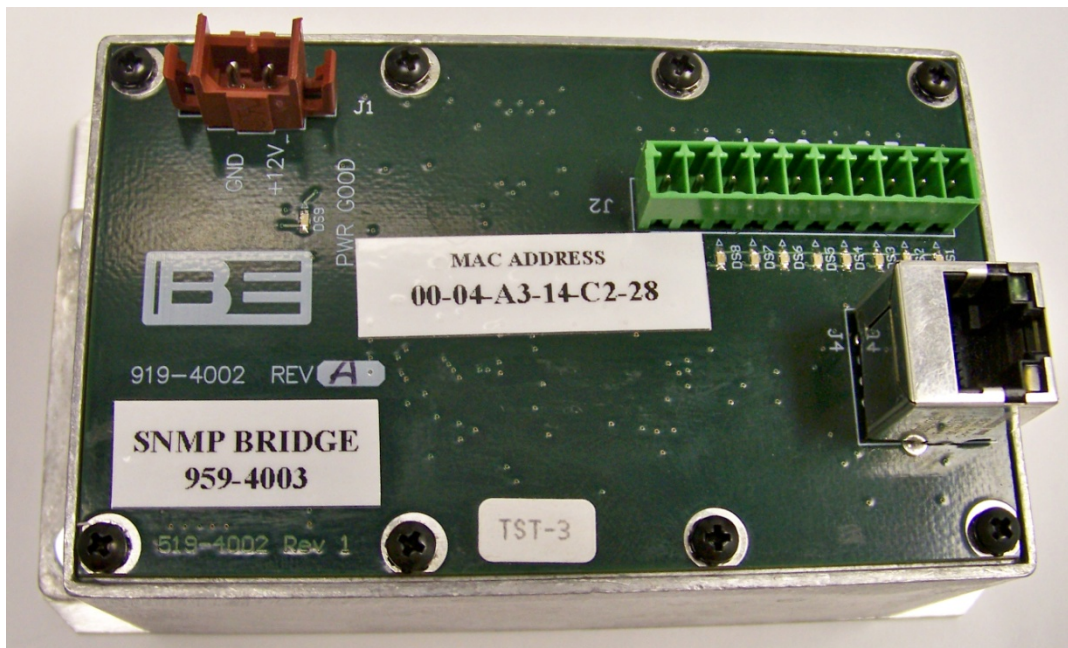




Broadcast Electronics

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STX LP SNMP Bridge Instruction Manual

597-4003
Rev. B
January 26, 2012

STX SNMP BRIDGE

Installation Manual

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Further, after receiving the equipment, unpack it and inspect thoroughly for concealed damage. If concealed damage is discovered, immediately notify the carrier, confirming the notification in writing, and secure an inspection report. This item should be unpacked and inspected for damage WITHIN 15 DAYS after receipt. Claims for loss or damage will not be honored without proper notification of inspection by the carrier.

RF PRODUCT TECHNICAL ASSISTANCE, REPAIR SERVICE, PARTS -

Technical assistance is available from Broadcast Electronics by letter, prepaid telephone or E-mail. Equipment requiring repair or overhaul should be sent by common carrier, prepaid, insured, and well protected. If proper shipping materials are not available, contact the RF Technical Services Department for a shipping container. Do not mail the equipment. We can assume no liability for inbound damage, and necessary repairs become the obligation of the shipper. Prior arrangement is necessary. Contact the RF Technical Services Department for a Return Authorization.

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RF TECHNICAL SERVICES -

Telephone: +1 (217) 224-9617

E-Mail: rfservice@bdcast.com

Fax: +1 (217) 224-6258

FACILITY CONTACTS -

Broadcast Electronics, - Quincy Facility

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Quincy, Illinois 62305

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Fax: +1 (217) 224-6258

General E-Mail: bdcast@bdcast.com

Web Site: www.bdcast.com

PARTS -

Telephone: +1 (217) 224-9617

E-Mail: parts@bdcast.com



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MODIFICATIONS -

Broadcast Electronics, reserves the right to modify the design and specifications of the equipment in this manual without notice. Any modifications shall not adversely affect performance of the equipment so modified.

