



Broadcast Devices, Inc.

Technical Reference Manual©

DSC-200 Dual Switch Controller

**READ THIS MANUAL IN ITS ENTIRETY BEFORE ATTEMPTING
INSTALLATION**

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LAN Firmware Revision 3.3.29 or greater

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I. Introduction

This technical manual covers the installation and configuration of the Broadcast Devices, Inc. ***DSC-200 Dual Switcher Controller Chassis***.

The DSC-200 Dual Motorized RF Switch Controller is designed to simplify the connection and operation of up to 2 - 4 port switches in broadcast applications. The DSC-200 is designed to control and sequence switches and transmitters to provide safe and reliable control of the transmitter plant. The DSC-200 automatically “steers” the interlock connections to the transmitters according to the position of the RF switches. This product supports SNMP v2 and is easily integrated into modern remote control and software systems that support simple network management protocol (SNMP).

Basic Description

The DSC-200 independently controls two – two position switch assemblies. The DSC-200 is intended to be used in any situation where independent control of up to two motorized switches and up to 4 transmitters is desired. Independent front panel, GPIO remote and SNMP based remote control of switch operations is possible with the DSC-200 product. In addition, each switch input has independent load path external interlock inputs for safe operation of each switch. Operation of each switch is independent of the other and its connected sources and loads.

II. Unpacking and Inspection

Carefully inspect the unit after unpacking and make certain that no damage has occurred during shipping. If damage is noted, contact the shipper immediately and file a claim for damages. Each unit is carefully packed and carries full insurance against damage. Inspect the packing list and make sure that the contents of the package match those described on the packing list.

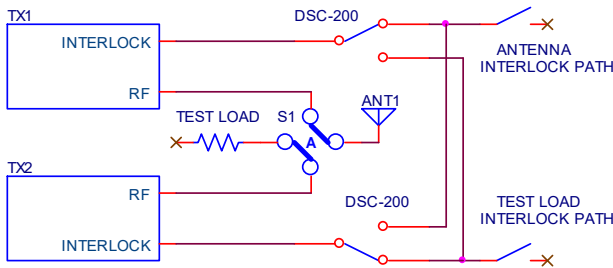
III. Basic Theory of Operation:

Upon front panel or remote control command the DSC-200 operation sequence is as follows:

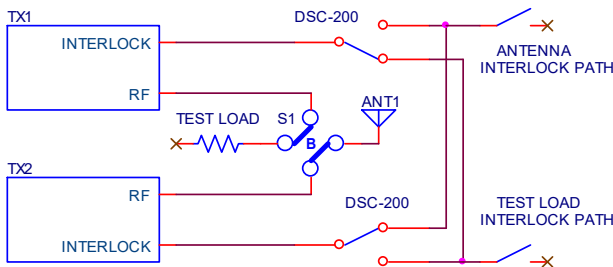
1. Command from the CPU board is issued to the transmitter control/interlock board to issue TX “OFF” off commands and open the safety interlocks of both transmitters connected to the four port switch selected to switch.
2. Approximately 2 seconds after these commands are issued the DSC-200 issues a switch command to the appropriate pin of the SW ½ I/O interface connector.
3. Once the switch reaches its commanded position the DSC-200 receives new

position information from the switch via the SW 1/2 I/O interface connectors and issues an interlock closure command. Approximately 2 seconds later the chosen "Position relay" closes and then issues a TX "ON" command to the transmitter feeding the on air position if the TX "ON" Status pin is connected to the respective transmitter. The DSC-200 connects the correct A/B interlock path inputs to the transmitters for the path they are feeding.

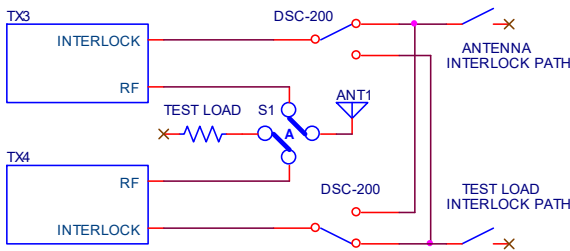
INTERLOCK STEERING - TX1 ON AIR



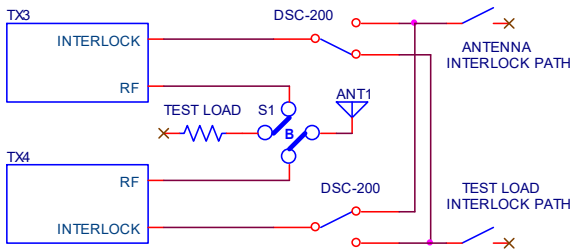
INTERLOCK STEERING - TX2 ON AIR



INTERLOCK STEERING - TX3 ON AIR



INTERLOCK STEERING - TX4 ON AIR



Note: If the 4 port switch fails to reach the commanded position due to mechanical or power failure, the DSC-200 will hold the interlock connections in

the open position and will not issue a TX “ON” command.

The DSC-200 will reflect the actual position and status of the four port switch. If it becomes necessary to manually move the four port switch to a new position the DSC-200 will sequence the interlock and other transmitter control relays as from a front panel or remote control command to the DSC-200.

Front Panel Operation

The DSC-200 can command SW1 (2) to their respective A/B positions by pressing the appropriate F button:

- F1** – SW 1 POSITION A
- F2** – SW 1 POSITION B
- F3** – SW 2 POSITION A
- F4** – SW 2 POSITION B

There is also provision to select or deselect SNMP Control and Remote Control:

Button Cluster:



SNMP Control Enable: Up ARROW - > symbol at top left of display as shown below



SNMP Control Disable: Down Arrow – inverted > symbol at top left of display as shown below



GPIO Remote Control Enable: Left Arrow – R (REMOTE) at lower left of display as shown below



GPIO Remote Control Disable: Right Arrow – L (LOCAL) at Lower Left of display



Whenever working at a site it is a good practice to put the unit in LOCAL so as not to have inadvertent operation during maintenance periods. Always remember to set the unit back to remote operation before leaving the site. Yes, putting a sign on the exit asking IS IT IN REMOTE? Before leaving the site is ALSO a good idea!

Automatic Transmitter ON COMMAND feature – Optional Operation

The DSC-200 is designed in such a way that the unit can provide a TX ON command upon switching between loads. Some transmitters may require an ON command in addition to an external interlock closure for operation. Most modern transmitters don't need this functionality as they can be latched to ON and simply interrupting and re-establishing the external interlock connection can control transmitter output. For older transmitters that require a series of closures this feature may be helpful. Here is how this works. If the TX ON Status connections are made as per J5 TX ON STATUS connector description under installation. When the DSC-200 is configured for this mode of operation the sequence is as follows using TX1/2 and SW 1 as an example:

If TX 1 is selected to the A path and is on when SW1 is commanded to TX 1 feeding the B path TX 1 will be issued a TX OFF command, the external Interlock will open causing the transmitter to go off. The switch will then move TX 1 to the B path and at which time the external interlock relay will re-energize and the TX ON command will be issued to TX 1 placing it back on into the B path. Each transmitter will behave in the same manner for both switch positions.

In order to configure the DSC-200 for Automatic TX ON described above, remove the top cover of the unit and locate S1 on the front panel PC board and turn S1-1 ON by pushing it toward the bottom of the chassis. This is marked A on the silk screen of the front panel PC board. Factory default is for S1,2,3,4 to be off. Only S1-1 has functionality in this product. Do not change the state of any of the other S1 sections.

