

## **Microbuffer GN05-0020 Operating Notes, Software V2.2**

*To enter command mode:*

Run up a serial terminal on a PC set to 19200 Baud 8N format (COM1).

With the Serial Data side of the Microbuffer disconnected plug in the computer serial lead (COM1) into the computer side of the MicroBuffer.

The power/status LED on the Microbuffer should come on for approx 5s and then start to flash. You now have 17s to type in "SCMB" which will put the unit into setup mode. Any mistakes will require powering down and repowering the unit.

Apon entering program mode the MicroBuffer Status page is output.

```
S= M00003
V= 2.2
M= Ymod ASC
C= 57N8
D= 19N8
P= 2
B= 144185
```

*Where:-*

'S' Serial No which should also be on the back of the unit  
'V' Software version, 2.2 in this case  
'M' Operating Mode Options are Hardware, Xon/Xoff , Timed Xon/Xoff),  
Ymodem,  
'C' Computer Serial baud rate to the PC, Options are 9600, 19200,57600.  
'D' Data source baud rate and format, Automatically or Manually set.  
'P' Data source receive pin, options are 2 ,3, 2F (Fault), blank(not connected)  
'B' No of stored bytes.  
ASC Data is forced from Binary (Bin) to ASCII(ASC) when output,

*Valid Inputs (Upper case) in setup mode are:-*

```
H Hardware flow mode
X Xon/Xoff flow mode
T Timed Xon/Xoff flow mode
Y Ymodem packet mode
A ASCII data output
B Binary data output
9 9600 N8 Computer Serial format
1 19200 N8 Computer Serial format
5 57600 N8 Computer Serial format
R Toggle through Source Baud Rate Options
F Toggle through Source Format Options
ESC Leave set up and enter selected flow mode.
```

After any input the status page is displayed.

If the unit has not entered setup mode after 17s, or if the data port is connected, the MicroBuffer will enter the selected flow mode.

## Operating Mode description

*Note entering any of the mode change characters will delete all stored data*

### **H      *Hardware only Flow Mode***

Data is passed transparently from the Computer to the Data Source, and from the Data Source to the Computer, using the control lines (described above) for flow control. There are specific timings in Flow Mode, in addition to the above, that govern the flow of data back to the PC:

- If DTR or RTS are *unasserted* for less than 5 seconds, then data transmission to the PC will be resumed after ½ second of the lines being *asserted*.
- If DTR or RTS are *unasserted* for more than 5 seconds, it will require the lines to be *asserted* for 5 seconds before transmission to the PC is resumed.

### **X      *Xon/Xoff (Hardware+Software Flow Mode)***

This mode superimposes X-ON / X-OFF software flow control on top of the Hardware Flow control described above, but **DOES NOT** pass any data back to the Data source.

The MicroBuffer always powers up in the X-OFF state, and will revert to this state after the 20 second timeout with one handshake line *unasserted* or immediately if both handshake lines are *unasserted*.

X-OFF is equivalent to CTRL-S (0x13),

X-ON is equivalent to CTRL-Q (0x11)

After sending X-Off a further 16 Characters maybe sent

Typing 'S' in the X-OFF state will display the Status page

### **T      *Timed Xon/Xoff (Hardware+Timed Software Flow Mode)***

This mode is similar to Xon/Xoff, however a new 'X-ON' at least every 15s is needed to keep transmission to the PC going. This mode has the advantage that if the PC logging software crashes but leaves the serial handshake lines active data transmission to the PC will eventually stop, limiting the amount of data that can be lost.

### **Y      *Ymodem***

Ymodem is an error-correcting protocol for use over modems. File sizes are included in the Ymodem header when sending files. Thus files transferred via Ymodem should preserve their exact length.

Data is sent in 1024-byte blocks. Blocks received successfully are acknowledged. Blocks with errors are acknowledged with a NAK or negative acknowledgement and the blocks are retransmitted. Ymodem uses cyclic redundancy checking as the method of error detection. An end of file character (EOT) has to be acknowledged before the file is deleted. Abort transfer (Ctrl X), 10 errors or a 10s timeout will bring an end to the Ymodem transfer and back to a known state.

An additional command has been added to the Ymodem mode. Typing 'S' will return the MicroBuffer status page.

If the 'RTS' line is asserted but the DTR line is unasserted then the MicroBuffer assumes it is connected to a modem. The MicroBuffer actively controls the modem and sends the

string "ATZ Pause10S ATS=2" every 5 Minutes (Reset + Auto Answer after 2 rings). The DTR line is the "modem link established signal" which when used with the Scannex supplied modem cable is connected to the "DCD" line of the modem. Once a link is established the MicroBuffer stops sending the control string to the modem and waits for the Ymodem commands, the RTS signal then controls the data flow.

