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C. Control and Signal Modules

Air Adapters with Lock, Unlock, and RTL Sensor Inputs

1. Product Overview

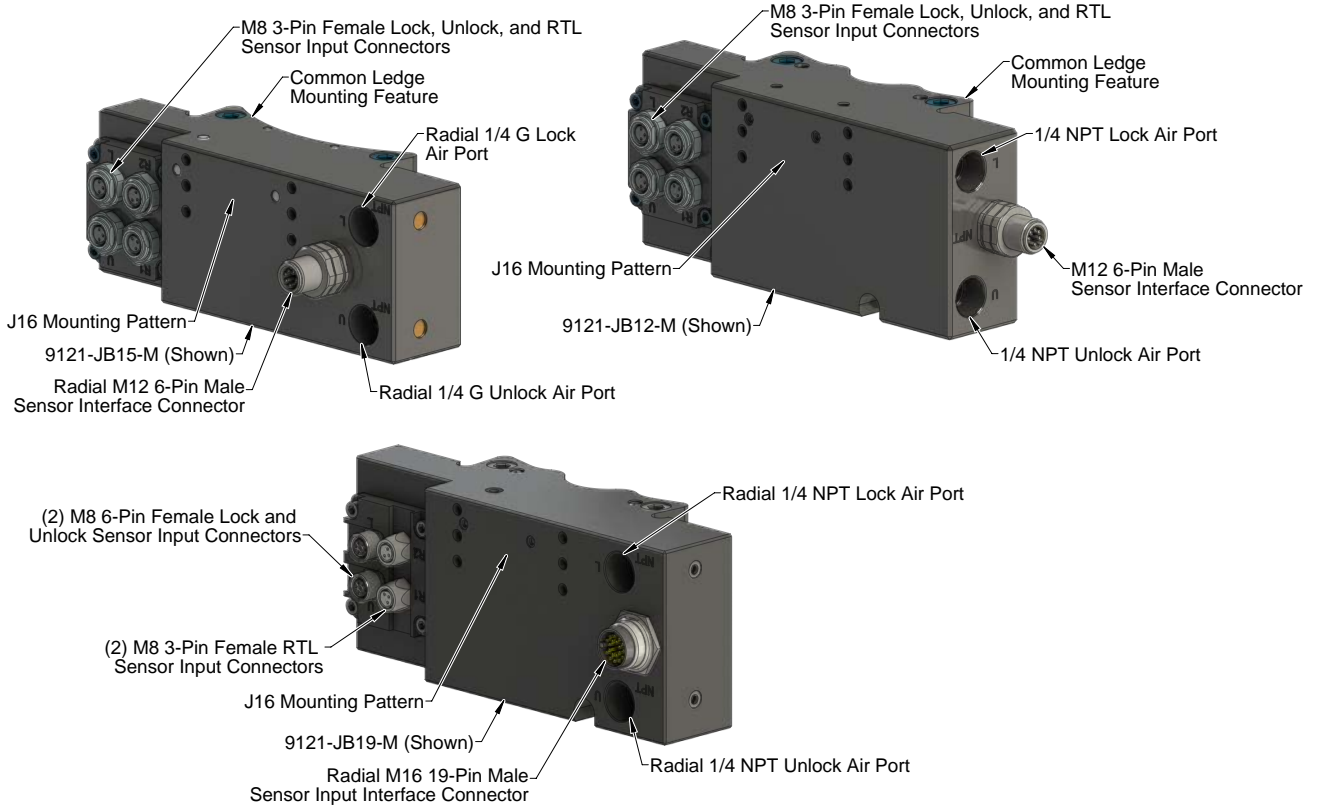
Air adapters are required to provide an air supply to the compatible Tool Changer or Utility Coupler Master for actuation of the locking mechanism. Air adapters come outfitted with integrated Lock, Unlock, and RTL sensor inputs and mount to Flat ‘A’. Many variations of the air adapter are available, depending upon the Tool Changer size and type of porting required by the customer, (see [Table 1.1](#) and [Section 8—Drawings](#) for a complete listing of available adapters and customer drawings).

Air Adapter	Description	Air Port Size	Compatible Tool Changer or Utility Coupler models
9121-JB7-M	No mounting Pattern L, U, & RTL Sensor Inputs	1/4" NPT	QC-113, QC-210, QC-213, GL6L, GL7L
9121-JB9-M	J16 Mounting Pattern, Potted L, U, & RTL Sensor Inputs	1/4" NPT	QC-113, QC-210, QC-213, GL6L, GL7L
9121-JB12-M	J16 Mounting Pattern, Potted L, U, & RTL Sensor Inputs	1/4" NPT	QC-310, QC-313, QC-510, QC-1210
9121-JB10-M	J16 Mounting Pattern, Potted L, U, & RTL Sensor Inputs	G 1/4 (BSPP)	QC-113, QC-210, QC-213, GL6L, GL7L
9121-JB13-M	J16 Mounting Pattern, Potted L, U, & RTL Sensor Inputs	G 1/4 (BSPP)	QC-310, QC-313, QC-510, QC-1210
9121-JB14-M	J16 Mounting Pattern, Potted L, U, & RTL Sensor Inputs	1/4" NPT	QC-1510
9121-JB15-M	J16 Mounting Pattern, Potted, Radial L, U, & RTL Sensor Inputs	1/4" NPT	QC-113, QC-210, QC-213, GL6L, GL7L
9121-JB18-M	J16 Mounting Pattern, Potted L, & U Sensor Inputs	G 1/4 (BSPP)	QC-113, QC-210, QC-213, GL6L, GL7L
9121-JB19-M	J16 Mounting Pattern, Potted for use with NAMUR L, U, & RTL Sensor Inputs	1/4" NPT	QC-1210

The JB19 air adapter is specifically designed for a QC-1210 and supports NAMUR type Lock, Unlock, and RTL sensors. The JB19 air adapter provides a M16 19-pin sensor input interface connection and can report all three lock, unlock and RTL sensors inputs independently.

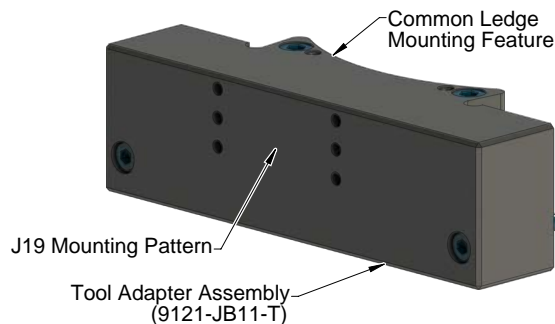
The air adapter may provide a J16 mounting for a control/signal or other electrical Master module. The air adapter provides Lock and Unlock air port connections for the customer air supply. Lock and Unlock air connections to the Tool Changer or Utility Coupler are provided through ports in the ledge mount, O-rings in the body seal the connection. The customer is required to supply a 2-position 4-way or 5-way air valve for the Lock and Unlock air connection, refer to [Section 2.7—Pneumatic Connections](#) for more information, refer to [Figure 1.2](#).

Figure 1.2—Air Adapters with Lock, Unlock, and RTL Sensor Inputs



If the air adapter is used to mount an additional module, a tool spacer block assembly (9121-JB11-T) is required for the Tool side to provide the proper spacing.

Figure 1.3—Tool Spacer Block Assembly



2. Installation

Air adapters and tool spacer block assemblies are typically installed by ATI prior to shipment. The following steps outline the installation or removal.



WARNING: Do not perform maintenance or repair(s) on the Tool Changer or modules unless the Tool is safely supported or placed in the tool stand, all energized circuits (e.g. electrical, air, water, etc.) are turned off, pressurized connections are purged and power is discharged from circuits in accordance with the customer specific safety practices and policies. Injury or equipment damage can occur with the Tool not placed and energized circuits on. Place the Tool in the tool stand, turn off and discharge all energized circuits, purge all pressurized connections, and verify all circuits are de-energized before performing maintenance or repair(s) on the Tool Changer or modules.



CAUTION: Thread locker applied to fasteners must not be used more than once. Fasteners might become loose and cause equipment damage. Always apply new thread locker when reusing fasteners.