One final note. If after reading the above description it is decided that this feature is not needed or desired the TX ON STATUS connections can still be made and they will provide ON status of the respective transmitters via SNMP, BDI Stack and GPIO Remote Connectors. If Automatic TX ON mode is desired but a means

of defeating it on a transmitter to transmitter basis is desired simply do not connect the TX ON STATUS connection for the transmitter that is desired not to be automatically turned on after a switch operation.

IV. Installation and Connections

Wiring Considerations:

The DSC-200 has the capability to totally automate the control of transmitters and switch operations with the touch of a button. The units have optional provision to turn transmitters off/on and provide interlock closures. The automatic TX On upon transmitter switch is optional and is factory default defeated unless the installer decides to enable it. The enabling is covered further into these instructions but it is strongly recommended that the operation of this feature be understood before installing the unit. With this feature factory default defeated interlock control will be the only controlling action for the transmitters connected to each switch. Some applications may require separate transmitter off and on control in addition to interlock closures managing transmitter on/off functions. The contacts are provided for both. Some installations may call for interlock connections only to turn transmitters on and off. It is entirely up to the installer.

Basic Wiring Methodology

Refer to DSC-200 REMOTE CTL/STATUS Connectors J1/J2 [page 14](#) and External Interlock Connectors on [page 16](#) for the following discussion.

External Interlock inputs are provided for each position of both switches on DB-15 connectors just above the switch inputs shown on [page 16](#) labelled EXT. INTERLOCK 1 (2) associated with switch 1 (2) to assist in wiring the interlock string for each mode. Connect any interlock switches associated with each mode in series between pin 6/7 and 14/15 associated with switch position in question. Connection between pins 6 and 14 for position A, and connection between pins 7 and 15 for position B of each switch. If a particular load path has no external interlock string then you must place a jumper between the pins for that path or the transmitter interlock steered toward that path will not close. The DSC-200 automatically “steers” the interlock connections to the transmitters according to the position of the RF switches. Refer to page 5 for a diagram illustrating interlock steering. **FAILURE TO MAKE CONNECTIONS TO THIS CONNECTOR WILL RESULT IN NO INTERLOCK CLOSURE OPERATION OF THE TX 1 and TX 2 /, TX 3 and TX 4 INTERLOCK RELAYS!** If no external interlock paths exist simply place jumpers across the pins shown [on page 16](#) – External Interlock connector.

As a safety precaution, never install a switch controller to a switch system that has radio frequency energy present on it or where AC/DC control power is applied to the switch motor. This can be dangerous and can easily damage a switch!

1. Before applying power to the DSC-200 or to the switch assembly, connect the supplied or locally made DB15 switch cable connector to the motorized switch and the SWITCH 1 (2) connector as desired. Refer to section VII Typical Switch Connection Diagrams section for suggested wiring details for most motorized switches available. If you are attempting to interface a switch assembly not covered in this section please contact the factory for assistance with your switch assembly. The factory offers at option pre made and tested cables for all switch models shown at the end of this manual. Contact BDI for price and ordering details. Once the switches have been plugged into their respective connectors on the rear of the DSC-200 chassis these connections are the only connections to the switches required except for electrical power. Control of the switches, position status and interlock control are all handled by these cables. Additional switch position and/or interlock connections may be available on the respective manufacturer's switch connector if desired for some other use.

2. Next, apply power the DSC-200 and observe the front panel. If all connections are made properly and the switches are correctly seated in positions A or B, the front panel display should indicate the present position of each of the switch assemblies. If the switch assemblies are not connected properly or are in the middle of their travel, the front panel will indicate "Check Switch 1 (2)". In this case check that the switches are seated properly by applying A.C. power to the switch in question.
CAUTION! DO NOT ATTEMPT DOING THIS WITH RF APPLIED TO THE SWITCH AS DAMAGE WILL OCCUR. NEVER APPLY A.C. POWER TO AN RF SWITCH WITH RF APPLIED WITHOUT CONNECTION TO THE CONTROLLER AND TRANSMITTER INTERLOCKS! For some switch manufacturers a switch in mid travel will go to the last position commanded as many switch designs use internal latching relays to drive the motor. Recheck the DSC-200 display for proper position indication. If the DSC-200 still shows "Check Switch" then the most probable cause is a defective interface cable or a problem with the switch electronics.
3. Make remote control, status, and transmitter control connections to DSC-200 rear panel SW1 (2) J1/J2 Remote CTL/STATUS connectors and J4/J7 SW1 (2) TX CTL/INTERLOCK connectors according to tables/connector diagrams on [pages 12-13](#). Note that the common connection for command and status is ground.

Frequently asked Questions about Interlock Relay Connections:

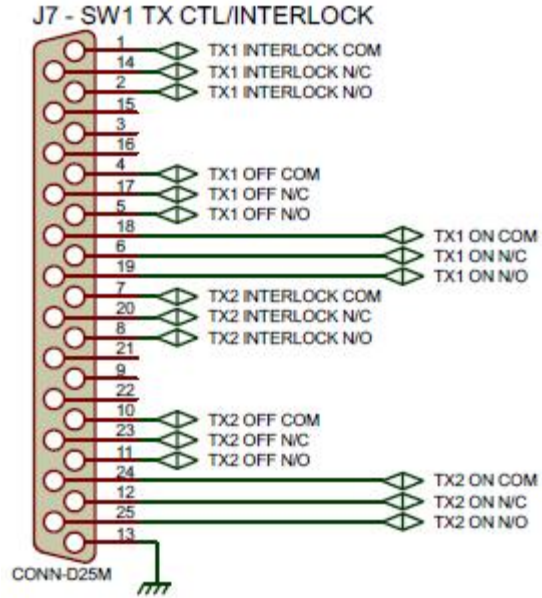
Question 1: How do the DSC-200 interlock relays function?

Answer 1: The DSC-200 system is designed to be a “fail-safe” system. This means that the DSC-200 provides interlock closures only when the DSC-200 has electrical power and the external interlock connections are made and switches are properly connected and in position. This means that the DSC-200 will drop your interlocks if power is removed from the DSC-200 chassis or the DSC-200 fails or if a switch is stuck in mid travel or the switch interface cable is removed from the DSC-200 or the switch. Fail-safe by definition means that failure of the “system” designed to protect life and/or equipment must fail in a safe way. If the DSC-200 fails it can no longer protect your transmission system from damage and therefore shuts down your transmitter.

Question 2: Which set of contacts should I use, normally open/common or normally closed/common?

