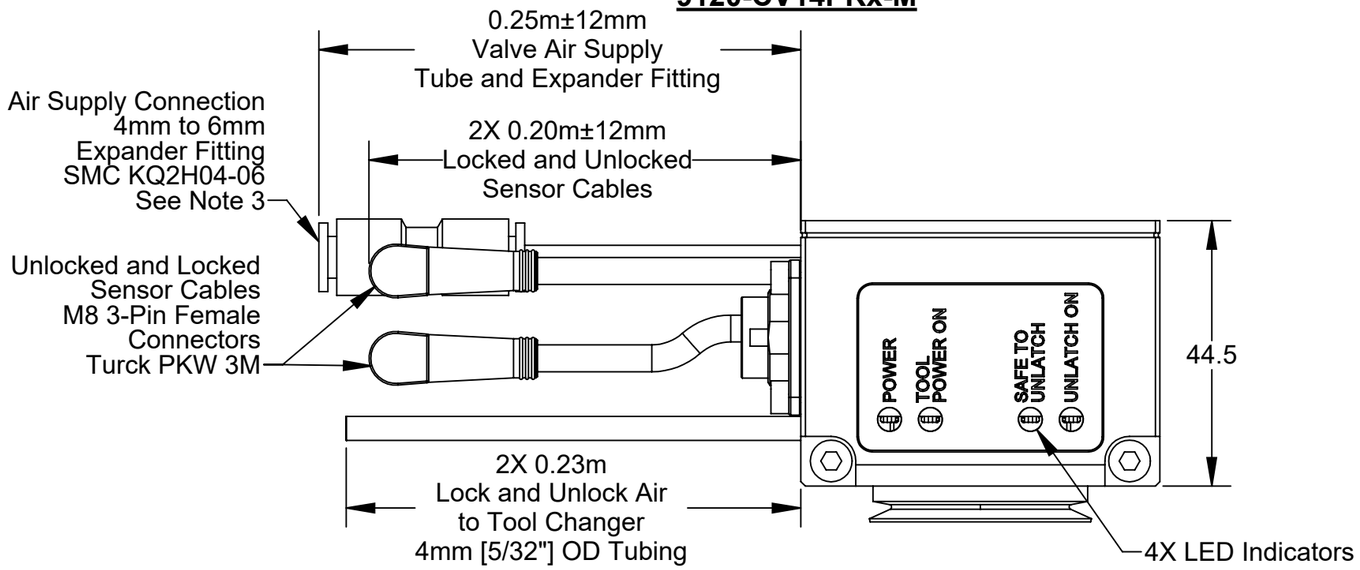
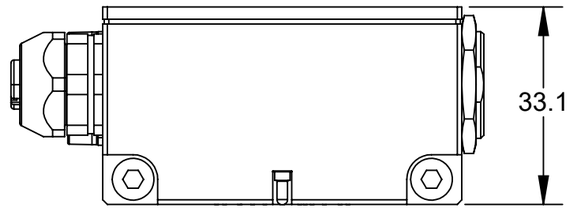
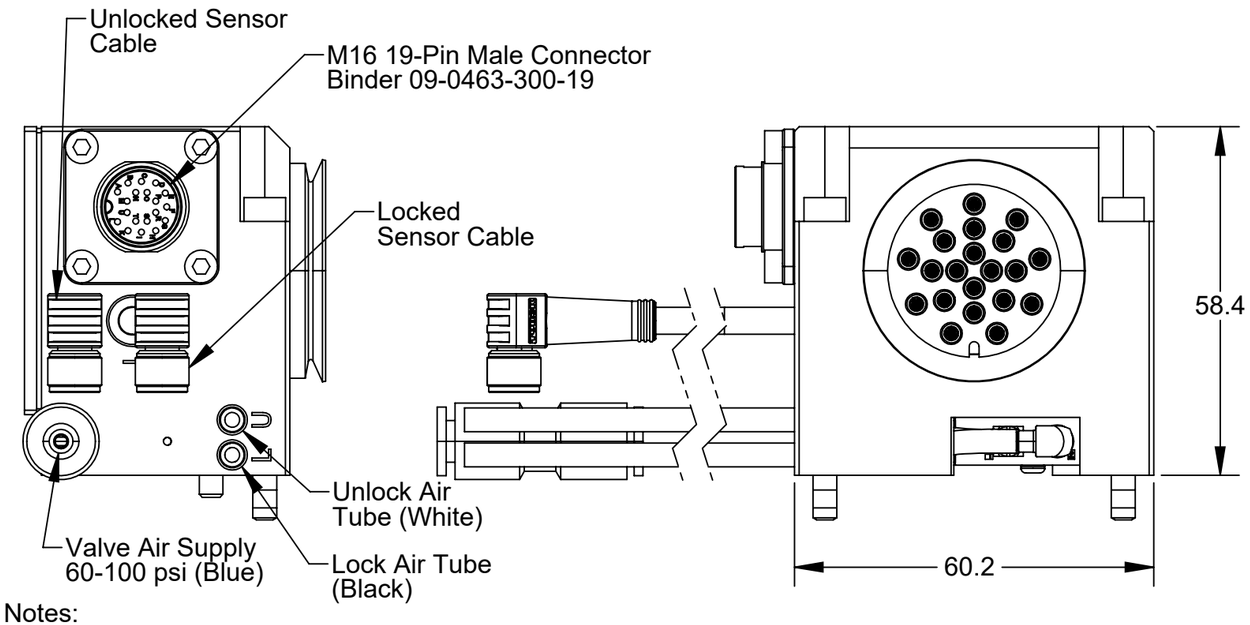
| REV. | DESCRIPTION | INITIATOR | DATE |
|---|---|---|---|
| 06 | ECO 21840: SHT 4: CHANGED NOTE 2 TO 3A, 50V. | BAW | 7/31/2024 |

