

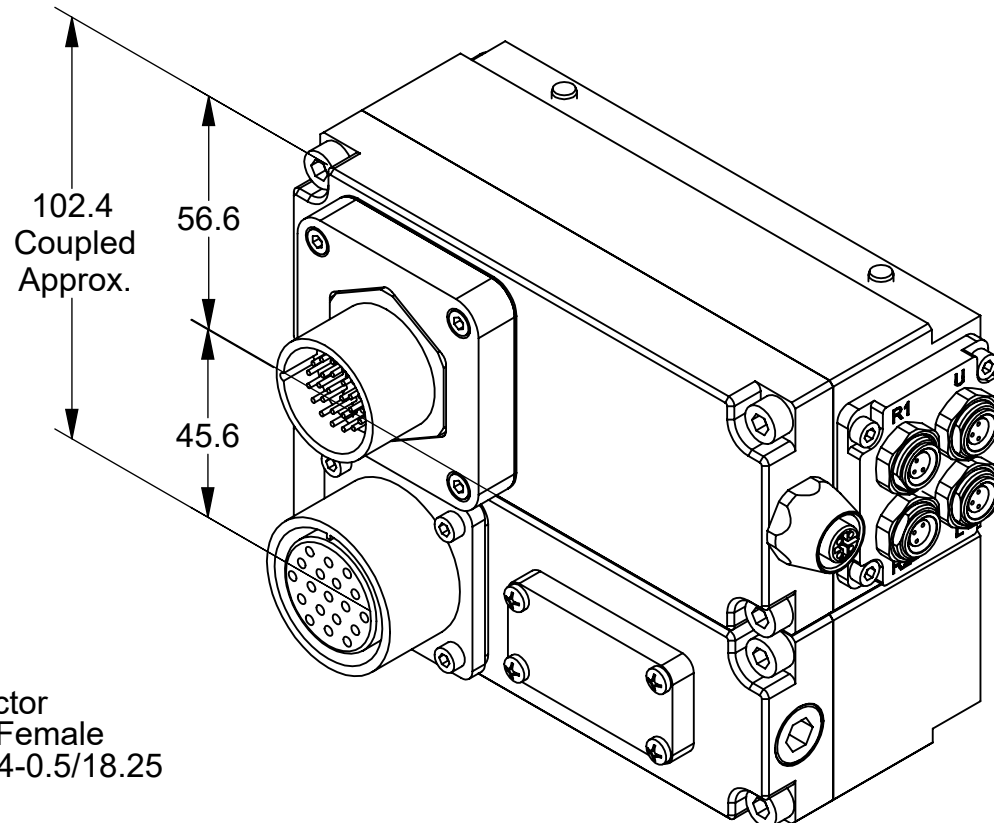
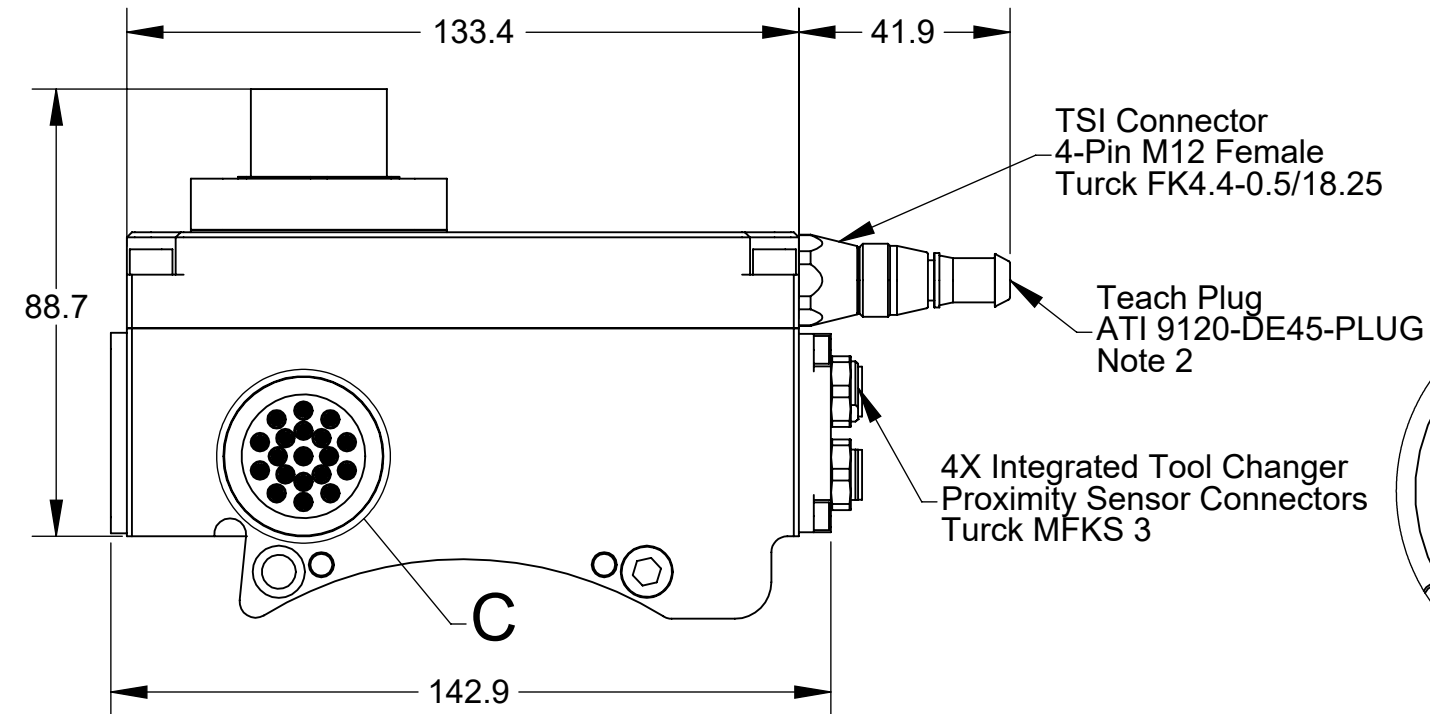
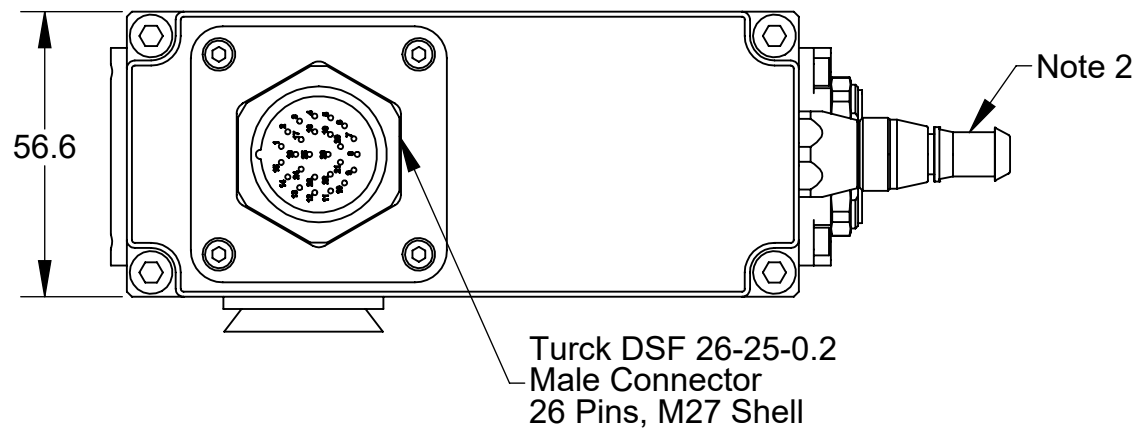
"DANGER!" - Electrical Shock Hazard