Answer 2: It depends on your transmitter manufacturer specification. Most manufacturers require a closure between their “external interlock” connections for the transmitter to operate. If this is the case with your transmitters then you need to connect the external interlock connection of the transmitter to the normally open and common connections on DSC-200 J7/J4 – TX. CTL/INTERLOCKS. Here is why. With all connections made to the DSC-200 the DSC-200 will provide interlock closure on the normally open/common (relays energized) connections provided that:

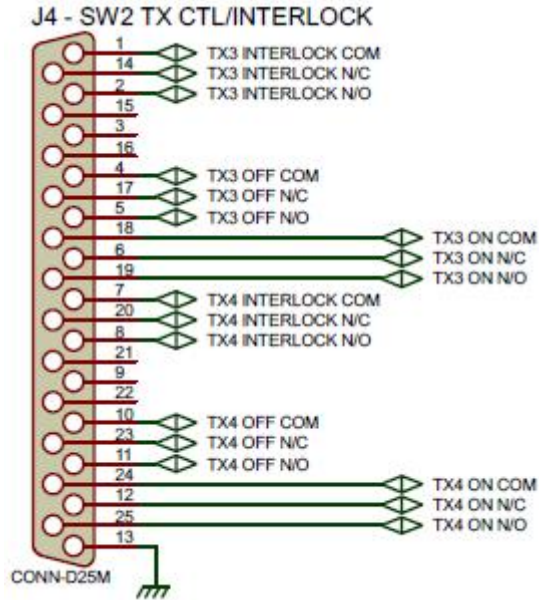
1. All external interlock connections are made to the DSC-200 rear panel DB 15 connector labeled EXT. INTERLOCK 1 and 2. **THESE CONNECTIONS MUST BE MADE OR THE INTERLOCK RELAYS WILL NOT CLOSE. SEE PAGE 16 for CONNECTION INFORMATION. EVEN IF YOU HAVE NO EXTERNAL INTERLOCK PATHS YOU MUST PLACE JUMPERS ON THE APPROPRIATE PINS DESCRIBED ON PAGE 16.**
2. The motorized switches are properly connected to the SWITCH 1 or SWITCH 2 DSC-200 DB-15 connectors. Check for proper front panel status of each position of the switch by manually moving the switch to each position. If the switch does not provide proper status you will see a CHECK SWITCH 1 (2) indication on the front panel for the switch in question. Recheck your wiring or the switch itself for proper operation.
3. Power is applied to the DSC-200 chassis.



TX1/2 CTL/Interlock J7 DB-25 Connector Table

Connector Pin# Connector Pin Designation

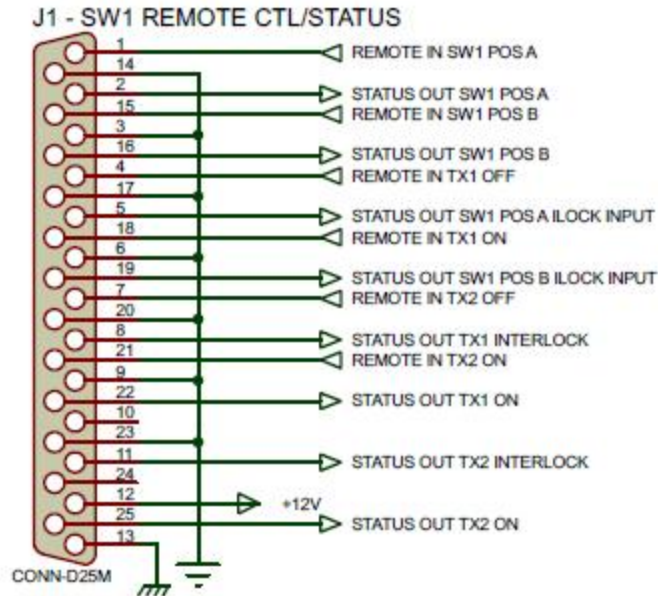
1	TX 1 Interlock PATH - COM
14	TX 1 Interlock PATH - N/C
2	TX 1 Interlock PATH - N/O
15	NC - Unused
3	NC - Unused
16	NC - Unused
4	TX 1 OFF - COM
17	TX 1 OFF - N/C
5	TX 1 OFF - N/O
18	TX 1 ON - COM
6	TX 1 ON - N/C
19	TX 1 ON - N/O
7	TX 2 Interlock PATH - COM
20	TX 2 Interlock PATH - N/C
8	TX 2 Interlock PATH - N/O
21	NC - Unused
9	NC - Unused
22	NC - Unused
10	TX 2 OFF - COM
23	TX 2 OFF - N/C
11	TX 2 OFF - N/O
24	TX 2 ON - COM
12	TX 2 ON - N/C
25	TX 2 ON - N/O



**TX3/4 CTL/Interlock J4 DB-25 Connector Pin Connection Diagram
Remote/Status DB-25 Table**

Connector Pin# Connector Pin Designation

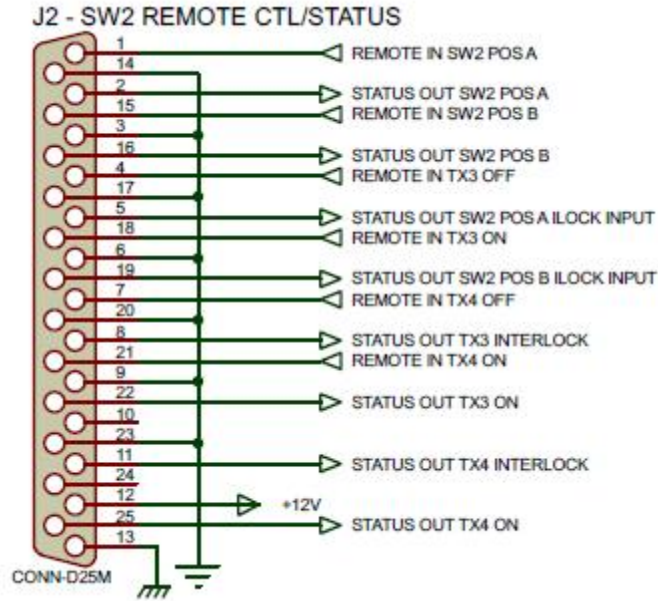
1	TX3 INTERLOCK COMMON
14	TX3 INTERLOCK N/C
2	TX3 INTERLOCK N/O
15	NC UNUSED
3	NC UNUSED
16	NC UNUSED
4	TX3 OFF COMMON
17	TX3 OFF N/C
5	TX3 OFF N/O
18	TX3 ON COMMON
6	TX3 ON N/C
19	TX3 ON N/O
7	TX4 INTERLOCK COMMON
20	TX4 INTERLOCK N/C
8	TX4 INTERLOCK N/O
21	NC UNUSED
9	NC UNUSED
22	NC UNUSED
10	TX4 OFF COMMON
23	TX4 OFF N/C
11	TX4 OFF N/O
24	TX4 ON COMMON
12	TX4 ON N/C
25	TX4 ON N/O
13	Chassis Ground



