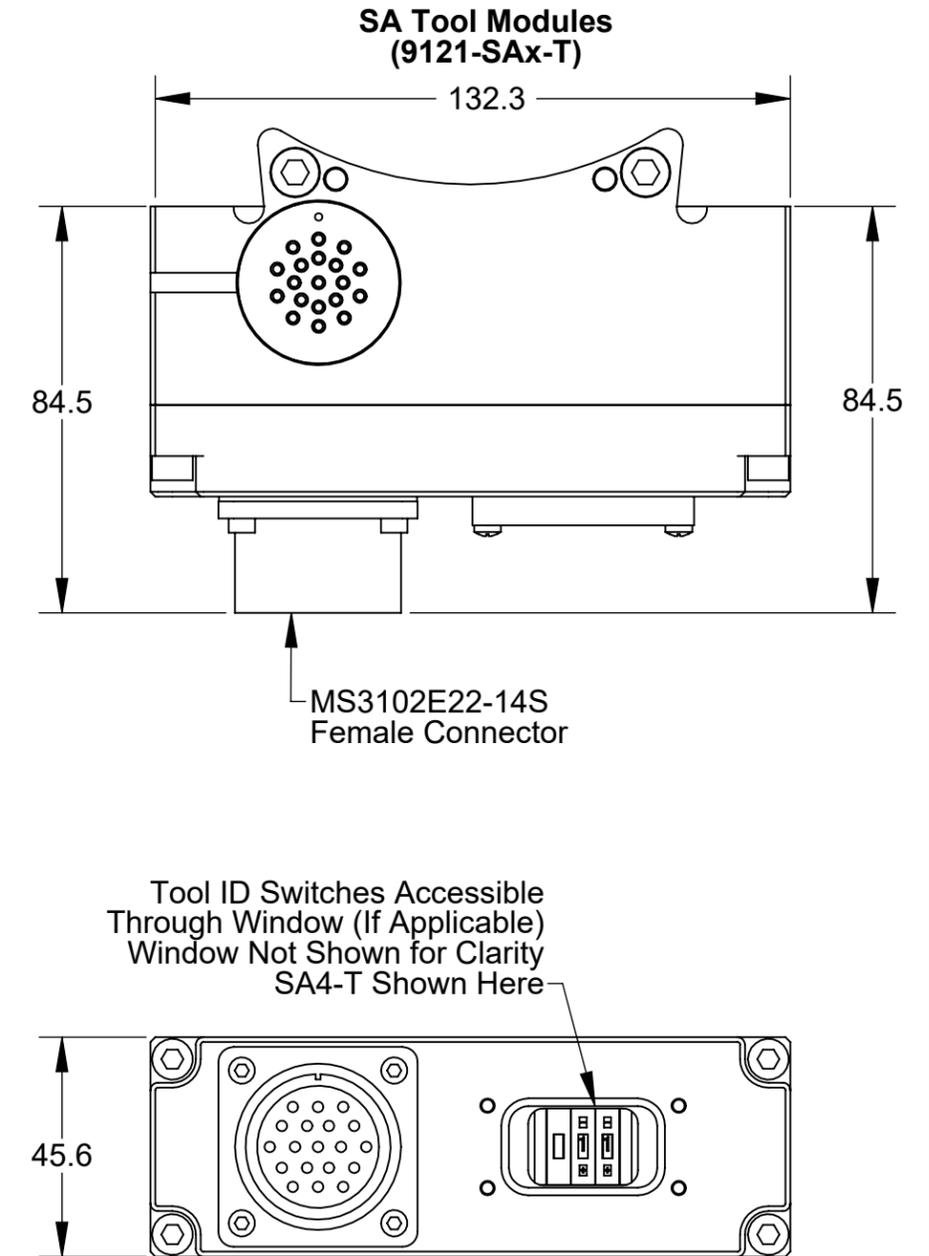
