TELECOMS
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SS-75 LAN BUFFER
MAX FLASH VERSION

USER MANUAL

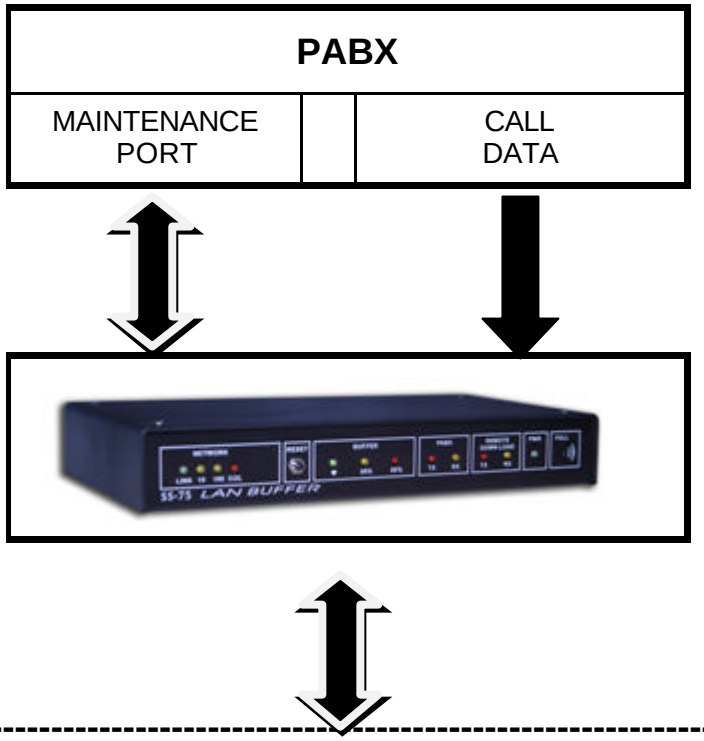
Revision history

Revision 01 Cosmetic changes January 2008

CONTENTS

1. PURPOSE

The SS-75 LAN buffer is a Call Logging Buffer fitted with an Ethernet Interface for the retrieval of call records via a local (LAN) or wide (WAN) area network.



2. FEATURES

- Improved easier MMI commands and set-up
- 10/100 Base-T Ethernet (Auto detection)
- IP configuration settable over the network
- Password access
- PABX Maintenance Port
- Single point LAN to LAN buffering
- Remote Buffer setup and download
- PC serial port for set up of the Network Interface.
- 128 Kbytes to 256 Mbytes of RAM can be supplied.
- PABX connection Opto-Coupled
- The logging baud rate can be set from 1200 baud to 19200 baud.
- Battery backup will allow storing of call records in buffer.
- Beeper warning when the buffer is full.
- LED status indications.

3. DESCRIPTION

FRONT PANEL

3.1 FULL beeper

Sounds when the unit has been reset, during a memory test or when the buffer is full.

3.2 RESET switch

Used for resetting the Buffer and the Network Interface.

3.3 LED

(Light Emitting Diodes) Indicators

LED	Description
POWER	Indicates that the unit is supplied with a mains voltage
PC RX & TX PABX RX & TX	Flashes when downloading call records. Indicates transmission to and from the network Interface when setting up the Network Interface. The RX LED flashes very dimly because of high speed and low character rate during transmission RX – Indicates data reception from the PABX port TX – Transmission to the PABX is not implemented
BUFFER 50% & 80%	Flashes when the buffer reach 50% and 80% of the full capacity. The 50% and 80% LED indicators flashes during the memory test.
BUFFER 'heart'	Indicates that the Buffer's CPU is running
LINK	A network link is established
10	Indicates network speed is 10M bps
100	Indicates network speed is 100M bps
COL	Indicates a packet transmitted from the Ethernet controller to the network has collided with another packet. **If the LED flashes more than once a second the system administrator needs to be consulted**

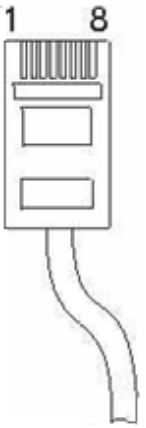
REAR PANEL

Mains Input Cable
Connects the unit to a 230VAC 50 Hz power source

PABX	
DB9 MALE	
#	**Description**
2	Receive from PABX
3	Transmit to PABX (not implemented)
5	Common ground signal
4 & 7	Handshake to PABX
6 & 8	Handshake from PABX

COMPUTER	
DB9 FEMALE	
#	**Description**
2	Transmit to PC
3	Receive from PC
4	Handshake from PC
5	Ground
The cable connecting the unit to a PC is a simple ‘1 to 1’ cable with only pins 2, 3, 4 and 5 being used.	