J1 REMOTE CTL/STATUS DB-25 Pin Connection Diagram

Connector Pin# Connector Pin Designation

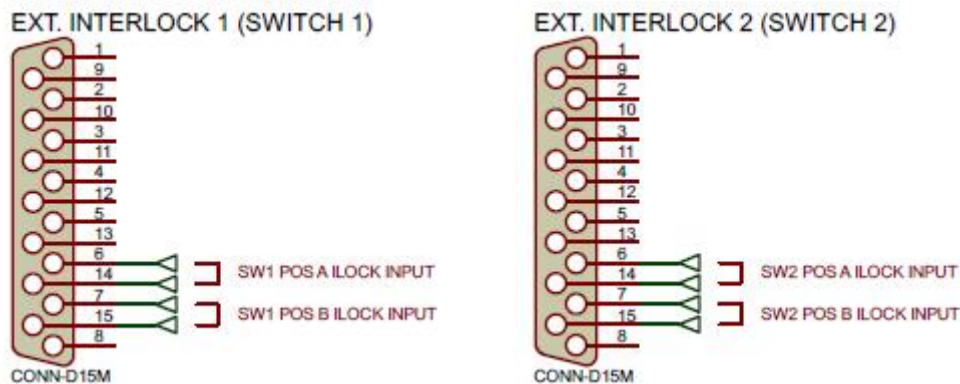
Connector Pin#	Connector Pin Designation
1	REMOTE IN SW1 POS A COMMAND
14	COMMON
2	STATUS OUT SW1 POSA
15	REMOTE IN SW1 POS B COMMAND
3	COMMON
16	STATUS OUTPUT SW1 POS B
4	REMOTE IN TX 1 OFF COMMAND
17	COMMON
5	STATUS OUT SW1 POS A EXTERNAL INTERLOCK INPUT
18	REMOTE INPUT TX1 ON STATUS
6	COMMON
19	STATUS OUTPUT SW1 POS B EXTERNAL INTERLOCK INPUT
7	REMOTE INPUT TX2 OFF COMMAND
20	COMMON
8	STATUS OUT TX1 INTERLOCK
21	REMOTE IN TX2 ON COMMAND
9	COMMON
22	STATUS OUTPUT TX1 ON
10	NC UNUSED
23	COMMON
11	STATUS OUTPUT TX2 INTERLOCK
24	NC UNUSED
12	+12 VDC
25	STATUS OUTPUT TX2 ON
13	Chassis Ground



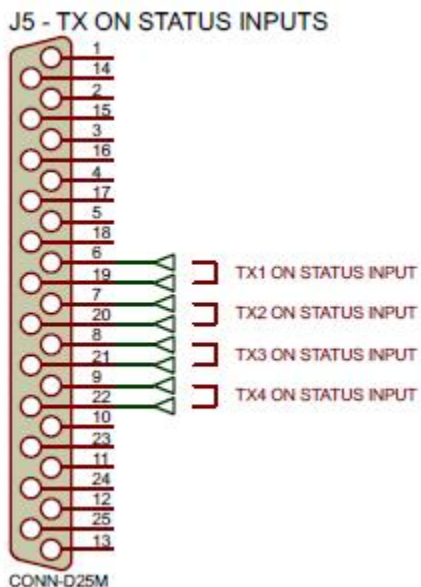
J2 LOCAL CTL/STATUS DB-25 Pin Connection Diagram

Connector Pin# Connector Pin Designation

1	REMOTE IN SW2 POS A COMMAND
14	COMMON
2	STATUS OUT SW2 POSA
15	REMOTE IN SW2 POS B COMMAND
3	COMMON
16	STATUS OUTPUT SW1 POS B
4	REMOTE IN TX3 OFF COMMAND
17	COMMON
5	STATUS OUT SW1 POS A EXTERNAL INTERLOCK INPUT
18	REMOTE INPUT TX3 ON STATUS
6	COMMON
19	STATUS OUTPUT SW1 POS B EXTERNAL INTERLOCK INPUT
7	REMOTE INPUT TX4 OFF COMMAND
20	COMMON
8	STATUS OUT TX3 INTERLOCK
21	REMOTE IN TX4 ON COMMAND
9	COMMON
22	STATUS OUTPUT TX3 ON
10	NC UNUSED
23	COMMON
11	STATUS OUTPUT TX4 INTERLOCK
24	NC UNUSED
12	+12 VDC
25	STATUS OUTPUT TX4 ON
13	Chassis Ground



Interlock Path Connectors – “External Interlock” connectors SW1, SW2



J5 TX ON STATUS INPUTS Connector

If your transmitter has TX ON status these connections are provided so that TX ON status will appear via SNMP, The BDI Stack, and GPIO remote control connectors. If automatic turn on of transmitters is desired using the TX ON command these connections must be made. Otherwise the DSC-200 simply interrupts the TX external interlock connection upon switch movement and re-establishes this connection upon the switch seating in its commanded position. See Automatic Transmitter ON feature description on its operation and how to configure the DSC-200 for this feature. Factory default is that this feature is defeated.

VI. Methods to Access DSC-200 Remotely:

1. Through the use of BDI's free graphical user interface the BDI Stack™ it is possible to connect to the DSC-200 web interface directly. The GUI is available for download from our web site support page and is contained within the CD ROM supplied with the unit.
2. SNMP – The DSC-200 is SNMP v2 compatible and the accompanying MIB file is contained on the CD ROM supplied. It is also available for download from our web site support page.
3. Of course the DSC-200 is designed to be interfaced to all conventional GPIO based remote control systems via the DSC-200 parallel remote control interface connectors J1 SW 1 REMOTE CTL/STATUS, J5 SW 2 REMOTE CONTROL/STATUS.

Remote Operation – BDI Stack™ Graphical User Interface

All BDI web enabled products including the DSC-200 Dual Switch Controller can be controlled and monitored by the BDI Stack software. The software is free for download from our support web page and is included on the CD ROM that is packed with the unit. This technical manual is also on the CD ROM and it is a good idea to keep the CD ROM in a safe place as manuals tend to get misplaced.

1. Install the BDI Stack software on to a computer connected to the Internet so that the program installation can install Adobe AIR if it is not already installed on the computer in question.
2. Once the software is installed it is a good idea to connect a laptop or desktop directly to the LAN connection at the rear of the DSC-200. Set the computer Ethernet settings to a fixed IP address within the same address range as the default DSC-200 address settings:

Default Settings:

IP: 192.168.1.107
Subnet: 255.255.255.0
Gateway: 192.168.1.1

These can be changed on the setup screen – **NOTE THAT NEW IP INFORMATION DOES NOT TAKE EFFECT UNTIL THE UNIT IS POWER CYCLED.**

3. From a browser access the unit with the default IP address and you should see this opening screen:



The default Username is: username

The default Password is: password

You can change these at this time but **MAKE SURE YOU WRITE THEM DOWN IN THE SPACES PROVIDED!** It will save time and trouble later on.

New username: _____

New Password: _____

Network Setup	IP Address 192.168.1.107	IP Mask 255.255.255.0
MAC ADDRESS 54:10:EC:D9:C4:C0	Primary DNS Server 192.168.1.1	Gateway 192.168.1.1
Unit Name UnitName	Username username	Password password
SNMP Port 161	Read Community public	Write Community private
FW REVISION LAN 3.3.29	LOAD 	SAVE 
 BACK	bdi	

You can make your network settings changes, click on SAVE and then power cycle the unit to enable the new IP address and settings. Failure to power cycle the unit will keep the default IP settings so make sure you power cycle the unit after making your changes. It is a good idea to make a screen shot of the setup page and/or write the new settings here:

IP Address: _____

Primary DNS Server: _____

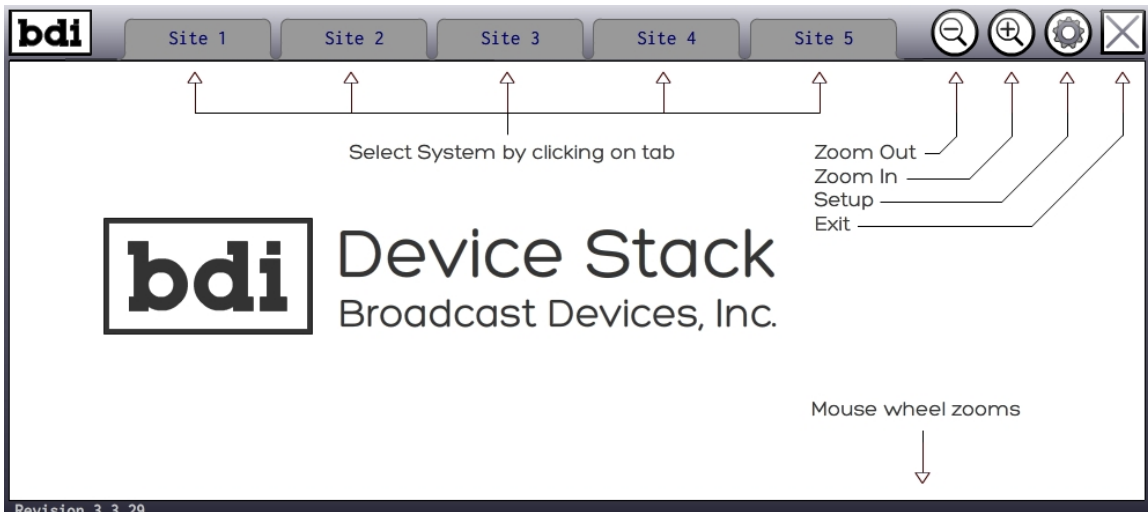
Gateway: _____

Make certain that the SNMP Port setting is open on the router that you wish to use the unit with. If Port 161 is being used by another device it can be changed but make sure you record the new port setting:

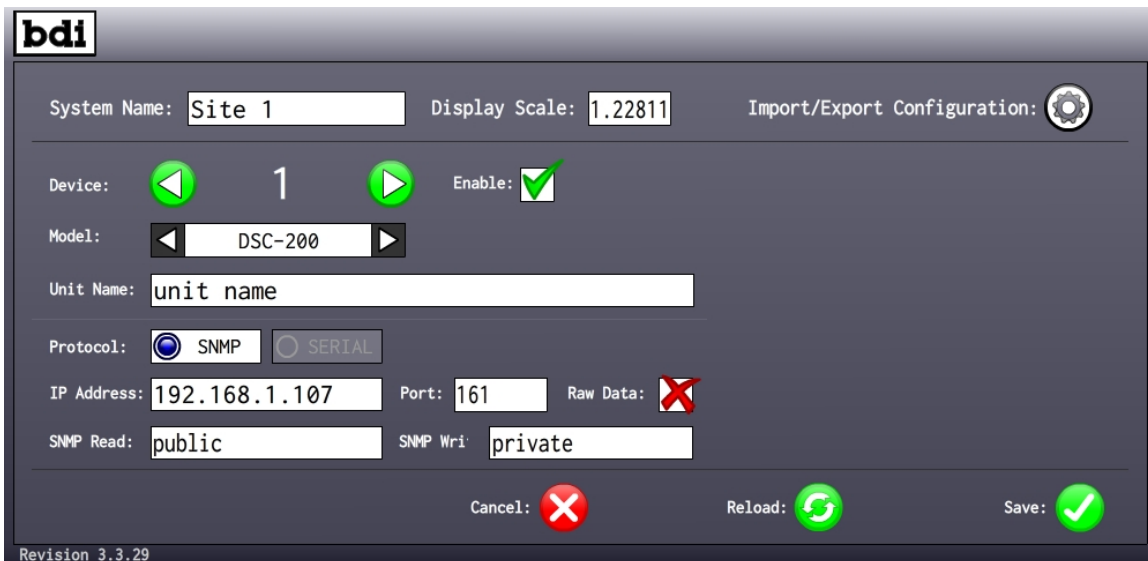
SNMP Port: _____

Also make sure that the new port setting if changed is forwarded on your router. Multiple behind the router devices can use the same port number behind the router but they must be port translated to a new port number on the outside of the router. Consult your router manufacturer's instructions on how to do this.

4. Start the BDI Stack software by clicking the icon on the desktop that was created.

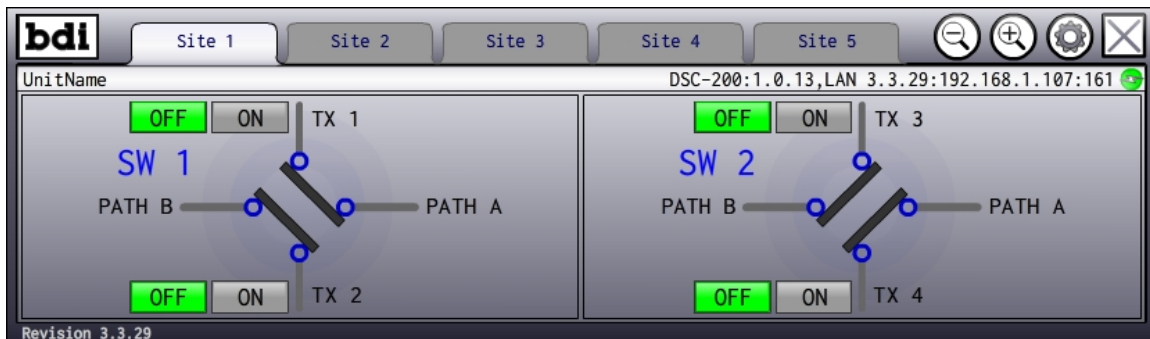


Choose a tab and click on it. Next go to the upper right corner of the window and click on the setup icon.



Choose a device – you can have up to 5 BDI SNMP product devices per tab. Fill in the IP setup information and make sure the SNMP Read community is public and the SNMP write community is private. Select SNMP – default. You can give

the tab a name at top under System Name. Once all of these items have been changed you can export the configuration at top right. Once this is done you can save this configuration which will bring you to the operating screen:



If the unit connects to the BDI Stack correctly you should note the IP address and port assignment in the Unit Name bar at right. If not the unit will show offline. Typical problems with the unit showing offline are incorrect IP settings. Check these first.

To move a switch simply double click on the switch icon desired. After the switch moves to the new position the new position will be shown. During switch movement you may see an Interlock Open condition with dashed red lines to indicate movement of the switch. This is normal and should revert to a solid line once the switch has moved to the new position. This is a handy troubleshooting tool as if an interlock path is not closed you can determine which one it is with the BDI Stack. You can also turn transmitters on and off by clicking on the appropriate button. If connections are made from the transmitter on talley to J5 Transmitter ON Status Inputs connector the ON button will illuminate and stay lit as long as the transmitter is ON. If these connections are not made then the TX ON button only illuminates when it is pressed. You may also see a flashing indication once an ON or OFF button when pressed. This is the software waiting for a handshake back from the unit. Depending on your connection speed this can take up to 5 seconds.

Certain BDI Stack graphic component names can be customized through use of a suitable MIB browser. We recommend the Ireasoning MIB browser which is available for free download from the Ireasoning web site: www.ireasoning.com Switch port names can be customized for easier operator indications for a particular site. The MIB browser can also be used to verify connection and proper operation of the DSC-200. It is a good idea to have some type of MIB browser available and familiarity with its use will streamline the use of the product.

Please contact us at BDI with any questions regarding the specifications, operation and setup of the DSC-200.