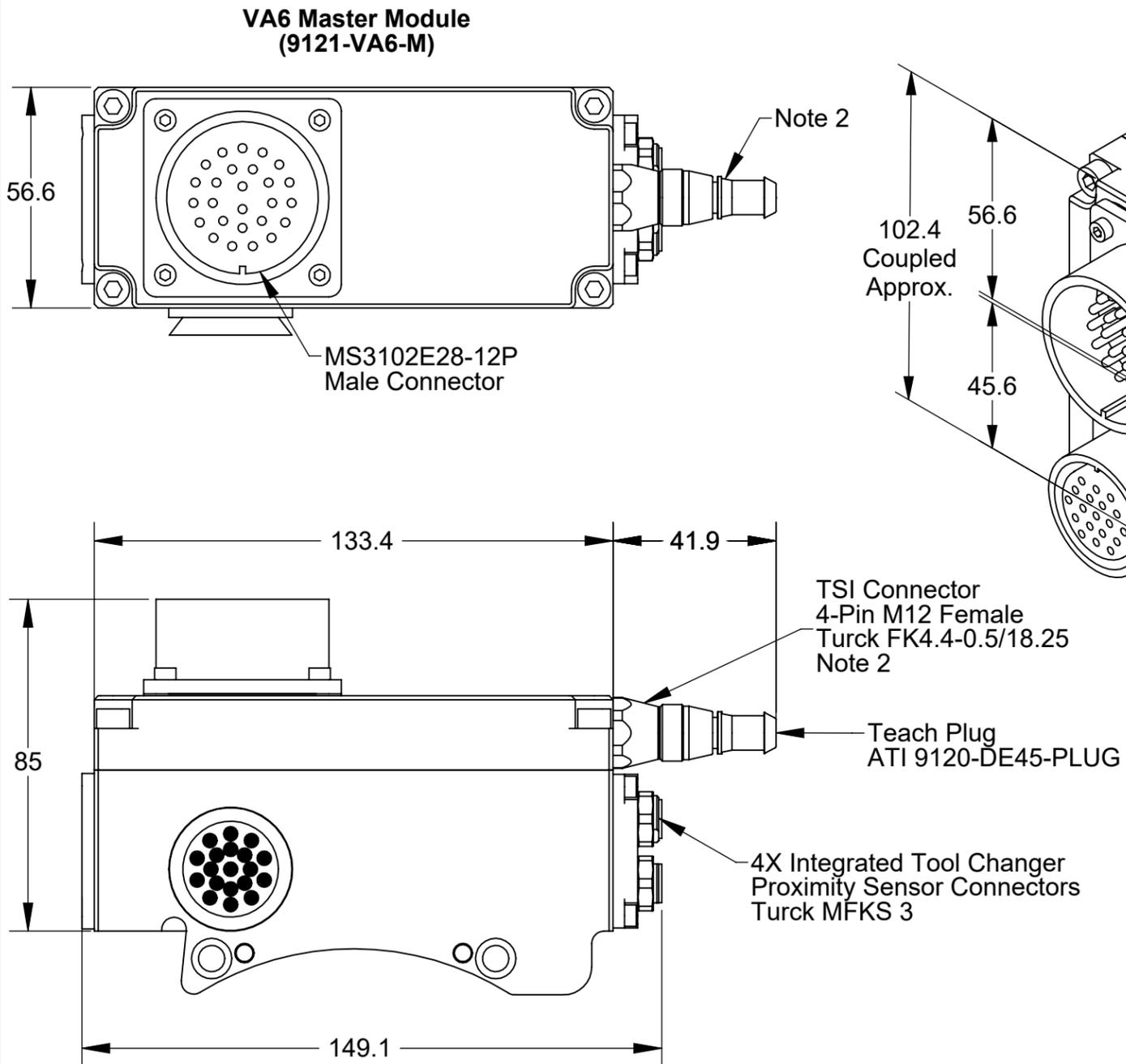


