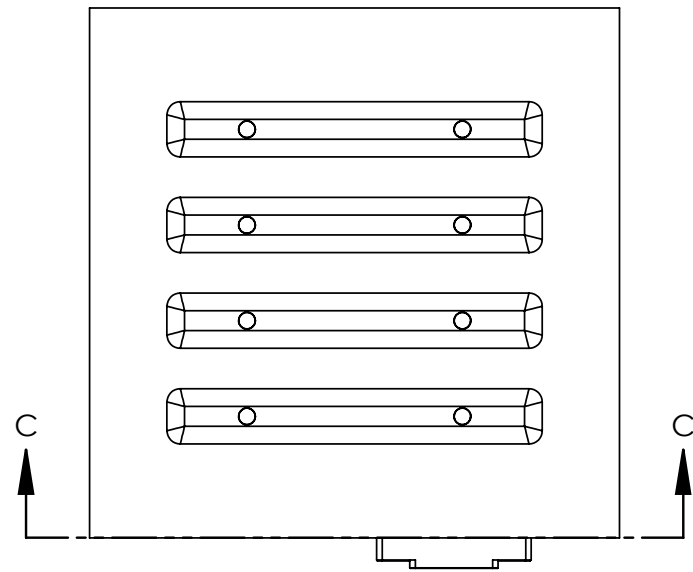
EJECTOR PLATE INSTALLATIONS

A pocket is machined into the mold ejector plate—in conjunction with sensor pockets and cable channels—for the sensor plate (refer to sensor product manuals for sensor and cable installation). The plate is installed in the pocket where the sensor cables are able to connect to the back of the plate. A separate cable, C-SG/LX8-S, is installed on the plate outside of the mold, and joins the plate to the sensor adapter SG-LX8-S-ID, which is attached to the eDART system.

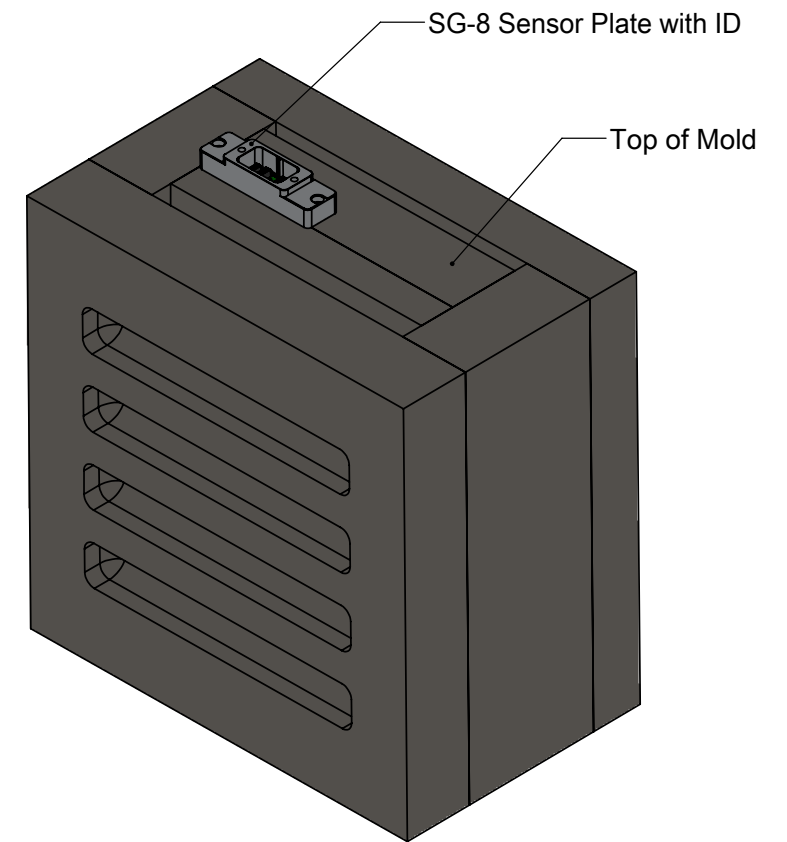
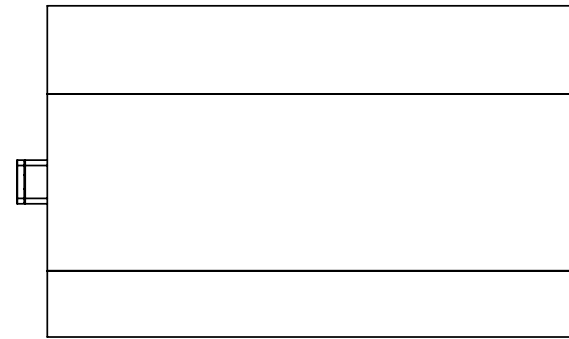