LAN	
120 ? RJ-45 connector	
#	**Description**
1 & 2	LAN Receive
3 & 6	LAN Transmit



4. LAN Buffer Installation and Setup

Change the links if needed	Refer to the section '5. Setting the Links' for more information
Connect the unit to a PC	Use the serial cable and connect it between the PC and the COMPUTER connector on the LAN BUFFER.
Load a COMS package like Hyper Terminal	Set the parameters to: Bits per second: 9600; Data bits: 8; Parity: None; Stop bits: 2; Flow control: None Refer to "Appendix A HyperTerminal setup"
Connect power to the unit	Plug the unit into a 220V mains socket and switch it on. Note: If the batteries on the unit were discharged it will start with a memory test. The 50% and 80% LEDs flash during this test. Wait for the memory test to finish. The unit will reset after the memory test
Configure the Network Interface	Set the Local IP Address; Subnet Mask & Gateway Address The command are: LI: Sets the Local IP Address SM: Sets the Subnet Mask GA :Sets the Gateway Address Type the command followed by a space and then the address value followed by Enter, example: **LI 192.168.0.16** Refer to the Section "6. Programmable Settings for the Network Interface" in this manual for more information. **Note: The default settings are suitable for most applications**
Connect the unit to the LAN	Plug the network 10/100 Base-T RJ45 connector into the 10/100 Base-T socket at the back of the unit
Use TELNET to access the buffer via the LAN	From your desktop click on 'START' then 'RUN' and then type telnet - click OK. Refer to **"Appendix B Load Telnet"**
Configure the Call Logging Buffer Set date/time insertion if needed.	Set the PABX communication speed using the command SETBAUD. Type the command followed by a space and then the required speed followed by Enter, example: **SETBAUD 9600** If the date and time are not included on the PABX call record, you need to set the buffer to include it in the call record. Check the PABX call record by typing S followed by Enter. Use the following commands to set date/time insertion: **YP** – Set the insertion position; **SD** –date insertion; **YY** – year insertion; **YC** – century insertion; **TIME** - Sets the time. Refer to the Section "7. Programmable Settings for the Call Logging Buffer" in this manual for more information.

5. SETTING THE LINKS

The links need to be changed from the default positions if:

- ✍ The LAN Buffer is used with the Philips IS 1000 or Siemens Opera PABX systems
- ✍ Wanting to bypass the opto-couplers and connects directly to the PABX input
- ✍ A Positive feed is required to the PABX

Unscrew the top four screws and remove the lid to change the Links inside the unit.		**Position of Links**
Link	**Description**	
1	**Common Ground:** Pin 5 of PABX connector, connected to buffer ground	**B**
	B Ground isolated: Pin 5 of PABX connector is isolated (factory)	**A**
2	**Voltage Feed:** Feed positive voltage on Pin 2 of PABX connector	**B**
	Normal operation (factory)	**A**
3	**Direct input from PABX**	**B** (Requires LK 1 in pos B)
	Opto-Isolated input from PABX (factory)	**A** (Recommend LK 1 in pos A)

6. PROGRAMMABLE SETTINGS FOR THE NETWORK INTERFACE

Note: The default settings are suitable for most applications

Global commands - Format: <Command><cr>	
Command	**Description**
HELP	Shows a list and description of all the Global commands
SHOW	Shows the Global settings MAC address and software version
SHOW <n>	n = G Displays the Global settings n = socket number Displays the Settings for Socket number 'n'
LOAD	Loads previous settings from Flash memory
RESET	Resets the unit (Warm start). Breaks connections. The set-up stored in Flash memory will take affect. You will be prompted if you want to save changes.
REBOOT	Resets the unit (Cold start). Breaks connections. The set-up stored in Flash memory will take affect. You will be prompted if you want to save changes.

Global Programmable commands - Format: <Command><Parameter><cr>		
Command	**Description**	**Note**
LI	Sets the Local IP Address	Use values supplied by Network administrator
SM	Sets the Subnet Mask	
GA	Sets the Gateway Address	
IR	Sets the Initial Retry time in milliseconds	Default: 200
RC	Sets the Retry Counter	Default: 6
DM	Display Mode: 'V' Verbose; 'S' Silent	Default: V
HS	Handshake Source - The command HS used without any parameters toggles the Handshake Source between Port 0 and Port 1	Default: Port 0

<table>
<tr><td colspan="5">Socket commands - Format: <Command><Socket#> <Parameter><cr></td></tr>
<tr><td>Command</td><td colspan="3">Description</td><td>Note</td></tr>
<tr><td rowspan="5">LP</td><td colspan="3">Set the local port number for the socket</td><td rowspan="5">Default values:
Socket 0: 23
Socket 1: 22
Socket 2: 21</td></tr>
<tr><td colspan="3">Socket reference table:</td></tr>
<tr><td>Socket</td><td>Function</td><td>Connection</td></tr>
<tr><td>0</td><td>Buffer</td><td>TMS down load / buffer set-up</td></tr>
<tr><td>1</td><td>PABX</td><td>RS232 interface to Ethernet</td></tr>
<tr><td>2</td><td>Network Maintenance Port</td><td>Ethernet connection</td></tr>
<tr><td>UT</td><td colspan="3">Used Timed TX - Will send data after a short time delay. ‘Y’ will use Timed Tx. Note that VM & BS are always valid.</td><td>Default: N</td></tr>
<tr><td>MT</td><td colspan="3">Message Terminator – Will send the data after receiving the Message Terminator, enter a value in Hex.</td><td>Default 0D (Carriage return)</td></tr>
<tr><td>UM</td><td colspan="3">Use Message Terminator. ‘Y’ uses the message Terminator; ‘N’ won’t use the message Terminator.</td><td>Default: Y</td></tr>
<tr><td>BS</td><td colspan="3">Block Size: Send the data after the retrieval of a block. - Enter the size of the block</td><td>Default 0</td></tr>
<tr><td>PS</td><td colspan="3">Socket serial speed: 115200*, 57600*, 19200,9600,4800, 2400, 1200
* only available on Socket 0</td><td>Default values:
Socket0 - 57600
Socket1 - 9600
Note: Socket 0 must be set to 57600 in order to connect to the buffer</td></tr>
<tr><td>RI</td><td colspan="3">Remote IP Address Must be set if Local mode is active</td><td></td></tr>
<tr><td>RP</td><td colspan="3">Remote Port - Must be set if Local mode is active</td><td></td></tr>
<tr><td>LM</td><td colspan="3">Local Mode</td><td>Default: Passive</td></tr>
<tr><td>LC</td><td colspan="3">‘Y’ will do a Link Check</td><td>Default: N</td></tr>
</table>

