



# **Sigma DeviceNet**

## **Tool Change System**

USER'S GUIDE 94018 Rev 03

648 Saratoga Road  
Glenville, NY 12302 USA  
Phone: 518 384 1000  
Fax 518 384 1200

[www.arobotics.com](http://www.arobotics.com)

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**APPLIED ROBOTICS INCORPORATED  
GLENVILLE, NEW YORK**

## XChange Sigma DeviceNet

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DeviceNet

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### 1. PRECAUTIONS

**DANGER NOTICE** - Indicates an imminently hazardous situation which, if not avoided, will result in serious injury or death.

**WARNING NOTICE** - Indicates a potentially hazardous situation which, if not avoided, could result in serious injury or death.

**CAUTION NOTICE** - Indicates a potentially hazardous situation which, if not avoided, will or could result in minor or moderate injury; also used where the risk applies to only property damages.



The Sigma DeviceNet Modules contain components that are susceptible to damage from Electro Static Discharge. Observe precautions for Electrostatic Sensitive Devices when working with these modules.

**IGNORING INFORMATION ABOUT POTENTIAL HAZARDS CAN LEAD TO SERIOUS HARM TO PERSONNEL AND/OR DAMAGE TO THE EQUIPMENT, AND MAY RESULT IN THE NULLIFICATION OF THE MANUFACTURERS' EQUIPMENT WARRANTY.**

**HEED ALL PRECAUTION NOTICES**

### XCHANGE TOOL CHANGER NOTE

**THIS PRODUCT IS DESIGNED FOR ROBOTIC USE ONLY.**

**“COUPLING” AND “UNCOUPLING” REQUIRES INTERFACE SURFACE PARALLELISM. THIS IS DIFFICULT TO MANUALLY MAINTAIN DUE TO THE FORCES GENERATED BY ELECTRICAL CONTACTS, PNEUMATIC AND HYDRAULIC FITTINGS.**

**YOUR ROBOT WILL MAINTAIN THE REQUIRED PARALLELISM OF THE ROBOT AND TOOLING ADAPTOR FACES.**

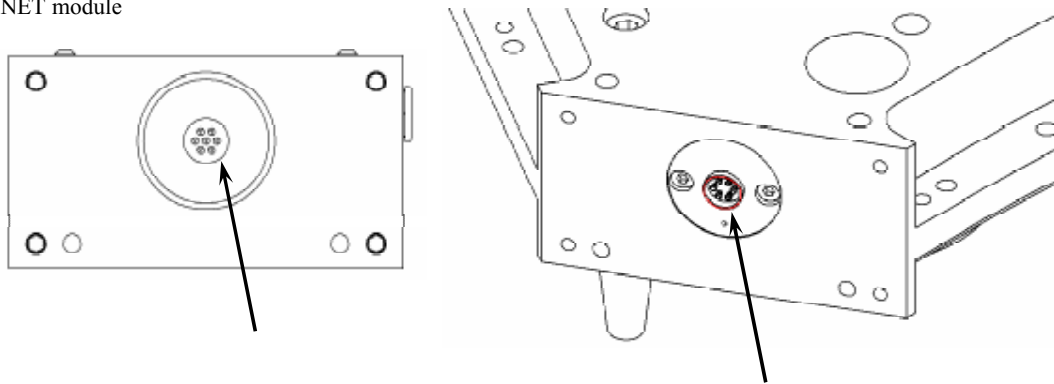
**PLEASE REVIEW THIS MANUAL BEFORE ATTEMPTING TO USE THIS SYSTEM.**

## Sigma DNET Module

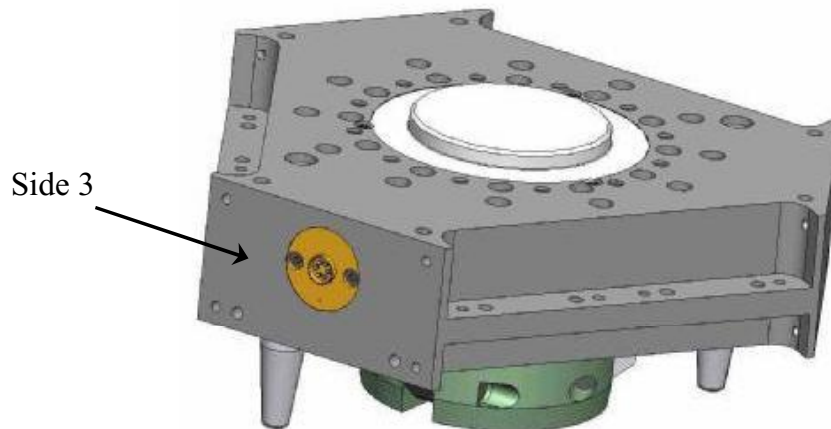
## 2.0 DNET Module to Robot Adapter compatibility

This module is for use on the Sigma 3.1 and Sigma 5.1 Tool Changer Systems.

