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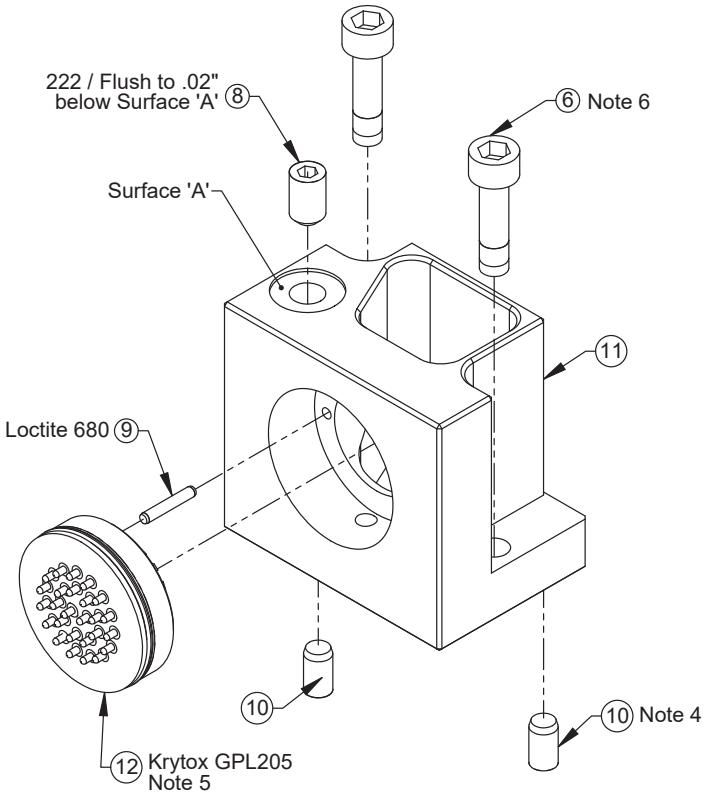
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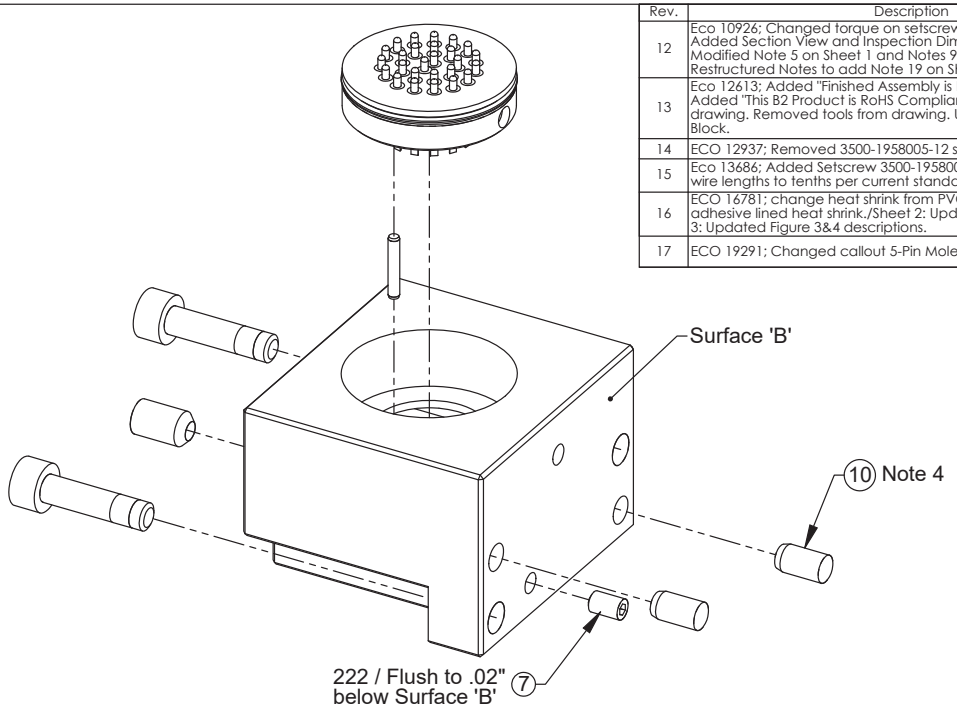
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This Product is RoHS Compliant

