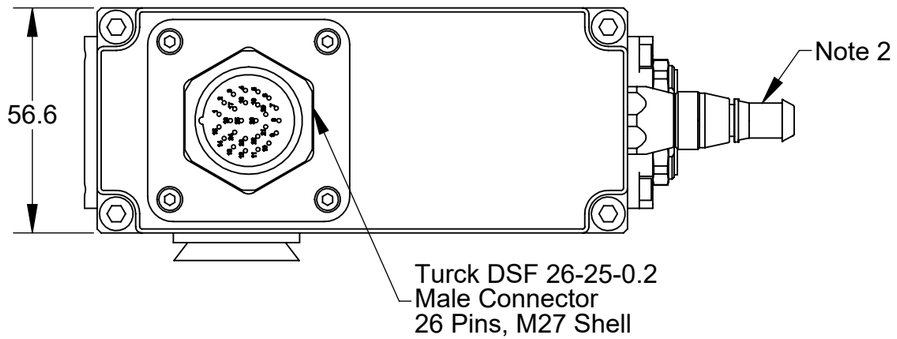
Rev.	Description	Initiator	Date
09	ECO 21814; Updated to reflect changes to 9121-SA4-T.	DS	9/5/2024

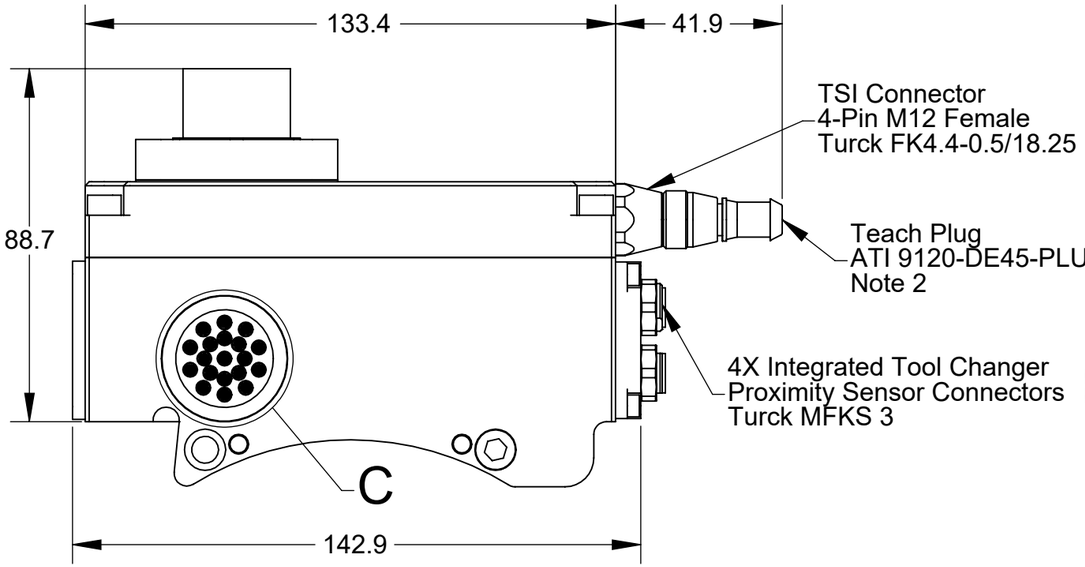
"DANGER!" - Electrical Shock Hazard

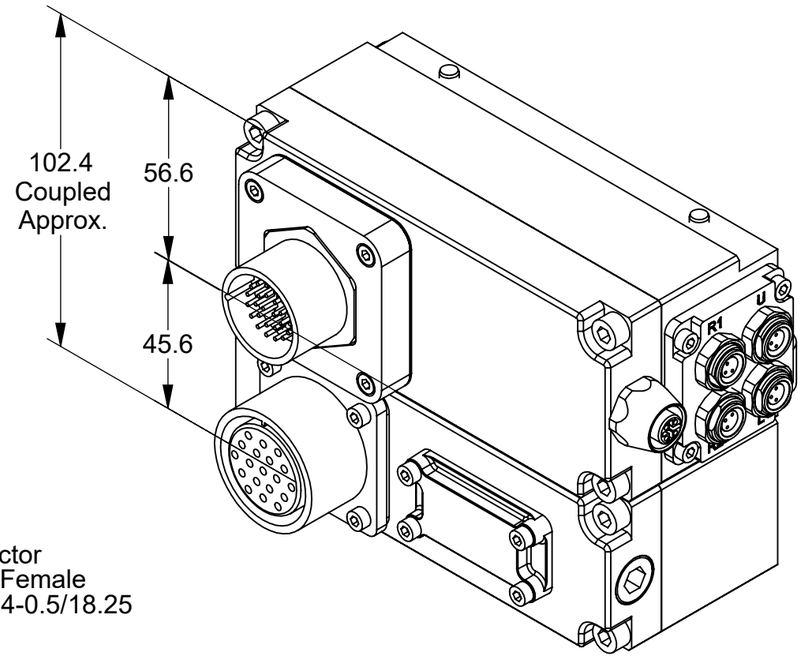
This module has a Voltage of 50V or greater, NO contact should be attempted before removing power. This especially includes separation or insertion of the mating connectors or any contact with the tool changer or its components.

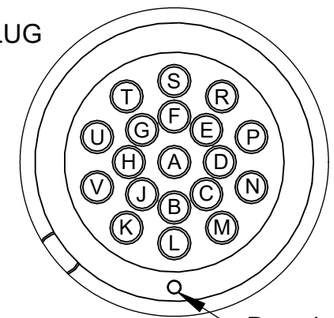