Robot side  
DNET module



**The DeviceNet module must be mounted on side 3 of the Sigma 3.1 or Sigma 5.1 tool changer. This is to allow the spring pins, shown above, to make contact supplying the couple uncouple status signals to the module.**



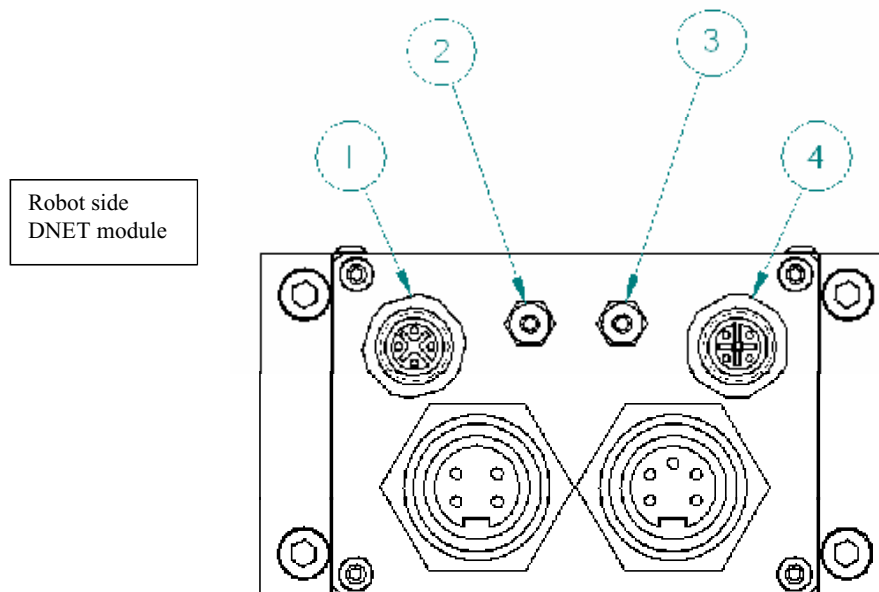
## 2.1 Couple / Uncouple Status Signals

The signals from the couple and uncouple status sensors are retrieved through the Turck connector on the Device Net module. See item 4 below. The status of the couple or uncouple signal is also shown on the LED's shown below, items 2 a 3.

## 2.2 Tool Stand Switch Jumper

Item 1 is the connector that holds the jumper for the tool stand switch. (part number 0002-P16N on schematic 0204-D13A) This jumper should be in place if there is no tool stand switch installed to sense tool presence. (This switch is supplied by the customer).

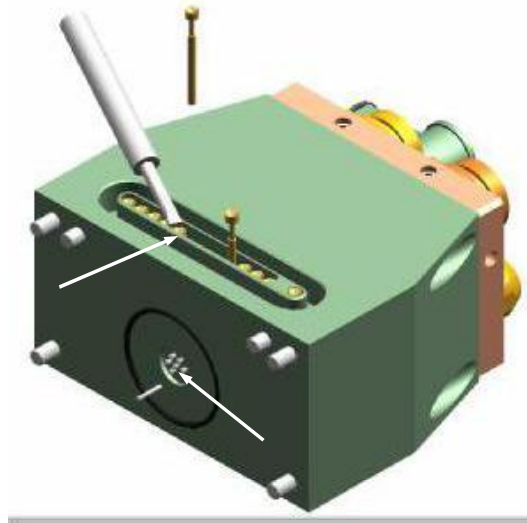
Please refer to the next section for electrical details of the DNET board signals and communication parameters and settings.



## 2.3 Spring Pin Replacement

### 2.3.1 Pin Removal

The spring pins in the DNET module are field replaceable. They should not need replacement unless worn or damaged. The pins are removed by placing a small screwdriver or tool under the head of the pin and gently prying it upward until free.



### 2.3.2 New Pin Installation.

New pins are inserted by simply pressing the new pin into the hole until it bottoms out. Once the new pin is inserted, be sure it is flush with the other pins and has spring compliance.

## 2.4 Water Resistance

The Applied Robotics DNET module has been tested in a spray down environment. The unit showed no malfunction when sprayed down with water.

### 3.0 DNET board specs and communication settings.

Most DeviceNet scanners can access modules on the network and ask the device for specific information. The information below is provided as a starting point in case there are problems accessing the tool changer DeviceNet modules. The module address and baudrate is set via switches on the printed circuit board inside the module. Details on the switch settings is shown on a label on each module. These switches are visible through a clear plastic window on each module.