This module has a Voltage of 50V or greater, NO contact should be attempted before removing power. This especially includes separation or insertion of the mating connectors or any contact with the tool changer or its components.

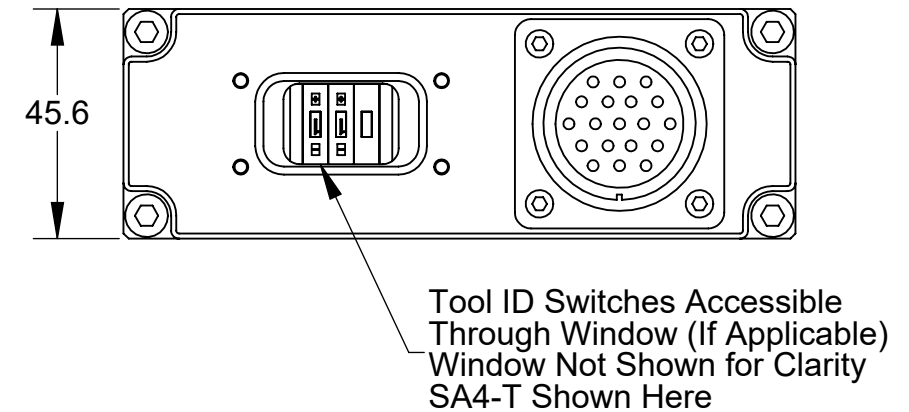
Rev.	Description	Initiator	Date
08	ECO 19187: Sheet 1: Removed "Sheet 6: VA7 Master with SA5 Tool (0-999 Tool ID)" note & renumbered. Removed Sheet 6 & renumbered.	TBC	7/27/2020

VA7 Family Dimensions

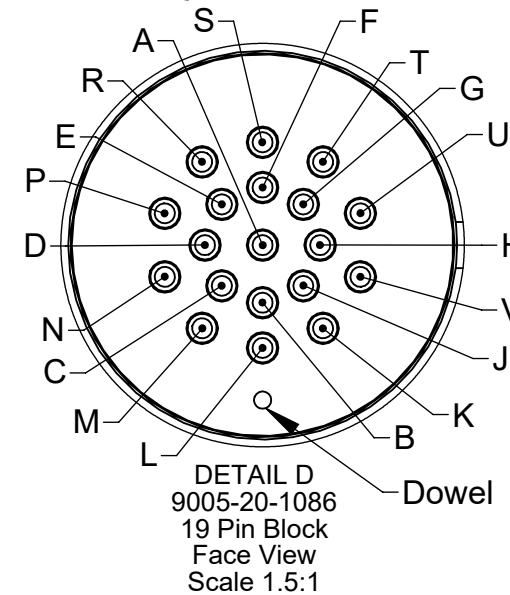
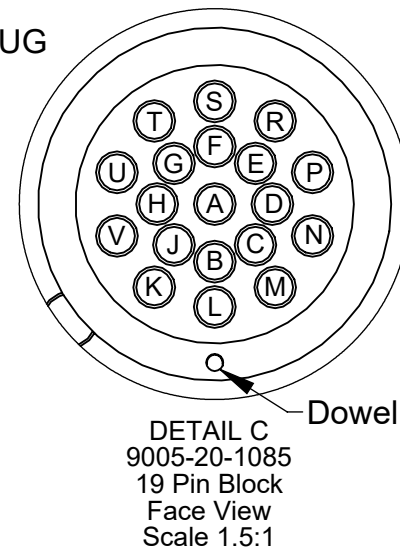
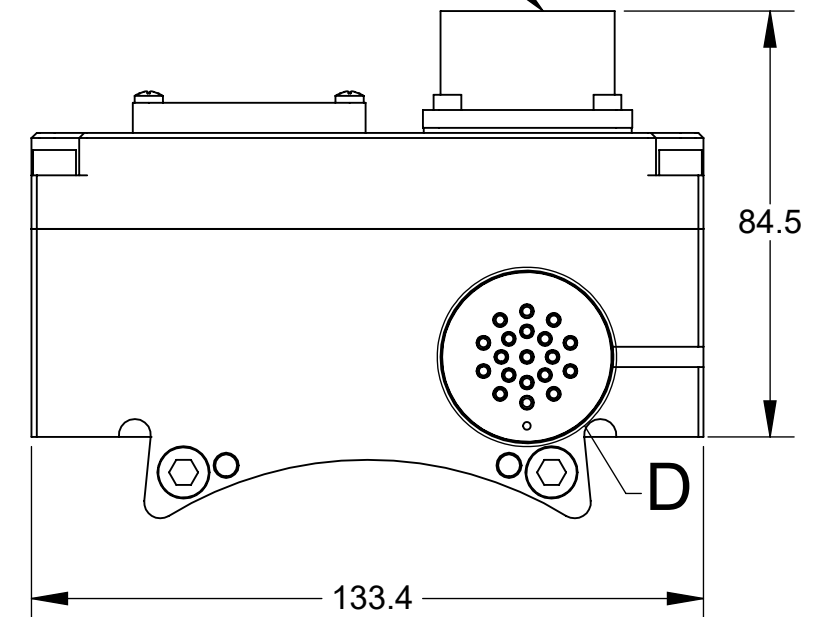
VA7 Master Module (9121-VA7-M)



SA Tool Module (9121-SAx-T)



MS3102E22-14S Female Connector



Notes:

- Sheet Configurations**
 Sheet 1: VA7 Family Dimensions
 Sheet 2: VA7 Valve and Sensor Connection Details and Serviceable Parts
 Sheet 3: VA7 Master with SA2 Tool
 Sheet 4: VA7 Master with SA3 Tool (0-9 Tool ID)
 Sheet 5: VA7 Master with SA4 Tool (0-99 Tool ID)
- Teach Plug is not connected to the Tool Stand Interlock (TSI) connector. Item is bagged separately.

