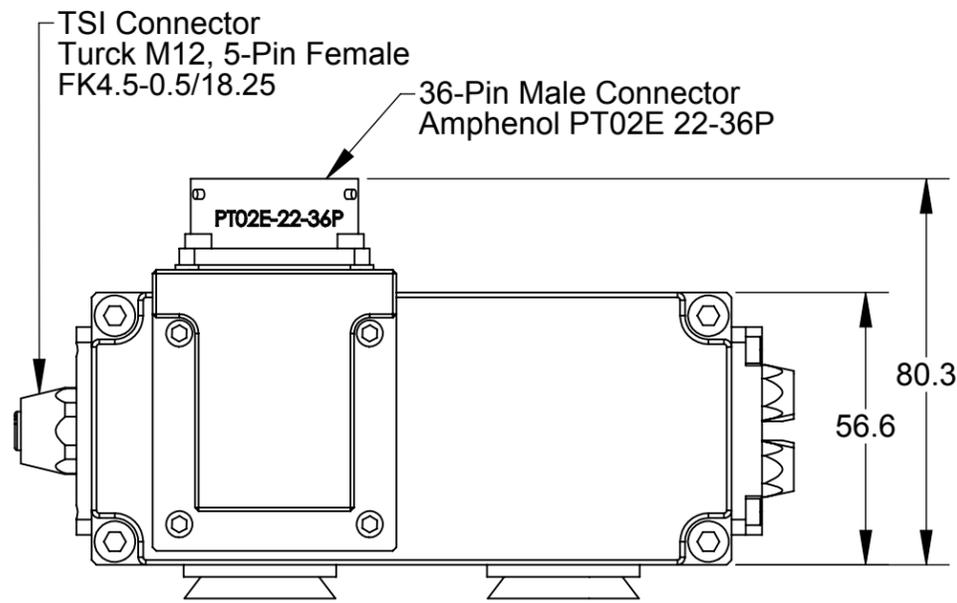
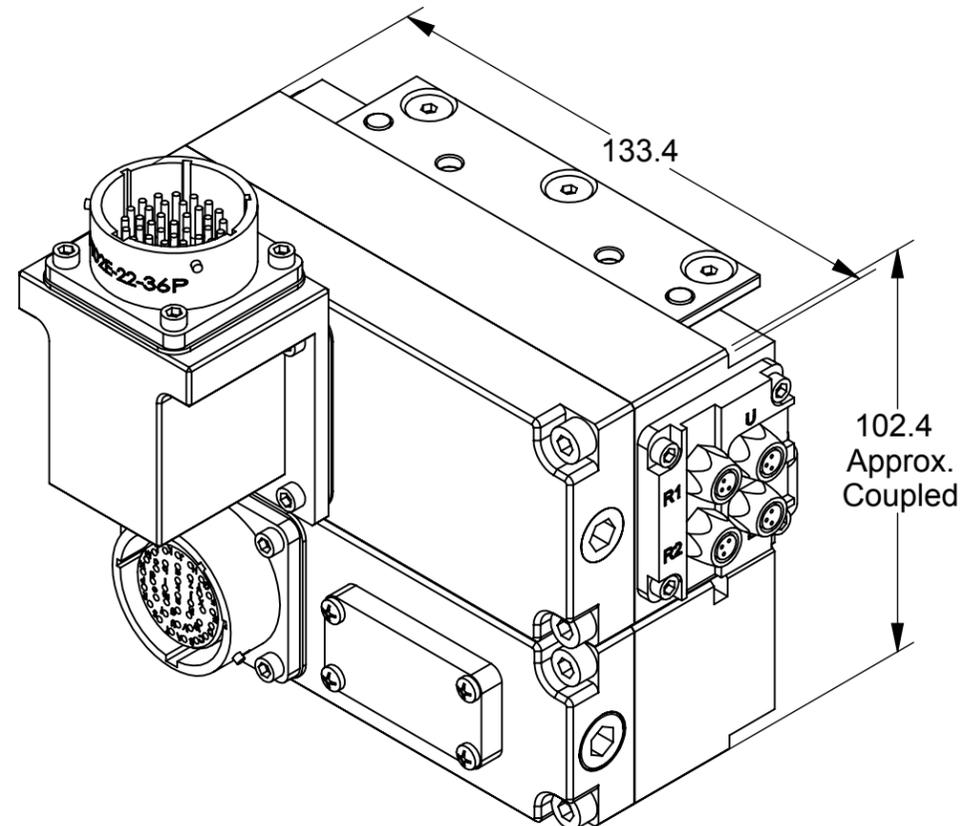