#### Robot Module

Applied Robotics Model	S-EM-R-E-DN
Standard Address (MAC ID)	54 (decimal)
Standard Baudrate	500 kbaud
DeviceNet Vendor ID	0x0014
DeviceNet Product Type	0x0000
DeviceNet Product Code	0x0012
DeviceNet Produced Connection Size (polled)	0x0001
DeviceNet Consumed Connection Size (polled)	0x0001

#### Tool Module

Applied Robotics Model	S-EM-T-E-DN
Standard Address (MAC ID)	55 (decimal)
Standard Baudrate	500 kbaud
DeviceNet Vendor ID	0x0014
DeviceNet Product Type	0x0000
DeviceNet Product Code	0x0013
DeviceNet Produced Connection Size (polled)	0x0002
DeviceNet Consumed Connection Size (polled)	0x0000

The printed circuit board on each module includes two LEDs that indicate the status of the DeviceNet network and the status of the individual module. These status indicators operate according to the ODVA standards. Consult the ODVA standards for details.

### 3.1 Robot side DNET Module Details

#### Terminating Resistor

The robot module includes a mechanical switch that can add a 120-ohm terminating resistor across the CAN High / CAN Low lines. By default this terminating resistor is not in the circuit. See the label on the module itself for details on how to change the switch so this resistor is added to the circuit.

### 3.1.1 Tool Changer output / Robot input Signals

<u>Signals from the tool changer.</u>	Description	Node Address (Bits 0 - 15 Convention)	Comments
ToolLatched	Tool changer coupled.	N54 Bit 0 LSB	Reads as "1" when the latching mechanism on the robot side of the tool changer is in the coupled position; reads as "0" otherwise. Note this is independent of presence of the tool side of the tool changer.
ToolUnlatched	Tool changer uncoupled.	N54 Bit 1	Reads as "1" when robot side of the tool changer coupling mechanism is in the uncouple position, reads as "0" otherwise. Note this is independent of presence of the tool side of the tool changer.
UnlatchEnergzed	Uncouple solenoid energized.	N54 Bit 2	Reads as "1" when aux. power is <b>not</b> present at the uncouple valve solenoid; reads as "0" otherwise. Under normal conditions this reads as "0" when the tool changer is uncoupled. Note this can also read as "0" if the tool changer is coupled and both valve solenoids are off.
AuxPowerOKTICh	Aux. Power available at tool changer.	N54 Bit 3	Reads as "1" when aux. power is <b>not</b> present; reads as "0" otherwise. Under normal conditions this will read as "0".

Note the mechanical switches inside the tool change use the V+ and V- power from the DeviceNet bus. The Aux. Power supply is kept electrically isolated from the DeviceNet bus power. The valve solenoids use the Aux. Power supply. The input signal diUnlatchEnergzed senses the actual voltage on the valve solenoid (from the Aux. Power supply) but it keeps this electrically isolated when reporting that value to the DeviceNet network. Likewise input signal diAuxPowerOKTICh senses the actual voltage of the Aux. Power supply but it keeps this electrically isolated when reporting that value to the DeviceNet network.

### 3.1.2 Tool Changer Input / Robot Output Signals

<b><u>Signal from the robot</u></b>	<b>Description</b>	<b>Node Address (Bits 0 - 15 Convention)</b>	<b>Comments</b>
UnlatchTool	Activate valve uncouple solenoid	N54 Output Bit 1	When this signal is high (1) this solenoid should activate. The circuit to the valve uncouple solenoid passes through the external tool stand switch. The external switch or a jumper connector must be present for the valve uncouple solenoid to activate.

When reading the status signals remember the values change quickly while the tool changer operates. A single reading of the inputs may represent a snapshot of a dynamic situation; a second reading of the inputs may provide a different value. The table below shows a typical sequence of status values. This is relevant to some software used with this unit, not all.

#### Possible values seen as the tool changer couples and uncouples

<b><u>Hex values*</u></b>	
05	Normal Coupled State. (UnlatchEngzged + ToolLatched)
01	Uncouple valve solenoid just turned ON but tool changer is still coupled. (ToolLatched)
00	Uncouple valve solenoid recently turned ON but tool changer is between coupled and uncoupled states. (no inputs on)
02	Tool changer back to normal uncoupled state (ToolUnlatched)
04	Uncouple valve solenoid is turned OFF but tool changer is still uncoupled. (UnlatchEngzged). This may be seen immediately after requesting a couple action. This can also occur if the external jumper plug is missing. It can also mean the tool changer is uncoupled but both valve solenoids are off.
05	Normal Coupled State. (UnlatchEngzged + ToolLatched)
08	Any response greater than 0x07, such as 0x08, 0x09, 0x0A, 0x0B, 0x0D, 0x0E, 0x0F indicate the aux. power is not connected or not available.

\* Hexadecimal representation of status signals.

## 3.2 Tooling side DNET Module Details

The tooling module allows the user to set dial switches to indicate the tool ID number (0 - 255), the robot number (0 - 9) and the line number (0 - 9). The settings of the dial switches can be read via DeviceNet according to the table below.