VA7 Family Dimensions

VA7 Master Module (9121-VA7-M)

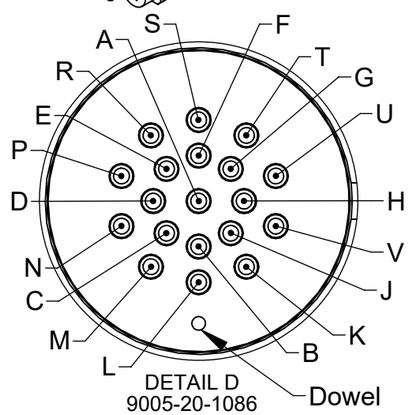






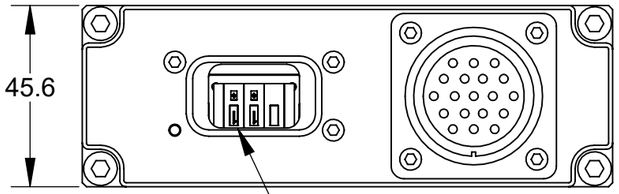


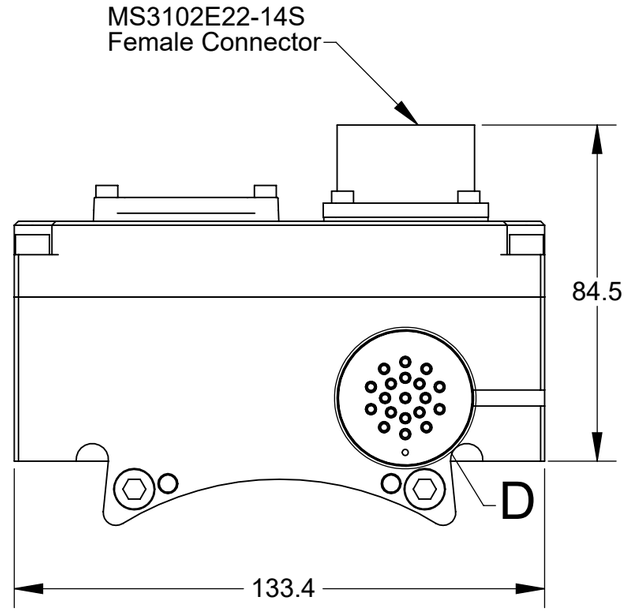
DETAIL C
9005-20-1085
19 Pin Block
Face View
Scale 1.5:1



DETAIL D
9005-20-1086
19 Pin Block
Face View
Scale 1.5:1

SA Tool Module (9121-SAx-T)





Notes:

1. 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)

2. Teach Plug is not connected to the Tool Stand Interlock (TSI) connector. Item is bagged separately.

NOTES: UNLESS OTHERWISE SPECIFIED.