7. Programmable Settings for the Call Logging Buffer

Note: The default settings are suitable for most applications

Setup commands - <cr>after the instruction		
Command	**Description**	**Note**
SETBAUD <nn>	Sets the baud rate to the rate represented by the first 2 characters 'nn'. e.g. use 12 for 1200bd. Note: the full baud rate can be used, (SETBAUD 9600<cr>)	Set to: 9600 bd
SETHELLO <bufnam>	Sets the buffer name to <bufnam> - MUST be a 6 char name	
YP <n>	Sets the date insertion position 1= start of record 0 = end of record	If the date/time are not included in the call record received from the PABX, it needs to be enabled
SD <n>	Enables date insertion. 1 = enabled, 0 = disabled	
YY <n>	Enables year insertion. 1 = enabled, 0 = disabled	
YC <n>	Enables century insertion. 1 = enabled, 0 = disabled	
BEEP <n>	Enables BEEPING. 1 = enabled, 0 = disabled	
SAD <n>	Enables autodump mode. 1 = enabled, 0 = disabled	
SAT <n>	Sets the delay before dumping to nn * 50 millisec.	
ST <nn>	Sets OnEmpty delay to nn* 50 millisec or the NonAckedResendDelay	
RT <nn>	Sets the number of retries for a UnAcked packet	
SPR <nn>	Sets the reset time for the Network I/F in minutes. n = 00 to disable	
UC <n>	Converts lowercase to uppercase. 1 = enabled, 0 = disabled	
LF <n>	Stores multiple line feeds. 1 = enabled, 0 = disabled	
TIME YYMMDDhhmmss	Sets the time	
S7 <n>	7 Bit operation if n = 1. Note: use for 7 bit only operation, do not use for 7 bit with parity.	
ISDX <n>	ISDX mode converts Julian Date to YYMMDD for ISDX systems 0 = disabled ;1 = enabled; 2 = enabled with decoding; 3 = enabled with decoding for use with SPACO	
PROT <n>	Turn on protocol (packet mode) 1 = enabled, 0 = disabled	

Call Logging & Diagnostic Commands - <cr>after the instruction	
Command	**Description**
S or SEND	Send one record
HELLO	Response is: <02h><SixCharId><SixCharId><cr><lf>
VER	Will output the revision number of the MTS unit
SYS	Diagnostic command. Do NOT use in logging program to get buffer status!
DUMP	Empty buffer quickly. Do not use for collecting records
CLEAR	Clears the buffer
TIME	Response is: TIME YYMMDDHHhhmmss<cr><lf>
DISP	Displays some buffer setup info
/B	Displays approximate buffer capacity in records e.g. 4K<cr><lf> for a 128k buffer
/C	Outputs the number of calls in the buffer
DPRC	Displays the number of resets and clears the reset counter for the Network Interface
SEND nn	Sends nn records using following format: DataBlock<cr><lf> < r <record 1><cr><lf> ‘‘ ‘‘ <record nn><cr><lf> TotalRecords nn<Kr><lf> (nn may be less than the number requested, depending on how many records were available for sending.)
MM	To display buffer capacity and used memory. Response is: MstatccSSSSSSccUUUUUU<cr><lf> Where: cc is used internally and has no useful meaning. SSSSSS is the hex value of the memory installed. UUUUUU is the amount of memory used. e.g. Mstat0002000000000101 means that the buffer has 128k ram fitted and there are 257 bytes of data in the buffer

8. PROTOCOL MODE

8.1 Packet Mode Control commands

ctrl Q	Start packet output.
ctrl F	Acknowledge packet.
ctrl S	Stop packet output.

8.2 Packet Mode Format

STX	Start of packet - 0x2
<n>	Sequence number '0' to '9'
<n>	Number of records '0' to '5'
<ID>	First 2 chars of buffer ID.
<cr><lf>	End of Header.

Record1<cr><lf>

Record2<cr><lf>

Record3<cr><lf>

Record4<cr><lf>

Record5<cr><lf>

<cr> ****	This character is included if the chksum was going to be an ETX.
<Checksum>	The result of XORing all the previous bytes, including the STX.
ETX	End of packet.