NOTES: UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.



3rd ANGLE PROJECTION



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

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: A. Takla, 12/20/11		TITLE	
CHECKED BY: W. Berrocal, 12/21/11 A. Strotzer, 01/20/12		VA7 Family Module Drawing	
PROJECT #	111111-1	SHEET	OF 5
SCALE	2:3	SIZE	B
DRAWING NUMBER	9630-20-VA7 Family		REVISION
			08

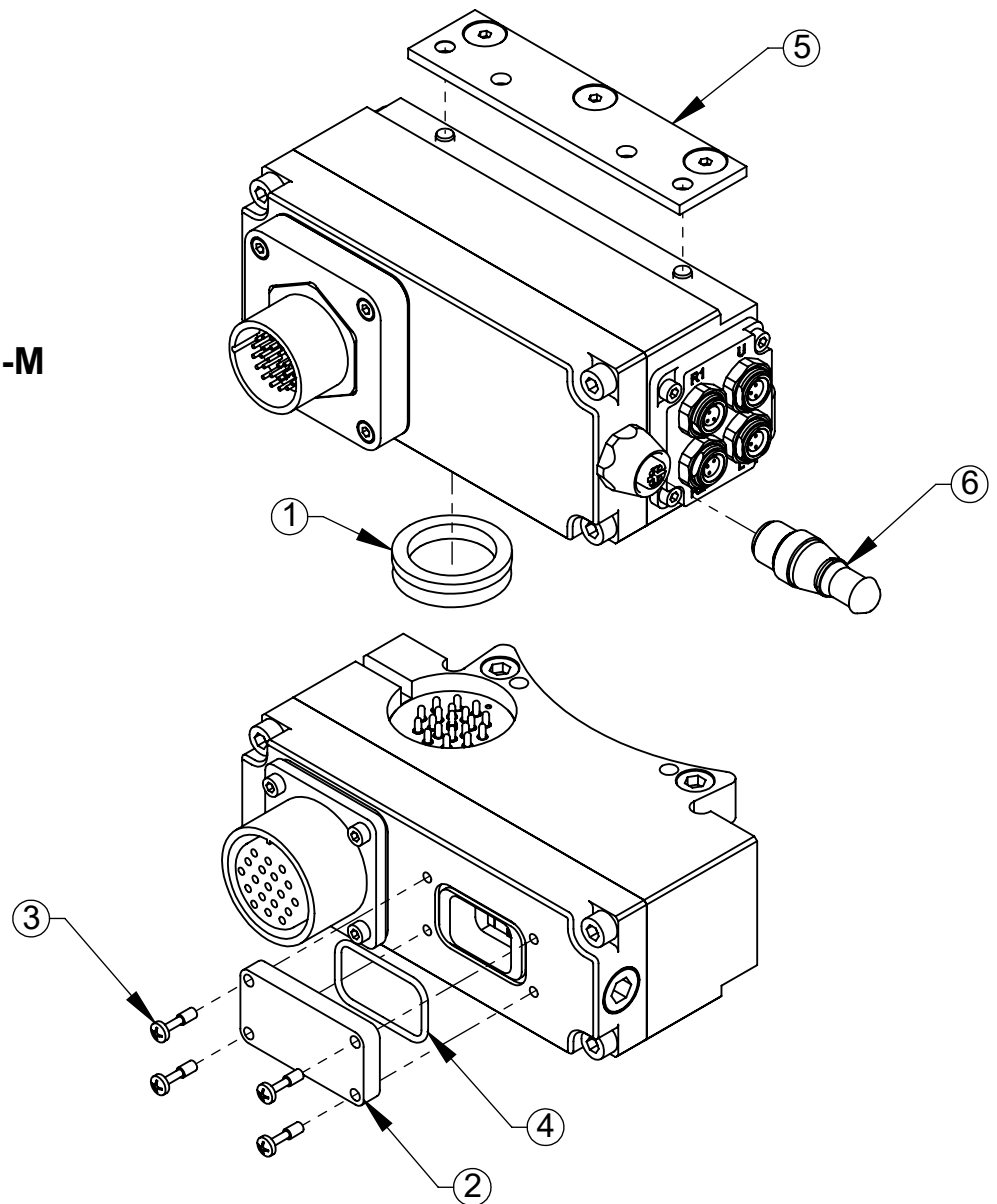
Sensor Connector Wiring (RTL2)

Pin	Signal
1	V+ (24 VDC)
3	0 VDC
4	RTL2

Sensor Connector Wiring (RTL1)