INSTALLATION SPECIFICATIONS

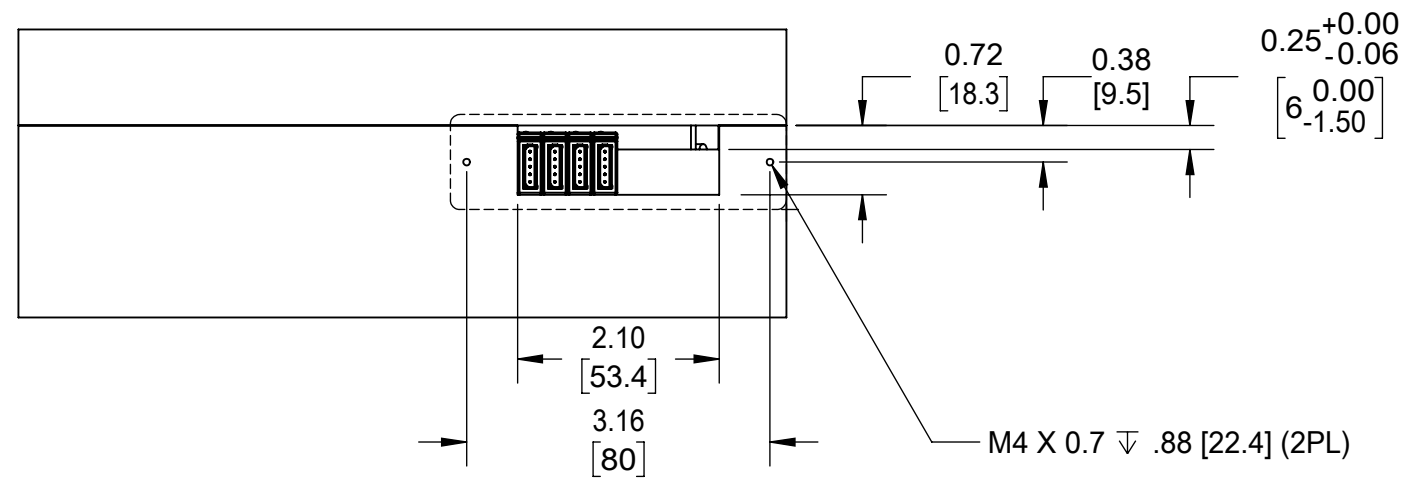
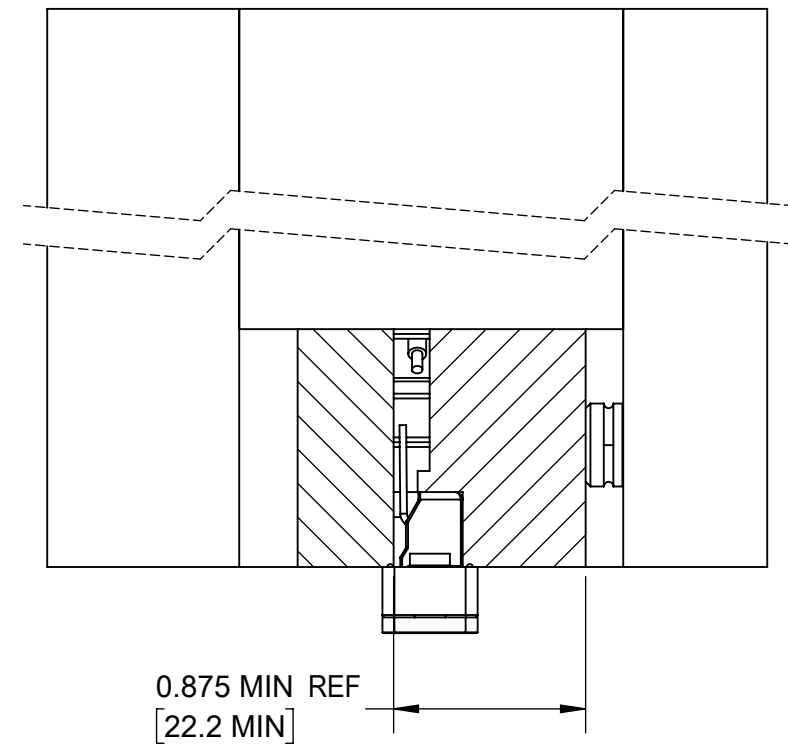
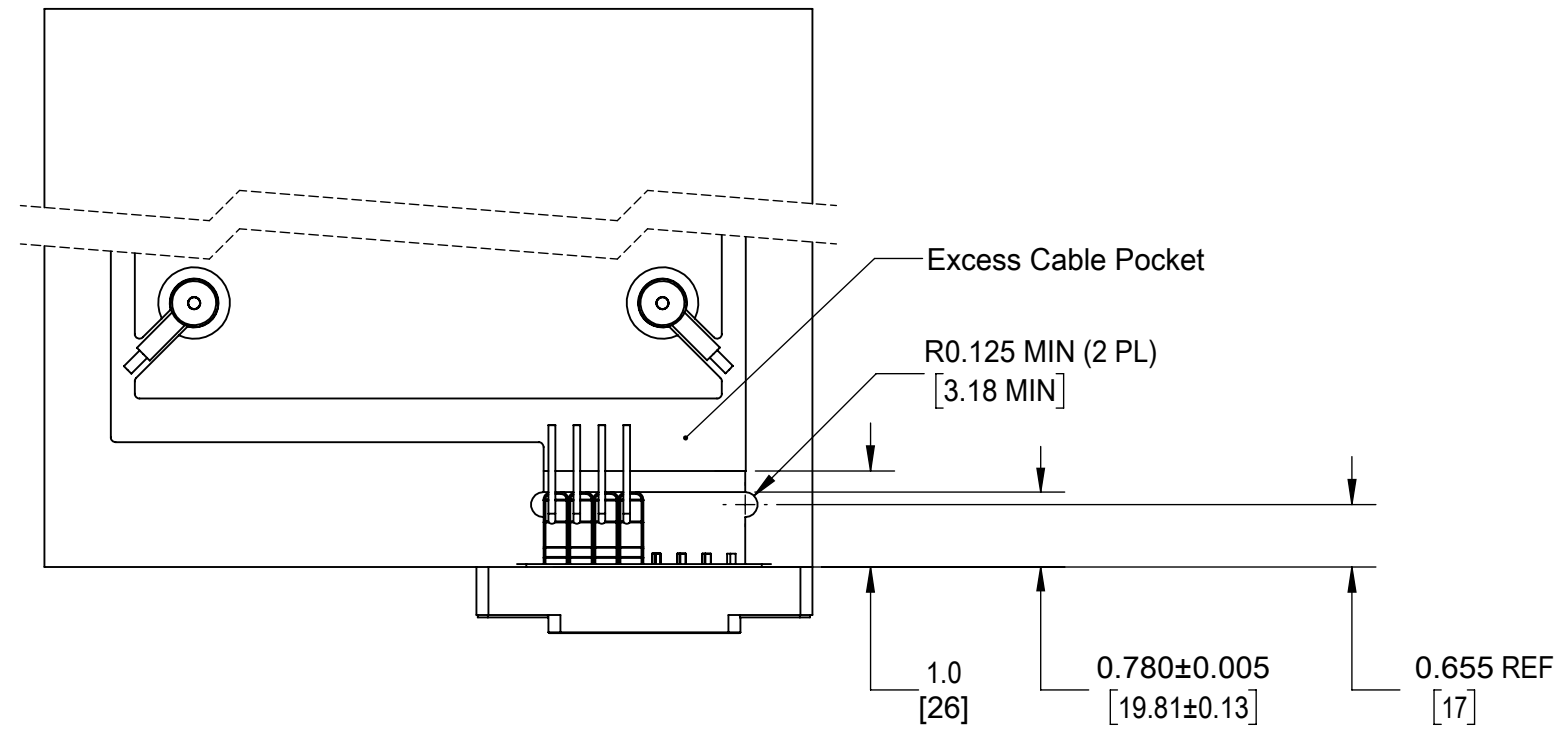
CLAMP PLATE INSTALLATIONS



SECTION C-C



INSTALLATION SPECIFICATIONS (continued)
CLAMP PLATE INSTALLATIONS



INSTALLATION SPECIFICATIONS (continued) CLAMP PLATE INSTALLATIONS

1. Connector Pocket

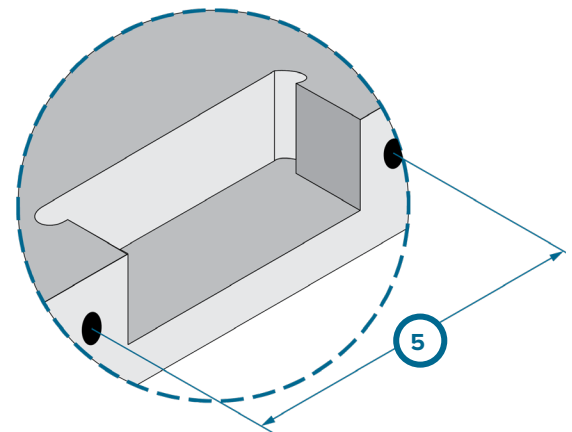
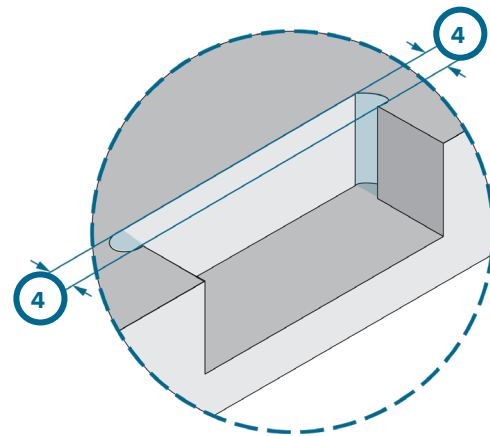
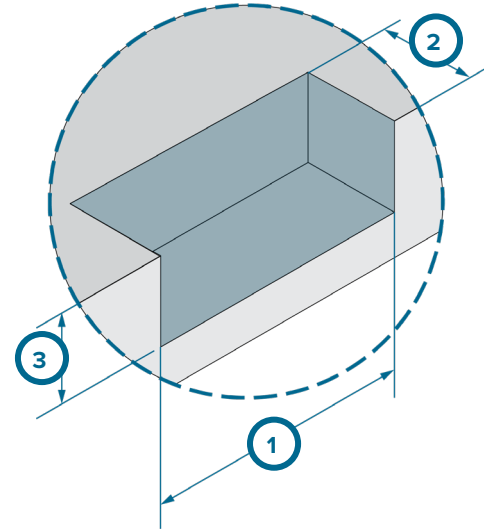
The SG-8 requires two pockets for installation; one pocket provides space for excess cabling, while the other provides space for the sensor connections. The area—or “wall”—between the pockets provides a supporting compression fit for the sensor connections to the plate.

Machine a pocket for the connector

into the mold clamp plate. The SG-8 plate requires a pocket 2.10” (53,4 mm) wide by 0.8” ±.005 (20,3 mm ±0,13) long by 0.72” (18,3 mm) deep for the inner, sensor-connections-side (1–3 at right).

