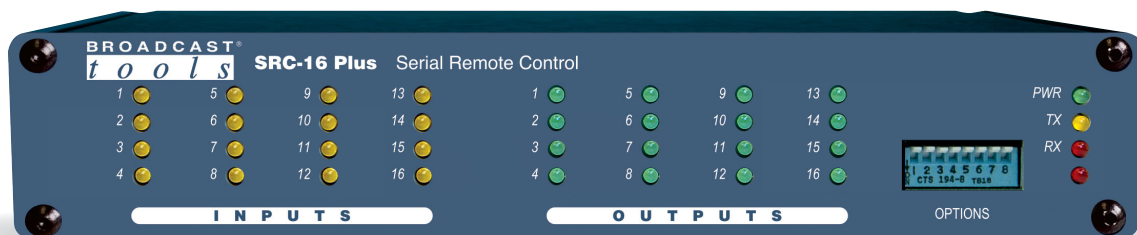# BROADCAST tools®

INC

PROBLEM SOLVED

Installation and Operation Manual

SRC-16 Plus
Sixteen channel serial remote control

Manual update: 12/11/2013
Firmware Version 1.17 and above. If you need a firmware upgrade, contact Broadcast Tools®

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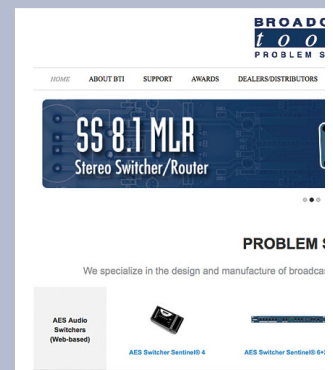
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INTRODUCTION

Thank you for your purchase of a BROADCAST TOOLS® SRC-16 PLUS sixteen channel serial remote control (referred to as the SRC-16 PLUS throughout this manual). We're confident that this product will give you many years of dependable service. This manual is intended to give you all the information needed to install and operate the BROADCAST TOOLS® SRC-16 PLUS.

SAFETY INFORMATION

Only qualified technical personnel should install the SRC-16 PLUS. Any attempt to install this device by a person who is not technically qualified could result in a hazardous condition to the installer or other personnel or damage to the SRC-16 PLUS or other equipment. Please ensure that proper safety precautions have been taken before installing this device. If you are unfamiliar with this type of equipment, please contact a properly qualified engineer to handle the installation and setup of the SRC-16 PLUS. Broadcast Tools, Inc., is unable to support NON-Broadcast Tools software, hardware or NON-Broadcast Tools computer/hardware/software problems. If you experience these problems, please research your hardware/software instruction manuals or contact the manufacturers technical support department.

WHO TO CONTACT FOR HELP

If you have any questions regarding your product or you need assistance, please contact your distributor from whom you purchased this equipment. If you would like more information about BROADCAST TOOLS® products, you may reach us at:

Broadcast Tools, Inc.
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Designed, Assembled and Supported in WA State, USA

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Broadcast Tools® Products, as with any electronic device, can fail without warning. Do not use this product in applications where a life threatening condition could result due to failure.
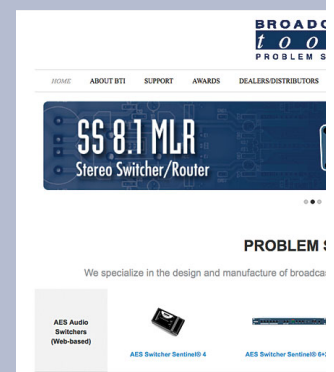
NOTE:

This manual should be read thoroughly before installation and operation.

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Product Overview

The Broadcast Tools® SRC-16 Plus is a computer interface to the real world. Connected through an RS-232 or RS-422/485 serial port the SRC-16 Plus can notify your PC software program that any of 16 optically isolated inputs have been opened or closed and allow your software to control any of the 16 SPDT, 1-amp relays. Communication with the SRC-16 Plus can be accomplished via short "burst" type ASCII or binary commands from your PC (computer mode.) Alternatively, the SRC-16 Plus may be used in Data mode which allows the user to define custom ACSII strings to control the relays as well as send custom ASCII strings when an input is on. Two units may be operated in a standalone pair mode to form a "Relay extension cord," with 16 channels of control in each direction. The unit can communicate using RS-232, RS-422 or RS-485 at data rates up to 38,400 baud. The SRC-16 Plus may be expanded to 64 inputs x 64 outputs from a single serial port. Optional external Ethernet and USB capabilities may be used.

Features/Benefits
- RS-232 serial interface for connection to PC.
- Backwards compatible with the SRC-16.
- LED indicators for all inputs and relays.
- Status and relay connections are on removable euro-block screw terminal connectors to simplify wiring and service, mating plugs are supplied.
- Fully RFI proofed.
- Surge protected internal power supply, universal switching power adapter with domestic connectors supplied.
- Up to two SRC-16 Plus's may be rack mounted on one RA-1, 1-RU rack shelf.

Applications
- One end of a full-duplex sixteen channel serial-enabled I/O extension cord.
- Relay control and status monitoring via user supplied PC application.