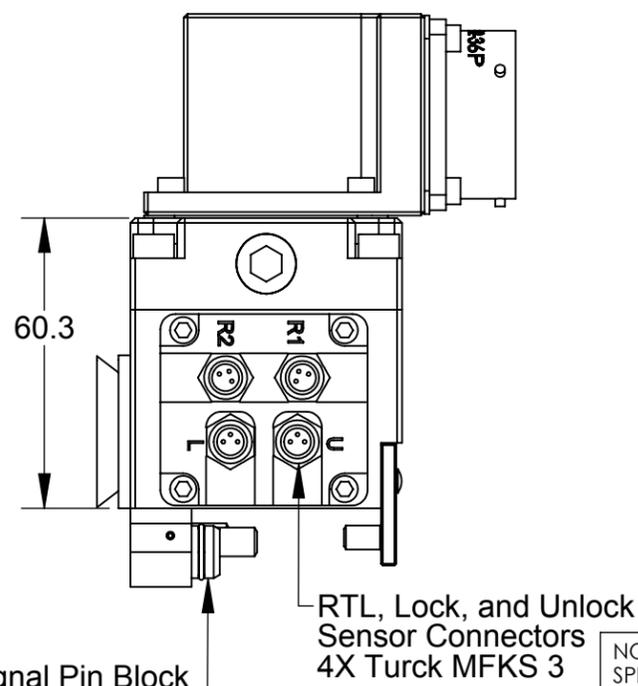
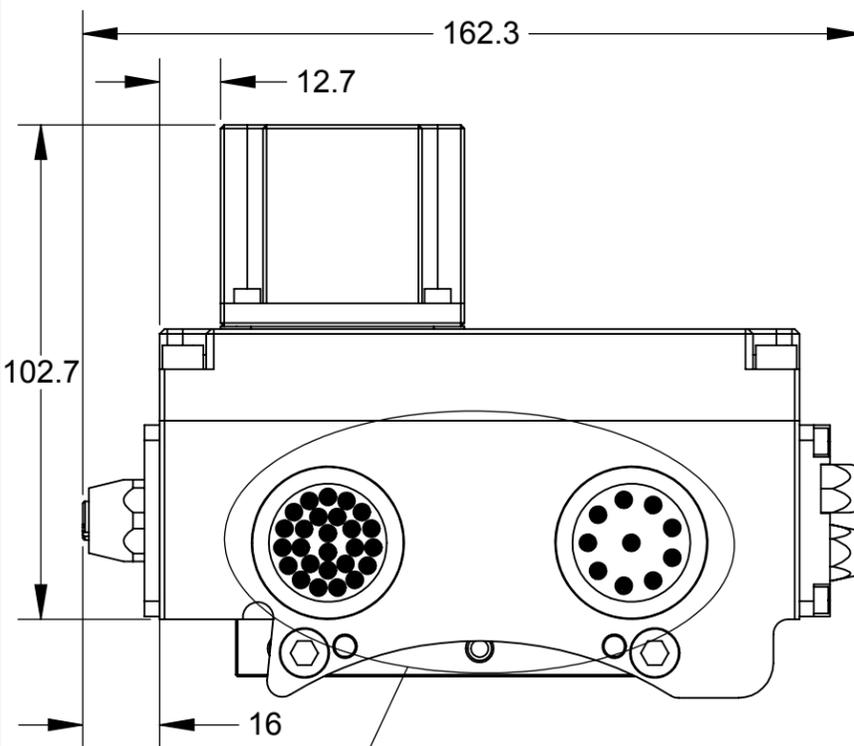
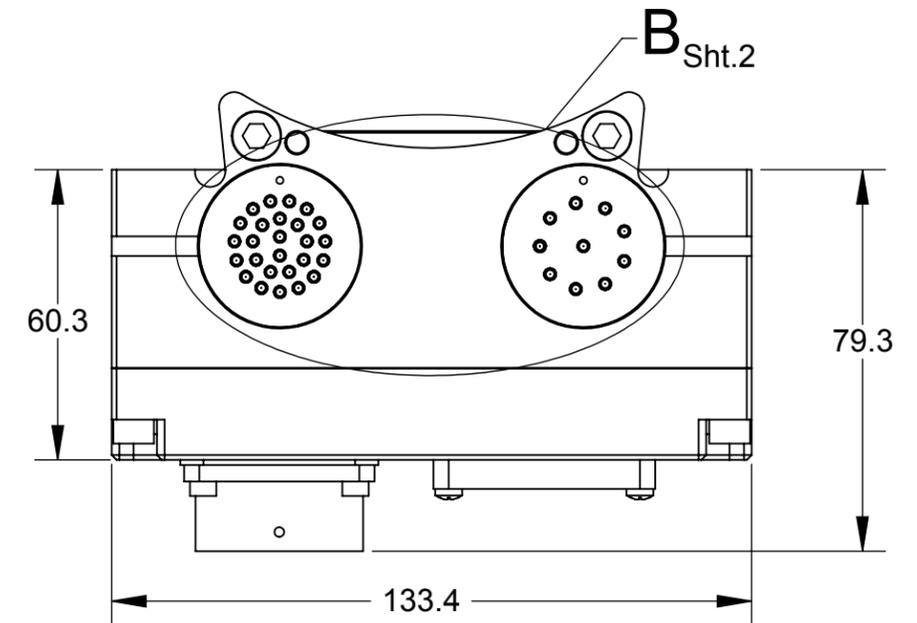
| Rev. | Description  | Initiator | Date      |
|------|--|-----------|-----------|
| 02   | Release.   | WB        | 1/30/2013 |
| 03   | Eco 10976; Updated Mechanical Switch Note 1 on Sheet 5 - Changed "Single Pole" to "Double Pole". | CF        | 5/7/2013  |



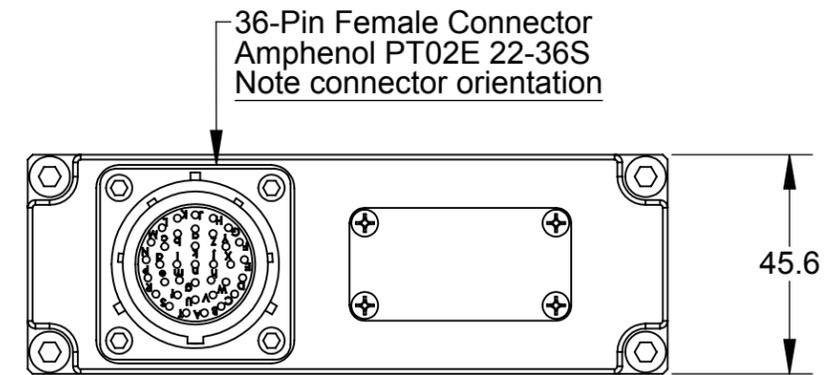
**9121-VB13-M**



**VB13 Master/ VB12 Tool  
Coupled**



Valve Signal Pin Block  
See Sheet 2 (Table 3)  
for Details



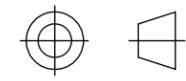
**9121-VB12-T**

**Notes:**

1. Pin Block pin assignment information on Sheet 2.
2. Connector details and pin assignment information on Sheet 3.
3. Electrical schematic and functional notes on Sheets 4 and 5.

NOTES: UNLESS OTHERWISE SPECIFIED.