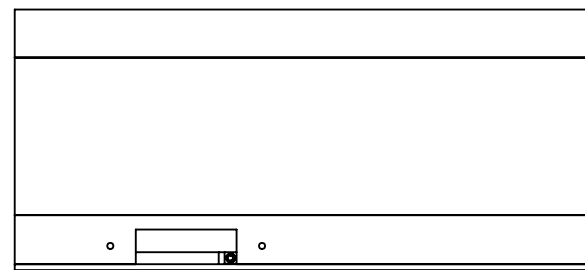
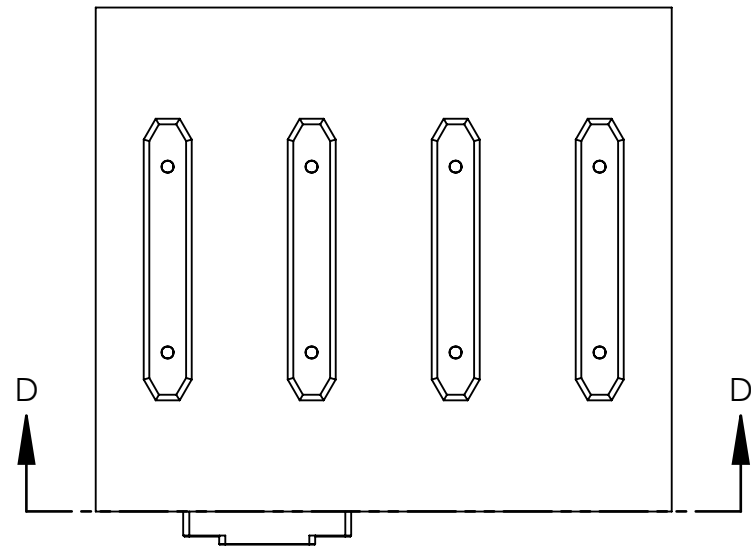
In addition, the connector pocket must have two radii added to each side for ease of installation/removal; machine 0.125” (3,18 mm) two places (4 at right).

Drill and tap in two locations 3.16” (80 mm [5 at right]) on center of the connector pocket for the included M4 x 0.7 socket head cap screws 0.88” (22,4 mm) deep.

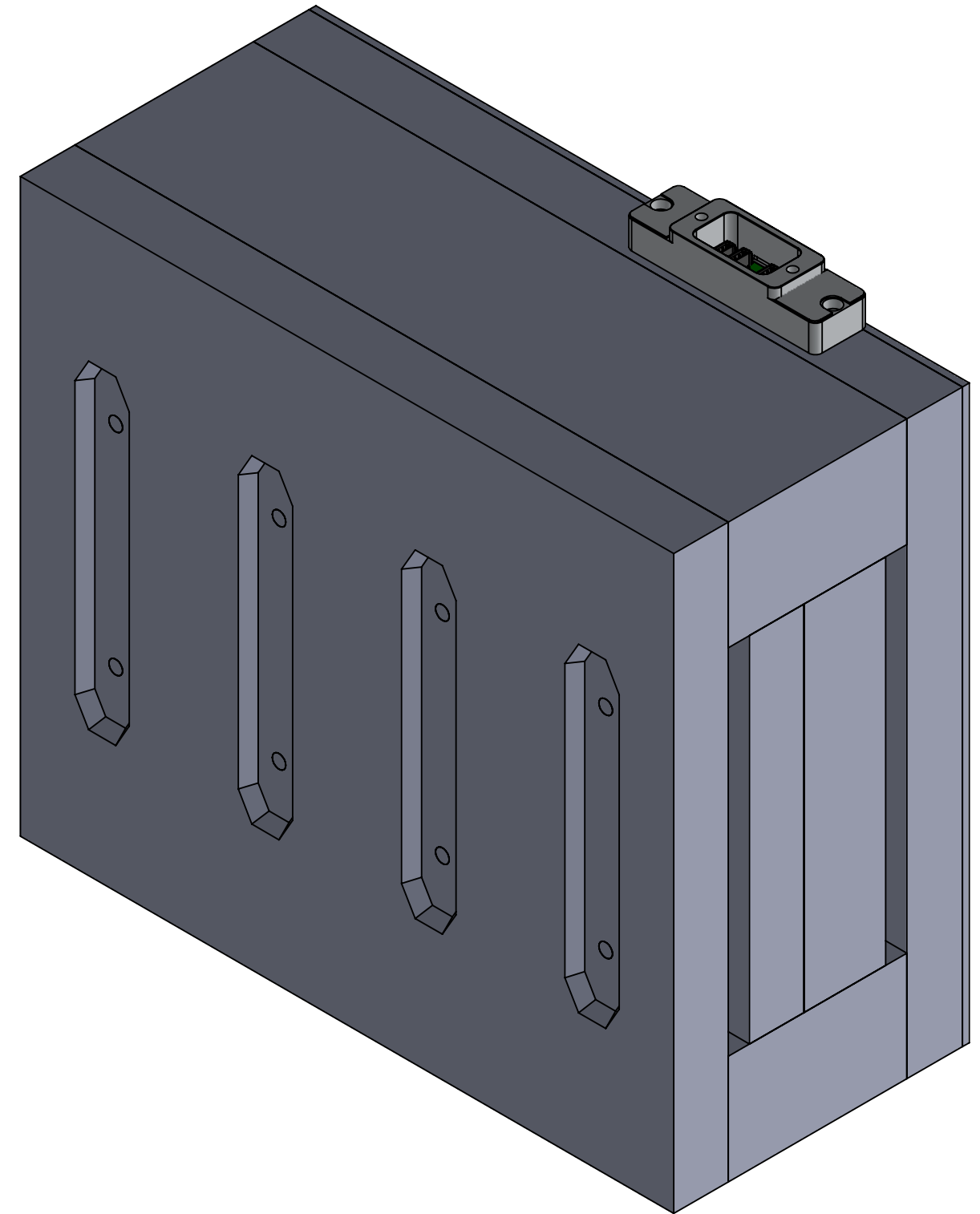
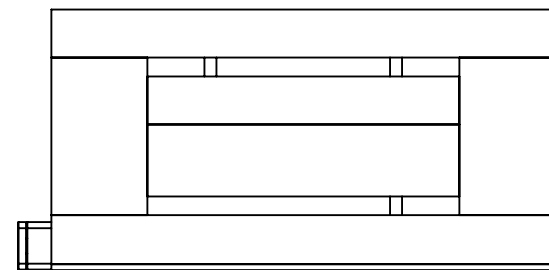


1	2.10” (53,3 mm)
2	0.8” ±.005 (20,3 mm ±,13)
3	0.72” (18,3 mm)
4	0.125” (3,18 mm) R.
5	3.16” (80 mm)