2.1 Air Adapter Installation for QC-113, QC-210, QC-213, GL6L, GL7L

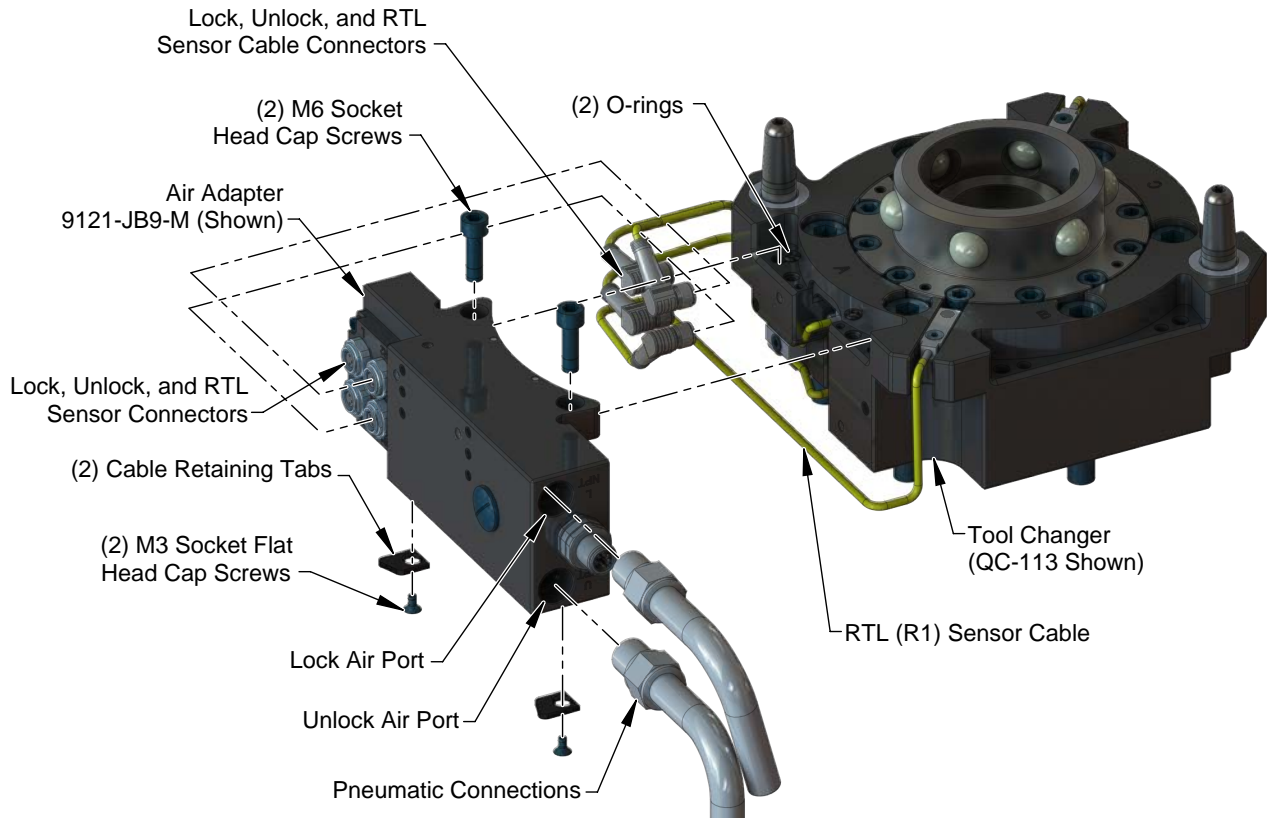
Refer to [Figure 2.1](#).

Tools required: 2 mm and 5 mm hex key, torque wrench

Supplies required: Clean rag, Loctite® 242

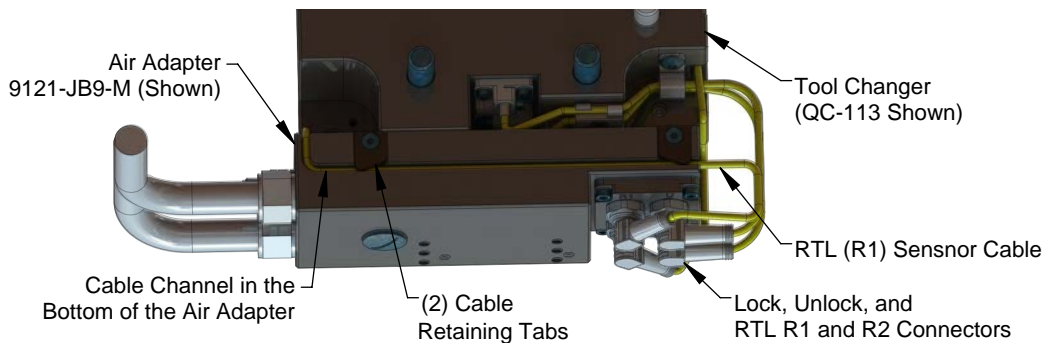
1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
4. Clean the mounting surfaces.

Figure 2.1—Air Adapter Installation (QC-113 Shown)



5. (2) O-rings are required on the Master side Flat 'A' interface. Make sure these O-rings are present and lightly lubricated.
6. Using the ledge feature to place the air adapter adjacent to the 'Flat A' mounting surface. Align the air adapter using the dowels in the bottom of the ledge feature.
7. Apply Loctite 242 to the supplied M6 socket head cap screws. Using a 5 mm hex key secure the air adapter using the M6 socket head cap screws and tighten to 70 in-lbs (7.9 Nm).
8. Remove the (2) M3 socket flat head screws securing the cable retaining tabs to the bottom of the air adapter using a 2 mm hex key
9. Remove the (2) cable retaining tabs from the bottom of the air adapter.
10. Route the RTL (R1) sensor cable through the cable channel in the bottom of the air adapter. Refer to [Figure 2.2](#).
11. Install the (2) M3 socket flat head screws and the (2) cable retaining tabs from the bottom of the air adapter. Tighten to 24 in-oz (0.17 Nm) using a 2 mm hex key.
12. Make pneumatic connections to the air adapter housing as required. Ensure that the connectors are cleaned prior to being secured as appropriate. ATI recommends using a thread sealant such as Loctite 569 or similar.
13. Connect the Lock, Unlock and RTL sensor cables from the Tool Changer to the connectors on the air adapter.
14. Safely resume normal operation.

Figure 2.2—RTL (R1) Sensor Cable Routing



2.2 Air Adapter Removal for QC-113, QC-210, QC-213, GL6L, GL7L0

Tools required: 2 mm and 5 mm hex key

1. If applicable, disconnect the utilities from the attached module.
2. Remove the attached module as described in the module manual.
3. Disconnect the Lock, Unlock, and RTL sensor cables connected to the air adapter.
4. Remove the (2) M3 socket flat head cap screws and the (2) cable retaining tabs from the bottom of the air adapter.
5. Remove the RTL (R1) cable from the channel in the bottom of the air adapter.
6. Remove the (2) M6 socket head cap screws and lift the air adapter off the Tool Changer.
7. Make sure that the O-rings are retained at the Master side Flat 'A' mounting interface.

2.3 Air Adapter Installation for QC-310, QC-313, QC-510, QC-1210

Tools required: 4 mm and 5 mm hex key, torque wrench

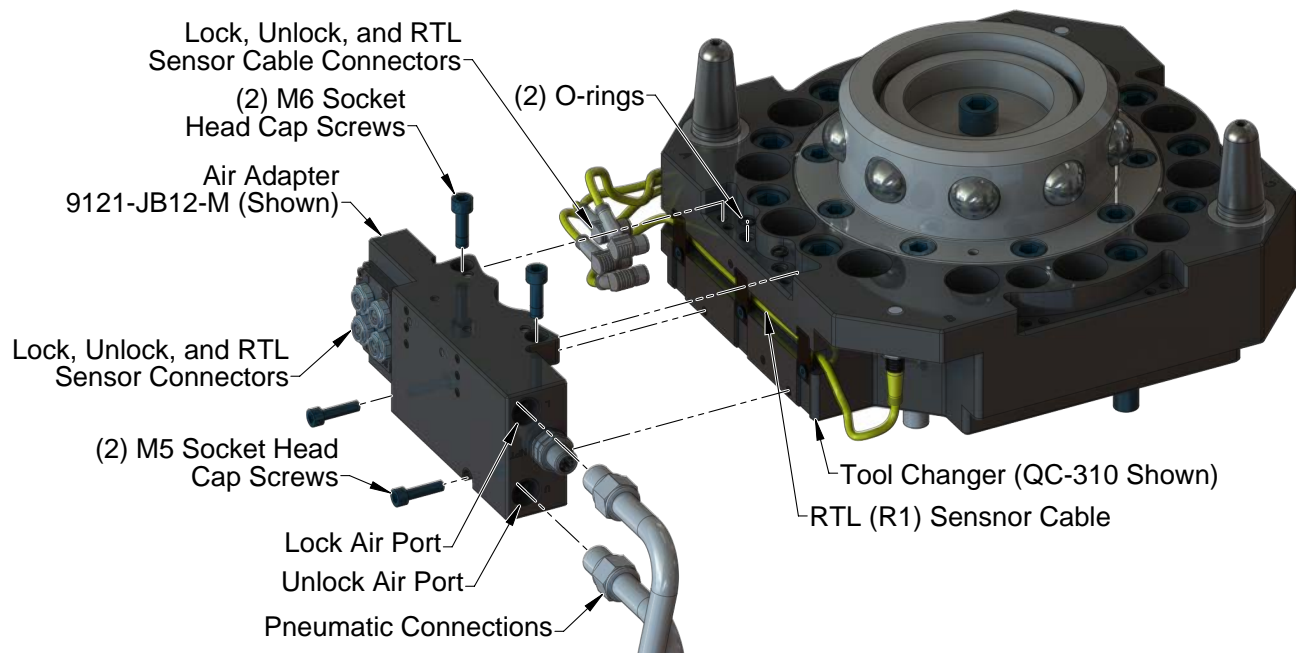
Supplies required: Clean rag, Loctite® 222 and 242

1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
4. Clean the mounting surfaces.
5. (2) O-rings are required on the Master side Flat 'A' interface. Make sure these O-rings are present and lightly lubricated.

NOTICE: Make sure the RTL (R1) sensor cable is completely in the cable channel in the Tool Changer body, so it will not get pinched when installing the air adapter.

6. Using the ledge feature to place the air adapter adjacent to the 'Flat A' mounting surface. Align the air adapter using the dowels in the bottom of the ledge feature.
7. Apply Loctite 242 to the supplied M6 socket head cap screws.
8. Secure the air adapter using the M6 socket head cap screws and tighten to 70 in-lbs (7.9 Nm) using a 5 mm hex key.
9. Apply Loctite 222 to the (2) supplied M5 socket head cap screws.
10. Secure the air adapter using the fasteners and tighten the M5 socket head cap screws to 55 in-lbs (6.2 Nm) using a 4 mm hex key.
11. Make pneumatic connections to the air adapter housing as required. Ensure that the connectors are cleaned prior to being secured as appropriate. ATI recommends using a thread sealant such as Loctite 569 or similar.
12. Connect the Lock, Unlock and RTL sensor cables to the connectors on the air adapter.
13. Safely resume normal operation.

Figure 2.3—Air Adapter Installation (QC-310 Shown)



2.4 Air Adapter Removal for QC-310, QC-313, QC-510, QC-1210

Refer to [Figure 2.3](#).