Rev.	Description	Initiator	Date
12	Eco 10926; Changed torque on setscrew from 48 to 24 in-oz. Added Section View and Inspection Dimension to Sheet 5. Modified Note 5 on Sheet 1 and Notes 9 and 18 on Sheet 2. Restructured Notes to add Note 19 on Sheet 2.	CF	4/18/2013
13	Eco 12613; Added "Finished Assembly is RoHS Compliant" Note. Added "This B2 Product is RoHS Compliant" box to left hand of drawing. Removed tools from drawing. Updated Notes and Title Block.	CF	9/25/2014
14	ECO 12937; Removed 3500-1958005-12 set screw.	TBC	6/2/2015
15	Eco 13686; Added Setscrew 3500-1958005-12 (Qty. 1); Changed wire lengths to tenths per current standards.	CF	8/20/2015
16	ECO 16781; change heat shrink from PVC to Polyolefin and add adhesive lined heat shrink./Sheet 2; Updated Note 5 and 9. Sheet 3; Updated Figure 3&4 descriptions.	SEZ/MLS	4/16/2018
17	ECO 19291; Changed callout 5-Pin Molex to 6-pin Molex	DS	9/10/2020





ITEM NO.	QTY	PART NUMBER	DESCRIPTION
1	2	1510-1112007-04	Circular Connector, Straight, 4 Position, Lemo
2	4	1540-2112001-02	2-Pin Female Molex Connector
3	1	1540-2112001-06	Receptacle Housing, 6 Position, 1 Row, Series SL
4	2	1540-2112003-03	Receptacle Housing, 3 Position, 1 Row, Series SL
5	19	1700-0610236-02	Female Crimp Terminal, 22-24AWG Molex # 16-02-0086
6	2	3500-1062016-15A	M4-0.7 x 16mm SHCS, Blue, Pre-Applied
7	1	3500-1958005-12	M3-0.5 x 5, Set Screw Cup Point, Zinc Plated
8	1	3500-1964008-11	M5 X 8MM SET SCREW
9	1	3540-0101037-21	DOWEL PIN 1/16" x 3/8"
10	2	3540-0104008-11	4mm x 8mm Dowel Alloy Steel
11	1	3700-20-6791	Tool Housing, Kx Modules
12	1	9005-20-1784	26-Pin Block Sub Assembly, Tool, EPDM O-Ring, K26 and K21 Modules
13	4	wire	See Drawing for Gauge Size and Color

Notes:
1. Finished assembly must be RoHS Compliant.
2. Refer to Sheet 2 for assembly instructions.
3. Wiring table is on Sheet 3.
4. Use tool to install the indicated dowel pins.
5. Use K series tool block pusher to seat block in housing. Follow the instructions in the linked WI when installing the pin block and potting the module.
6. If mounting to QC, refer to Work Instruction. If module is to be placed in inventory, bag dry loose fasteners.

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3rd ANGLE PROJECTION

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DRAWN BY: W. Berrocal, 2/10/11

CHECKED BY: L. Jamshidi, 7/25/11

PROJECT # 110120-1 SHEET 1 OF 5

TITLE: 26 Pin Electrical Module, Flying Leads, QC-81, Tool, RoHS, Potted

SCALE	SIZE	DRAWING NUMBER	REVISION
1:1	B	9120-KE26-T	17

Assembly and Wiring Notes:
IMPORTANT: Use only 24 AWG PVC insulated wire, Polyolefin or adhesive lined Polyolefin Heat Shrink, and RoHS compliant solder when assembling this module.