### 3.2.1 Tool Module Output Signals

Description	Node Address (Bits 0 - 15 Convention)	Comments
Tool Number (bit 1, Least Significant Bit)	N55:Bit 0 LSB	The sum of three physical dial switches can take on the value 0 to 255. Values greater than 255 will read as 255.
Tool Number (bit 2)	N55:Bit 1	
Tool Number (bit 4)	N55 Bit 2	
Tool Number (bit 8)	N55 Bit 3	
Tool Number (bit 16)	N55 Bit 4	
Tool Number (bit 32)	N55 Bit 5	
Tool Number (bit 64)	N55 Bit 6	
Tool Number (bit 128, Most Significant Bit)	N55 Bit 7	
Robot Number (bit 1, Least Significant Bit)	N55 Bit 8	The physical dial switch can take on the value 0 - 9.
Robot Number (bit 2)	N55 Bit 9	
Robot Number (bit 4)	N55 Bit 10	
Robot Number (bit 8, Most Significant Bit)	N55 Bit 11	
Line Number (bit 1, Least Significant Bit)	N55 Bit 12	The physical dial switch can take on the value 0 - 9.
Line Number (bit 2)	N55 Bit 13	
Line Number (bit 4)	N55 Bit 14	
Line Number (bit 8, Most Significant Bit)	N55 Bit 15 MSB	

For example, if the module is set for

Tool ID 123 (decimal)

Robot 4

Line 5

then the resulting binary value will be

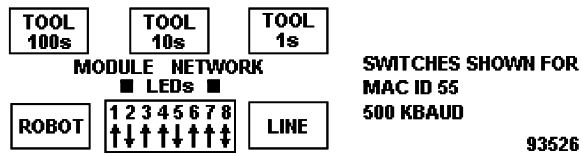
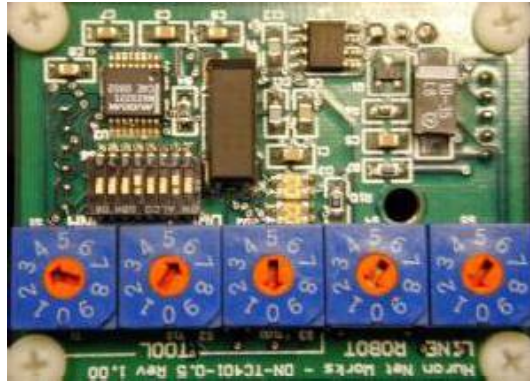
0x547B

where 0x007B represents the binary equivalent of the tool ID (123) and 0x0400 represents the robot number and 0x5000 represents the line number.

Remember when reading 2 byte values through the DeviceNet network they may be presented in reverse order. The value 0x547B may be reported as "7B 54" depending on your DeviceNet scanner software.



## Tool Side Board



## Baud Rate Table

Switches 1 and 2 are used to define the baud rate. Other switches do not appear in this table.

Baud Rate	SW 1	SW 2
500 KB	On	Off
250 KB	Off	On
125 KB	Off	Off

## MAC ID Address Table

In the table below, 'Up' indicates switches that should be On/Up.

The other switches (3 - 8) are Off/Down

Switches 1 and 2 are used to define the baud rate and do not appear in this table.

MAC ID	SW 3	SW 4	SW 5	SW 6	SW 7	SW 8
0						
1						On
2					On	
3					On	On
4				On		
5				On		On
6				On	On	
7				On	On	On
8			On			
9			On			On
10			On		On	
11			On		On	On
12			On	On		

13			On	On		On
14			On	On	On	
15			On	On	On	On
16		On				
17		On				On
18		On			On	
19		On			On	On
20		On		On		
21		On		On		On
22		On		On	On	
23		On		On	On	On
24		On	On			
25		On	On			On
26		On	On		On	
27		On	On		On	On
28		On	On	On		
29		On	On	On		On
30		On	On	On	On	
31		On	On	On	On	On
32	On					
33	On					On
34	On				On	
35	On				On	On
36	On			On		
37	On			On		On
38	On			On	On	
39	On			On	On	On
40	On		On			
41	On		On			On
42	On		On		On	
43	On		On		On	On
44	On		On	On		
45	On		On	On		On
46	On		On	On	On	
47	On		On	On	On	On
48	On	On				
49	On	On				On
50	On	On			On	
51	On	On			On	On
52	On	On		On		
53	On	On		On		On
54	On	On		On	On	
55	On	On		On	On	On
56	On	On	On			
57	On	On	On			On
58	On	On	On		On	
59	On	On	On		On	On
60	On	On	On	On		
61	On	On	On	On		On
62	On	On	On	On	On	
63	On	On	On	On	On	On

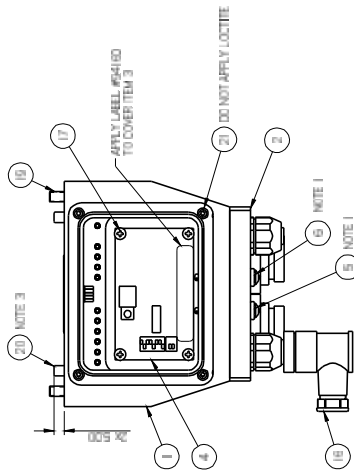
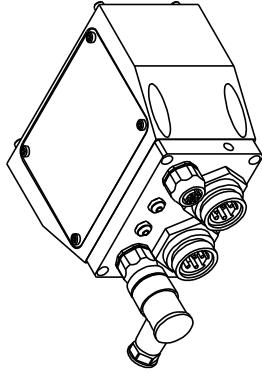
## 4.0 Informational Drawings

The drawings in this section can assist with installation, use, and identification of replacement parts for Sigma DeviceNet Modules.