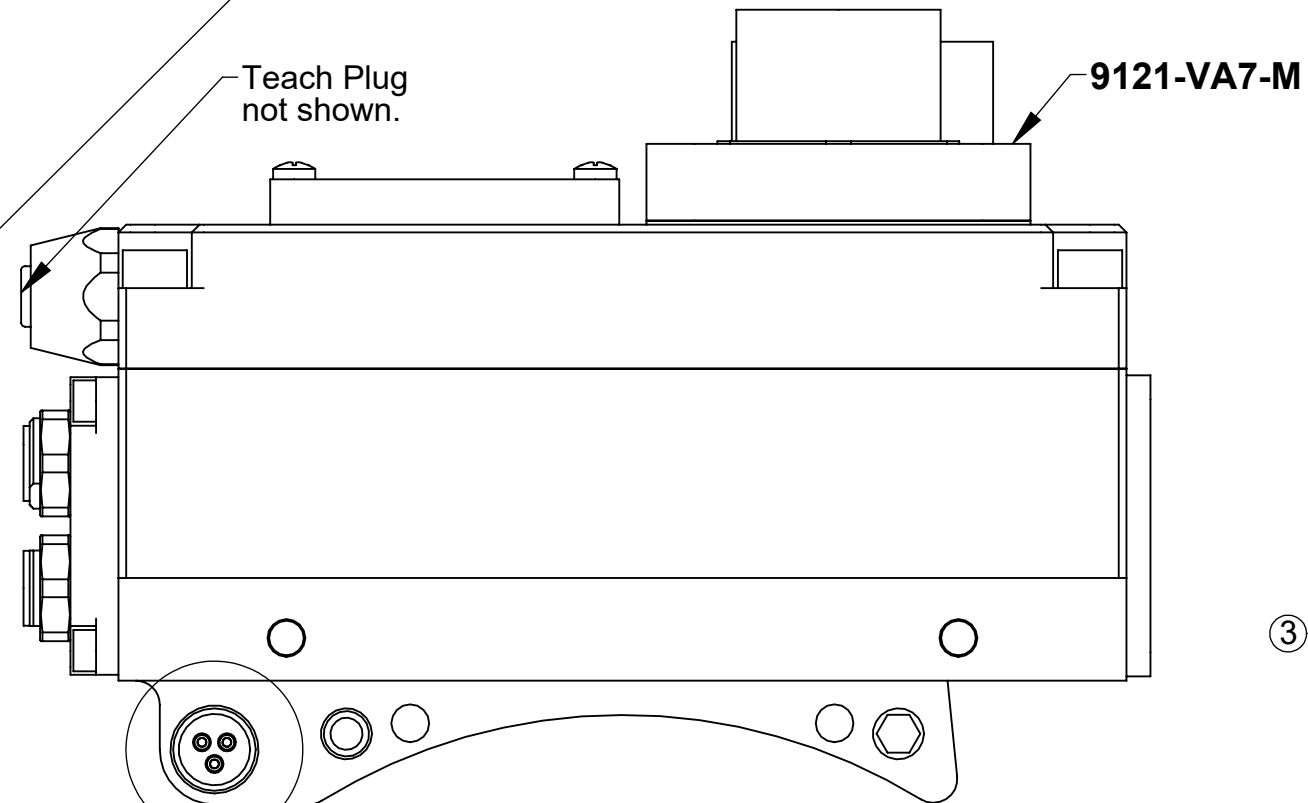
Pin	Signal
1	V+ (24 VDC)
3	0 VDC
4	RTL1

VA7 Family Serviceable Parts



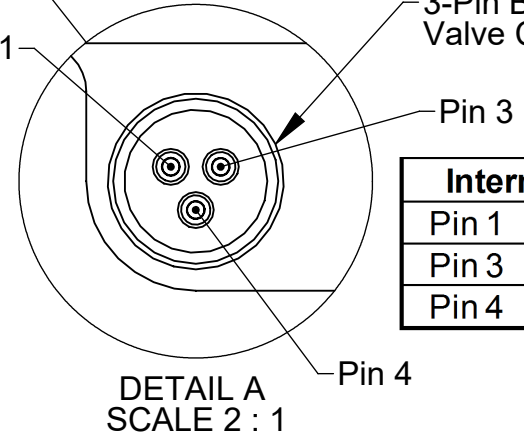
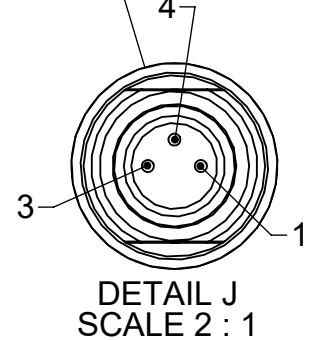
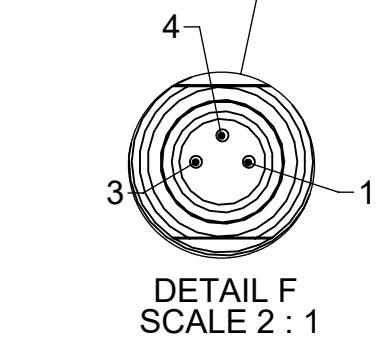
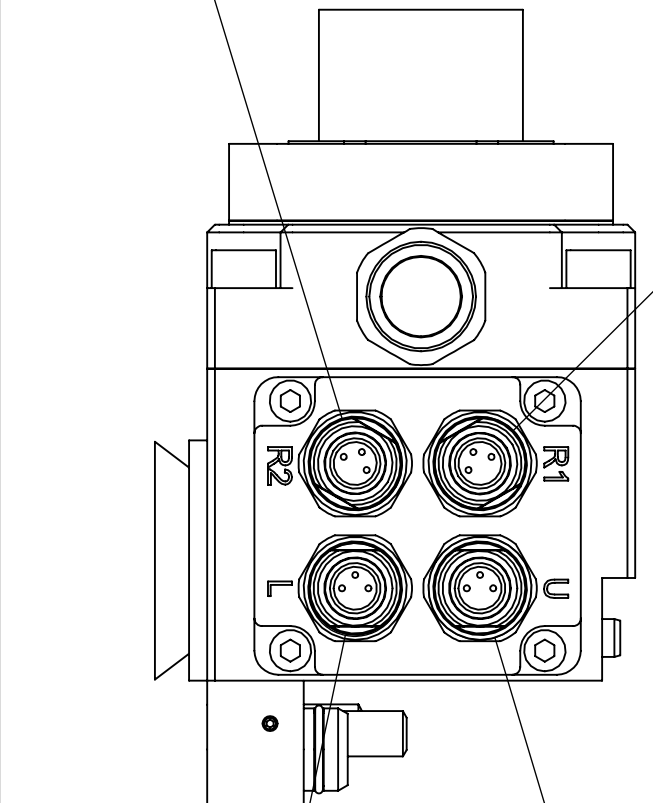
DETAIL G
SCALE 2 : 1

DETAIL H
SCALE 2 : 1



9121-VA7-M

3-Pin Block for Valve Connection



Internal Valve Connection

Pin 1	Unlatch
Pin 3	0 VDC (Common)
Pin 4	Latch

Sensor Connector Wiring (Latch)

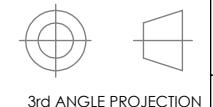
Pin	Signal
1	V+ (24 VDC)
3	0 VDC
4	Latch

Sensor Connector Wiring (Unlatch)

Pin	Signal
1	V+ (24 VDC)
3	0 VDC
4	Unlatch

ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	4010-0000030-01	V-Ring Seal
2	1	3700-20-2696	Thick Window for DP/DE45 Master
3	4	3500-9957012-21	CAPTIVE SCREW M3 X 12 SLOTTED HEAD SS
4	1	3410-0001092-01	O-ring AS568-023
5	1	9005-20-1198	Master Cleat Sub-Assembly
6	1	9120-DE45-PLUG	Yellow Teach Plug w/ Lanyard and Caution Tags

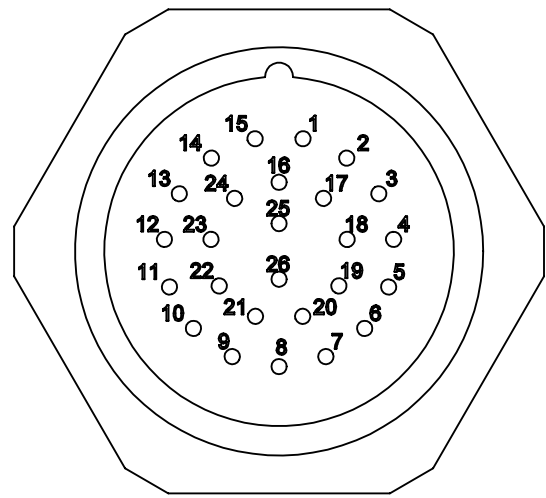
NOTES: UNLESS OTHERWISE SPECIFIED.
DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.