Inspection

Please examine your SRC-16 Plus carefully for any damage that may have been sustained during shipping. If any damage is present, please notify the shipper immediately and retain the packaging for inspection by the shipper. The package should contain the SRC-16 Plus, a one foot RED straight-through CAT 5 (daisy-chain) cable, one 7-foot DB-9 straight-through serial cable and a 9 VDC @ 670 ma wall transformer.

Installation of the SRC-16 Plus in high RF environments should be performed with care. Shielded cable is suggested for all I/O connections. All shields and the station ground should be connected to the "Chs Gnd" terminal. It is recommended that all cables connected to the SRC-16 Plus be looped through ferrite cores to suppress RF.

Surge Protection

The SRC-16 Plus has built-in resistance to voltage changes; we recommend that you use a power surge protector or line conditioner on the incoming AC line. Lightning strikes and/or other high voltage surges may damage your SRC-16 Plus and connected equipment if it is not properly protected. For lightning protection devices, check out www.polyphaser.com and www.itwlinx.com.

UPS Standby Power System

We recommend that you connect your SRC-16 Plus to a UPS system. A UPS helps minimize the risk to the SRC-16 Plus and provides power during a power outage.

Front Panel Description
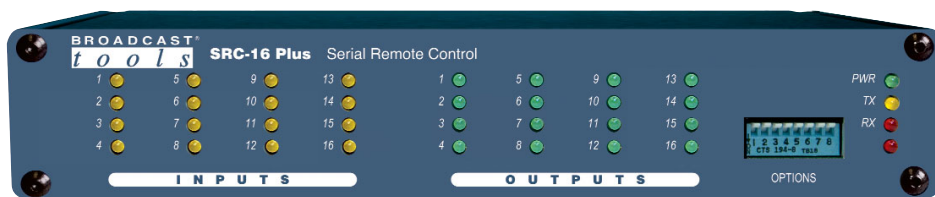
LED indicators

- "PWR" LED: Lit to indicate normal operation. (Green)
- "TX" LED: Lit when serial data is sent.
- "RX" LED: Lit when serial data is received.
- Bottom red led, not used.
- "Inputs" LEDs 1-16: Lit when the associated status/logic input is active. (Yellow)
- "Outputs" LEDs 1-16: Lit when the associated relay output is active. (Green)

Options dip-switch

This eight-position dip-switch is used to configure the SRC-16 Plus. See the "Configuration dip-switch Setup" section of this manual for more information.
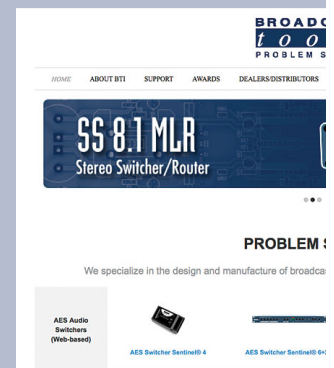
Rear Panel Description
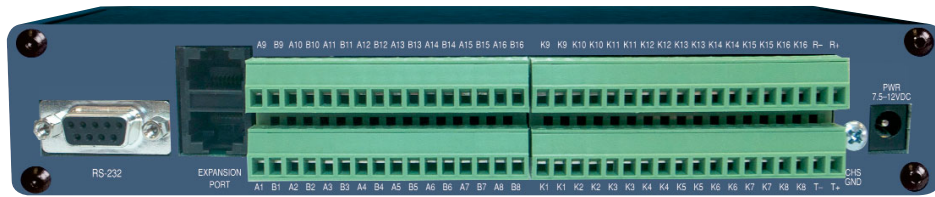
Power
2.1mm coaxial DC power jack, 7.5 - 12 VDC, center positive.

Chassis Ground (Chs Gnd)
Station ground and cable drain wires should be tied to this chassis ground point.

Status/Logic Inputs
The SRC-16 Plus has sixteen opto-isolated status/logic inputs. Each input is configured at the factory to accept a dry contact closure; we call this the DRY configuration. To use one of the SRC-16 Plus's status inputs with dry contacts wire the contacts to input channels Ax and Bx (where x is the status/logic input channels number, 1 thru 16) terminals. A closure between an input's A and B terminals will cause the input to go HIGH (turn on.) The sixteen yellow LEDs on the front panel indicate which inputs are active.

Each input has a four-position configuration header and two jumpers. You can refer to the jumper layout in the appendix for a detailed view. Each jumper is labeled (JPx, where x is the status/logic input) and the header pins 1,2,3,4 are used to configure for WET or DRY operation. The factory default is DRY (Switch, relay contact, open collector) with jumpers between 1 & 2 and 3 & 4. In the DRY configuration, the "A" terminal is ground while the "B" terminal is the cathode of the opto-isolator diode (pulled up to 5 volts through a 2.2K resistor).