Tools required: 4 mm and 5 mm hex key, torque wrench

1. Disconnect the utilities from the attached module.
2. Remove the attached module as described in the module manual.
3. Disconnect the Lock, Unlock, and RTL sensor cables connected to the air adapter.
4. Remove the (2) M5 socket head cap screws using a 4 mm hex key.
5. Remove the (2) M6 socket head cap screws using a 5 mm hex key and lift the air adapter off the Tool Changer.
6. Make sure that the O-rings are retained at the Master side Flat 'A' mounting interface.

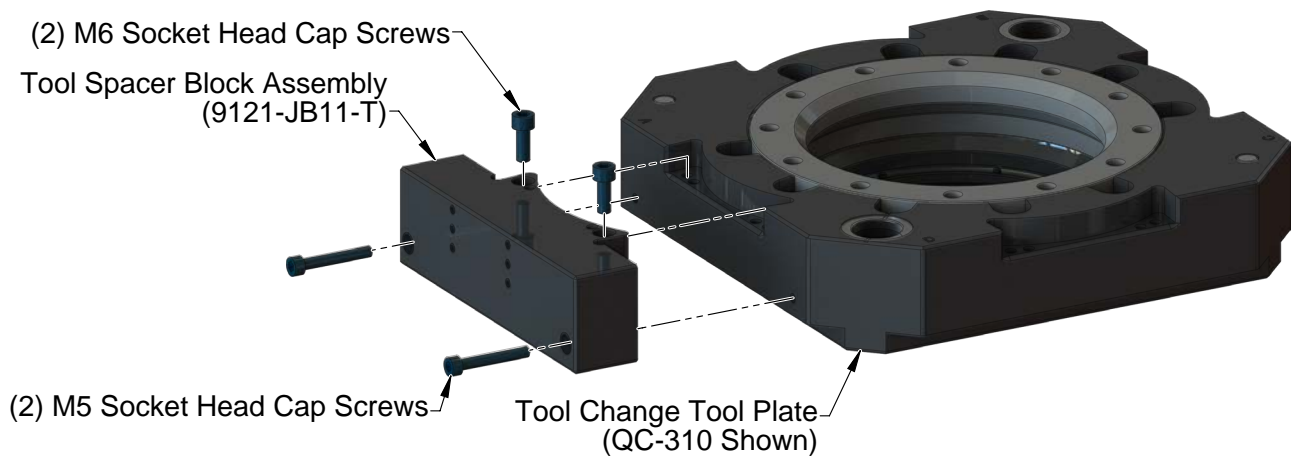
2.5 Tool Spacer Block Assembly Installation

Tools required: 4 mm and 5 mm hex key, torque wrench

Supplies required: Clean rag, Loctite® 222 and 242

1. Place the Tool in a secure location.
2. Uncouple the Master and Tool plates.
3. Turn off and de-energize all energized circuits (e.g. electrical, air, water, etc.).
4. Clean the mounting surfaces.
5. Using the ledge feature to place the tool spacer block assembly adjacent to the 'A' Tool Changer mounting surface. Align the tool spacer block assembly with the Tool Changer using the dowels in the bottom of the ledge feature.
6. Apply Loctite 242 to the supplied M6 socket head cap screws.
7. Secure the tool spacer block assembly using the M6 socket head cap screws and tighten to 89 in-lbs (10.0 Nm) using a 5 mm hex key.
8. Apply Loctite 222 to the (2) supplied M5 socket head cap screws.
9. Secure the tool spacer block assembly using the M5 socket head cap screws and tighten to 55 in-lbs (6.2 Nm) using a 4 mm hex key.
10. Safely resume normal operation.

Figure 2.4—Tool Spacer Block Assembly Installation



2.6 Tool Spacer Block Assembly Removal

Refer to [Figure 2.4](#).

Tools required: 4 mm and 5 mm hex key, torque wrench

1. Disconnect the utilities from the attached modules (if required).
2. Remove the attached module as described in the module manual.
3. Remove the (2) M5 socket head cap screws and the (2) M6 socket head cap screws and lift the tool spacer block assembly off the Tool Changer.

2.7 Pneumatic Connections

Proper operation of the locking mechanism requires a constant supply of clean, dry, non-lubricated air, with the following conditions:

- Pressure range of 60 to 100 psi (4.1 - 6.9 bar) Suggested 80 psi.
- Filtered minimum: 40 microns.

To lock or unlock the Tool Changer, a constant supply of compressed air is required. If there is a loss of air pressure in the locked state, the cam profile prevents the master plate and tool plate from unlocking, and the Tool Changer goes into the fail-safe condition.



CAUTION: Do not use the Tool Changer in a fail-safe condition. Damage to the locking mechanism can occur. Re-establish air pressure and ensure the Tool Changer is in a secure lock position before returning to normal operations.

2.7.1 Valve Requirements and Connections for the Locking Mechanism

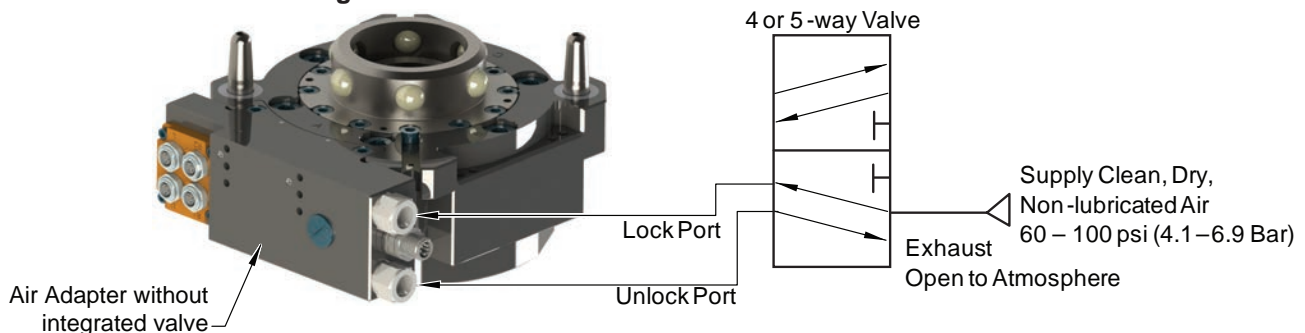
NOTICE: No valve is required when using a valve adapter module. The valve adapter module has an integrated solenoid valve and only requires the customer to supply a single air source to the valve adapter.

A customer supplied 2-position 4-way or 5-way valve with either 4-port or 5-port configuration must be used to actuate the locking mechanism in the Master plate. It is imperative that when air is supplied to the Lock or Unlock Port on the Master plate, that the opposite port be vented to atmosphere (i.e., when air is supplied to the Lock Port, the Unlock Port must be open to the atmosphere.) Failure to vent trapped air or vacuum on the inactive port may inhibit operation of the locking mechanism and prevent coupling or uncoupling.



CAUTION: The locking mechanism will not function properly when connected to a 3-way valve as this type of valve is incapable of venting trapped air or vacuum from within the Tool Changer. This could result in damage to the product, attached tooling, or injury to personnel. Connect the Lock and Unlock supply air to a 2-position 4-way or 5-way valve with either 4-port or 5-port configuration.

Figure 2.5— Lock and Unlock Pneumatic Connections



2.8 Electrical Connections

The electrical connection for customer interface with the Lock, Unlock, and RTL sensors is provided through a interface connector on the air adapter body, refer to [Section 8—Drawings](#) for more information.

3. Operation

It is important that the air adapter be supplied with clean, dry, non-lubricated air supplied between 60 and 100 psi (4.1–6.9 Bar) and filtered at 40 microns or better. The Tool Changer is operated by supplying air to the lock port or the air adapter to lock the Tool Changer. The Lock air must be maintained during operation and the unlock air must be vented to the atmosphere using a 2-position 4-way or 5-way valve, refer to [Section 2.7—Pneumatic Connections](#) for more information. To Unlock the Tool Changer air must be supplied to the unlock port on the air adapter and the lock air must be vented to the atmosphere.

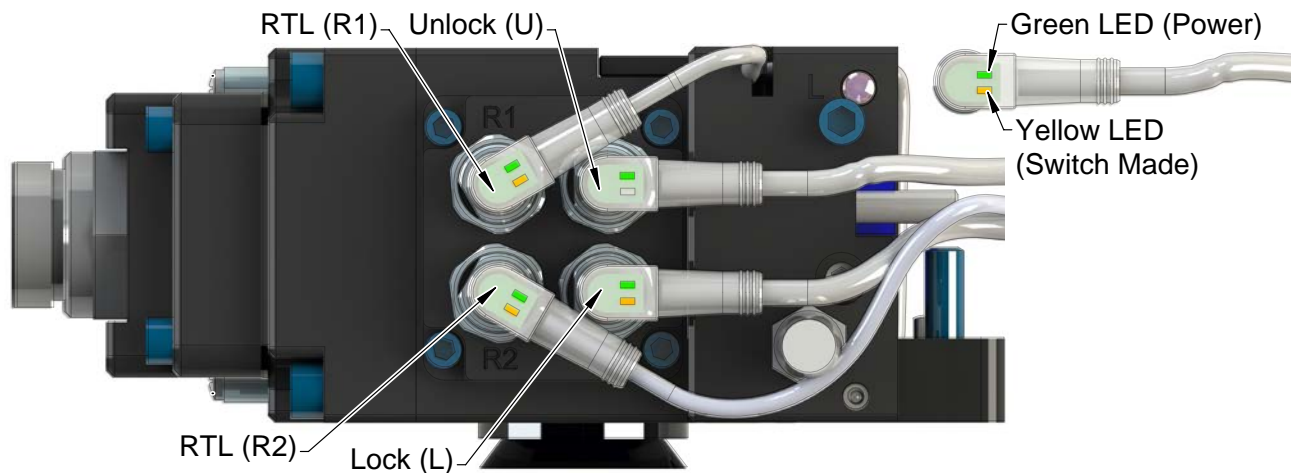
The air adapter provides a M12 or M16 sensor interface connector, the customer can use to monitor the Lock, unlock and RTL sensor outputs to verify proper operation of the Tool Changer.