Contact BDI Customer Support: (914) 737-5032 9A-5P EST/EDST

VII. Specifications

Remote Control Input:	Momentary contact to ground or via Ethernet SNMP v2 – MIB included/BDI Stack™ Software
CTL. OUT to Switches/Transmitters:	Dry relay form C contact closure Contact Rating 24VDC @6 A.
Status Output:	Open collector output – Active Low
LAN connection:	RJ45 Socket - 8 conductor
Physical Specification:	19" L X 1.75" H X 10" D – Standard EIA rack enclosure 15 lbs. including carton
Electrical Requirements	100-240 VAC 50-60 Hertz
Environmental	0 – 60 degrees C. non condensing atmosphere
Connector Style:	Dsub25/Dsub15 Female –Mating connectors/hoods supplied

VIII. Warranty

Broadcast Devices, Inc. products manufactured for Electronics Research, Inc. are warranted against failure due to faulty materials or workmanship for a period of two years from the date of shipment to the ultimate user. The warranty covers repair or replacement of defective parts at the factory, provided the unit has been returned prepaid by the user. All shipments to the factory shall have affixed to the outside of the container an R. A. number obtained from the factory. The above warranty is void if the unit has been modified by the user outside of any recommendations from the factory or if the unit has been abused or operated outside of its electrical or environmental specifications. If customer conducted field tests suggest that the unit may be faulty, whether or not the unit is in warranty, a full report of the difficulty should be sent to Broadcast Devices, Inc. factory at Buchanan, New York, USA. The office may suggest further tests or authorize return for factory evaluation.

Units sent to the factory should be well packed in the original packing if possible and shipped to Broadcast Devices, Inc. Please go to www.broadcast-devices.com for shipping address. Remember to affix the R.A. number to the outside of the carton. Any packages received without such R.A. number will be refused. Note: freight collect shipments will also be refused. When the unit has been received, inspected and tested, the customer will receive a report of the findings along with a quotation for recommended repairs, which are found falling outside of the standard warranty. Units returned for in-warranty repairs which are found not to be defective will be subject to an evaluation and handling charge. In-warranty units will be repaired at no charge and returned via prepaid freight.

Out-of-warranty units needing repair require a purchase order and will be invoiced for parts, labor, and shipping charges.

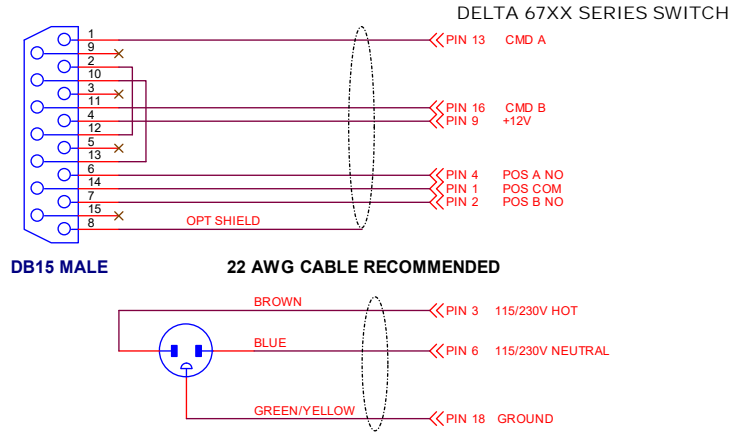
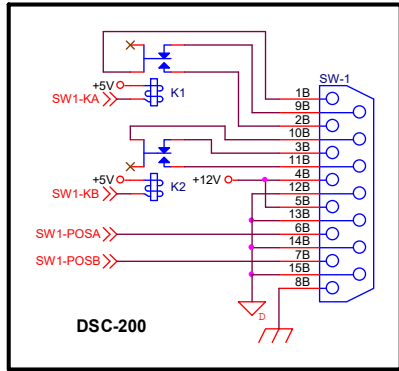
When ordering replacement part, always specify A) Part number or Description, and Quantity; B) Date of Purchase, Where Purchased; C) Any Special Shipping Instructions. Always specify a street address, as shipping companies cannot deliver to a postal box.

Broadcast Devices, Inc. is not responsible for any other manufacturer's warranty on original equipment. Nor are we responsible for any failure, damage, or loss of property that may occur due to the installation or operation of our equipment outside of recommended specifications.

Broadcast Devices, Inc. may from time to time make changes to the materials used in the manufacture of its equipment and reserves the right to do so without further notice.

IX. Typical Switch Connection Diagrams

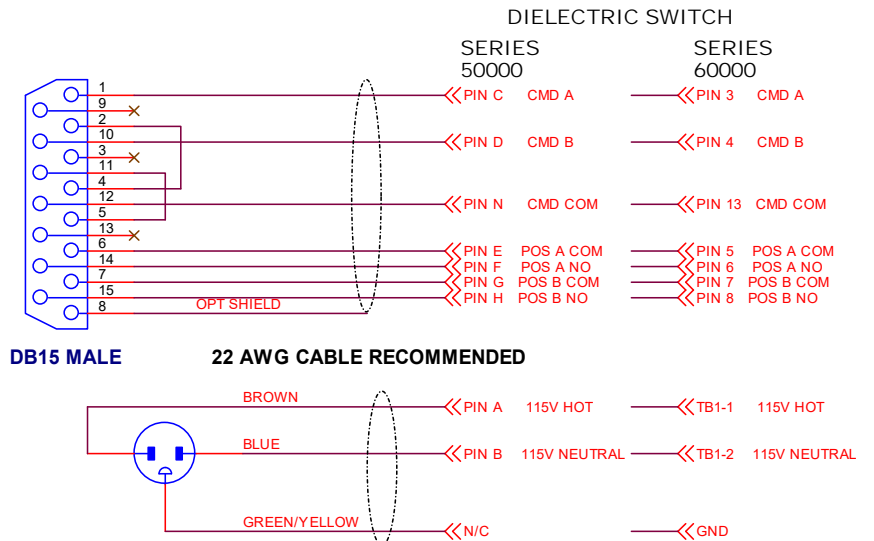
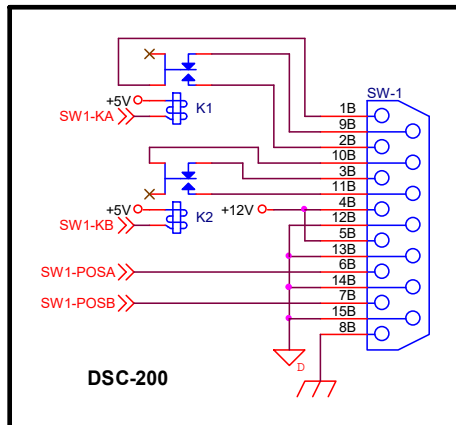
Delta Electronics. Motorized Coaxial Switches



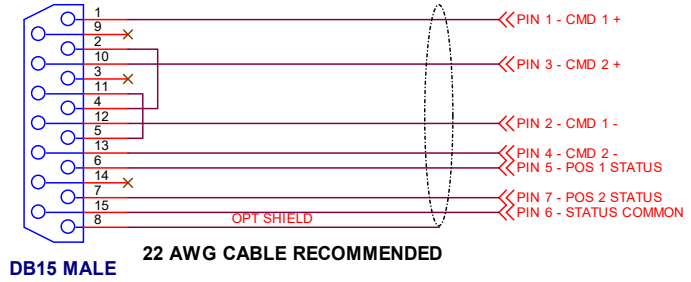
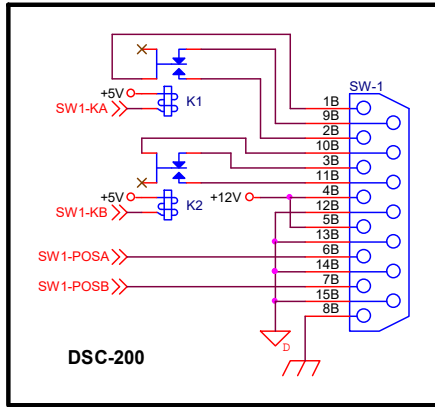
NOTE:

SWITCH MUST HAVE DELTA D42-87-1 12V RELAY KIT INSTALLED.