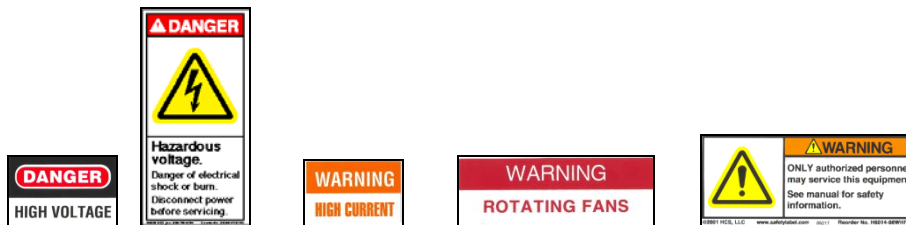




SAFETY PRECAUTIONS

PLEASE READ AND OBSERVE ALL SAFETY PRECAUTIONS//

ALL PERSONS WHO WORK WITH OR ARE EXPOSED TO POWER TUBES, POWER TRANSISTORS, OR EQUIPMENT WHICH UTILIZES SUCH DEVICES MUST TAKE PRECAUTIONS TO PROTECT THEMSELVES AGAINST POSSIBLE SERIOUS BODILY INJURY. EXERCISE EXTREME CARE AROUND SUCH PRODUCTS. UNINFORMED OR CARELESS OPERATION OF THESE DEVICES CAN RESULT IN POOR PERFORMANCE, DAMAGE TO THE DEVICE OR PROPERTY, SERIOUS BODILY INJURY, AND POSSIBLY DEATH.



DANGEROUS HAZARDS EXIST IN THE OPERATION OF POWER TUBES AND POWER TRANSISTORS -

The operation of power tubes and power transistors involves one or more of the following hazards, any one of which, in the absence of safe operating practices and precautions, could result in serious harm to personnel.

- A. HIGH VOLTAGE** - Normal operating voltages can be deadly. Additional information follows.
- B. RF RADIATION** - Exposure to RF radiation may cause serious bodily injury possibly resulting in Blindness or death. Cardiac pacemakers may be affected. Additional information follows.
- C. HOT SURFACES** Surfaces of air-cooled radiators and other parts of tubes can reach temperatures of several hundred degrees centigrade and cause serious burns if touched. Additional information follows.
- D. RF BURNS** Circuit boards with RF power transistors contain high RF potentials. Do not operate an RF power module with the cover removed.

HIGH VOLTAGE –

Many power circuits operate at voltages high enough to kill through electrocution. Personnel should always break the primary AC Power when accessing the inside of the transmitter.

RADIO FREQUENCY RADIATION

Exposure of personnel to RF radiation should be minimized, personnel should not be permitted in the vicinity of open energized RF generating circuits, or RF transmission systems (waveguides, cables, connectors, etc.), or energized antennas. It is generally accepted that exposure to “high levels” of radiation can result in severe bodily injury including blindness. Cardiac pacemakers may be affected.

The effect of prolonged exposure to “low level” RF radiation continues to be a subject of investigation and controversy. It is generally agreed that prolonged exposure of personnel to RF radiation should be limited to an absolute minimum. It is also generally agreed that exposure should be reduced in working areas where personnel heat load is above normal. A 10 mW/cm² per one tenth hour average level has been adopted by several U.S. Government agencies including the Occupational Safety and Health Administration (OSHA) as the standard protection guide for employee work environments. An even stricter standard is recommended by the American National Standards Institute which recommends a 1.0 mW/cm² per one tenth hour average level exposure between 30 Hz and 300 MHz as the standard employee protection guide (ANSI C95.1-1982).

RF energy must be contained properly by shielding and transmission lines. All input and output RF connections, such as cables, flanges and gaskets must be RF leak proof. Never operate a power tube without a properly matched RF energy absorbing load attached. Never look into or expose any part of the body to an antenna or open RF generating tube or circuit or RF transmission system while energized. Monitor the tube and RF system for RF radiation leakage at regular intervals and after servicing.

HOT SURFACES –

The power components in the transmitter are cooled by forced-air and natural convection. When handling any components of the transmitter after it has been in operation, caution must always be taken to ensure that the component is cool enough to handle without injury.



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1 STX SNMP Bridge Option

1.1 SNMP Bridge Overview

Simple Network Management Protocol (SNMP) is an Internet-standard protocol for managing the control/status of the transmitter over your IP network using a MIB Browser.

This function is provided by the STX SNMP option. The option is used to control and monitor your transmitter via a network instead of using HTML.

1.1.1 SNMP MIB browser Overview

The MIB browser is an SNMP browser that can be used to provide MIB browsing and SNMP operations. SNMP MIB browsers allow the user to view and operate on data available through an SNMP agent on a managed device, e.g. a router.

In order to enable a better view of the data available on the SNMP agent a MIB file is usually provided with the managed device. This MIB file contains a description of the object hierarchy on the managed device, as well as the syntax and access privileges for each variable in the MIB. The MIB browser provides the capability to load and view multiple MIB modules and traverse the MIB tree to look at the definitions for each MIB tree.