3.1 Lock, Unlock, and RTL Sensor Cable LED Behavior

The Lock, Unlock, and RTL sensor cables are equipped with two LEDs. The Green LED indicates the sensor has power and the yellow LED indicates the switch has been made. The LED behavior is affected by the control/signal module.

Table 3.1—Sensor Cable LED Behavior for Common Tool Changer Positions				
Tool Changer Position	Sensor cable LED Behavior			
Unlocked (Tool Changer Master plate free of stand with no Tool plate attached)	RTL (R1) Sensor	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF	<input checked="" type="checkbox"/> ON <input checked="" type="checkbox"/> ON	Unlock (U) Sensor
	RTL (R2) Sensor	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF	Lock (L) Sensor
Ready to Lock (Tool Changer Master plate with Tool plate parallel and at a distance of 1.22 mm or less from each other)	RTL (R1) Sensor	<input checked="" type="checkbox"/> ON <input checked="" type="checkbox"/> ON	<input checked="" type="checkbox"/> ON <input checked="" type="checkbox"/> ON	Unlock (U) Sensor
	RTL (R2) Sensor	<input checked="" type="checkbox"/> ON <input checked="" type="checkbox"/> ON	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF	Lock (L) Sensor
Locked (Tool Changer Master plate with Tool plate attached in fully locked position)	RTL (R1) Sensor	<input checked="" type="checkbox"/> ON <input checked="" type="checkbox"/> ON	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF	Unlock (U) Sensor
	RTL (R2) Sensor	<input checked="" type="checkbox"/> ON <input checked="" type="checkbox"/> ON	<input checked="" type="checkbox"/> ON <input checked="" type="checkbox"/> ON	Lock (L) Sensor
Missed Tool (Tool Changer Master plate locked with no Tool plate attached)	RTL (R1) Sensor	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF	Unlock (U) Sensor
	RTL (R2) Sensor	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF	<input checked="" type="checkbox"/> ON <input type="checkbox"/> OFF	Lock (L) Sensor

Figure 3.1—Lock, Unlock, and RTL Sensor cable LED Behavior (Shown in Locked Position)



(Control module shown for reference only)

4. Maintenance

Air adapters should require no maintenance. There are no wear components, the sensor connections should be inspected and tighten if necessary. Pneumatic connection should be inspected for leaks or damage to hoses.



WARNING: Do not perform maintenance or repair(s) on the Tool Changer or modules unless the Tool is safely supported or placed in the tool stand, all energized circuits (e.g. electrical, air, water, etc.) are turned off, pressurized connections are purged and power is discharged from circuits in accordance with the customer specific safety practices and policies. Injury or equipment damage can occur with the Tool not placed and energized circuits on. Place the Tool in the tool stand, turn off and discharge all energized circuits, purge all pressurized connections, and verify all circuits are de-energized before performing maintenance or repair(s) on the Tool Changer or modules.

5. Troubleshooting and Service Procedures

The following section provides troubleshooting information to help diagnose conditions with the Tool Changer or air adapter and service procedures to help resolve these conditions.

5.1 Troubleshooting

Follow the suggested actions listed in [Table 5.1](#) when attempting to troubleshoot the air adapter. If issues persist, contact your ATI representative.

Symptom	Cause	Resolution
Tool Changer will not Lock / Unlock or operates slowly.	Customer supplied exhaust muffler is clogged.	Check/Replace exhaust muffler; ensure clean air supply.
	No or not enough air pressure on the pneumatic connection.	Make sure Pneumatic connection has minimum pressure, refer to Section 2.7—Pneumatic Connections .
	Loose air adapter or O-rings leaking or missing.	Verify that the fasteners connecting the control/signal module to the air adapter are properly tightened. If air still leaking, remove the air adapter from the Tool Changer and check for air leaks, damaged or missing O-rings. Refer to Section 2.2—Air Adapter Removal for QC-113, QC-210, QC-213, GL6L, GL7L0 or Section 2.4—Air Adapter Removal for QC-310, QC-313, QC-510, QC-1210 .
	Customer supplied Solenoid valve not operating properly	Check customer supplied solenoid valve for damage, proper venting, refer to Section 2.7—Pneumatic Connections .

5.2 Service Procedures

There are no specific service procedures for the air adapter.

6. Serviceable Parts

6.1 Air Adapters

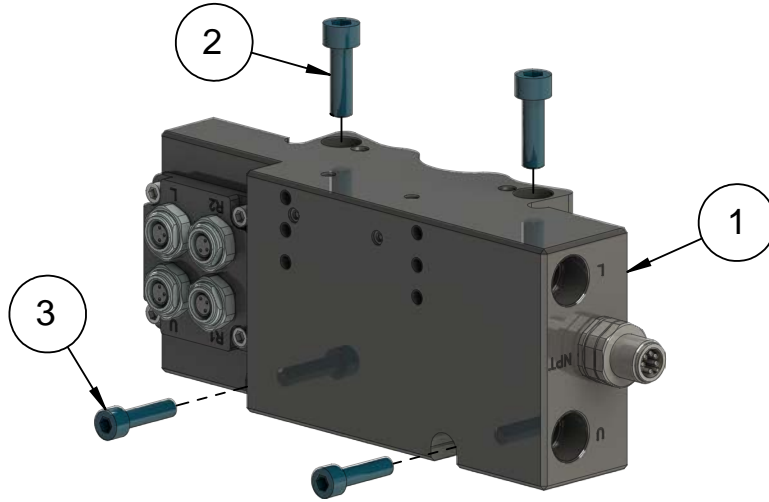


Table 5.2—Air Adapters

Item No.	Qty	Part Number	Description
1	1	9121-JB7-M	Air Adapter with No Mounting Pattern NPT, QC-210
		9121-JB9-M	Air Adapter with J16 Mounting Pattern NPT, QC-210
		9121-JB12-M	Air Adapter with J16 Mounting Pattern NPT, QC-310
		9121-JB10-M	Air Adapter with J16 Mounting Pattern G, QC-210
		9121-JB13-M	Air Adapter with J16 Mounting Pattern G, QC-310
		9121-JB14-M	Air Adapter with J16 Mounting Pattern NPT, QC-1510
		9121-JB15-M	Air Adapter with J16 Mounting Pattern radial NPT, QC-210
		9121-JB18-M	Air Adapter with J16 Mounting Pattern G, QC-210
		9121-JB19-M	Air Adapter with J16 Mounting Pattern NPT, QC-1210, NAMUR Sensor
2	2	3500-1066020-21A	M6 x 20mm Socket Head Cap Screw SS, ND Microspheres
3	2	3500-1064020-21	M5 x 20mm Socket Head Cap Screw SST

6.2 Tool Spacer Block Assembly

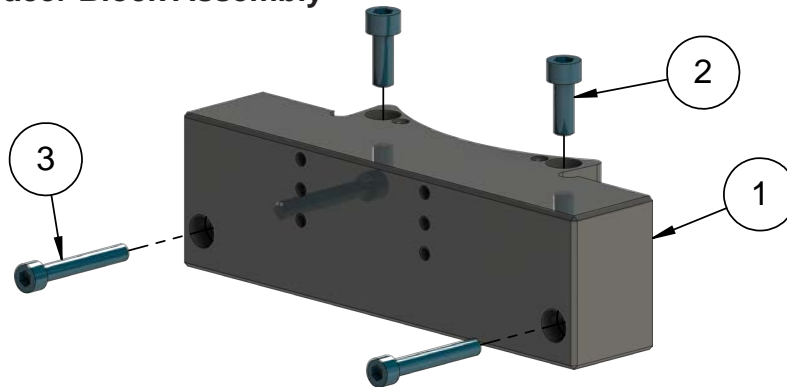


Table 5.3—Tool Spacer Block Assembly

Item No.	Qty	Part Number	Description
1	1	9121-JB11-T	Tool Spacer Block Assembly
2	2	3500-1065016-21	M6 x 16mm Socket Head Cap Screw SST
3	2	3500-1064035-15	M5 x 35mm Socket Head Cap Screw, Blue Dyed Magni

7. Specifications

Table 5.4—Air Adapter Specifications	
Air Pressure	60 - 100 psi (4.1 – 6.9 Bar) clean, dry, non-lubricated air
Air Filtration	40 microns
Interface Connector(s)	(4) M8 3-pin female connector supporting Tool Changer Locked, Unlocked, and Ready-to-Lock Proximity sensor. (1) M12 6-pin male connector supporting sensor interface connection.
Electrical Rating	Lock, Unlock, and Ready-to-Lock Sensors: 10-30 VDC operational voltage, 150 mA Operational Current.
9121-JB7-M	Air Adapter with No Mounting Pattern NPT, L, U, & RTL sensor Inputs QC-113, QC-210, QC-213, GL6L, GL7L
Pneumatic Connection	1/4" NPT
Weight	1.40 lbs (0.635 kg)
9121-JB9-M	Air Adapter with J16 Mounting Pattern NPT, L, U, & RTL sensor Inputs QC-113, QC-210, QC-213, GL6L, GL7L
Pneumatic Connection	1/4" NPT
Weight	1.40 lbs (0.635 kg)
9121-JB12-M	Air Adapter with J16 Mounting Pattern NPT, L, U, & RTL sensor Inputs QC-310, QC-313, QC-510, QC-1210
Pneumatic Connection	1/4" NPT
Weight	1.94 lbs (0.88 kg)
9121-JB10-M	Air Adapter with J16 Mounting Pattern G, L, U, & RTL sensor Inputs QC-113, QC-210, QC-213, GL6L, GL7L
Pneumatic Connection	G 1/4 (BSPP)
Weight	1.60 lbs (0.673 kg)
9121-JB13-M	Air Adapter with J16 Mounting Pattern G, L, U, & RTL sensor Inputs QC-310, QC-313, QC-510, QC-1210
Pneumatic Connection	G 1/4 (BSPP)
Weight	1.95 lbs (0.885 kg)
9121-JB14-M	Air Adapter with J16 Mounting Pattern NPT, L, U, & RTL sensor Inputs QC-1510
Pneumatic Connection	1/4" NPT
Weight	1.40 lbs (0.635 kg)
9121-JB15-M	Air Adapter with J16 Mounting Pattern radial NPT, L, U, & RTL sensor Inputs QC-113, QC-210, QC-213, GL6L, GL7L
Pneumatic Connection	1/4" NPT
Weight	1.40 lbs (0.635 kg)