9. TECHNICAL SPECIFICATIONS

Housing	Grey powder coated Aluminium 230 x 130 x 40 mm
LED indicators	PC TX & RX, PABX TX & RX, 80% and 50% full, Heart Beat, Power, LINK, 10-T, 100-H, COL
Connectors	Connecting to PC: 9 way D-Type female Connecting to PABX: 9 way D-Type male Network connection: 10/100 Base-T
Storage medium	Battery backed buffering
Storage capacity	128K to 256Meg
Required voltage	230 V AC; 50 Hz
Current consumption	50 mA
Battery backup	3.6 V 600 mA Ni-Cad. Powers data buffer for up to 3 weeks
Transmission speed	PORT 0: 2400bps ~ 115.2Kbps PORT 1: 1200bps ~ 19.2Kbps
Network Interface Medium	10/100 Base-T (auto detect)
Protocol	TCP-IP or UDP-IP
Data storage	Time stamping of call records and events Data compression, typical ratio 2.5:1 Warning beeper at 95% full DTR enabled dumping of records ASCII handshake protocol Fully error corrected proprietary protocol

APPENDIX A: HYPERTERMINAL SETUP

1	Load HyperTerminal from your PC. From the Desktop click on **start**, select **Programs, Accessories, Communications** and then **HyperTerminal**	
2	In the Connection Description box enter a name for the connection example '9600' Click on **OK**	
3	In the **Connect To** window select the required **COM** port in the **Connect using** box. Click on **OK**.	
4	In the **COM Properties window** set the parameters: **Bits per second**: 9600; **Data bits** 8; **Parity**: None; **Stop bits**: 2; **Flow control**: None Click on **OK**	

APPENDIX B: LOADING TELNET

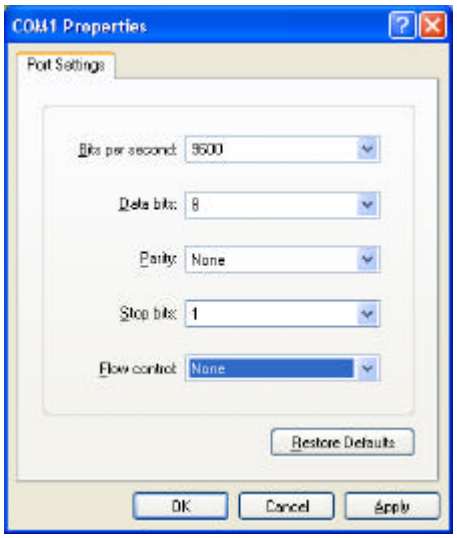
1	Loading Telnet – Windows	
1.1	From the PC desktop Click start and then **Run**	
1.2	In the **Run** window type **TELNET** in the Open box and click **OK**	
1.3	Connect to the Buffer setup port: Click onto Connect Enter the IP address for the Buffer setup port in the Host Name box and click	
2	Loading Telnet - Windows XP	
2.1	From the PC desktop Click start and then **Run**	
2.2	In the **Run** window type **TELNET** in the **Open** box and click OK	
2.3	Connect to the Buffer setup port: Type the command **OPEN** followed by a space and then the address value followed by Enter, example:	

APPENDIX C: SS-75 Web Interface

1. CONFIGURING THE IP ADDRESS VIA THE SERIAL PORT

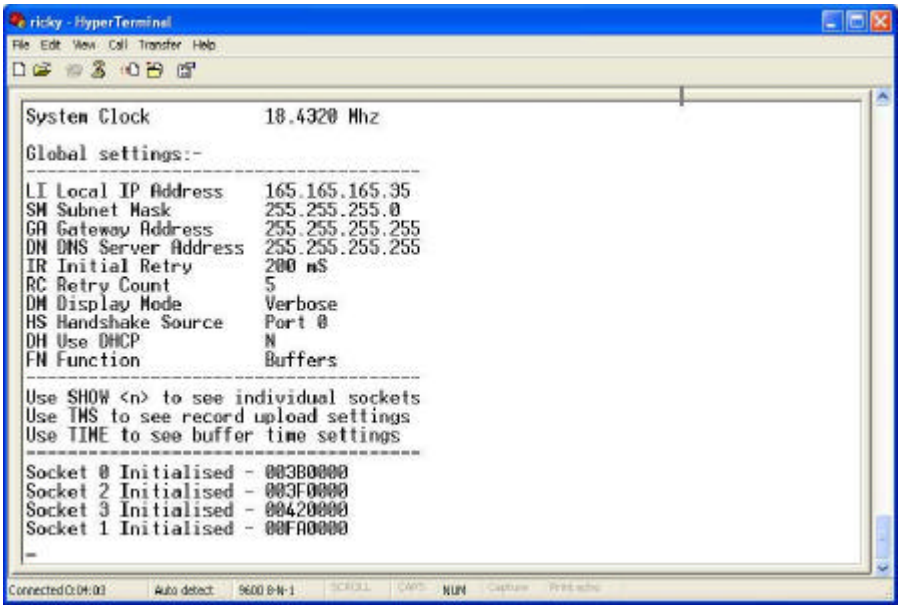
1.1. Use the serial cable to connect between the PC and the computer connector of the LAN BUFFER

1.2. Open HyperTerminal on the PC with the following communication ports setting.



1.3. Press the reset button on the LAN Buffer.

In HyperTerminal the following information will be displayed.



