SR BufferBox

TABLE OF CONTENTS

Data Comm for Business, Inc.
807 Pioneer Street
Champaign, IL 61820
217-352-3207

April 26, 2000
Firmware Version: 1.0

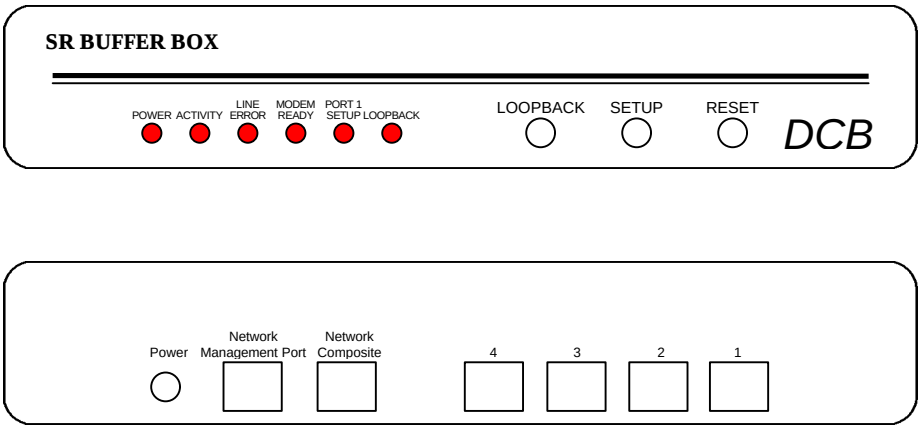
8500081

1. DESCRIPTION

The SR BufferBox is designed to take one way clocked asynchronous data (receive only) off a satellite link and output the data to one or four ports at asynchronous data rates up to 115,200 bps. Basically the SR BufferBox converts clocked asynchronous data to standard asynchronous and adapts the data speed from synchronous speeds of 64 Kbps or 128 Kbps to standard asynchronous speeds of 9600, 19200, 38400, 57600, or 115200. The BufferBox has 62,000 characters of buffering to accommodate periodic bursts of data that come in on the composite link faster than the data can be sent out the asynchronous ports.

Some features of the BufferBox include:

- Test message generation to all local ports.
- Monitor functions allow network management port user to monitor receive data.
- Power supplies available for 120 VAC, and 240 VAC.
- Rack mount options available.



Four port SR BufferBox

2. SPECIFICATIONS

2.1 Product

2.1.1 Output Ports

Port Speeds
Asynchronous only
9,600, 19,200, 38,400, 57,600 or 115,200bps

Port Rate Selection
Selected through network management port control with an asynchronous terminal.

Data Format
10 bits/character, 1 start, 1 stop, 8 data (including parity)

Interface
CCITT V.24, RS-232D, implemented in RJ-45, 8 position connectors. (RS-561 standard physical pin-out used on RJ-45 connectors)

Buffer
62K Bytes

2.1.2 Composite Port

Speed
Synchronous up to 128 Kbps

Interface
RS-232D, implemented in RJ-45, 8 position connector

2.1.3 Network Management Port Commands

Show Port Configuration
Change Port Configuration
Show / Change ID
Activity Counters
Zero Activity Counters
Test Tools
- Test Message
- Monitor Port Rx
- NMP Parity
- Reset Buffer Box

Type
Repeat Last Command
Disconnect NMP

2.2 Environmental

Operation: 0 to 65° C, 10 to 85% relative humidity
Storage: -40 to 85° C, 10 to 85% relative humidity

2.3 Physical / Electrical

10¼" W x 9¾" D x 2½" H
120 VAC external power supply
Optional 240VAC power supply available
30 watts, .25 amps

2.4 Other Specifications

Front Panel Indicators
- Power
- Activity
- Line Error
- Modem Ready
- Port 1 Setup
- Loopback

Front Panel Switches
- Loopback
- Setup
- Reset

3. INSTALLATION

3.1 Unpacking

Remove the unit from the shipping container and examine it carefully for external damage. If shipping damage is apparent, notify the shipper immediately.

The following accessories are included with all SR Buffer Boxes:

- external power supply
- manual
- warranty, maintenance contract and repair information
- Modem to Composite cable (black) for connecting the unit to an external modem or DSU/CSU
- Network Management Port cable (green) for connecting the network management port to an asynchronous terminal or PC for configuration

3.2 Setup

The output ports must have the proper speed setting. This is done using the network management port CP command. (see Section 5).