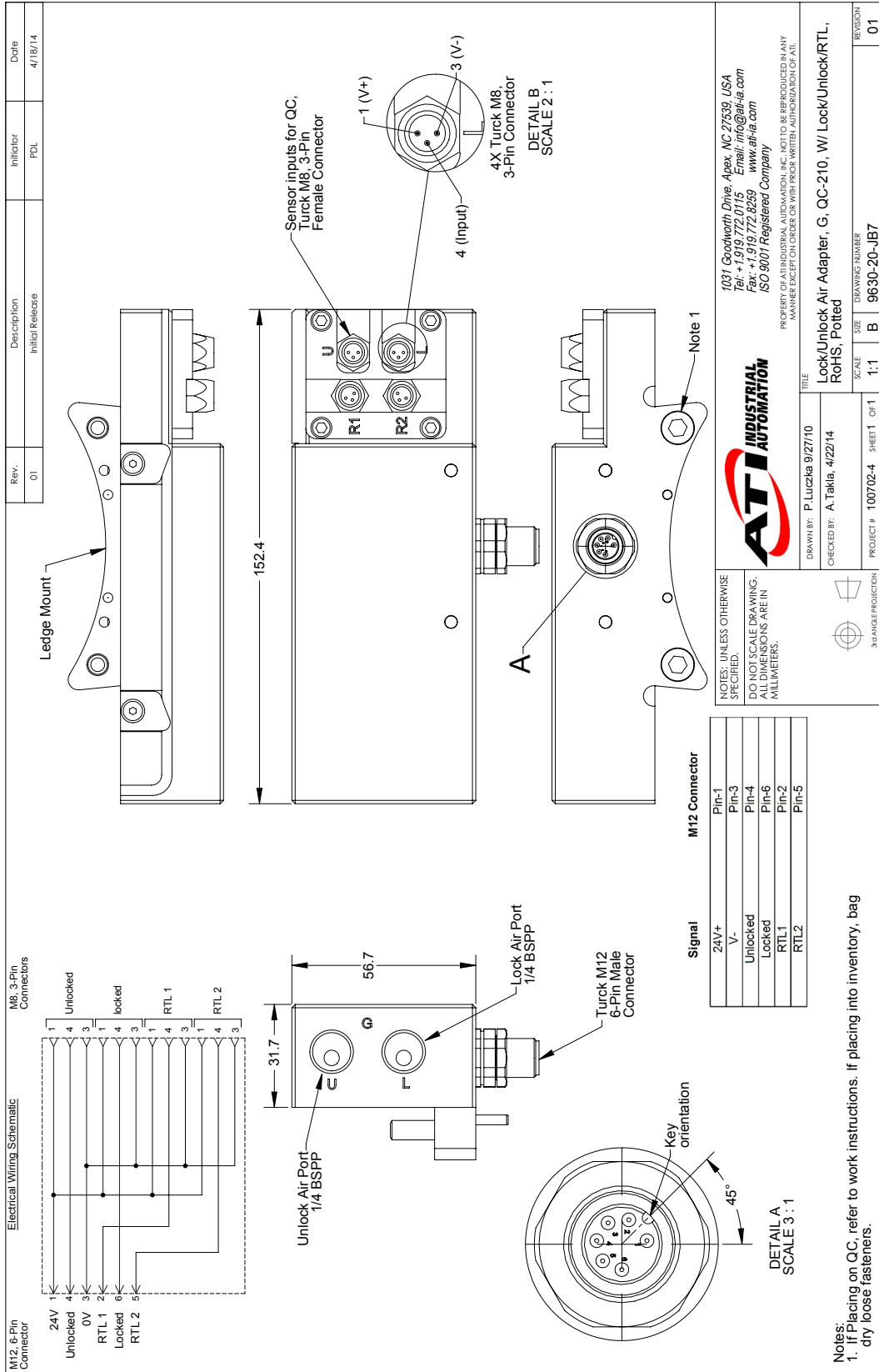
Table 5.5—JB18 Air Adapter Specifications	
9121-JB18-M	Air Adapter with J16 Mounting Pattern G, L, & U sensor Inputs QC-113, QC-210, QC-213, GL6L, GL7L
Air Pressure	60 - 100 psi (4.1 – 6.9 Bar) clean, dry, non-lubricated air
Air Filtration	40 microns
Interface Connector(s)	(4) M8 3-pin female connector supporting Tool Changer Locked, Unlocked, and Ready-to-Lock Proximity sensor. (1) M12 5-pin male connector supporting sensor interface connection.
Electrical Rating	Lock, Unlock, and Ready-to-Lock Sensors: 10-30 VDC operational voltage, 150 mA Operational Current.
Pneumatic Connection	G 1/4 (BSPP)
Weight	1.60 lbs (0.673 kg)

Table 5.6—JB19 Air Adapter Specifications	
9121-JB19-M	Air Adapter with J16 Mounting Pattern NPT, L, U, & RTL sensor Inputs QC-1210
Air Pressure	60 - 100 psi (4.1 – 6.9 Bar) clean, dry, non-lubricated air
Air Filtration	40 microns
Interface Connector(s)	(2) M8 3-pin female connector supporting Tool Changer Ready-to-Lock Proximity sensor. (2) M8 6-pin female connector supporting Tool Changer Locked, and Unlocked Proximity sensor. (1) M16 19-pin male connector supporting sensor interface connection.
Electrical Rating	Lock, Unlock, and Ready-to-Lock Sensors: 10-30 VDC operational voltage, 150 mA Operational Current.
Pneumatic Connection	1/4" NPT
Weight	TBD lbs (TBD kg)

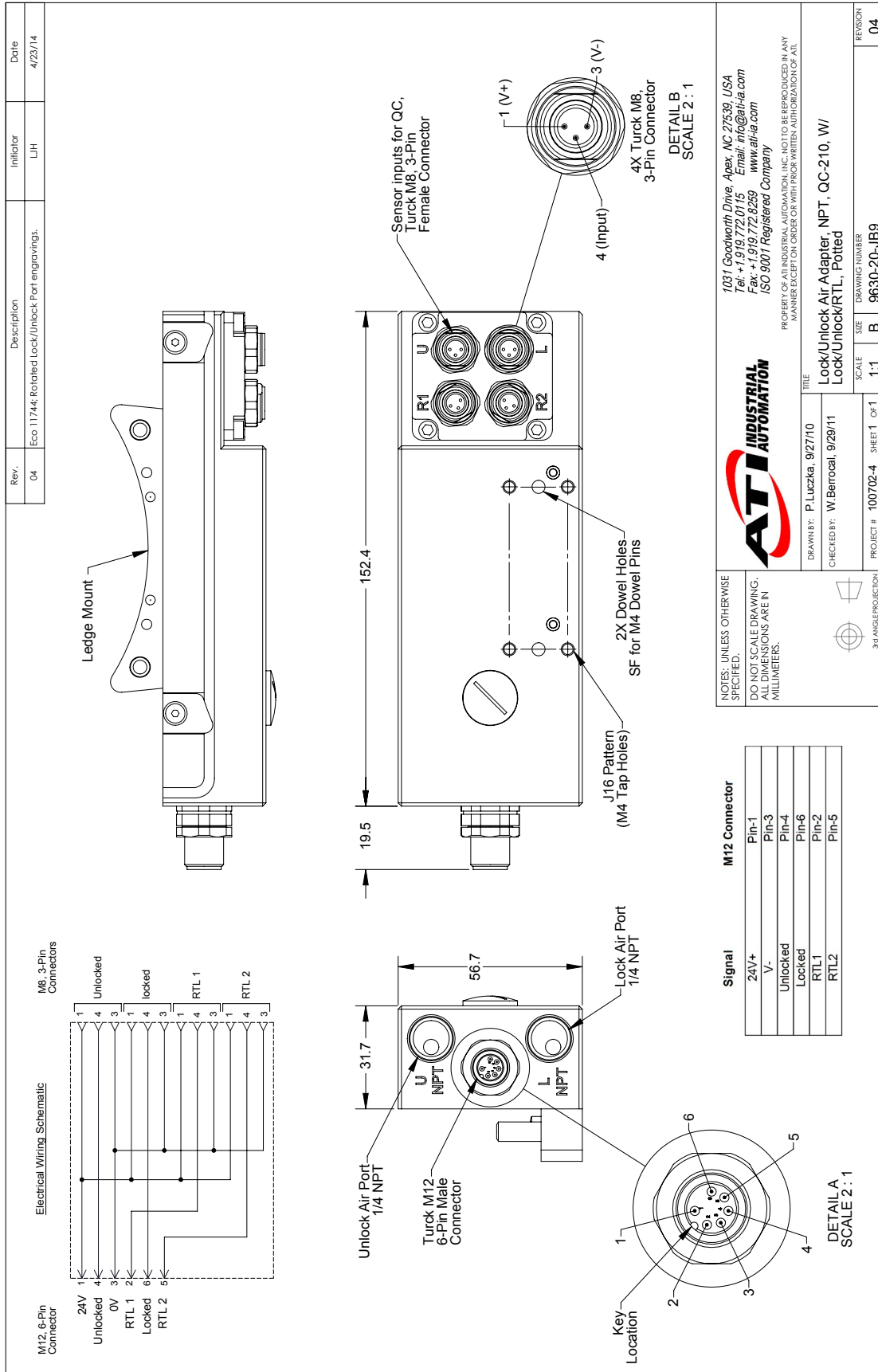
Table 5.7—Tool Adapter Assembly Specifications	
9121-JB11-T	Tool Spacer Block Assembly, QC-210, QC-213, QC-310, QC-313, QC-510, QC-1210
Weight	1.47 lbs (0.667 kg)