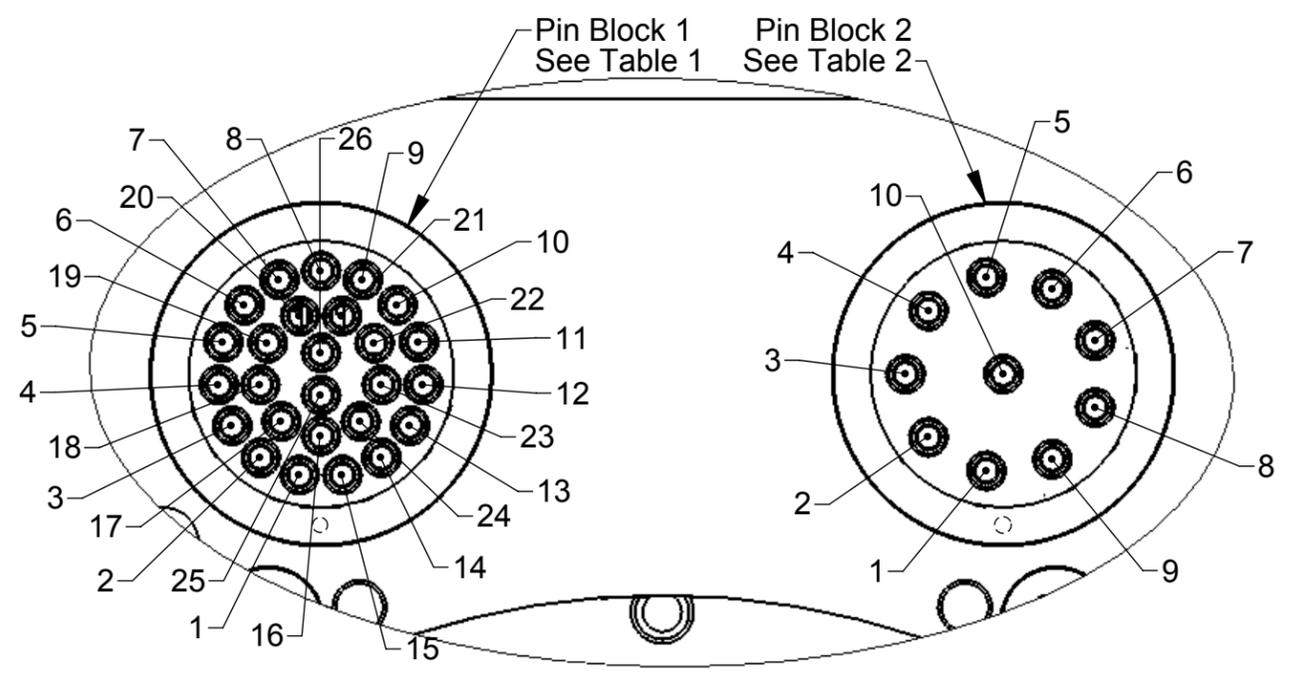
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MILLIMETERS.



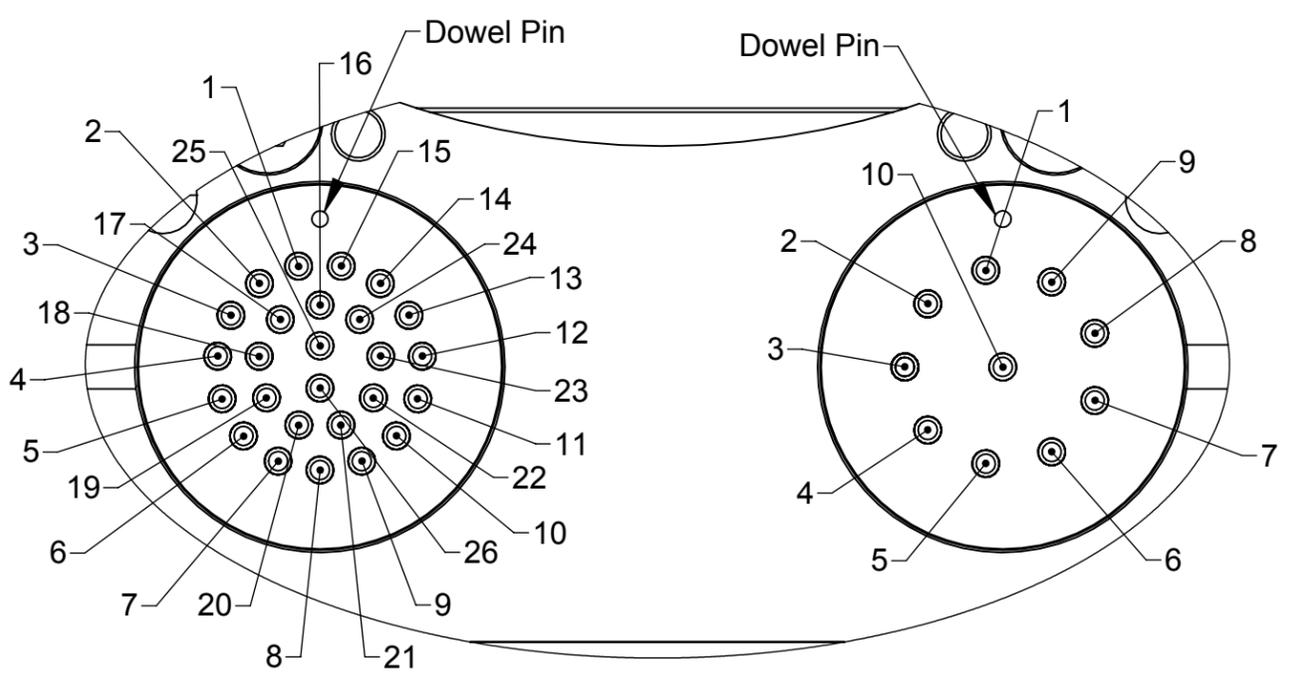
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| DRAWN BY: W. Berrocal, 12/7/12    |          | TITLE                         |      |
| CHECKED BY: L. Jamshidi, 12/10/12 |          | VB13-M/VB12-T Module Assembly |      |
| PROJECT #                         | 121024-1 | SHEET                         | OF 5 |
| SCALE                             | 1:2      | SIZE                          | B    |
| DRAWING NUMBER                    |          | REVISION                      |      |
| 9630-20-VB13M VB12T               |          | 03                            |      |