It allows "GET", "GETNEXT" and "SET" SNMP requests to a particular variable in the MIB of an SNMP managed device. It also has the capability to view multiple real-time graphs of data on the managed device as it changes over time. It also enables viewing SNMP tables.

MIB browsers are free tools that serve as a smart desktop tool that can be used for device monitoring across your network, configuration of SNMP servers and for MIB browsing.

1.2 SNMP Application

The STX SNMP Bridge Option is intended for customers that wish to control their transmitter remotely via SNMP protocol. The SNMP option acts as a bridge between their network and their transmitter.

2 Upgrade Preparation

2.1 Overview / Estimated Completion Time For Upgrade

The STX SNMP Bridge Option (979-4003) contains the necessary items to upgrade an STX transmitter with the SNMP option.

The installation and programming will take approximately 30 minutes to complete.

2.2 Items / Tools required for the Upgrade Process

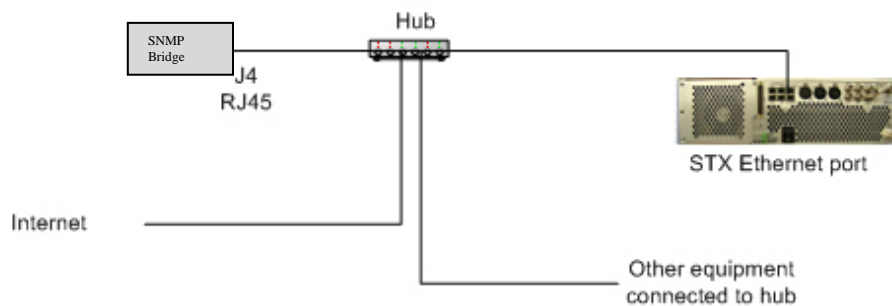
- ☐ 5/16" Nut Driver
- ☐ 3/8" Nut Driver
- ☐ No. 1 Phillips Screwdriver
- ☐ 979-4003 KIT, STX SNMP Bridge Option
- ☐ STX Controller code 2.1 or greater
- ☐ Computer with Ethernet connection
- ☐ MIB browser (customer supplied)

2.3 Installation

The unit comes already mounted to a plate for ease of installation in your equipment rack. Find a suitable location behind the STX transmitter to mount the SNMP option so the cables can reach the transmitter and the Controller easily. When locating a place to mount the box, avoid locations that would require long cable runs.

The SNMP Option needs external power from the supplied AC to DC converter. The converter is auto-ranging with an input of 100 – 240 VAC. Configure the power supply plug for your style of power outlet and connect to any power strip location and dress the power wire going to the controller. DS9 should illuminate when power is applied.

Connect the SNMP Bridge to the STX transmitter through a local network using a hub. When connecting through a network, the device can be configured with a static IP address, or DHCP which is the default configuration. If the SNMP Bridge is reset to factory configuration, it will default to DHCP.



2.4 Configure the SNMP Bridge

To configure the Bridge, you will need a computer and a free software download located on the BE website; STX LP N+1 Controller / SNMP Bridge Locator Application.

NOTE: a Registered User Login is required.

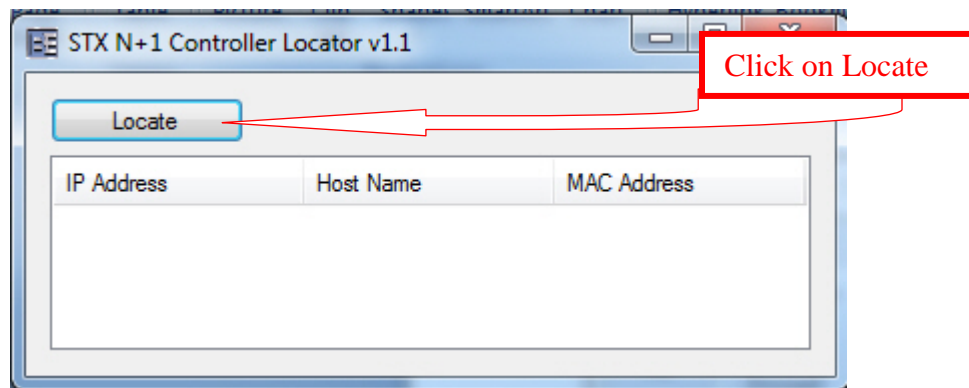


Connect the computer Ethernet to J4 connector of the SNMP Bridge. The processor is Auto-Sensing, therefore the connection can be made with a straight-through or cross-over cable.