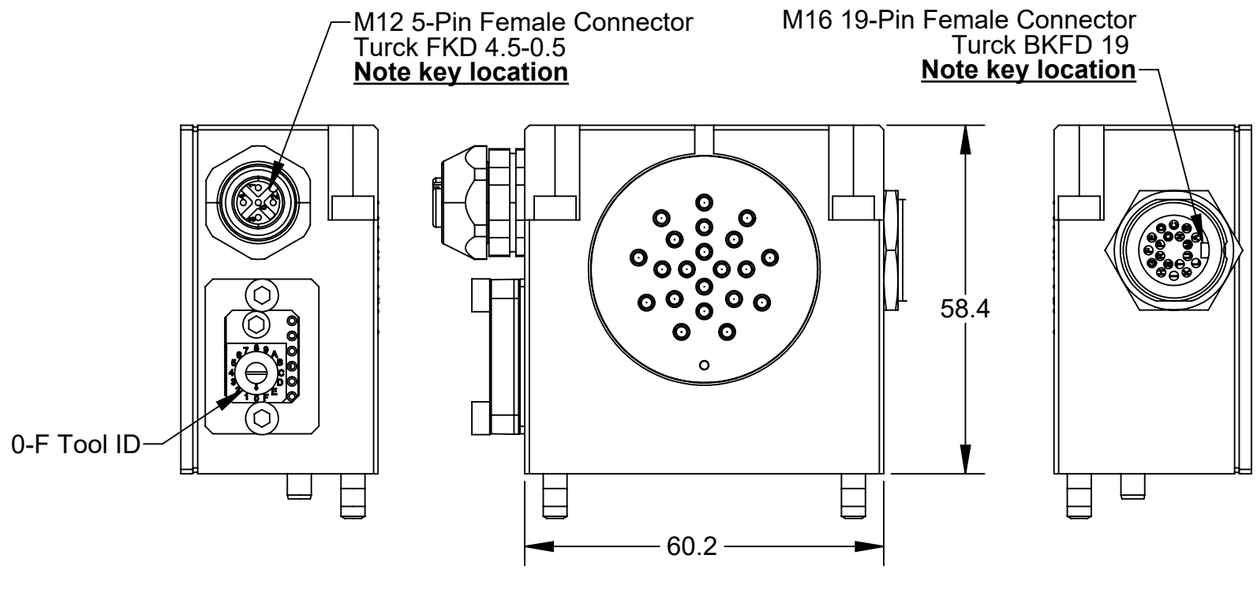
## 9120-CV14PRx-M




## 9120-CV10P-T




Notes:
1. The CV14PRx-M family of Master modules have right angle Locked and Unlocked sensor connectors and are designed to work with PNP sensors and PNP unlatch output.
2. The CV14PRx-M family of modules include 1X Lock and 1X Unlock port fittings. The type of pneumatic fittings included with the module is designated by the module part number as follows:
   - 9120-CV14PR**N**-M = 1/8 NPT Fittings
   - 9120-CV14PR**E**-M = 1/8 BSPP Fittings
   - 9120-CV14PR**R**-M = 1/8 BSPT Fittings
   - 9120-CV14PR**M**-M = M5 Fittings

   Note: Fittings are not shown in this drawing.
3. The Tool Changer air supply is connected to the module via a 4mm-to-6mm expander fitting and 4mm [5/32"] OD tubing.
4. Connector pin-outs are on Sheet 2.
5. Electrical Schematic is on Sheet 3.
6. Electrical Schematic Notes are on Sheet 4.