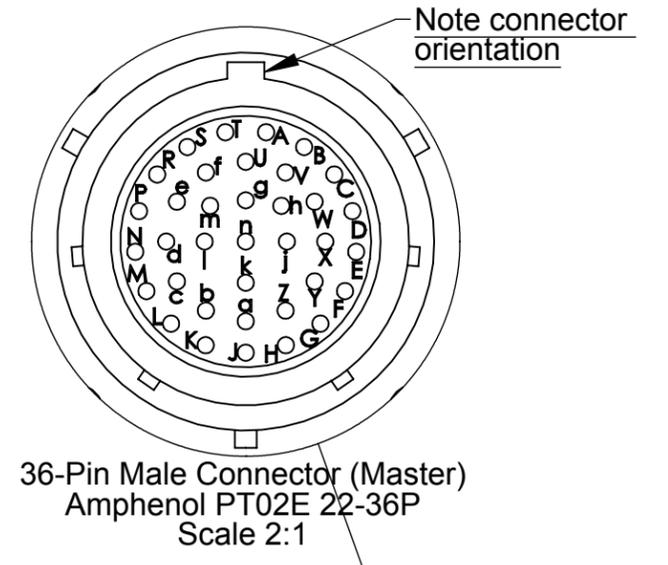
**Master Side Pin Blocks**  
DETAIL A  
SCALE 1.5 : 1



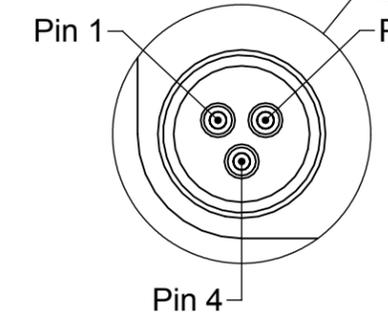
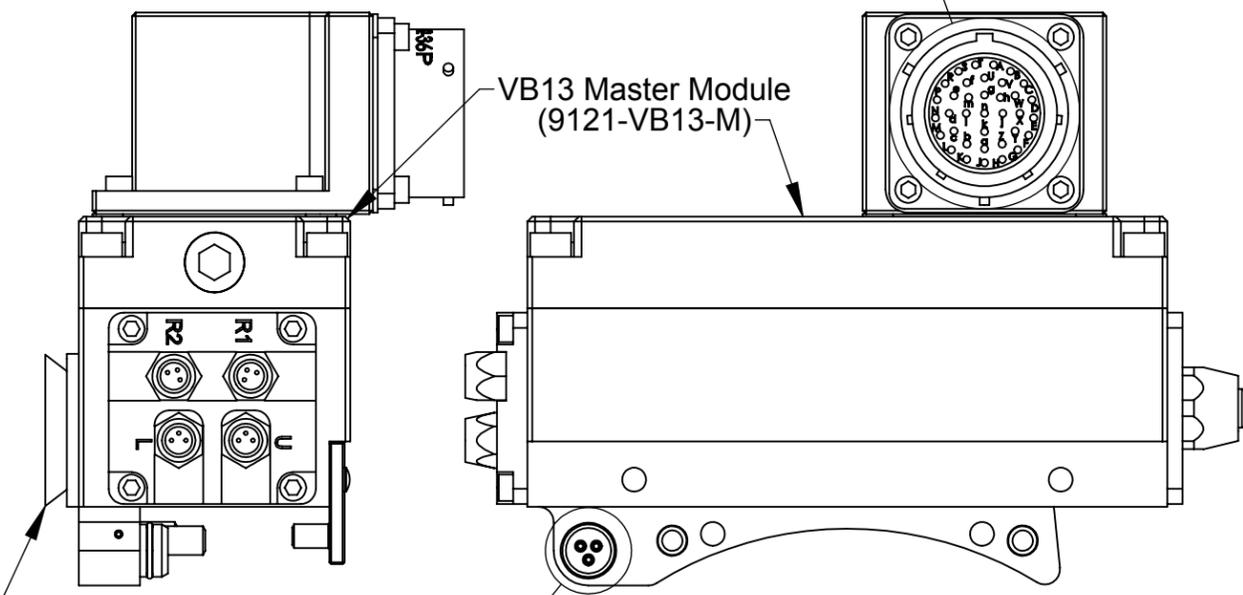
**Tool Side Pin Blocks**  
DETAIL B  
SCALE 1.5 : 1

|    |              |
|----|--------------|
| 1  | Available 1  |
| 2  | Available 2  |
| 3  | Available 3  |
| 4  | Available 4  |
| 5  | Available 5  |
| 6  | Available 6  |
| 7  | Available 7  |
| 8  | Available 8  |
| 9  | 24V          |
| 10 | Available 9  |
| 11 | 24V          |
| 12 | Available 10 |
| 13 | Available 11 |
| 14 | Available 12 |
| 15 | Available 13 |
| 16 | Available 14 |
| 17 | Available 15 |
| 18 | Available 16 |
| 19 | Available 17 |
| 20 | Available 18 |
| 21 | Available 19 |
| 22 | Available 20 |
| 23 | Available 21 |
| 24 | Available 22 |
| 25 | Available 23 |
| 26 | Available 24 |

|    |                           |
|----|---------------------------|
| 1  | Available 25              |
| 2  | Available 26              |
| 3  | Available 27              |
| 4  | Available 28              |
| 5  | N/C                       |
| 6  | Tool Presence In 1 (24 V) |
| 7  | N/C                       |
| 8  | Tool Presence In 2 (24V)  |
| 9  | N/C                       |
| 10 | N/C                       |

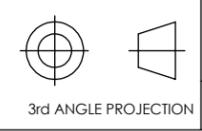


4010-000030-01  
Replaceable V-Ring Seals



|       |    |                |
|-------|----|----------------|
| Pin 1 | V+ | Unlatch Output |
| Pin 3 | V- | Common         |
| Pin 4 | V+ | Latch Output   |

NOTES: UNLESS OTHERWISE SPECIFIED.  
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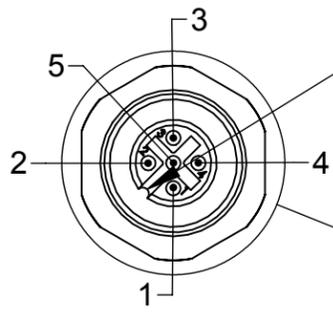