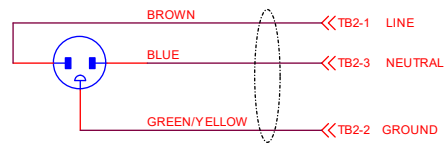
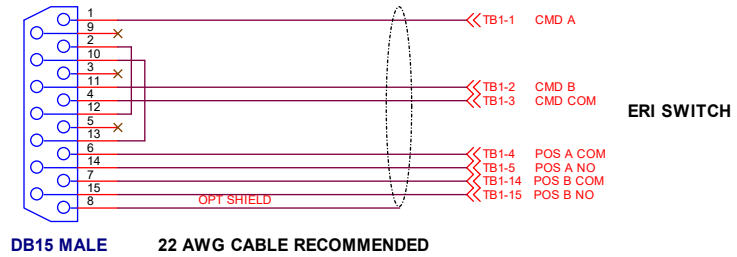
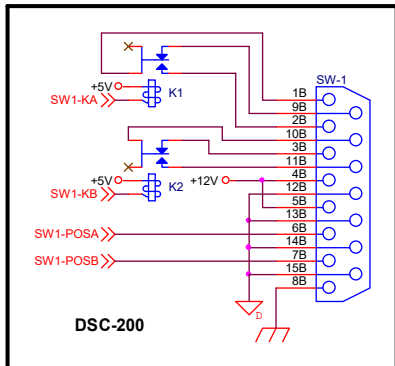
Dielectric/SPX 50000/60000 Series Coaxial Switches



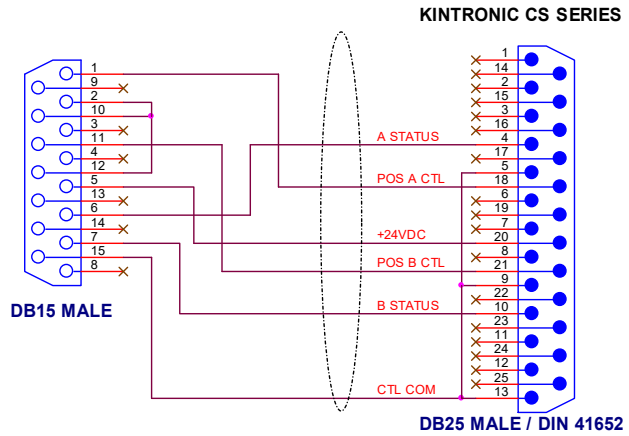
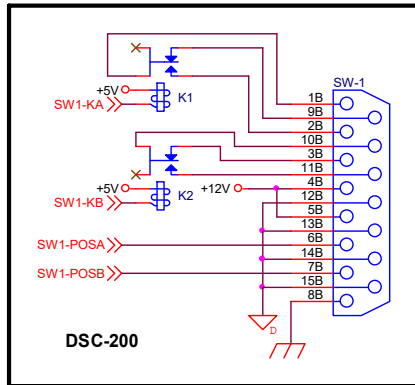
Dow Key Solenoid Type 412-420132, 412-480132, 412-430132 Switch Series



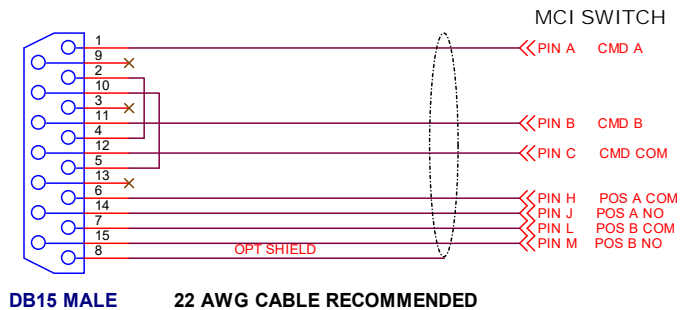
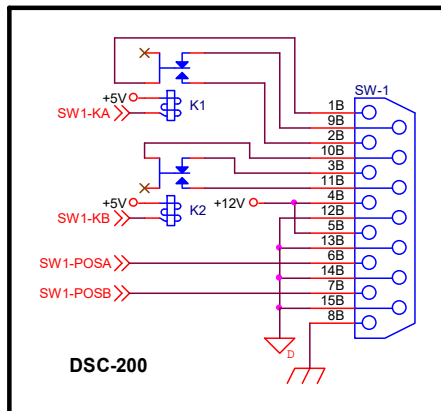
Electronics Research, Inc. Coaxial and Waveguide Motorized Switches



Kintronic CS Series Motorized Switch



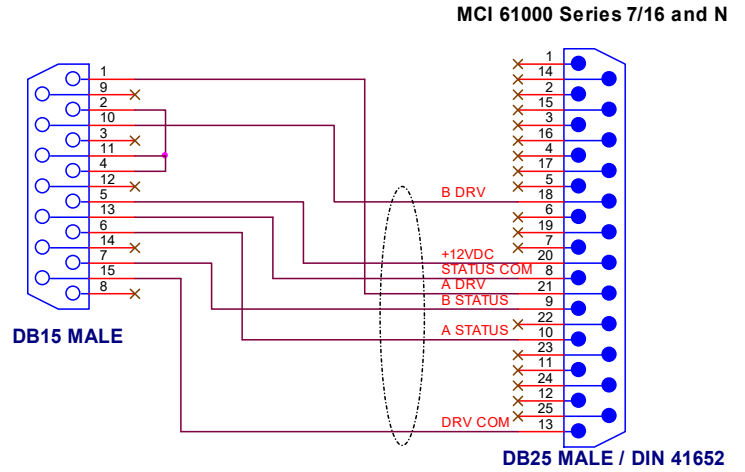
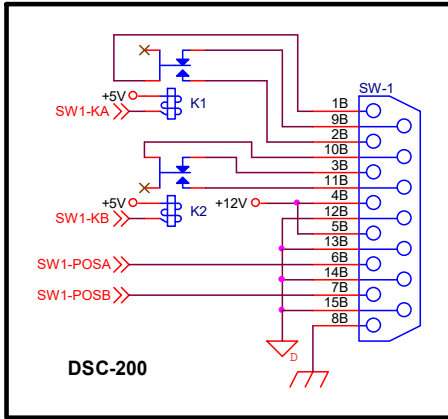
Mega/MCI Coaxial Motorized Switches