NOTES: UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.

3rd ANGLE PROJECTION


ATI INDUSTRIAL AUTOMATION

*1031 Goodworth Drive, Apex, NC 27539, USA*
*Tel: +1.919.772.0115 www.ati-ia.com*
*Fax: +1.919.772.8259 ISO 9001 Registered Company*




DRAWN BY: S. Yang, 06/28/2020

CHECKED BY: W. Berrocal, 10/26/20

PROJECT # 190203-1 SHEET 1 OF 4

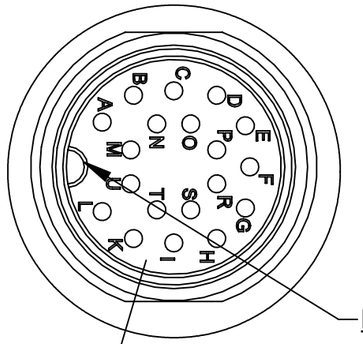
TITLE: Compact Discrete Control Module, PNP, Right Angle Locked-Unlocked Sensor Cables

| SCALE | SIZE | DRAWING NUMBER | REVISION |
|---|---|---|---|
| 1:1 | B | 9630-20-CV14PRxM CV10PT | 06 |

Notes:

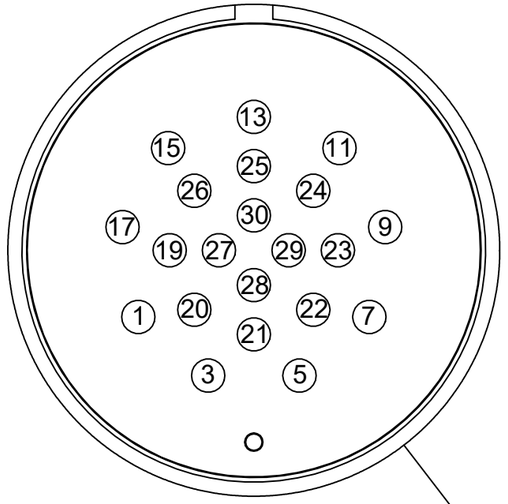
1. ***WARNING: Tool Release Will Occur with actuation of the Unlatch Valve Manual Override. Use of the valve manual override is restricted to contingency situations. The tool changer and associated tool should be in a stand or storage location prior to actuation of the manual override.***