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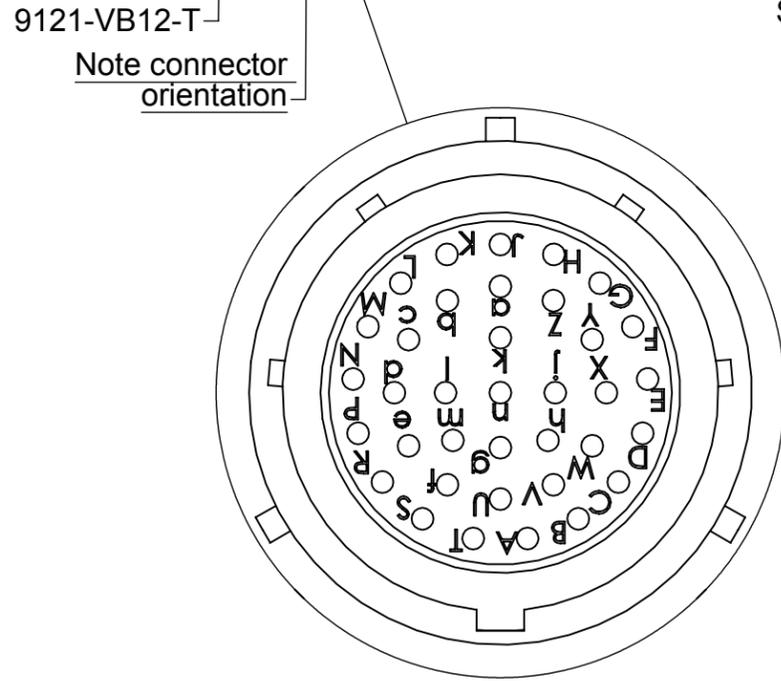
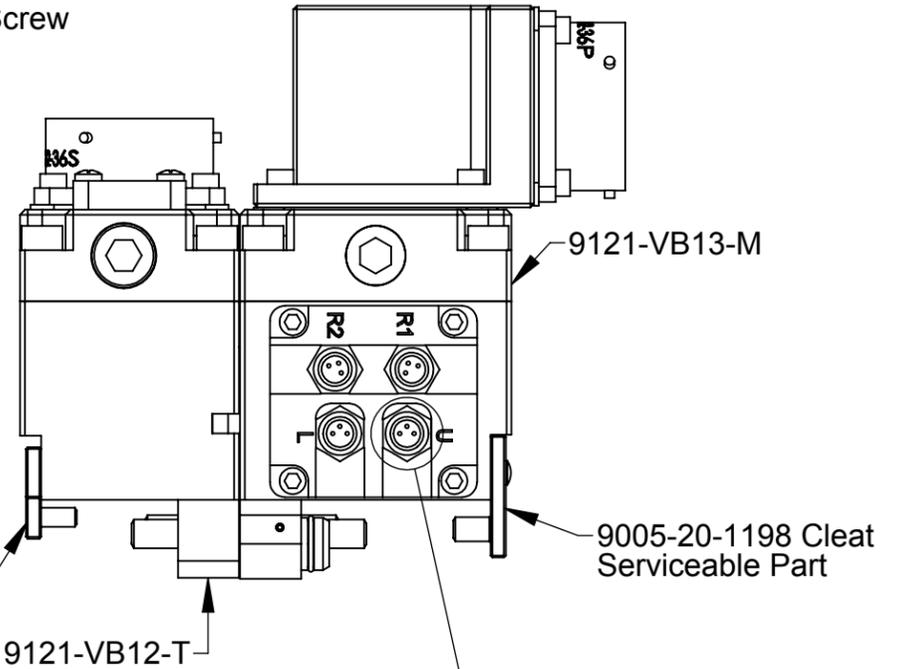
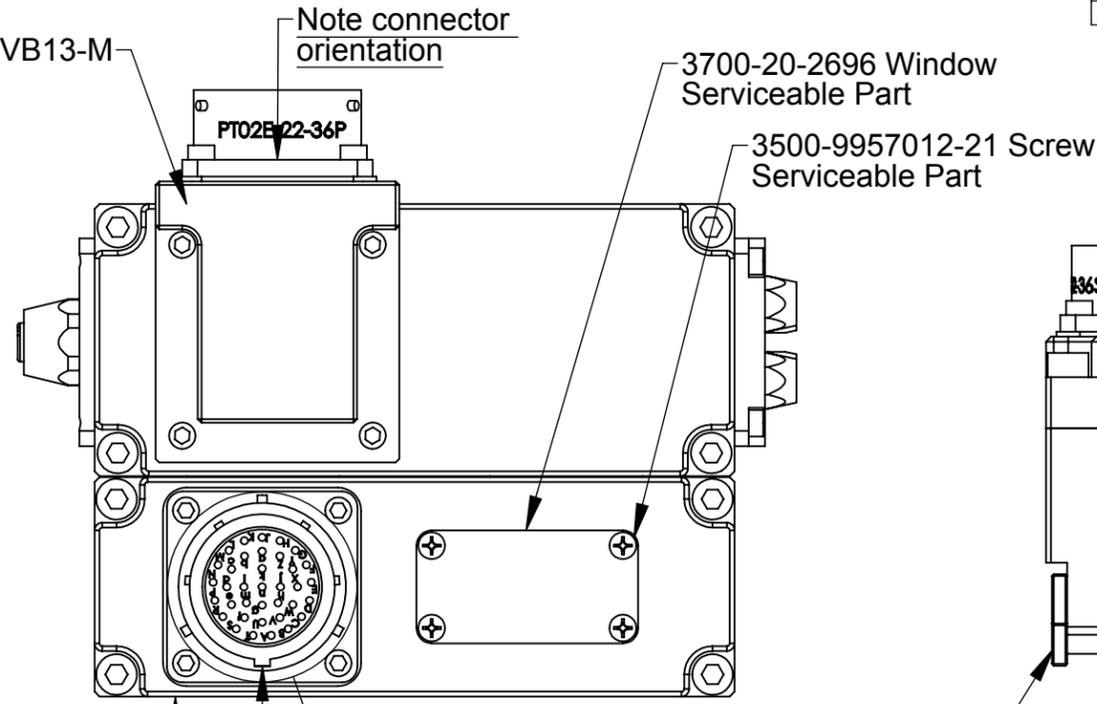
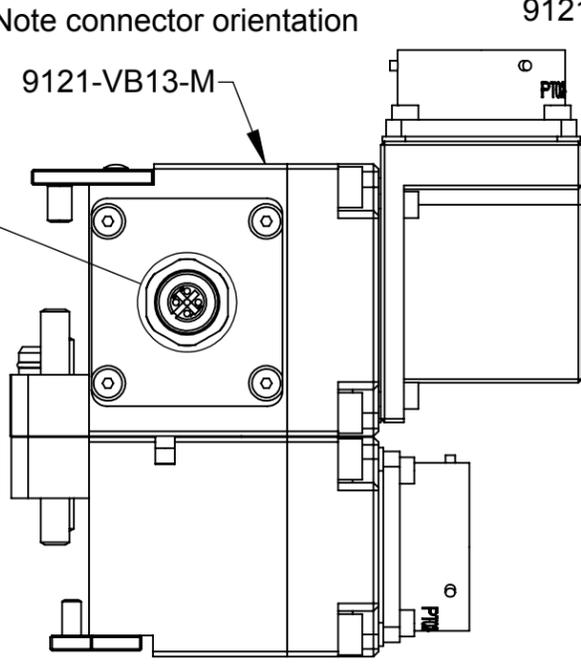
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| DRAWN BY: W. Berrocal, 12/7/12    |          | TITLE                         |      |
| CHECKED BY: L. Jamshidi, 12/10/12 |          | VB13-M/VB12-T Module Assembly |      |
| PROJECT #                         | 121024-1 | SHEET                         | OF 5 |
| SCALE                             | 2:3      | SIZE                          | B    |
| DRAWING NUMBER                    |          | REVISION                      |      |
| 9630-20-VB13M VB12T               |          | 03                            |      |