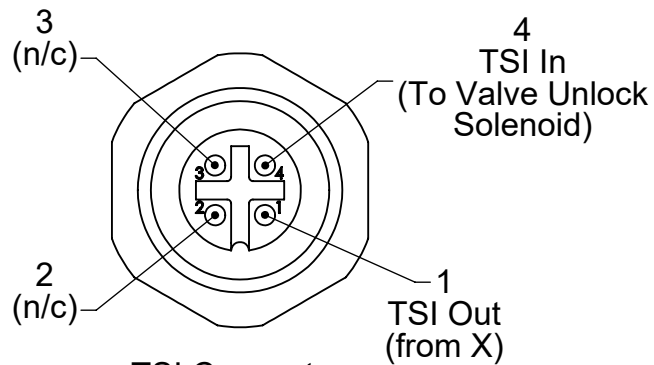
1031 Goodworth Drive, Apex, NC 27539, USA
Tel: +1.919.772.0115 www.ati-ia.com
Fax: +1.919.772.8259 ISO 9001 Registered Company

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

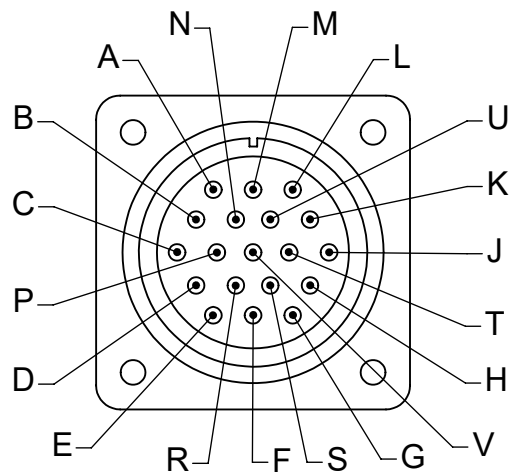
DRAWN BY: A. Takla, 12/20/11		TITLE	
CHECKED BY: W. Berrocal, 12/21/11		VA7 Family Module Drawing	
A. Strotzer, 01/20/12		SCALE	SIZE
PROJECT # 111111-1	SHEET 2 OF 5	1:2	B
		DRAWING NUMBER	REVISION
		9630-20-VA7 Family	08



Turck Connector
VA7 Master Side
DSF 26-25-0.2
Face View
Scale 2:1



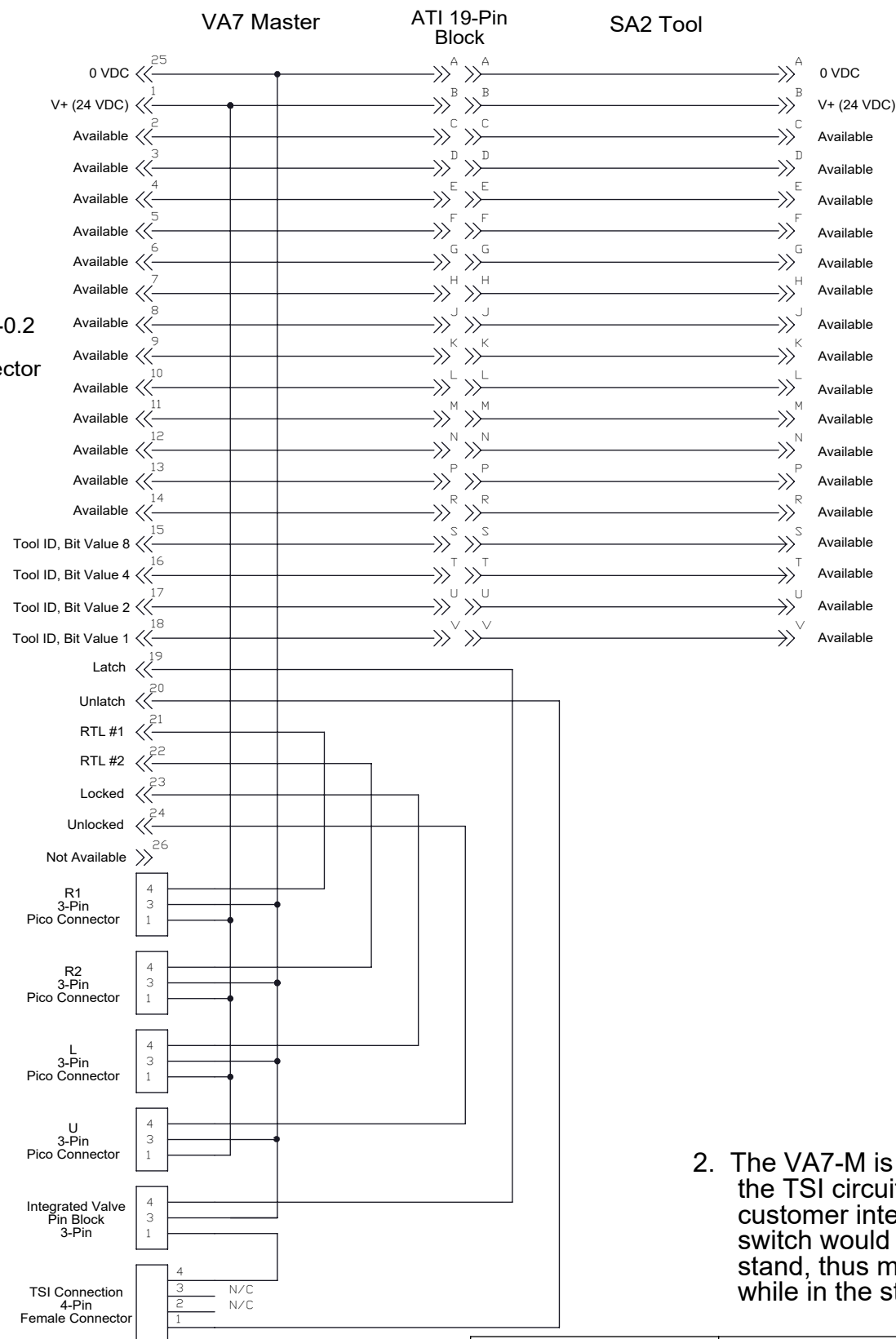
TSI Connector
VA6 Master Side
Scale 2:1
(4-Pin Euro)



Amphenol Connector
Tool Side
MS3102E22-14S
Face View
Scale 1:1

General Notes:

1. Pin A of Pin Block is first mate and last break during a tool change and is specified for use as 0 VDC and/or ground service.