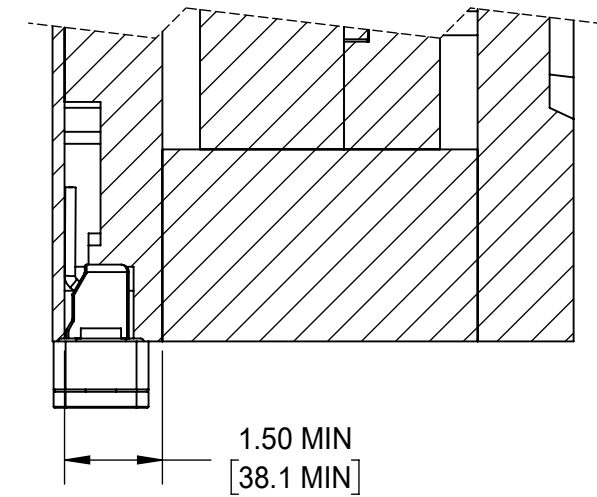
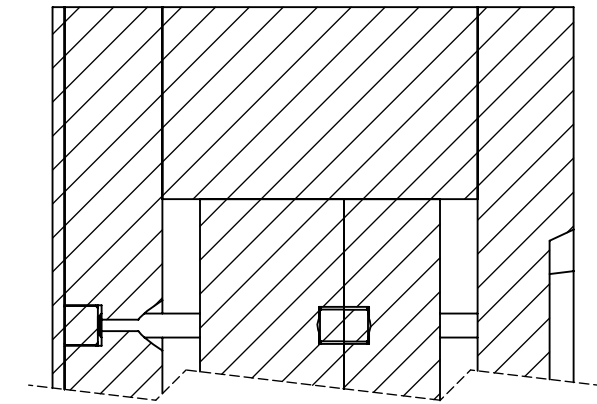
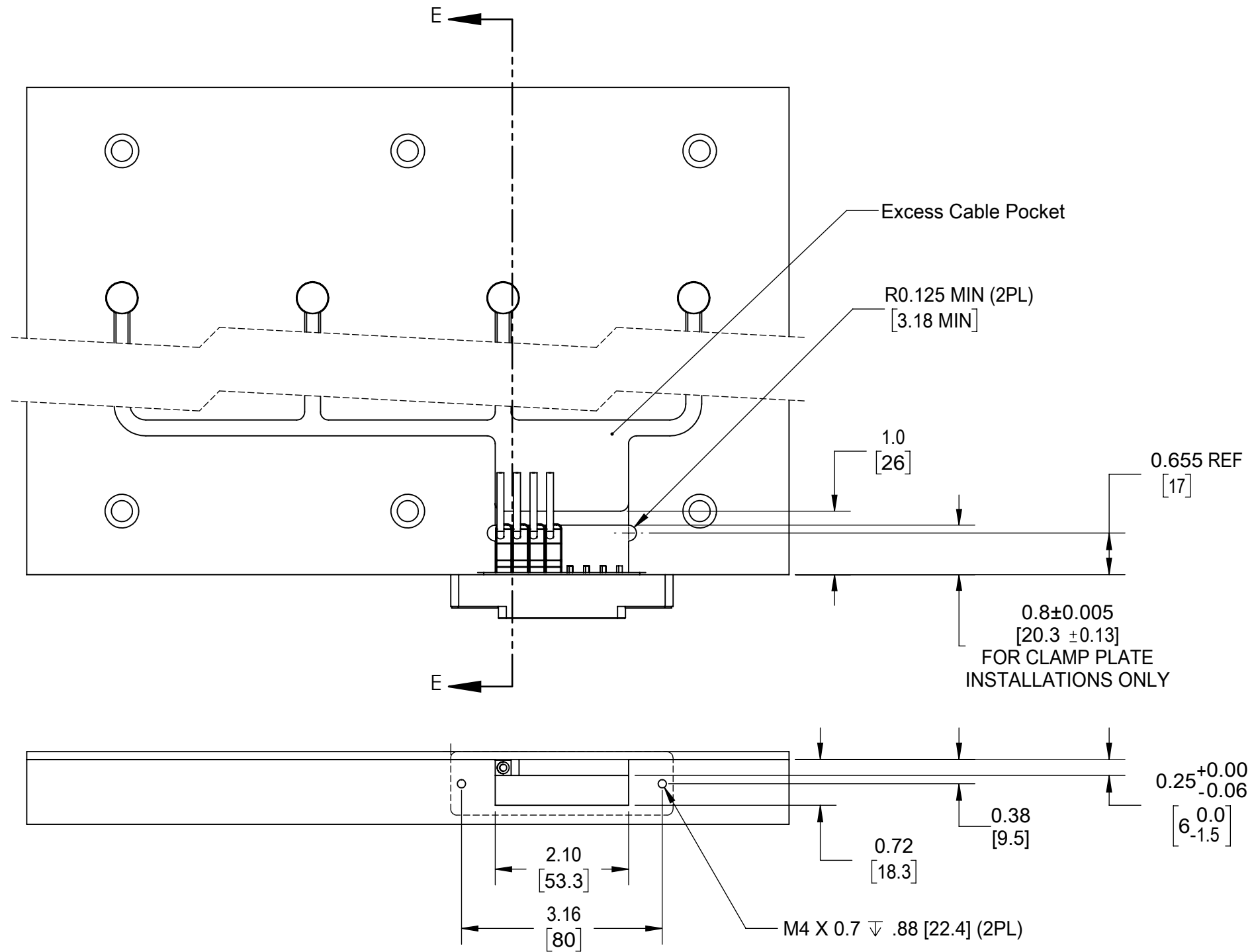
INSTALLATION SPECIFICATIONS (continued)
EJECTOR PLATE INSTALLATIONS



SECTION D-D



INSTALLATION SPECIFICATIONS (continued)
EJECTOR PLATE INSTALLATIONS



SECTION E-E
 SCALE 1 : 2

INSTALLATION SPECIFICATIONS (continued)

EJECTOR PLATE INSTALLATIONS

1. Connector Pocket

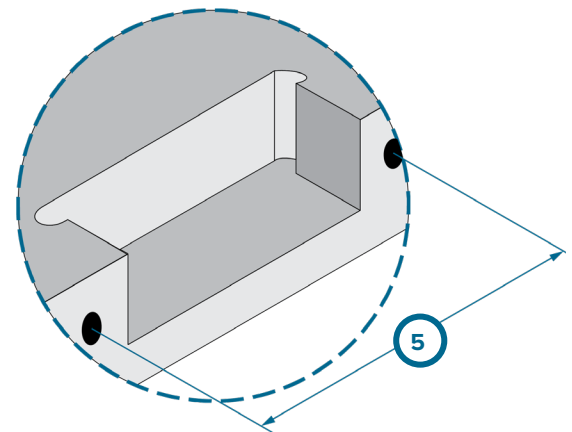
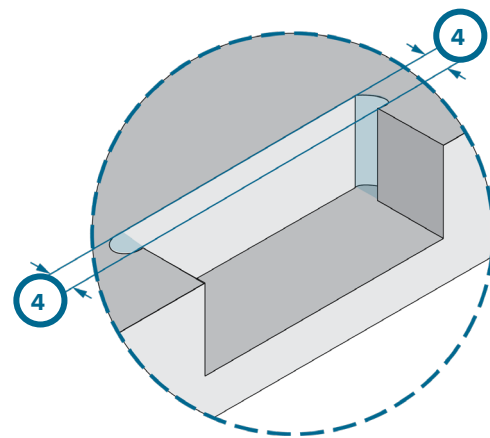
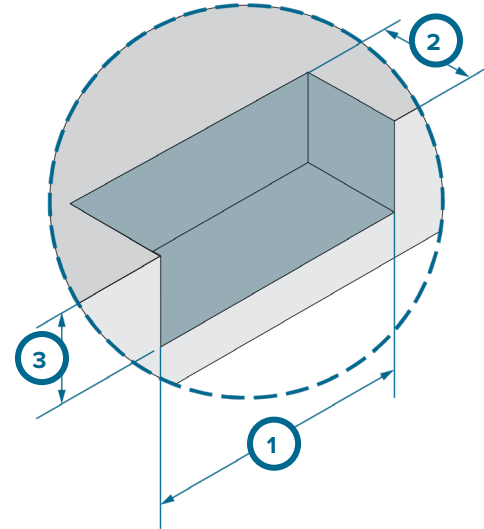
The SG-8 requires two pockets for installation; one pocket provides space for excess cabling, while the other provides space for the sensor connections. The area—or “wall”—between the pockets provides a supporting compression fit for the sensor connections to the plate.

Machine a pocket for the connector into

the mold ejector plate. The SG-8 plate requires a pocket 2.10” (53,4 mm) wide by 0.780” \pm .005 (19,8 mm \pm 0,13) long by 0.72” (18,3 mm) deep for the inner, sensor-connections-side (1–3 at right).

In addition, the connector pocket must have two radii added to each side for ease of installation/removal; machine 0.125” (3,18 mm) two places (4 at right).