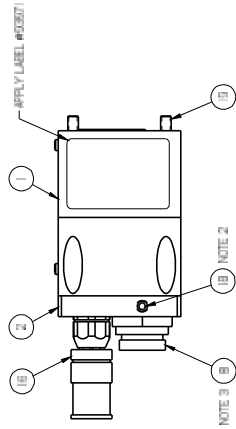
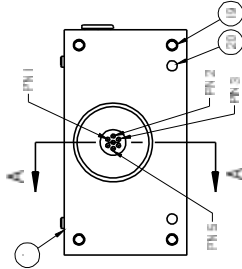
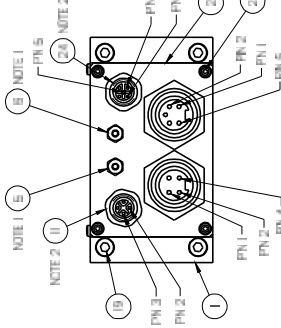
<b>Drawing Number</b>	<b>Description</b>
0204-D11A	Replacement part drawing for robot side module
0204-D12A	Replacement part drawing for tool side module
0204-D13A sheets 1 & 2	Robot Side Electrical Schematic
0401-D08A sheets 1 & 2	Tool Side Electrical Schematic

REV		DESCRIPTION		DN	CHK	DATE	ECR	DR	NO.
01	LABEL #110 WAS MISSED. ADDED 2" x 5.0" DIM.	JV							86900001
02	ADDED NOTES 7, 8 & 9	PS							110000
03	ITEM 4 WAS REMOVED FOR PERMANENT CHANGE.	JV							4004
									01000000

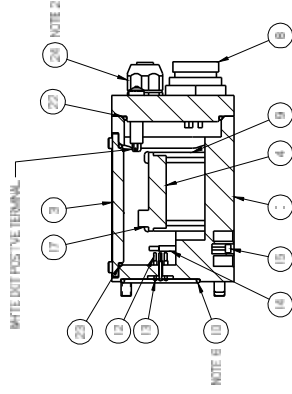
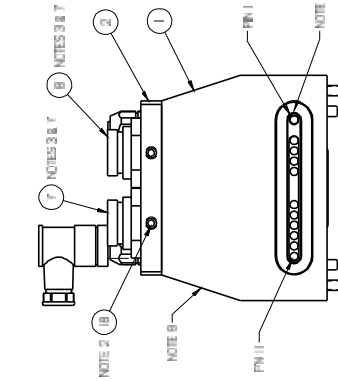
REV		DESCRIPTION		DN	CHK	DATE	ECR	DR	NO.
01	LABEL #110 WAS MISSED. ADDED 2" x 5.0" DIM.	JV							86900001
02	ADDED NOTES 7, 8 & 9	PS							110000
03	ITEM 4 WAS REMOVED FOR PERMANENT CHANGE.	JV							4004
									01000000



ITEM 3 REMOVED FOR CLARITY



ITEM 16 REMOVED FOR CLARITY



APPROX. MODEL WEIGHT 1.652 lbm

- NOTES:
1. APPLY LOCTITE 222, ARI #869005-P1020.
  2. APPLY LOCTITE 242, ARI #501006.
  3. APPLY LOCTITE 271, ARI #86005-P1034.
  4. ELECTRICAL SCHEMATIC DWG. #0204-D13A.
  5. USE 22 GA. PHENOLIC INSULATOR WITH #24 AWG. CRIMPS ALONG WITH #48302 (WIRE #24 AWG).
  6. PUT ITEM #10 IN A XX ABAG, LABELED.
  7. MOUNTING HARDWARE #6310-P48N.
  8. APPLY ARI PART #6310-P48N.
  9. APPLY ARI PART #6310-P51N (1 PIECE 3" LONG).