VA7 Master with SA2 Tool

Controller Outputs

Pin	Signal	Description
25	0 VDC	Voltage Reference
1	24 VDC	Voltage Supply
19	24 VDC	Lock Solenoid Supply (Double Solenoid)
20	24 VDC	Unlock Solenoid Supply

Controller Inputs

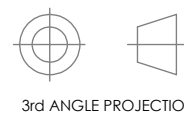
Pin	Signal	Description
21	RTL #1	Ready-To-Lock Input #1
22	RTL #2	Ready-To-Lock Input #2
23	Locked	Tool Changer Lock Input
24	Unlocked	Tool Changer Unlock Input

MS3102E22-14S
26-Pin
Female Connector

2. The VA7-M is supplied with a Teach Plug (part # 9120-DE45-PLUG) to make the TSI circuit (Pin 1 to Pin 4 on TSI Connector). It is recommended that the customer integrate a mechanical limit switch to use with this circuit. The limit switch would be mounted to indicate that the robot and tool changer are in the stand, thus making the circuit and only allowing the tool changer to uncouple while in the stand. Contact ATI for further assistance.

NOTES: UNLESS OTHERWISE SPECIFIED.

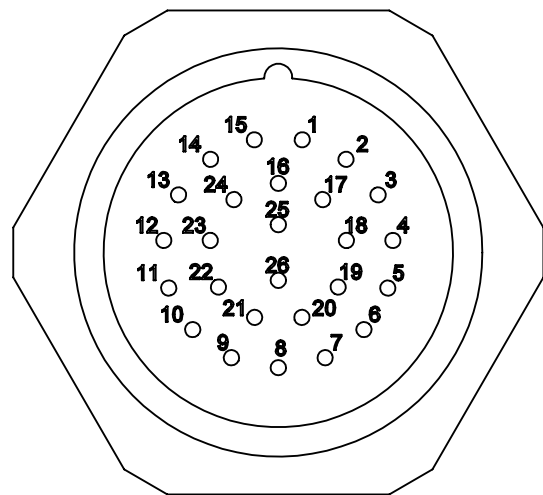
DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.



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

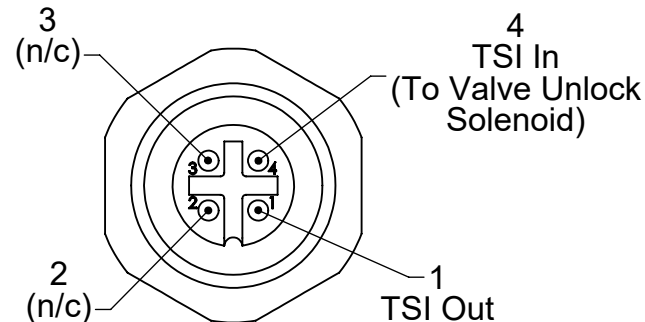
PROPERTY OF ATI INDUSTRIAL AUTOMATION, INC. NOT TO BE REPRODUCED IN ANY MANNER EXCEPT ON ORDER OR WITH PRIOR WRITTEN AUTHORIZATION OF ATI.

DRAWN BY: A. Takla, 12/20/11		TITLE	
CHECKED BY: W. Berrocal, 12/21/11		VA7 Family Module Drawing	
A. Strotzer, 01/20/12		SCALE	SIZE
PROJECT # 111111-1	SHEET 3 OF 5	1:2	B
		DRAWING NUMBER	REVISION
		9630-20-VA7 Family	08

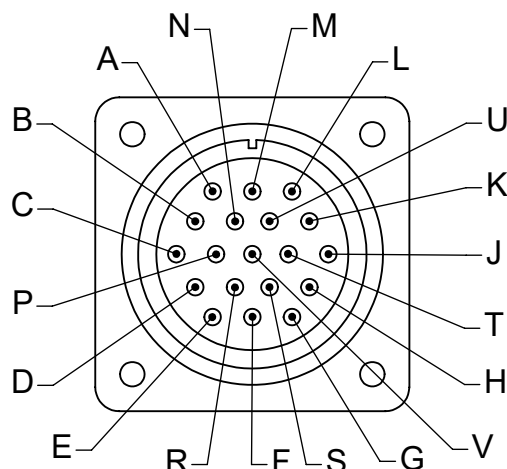


DSF 26-25-0.2
26-Pin
Male Connector

Turck Connector
VA7 Master Side
DSF 26-25-0.2
Face View
Scale 2:1



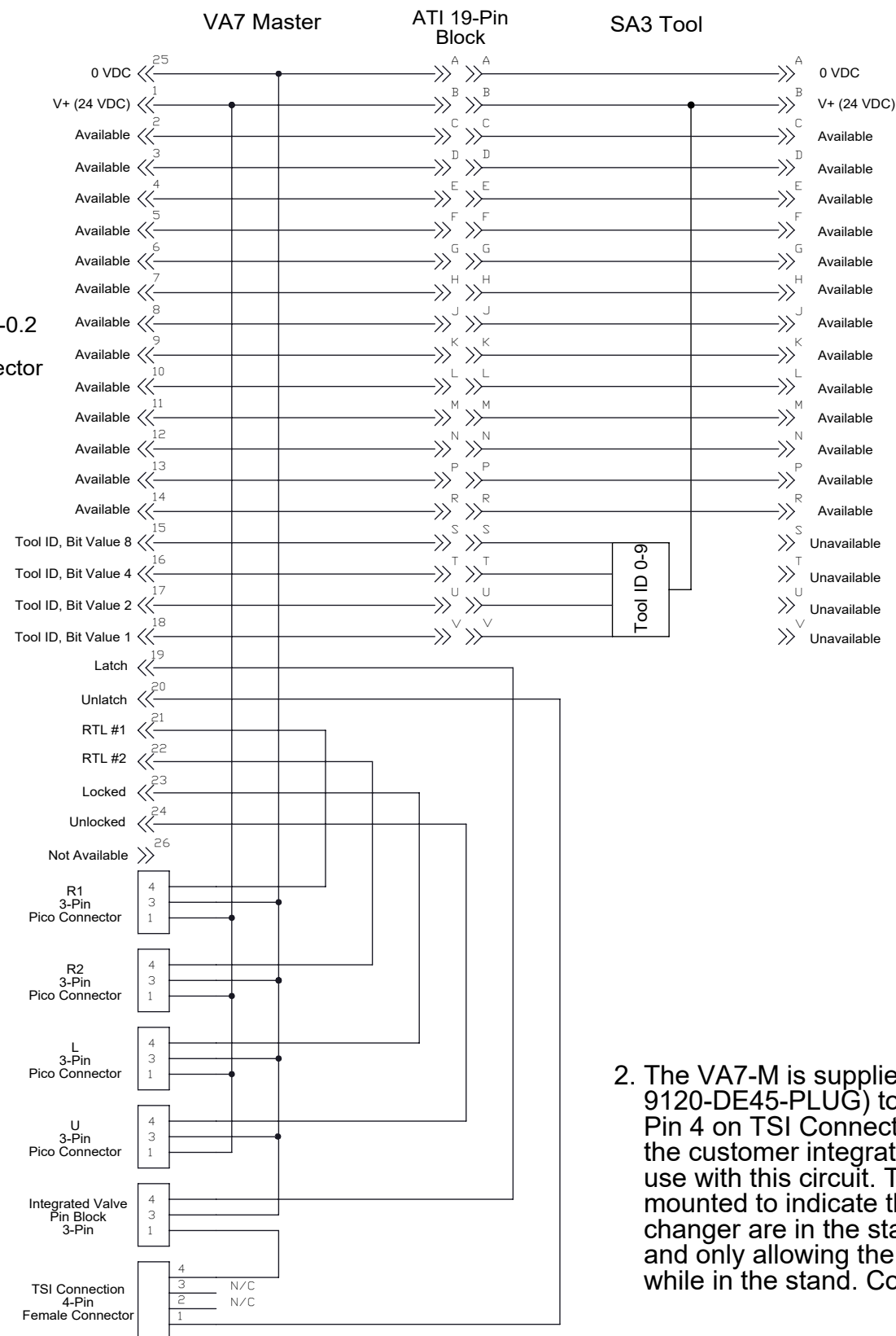
TSI Connector
VA7 Master Side
Scale 2:1
(4-Pin Euro)