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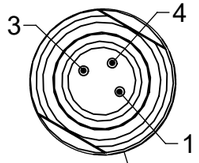
CHECKED BY: W. Berrocal, 12/21/11
A. Strotzer, 01/20/12

PROJECT # 111111-1 SHEET 1 OF 5

TITLE: VA7 Family Module Drawing

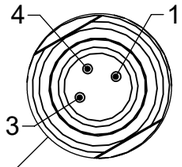
SCALE	SIZE	DRAWING NUMBER	REVISION
2:3	B	9630-20-VA7 Family	09

Sensor Connector Wiring (RTL2)	
Pin	**Signal**
1	V+ (24 VDC)
3	0 VDC
4	RTL2

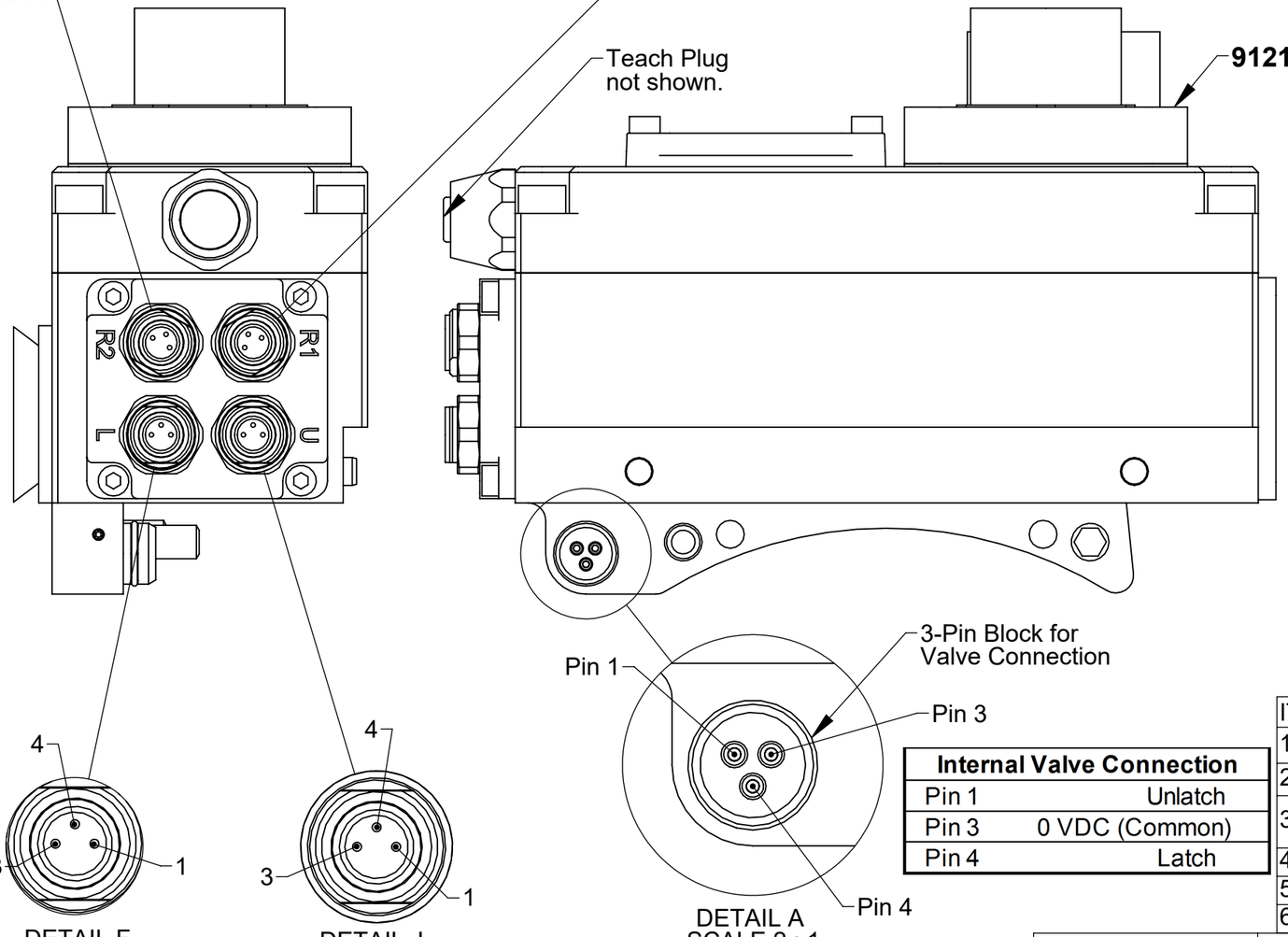


DETAIL G
SCALE 2 : 1

Sensor Connector Wiring (RTL1)	
Pin	**Signal**
1	V+ (24 VDC)
3	0 VDC
4	RTL1



DETAIL H
SCALE 2 : 1



DETAIL F
SCALE 2 : 1

DETAIL J
SCALE 2 : 1

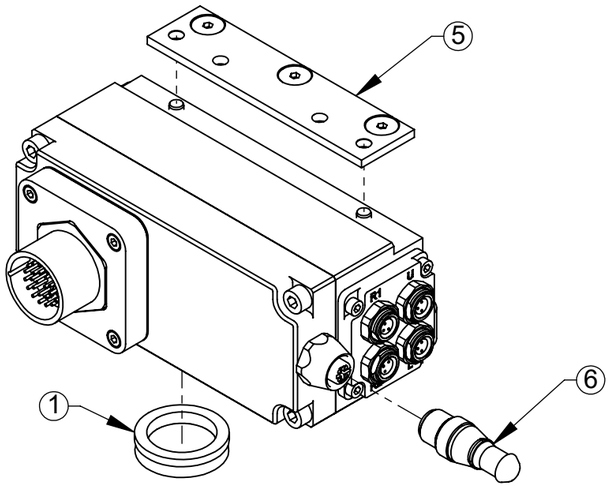
DETAIL A
SCALE 2 : 1