8. Drawings

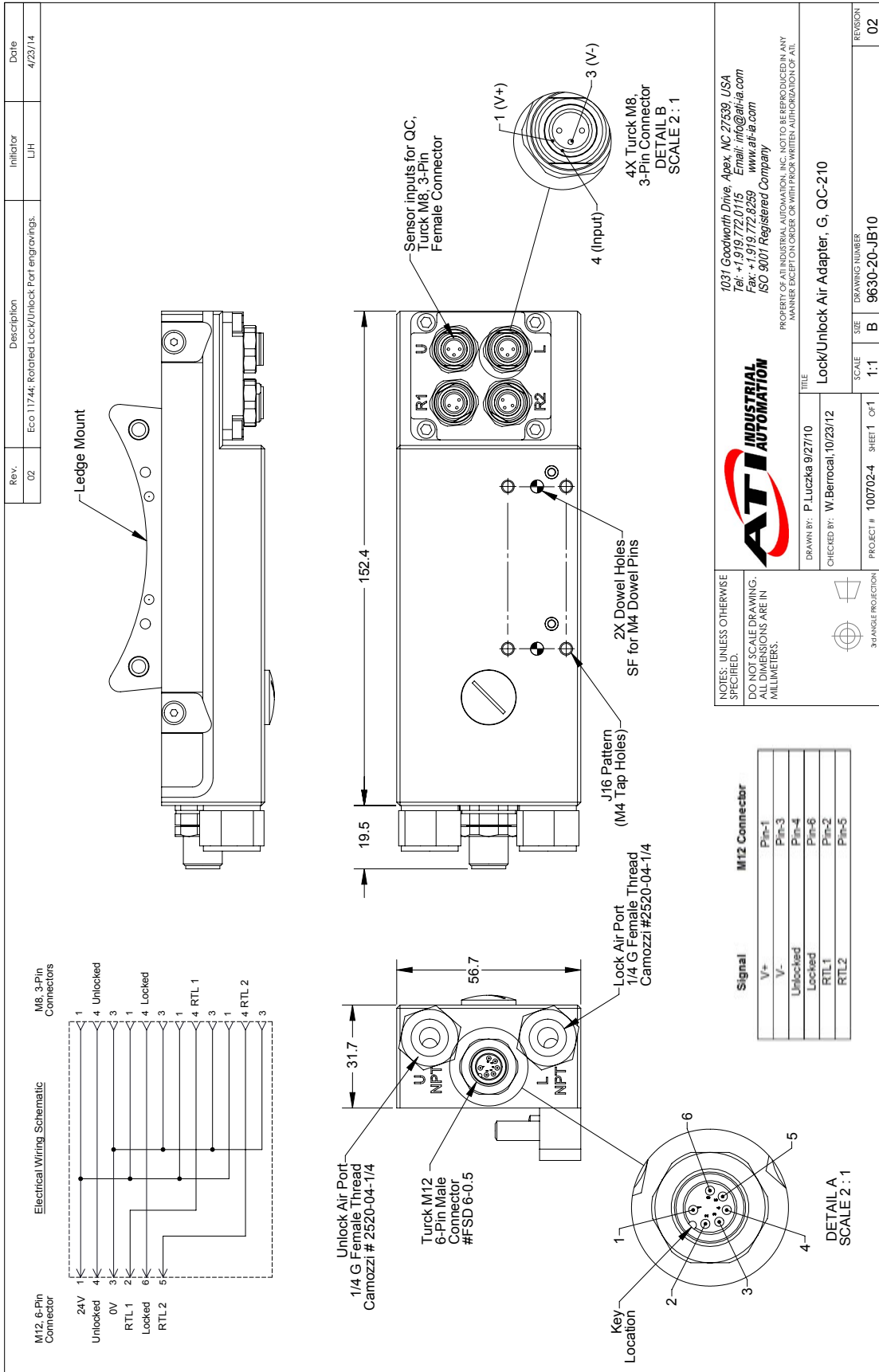
8.1 JB7 w/ G ported, Potted L, U, RTL Sensor Inputs QC-210



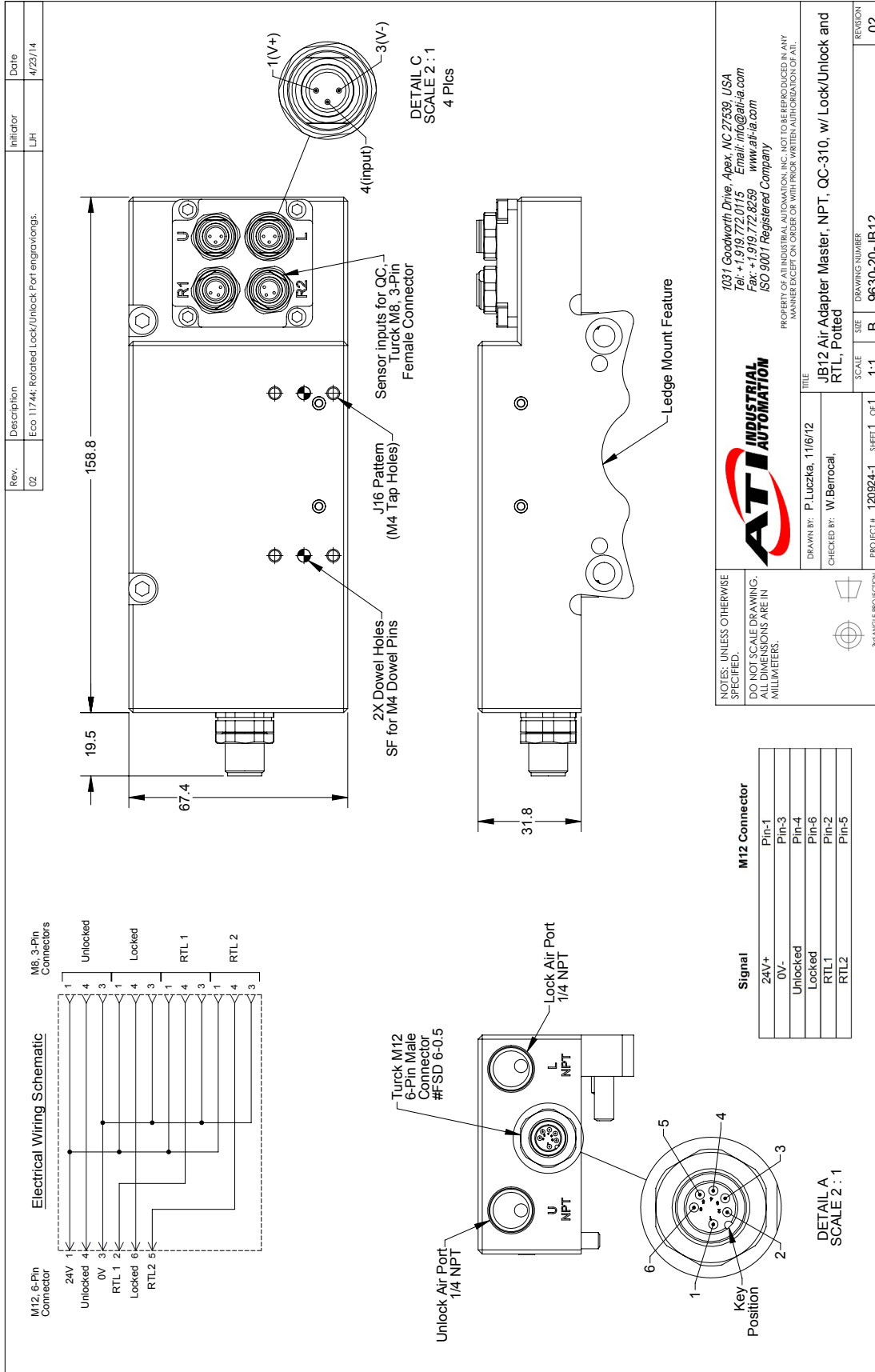
8.2 JB9 w/ 1/4 NPT, J16 Mounting, Potted L, U, RTL Sensor Inputs QC-210