Step 1: Cut wires and cables indicated in Table 1
1. Cut wires and cables of the type and length indicated in Table 1. There will be a total 6 discrete wires and 9 cables. Apply **TEMPORARY** labels on the cables as indicated in the Table. Do not apply labels to the discrete wires.

Step 2: Splice Wires indicated in Table 2
2. Solder the four (4) Brown 24 AWG wires from the CLOSED_LIMIT, OPEN_LIMIT, MID_LIMIT, and BRK_CNTRL cables to a single Brown 24 AWG wire, as indicated in Table 2.
3. Solder the Violet and White 24 AWG wires to a single Violet 24 AWG wire, as indicated in Table 2.

Step 3: Apply Crimps to all Cables and Wires (Reference Table 3)
4. Prepare the cables by stripping 1" of the cable jacket from both ends of all cables.
5. Splice the drain wires from the "MOTOR_PWR" and "ENC" cables. To do so, cover the drain wires with heat shrink 0.3" in length. Next cut a 0.8" long 24 AWG yellow wire and apply a crimp (1700-0610236-02) to the end. Splice both drains to the Yellow wire.
6. Apply crimps to all of the cables and wires indicated in Table 3. The wires connected to the Molex connectors will use crimp 1700-0610236-02. **DO NOT INSERT THE CRIMPS INTO THE CONNECTORS. THE CRIMPS ARE INSERTED IN STEP 5.**

Step 4: Solder wires to 26-Pin Block (Reference Table 4)
7. Solder the wires and cables to the 26-Pin Block in accordance with Table 4 on Sheet 4. Make note of the following:
   1. Ensure that the ends of the cables have had the overall bundle insulation stripped back by 1.0".
   2. Apply heat shrink to the connections.
   3. Pin T of the Pin Block will have two wires soldered to it.
   4. Pin c of the Pin Block will have two wires soldered to it.
8. Run the cables and wires through the hole in the Master Housing. Reference Figure 6.
9. After soldering the wires to the Pin Block, fasten the Pin Block to the Housing. Use the ∅1/16 x 3/8 dowel pin to properly align the Pin Block with the housing. Use Krytox GPL205 lubricant on the O-Ring to facilitate assembly.

Step 5: Labeling and applying heat shrink to Molex and Lemo connectors (Reference Sheet 3)
10. Slide a 1.4" long, 3/32" OD piece of Polyolefin black heat shrink tubing over the **Green and White** 24 AWG wires connected to the 2-Pin Molex connector. Next, place a 1.5" long, 3/16" OD piece of adhesive lined Polyolefin Black Heat Shrink Tubing over the 3/32" OD heat shrink. Note that one end of the 3/16" OD heat shrink should overlap the connector as shown in Figure 1.
11. Apply heat shrink as follows to the **remaining 2 and 3-Pin Molex Connectors**:
    - Slide a 1.5" long, 3/16" OD piece of adhesive lined Polyolefin black heat shrink tubing over all of the cables connected to the 2 and 3-Pin Molex connectors. Note that one end of the 3/16" OD heat shrink should overlap the connector as shown in Figure 1.
12. Apply heat shrink as follows to the **6-Pin Molex Connector**:
    - Slide a 1/2" long, 3/16" OD piece of Polyolefin black heat shrink tubing over the cables connecting to the 6-Pin Molex connector. Next place a 1.5" long, ½" OD piece of adhesive lined Polyolefin black heat shrink tubing over the 3/16" OD (2X) heat shrink (reference Figure 2). Note that one end of the tubing should overlap the connector as shown in Figure 3.
13. Apply labels over the heat shrink using a machine printed, laminated label (see Figures 3 and 4). The labels must read EXACTLY as indicated in Table 3. Trim label if necessary. Labels should not extend 1.2" beyond the back of any connector. Any **TEMPORARY** labels should be removed.
14. For both 1510-1112007-04 Lemo connectors, remove the outer metal housing and collar, only use the insert and small spacer. Cover the insert with Polyolefin black shrink tube. In order to connect the shielding, cover the shield with 3/64" OD heat shrink tubing before soldering to Pin 3. Reference Figure 5.