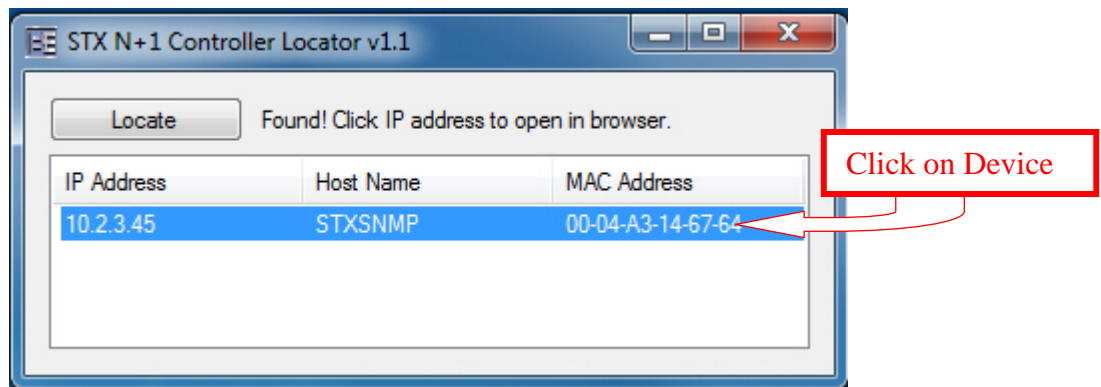
If you receive an error message, verify your computer is not set for DHCP operation as directed under the section "Basic Direct Connection" to proceed.

2.4.1 Locate Devices

1. Launch the freeware "NPlus1Discoverer.exe" file by double clicking on the .exe file. The Controller Locator window will open automatically.

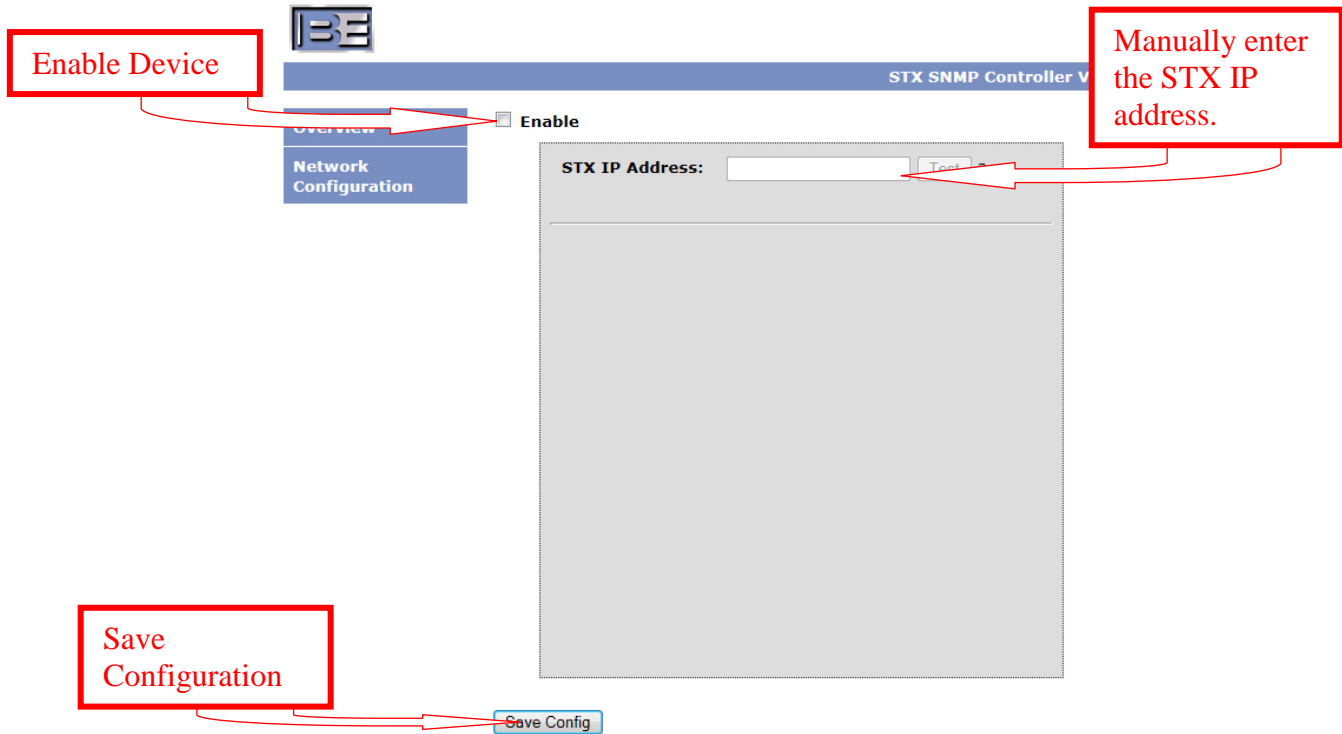


If this is the first time you have connected, it may be necessary to press "Locate" for the program to query the connection and show the SNMP Bridge that it found.