3.3 Cabling

Cabling between the buffer box ports and external devices is a common source of installation problems. The unit must have data from attached devices as an input on Position 6 of the RJ45 connector. Data from the buffer box to any attached equipment will be transmitted on position 5 of the RJ45 connector. See paragraph 6.1 for position location on the RJ45 connector.

3.4 Resetting Factory Defaults

The factory default settings for the ports is as follows:

Output Ports:

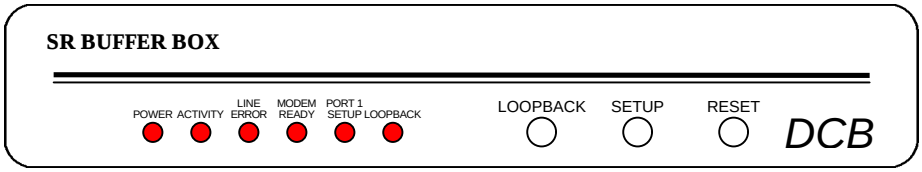
Rate	57600

To reset the unit to factory defauls use the !R command from the network management port or perform the following steps using the front panel switches:

1. Depress and hold the SETUP switch while depressing the RESET switch.
2. Be sure to continue to hold the Setup switch until its LED has gone OFF and returned ON.
3. All settings should be at the factory defaults. Use the SC (Show Configuration) command to check the settings.

4. CONTROLS AND INDICATORS

4.1 Switches



4.1.1 Front Panel Switches

Setup – Used to restore factory default settings. (See paragraph 3.4)

Loopback – Not enabled.

Reset – Performs a hardware reset of the unit.

4.2 Indicators

POWER –On when the unit is connected to power.

ACTIVITY – On when received data is being sent to the ports.

LINE ERROR – Flashes when a network error is detected or the buffer is overflowed.

MODEM READY – Not used.

PORT 1 SETUP – Not enabled.

LOOPBACK – Not enabled.

5. NETWORK MANAGEMENT PORT

5.1 Introduction

The Network Management port (NMP) is used to configure the buffer box port speed. Commands are also available to provide statistical information and to aid in troubleshooting.

5.2 Connections and Setup

Connection to the NMP is made either through a port on the rear of the unit.

5.2.1 Dedicated Terminal or PC

The NMP functions are available through a port on the rear of the unit labeled Network Management Port. To connect a dedicated terminal to this port, use the green cable provided and the appropriate adapter for either a terminal or PC. Set the terminal device for 9600 bps, 8 data bits, no parity and one stop bit.

5.2.2 Dedicated Modem

For remote access to NMP functions, a dial-up modem may be connected to the Network Management Port. You must fix the DTE interface speed of the modem at 9600 bps, 8 data bits, no parity and one stop bit. Refer to your modem manual for appropriate setup procedures. Use the appropriate cable from paragraph 6.3.3 for connection.

5.3 Using the Network Management port

To activate the NMP, press the ENTER key. When you see **AT YOUR COMMAND >>**, the NMP is active and ready for your commands. Type H <Enter> to display the command set.

5.4 Commands

5.4.1 Help (H or ?)

COMMAND	LOCAL	PARAGRAPH
Show Config	SC	5.4.2
Change Port Config	CP	5.4.3
Set ID	ID	5.4.4
Activity Counters/Zero	AC/Z	5.4.5
Test Tools	TT	5.4.9
Type	TY	5.4.6
Repeat Last Command	*	5.4.7
Disconnect NMP	BYE	5.4.8

This Help screen shows the choice of commands available. The commands allow you to display the selected options, configure the unit and perform many different diagnostic functions such as send a test message, monitor data, show activity and other useful tests.

5.4.2 Show (Port) Configuration

The Show Config (SC) command shows the current port speed settings. Use this command to verify proper port configuration.

5.4.3 Change Port Configuration

The Change Port Config (CP) command sets the output port rate. The factory default setting is 57.6Kbps.

5.4.4 Set ID

The Set ID (ID) command allows you to set or change the unit identifier. IDs can be a maximum of 15 characters in length. Pressing <Enter> with no entry will leave the ID unchanged.

5.4.5 Activity Counters / Zero

The Activity Counters (AC) command shows the number of network characters received, network errors, and buffer overflows.

The Z command is used to zero the counters so that current activity can be monitored.

5.4.6 Type

The Type (TY) command displays information about the local unit including firmware version, number of ports and unit ID.

5.4.7 Repeat Last Command

To repeat the last command, simply press the * key. This is handy for repeating screens of constantly changing data.