Drill and tap in two locations 3.16” (80 mm [5 at right]) on center of the connector pocket for the included M4 x 0.7 socket head cap screws 0.88” (22,4 mm) deep.



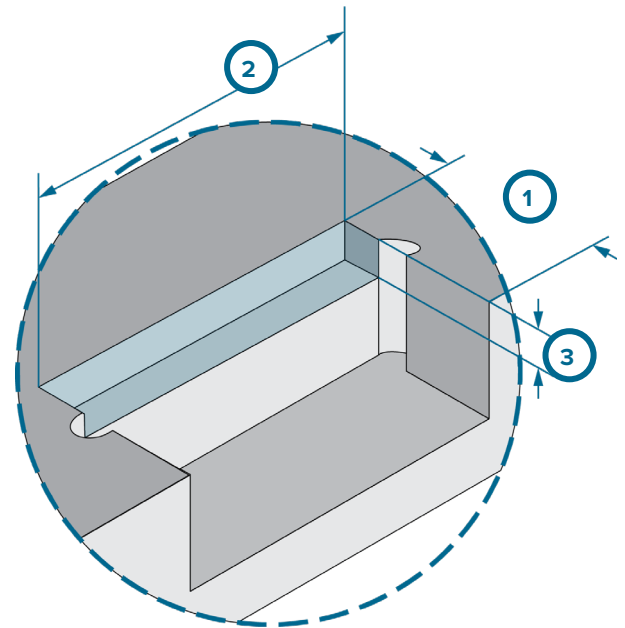
1	2.10” (53,3 mm)
2	0.780” \pm .005 (19,8 mm \pm ,13)
3	0.72” (18,3 mm)
4	0.125” (3,18 mm) R.
5	3.16” (80 mm)

INSTALLATION SPECIFICATIONS (continued)

SENSOR CONNECTOR SUPPORT WALL

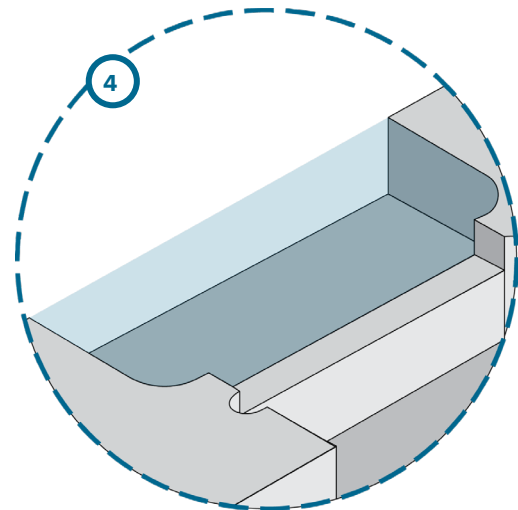
Machine the sensor connector support wall to retain the sensor connectors in the plate.

Machine the wall starting from the clamp plate end into the clamp plate to 1.0" (26 mm) long by 2.10" (53,4 mm) wide by 0.25" +0.0/-0.06 (6 mm +0,0/-1,5) deep (1 at right).
-3 at right).



EXCESS CABLE POCKET

Machine a pocket for the excess cable into the mold clamp plate. The pocket may be as wide, long, and deep as design permits (4 at right).



1	1.0" (26 mm)
2	2.10" (53,4 mm)
3	0.25" +0.0/-0.06 (6 mm +0,0/-1,5)
4	TBD

MOUNTING

Install sensors and cables into mold sensor and cable pockets (refer to sensor manual for more information on sensor and cable pocket requirements).

Carefully install the sensor connectors (1 at right) on the sensor plate (2 at right). The sensor connectors are keyed to ensure the connector is properly aligned with the plate; the top of the plate (3 at right) is indicated by a larger gap in the board, which accommodates the top of the sensor connector.

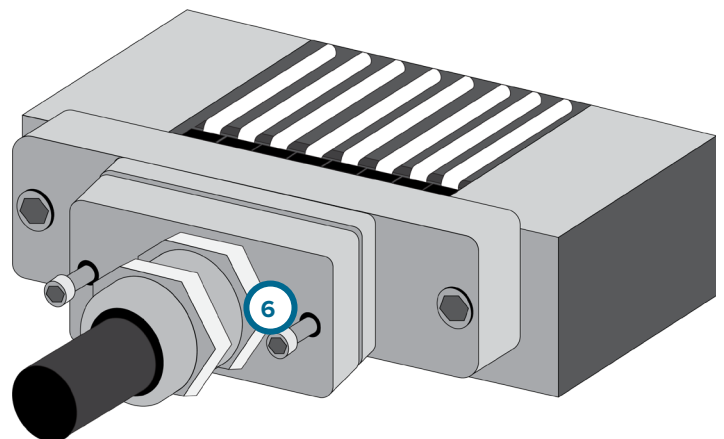
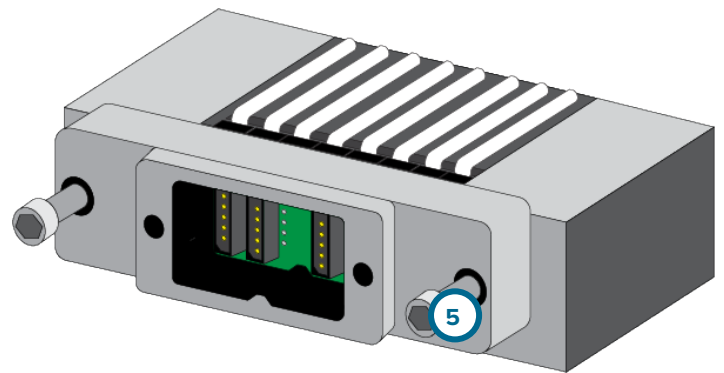
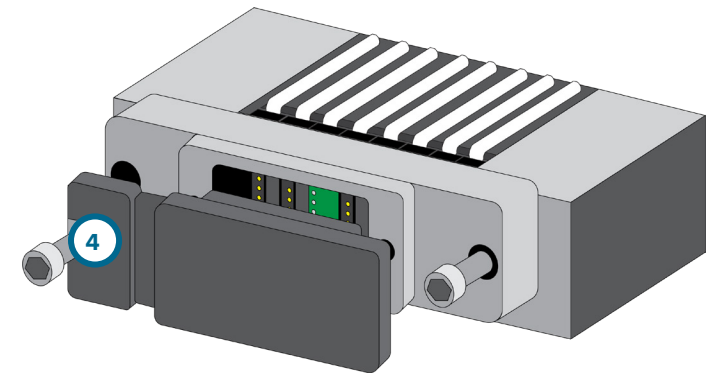
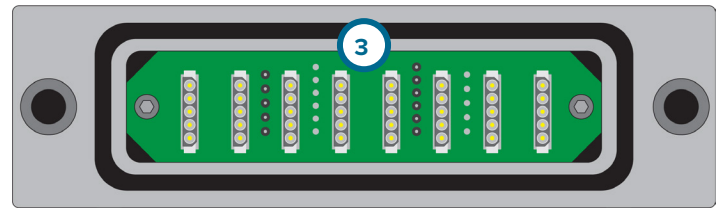
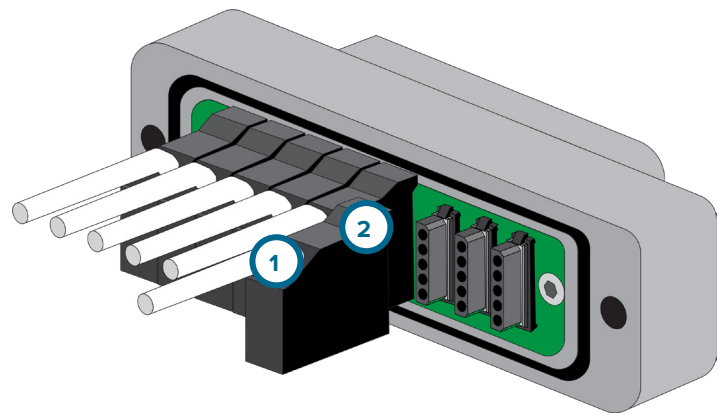
Remove the protective cover (4 at right) from the SG-8 plate, but leave connected to the SG-8 using the left-most, longest connector screw for future use.