If an output that you are interfacing with the SRC-16 Plus provides its own voltage then you will need to configure the corresponding input for the WET (floating) configuration. In the WET configuration the SRC-16 Plus's opto-isolated inputs can be triggered by an input voltage from 5 VDC up to 24 VDC. To change a status/logic input to WET (floating), remove both jumpers for the input's configuration header (labeled JPx) and place ONE jumper over pins 2 & 3. You may then connect the positive voltage to the input's "A" terminal (anode) and ground or minus voltage to the input's "B" terminal (cathode).

Status/logic input terminal block connection layout

(Top Row, TB1)

A9	B9	A10	B10	A11	B11	A12	B12	A13	B13	A14	B14	A15	B15	A16	B16
A1	B1	A2	B2	A3	B3	A4	B4	A5	B5	A6	B6	A7	B7	A8	B8

(Bottom Row, TB1)

NOTE: Please refer to the appendix for configuration examples and observe proper polarity.

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Relay Outputs:

Each of the sixteen relays is supplied with SPDT (form C) dry contacts that are jumper selectable for either normally open (N.O) or normally closed (N.C) operation. They are set to normally open from the factory. The sixteen green output LEDs on the front panel indicate which relays are active. External equipment to be controlled should be connected to the terminals labeled K1, K1-K16,K16.

  NOTE: If mechanical latching relays are required, we suggest the Broadcast Tools LR-5 or LR-5 Plus (4PDT & SPST) mechanical latching relay.

Relay output terminal block connection layout

(Top Row, TB2 1-16)

K9	K9	K10	K10	K11	K11	K12	K12	K13	K13	K14	K14	K15	K15	K16	K16
K1	K1	K2	K2	K3	K3	K4	K4	K5	K5	K6	K6	K7	K7	K8	K8

(Bottom Row, TB2 1-16)

NOTE: Please refer to the appendix for configuration examples.

Expansion Ports

Used to connect multiple SRC-16 Pluses using the included red Cat5 patch cable.

RS-232 Serial Connection

The RS-232 serial connection is made to the male DB-9 connector on the back of the SRC-16 Plus. The headers labeled "RS-232" "NNRR" on the SRC's printed circuit board adjacent to the RS-232 DB-9 connector can be used to reverse the RS-232 transmit and receive pins on the DB-9. The factory setting is the "NN" position where pin 5 = ground, pin 2 = transmit and pin 3 = receive. In the "RR" position pin 5 = ground, pin 2 = receive, pin 3 = transmit.

Note: An optional USB to RS-232 adapter cable may be required if your PC isn't equipped with a RS-232 COM port. The default protocol is as follows: 9600, N, 8, 1

RS-422/485 Serial Connection

In some cases it's necessary to use RS-422/485 serial interfaces instead of RS-232. This can be enabled via jumper settings on the SRC's printed circuit board. RS-422/485 serial cable connections must be made to the R-/R+ and T-/T+ connections on the TB2 terminal blocks. Please limit cable lengths to under 4000 feet.

(Top Row, TB2 17-19)

R-	R+
T-	T+

(Bottom Row, TB2 17-19)

Please refer to the appendix for jumper settings and connection details.
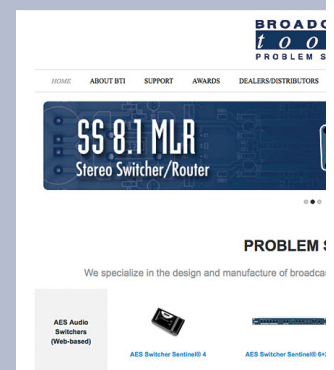
Setup/Operation

Configuration Dip-switch Setup
The configuration dip-switch package (SW1) labelled "Options" is located on front panel of the SRC-16 Plus.
Note: After changing any dip-switch, please repower the unit.

Set Unit ID (SW1-1, SW1-2)
SW1-1	SW1-2	
OFF	OFF	Unit ID 0 (master/default)
OFF	ON	Unit ID 1
ON	OFF	Unit ID 2
ON	ON	Unit ID 3

Set Serial Baud Rate (SW1-3, SW1-4)
SW1-3	SW1-4	
OFF	OFF	9,600 baud (default)
OFF	ON	1,200 baud
ON	OFF	4,800 baud
ON	ON	38,400 baud

Baud rate will be set by the DIPswitch on power up or reset. It can also be changed using the serial port commands at other times, but if the SRC-16 is reset, baud rate will be set according to the DIP settings.

Enable Hex Mode (SW1-5)
SW1-5	
OFF	Hex Mode Off (ASCII) (default)
ON	Hex Mode On

Refer to the protocol also listed in this manual for ASCII and binary hex commands.

Set Operation Mode (SW1-6, SW1-6, SW1-8)
SW1-6	SW1-7	SW1-8	
OFF	OFF	OFF	Mode 0 - PC Control
OFF	OFF	ON	Mode 1 - AT1616 Command Set
OFF	ON	OFF	Mode 2 - *uiix
OFF	ON	ON	Mode 3 - Invert send and poll response bits
ON	OFF	OFF	Mode 4 - PAIR
ON	OFF	ON	Mode 5 - Unused
ON	ON	OFF	Mode 6 - Data Programming Mode
ON	ON	ON	Mode 7 - Data Mode

PC Control (Mode 0)
This is the default operation mode for the SRC-16 Plus. Use this mode if you plan on exchanging ASCII string data with the SRC.