8.3 JB10 w/ 1/4 G, J16 Mounting, Potted L, U, RTL Sensor Inputs, QC-210



8.4 JB12 w/ 1/4 NPT, J16 Mounting, Potted L, U, RTL Sensor Inputs, QC-310



8.6 JB14 w/ 1/4 G, J16 Mounting, Potted L, U, RTL Sensor Inputs, QC-1510

<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">Rev.</th> <th style="width: 50%;">Description</th> <th style="width: 20%;">Initiator</th> <th style="width: 15%;">Date</th> </tr> <tr> <td style="text-align: center;">02</td> <td>Eco 11884: Updated drawing title</td> <td style="text-align: center;">LJH</td> <td style="text-align: center;">2/25/2014</td> </tr> </table>	Rev.	Description	Initiator	Date	02	Eco 11884: Updated drawing title	LJH	2/25/2014		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">ATI INDUSTRIAL AUTOMATION</td> <td style="font-size: small;">1031 Goodworth Drive, Apex, NC 27539, USA Tel: +1 919 772 0115 Fax: +1 919 772 8259 Email: info@ati-ia.com www.ati-ia.com ISO 9007 Registered Company</td> </tr> <tr> <td style="text-align: center;"> DRAWN BY: D.Lawson-1/4/13 CHECKED BY: M.Gleiden-1/9/13 </td> <td style="font-size: x-small;"> NOTES: UNLESS OTHERWISE SPECIFIED: DO NOT SCALE DRAWING. DIMENSIONS ARE IN MILLIMETERS. </td> </tr> <tr> <td style="text-align: center;"> PROJECT # 120314-1 SHEET 1 OF 1 </td> <td style="font-size: x-small;"> DRAWING NUMBER 9630-20-JB14 SCALE 1:1 SIZE B </td> </tr> <tr> <td style="text-align: center;"> TITLE JB14 Air Adapter, NPT, QC-1510AMZ1, w/Lock/Unlock/RTL, Potted </td> <td style="font-size: x-small;"> PROPERTY OF ATI INDUSTRIAL AUTOMATION, INC. NOT TO BE REPRODUCED IN ANY MANNER EXCEPT ON ORDER OR WITH PRIOR WRITTEN AUTHORIZATION OF ATI. </td> </tr> <tr> <td style="text-align: center;"> REVISION 02 </td> <td></td> </tr> </table>	ATI INDUSTRIAL AUTOMATION	1031 Goodworth Drive, Apex, NC 27539, USA Tel: +1 919 772 0115 Fax: +1 919 772 8259 Email: info@ati-ia.com www.ati-ia.com ISO 9007 Registered Company	DRAWN BY: D.Lawson-1/4/13 CHECKED BY: M.Gleiden-1/9/13	NOTES: UNLESS OTHERWISE SPECIFIED: DO NOT SCALE DRAWING. DIMENSIONS ARE IN MILLIMETERS.	PROJECT # 120314-1 SHEET 1 OF 1	DRAWING NUMBER 9630-20-JB14 SCALE 1:1 SIZE B	TITLE JB14 Air Adapter, NPT, QC-1510AMZ1, w/Lock/Unlock/RTL, Potted	PROPERTY OF ATI INDUSTRIAL AUTOMATION, INC. NOT TO BE REPRODUCED IN ANY MANNER EXCEPT ON ORDER OR WITH PRIOR WRITTEN AUTHORIZATION OF ATI.	REVISION 02	
Rev.	Description	Initiator	Date																	
02	Eco 11884: Updated drawing title	LJH	2/25/2014																	
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DRAWN BY: D.Lawson-1/4/13 CHECKED BY: M.Gleiden-1/9/13	NOTES: UNLESS OTHERWISE SPECIFIED: DO NOT SCALE DRAWING. DIMENSIONS ARE IN MILLIMETERS.																			
PROJECT # 120314-1 SHEET 1 OF 1	DRAWING NUMBER 9630-20-JB14 SCALE 1:1 SIZE B																			
TITLE JB14 Air Adapter, NPT, QC-1510AMZ1, w/Lock/Unlock/RTL, Potted	PROPERTY OF ATI INDUSTRIAL AUTOMATION, INC. NOT TO BE REPRODUCED IN ANY MANNER EXCEPT ON ORDER OR WITH PRIOR WRITTEN AUTHORIZATION OF ATI.																			
REVISION 02																				

Electrical Wiring Schematic 	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">Signal</td> <td style="text-align: center;">M12 Connector</td> </tr> <tr> <td style="text-align: center;">24V+</td> <td style="text-align: center;">Pin-1</td> </tr> <tr> <td style="text-align: center;">-</td> <td style="text-align: center;">Pin-3</td> </tr> <tr> <td style="text-align: center;">Unlock</td> <td style="text-align: center;">Pin-4</td> </tr> <tr> <td style="text-align: center;">Locked</td> <td style="text-align: center;">Pin-6</td> </tr> <tr> <td style="text-align: center;">RTL 1</td> <td style="text-align: center;">Pin-2</td> </tr> <tr> <td style="text-align: center;">RTL 2</td> <td style="text-align: center;">Pin-5</td> </tr> </table>	Signal	M12 Connector	24V+	Pin-1	-	Pin-3	Unlock	Pin-4	Locked	Pin-6	RTL 1	Pin-2	RTL 2	Pin-5
Signal	M12 Connector														
24V+	Pin-1														
-	Pin-3														
Unlock	Pin-4														
Locked	Pin-6														
RTL 1	Pin-2														
RTL 2	Pin-5														

8.7 JB15 w/Radial 1/4 NPT J16 Mounting Potted L, U, RTL Sensor Inputs QC-210

Rev. 01	Description Initial Release	Initiator PDL	Date 3/7/2013
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Electrical Wiring Schematic

Notes:

- Customer approval of electrical schematic is required.
- Customer is to approve connector selection and orientation.

Signal	M12 Connector
24V+	Pin-1
0V-	Pin-3
Unlocked	Pin-4
Locked	Pin-6
RTL 1	Pin-2
RTL 2	Pin-5

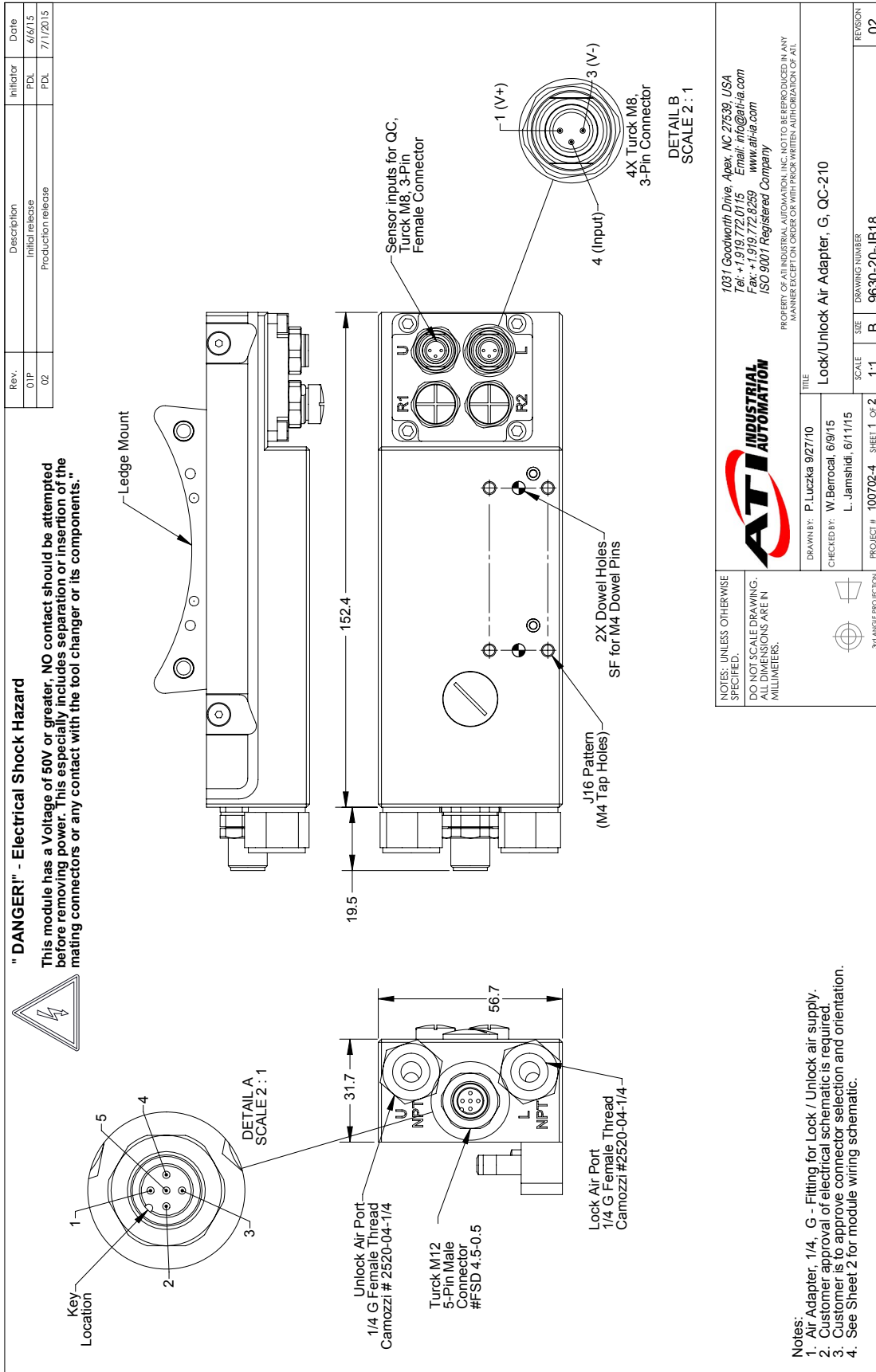
NOTES: UNLESS OTHERWISE SPECIFIED, DO NOT SCALE DRAWING. DIMENSIONS ARE IN MILLIMETERS.