2. ***NOTICE: Actuation of valve override buttons requires very little travel (~1mm) and only a small amount of force. Applying excess force can damage the solenoid or cause override button to stick in one position. Use non-sharp object, similar to ball nose 1.3mm Allen key, to gently depress the override button.***

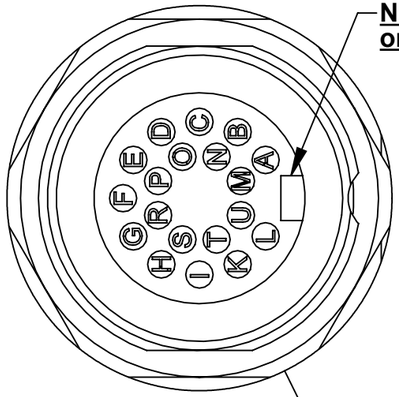



**Note key orientation**

DETAIL B
SCALE 3 : 1

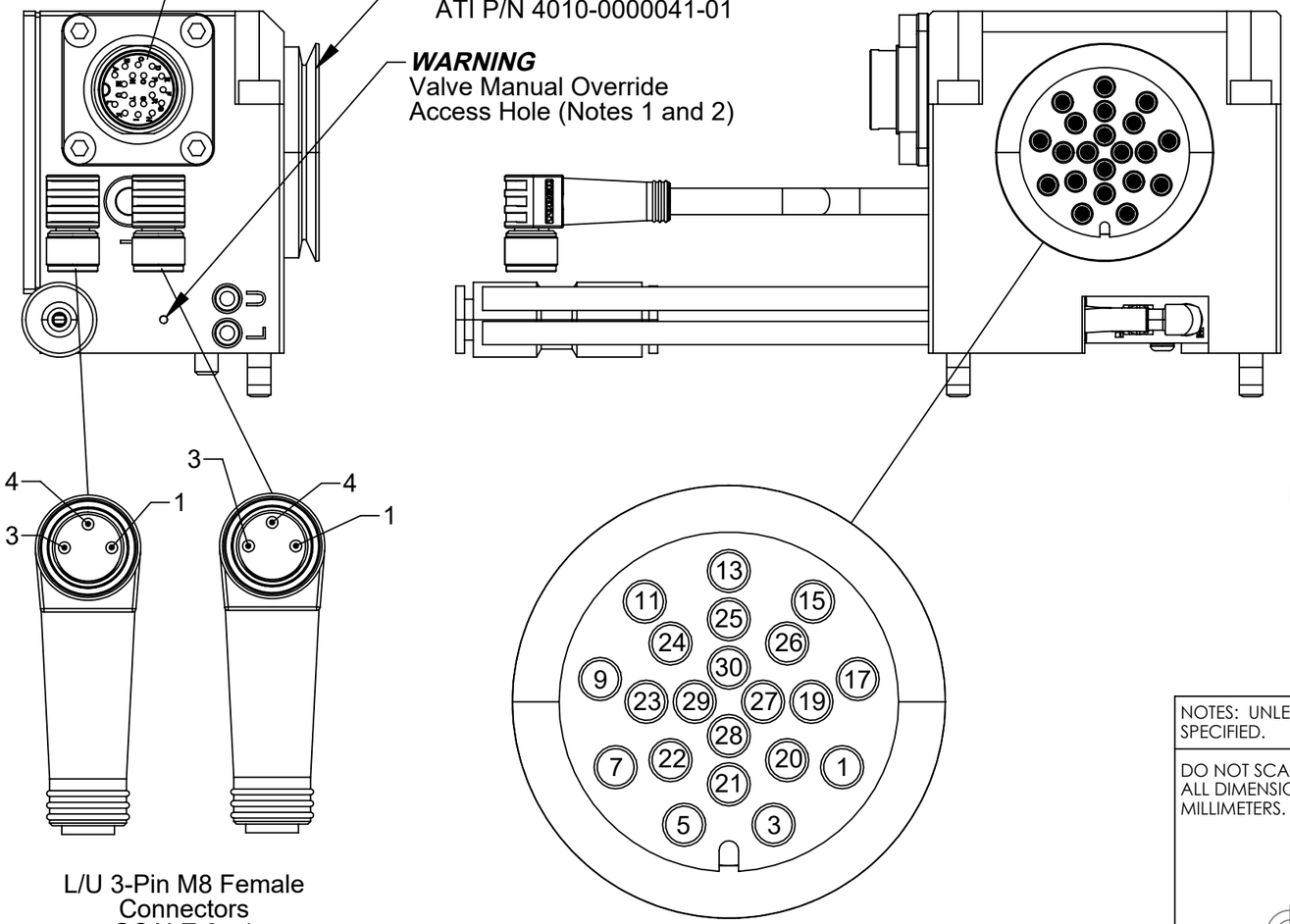



DETAIL C
SCALE 2 : 1




**Note key orientation**

DETAIL E
SCALE 3 : 1



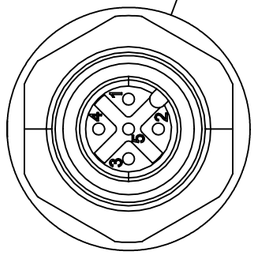




L/U 3-Pin M8 Female
Connectors
SCALE 2 : 1




DETAIL A
SCALE 2 : 1




DETAIL D
SCALE 2 : 1

NOTES: UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.

3rd ANGLE PROJECTION


ATI INDUSTRIAL AUTOMATION

*1031 Goodworth Drive, Apex, NC 27539, USA*
*Tel: +1.919.772.0115 www.ati-ia.com*
*Fax: +1.919.772.8259 ISO 9001 Registered Company*