AT1616 Command Set (Mode 1)

When set, the SRC-16 emulates the legacy AT1616 command set which is used by some PC-based automation systems. A response string is returned each time an input changes state or relays are set. The string consists of a dash (-) followed by 8 bytes. The first 4 bytes are ASCII hex representations of the 16 outputs with the first two bytes being the lower outputs 8,7,6,5 followed by 4,3,2,1 then the next two bytes representing the upper outputs 16,15,14,13, and 12,11,10,9. If outputs 1, 8, 15 & 10 were ON, these 4 bytes would appear as 8142.

The last four bytes represent the 16 inputs in ASCII hex format with four bytes: 16,15,14,13 12,11,10,9 8,7,6,5 4,3,2,1. If inputs 1,4,7,8,9,10,14,16 are all ON then these four bytes would appear as: A3C9. In the above example, the complete string would be -8142A3C9

To set relays ON, send a capital "P" followed by two ASCII hex bytes representing the bits for the lower 8 relays and a capital "Q" followed by two ASCII hex bytes representing the state of the upper 8 relays. For example, to turn ON relays 2,7,8 and 13, send PC2 and Q10. A dash (-) can be placed before the "P" and "Q" if needed in existing software applications.

The "K" Command is used to pulse relays. The protocol is Krtt where r=relay number represented as ASCII hex 0-F, and tt is an ASCII hex value from 01-FE representing values from .01- 2.56 seconds.

*uiix Mode (Mode 2)

This mode uses the same ASCII string commands as PC Control Mode (Mode 0) except the status inputs states are reported in the following format: *uiix where u=unit ID (0-3), ii=input number (1-16), and x=on/off state (0-1), 0=off, 1=on.

Invert Mode (Mode 3)

This mode uses the same ASCII string commands as PC Control Mode (Mode 0) except the ASCII send and poll input status bits are inverted. This is included for backwards compatibility PC automation software designed to operate with older SRC-16 firmware versions.

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SETUP

9
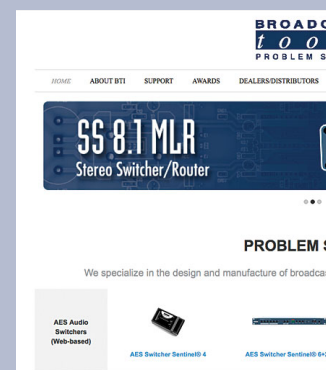
Pair Operation Mode (Mode 4)

The SRC-16 Plus can be used to transmit the outputs from one unit to another over a serial connection. The logical sense of the inputs is inverted when written to the outputs of its corresponding unit. Normally inputs are high and when closed, go to logic 0 when in pair mode. When logic 0 is received, it will write logic 1 to the output. This allows the relay outputs 01-16 to come on if its corresponding input is closed. Multiple units can also be set up to communicate with the same number of units on the other end of a data link. All units must have dip-switches 5 and 6 turned ON, and the unit addresses must have a corresponding unit on the other end of the link set to the same address. For example, if you have two units on each side set to address 0 and 2, then the two units on the other side of the data link must also be set to 0 and 2.

All units will automatically transmit the states of their inputs on power up, every ten seconds and when any input changes state. If a unit does not receive an update from its corresponding paired unit for a period of about 10 seconds, it will begin flashing the red RX LED one second on, one second off. When communication is restored, the LED will cease to flash.

NOTE: To daisy-chain multiple SRC-16 Plus's, only use the supplied one foot RED straight-through CAT 5 (daisy-chain) cable to connect multiple SRC-16 Plus's together. Limit to 18 inches.

Pair mode can also be used to broadcast input closures from one unit to many using a shared data link. The inputs on the transmit SRC-16 Plus will appear on all of the receive units as long as their address codes match. If only one unit is used at each site, it must be set to an address of zero. The red RX LED will blink on the transmit side to indicate it is not getting return data from the remote units. However, the data being broadcast will still cause the remote relays to follow their corresponding inputs on the broadcasting unit.

Note: If jumpers JP23 and 24 are ON and the SRC-16 Plus is in pair mode, it will control its own relays, essentially being a pair with itself. This is an easy way to test the inputs and outputs of a single unit. Normally JP23 and 24 should BE REMOVED, or you may have unintended consequences of a unit's relays responding to input closures generated from the same board.

Mode 5

Not used.

Data Programming Mode (Mode 6)

Programming Input Strings

In Data Programming mode: enter "*I" and a list of the 16 inputs will be displayed with the data programmed to be sent when each input closes. Select the input string you wish to modify, 01-16.