Install the SG-8 plate on the mold (5 at right); ensure the plate is firmly fastened to 35–40 in.-lb. (4–4.5 N·m), as doing so compresses the sensor connectors and ensures a firm electrical connection.

Attach the eight-channel strain gage sensor connector cable C-SG/LX8-S-ID (6 at right) to the SG-8 plate with the two captive M5 screws; firmly fasten to 55–65 in.-lb. (6–7 N·m) using an allen wrench to prevent the screws from loosening during operation.

CAUTION Failure to properly tighten the fasteners will cause damage to the connector.

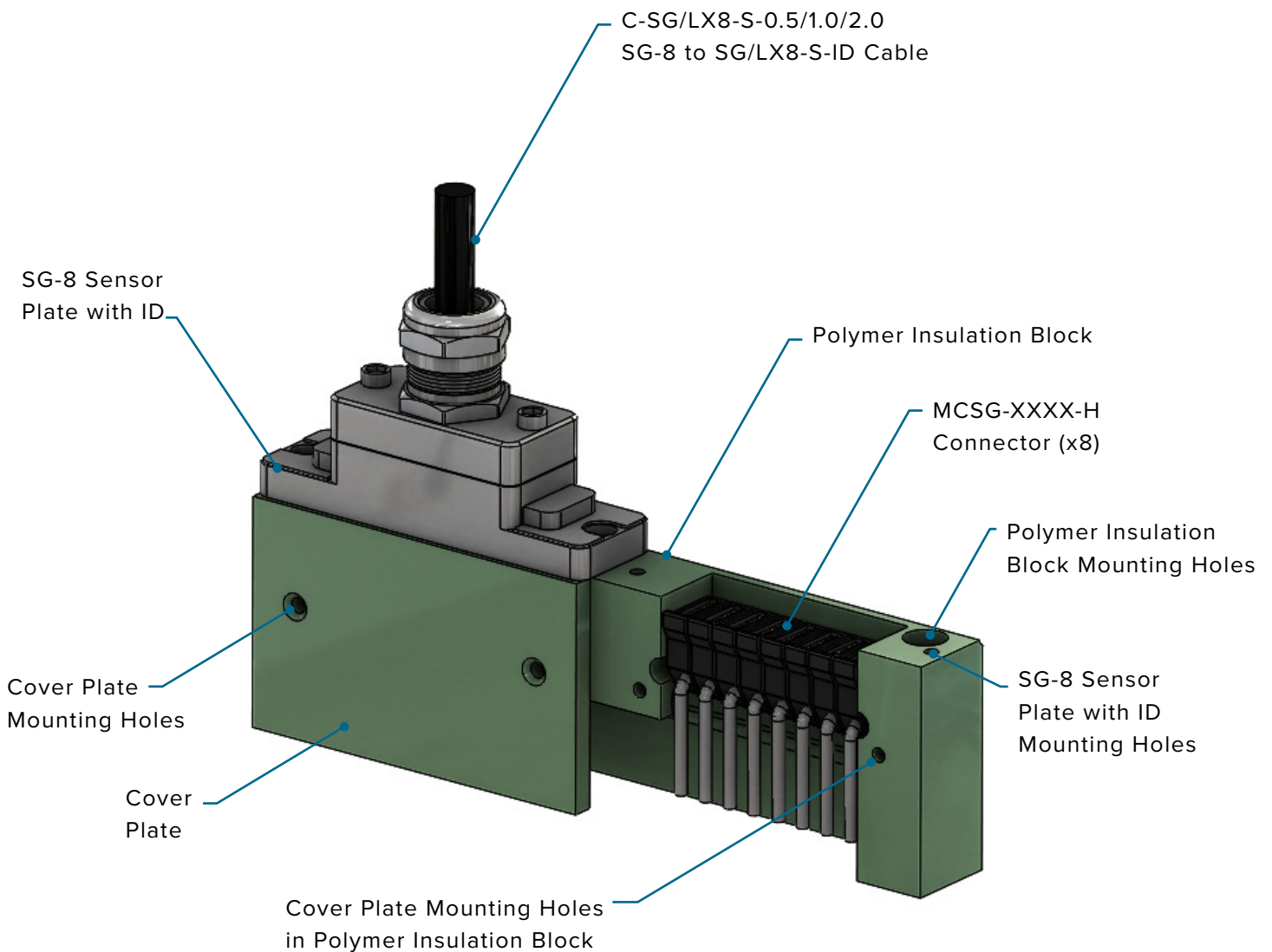
Ensure that all cables are properly secured in cable channels before attaching the retainer or cover plate.



INSTALLATION SPECIFICATIONS (continued)

HIGH-TEMPERATURE SENSOR (MCSG-50/125/500/2000-H) PLATE INSTALLATION

While the high-temperature sensor models (MCSG-125/500/2000-H) include a sensor head which can withstand temperatures of up to 425 °F (220 °C), the sensor connector and plate must be kept below 185 °F (85 °C). In order to meet the temperature conditions for the sensor electronics in the sensor case, a riser can be constructed on which to mount the plate—provided that there is adequate space on the mold and clearance for all components. The following depicts such an installation. For assistance in designing an appropriate installation to prevent heat damage to the sensor electronics, contact RJG customer support (“Customer Support” on page 25).



MAINTENANCE

CLEANING

REGULAR CLEANING

Pull sensors from the mold and clean out the pockets and channels when a mold is pulled for preventative maintenance. Sensors must be installed in pockets free from oil, dirt, grime, and grease.

TESTING & CALIBRATION

The Lynx Eight-Channel Strain Gage Sensor Adapter SG/LX8-S-ID requires no calibration. Follow all instructions and recommendations for individual sensor testing and calibration for optimal operation.

SENSOR TESTING

1. Sensor PreCheck

The Sensor PreCheck provides diagnostics on typical sensor problems such as sensor drift, preload, and zero shift, and can also detect sensor installation errors caused by improper pocket dimensions, damaged wires, and damaged sensor heads. A test report with sensor configuration can be emailed or printed from the device. This device allows testing of up to thirty-two sensors at one time and can verify that a force was applied to the sensor.



2. eDART Software—Raw Data Viewer

The eDART Raw Data Viewer displays the status of the sensor, either Valid, No Reply, Stale, or Invalid.

- A Valid sensor has raw counts that change when force is applied to the sensor; this indicates a properly working sensor.
- A No Reply sensor is not communicating with the eDART; the sensor may be unplugged.
- A Stale sensor indicates a sensor that is unused.
- An Invalid sensor will indicate a Failure of either Over-range (Ovrng) or Under-range (Undrng). The Ovrng indicates the sensor's calibration has changed too far in a positive direction, outside of the upper specification. The Undrng indicates that the sensor's calibration has changed too far in a negative direction, and the sensor may report a number below zero when load is applied.