Step 6: Test and Inspection (Reference Sheet 5)
15. Ensure that the final wire length dimensions conform to those shown on Sheet 5.
16. Cable Tie together single 24AWG yellow, blue, violet, and orange wires approx. every 6 inches.
17. Test the module in Electrical QA to verify that the wiring is correct.
18. After testing, dispense ABOCURE 8006-11 potting material into the module cavity (reference Figure 7). **It is critical that the module is potted in accordance with the linked Work Instruction**. Ensure that the set screw (3500-1958005-12) is installed in the bottom of the module prior to potting.
19. After potting, ensure that the distance from the front of the Tool Housing to the face of the Pin Block is within specification **(the Inspection Dimension is indicated on Sheet 5)**. The instructions on how to perform this measurement are described in the linked QI.
20. After potting, re-test the module in Electrical QA.

TABLE 1: CABLE TYPE AND LENGTH

Cable or Wire Type	Qty.	Length	Temporary Label
White 24 AWG	1	22.8"	No Label
Yellow 24 AWG	1	24.8"	
Blue 24 AWG	1	24.8"	
Violet 24 AWG	1	24.8"	
Green 24 AWG	1	22.8"	
Orange 24 AWG	1	20.8"	
Cable 7515-2400113-08 (Twisted Pair, Shielded)	1	18"	MOTOR_PWR
Cable 7515-2400312-99 (Twisted 3-Conductor, Shielded)	3	23.8"	DVRT_1
		23.8"	DVRT_2
		18"	ENC
Cable 7515-2400101-08 (Twisted Pair, Unshielded)	4	23.3"	BRK_CNTRL
		23.3"	MID_LIMIT
		21"	OPEN_LIMIT
		24.5"	CLOSED_LIMIT
Cable 7515-2400301-08 (Twisted 3-Conductor, Unshielded)	1	26.8"	RTD

TABLE 2: SPLICING ENCODER COMMON WIRES

		Signal Legend
0.8" Brown 24 AWG	Brown 24 AWG from **CLOSED_LIMIT** cable	SWITCH_AND_ENC_COMMON
	Brown 24 AWG from **OPEN_LIMIT** cable	
	Brown 24 AWG from **MID_LIMIT** cable	
	Brown 24 AWG from **BRK_CNTRL** cable	
0.8" Violet 24 AWG	Violet 24 AWG	SWITCH_AND_ENC_COMMON
	White 24 AWG	

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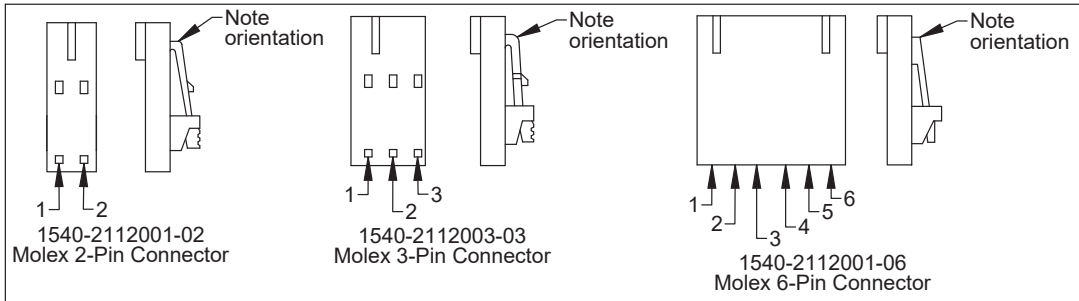
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CHECKED BY: L. Jamshidi, 7/25/11
PROJECT # 110120-1 SHEET 2 OF 5