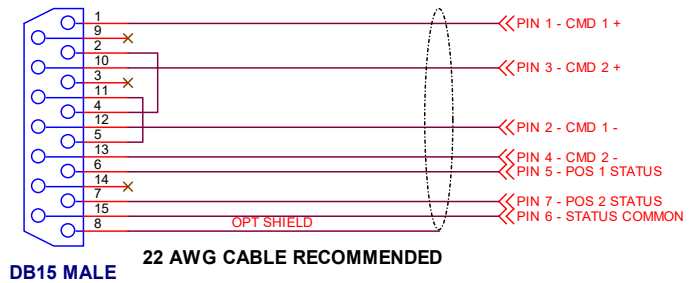
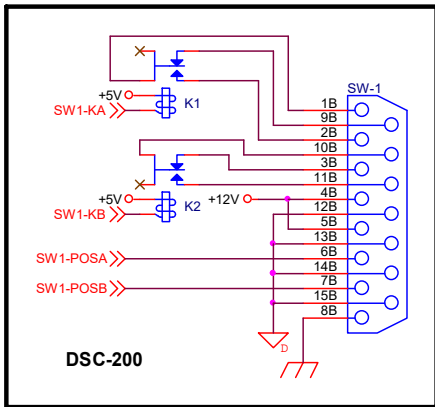
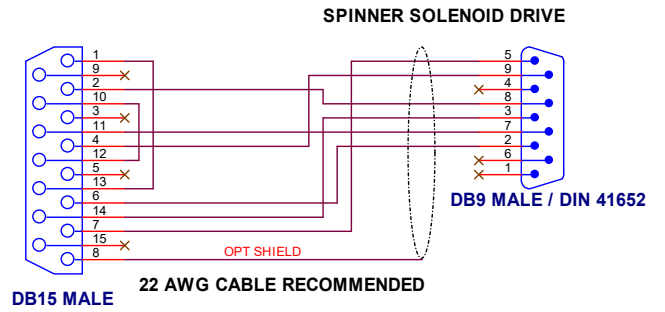
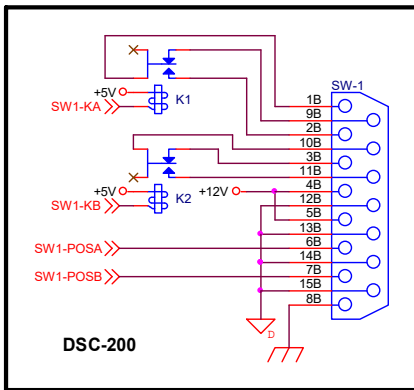
NOTES:

1. CONNECTOR: MIL TYPE MS3102A2214P
2. SWITCH MUST HAVE K1 INSTALLED FOR 12VDC OPERATION.
3. K1 P/N: 7/8" & 3 1/8" SWITCHES: DS2E-ML2-DC12V - ALLIED 788-1057
4. K1 P/N: 4 1/16" & 6 1/8" SWITCHES: KUL11D15D-12 - ALLIED 886-0129

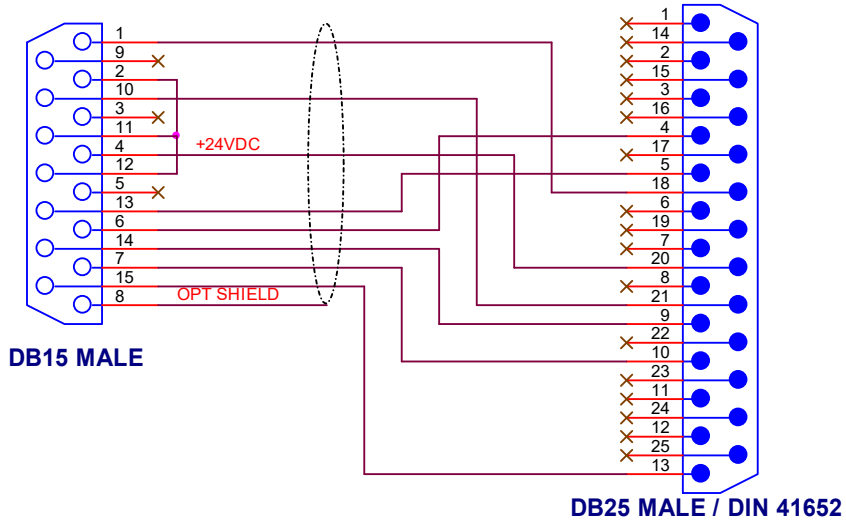
MCI 61000 7/16 DIN/N Type Switch



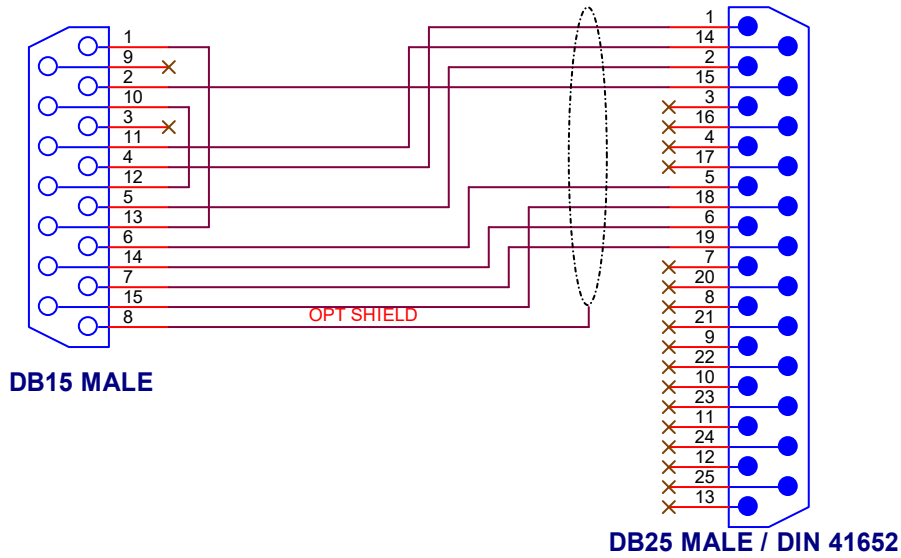
Spinner Motorized Switch Series



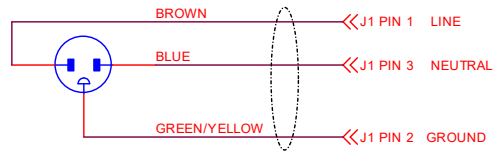
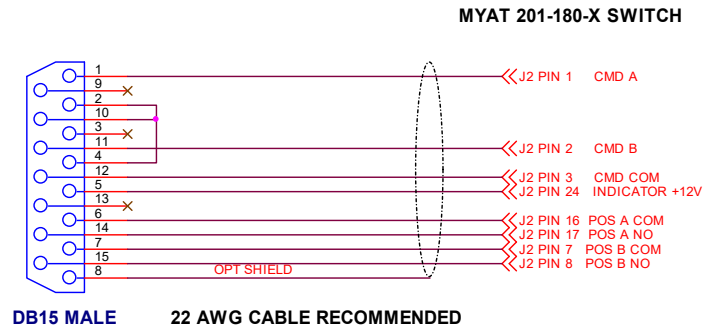
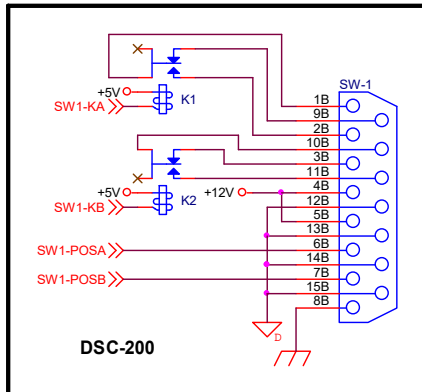
SPINNER SOLENOID DRIVE



SPINNER MOTOR DRIVE



Myat 201-180-X Motorized Switch Series



NOTES:

1. 24 PIN CONTROL CONNECTOR: MYAT P/N 180-135
2. SWITCH MUST HAVE K1 - MYAT P/N 175-40 INSTALLED FOR 12VDC OPERATION