"DANGER!" - Electrical Shock Hazard

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
06	ECO 19187: Sheet 1: Removed "Sheet 6: VA6 Master with SA5 Tool (0-999 Tool ID)" note & renumbered. Removed Sheet 6 & renumbered.	TBC	7/27/2020

VA6 Family Dimensions



Notes:

- Sheet Configurations**
 Sheet 1: VA6 Family Dimensions
 Sheet 2: VA6 Valve and Sensor Connection Details and Serviceable Parts
 Sheet 3: VA6 Master with SA2 Tool
 Sheet 4: VA6 Master with SA3 Tool (0-9 Tool ID)
 Sheet 5: VA6 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.

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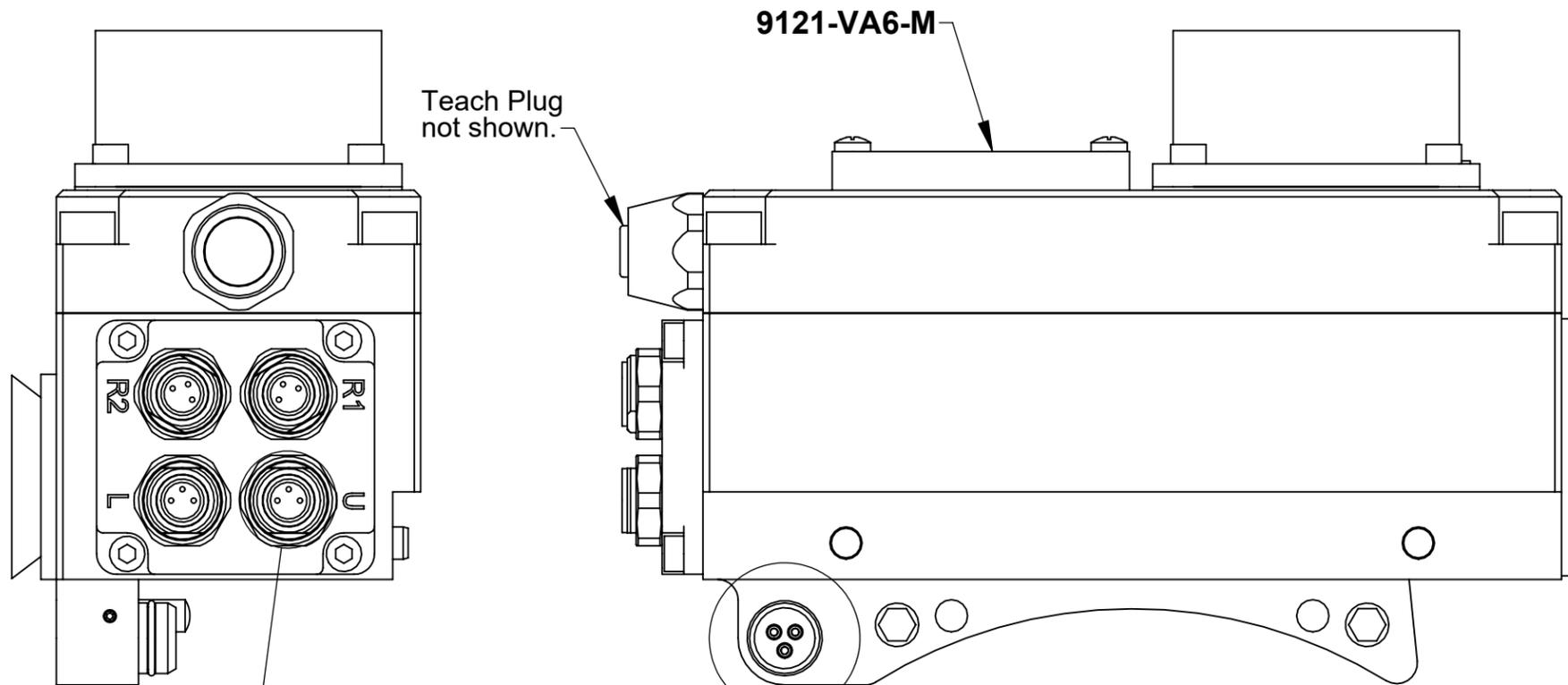


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DRAWN BY: W. Berrocal, 1/15/10		TITLE	
CHECKED BY: D. Mushow, 1/15/09		VA6 Family Module Drawing	
PROJECT # 100113-1	SHEET 1 OF 5	SCALE 2:3	SIZE B
DRAWING NUMBER 9630-20-VA6 Family		REVISION 06	

VA6 Family Serviceable Parts



9121-VA6-M

Teach Plug not shown.