#### **A/B ASCII /BIN**

Option to output only 7-bit ASCII or full 8-bit data.

#### General

#### **Serial Ports**

##### **9, 1, 5 Computer Port Serial Speed**

The computer serial speed can be set to 9600, 19200 and 57600. The format is always 8 data bits no parity (8N). It is recommended that for Ymodem set to 57600.

##### **Data Source port**

Autodetect pins 2 and 3 for data reception(DCE/DTE), and will transmit on the opposite pin. Automatic baud rate, and format detection (Autobauding), 300 - 19200 baud with 7/8 bit word and odd, even, or no parity. Whilst determining the data source speed and format N/A will be displayed on the status page and the DCD line will be *unasserted*. If communication errors are detected, the MicroBuffer will autobaud to locate the baud rate and parity setting. Accessing the status page will restart the Autobauding sequence. When the 'P=2F' is displayed the MicroBuffer is detecting valid receive signals on pins 2 and 3. This usually indicates that another device is also logging the 'Data Source'. In this situation the MicroBuffer forces reception to pin 2, which is the pin a PC would collect data on, but will not transmit (Transmission to 'Data Source' is only allowed in Hardware flow mode anyway).

#### **Installation**

##### **Procedure**

- Connect the MicroBuffer "Data Source" to the V24 port to be logged using a straight through cable.
- The red status LED should light solidly for about 5 seconds and pulse slowly. While data is actively being received, the LED should pulse faster (½ sec ON, ½ sec OFF). It will then pulse at a slower rate (½ sec ON, 1½ sec OFF) to indicate that data is stored.
- Connect the MicroBuffer "Computer" to the PC COM Port using the short 9way – 9way serial cable.  
Note: use a 9-25 way adaptor if the PC COM Port is fitted with a 25-way connector.
- The MicroBuffer can now communicate with the PC
- If the Microbuffer is to be used with a Modem an appropriate RS232 adaptor cable can be obtained from Scannex.

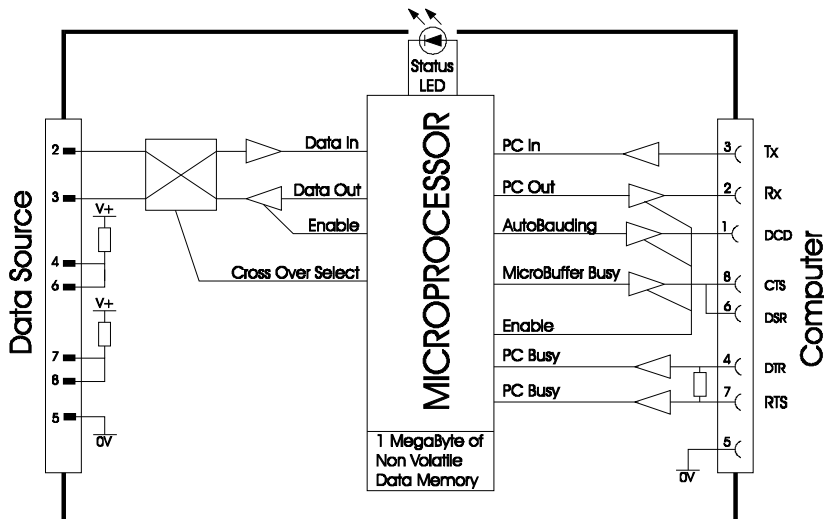
**Note. Downloading with PBX disconnected.**

On power up the MicroBuffer sets its PC baud rate to 19200 and waits for the 'SCMB' sequence for 17 seconds (after led starts flashing).

If it receives something else in this 17 s period (Apart from XON or XOFF characters which are discarded), then it switches immediately to the programmed PC baud rate and operating mode.

If the units operating mode is Hardware+Software flow control the PC should wait 17 s after the unit has started before communicating to it and sending the 'XON' to download at the selected baud rate. If the mode is Hardware only then the Microbuffer will output the Data 17 s after being plugged in and starting up.

**This only applies to downloads with the PBX disconnected and the MicroBuffer is repowered.**



## **Approvals**

### ***CE Approval:***

CE marked to class 'B' (EN55022, EN55024)

### ***FCC Approval:***

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### **Canadian Department of Communications**

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### **Manufacturer/Responsible Party**

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