5.4.8 Disconnect NMP

The BYE command toggles the CTS output from the Network Management port. This is used to disconnect equipment such as dial-up modems or the DCB Access Switch.

5.4.9 Test Tools

The Test Tools (TT) menu summarizes the test and troubleshooting commands. These commands are listed separately to reduce the clutter in the main help list, but are always available from the command prompt.

COMMAND	LOCAL	PARAGRAPH
Monitor Port Rx	MR	5.4.10
Test Message	TM	5.4.11
Reset BufferBox	RESET	5.4.12

5.4.10 Monitor Port RX

The Monitor Port RX (MR) command monitors data received by the unit. Since the NMP port is fixed at 9600bps their may be dropped characters in the displayed data.

5.4.11 Test Message

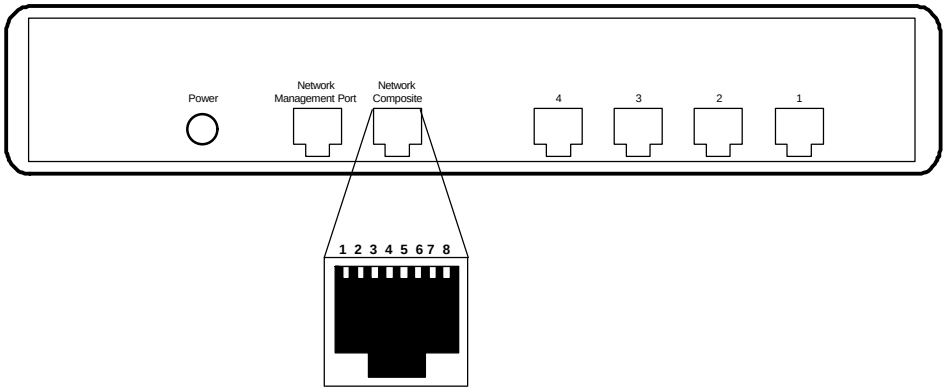
The Test Message (TM) command sends a single Quick Brown Fox... message to each output port. Use this command to determine if the attached device and cabling are correct.

5.4.12 Reset BufferBox

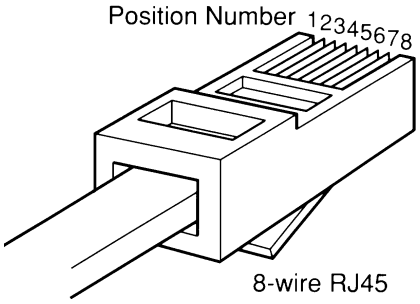
The Reset BufferBox (RESET) command performs a reset of the unit.

6. INTERFACE SIGNALS AND CABLING

6.1 Connector Location and Pin Reference



Rear Panel and RJ-45 Jacks



RJ-45 Plug Positions

6.2 Port Interface

6.2.1 Composite Port (RJ-45)

Pin	Signal	In/Out
1	Receive Clock	IN
2	Transmit Clock	IN
3	Data Carrier Detect	IN
4	Signal Ground	
5	Transmit Data	OUT
6	Receive Data	IN
7	Request to Send	OUT
8	Clear to Send	IN

6.2.2 Data Ports (RJ-45)

Pin	Signal	In/Out
1	Data Set Ready	OUT
2	Data Carrier Detect	OUT
3	Busy	IN
4	Signal Ground	
5	Receive Data	OUT
6	Transmit Data	IN
7	Clear to Send	OUT
8	Request to Send	IN

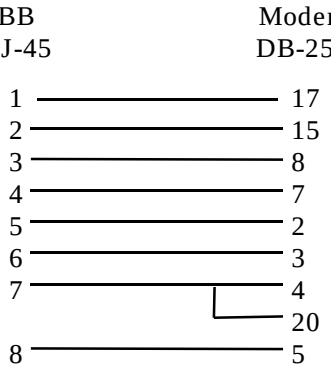
6.2.3 Network Management Port (RJ-45)

Pin	Signal	In/Out
1	Data Set Ready	OUT
2	Data Carrier Detect	OUT
3	Busy	IN
4	Signal Ground	
5	Receive Data	OUT
6	Transmit Data	IN
7	Clear to Send	OUT
8	Request to Send	IN