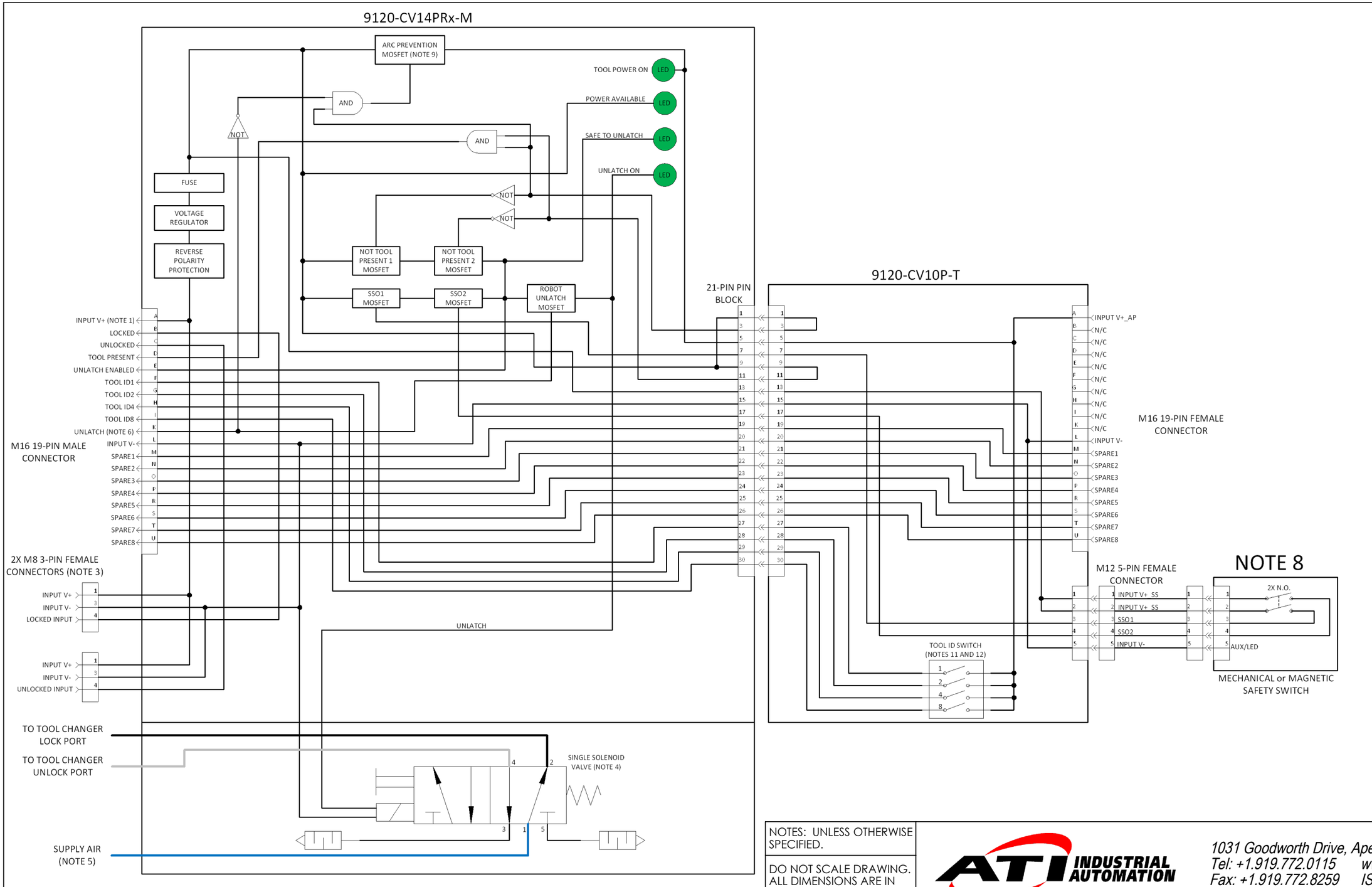

DRAWN BY: S. Yang, 06/28/2020

CHECKED BY: W. Berrocal, 10/26/20

PROJECT # 190203-1 SHEET 2 OF 4

TITLE: Compact Discrete Control Module, PNP, Right Angle Locked-Unlocked Sensor Cables

| SCALE | SIZE | DRAWING NUMBER | REVISION |
|---|---|---|---|
| 1:1 | B | 9630-20-CV14PRxM CV10PT | 06 |




Notes:
1. Electrical Schematic notes are on Sheet 4.

NOTES: UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.

3rd ANGLE PROJECTION

ATI INDUSTRIAL AUTOMATION
*1031 Goodworth Drive, Apex, NC 27539, USA*
*Tel: +1.919.772.0115 www.ati-ia.com*
*Fax: +1.919.772.8259 ISO 9001 Registered Company*



DRAWN BY: S. Yang, 06/28/2020

CHECKED BY: W. Berrocal, 10/26/20

PROJECT # 190203-1 SHEET 3 OF 4

TITLE: Compact Discrete Control Module, PNP, Right Angle Locked-Unlocked Sensor Cables

| SCALE | SIZE | DRAWING NUMBER | REVISION |
|---|---|---|---|
| 1:1 | B | 9630-20-CV14PRxM CV10PT | 06 |

Notes:

1. Input current (Pin A of the M16 connector) is limited to 4A. Input voltage is limited to 24V +20%/-10%.
2. Current and voltage on Spare Signals 1-8 are limited to 3A, 50V.
3. The CV14PRx Master module is designed to work with PNP Locked and Unlocked sensors and a PNP unlatch output. The Unlatch Enabled and Tool Present inputs are also also PNP. Note: The Locked and Unlocked sensors are supplied with the Tool Changer.
4. The CV14PRx Master module is equipped with a single solenoid 5-port, 2-position valve with spring return. The valve's purpose is to lock and unlock the Tool Changer. Because this is a single solenoid valve, the valve will default to the lock state when electrical power is lost.
5. The valve must be supplied with clean, dry air filtered to 40 microns. The air supply pressure must be between 60 and 100 psi [.41 MPa to .69 MPa]. A 6mm to 4mm reducer fitting is attached to the end of the valve air supply fitting.
6. The CV14PRx Master module is designed to prevent an accidental tool unlatch. The unlatch command will only be executed if the Safety Switch inputs, SSO1 and SSO2, are both true, indicating that the Tool is in the Tool Stand.
7. The CV14PR Master is equipped with a bypass circuit that will allow an unlatch command to be executed when NO TOOL is present, as indicated by the two Tool Present signals.
8. Use a safety rated mechanical or magnetic limit switch with two Normally Open contacts. The contacts should only close when the Tool is nested safely in the Tool Stand. The switch must be connected as indicated in the schematic.
9. The CV14PR Master is equipped with Arc Prevention circuitry that protects the electrical contacts against arcing when coupling and uncoupling. The Arc Prevention circuit will turn power on when Unlatch is true and the Tool Present 1 signal is true.
10. The CV14PR Master is equipped with four LEDs indicating the following:
    1. "POWER": Power to the Master is available
    2. "TOOL POWER ON": Arc prevention has turned on power to the Tool
    3. "SAFE TO UNLATCH": The conditions for a safe unlatch have been met
    4. "UNLATCH ON": The unlatch output to the valve is active

    See the product manual for additional information.
11. Table 1 shows a detailed pinout of the Master side M16 Male Connector.
12. The Tool ID circuit is rated to 30V, 100mA. See Table 2 for Tool ID binary output. The Tool ID common is Input V+.

**TABLE 1: MASTER SIDE M16 19-PIN CONNECTOR PINOUT**

| Connector Pin | Signal Name |
|---|---|
| A | Input V+ (24V) |
| B | Locked |
| C | Unlocked |
| D | Tool Present |
| E | Unlatch Enabled |
| F | Tool ID1 |
| G | Tool ID2 |
| H | Tool ID4 |
| I | Tool ID8 |
| K | Unlatch |
| L | Input V- (0V) |
| M | Spare 1 |
| N | Spare 2 |
| O | Spare 3 |
| P | Spare 4 |
| R | Spare 5 |
| S | Spare 6 |
| T | Spare 7 |
| U | Spare 8 |

**TABLE 2: TOOL ID BINARY OUTPUT**

| Switch Selection | Pin I | Pin H | Pin G | Pin F |
|---|---|---|---|---|
| 0 | 0 | 0 | 0 | 0 |
| 1 | 0 | 0 | 0 | 1 |
| 2 | 0 | 0 | 1 | 0 |
| 3 | 0 | 0 | 1 | 1 |
| 4 | 0 | 1 | 0 | 0 |
| 5 | 0 | 1 | 0 | 1 |
| 6 | 0 | 1 | 1 | 0 |
| 7 | 0 | 1 | 1 | 1 |
| 8 | 1 | 0 | 0 | 0 |
| 9 | 1 | 0 | 0 | 1 |
| A | 1 | 0 | 1 | 0 |
| B | 1 | 0 | 1 | 1 |
| C | 1 | 1 | 0 | 0 |
| D | 1 | 1 | 0 | 1 |
| E | 1 | 1 | 1 | 0 |
| F | 1 | 1 | 1 | 1 |

NOTES: UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.

3rd ANGLE PROJECTION

ATI INDUSTRIAL AUTOMATION
*1031 Goodworth Drive, Apex, NC 27539, USA*
*Tel: +1.919.772.0115 www.ati-ia.com*
*Fax: +1.919.772.8259 ISO 9001 Registered Company*



DRAWN BY: S. Yang, 06/28/2020

CHECKED BY: W. Berrocal, 10/26/20

PROJECT # 190203-1 SHEET 4 OF 4

TITLE: Compact Discrete Control Module, PNP, Right Angle Locked-Unlocked Sensor Cables

| SCALE | SIZE | DRAWING NUMBER | REVISION |
|---|---|---|---|
| 1:1 | B | 9630-20-CV14PRxM CV10PT | 06 |