TITLE: 26 Pin Electrical Module, Flying Leads, QC-81, Tool, RoHS, Potted

SCALE	SIZE	DRAWING NUMBER	REVISION
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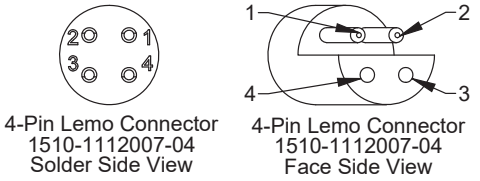


TABLE 3: CABLE CONNECTIONS TO MOLEX AND LEMO CONNECTORS

Cable labeled "MOTOR_PWR"	Black 24 AWG	6	6-Pin Molex Connector 1540-2112001-06
	Red 24 AWG	1	
	Drain (Note 5)	5	
Cable labeled "ENC"	Drain (Note 5)	5	
	Black 24 AWG	2	
	Red 24 AWG	3	
	White 24 AWG	4	
Cable labeled "DVRT1"	Black 24 AWG	4	4-Pin Lemo Connector 1510-1112007-04
	Red 24 AWG	1	
	White 24 AWG	2	
	Drain	3	
Cable labeled "DVRT2"	Black 24 AWG	4	4-Pin Lemo Connector 1510-1112007-04
	Red 24 AWG	1	
	White 24 AWG	2	
	Drain	3	
Cable labeled "RTD"	Black 24 AWG	1	3-Pin Molex Connector 1540-2112003-03
	Brown 24 AWG	2	
	Red 24 AWG	3	
Cable labeled "CLOSED_LIMIT"	Black 24 AWG	1	2-Pin Molex Connector 1540-2112001-02
	Brown 24 AWG	2	
Cable labeled "OPEN LIMIT"	Black 24 AWG	1	2-Pin Molex Connector 1540-2112001-02
	Brown 24 AWG	2	
Cable labeled "MID LIMIT"	Black 24 AWG	1	2-Pin Molex Connector 1540-2112001-02
	Brown 24 AWG	2	
Cable labeled "BRK_CNTRL"	Black 24 AWG	1	3-Pin Molex Connector 1540-2112003-03
	Brown 24 AWG	3	
		2 (N/C)	
Cable labeled "BRK_STATUS"	Green 24 AWG	1	2-Pin Molex Connector 1540-2112001-02
	White 24 AWG (from Table 2)	2	



Figure 1: Heat shrink over the two 24 AWG wires.

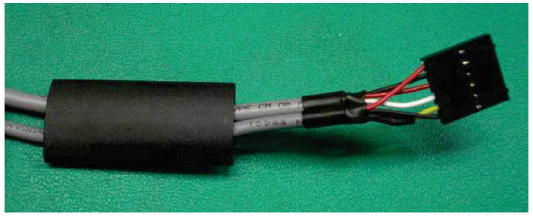


Figure 2: 6-Pin Molex Connector (In-process)



Figure 3: Completed 6-Pin Molex Connector with Adhesive Heat Shrink



Figure 4: Apply labels over Adhesive Heat Shrink



Figure 5: Completed Lemo Connector with Heat Shrink

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TABLE 4: 26-PIN BLOCK WIRING