2. Highlight the device and click on it.

Clicking on the highlighted device will open up the Configuration Overview window for the device (shown below).



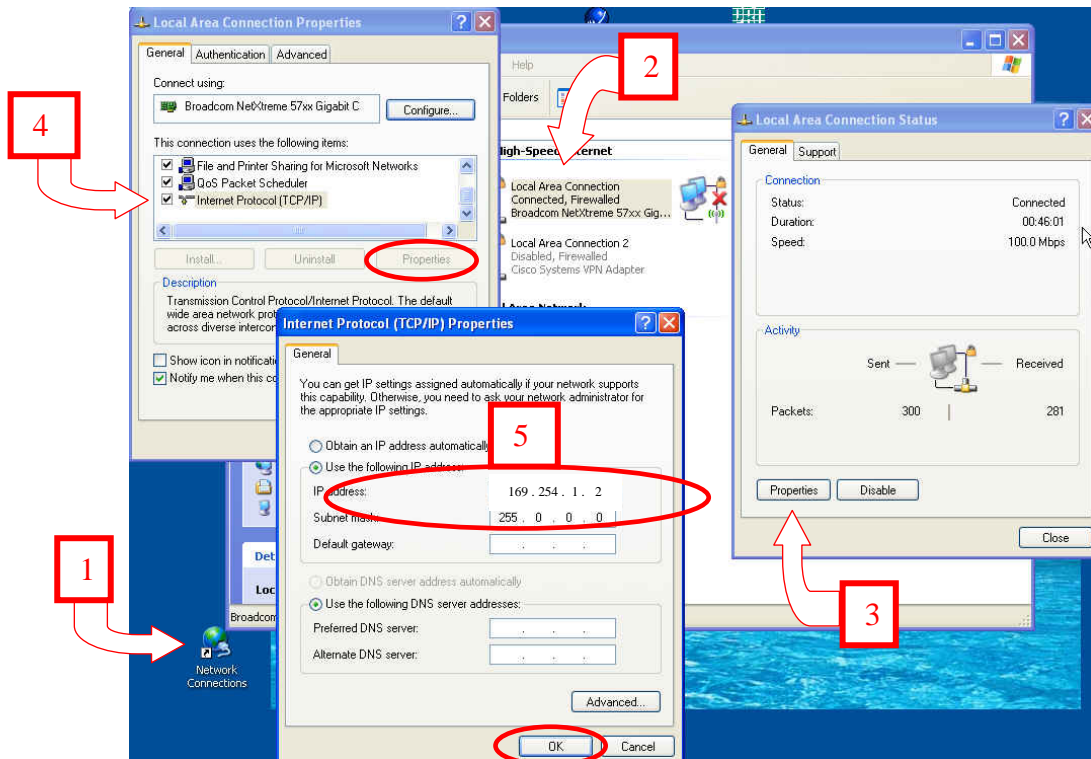
3. Check the enable box and enter the IP address for STX that will be controlled.

4. Save the Configuration.

2.4.2 Basic Direct Connection – after factory reset

Verify your computer is not set for DHCP;

1. Open your Network Connections.
2. Select the Local Area Network.
3. Properties.
4. Highlight the Internet Protocol (TCP/IP) and select Properties in that box.
5. Uncheck Obtain an IP address automatically and check Use the following IP address and enter the default IP address of; 169.254.1.2 . Select OK.



Close all dialog boxes.

2.4.3 Adapting the SNMP Bridge to your Network

Select the Network Configuration window to configure the network settings.



Overview

Network
Configuration

Network Configuration

This page allows the configuration of the unit's network settings.

CAUTION: Incorrect settings may cause the unit to lose network connectivity. Recovery options will be provided on the next page.

Enter the new settings for the unit below:

MAC Address:	00:04:A3:14:67:64
Host Name:	STXSNMP
	<input checked="" type="checkbox"/> Enable DHCP
IP Address:	10.2.3.45
Gateway:	10.2.1.1
Subnet Mask:	255.255.0.0
Primary DNS:	169.254.1.1
Secondary DNS:	0.0.0.0
<input type="button" value="Save Config"/>	

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Un-check "Enable DHCP" if you want the IP address to be static, then enter the IP address.

NOTE: The MAC address is unique to the SNMP controller and should NOT be changed unless directed to by the factory.

You can enter in a new Host name to identify the site, this is especially helpful if you have more than one SNMP Bridge on your network.

Write down all settings for future reference.

Save you configuration. The device will reboot.





Reboot In Progress...