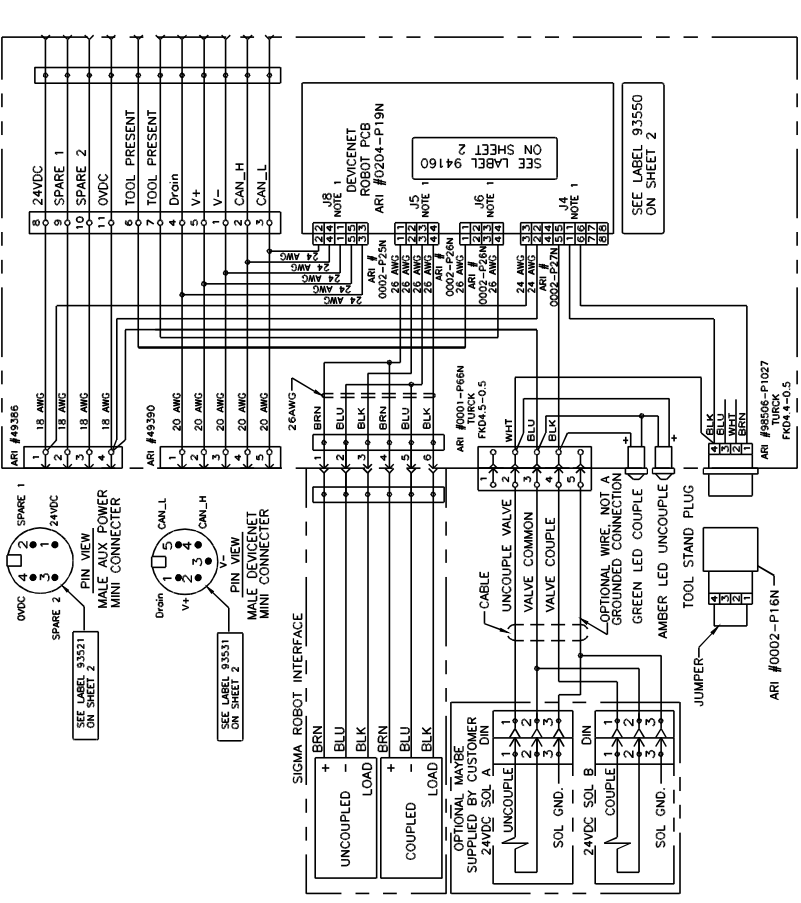
ITEM	QTY	PART NO.	DESCRIPTION
24	1	0001-P86N	CONNECTOR, 5 COND FEMALE
25	1	9650-P1087	CRING, COVER DN
22	1	9650-P1087	CRING, ADAPTER PLATE DN
21	8	46438	SCR, PAN P1 TORX HD
20	4	46438	SCR, SOG HD CAP
19	4	46404	SCR, SOG HD SET
18	4	46416	SCR, PHILLIPS PAN HD
17	4	46403	SUBASSY, TOOL STAND PLUG
16	1	0108-B86A	PROBE, FEMALE
15	11	94502-P1054	RECEPTACLE
14	11	96005-P1016	PROBE, SPRING PIN
13	7	96504-P1023	RECEPTACLE
12	7	96503-P1022	CONNECTOR, 4 COND FEMALE
11	1	96502-P1021	CONNECTOR, 5 COND FEMALE
10	1	96502-P1021	STANDOFF, MALE FEMALE
9	4	96506-P1057	CONNECTOR, 4 COND FEMALE
8	1	46300	CONNECTOR, 4 COND FEMALE
7	1	46306	LED, YELLOW 24VDC
6	1	0002-P15N	BOARD, DN, ROBOT
5	1	0002-P14N	COVER, INSULATOR BLOCK
4	1	0204-P19N	ADAPTER, CONNECTOR
3	1	0204-P19N	BLOCK, INSULATOR ROBOT
2	1	0204-P19N	BLOCK, INSULATOR ROBOT