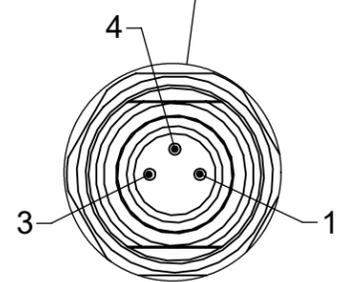
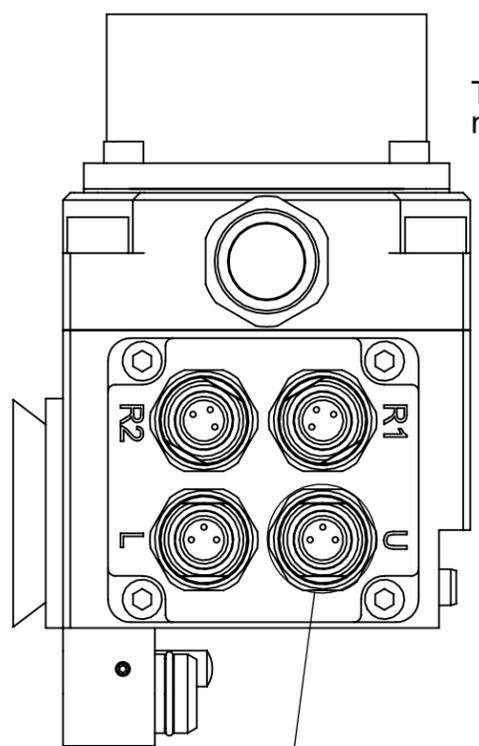
3-Pin Block for Valve Connection