1.4. Configure the Local IP address, Subnet mask and Gateway as follow:

To change the following you must type

Set the local IP address : LI
Eg: **LI 192.168.10.100** <enter>

Set the subnet mask : SM
Eg: **SM 255.255.255.0** <enter>

Set the gateway Address : GA
Eg: **GA 192.168.10.1** <enter>

To save the setting type
RESET S enter

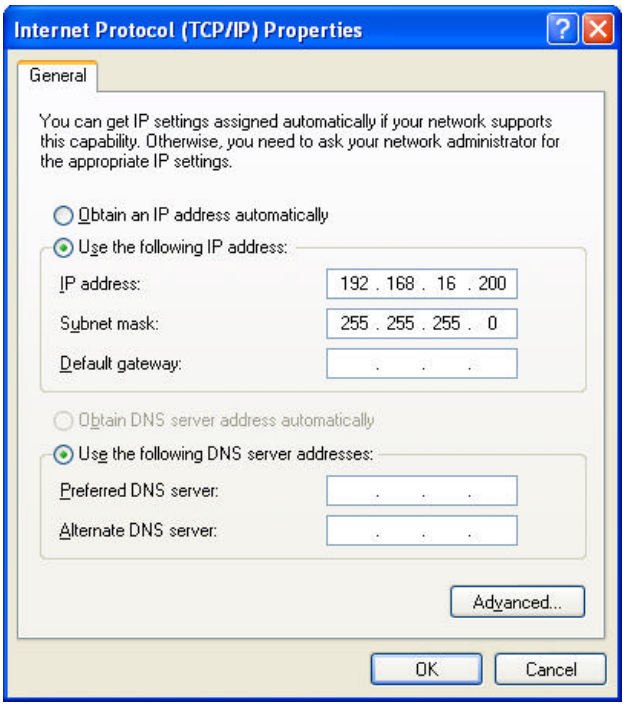
2. CONNECTING THE LAN BUFFER

2.1. Connect the Buffer's LAN port to:

a) A network switch using a Straight LAN cable
Or
b) Directly to a PC using a Cross over LAN cable.

2.2. Make sure that the PC and the Buffer are in the same IP Subnet.

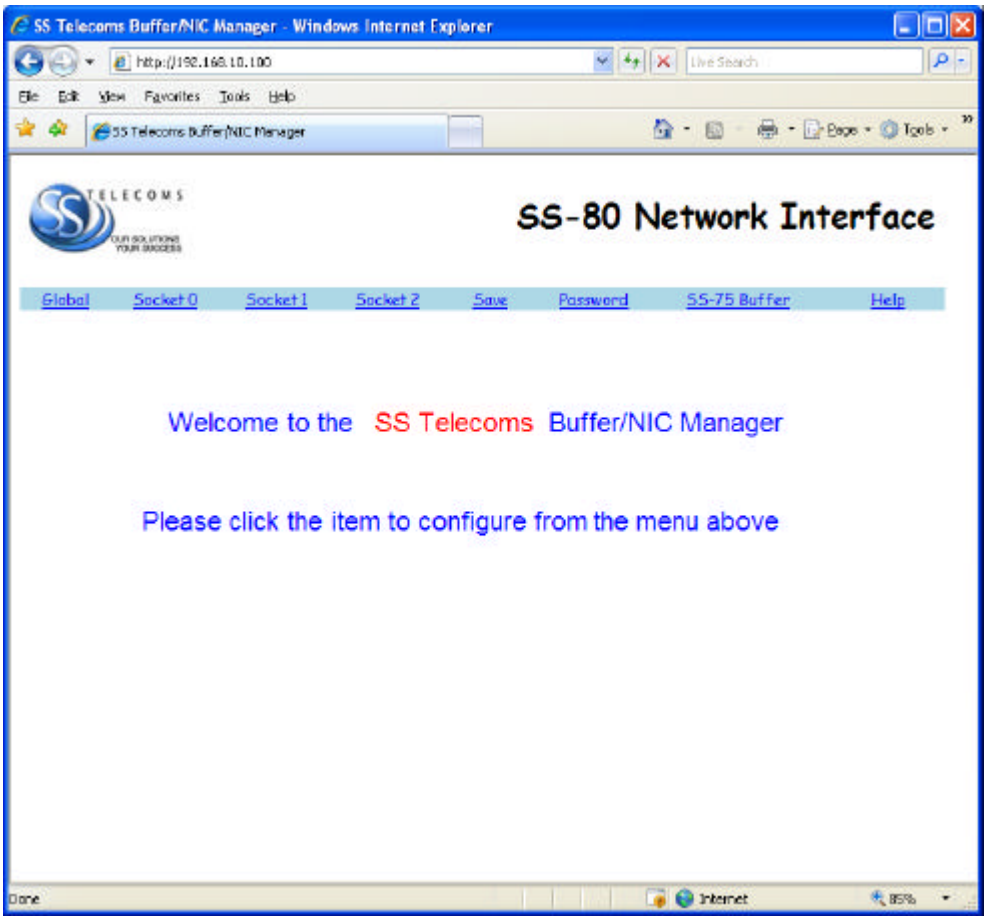
2.3. Open the TCP/IP Properties to configure the PC's IP address