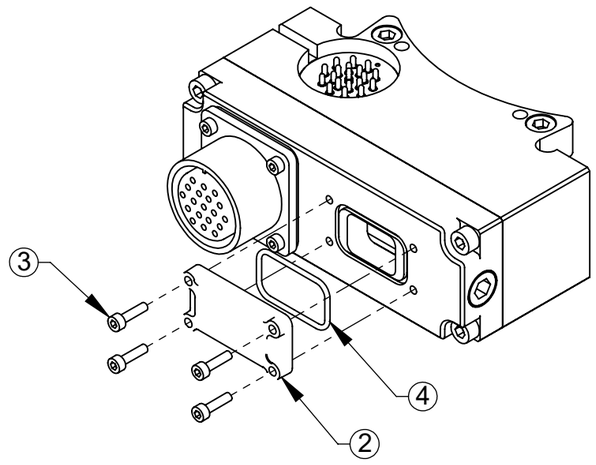
Internal Valve Connection	
Pin 1	Unlatch
Pin 3	0 VDC (Common)
Pin 4	Latch

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

VA7 Family Serviceable Parts





ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	4010-0000030-01	V-Ring Seal
2	1	3700-20-11881	DeviceNet Master Window Thick, Injection Molded
3	4	3500-1058012-15	M3X12 SHCS, 12.9, ISO4762/DIN912, Corrosion Protection Coating
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

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DRAWN BY: A. Takla, 12/20/11

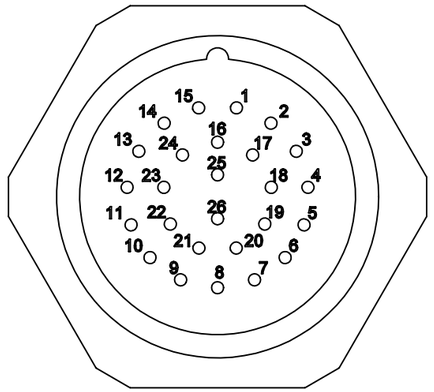
CHECKED BY: W. Berrocal, 12/21/11
A. Strotzer, 01/20/12