Example: Enter 01. A "-" will appear followed by a new line. Enter the data string you want to be sent by input 01, up to 64 characters. For example, enter "123" and terminate the data entry with a carriage return. In the data operation mode when input 01 is closed, "123" followed by a CR/LF will be sent. To exit program mode, enter the Esc key or wait one minute for the program time-out.

```
DATA SENT BY INPUTS:
01-123
02-
03-
04-
05-
06-
07-
08-
09-
10-
11-
12-
13-
14-
15-
16-
ENTER 01-16 FOLLOWED BY DATA STRING UP TO 64 BYTES, END WITH CR:
```

Programming Relay Control Strings

In Data Programming mode: enter "*R" and a list of the 16 relay control strings will be displayed. This is the data that will cause the corresponding relay to pulse in operational mode. Select the relay string to modify, 01-16. For example, enter 01 a "-" will appear followed by a new line. Enter the data string you want to be used to pulse relay 01, up to 64 characters. For example, enter "123" and terminate the data entry with a carriage return. In the data operation mode when "123" is received, relay 01 will pulse for 800ms.
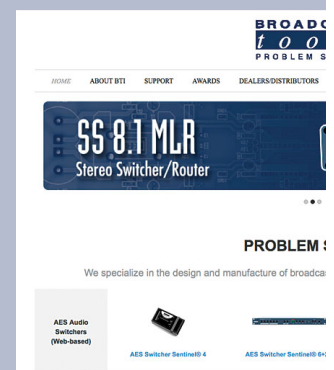
```
DATA TO ACTIVATE RELAYS:
01-123
02-
03-
04-
05-
06-
07-
08-
09-
10-
11-
12-
13-
14-
15-
16-
ENTER 01-16 FOLLOWED BY DATA STRING UP TO 64 BYTES, END WITH CR:
```

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Data Operation Mode (Mode 7)

This mode allows the SRC-16 Plus to be used with a wide variety of serial devices by allowing the user to define custom relay control strings and custom input strings. These strings are set in the Data Programming Mode and are used in the Data Operation Mode.

When you have finished programming data strings, exit program mode and set DIP 6,7,8 ON. The data programmed for the various inputs will now be transmitted when the corresponding input is closed. Relays will pulse when received data packet matches the data programmed for that relay.

When the "?" is received it be treated as a wildcard and will match whatever is in stored memory.

If a "#" character is received in a data packet the an "@" will be accepted as the end of packet character instead of a carriage return.

ASCII Burst Commands

The burst mode allows a computer or ASCII terminal to control and interrogate the unit. This section defines all burst mode commands.

Each burst mode command starts with an asterisk (*). Next is a single decimal digit that corresponds to the unit (ID) address 0-3. Following is or more ASCII character(s) specifying the command. A carriage return is required to terminate each command. If the command requires a response, the response will consist of an upper case "S", followed by the unit address number, and then the specific command response. If acknowledgments are enabled, successful commands are responded to with "RRR" while errors get an "EEE" response.

The syntax of each command is given below. The syntax shows the command exactly as it should be sent, except that lower case characters represent values that must be substituted by the user.

Glossary of Command Notation

Character	String Meaning	Allowable Values
u	Unit ID	0-3
ii	Input Number	01-16
oo	Relay Number	01-16

Setup Commands

*uCCx - Set Serial Baud Rate. x = 0: 2,400 1: 9,600 2: 19,200 3: 38,400 4: 4,800
    Command Example: *0CC3 will set the serial baud rate to 38,400

*uCEx – Enable or disable command success/error responses, where x = Y to enable and N = disable. In this mode, when a command is sent, the unit will reply (possibly before receiving the entire command) with "EEE." If the command is sent correctly, the unit will reply with "RRR."
    Command Example: *0CEY enables command success/error responses.

Relay Control Commands

*uORrrL - Latch Relay, where "rr" = relay number.
> Command Example: *0OR01L latches Relay 01 on.

*uORrrF - Unlatch Relay, where "rr" = relay number.
> Command Example: *0OR01F latches Relay 01 off.

*uORrrP - Pulse Relay for ONE second, where "rr" = relay number.
> Command Example: *0OR01P pulses Relay 01 for one second.

*uORrrPtt - Pulse Relay "rr" for Pulse Length, "tt" = 00-99 corresponds to 0.0-9.9 Seconds.
> Command Example: *0OR01P99 pulses Relay 01 for 9.9 seconds.

Information Retrieval Commands

*POLL - Respond with unit (ID) address in appropriate time slot. If there are multiple units on the line, each will respond with a different delay after receipt of this command.
> Command Example: *POLL
> Response Example: 0

*uSPii - Send status of input, where "ii" = input number. Response in SuP,ii,x format where "x" is 1 if the corresponding input is high, 0 otherwise.
> Command Example: *0SP01 Poll Input 01 status
> Response Example: S0P,01,1 Indicates Input 01 is high.

*uSPA - Send status of all inputs. Response in SuP,A,x,x,x,x,x,x,x,x,x,x,x,x,x,x,x,x <CR><LF > format where Input 01 is first and Input 16 is last and where "x" is 1 if the corresponding input is high, 0 otherwise.
> Command Example: *0SPA
> Response Example: S0P,A,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0 Indicates all inputs are low.