BILL OF MATERIALS	
DR	UNIVERSAL 1/32
DK	UNIVERSAL 1/32
DL	UNIVERSAL 1/32
DM	UNIVERSAL 1/32
DN	UNIVERSAL 1/32
DO	UNIVERSAL 1/32
DP	UNIVERSAL 1/32
DQ	UNIVERSAL 1/32
DR	UNIVERSAL 1/32
DS	UNIVERSAL 1/32
DT	UNIVERSAL 1/32
DU	UNIVERSAL 1/32
DV	UNIVERSAL 1/32
DW	UNIVERSAL 1/32
DX	UNIVERSAL 1/32
DY	UNIVERSAL 1/32
DZ	UNIVERSAL 1/32
EA	UNIVERSAL 1/32
EB	UNIVERSAL 1/32
EC	UNIVERSAL 1/32
ED	UNIVERSAL 1/32
EE	UNIVERSAL 1/32
EF	UNIVERSAL 1/32
EG	UNIVERSAL 1/32
EH	UNIVERSAL 1/32
EI	UNIVERSAL 1/32
EJ	UNIVERSAL 1/32
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EN	UNIVERSAL 1/32
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ES	UNIVERSAL 1/32
ET	UNIVERSAL 1/32
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EV	UNIVERSAL 1/32
EW	UNIVERSAL 1/32
EX	UNIVERSAL 1/32
EY	UNIVERSAL 1/32
EZ	UNIVERSAL 1/32
FA	UNIVERSAL 1/32
FB	UNIVERSAL 1/32
FC	UNIVERSAL 1/32
FD	UNIVERSAL 1/32
FE	UNIVERSAL 1/32
FF	UNIVERSAL 1/32
FG	UNIVERSAL 1/32
FH	UNIVERSAL 1/32
FI	UNIVERSAL 1/32
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GE	UNIVERSAL 1/32
GF	UNIVERSAL 1/32
GG	UNIVERSAL 1/32
GH	UNIVERSAL 1/32
GI	UNIVERSAL 1/32
GO	UNIVERSAL 1/32
GP	UNIVERSAL 1/32
GQ	UNIVERSAL 1/32
GR	UNIVERSAL 1/32
GS	UNIVERSAL 1/32
GT	UNIVERSAL 1/32
GU	UNIVERSAL 1/32
GV	UNIVERSAL 1/32
GW	UNIVERSAL 1/32
GX	UNIVERSAL 1/32
GY	UNIVERSAL 1/32
GZ	UNIVERSAL 1/32
HA	UNIVERSAL 1/32
HB	UNIVERSAL 1/32
HC	UNIVERSAL 1/32
HD	UNIVERSAL 1/32
HE	UNIVERSAL 1/32
HF	UNIVERSAL 1/32
HG	UNIVERSAL 1/32
HH	UNIVERSAL 1/32
HI	UNIVERSAL 1/32
HJ	UNIVERSAL 1/32
HK	UNIVERSAL 1/32
HL	UNIVERSAL 1/32
HM	UNIVERSAL 1/32
HN	UNIVERSAL 1/32
HO	UNIVERSAL 1/32
HP	UNIVERSAL 1/32
HQ	UNIVERSAL 1/32
HR	UNIVERSAL 1/32
HS	UNIVERSAL 1/32
HT	UNIVERSAL 1/32
HU	UNIVERSAL 1/32
HV	UNIVERSAL 1/32
HW	UNIVERSAL 1/32
HX	UNIVERSAL 1/32
HY	UNIVERSAL 1/32
HZ	UNIVERSAL 1/32
IA	UNIVERSAL 1/32
IB	UNIVERSAL 1/32
IC	UNIVERSAL 1/32
ID	UNIVERSAL 1/32
IE	UNIVERSAL 1/32
IF	UNIVERSAL 1/32
IG	UNIVERSAL 1/32
IH	UNIVERSAL 1/32
II	UNIVERSAL 1/32
IJ	UNIVERSAL 1/32
IK	UNIVERSAL 1/32
IL	UNIVERSAL 1/32
IM	UNIVERSAL 1/32
IN	UNIVERSAL 1/32
IO	UNIVERSAL 1/32
IP	UNIVERSAL 1/32
IQ	UNIVERSAL 1/32
IR	UNIVERSAL 1/32
IS	UNIVERSAL 1/32
IT	UNIVERSAL 1/32
IU	UNIVERSAL 1/32
IV	UNIVERSAL 1/32
IW	UNIVERSAL 1/32
IX	UNIVERSAL 1/32
IY	UNIVERSAL 1/32
IZ	UNIVERSAL 1/32
JA	UNIVERSAL 1/32
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JD	UNIVERSAL 1/32
JE	UNIVERSAL 1/32
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LC	UNIVERSAL 1/32
LD	UNIVERSAL 1/32
LE	UNIVERSAL 1/32
LF	UNIVERSAL 1/32
LG	UNIVERSAL 1/32
LH	UNIVERSAL 1/32
LI	UNIVERSAL 1/32
LJ	UNIVERSAL 1/32
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LL	UNIVERSAL 1/32
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LN	UNIVERSAL 1/32
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LP	UNIVERSAL 1/32
LQ	UNIVERSAL 1/32
LR	UNIVERSAL 1/32
LS	UNIVERSAL 1/32
LT	UNIVERSAL 1/32
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LW	UNIVERSAL 1/32
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MZ	UNIVERSAL 1/32
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NC	UNIVERSAL 1/32
ND	UNIVERSAL 1/32
NE	UNIVERSAL 1/32
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NG	UNIVERSAL 1/32
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NT	UNIVERSAL 1/32
NU	UNIVERSAL 1/32
NV	UNIVERSAL 1/32
NW	UNIVERSAL 1/32
NX	UNIVERSAL 1/32
NY	UNIVERSAL 1/32
NZ	UNIVERSAL 1/32
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OC	UNIVERSAL 1/32
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OF	UNIVERSAL 1/32
OG	UNIVERSAL 1/32
OH	UNIVERSAL 1/32
OI	UNIVERSAL 1/32
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OK	UNIVERSAL 1/32
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OR	UNIVERSAL 1/32
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OV	UNIVERSAL 1/32
OW	UNIVERSAL 1/32
OX	UNIVERSAL 1/32
OY	UNIVERSAL 1/32
OZ	UNIVERSAL 1/32
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PC	UNIVERSAL 1/32
PD	UNIVERSAL 1/32
PE	UNIVERSAL 1/32
PF	UNIVERSAL 1/32
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PJ	UNIVERSAL 1/32
PK	UNIVERSAL 1/32
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PO	UNIVERSAL 1/32
PP	UNIVERSAL 1/32
PQ	UNIVERSAL 1/32
PR	UNIVERSAL 1/32
PS	UNIVERSAL 1/32
PT	UNIVERSAL 1/32
PU	UNIVERSAL 1/32
PV	UNIVERSAL 1/32
PW	UNIVERSAL 1/32
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PZ	UNIVERSAL 1/32
QA	UNIVERSAL 1/32
QB	UNIVERSAL 1/32
QC	UNIVERSAL 1/32
QD	UNIVERSAL 1/32
QE	UNIVERSAL 1/32
QF	UNIVERSAL 1/32
QG	UNIVERSAL 1/32
QH</	