Your settings were successfully saved, and the board is now rebooting to configure itself with the new settings.

Your board is now located at: (IP address)

Reconnection Instructions

1. **Did you change the hostname, IP or MAC address?**
It is necessary to clear the address caches in your web browser and OS. From the command prompt in Windows, enter "nbtstat -R" to clear the hostname cache, close your current web browser, open a new web browser, and then try to access the web address above.
2. **Did you try the IP address?**
Try accessing the board directly at the IP address shown on the LCD screen. (ex: enter "http://192.168.5.23/" into your browser). If this fails, then the IP address you set is not reachable. Try the step below.
3. **Still not working?**
You can restore factory settings by clearing the board's EEPROM. See user guide.

After the unit has been configured, disconnect the computer and connect the Ethernet cable to the Ethernet connection on the back of the STX transmitter. The SNMP Bridge will now provide control and status of the STX through the MIB browser.

2.5 Operation

Operation at the factory is verified using the MIB file and a MIB browser program. The tree structure is intuitive and will appear slightly different depending on which browser you use.

2.6 Reset to Factory default configuration (clearing the EEPROM)

The following procedure will reset the SNMP Bridge to factory default settings. This will also reset the IP address of unit, the frequencies and the MAC address. DHCP will also be enabled after reset to factory default.

1. Power down the SNMP Bridge by disconnecting the power supply cord to the unit.
2. Ground pin 9 on J2.
3. Apply power by connecting the power cord to the unit. You will observe all the LED's illuminate, and then start to turn off one at a time.

During this count down, ground pin 10 on J2 to reset the bridge.



3 RF Technical Services Contact Information

RF Technical Services -

Telephone: (217) 224-9617

E-Mail: rfservice@bdcast.com

Fax: (217) 224-6258

Web: www.bdcast.com



4 BE Part Numbers

This section provides parts lists for the STX LP SNMP Bridge. The parts lists provide descriptions and part numbers of electrical components, assemblies, and selected mechanical parts required for maintenance. Each parts list entry in this section is indexed by reference designators appearing on the applicable schematic diagrams.

This bill of material uses an indented structure to show relationships of parts into sub assemblies. Example; all BOM LEVEL 2 parts are contained in the BOM LEVEL 1 part immediately above it.

BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
0	979-4003	KIT, STX SNMP BRIDGE OPTION		
..1	418-1550-010	CONN, PLUG 10-PIN CAGE CLAMP 3.81MM SPACING	1	
..1	420-0108	SCREW, 10-32X.500, S.S. PHH	2	
..1	421-0102	10-32 KEP NUT	2	
..1	421-6008	6-32 KEP NUT	6	
..1	422-6107	SCREW, SEMS 6-32 X 7/16 PAN PH.ST."	2	
..1	471-5362	PLATE, PILOT SYNCHRONIZER	1	
..1	597-4003	INSTRUCTION MANUAL, STX SNMP BRIDGE	1	
..1	701-0007	ANTISTATIC ZIPLOC BAG 12X12	1	
..1	701-0017	ANTISTATIC ZIPLOC BAG 3X5 4MIL	1	
..1	846-0005	CABLE, CAT5E, SHIELDED LAN CABLE, 5 FT, BLUE	1	
..1	959-0012-300	ASSY, AC-DC CONVTR, 100-240VAC, 12VDC, 500mA, WALL MNT, MULTI PLUG	1	
....2	417-0053	SKT, CONN 641294-1 AMP	2	
....2	418-0701	CONN, HOUSING, 2 PIN	1	
....2	540-0012-300	AC-DC CONVERTER, 100-240VAC, 12VDC, 500mA, WALL MOUNT, MULTI PLUG	1	
..1	959-4003	ASSY, STX SNMP BRIDGE	1	
....2	479-6443	POMONA ELECTRONICS BOX, 2906	1	
....2	500-210	Screw, SEMS 4-40x1/4 Phil Pan Head MS Blk Zinc(external lock)	8	
....2	579-4002-100	SOFTWARE, 919-4002 U1	1	
....2	919-4002	PCB, ASSY, STX N+1 CONTROLLER BOARD	1	
.....3	007-0047-050	CAP, CER, 4.7UF, 10%, 50V, X7R, 1210, SMD	2	C16, C17
.....3	007-0100-035	CAP, LYTIC, 100UF, 35V, 20%, LOW IMP, SMD	1	C15
.....3	007-1040-025	CAP, CER, .1UF, +80, -20%, 25V, 0603, SMD	13	C1, C2, C4, C5, C6, C7, C8, C10, C11, C12, C18, C19, C20
.....3	007-1075-100	CAP, CER CHIP, 10 UF, 10V, 1206	2	C13, C14
.....3	007-1075-161	CAP, CER CHIP, 10 UF, 16V, 0805	2	C3, C9
.....3	102-2000	RES, CHIP, 200 OHM, 1/10 W, 1% SMD	3	R5, R6, R38
.....3	102-2104	RES, CHIP, 2.10K OHM, 1/10W, 1%	5	R10, R11, R12, R14, R15
.....3	102-2151	RES, 2.15K, 1/10W, 1%, 0805	1	R36