Amphenol Connector
Tool Side
MS3102E22-14S
Face View
Scale 1:1

General Notes:

1. Pin A of Pin Block is first mate and last break during a tool change and is specified for use as 0 VDC and/or ground service.



MS3102E22-14S
26-Pin
Female Connector

VA7 Master with SA3 Tool (0-9 Tool ID)

Controller Outputs

Pin	Signal	Description
25	0 VDC	Voltage Reference
1	24 VDC	Voltage Supply
19	24 VDC	Lock Solenoid Supply (Double Solenoid)
20	24 VDC	UnLock Solenoid Supply

Controller Inputs

Pin	Signal	Description
15	Tool ID	Bit Value 8 (See Tool ID Table)
16	Tool ID	Bit Value 4 (See Tool ID Table)
17	Tool ID	Bit Value 2 (See Tool ID Table)
18	Tool ID	Bit Value 1 (See Tool ID Table)
21	RTL #1	Ready-To-Lock Input #1
22	RTL #2	Ready-To-Lock Input #2
23	Locked	Tool Changer Lock Input
24	Unlocked	Tool Changer Unlock Input

Tool ID Output

Switch 1	Pin			
	15	16	17	18
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

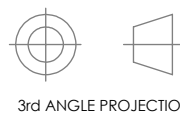
Table Notes:

1. Refer to Tool ID Output Table (above) for the Tool ID output.
2. Use Pin '1' of the 26-Pin Connector (Master Side) as common.

2. The VA7-M is supplied with a Teach Plug (part # 9120-DE45-PLUG) to make the TSI circuit (Pin 1 to Pin 4 on TSI Connector). It is recommended that the customer integrate a mechanical limit switch to use with this circuit. The limit switch would be mounted to indicate that the robot and tool changer are in the stand, thus making the circuit and only allowing the tool changer to uncouple while in the stand. Contact ATI for further assistance.

NOTES: UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.



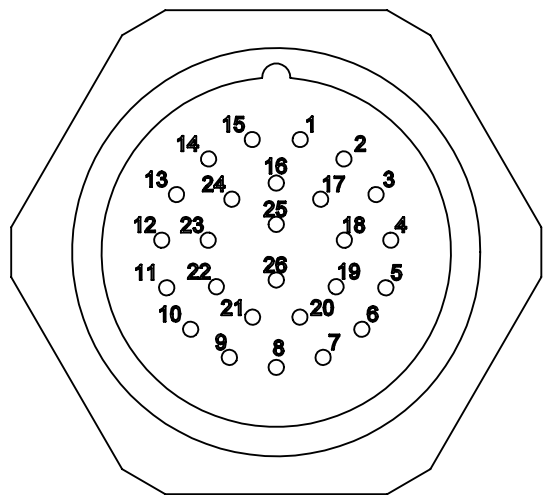
3rd ANGLE PROJECTION



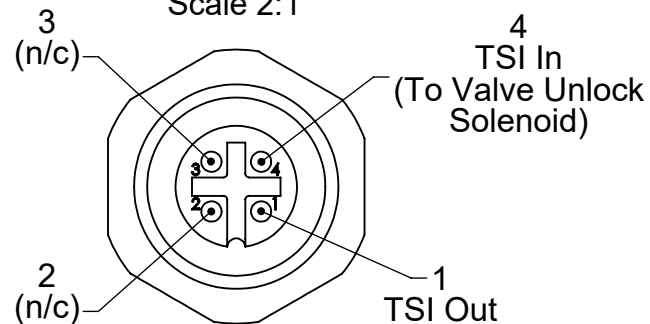
1031 Goodworth Drive, Apex, NC 27539, USA
Tel: +1.919.772.0115 www.ati-ia.com
Fax: +1.919.772.8259 ISO 9001 Registered Company

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

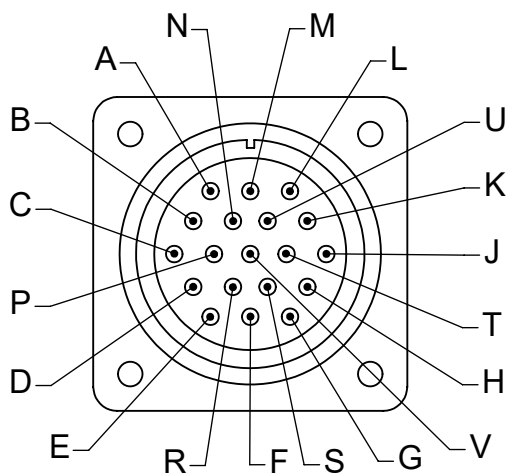
DRAWN BY: A. Takla, 12/20/11		TITLE	
CHECKED BY: W. Berrocal, 12/21/11		VA7 Family Module Drawing	
A. Strotzer, 01/20/12		SCALE	SIZE
PROJECT # 111111-1	SHEET 4 OF 5	1:2	B
DRAWING NUMBER		REVISION	
9630-20-VA7 Family		08	



Turck Connector
VA7 Master Side
DSF 26-25-0.2
Face View
Scale 2:1



TSI Connector
VA7 Master Side
Scale 2:1
(4-Pin Euro)