Pin 1

Pin 3

Pin 4

DETAIL A
SCALE 2 : 1

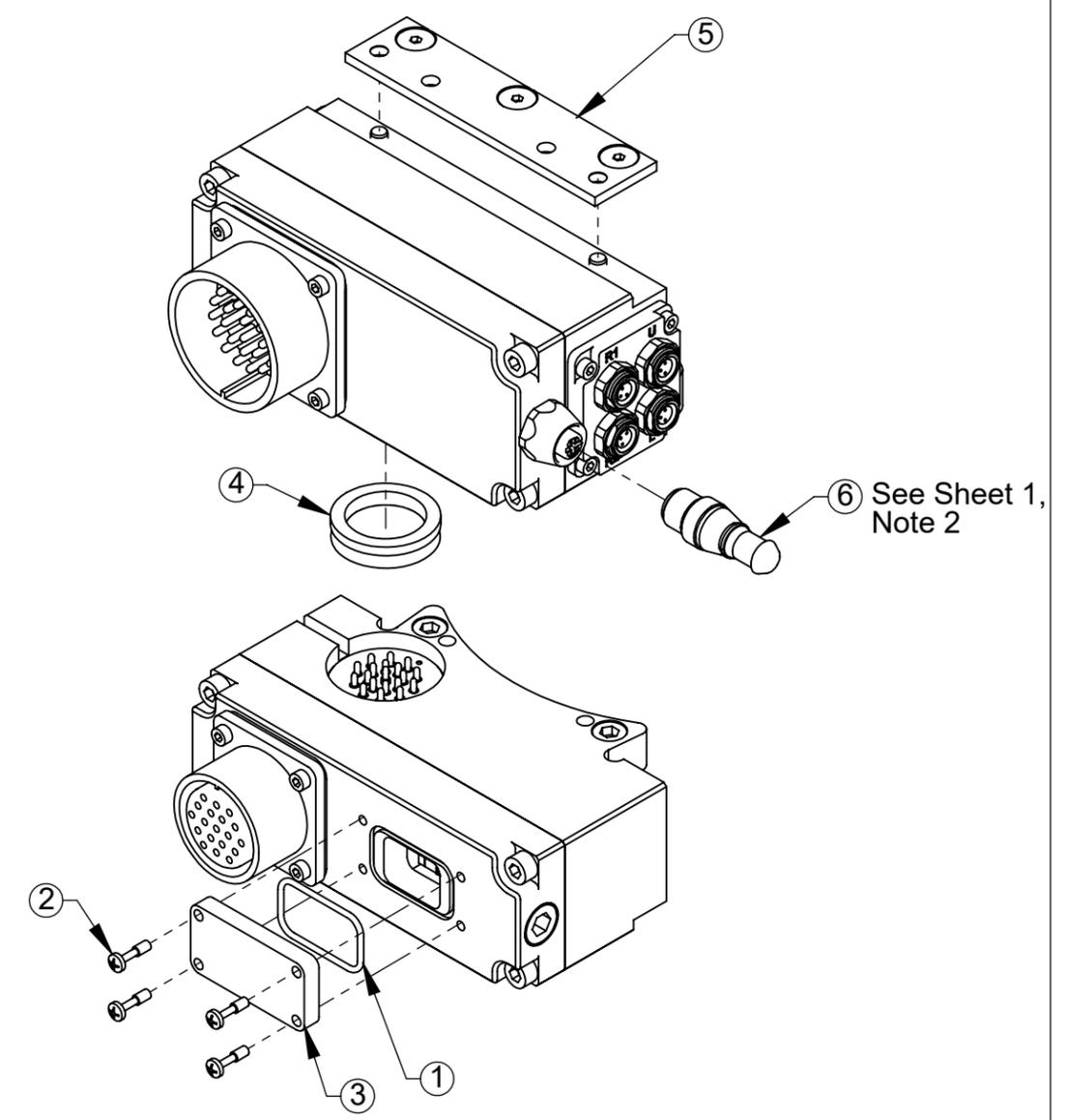


DETAIL B
SCALE 2 : 1

Sensor Connector Wiring (Typical)

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

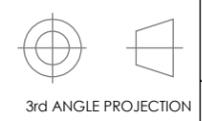
Internal Valve Connection		
Pin 1	V+	Unlock Output
Pin 3	V-	Common
Pin 4	V+	Lock Output



ITEM NO.	QTY.	PART NUMBER	DESCRIPTION
1	1	3410-0001092-01	O-ring AS568-023
2	4	3500-9957012-21	CAPTIVE SCREW M3 X 12 SLOTTED HEAD SS
3	1	3700-20-2696	Thick Window for DP/DE45 Master
4	1	4010-0000030-01	V-Ring Seal
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.

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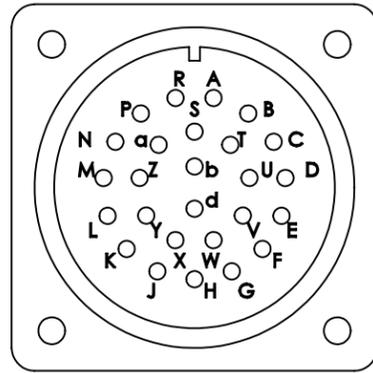
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DRAWN BY: W. Berrocal, 1/15/10

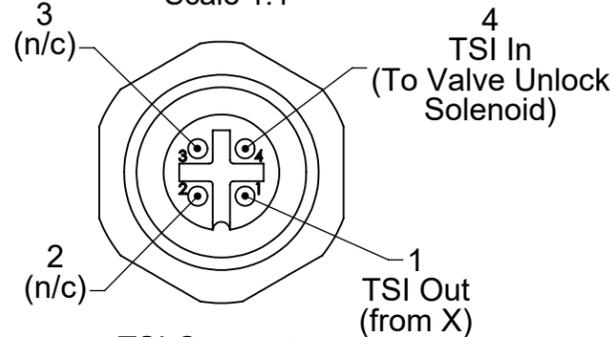
CHECKED BY: D. Mushow, 1/15/09

TITLE
VA6 Family Module Drawing

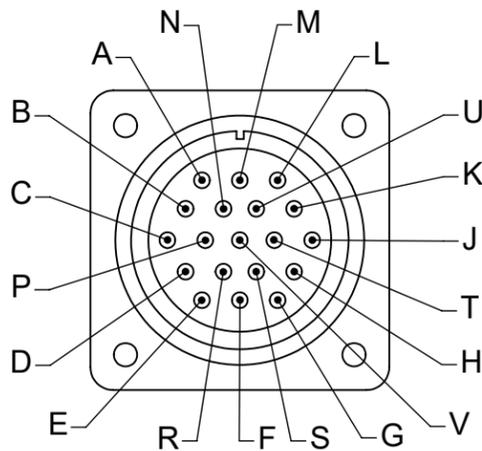
PROJECT #	SHEET	SCALE	SIZE	DRAWING NUMBER	REVISION
100113-1	2 OF 5	1:2	B	9630-20-VA6 Family	06