REVISIONS					
REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	REMOVED TOOL SIDE FROM SCHEM.	PS	NJ	11/11/02	PSL-SWC407
02	ADDED J6 CONNECTIONS TO PINS 6&7	NJ	JV	11/13/02	GWG-SXMR6

DeviceNet ROBOT ADAPTOR BLOCK  
S-EM-R-E-DN ARI #0204-D11A



APPROVED FOR PRODUCTION

THIRD ANGLE PROJECTION	ITEM QTY	ARI PART NO.	DESCRIPTION
	1	ARI #0204-D11A	ROBOT ADAPTOR BLOCK
	1	ARI #0001-P16N	TURCK TURCK P16N
	1	ARI #98506-P1027	TURCK P1027
	1	ARI #49386	18 AWG, 24VDC, SPARE 1, SPARE 2, 0VDC, PIN VIEW MALE AUX POWER MINI CONNECTER
	1	ARI #49390	20 AWG, CAN-L, CAN-H, PIN VIEW MALE DEVICENET MINI CONNECTER

NOTES:  
1. PIN SEQUENCE SHOWN OUT OF ORDER FOR CLARITY OF WIRE PATHS. PINS ON PCB CONNECTORS ARE ACTUALLY IN SEQUENTIAL ORDER(1,2,3 ETC.).

REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	REMOVED TOOL SIDE FROM SCHEM.	PS	NJ	11/11/87	PSL-SWCAD7
02	ADDED J6 CONNECTIONS TO PINS 6&7	NJ	JV	11/11/87	GWG-SXNRNE

REV	DESCRIPTION	DR	CHK	DATE	ECR/ESR NO.
01	REMOVED TOOL SIDE FROM SCHEM.	PS	NJ	11/11/87	PSL-SWCAD7
02	ADDED J6 CONNECTIONS TO PINS 6&7	NJ	JV	11/11/87	GWG-SXNRNE

GENERAL DIP SWITCH GUIDE  
SIGMA-ROBOT SIDE

NETWORK STATUS  MODULE STATUS LED

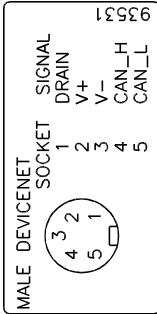
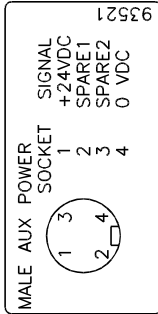
ON RESISTOR

SWITCHES SHOWN FOR 500 KBAU, MAC ID 54

BAUD RATE SW1 SW2  
ADDRESS SW 3-8  
0-63 BINARY  
SW 3 MSB (32)  
SW 8 LSB (1)

500 KB ON OFF  
250 KB ON OFF  
125 KB ON OFF

Applied Robotics  
648 SARATOGA ROAD  
GLENVILLE, NY 12302  
TEL (518) 384-1000  
94160



APPROVED FOR PRODUCTION

THIRD ANGLE PROJECTION	METRIC	ITEM QTY   ARI PART NO.	DESCRIPTION
	TOLERANCES UNLESS OTHERWISE SPECIFIED:	DR JAWALINDA S/2A/02	APPLIED ROBOTICS, INC. 1300 GARDEN CITY PLAZA GARDEN CITY, NY 11530
	DECIMAL DIMENSIONS:	DR AL S/2A/02	Applied Robotics
	FRACTIONS:	DR AS S/2A/02	TITLE
	ANGLES:	DR BA S/2A/02	SCHEM. ELECT. S-EM-R-E-DN SHEET 2 OF 2
	ANGLES: 30° UNLESS OTHERWISE SPECIFIED:	DR BA S/2A/02	SCALE:
	UNLESS OTHERWISE SPECIFIED:	DR BA S/2A/02	DO NOT DIMENSION TO UNLESS OTHERWISE SPECIFIED:
	UNLESS OTHERWISE SPECIFIED:	DR BA S/2A/02	SURFACE TREATMENT:
	UNLESS OTHERWISE SPECIFIED:	DR BA S/2A/02	ISO 9001 REGISTERED
	UNLESS OTHERWISE SPECIFIED:	DR BA S/2A/02	SIZE: D 0204-D13A
	UNLESS OTHERWISE SPECIFIED:	DR BA S/2A/02	REV: 02