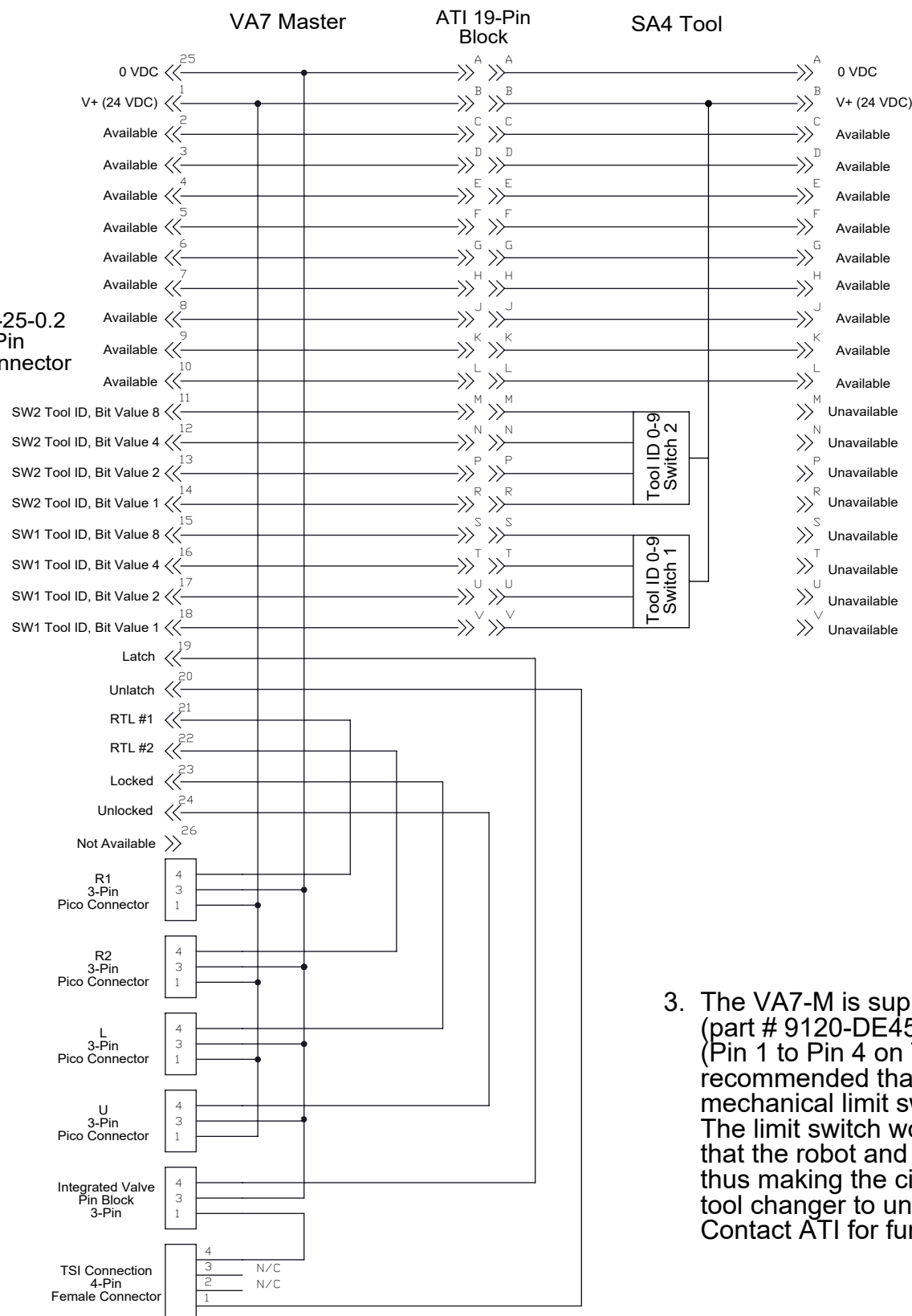


Amphenol Connector
Tool Side
MS3102E22-14S
Face View
Scale 1:1

General Notes:

1. Pin A of Pin Block is first mate and last break during a tool change and is specified for use as 0 VDC and/or ground service.
2. The common for Tool ID is tied into the 24VDC line (Pin B). The Tool ID switches are Rated for service at 50V and 100 mA max. Refer to the Tool ID table for switch setup information.

DSF 26-25-0.2
26-Pin
Male Connector



MS3102E22-14S
26-Pin
Female Connector

VA7 Master with SA4 Tool (0-99 Tool ID)

Controller Outputs

Pin	Signal	Description
25	0 VDC	Voltage Reference
1	24 VDC	Voltage Supply
19	24 VDC	Lock Solenoid Supply (Double Solenoid)
20	24 VDC	UnLock Solenoid Supply

Controller Inputs

Pin	Signal	Description
11	Tool ID	SW2 Bit Value 8 (See Tool ID Table)
12	Tool ID	SW2 Bit Value 4 (See Tool ID Table)
13	Tool ID	SW2 Bit Value 2 (See Tool ID Table)
14	Tool ID	SW2 Bit Value 1 (See Tool ID Table)
15	Tool ID	SW1 Bit Value 8 (See Tool ID Table)
16	Tool ID	SW1 Bit Value 4 (See Tool ID Table)
17	Tool ID	SW1 Bit Value 2 (See Tool ID Table)
18	Tool ID	SW1 Bit Value 1 (See Tool ID Table)
21	RTL #1	Ready-To-Lock Input #1
22	RTL #2	Ready-To-Lock Input #2
23	Locked	Tool Changer Lock Input
24	Unlocked	Tool Changer Unlock Input

Tool ID Output

	Pin	Pin	Pin	Pin
Switch 1	15	16	17	18
Switch 2	11	12	13	14
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

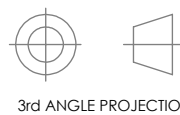
Table Notes:

1. Refer to Tool ID Output Table (above) for the Tool ID output.
2. Use Pin '1' of the 26-Pin Connector (Master Side) as common.

3. The VA7-M is supplied with a Teach Plug (part # 9120-DE45-PLUG) to make the TSI circuit (Pin 1 to Pin 4 on TSI Connector). It is recommended that the customer integrate a mechanical limit switch to use with this circuit. The limit switch would be mounted to indicate that the robot and tool changer are in the stand, thus making the circuit and only allowing the tool changer to uncouple while in the stand. Contact ATI for further assistance.

NOTES: UNLESS OTHERWISE SPECIFIED.

DO NOT SCALE DRAWING. ALL DIMENSIONS ARE IN MILLIMETERS.



3rd ANGLE PROJECTION



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

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: A. Takla, 12/20/11		TITLE	
CHECKED BY: W. Berrocal, 12/21/11		VA7 Family Module Drawing	
A. Strotzer, 01/20/12		SCALE	SIZE
PROJECT # 111111-1	SHEET 5 OF 5	1:2	B
		DRAWING NUMBER	REVISION
		9630-20-VA7 Family	08