Amphenol Connector
Master Side
MS3102E28-12P
Face View
Scale 1:1



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

VA6 Master with SA3 Tool (0-9 Tool ID)

VA6 Master
MS3102A28-15P
Male Connector

SA3 Tool
MS3102E22-14S
Female Connector

0 Vdc Reference	A ----- >> -----	A	0 Vdc Reference
24 Vdc (I/P & Tool ID)	B ----- >> -----	B	24 Vdc (I/P & Tool ID)
available	C ----- >> -----	C	available
available	D ----- >> -----	D	available
available	E ----- >> -----	E	available
available	F ----- >> -----	F	available
available	G ----- >> -----	G	available
available	H ----- >> -----	H	available
available	J ----- >> -----	J	available
available	K ----- >> -----	K	available
available	L ----- >> -----	L	available
available	M ----- >> -----	M	available
available	N ----- >> -----	N	available
available	P ----- >> -----	P	available
available	R ----- >> -----	R	available
Tool ID, Bit Value 8	S ----- >> -----	S	not available
Tool ID, Bit Value 4	T ----- >> -----	T	not available
Tool ID, Bit Value 2	U ----- >> -----	U	not available
Tool ID, Bit Value 1	V ----- >> -----	V	not available
Lock O/P	W ----- >> -----		
(1) TSI Connection	X ----- >> -----		
not available	Y ----- >> -----		
RTL #1	Z ----- >> -----		
RTL #2	a ----- >> -----		
Lock I/P	b ----- >> -----		
Unlock I/P	d ----- >> -----		

Controller Outputs

Pin	Signal	Description
A	0 VDC	Voltage Reference
B	24 VDC	Voltage Supply
W	24 VDC	Lock Solenoid Supply (Double Solenoid)
X	24 VDC	UnLock Solenoid Supply

Controller Inputs

Pin	Signal	Description
S	Tool ID	Bit Value 8 (See Tool ID Table)
T	Tool ID	Bit Value 4 (See Tool ID Table)
U	Tool ID	Bit Value 2 (See Tool ID Table)
V	Tool ID	Bit Value 1 (See Tool ID Table)
Z	RTL #1	Ready-To-Lock Input #1
a	RTL #2	Ready-To-Lock Input #2
b	Lock	Tool Changer Lock Input
d	Unlock	Tool Changer Unlock Input

Tool ID Output

Switch 1	Pin	Pin	Pin	Pin
	"S"	"T"	"U"	"V"
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

2. The VA6-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.

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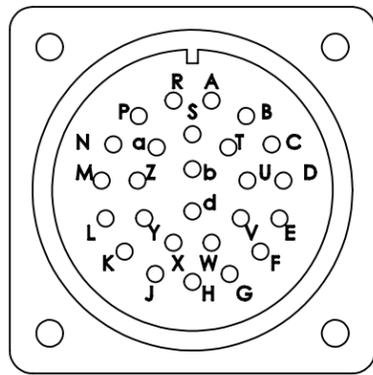
3rd ANGLE PROJECTION