PROJECT # 111111-1 SHEET 2 OF 5

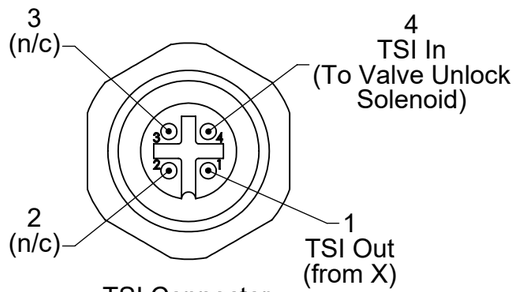
TITLE: VA7 Family Module Drawing

SCALE	SIZE	DRAWING NUMBER	REVISION
1:2	B	9630-20-VA7 Family	09

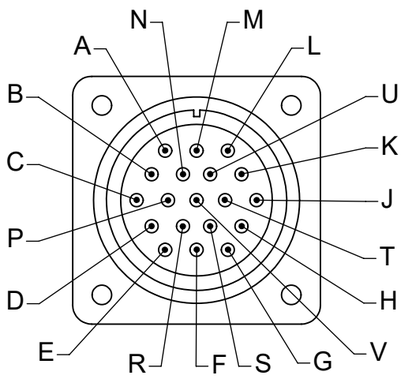
VA7 Master with SA2 Tool



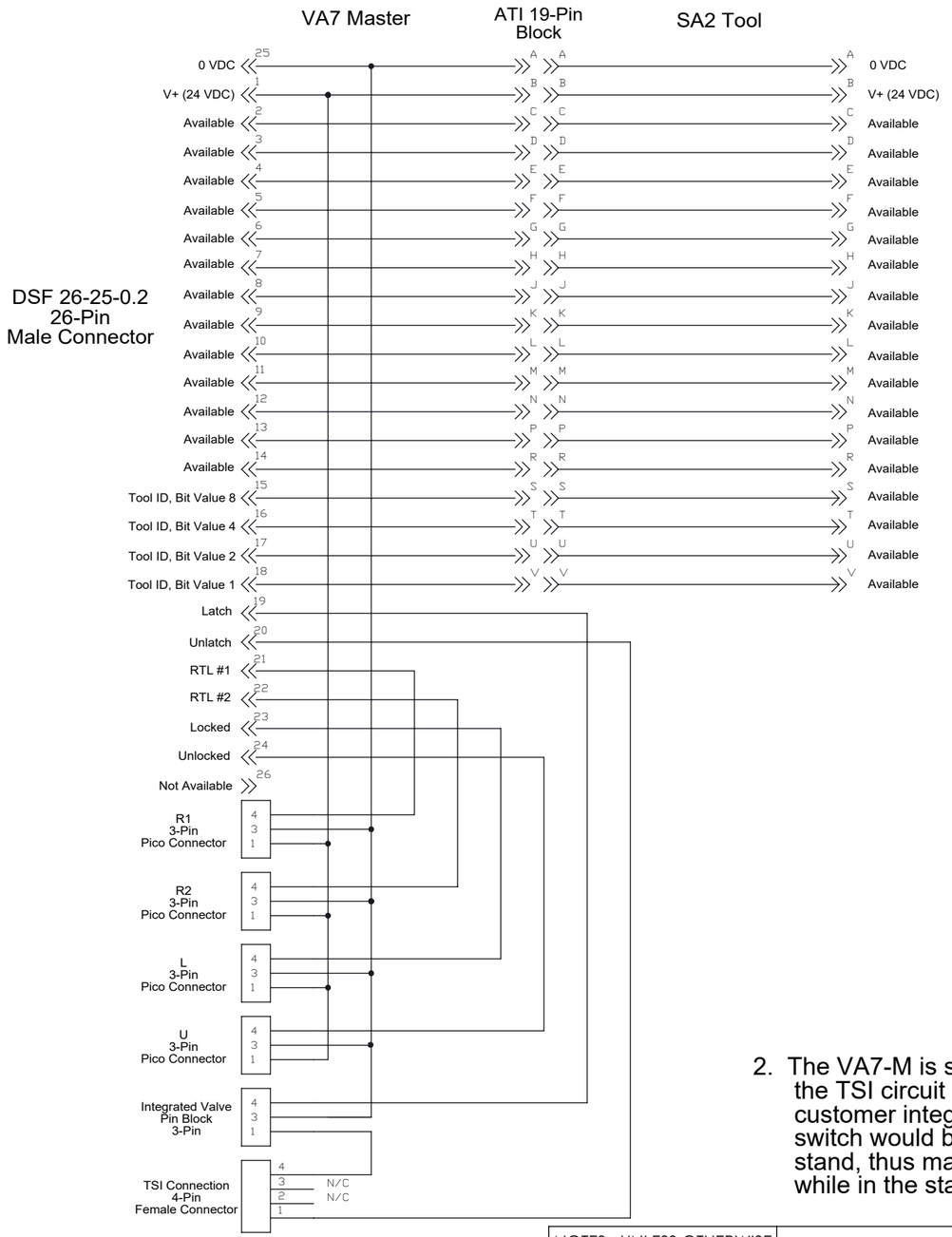
Turck Connector
VA7 Master Side
DSF 26-25-0.2
Face View
Scale 2:1