*uSR - Send status of all relay outputs. Response in SuA,x,x,x,x,x,x,x,x,x,x,x,x,x,x,x,x <CR><LF> format where Relay 01 is first and Relay 16 is last and where "x" is 1 if the relay is on and 0 otherwise.
> Command Example: *0SR
> Response Example: S0A,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0 Indicates all relays are off.

*uU - Send Unit Information in SRC-16 VER n.nn<CR><LF> format.
> Command Example: *0U
> Response Example: SRC-16 VER 1.17

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Binary Hex Commands

Binary hex mode is offered as alternative serial command set. To enable, turn SW1-5 on. All commands start with a 2Ah (ASCII *)

The first byte contains the board ID and the byte count iiibbbbb

The byte count is the number of bytes after the byte containing the byte count including checksum. The second byte contains an 8 bit command. Some commands are followed by data bytes. Checksum is the LSByte of the sum of all bytes preceding checksum including start character. Binary hex commands must be received as a packet. If 50ms or more passes after a character is received, with no new character following, the SRC-16 Plus will begin looking for a new string.

Command	Data Bytes	Example	Function
41h		2A 02 41 6D	Set serial speed to 4,800
42h		2A 02 42 6E	Set serial speed to 2,400
43h		2A 02 43 6F	Set serial speed to 9,600
44h		2A 02 44 70	Set serial speed to 19,200
45h		2A 02 45 71	Set serial speed to 38,400
46h		2A 02 46 72	Enable error & good responses
47h		2A 02 47 73	Disable error & good responses
48h	n	2A 03 48 01 76	Latch output n (00 – 0F
49h	n	2A 03 49 01 77	Unlatch output n (00 – 0F)
4Bh	n	2A 03 4B 01 79	Poll output n (00 – 0F) (see 55h)
4Ch	n	2A 03 4C 01 7A	Poll input n (00 – 0F) (see 55h)
4Dh		2A 02 4D 79	All Output status request (see 52h)
4Eh		2A 02 4E 7A	All Input status request (see 53h)
4Fh		2A 02 4F 7B	Unit version request (see 54h)

Response from SRC-16

Command	Data Bytes	Function
50h		Error response if enabled by 46h
51h		Good response if enabled by 46h
52h	nn	Response of 4Dh, outputs are sent as 2 bytes
53h	nn	Response of 4Eh, inputs are sent as 2 bytes, also sent when any input changes state.
54h	nn	Response to 4Fh, outputs version number.
55h	n	Response to 4Bh or 4Ch for polled output or input where the three highest bits of n are used to identify if an input/output is low/high and the lowest 4 bits identify the input or output. n = 00h – 0Fh if input n is low, n = 20h – 2Fh if input n is high, n = 40h – 4Fh if output n is low and n = 60 – 6F if output n is high. n=cccxnnnn where ccc = 000 = input low, 001 = input hi, 010 = output lo, 011 = output hi. nnnnn lowest 5 bits used to identify the input or output

To poll the status of outputs of unit 2 when outputs (0-F) 0, 6 are high, all else low:

Command string to SRC-16 Plus:

00101010b	2Ah	Start byte
01000010b	42h	Board ID 2 (010b), Byte count 2 (00010b)
01001101b	4Dh	All Output Status Request
10111001b	B9h	Check sum (2Ah+42h+4Dh=B9h)

Response string from SRC-16 Plus

|		
00101010b	2Ah	Start byte
01000100b	44h	Board ID 2 (010b), Byte count 4 (00100b)
01010010b	52h	Response code for an All Output Status Request
00000000b	00h	Outputs 7-F are all low
01000001b	41h	Outputs 6 and 0 are high
00000001b	01h	Check sum (2Ah+44h+52h+00h+41h=01h)

SPECIFICATIONS

Digital Inputs:	16 - Selectable 5 to 24 vdc optically Isolated inputs (Jumper selectable. Factory default = Dry). 50 ms minimum duration. **Note: Higher voltages with external current limiting resistor.**
Relay Outputs:	16 - SPDT, 1 amp/30 VDC relays. Jumper selectable either N.O or N.C Factory default = N.O.
RS-232 Serial Port:	4,800, 9,600, 19,200 or 38,400 baud, 8 data bits, no parity, 1 stop bit.
RS-422 Serial Port:	4,800, 9,600, 19,200 or 38,400 baud, 8 data bits, no parity, 1 stop bit.
Display:	LED's for inputs, relays, Tx & Rx serial data and power.
Interfacing:	Inputs – Plug-in euroblock screw terminals. Relays - Plug-in euroblock screw terminals. RS-232 Serial Port - Female DB-9. Data flow programmable. RS-422/485 Serial port - Plug-in euroblock screw terminals. Expansion port - Two, RJ45 connectors.
Logic:	Flash microprocessor / Non-volatile memory.
Power:	9 VDC @ 670ma, surge protected universal input wall transformer supplied. 2.1mm center positive coaxial jack. International AC power plug adapters optional.
Mechanical:	8.50" x 7.125" x 1.00", aluminum chassis and steel front panel.
Weight:	4 lbs.
Mounting Option:	Optional RA-1 rack shelf for mounting up to two units in 1-RU. Filler panels included.
Ethernet Option:	Optional external Ethernet Device Server.
USB Option:	Optional external Smart USB to Serial adapter. Broadcast Tools® Smart USB to RS232 cable.