3. ACCESSING THE WEB INTERFACE

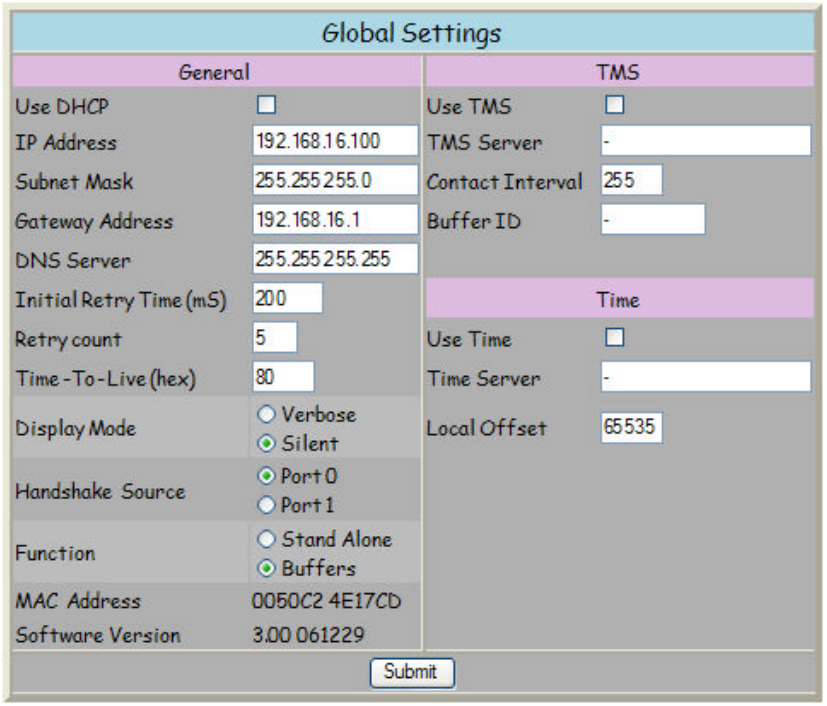
3.1. Open Internet Explorer on the PC and type the Buffer's IP address in the address field.

The following will be displayed



4. CONFIGURATIONS

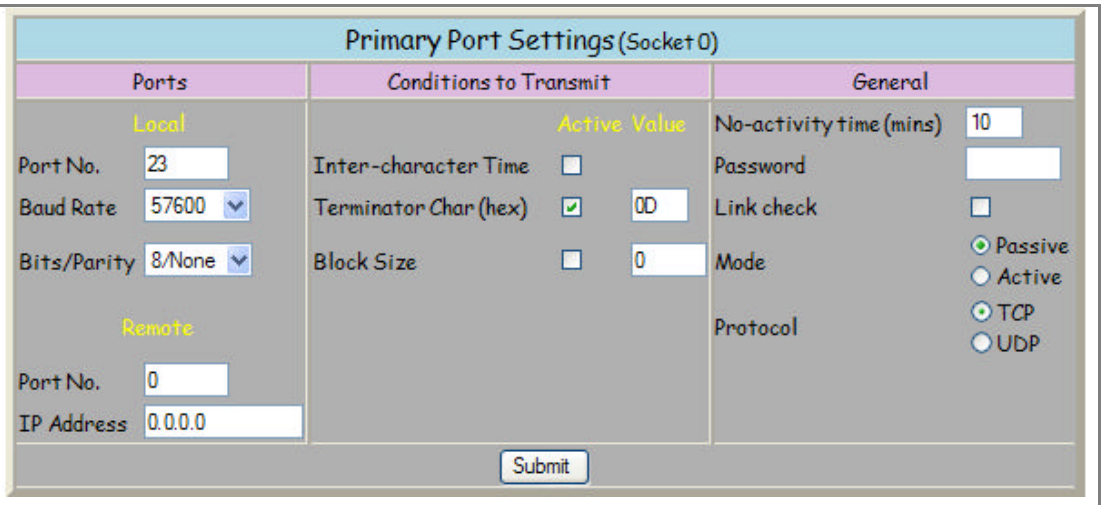
4.1. Global Settings



Setting	Description
General	
Use DHCP	When ticked, the DHCP server will supply the buffer with a Local IP Address, Subnet Mask, Gateway Address and DNS Server. If this is not ticked the IP Address, Subnet Mask, Gateway Address and DNS Server has to be configured manually.
IP Address	Sets the IP address for the buffer. This has to be given in order for the PABX and TMS software to recognise the buffer.
Subnet Mask	Identifies which level of the network the buffer is installed on. (A common default is 255.255.255.0)
Gateway Address	The address of the gateway or router the buffer is connected to
DNS Server	The IP address for the server that translates domain names into IP addresses.
Initial Retry Time (ms)	Sets the Initial Retry time in milliseconds
Retry Count	Set the Retry Counter
Time-To-Live(hex)	Time-To-Live. Default is 80
Display Mode	Dictates whether the buffer echo's text to the terminal
Handshake Source	Toggles the Handshake Source Between Port 0 and Port 1
Function	Stand Alone will disable the buffer functionality of the unit. Buffers will enable the buffer functionality of the unit.
TMS	
Use TMS	To enable the use of a TMS
TMS Server	The IP address of the server where records will be sent to.
Contact Interval	The interval in minutes between contacting the TMS server.
Buffer ID	A user settable name for each buffer of up to 8 letters and/or numbers. This ID should be unique for each buffer.
Time	