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



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



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

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 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.

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DRAWN BY: A. Takla, 12/20/11

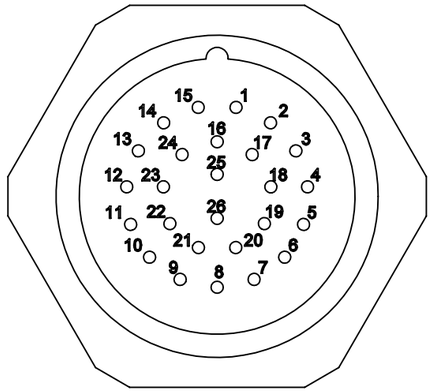
CHECKED BY: W. Berrocal, 12/21/11
A. Strotzer, 01/20/12

PROJECT # 111111-1 SHEET 3 OF 5

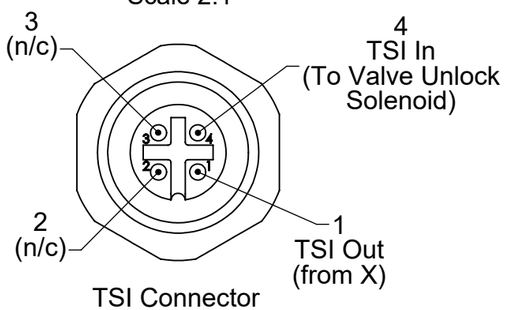
TITLE: VA7 Family Module Drawing

SCALE	SIZE	DRAWING NUMBER	REVISION
1:2	B	9630-20-VA7 Family	09

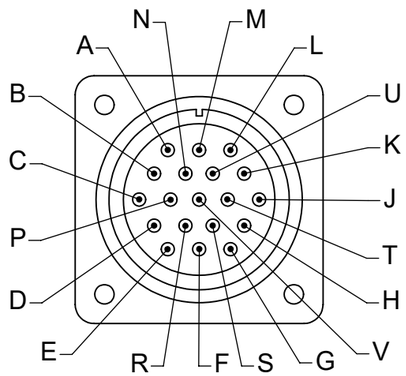
VA7 Master with SA3 Tool (0-9 Tool ID)