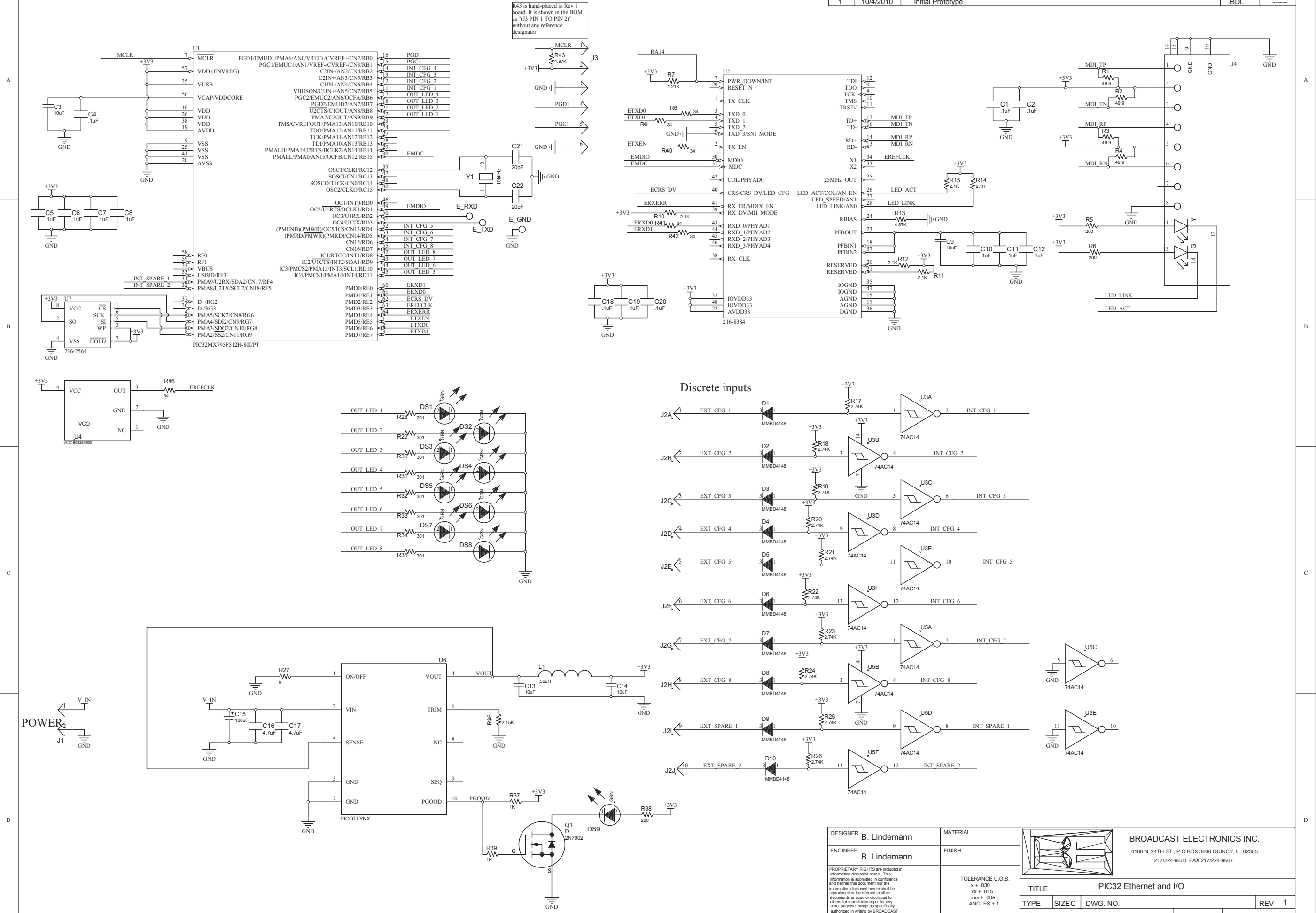
BOM LEVEL	PART NO.	DESCRIPTION	QTY	REF. DES.
.....3	102-2741	RES,CHIP,2.74K OHMS,1/10W,1%,SMD	10	R17, R18, R19, R20, R21, R22, R23, R24, R25, R26
.....3	102-3010	RES, CHIP, 301 OHMS, 1/10W, 1%, SMD	8	R28, R29, R30, R31, R32, R33, R34, R35
.....3	102-4871	RES,CHIP,4.87K,1/10W,1%,SMD	2	R13,(J3 PIN 1 TO PIN 2)
.....3	102-4991	RES,CHIP,49.9 OHMS,1/10W,1%,SMD	4	R1, R2, R3, R4
.....3	104-0000	RES,CHIP,0 OHM JUMPER,0603,SMD	1	R27
.....3	104-0034	RES,CHIP,34 OHM,1%,1/16W,0603,SMD	6	R8, R9, R16, R40, R41, R42
.....3	104-1001	RES,CHIP,1.0 K OHM,1%,1/16W,0603,SMD	2	R37, R39
.....3	104-1201	resistor,1.21Kohm1/16W,1%,SMD,0603	1	R7
.....3	204-4148	DIODE,MMBD4148,SOT 23,SMD	10	D1, D2, D3, D4, D5, D6, D7, D8, D9, D10
.....3	216-2564	IC, 64KBIT SPI SERIAL EEPROM, 25AA640A	1	U7
.....3	216-3279	IC, MCU 32BIT 512KB FLASH, TQFP-64	1	U1
.....3	216-7002	IC,MOSFET,2N7002LT1,SMD	1	Q1
.....3	216-7414	IC,74AC14,HEX INVERTER,SCHMITT TRIG,SO-14,SMD	2	U3, U5
.....3	216-8384	IC, TXRX ETHERNET PHYTER, LQFP-48	1	U2
.....3	227-0006	IC 6A PROGRAMMABLE DC-DC CONV SMT	1	U6
.....3	320-0603	LED GREEN SMD	9	DS1, DS2, DS3, DS4, DS5, DS6, DS7, DS8, DS9
.....3	360-0167	IND, .56 UH, 6A	1	L1
.....3	390-5000	XTAL, OSC, 50MHZ, +3.3VDC, 50PPM	1	U4
.....3	417-0331	CONN, 6 PIN, SMD	1	J3
.....3	417-0700	CONN,PCB MT,2PIN	1	J1
.....3	417-1555-010	CONN,HEADER,STRAIGHT,10-PIN,3.81MM SPACING,PCB MOUNT	1	J2
.....3	417-4600	CONN,SINGLE PORT,10/100 BASE-TX,RJ45	1	J4
.....3	519-4002	PCB, MACH, STX N+1 CONTROLLER BOARD	1	
..1	979-4004	KIT, SOFTWARE, STX SNMP BRIDGE MIB	1	