S/N	Signal	Attached to	Type	Location	Value	Raw	Accuracy	Status	Last Cnt	Failure
00 075	00002.2	Machine	Control Output	Not Used	0			Stale	138.399	
00 075	00002.1	Machine	Control Output	V->P Transfer	0			Stale	138.399	
00 060	00124.1	Machine	Barrel Temperature	Adapter Zone	0.000000	0	0.10 %	Invalid	137.114	Ovrng
00 060	00118.1	Machine	Plastic Pressure	Post Gate #AGCS	0.000000	0	0.10 %	Valid	137.063	
00 001	00019.1	Mold	Ejector Pin Force	Mid Cavity	-2.442	-4	1.21 %	No Reply	148.729	
00 001	00016.1	Mold	Ejector Pin Force	End of Cavity	80026	131083	1.21 %	No Reply	152.475	Ovrng
00 000	00034.1	Machine	Hydraulic Pressure	Braking	11.90	13	0.23 %	Valid	281.020	
00 000	00023.1	Machine	Hydraulic Pressure	Injection	21.98	30	0.36 %	Valid	281.037	
00 000	00011.4	Machine	Seq. Module Input	Mold Clamped	ON	1		Valid	137.341	
00 000	00011.3	Machine	Seq. Module Input	First Stage	0			Valid	137.341	
00 000	00011.2	Machine	Seq. Module Input	Screw Run	0			Valid	137.341	
00 000	00011.1	Machine	Seq. Module Input	Injection Forward	0			Valid	137.341	
00 000	00003.2	Machine	Velocity	Injection	0.000000	0	0.04 %	Valid	133.367	
00 000	00003.1	Machine	Stroke	Injection	0.000000	0	0.04 %	Valid	133.367	

WARRANTY

RJG, INC. STANDARD WARRANTY

RJG, Inc. is confident in the quality and robustness of the SG-8, and so are offering a one-year warranty. RJG's eight-channel strain gage sensor adapter is guaranteed against defects in material and workmanship for one year from the original date of purchase. The warranty is void if it is determined that the adapter was subjected to abuse or neglect beyond the normal wear and tear of field use, or in the event the adapter box has been opened by the customer.

PRODUCT DISCLAIMER

RJG, Inc. is not responsible for the improper installation of this equipment, or any other equipment RJG manufactures.

Proper RJG equipment installation does not interfere with original equipment safety features of the machine. Safety mechanisms on all machines should never be removed.

COMMON ERRORS

INTERMITTENT CONNECTIONS

Intermittent connections or drop outs can be from causes such as damaged or contaminated Lynx connections, improperly seated Lynx connections, damaged transducer cables, or failed sensors (over-pressured, preload, incorrect pocket sensor installation, modules, or grounding issues). All these factors can cause the eDART system to lock up, freeze, shut down, or in rare cases, damage the eDART system unit itself.

When troubleshooting Lynx connections, please make sure that the machine, mold, parts will not be affected while troubleshooting (Example, eDART is controlling Valve Gates or Part Sorting).

Wear proper PPE when needed to reduce the risks of any potential shocks or ungrounded equipment. Please follow all safety guidelines.

TROUBLESHOOTING SOFTWARE FOR INTERMITTENT CONNECTIONS

Use the Sensor Locations menu and/or the eDART Raw Data Viewer to identify intermittent connections or “dropouts”.

SENSOR LOCATIONS MENU

The Sensor Locations menu shows all sensors and modules connected to an eDART system. Intermittent connections/dropouts can be identified by serial numbers that disappear/reappear on the Sensor locations menu; the sensor or module with the associated serial number(s) is/are experiencing intermittent connection(s)/dropouts.

In addition, if OVRNG or UNDRG readings occur during machine cycling, the sensor could be over-pressured, the sensor is improperly seated in the sensor pocket inside of the mold plate, the sensor is preloaded, or the sensor cable wires are damaged exposed and making contact with the mold steel.

RAW DATA VIEWER EDART TOOL

The Raw Data Viewer shows more detailed information than the Sensor Locations page, and can be used for detecting intermittent connections or dropouts that may not be visible on the Sensor Locations page. For troubleshooting dropouts or intermittent connections ensure that “Only Show Sensors” is selected.

Next, select and highlight “Port 1” under the “Locations” tab in the Raw Data Viewer and right click on the highlighted section. This will open up the “Lynx Port 1 Diagnostics” window, where sensors and/or modules connected to the port will display current data of different existing issues.

The Lynx Port Diagnostics window can display “short streams”. Short Streams happen when the eDART system does not receive a full packet(s) of data from sensors or modules connected to the port. A short stream packet will display as a count in the short stream “count box”, and will indicate a dropout or miscommunication error.

NOTE: Short Streams can show up when connecting or reconnecting sensors. Short streams can also appear in a low numeric value (1–100) on a job if the eDART system has been running for a period of time (typically a week or longer)—this is normal.

If Short Streams are in the 100–1000 range in longer periods of time without connecting or reconnecting sensors, this is an indicator of a dropout or intermittent connection issue(s).

It may be difficult to see which sensor is having the dropout issue. The “Sensor Order Box” to the right-hand side of the Lynx Port Diagnostics window will display the list of serial numbers that are connected to the selected port. If a sensor is dropping out consistently, and for a short period of time, question marks will display where a serial number would be give you the faulty sensor.

If issues persist without being able to identify which sensor is having issue with the Lynx Port Diagnostics, unplug sensors one-by-one from the eDART system to see if the issue will stop occurring.

TROUBLESHOOTING HARDWARE FOR INTERMITTENT CONNECTIONS

If an intermittent connection cannot be identified during troubleshooting within the software, check the hardware using the following information to locate connection issues.

CHECKING eDART SYSTEM LYNX PORTS AND FUSES FOR CONNECTION ISSUES

1. eDART System Lynx Ports

Intermittent connection issues may occur within the eDART system Lynx ports. If short streams are observed on the eDART system Raw Data Viewer “Lynx Port Diagnostics” tool (refer to X), perform the following to troubleshoot connection issues with the eDART system Lynx ports.

Remove both Lynx premium cables (CE-LX5-W) from eDART system Lynx ports one and two; install the Lynx premium cable from eDART system Lynx port one onto Lynx port two, and the Lynx premium cable from eDART system Lynx port two onto Lyn port one.

If short stream counts persist in a port after swapping the Lynx premium cables, one of the eDART system Lynx ports may be damaged.

NOTES *Swapping or reconnecting cables while the eDART system is powered on will cause short streams. Always reset the short streams and other information on the Raw Data Viewer “Lynx Port Diagnostics” window after swapping, reconnecting, or replacing cables. The “reset” option is located at the bottom of the Lynx Port Diagnostics window.*

2. eDART System Fuses

The eDART system Lynx ports one and two have fuses and constant voltage sources chips to help protect from power surges. To check the fuses for Lynx ports one and two, complete the following steps.

- Stop the machine and disconnect the eDART system Lynx ports one and two connections.
- Stop the job and shut down the eDART system.
- Remove the four screws and lid from the of the eDART system and retain.
- On the inside of the eDART system, two fuses for Port 1 & 2 will be present. If the fuses have been blown, replace the fuses with the provided fuses attached to the eDART system lid. Remove the fuses and test with a multimeter to ensure that the fuses are still functioning even if they do not look blown.
- When installing the fuses, use a pair of small tipped pliers to gently squeeze the two tabs on each end of the fuse to ensure proper connectivity.
- Reinstall the lid of the eDART system using the four screws, and reconnect both eDART system Lynx port cables on port one and two.

If issues persist after verifying functionality of the Lynx ports and fuses, check Lynx cables, Lynx cables connectors, and Lynx modules.

CHECKING LYNX CABLES AND CONNECTIONS FOR CONNECTION ISSUES

Intermittent connection issues may occur within the eDART system Lynx premium cables. If short streams are observed on the eDART system Raw Data Viewer “Lynx Port Diagnostics” tool (refer to X), perform the following to troubleshoot connection issues with the eDART system Lynx premium cables.

NOTES *Swapping or reconnecting cables while the eDART system is powered on will cause short streams. Always reset the short streams and other information on the Raw Data Viewer “Lynx Port Diagnostics” window after swapping, reconnecting, or replacing cables. The “reset” option is located at the bottom of the Lynx Port Diagnostics window.*

To check Lynx premium cables and connectors for connection issues, complete the following steps.

- Remove one cable from either Lynx port one or two, and follow the cable path from the eDART system, to the machine, to the mold, to discover any potential damage.

- Verify Lynx premium cable connections are seated with each module or sensor properly.
- Look for possible corrosion, damage, or debris inside of both male and female connections.
- Replace any components that are unsatisfactory.