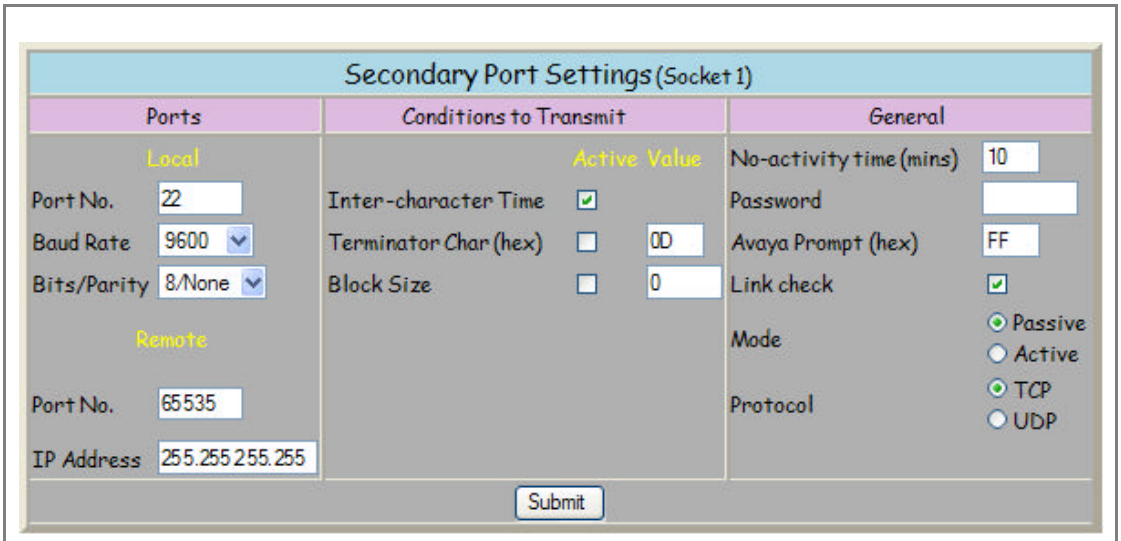
Use Time	Enable the use of a time server
Time Server	Sets the address the buffer should connect to in order to obtain time from a time server. This can be done with an IP address or domain name.
Local Offset	Sets the time zone in which the buffer functions, (e.g. in South Africa it will be GMT +2 hours, therefore set the time to 120 minutes). This time is always set in minutes.

4.2. SETTINGS FOR SOCKET 0



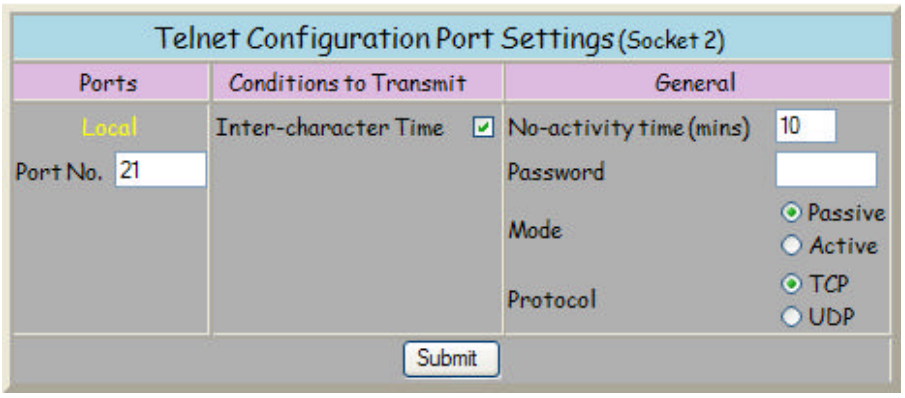
Setting	Description
Ports Local	
Port No	Identifies the TCP port your connection communicates with socket 0
Baud Rate	Connection speed used when communicating with Buffer via TCP. This should always be set to 57600.
Bits/Parity	Sets the Data bits and Parity port settings. Default is 8/None
Ports Remote	
Port No	The port on the TMS Server that the buffer will communicate to. Only applicable when socket is set to Active Mode.
IP Address	The IP address on the TMS Server that the buffer will communicate to. Only applicable when socket is set to Active Mode.
Conditions to Transmit	
Inter-character Time	Enable Inter-character Time
Terminator Char(hex)	Will send the data after receiving the Message Terminator. Enter a value in Hex
Block Size	Block Size: Send the data after the retrieval of a block. Enter the size of the block
General	
No-activity time(mins)	No activity time out
Password	Password of the socket
Link Check	Will do a Link Check
Mode	Dictates whether the buffer establish the connection(Set to Active) Or if the server establish the connection(Set to Passive) Default mode is Passive.
Protocol	TCP or UDP