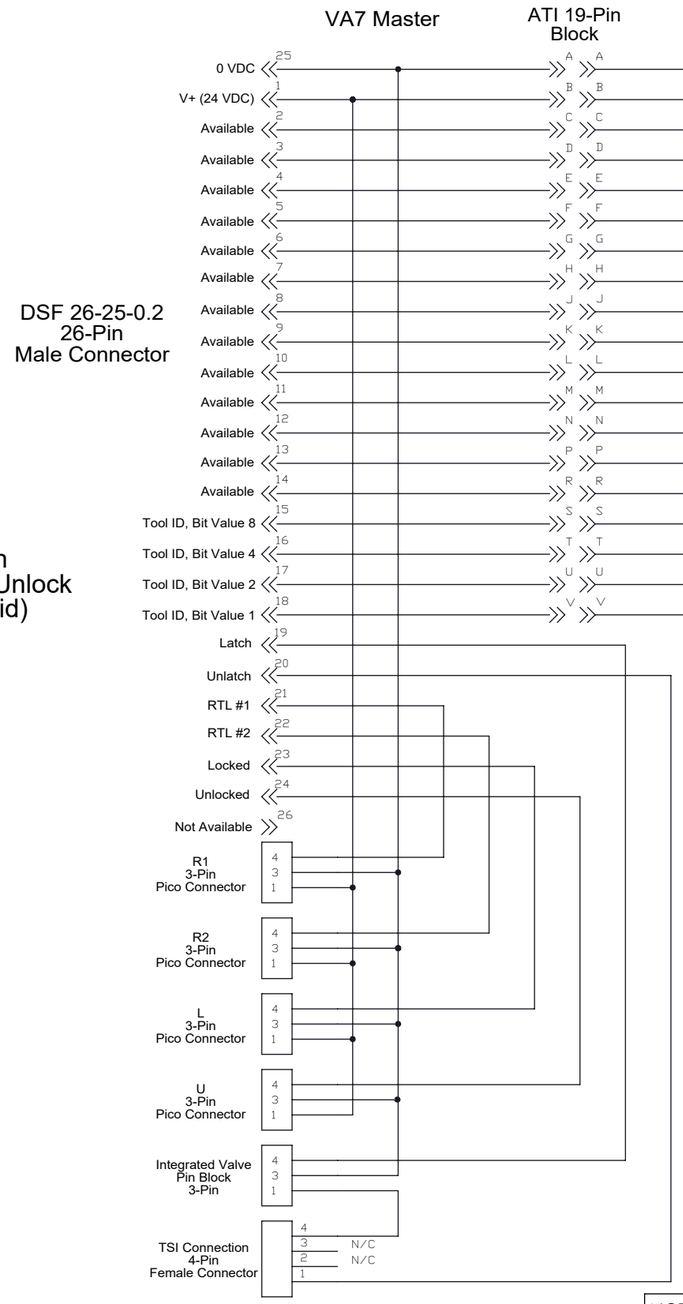
Turck Connector
VA7 Master Side
DSF 26-25-0.2
Face View
Scale 2:1



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



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



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

	Pin	Pin	Pin	Pin
Switch 1	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.

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.

NOTES: UNLESS OTHERWISE SPECIFIED.

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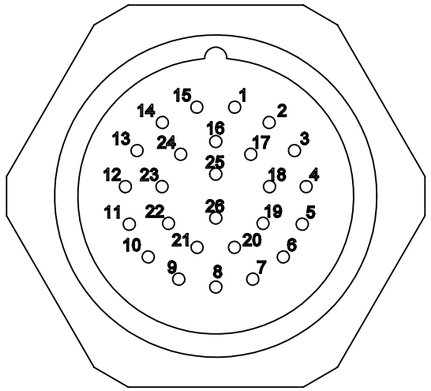
DRAWN BY: A. Takla, 12/20/11

CHECKED BY: W. Berrocal, 12/21/11
A. Strotzer, 01/20/12

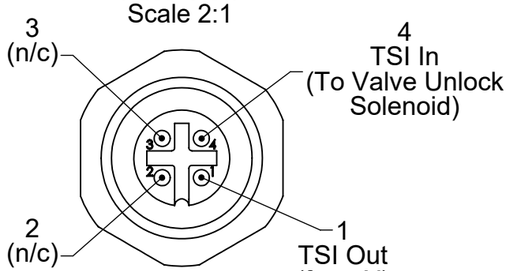
PROJECT # 111111-1 SHEET 4 OF 5

TITLE: VA7 Family Module Drawing

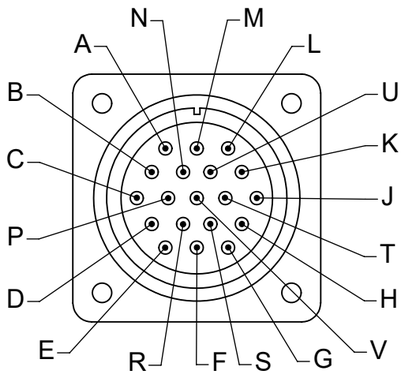
SCALE	SIZE	DRAWING NUMBER	REVISION
1:2	B	9630-20-VA7 Family	09