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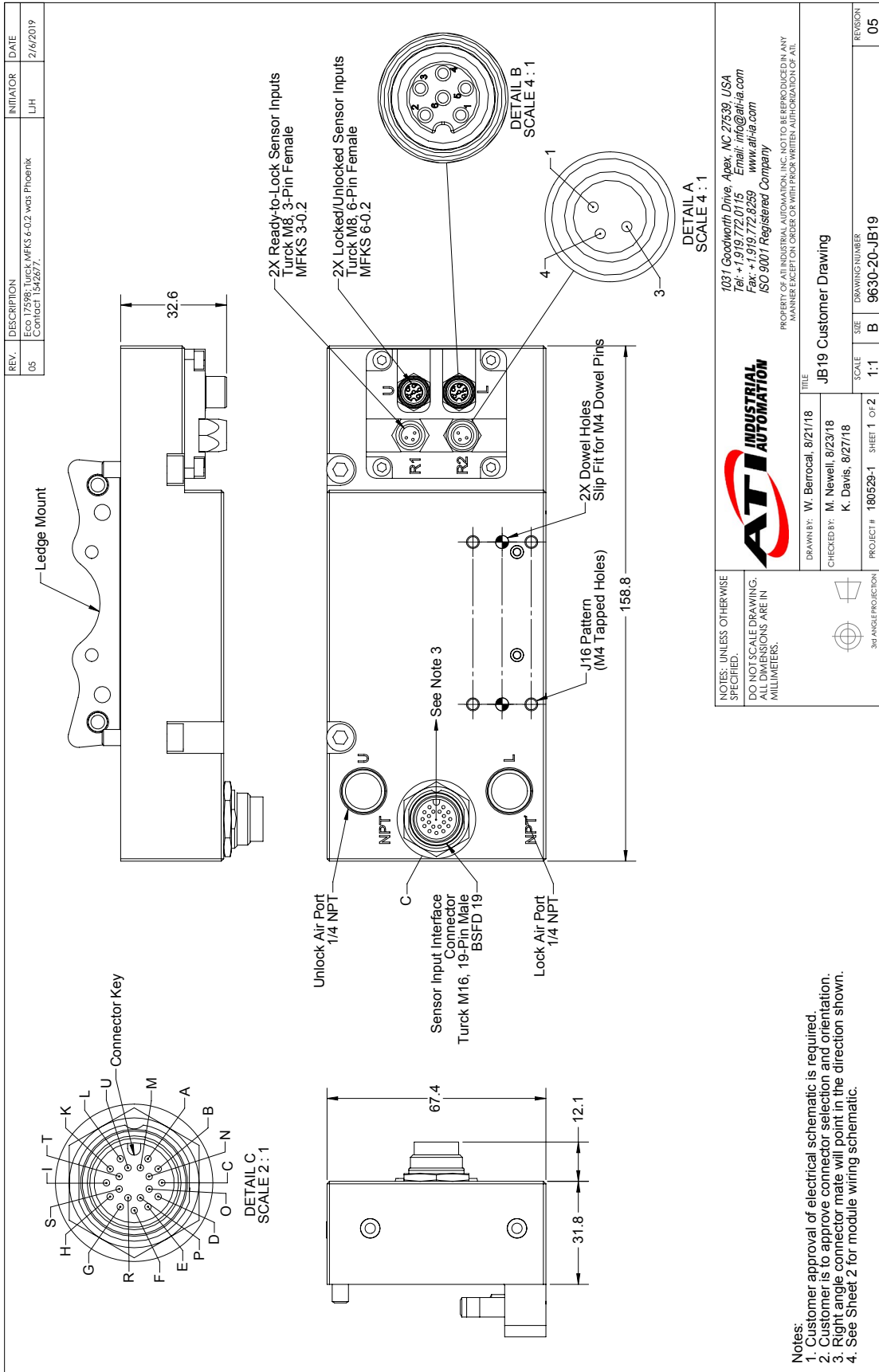
PROPERTY OF ATI INDUSTRIAL AUTOMATION, INC. NOT TO BE REPRODUCED IN ANY MANNER EXCEPT ON ORDER OR WITH PRIOR WRITTEN AUTHORIZATION OF ATI.

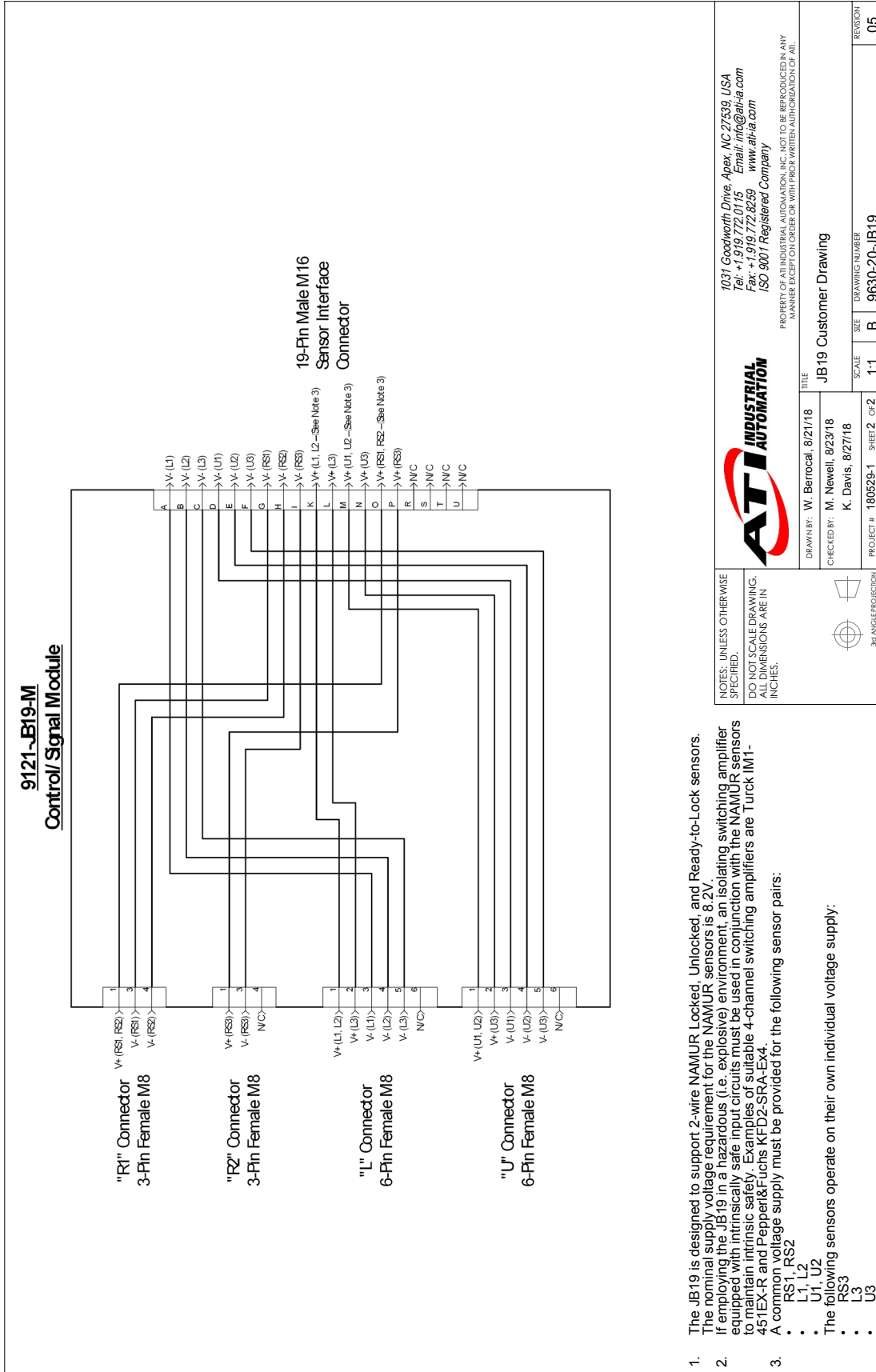
DRAWN BY: P. Luczka, 3/7/13	CHECKED BY: A. Takla, 3/8/13 B. Henderson, 3/11/13	PROJECT # 130227-1	SHEET 1 OF 1	DRAWING NUMBER 9630-20-JB15	REVISION 01
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8.8 JB18 w/ 1/4 G, J16 Mounting, Potted L, and U Sensor Inputs, QC-210



8.9 JB19 1/4 NPT, J16 Mounting, Potted, L, U, RTL NAMUR Inputs, QC-1210





1. The JB19 is designed to support 2-wire NAMUR Locked, Unlocked, and Ready-to-Lock sensors. The nominal supply voltage requirement for the NAMUR sensors is 8.2V.
 2. If employing the JB19 in a hazardous (i.e. explosive) environment, an isolating switching amplifier equipped with intrinsically safe input circuits must be used in conjunction with the NAMUR sensors to maintain intrinsic safety. Examples of suitable 4-channel switching amplifiers are Turck IM1-451EX-R and Pepperl+Fuchs KFDZ-SRA-Ex4.
 3. A common voltage supply must be provided for the following sensor pairs:
 - RS1, RS2
 - L1, L2
 - U1, U2
- The following sensors operate on their own individual voltage supply:
- RS3
 - L3
 - U3

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DRAWN BY: W. Bernocal, 8/21/18	TITLE: JB19 Customer Drawing	SCALE: 1:1	DRAWING NUMBER: 9630-20-JB19	REVISION: 05
CHECKED BY: M. Newell, 8/23/18 K. Davis, 8/27/18				
PROJECT # 180529-1		SHEET 2 OF 2		

NOTES: UNLESS OTHERWISE SPECIFIED,
 DO NOT SCALE DRAWING.
 ALL DIMENSIONS ARE IN INCHES.

3/4" ANGLE PROJECTION

8.10 JB11 Tool Spacer Block Assembly

Rev. 01	Description Initial Release	Initiator PDL	Date 4/18/14
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2X Dowel Holes
S.F. for M4 Dowel Pins

J16 Mounting Pattern
(M4 tap Holes)

Ledge Mount

NOTES: UNLESS OTHERWISE SPECIFIED,
DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.

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DRAWN BY: P. Luczka, 4/18/14
 CHECKED BY: A. Takla, 4/22/14

TITLE
Tool Spacer Block Assembly, JB Modules

PROJECT # 100702-4 SHEET 1 OF 1

SCALE 1:1
 DRAWING NUMBER 9630-20-JB11
 REVISION 01

Notes:
 1. This Module is used with the any of the Air Adapters with J16 mounting option.
 2. If Placing on QC, refer to work instructions. If placing into inventory, bag dry loose fasteners.