If the Lynx premium cables, connectors, or connections do not show any signs of the possible issues, continue troubleshooting as described in this chapter.

INTERFERENCE

INTERFERENCE WITH MACHINE INTERFACE MODULES AND SENSORS

If Lynx cable connections from the eDART system to the machine, as well as to the mold or tool, have been checked, but interference continues, check module cabling that interfaces with the machine. Check each module's voltage for input or output and take note of the maximum temperature tolerances. The machine interfacing module tolerances are as follows:

1. Machine Interface Modules

Modules, such as the OR2-M or ID7-M-SEQ, have wires that connect to the inside of a machine, conveyor belt, or robot. These cables are not normally shielded and can be susceptible to electrical noise, interference, and loose connections with the electrical buses in the machine, conveyor belt, or robot. Verifying these connections and having the module wires away from any electrical interference will help improve eDART system performance and any possible dropouts.

LYNX™ SHIELDED MACHINE SEQUENCE MODULE ID7-M-SEQ

Maximum Input Voltage 36 V DC
Minimum Trigger-On Voltage 18 V DC

LYNX™ SHIELDED DUAL-RELAY OUTPUT MODULE OR2-M

Contact Rating 1 A 30 V DC

LYNX™ SHIELDED ANALOG OUTPUT MODULE OA1-M-V

Maximum Output Voltage 0–10 V DC

LYNX™ SHIELDED ANALOG INPUT MODULE IA1-M-V

Maximum Input Voltage 0–10 V DC

Maximum Operating Temperature 140° F for all machine interface modules.

2. Mold/Tool Interfacing Lynx Modules

LYNX™ EIGHT-CHANNEL STRAIN GAGE SENSOR ADAPTER WITH ID SG/LX8-S-ID

Is powered from the eDART system, and provides power to the sensors for information feedback.

Can be prone to power surges if machine or mold is not grounded properly.

INTERFERENCE FROM MOLD SENSORS

Cables can move out of the sensor cable channels inside of a mold or tool during assembly before the retainer plate is installed. This can lead to damaged cables where cable wires get damage and are exposed to the steel of the mold, resulting in electrical shortages or possible interference.

Often, Lynx sensor adapters and electrical cases/boxes (LSB127/159-XXXX models) are installed on a mold and are exposed to excessive heat causing the electronics communications to fail and result in dropouts or damage. When troubleshooting, check the temperature of the mold or tool surface—this also includes the transducer buttons. RJG provides both a normal heat range and a high temperature range of button style transducers.

To detect if dropouts or interference is occurring with a specific transducer, disconnect the Lynx cable to see if short streams still occur. Continue to disconnect Lynx cables from sensors until short streams have stopped occurring. “Reset” the Lynx Port Diagnostics after each disconnection and reconnection.

If all troubleshooting steps fail to identify the cause for intermittent connection or interference issues, please contact RJG Customer Support.

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

www.rjginc.com/support

Contact Support

General Questions RMA Request Sensor Selection & Placement

Have a question? We're here for you! Be sure to check out our knowledge base first to see if you can find the answer to your question there. Or please feel free to reach out to our customer support team anytime at:

Email: support@rjginc.com
Phone: +1(231) 933-8170 Or Toll Free: +1(800) 472-0566
Or complete the form below:

First Name *	Last Name *	Company
First Name*	Last Name*	Company*
Job Title *	Phone *	Email *
Job Title*	Phone Number*	Email Address*

RELATED PRODUCTS

COMPATIBLE PRODUCTS

The SG-8 is compatible with other RJG, Inc. products for use with the eDART process control and monitoring system.

C-SG/LX8-S-0.5/1M/2M

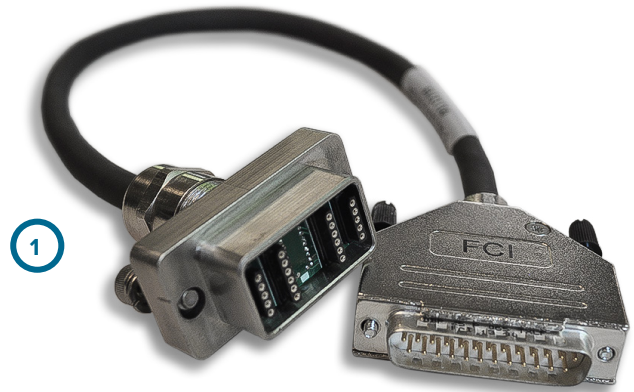
The Lynx strain gage eight-channel connection cable C-SG/LX8-S-0.5/1M/2M (**1 AT RIGHT**) connects the Lynx strain gage eight-channel sensor plate SG-8 to the Lynx eight-channel strain gage adapter with mold ID SG/LX8-s-ID; available in 0.5, 1, and 2-meter (1.5, 3, and 6') lengths.

LYNX STRAIN GAGE EIGHT-CHANNEL ADAPTER WITH MOLD ID SG/LX8-S-ID

The Lynx eight-channel strain gage adapter with mold ID SG/LX8-S-ID (**2 AT RIGHT**) interfaces the MCSG-125/500/2000 line of sensors to the eDART system.

LYNX MULTI-CHANNEL STRAIN GAGE BUTTON SENSORS MCSG-50/125/500/200 AND MCSG-4000

The MCSG-50/125/500/2000 and MCSG-4000 sensors (**3 AT RIGHT**) provide strain gage technology and indirect installation style and are compatible with the mold or machine-mount multi-channel components.



SIMILAR PRODUCTS

RJG, Inc. offers a wide array of piezoelectric cavity pressure sensors and adapters for each application—mold mount, surface mount, single channel, and multi-channel.

LYNX EMBEDDED SENSORS

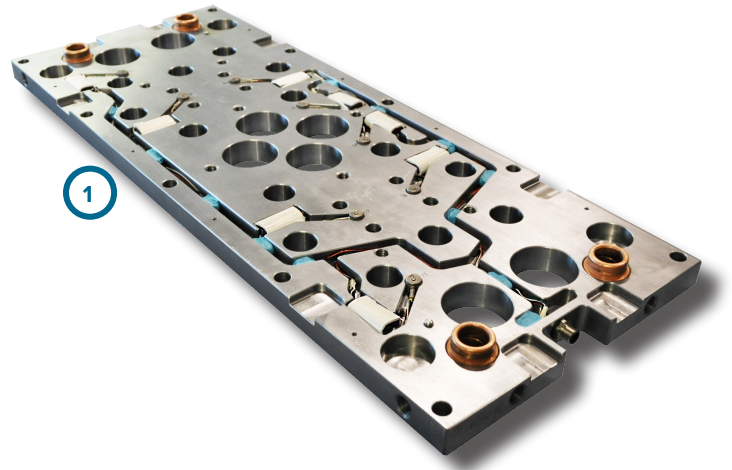
The Lynx embedded sensors (1 at right) LES-B-127-50/125/500/2000 electronics and heads are embedded into the clamp plate, eliminating outside cabling. Each plate includes a single connector that accommodates up to twenty-four sensors. All sensors are fully functional and properly named with a single cable connection from the mold to the eDART or CoPilot system.

PIEZOELECTRIC FOUR-CHANNEL PZ-4 & PZ/LX4F-S

The Four-Channel Piezoelectric Connector PZ-4 and Four-Channel Piezoelectric Adapter PZ/LX4F-S (2 at right) interface up to four piezoelectric sensors to the eDART or CoPilot system with a single connection.

PIEZOELECTRIC EIGHT-CHANNEL PZ-8 & PZ/LX8F-S

The Eight-Channel Piezoelectric Connector PZ-8 and Eight-Channel Piezoelectric Adapter PZ/LX8F-S (3 at right) interface up to eight piezoelectric sensors to the eDART or CoPilot system with a single connection.



2



3



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

IRELAND/UK

RJG TECHNOLOGIES, LTD.

Peterborough, England
P +44(0)1733-232211
info@rjginc.co.uk
www.rjginc.co.uk

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@swg.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 44696 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