WEBSITE:
Visit our web site for product updates and additional information.
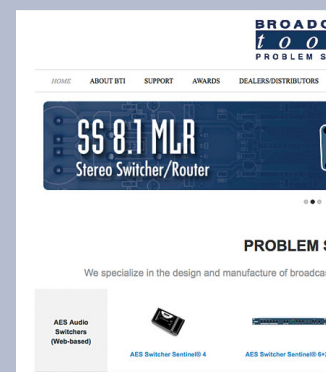
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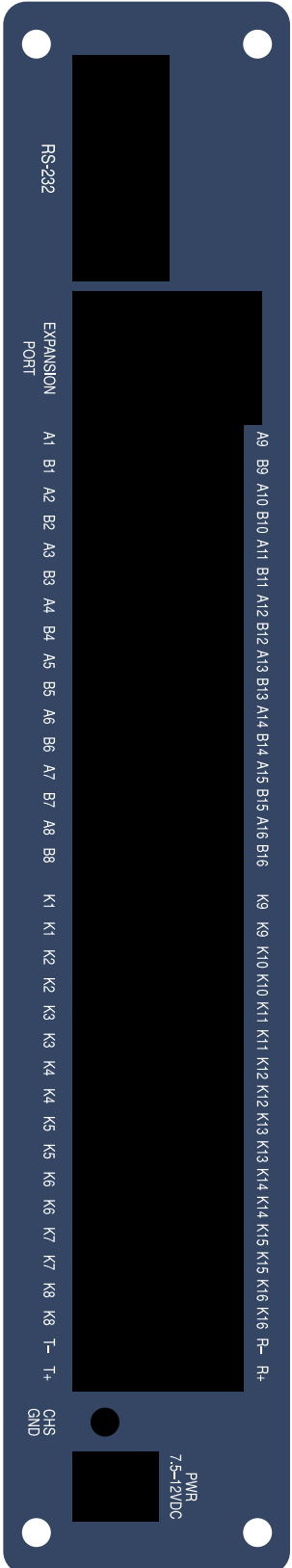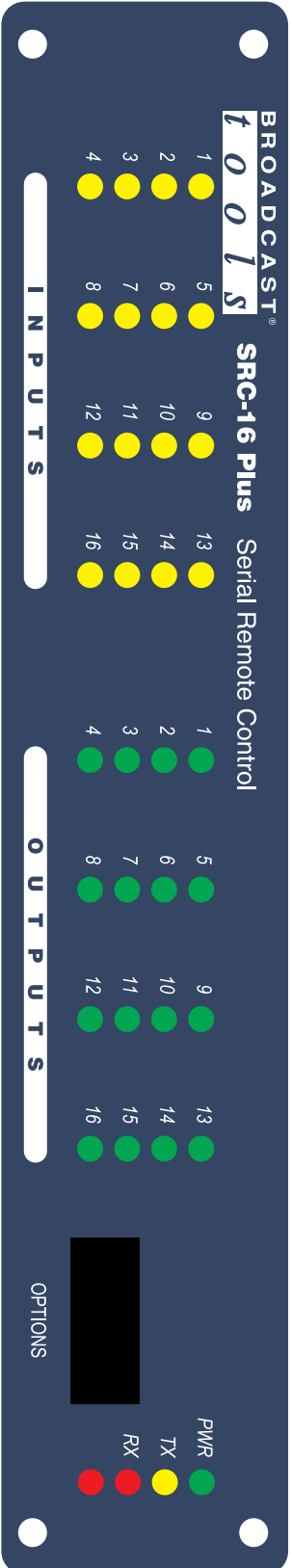
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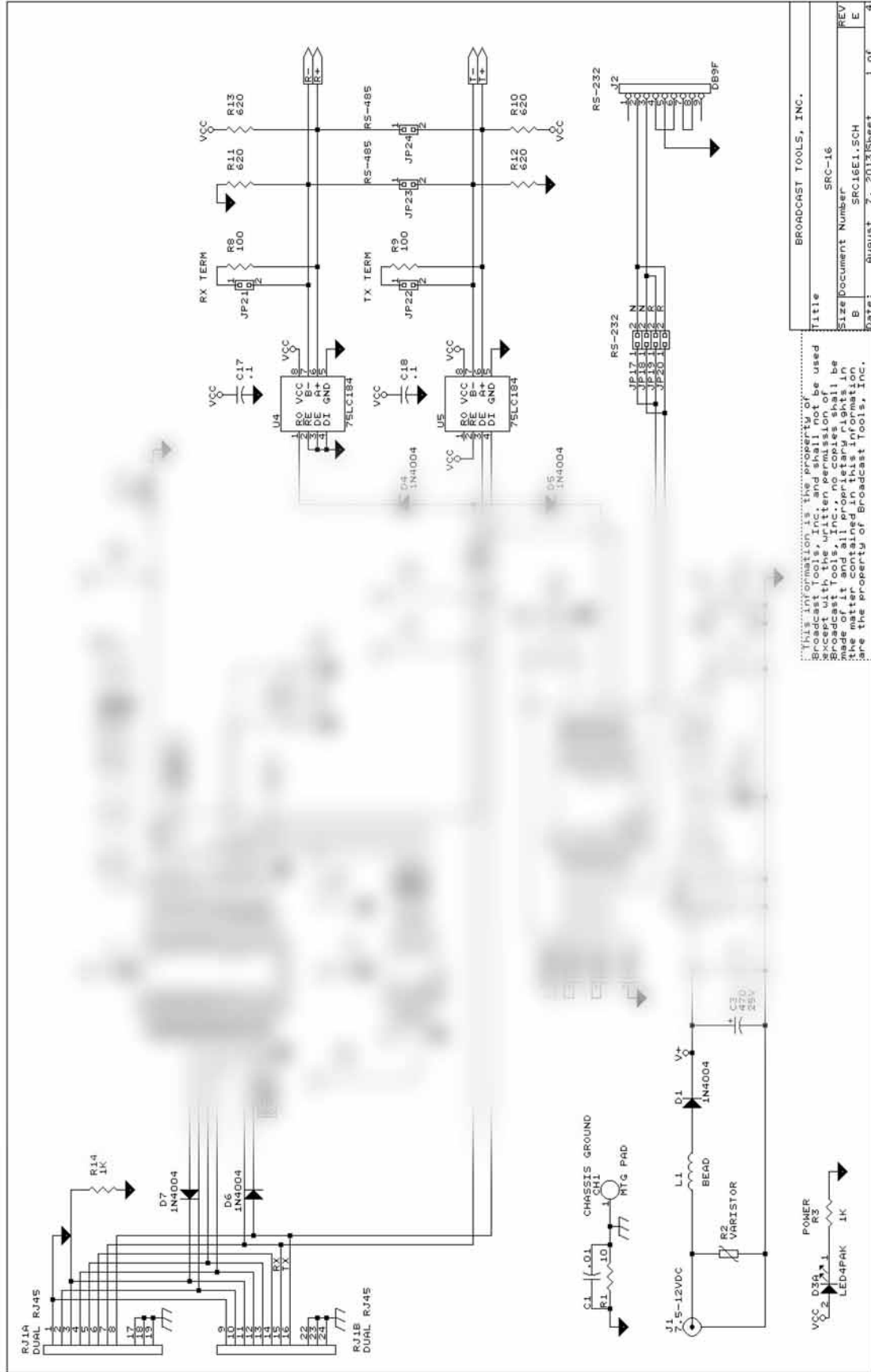Sedro-Woolley, WA 98284 • USA