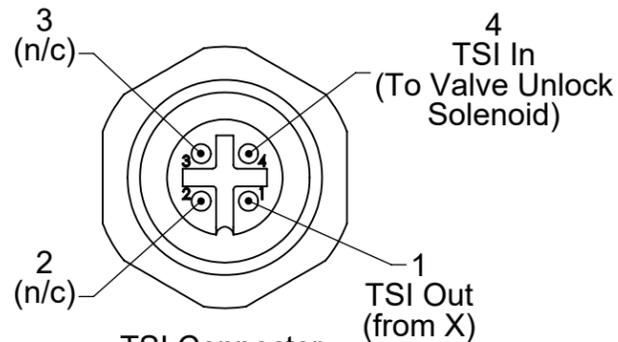
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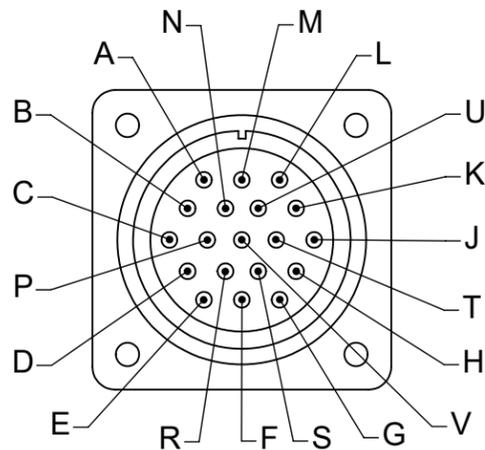
DRAWN BY: W. Berrocal, 1/15/10		TITLE	
CHECKED BY: D. Mushow, 1/15/09		VA6 Family Module Drawing	
PROJECT # 100113-1	SHEET 4 OF 5	SCALE 1:2	SIZE B
DRAWING NUMBER 9630-20-VA6 Family		REVISION 06	



Amphenol Connector
Master Side
MS3102E28-12P
Face View
Scale 1:1



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 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.

VA6 Master with SA4 Tool (0-99 Tool ID)

VA6 Master
MS3102A28-15P
Male Connector

SA4 Tool
MS3102E22-14S
Female Connector

0 Vdc Reference
24 Vdc (I/P & Tool ID)
available
available

SW2 Tool ID, Bit Value 8
SW2 Tool ID, Bit Value 4
SW2 Tool ID, Bit Value 2
SW2 Tool ID, Bit Value 1
SW1 Tool ID, Bit Value 8
SW1 Tool ID, Bit Value 4
SW1 Tool ID, Bit Value 2
SW1 Tool ID, Bit Value 1

Lock O/P
(1) TSI Connection
not available
RTL #1
RTL #2
Lock I/P
Unlock I/P

A ----- >> -----
B ----- >> -----
C ----- >> -----
D ----- >> -----
E ----- >> -----
F ----- >> -----
G ----- >> -----
H ----- >> -----
J ----- >> -----
K ----- >> -----
L ----- >> -----
M ----- >> -----
N ----- >> -----
P ----- >> -----
R ----- >> -----
S ----- >> -----
T ----- >> -----
U ----- >> -----
V ----- >> -----
W
X
Y
Z
a
b
d

Tool ID 0-9
Switch 1

Tool ID 0-9
Switch 2

0 Vdc Reference
24 Vdc (I/P & Tool ID)
available
not available

Controller Outputs

Pin	Signal	Description
A	0 VDC	Voltage Reference
B	24 VDC	Voltage Supply
W	24 VDC	Lock Solenoid Supply (Double Solenoid)
X	24 VDC	UnLock Solenoid Supply

Controller Inputs

Pin	Signal	Description
M	Tool ID	SW2 Bit Value 8 (See Tool ID Table)
N	Tool ID	SW2 Bit Value 4 (See Tool ID Table)
P	Tool ID	SW2 Bit Value 2 (See Tool ID Table)
R	Tool ID	SW2 Bit Value 1 (See Tool ID Table)
S	Tool ID	SW1 Bit Value 8 (See Tool ID Table)
T	Tool ID	SW1 Bit Value 4 (See Tool ID Table)
U	Tool ID	SW1 Bit Value 2 (See Tool ID Table)
V	Tool ID	SW1 Bit Value 1 (See Tool ID Table)
Z	RTL #1	Ready-To-Lock Input #1
a	RTL #2	Ready-To-Lock Input #2
b	Lock	Tool Changer Lock Input
d	Unlock	Tool Changer Unlock Input

Tool ID Output

Switch	Pin	Pin	Pin	Pin
	"S"	"T"	"U"	"V"
Switch 1				
Switch 2	"M"	"N"	"P"	"R"
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

3. The VA6-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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CHECKED BY: D. Mushow, 1/15/09		SCALE 1:2	REVISION 06
PROJECT # 100113-1	SHEET 5 OF 5	SIZE B	DRAWING NUMBER 9630-20-VA6 Family