6.3 Cables

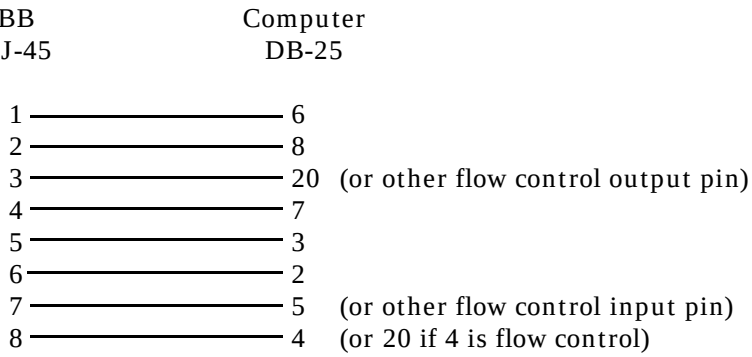
6.3.1 Composite Port to Modem

A two foot composite to modem cable is included with each unit. The configuration is as follows:



6.3.2 Output Ports to Host Computer

Configured as DTE



6.3.2 Output Ports to Host Computer, continued

Configured as DCE

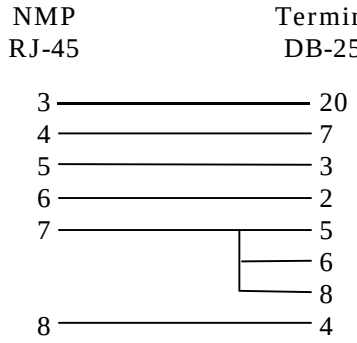
BB RJ-45		Computer DB-25	
1			
2	——	20	(or 4 if 20 is flow control)
3	——	5	(or other flow control output pin)
4	——	7	
5	——	2	
6	——	3	
7	——	4	(or other flow control input pin)
8	——	8	

To a PC running remote control software

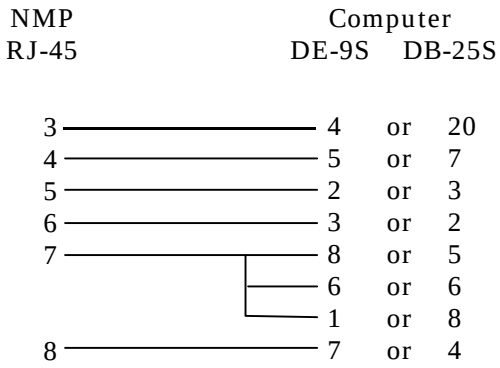
BB RJ-45		Computer DB-25S		DE-9S
1	——	6	or	6
2	——	8	or	1
3	——	4	or	7
4	——	7	or	5
5	——	3	or	2
6	——	2	or	3
7	——	5	or	8
8	——	20	or	4

6.3.3 Network Management Port

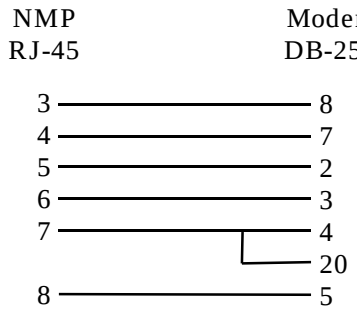
To a TERMINAL



To a PC using terminal emulation



To a dial-up MODEM for remote access



7. TROUBLESHOOTING

7.1 General Approach

When troubleshooting problems, a rational plan can save you many hours of frustration. The following is a brief outline of standard troubleshooting procedures.

1. Gather the facts to determine the exact nature of the problem.

2. Draw a picture of the system showing the equipment at both the host and remote ends and the phone lines or in-house wiring. Use this as a reference to note your observations, test steps and test results. A picture keeps you focused and often saves duplicate effort.

3. Record the front panel indications before changing anything. This is an important part of fact gathering

4. If you change anything, change only one thing at a time.

5. Use the built-in test functions and record your results.

7.2 Assistance

If you need assistance troubleshooting your system, contact DCB customer support at (217) 352-3207 between 8:00 am and 5:00 pm central time Monday through Friday.

8. WARRANTY

DCB units are warranted to be free of defects in materials and workmanship for two years. Data Comm for Business will repair or replace any equipment proven to be defective within the warranty period. All warranty work is F.O.B. Champaign, IL. This warranty is exclusive of abuse, misuse, accidental damage, acts of God or consequential damages, etc. DCB liability shall not exceed the original purchase price.

All equipment returned for warranty repair must be accompanied by a Returned Material Authorization (RMA) number. To receive an RMA number, call (217) 352-3207 between the hours of 8 AM and 5 PM central time. Equipment must be shipped prepaid to DCB and will be returned at DCB's expense.

Data Comm for Business, Inc.
807 Pioneer Street
Champaign, IL 61820

Tel (217) 352-3207
Fax (217) 352-0350
Email support@dcbnet.com