| Rev. | Description | Initiator | Date |
|------|-------------|-----------|------|
| -    | See Sheet1  | -         | -    |

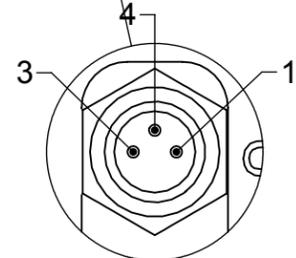


TSI Connector  
M12, 5-Pin Female  
Turck FK4.5-0.5/18.25  
Scale 3:2

| Table 4: TSI Connector |              |
|------------------------|--------------|
| 1                      | Sensor V+    |
| 2                      | Status (N/C) |
| 3                      | Sensor V-    |
| 4                      | TSI In       |
| 5                      | TSI Out      |



36-Pin Female Connector (Tool)  
Amphenol PT02E 22-36S  
Scale 2:1

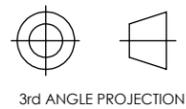


Sensor Connectors  
4X Turck MFKS 3  
Scale 2:1

| Table 5: Sensor Connectors |        |
|----------------------------|--------|
| 1                          | V+     |
| 3                          | V-     |
| 4                          | Output |

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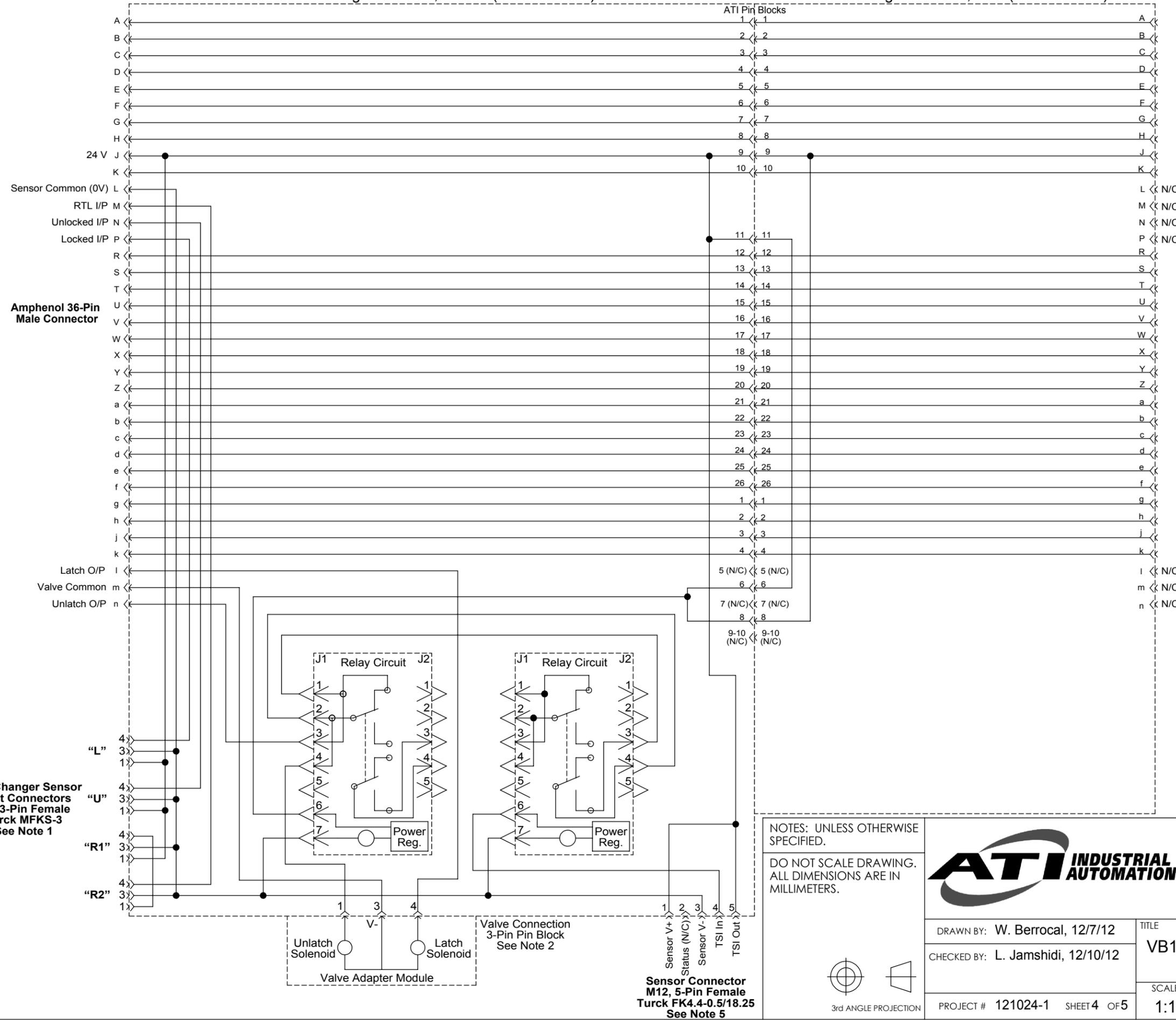
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| PROJECT #                         | 121024-1 | SHEET                         | OF 5 |
| SCALE                             | 2:3      | SIZE                          | B    |
| DRAWING NUMBER                    |          | REVISION                      |      |
| 9630-20-VB13M VB12T               |          | 03                            |      |