9005-20-1784
26-Pin Block Assembly

			Signal Legend
B	Black 24 AWG	**Cable Labeled "MOTOR_PWR"**	MOTOR_PWR
C	Red 24 AWG		MOTOR_RETURN
T	Drain		MOTOR_SHIELD
T	Drain	**Cable Labeled "ENC"**	
D	Black 24 AWG		ENC +5V
E	Red 24 AWG		ENC_CH_A
U	White 24 AWG		ENC_CH_B
F	Black 24 AWG	**Cable Labeled "DVRT1"**	DVRT1_SENSE
G	Red 24 AWG		DVRT1_POWER
V	White 24 AWG		DVRT1_COMMON
W	Drain		DVRT1_SHIELD
H	Black 24 AWG	**Cable Labeled "DVRT2"**	DVRT2_SENSE
J	Red 24 AWG		DVRT2_POWER
X	White 24 AWG		DVRT2_COMMON
K	Drain		DVRT2_SHIELD
A	Yellow 24 AWG		SERIAL_NUM_1_RES
R	Blue 24 AWG		SERIAL_NUM_2_RES
Y	Black 24 AWG	**Cable Labeled "RTD"**	IRIS_RTD_1
L	Brown 24 AWG		IRIS_RTD_2
M	Red 24 AWG		IRIS_RTD_3
a	Black 24 AWG from **"CLOSED_LIMIT"** cable		CLOSED_LIMIT
c	**0.8" Brown 24 AWG Wire from Table 2**		SWITCH_AND_ENC_COMMON
	0.8" Violet 24 AWG Wire from Table 2		
Z	Black 24 AWG from **"OPEN_LIMIT"** cable		OPEN_LIMIT
b	Black 24 AWG from **"MID_LIMIT"** cable		MID_LIM_SW
S	Black 24 AWG from **"BRK_CNTRL"** cable		BRK_CTRL
P	Green 24 AWG from **"BRK_STATUS"** cable		BRK_STATUS_SW
N	Orange 24 AWG		SPARE

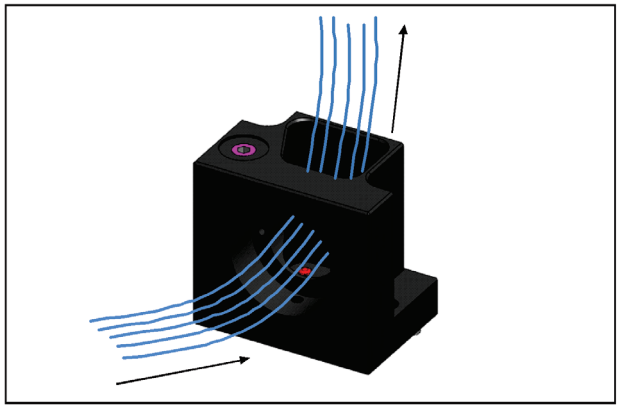
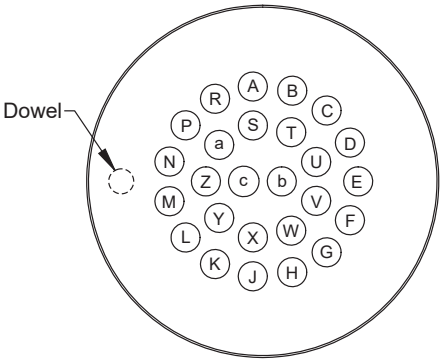
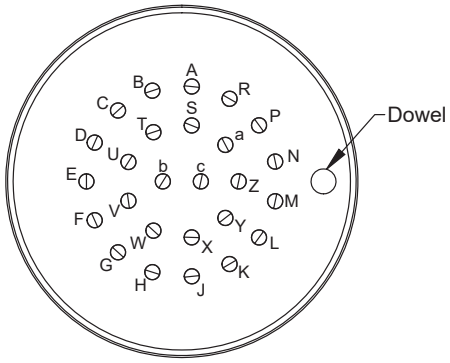