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www.broadcasttools.com **website**

BROADCAST *t o o l s* ®

SRC-16 Plus Serial Remote Control

I N P U T S

1 5 9 13
2 6 10 14
3 7 11 15
4 8 12 16

O U T P U T S

1 5 9 13
2 6 10 14
3 7 11 15
4 8 12 16

OPTIONS

PWR
TX
RX

RS-232

EXPANSION
PORT

A1 B1 A2 B2 A3 B3 A4 B4 A5 B5 A6 B6 A7 B7 A8 B8

A9 B9 A10 B10 A11 B11 A12 B12 A13 B13 A14 B14 A15 B15 A16 B16

K1 K1 K2 K2 K3 K3 K4 K4 K5 K5 K6 K6 K7 K7 K8 K8 T− T+

K9 K9 K10 K10 K11 K11 K12 K12 K13 K13 K14 K14 K15 K15 K16 K16 R− R+

CHS
GND

PWR
7.5–12VDC

Broadcast Tools® SRC-16 Plus Serial Remote Control
Jumper Layout

R R
Null Modem

N N
Normal (Default)

JP20
JP19
JP18
JP17

RS-232

Optically-Isolated Input Configuration

Wet

Dry (Default)

Relays (Default) N.O.

N.C. Contact Configuration

RS-485

EXPANSION PORTS RJ1

TB1 INPUTS

JP1-16:

JP1
JP2
JP3
JP4
JP5
JP6
JP7
JP8

DRY 1 2 3 4
WET 1

TB2 OUTPUTS

JP25-40:
NC 1 2 3
NO 1 2 3

T– R–
T+ R+

RS-422 Transmit

RS-422 Receive

JP9
JP10
JP11
JP12
JP13
JP14
JP15
JP16

RS-485 Coupling
RS-422 Rec. Term
RS-485 Coupling
RS-422 Xmit Term

RS-485
RX TERM
TX TERM

Configuration DIP switch (All switches) (OFF=Default)

SW3 CONFIGURE

RESET SW2

OUTPUTS INPUTS

BROADCAST TOOLS, INC.
SRC–16 ASSY 193301 REV E
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FRACTIONAL SCHEMATIC

Modification date: 12/02/13

APPENDIX

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FRACTIONAL SCHEMATIC

SRC-16 Plus
Serial Remote Control

FRACTIONAL SCHEMATIC