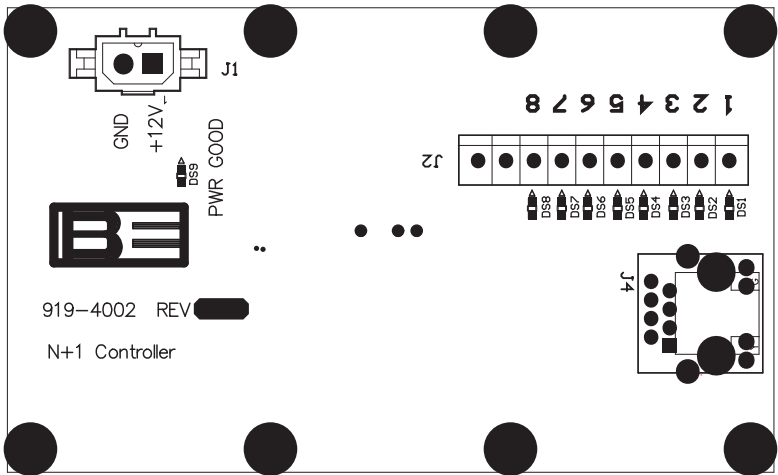
5 Drawings



REVISIONS				
REV	DATE	DESCRIPTION	DRAFTER	ECN
1	10/4/2010	Initial Prototype	BDL	-----



REVISIONS					
REV	DATE	DESCRIPTION	DRAFTER	APPROVED	ECN
1	10-4-10	PRE RELEASE	BDL		----



919-4002 Rev 1 Top Silk Screen

919-4002 Rev 1 Top Solder Mask

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	PROJ. LEADER	FINISH	TITLE PCB ASSEMBLY N+1 CONTROLLER		
	MFG.	NEXT ASSY.	TYPE A	SIZE DWG No. 919-4002	REV 1
TOLERANCE (DECIMAL) U.O.S. .X + .030 .XXX + .005 .XX + .015 ANGLES + 1°	MODEL STX		SCALE 1/1	SHEET 1 OF 2	