| Rev. | Description | Initiator | Date |
|------|-------------|-----------|------|
| -    | See Sheet1  | -         | -    |

Control/Signal Module, Master (9121-VB13-M)

Control/Signal Module, Tool (9121-VB12-T)



Amphenol 36-Pin Female Connector

Amphenol 36-Pin Male Connector

Notes:

1. The complete tool changer package comes equipped with external cables that are connected to the sensors.
2. An internal pin block is used to transmit the Latch/Unlatch signal to the valve adapter, as shown in the schematic.
3. Note that the VB13 Master module is designed to operate with ONLY PNP sensors. The Ready-to-Lock sensors are wired in series.
4. The Latch and Unlatch command signals must be sourcing, NOT sinking.
5. The VB13 Master module is designed to work with RFID, mechanical, or magnetically based safety switches (switches available separately, refer to Sheet 5). The safety switch must be mounted to the Master side of the Tool changer. With RFID and magnetic switches, the transponder/actuator must be mounted to the tool stand.

Tool Changer Sensor Input Connectors M8, 3-Pin Female Turck MFKS-3 See Note 1

NOTES: UNLESS OTHERWISE SPECIFIED.

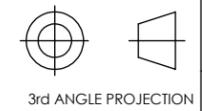
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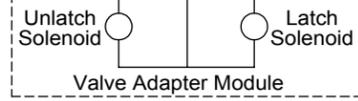
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| CHECKED BY: L. Jamshidi, 12/10/12  |              | VB13-M/VB12-T Module Assembly |        |
| PROJECT # 121024-1                 | SHEET 4 OF 5 | SCALE 1:1                     | SIZE B |
| DRAWING NUMBER 9630-20-VB13M VB12T |              | REVISION 03                   |        |