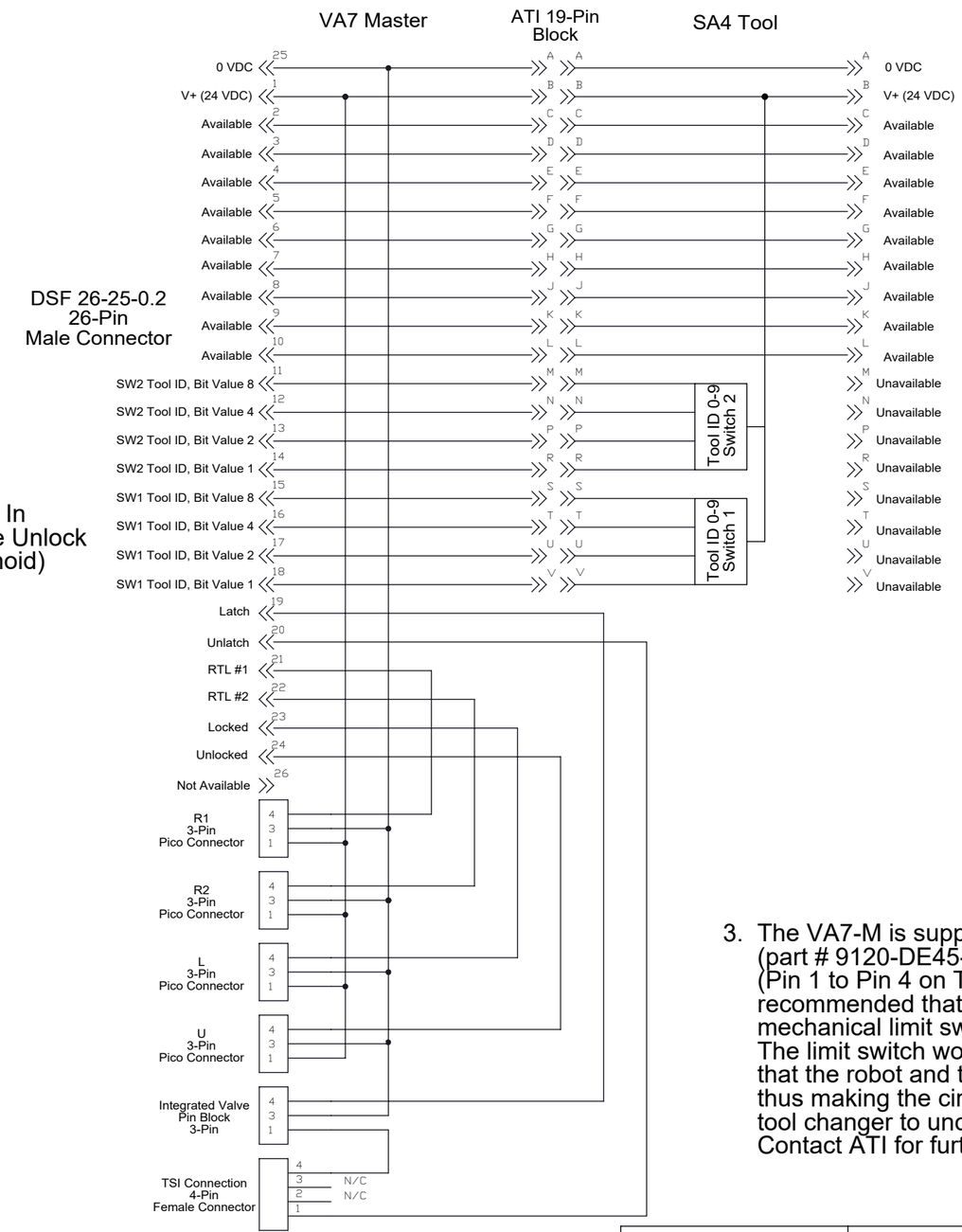
Turck Connector
VA7 Master Side
DSF 26-25-0.2
Face View
Scale 2:1



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



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



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.

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.

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DRAWN BY: A. Takla, 12/20/11
CHECKED BY: W. Berrocal, 12/21/11
A. Strotzer, 01/20/12
PROJECT # 111111-1 SHEET 5 OF 5

TITLE: VA7 Family Module Drawing

SCALE	SIZE	DRAWING NUMBER	REVISION
1:2	B	9630-20-VA7 Family	09