Figure 6: Run Cables and Wires through Hole in Housing



9005-20-1784
26-Pin Tool Pin Block
Face Side
Scale 3:1



9005-20-1784
26-Pin Tool Pin Block
Solder Side
Scale 3:1

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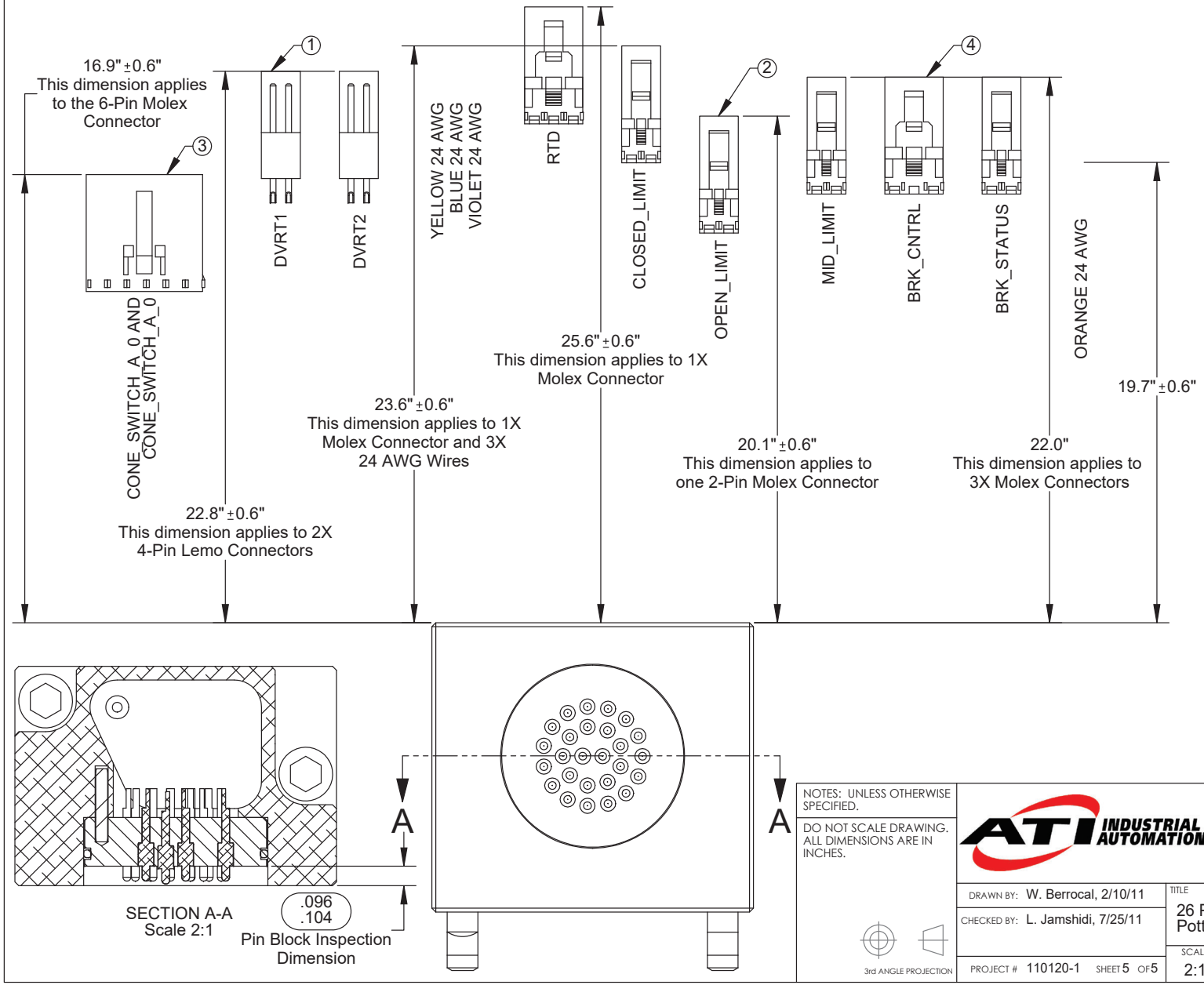
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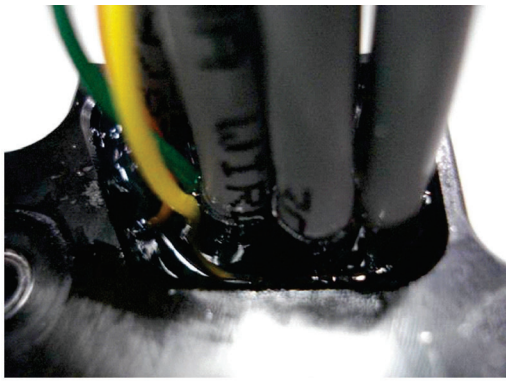


Figure 7: Potted Module

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