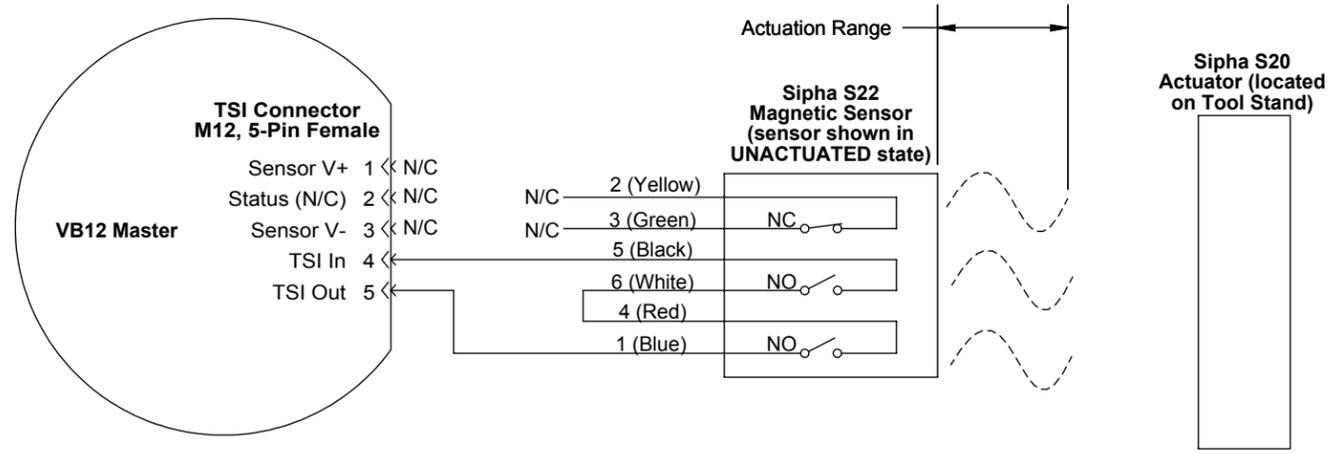


Sensor Connector M12, 5-Pin Female Turck FK4.4-0.5/18.25 See Note 5

Valve Connection 3-Pin Pin Block See Note 2



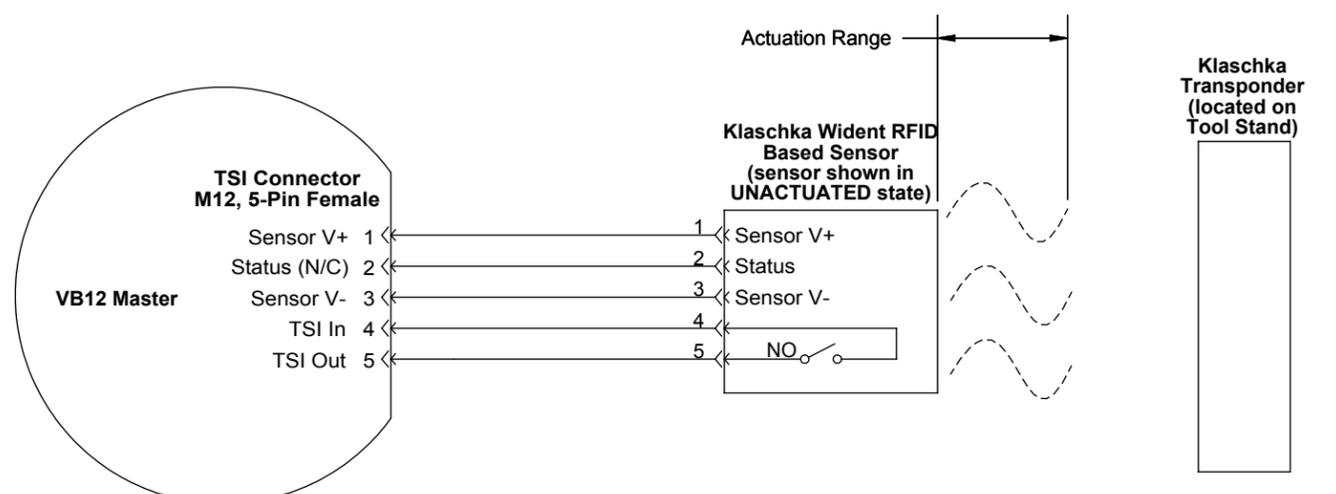
| Rev. | Description | Initiator | Date |
|------|-------------|-----------|------|
| -    | See Sheet 1 | -         | -    |



**Sipa S20 Actuator (located on Tool Stand)**

**Magnetic Sensor Notes:**

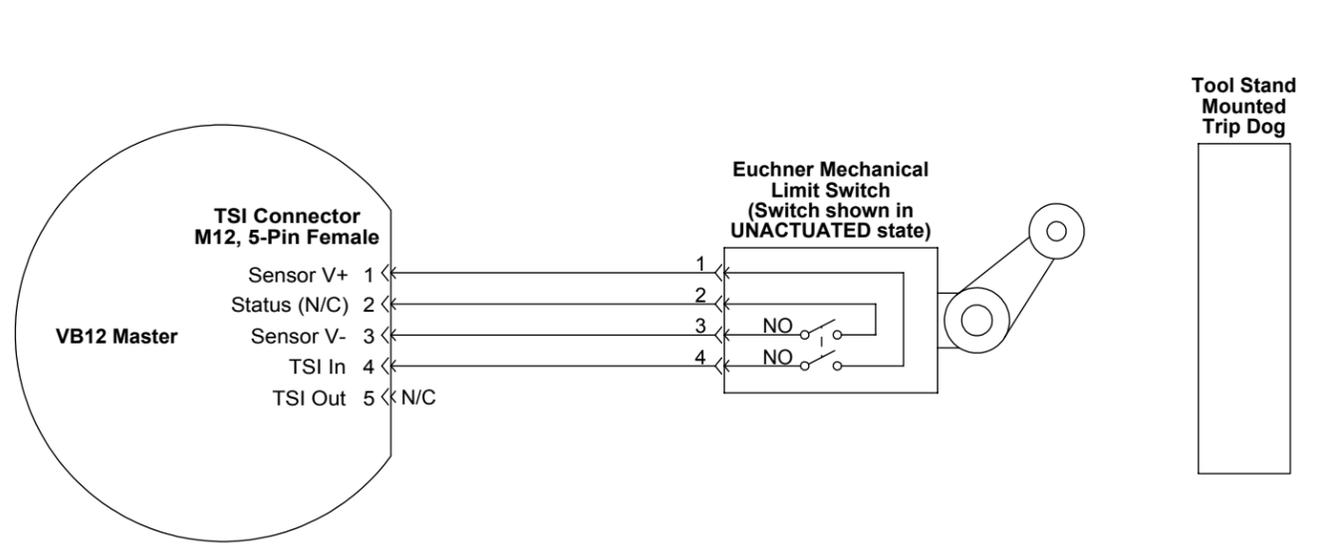
- With RFID and magnetically based safety sensors, the unlock circuit will be completed when the sensor is in close proximity to the actuator. With the actuator mounted on the tool stand, the sensor will insure that a Tool can only be released at the tool stand.
  - ATI part numbers for the Allen-Bradley Sipa magnetic sensor are as follows:
    - Sipa S22/S20 Sensor and Actuator: 8600-440N-S32023-01
    - Sipa S22 Sensor Only: 8600-440N-S32023
    - Sipa S20 Actuator Only: 8605-440N-A32020
- Note: The Sipa sensor comes pre-assembled with a 3m long cable and M12, 5-pin connector.



**Klaschka Transponder (located on Tool Stand)**

**RFID Sensor Notes:**

- With RFID based safety sensors, the unlock circuit will be completed when the sensor is in close proximity to the transponder. With the transponder mounted on the tool stand, the sensor will insure that a Tool can only be released at the tool stand.
- The sensor is connected to the VB12 Master module via the 5-pin M12 connector (the cable to the sensor is not included).
- ATI part number for the Klaschka WIDENT safety sensor mounting hardware is as follows:
  - Transponder Bracket Assembly: 9121-TSL-KT-5841



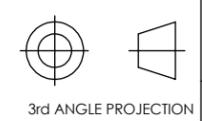
**Tool Stand Mounted Trip Dog**

**Mechanical Limit Switch Notes:**

- Using a mechanical limit switch, the unlock circuit will be completed only when the switch has been actuated by a Tool Stand mounted cam or trip dog. It is suggested that a double pole, single throw (Normally Open, spring return) limit switch is utilized. The limit switch should be mounted to the end effector in such a way that the switch is "made" only when the Tool is in the stand or storage location.
- The limit switch is connected to the VB12 Master module via the 5-pin M12 connector (the cable to the limit switch is not included).
- ATI part number for the recommended Euchner limit switch is as follows:
  - Euchner Safety Switch NZ1HS-3131-M: 8510-9909999-01

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| PROJECT #                         | 121024-1            | SHEET                         | 5 OF 5   |
| SCALE                             | 1:1                 | SIZE                          | B        |
| DRAWING NUMBER                    | 9630-20-VB13M VB12T |                               | REVISION |
|                                   |                     |                               | 03       |