4.3. SETTINGS FOR SOCKET 1



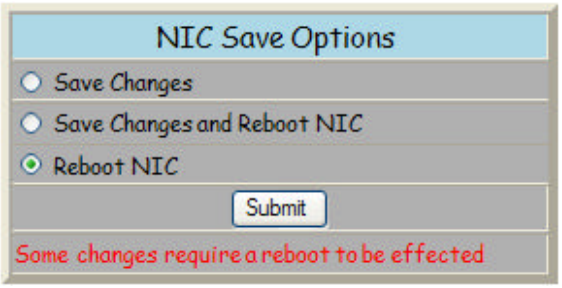
Setting	Description
Ports Local	
Port No	Identifies the TCP port your connection communicates with socket 1
Baud Rate	Connection speed used when communicating with Buffer via TCP. Default is 9600
Bits/Parity	Sets the Data bits and Parity port settings. Default is 8/None
Ports Remote	
Port No	The port on the TMS Server that the buffer will communicate to. Only applicable when socket is set to Active Mode.
IP Address	The IP address on the TMS Server that the buffer will communicate to. Only applicable when socket is set to Active Mode.
Conditions to Transmit	
Inter-character Time	Enable Inter-character Time
Terminator Char(hex)	Will send the data after receiving the Message Terminator. Enter a value in Hex
Block Size	Block Size: Send the data after the retrieval of a block. Enter the size of the block
General	
No-activity time(mins)	No activity time out
Password	Password of the socket
Avaya Prompt(hex)	The hex value for the Avaya
Link Check	Will do a Link Check
Mode	Dictates whether the buffer establish the connection (Set to Active) Or if the server establish the connection (Set to Passive) Default mode is Passive.
Protocol	TCP or UDP

4.4. SETTINGS FOR SOCKET 2



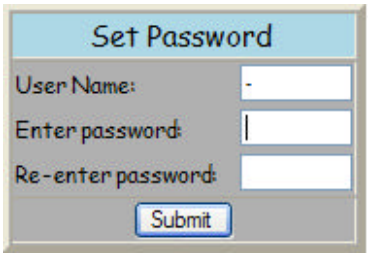
Setting	Description
Ports Local	
Port No	Identifies the TCP port your connection communicates with socket 2
Conditions to Transmit	
Inter-character Time	Enable Inter-character Time
General	
No-activity time(mins)	No activity time out
Password	Password of the socket
Mode	Dictates whether the buffer establish the connection (Set to Active) Or if the server establish the connection (Set to Passive) Default mode is Passive.
Protocol	TCP or UDP

4.5. SAVE SETTINGS



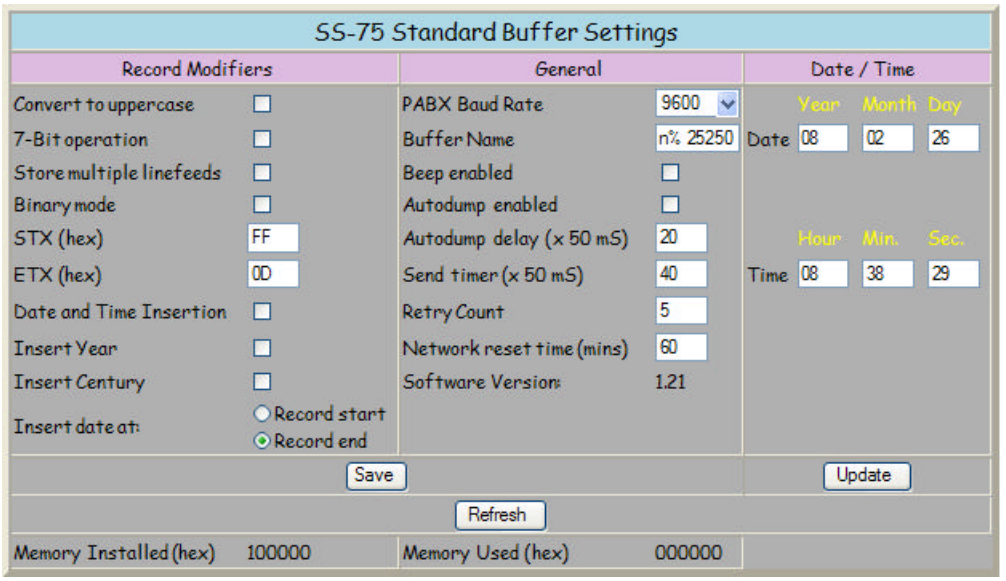
Setting	Description
NIC Save Options	
Save Changes	Save all changes without rebooting
Save Changes and Reboot NIC	Save all changes and reboot system
Reboot NIC	Reboot system without saving changes

4.6. SET PASSWORD



Setting	Description
Set Password	
User Name	Set user name for the Web interface
Enter Password	Set password for the Web interface
Re-enter Password	Confirm password

4.7. BUFFER SETTINGS



Setting	Description
Record Modifiers	
Convert to uppercase	Converts lowercase to uppercase
7-Bit operation	Use for 7 bit only operation
Store multiple linefeeds	Stores multiple line feeds
Binary mode	Set the logging to binary mode
STX (hex)	To set the start character for a record. All data will be discarded until this character is received. Default is FF
ETX (hex)	The call record will be terminated when the ETX character is received. An End OF Line character will be stored in memory and will be output as a Carriage Return / Linefeed pair. Default is 0D
Date and Time Insertion	Enables the date insertion to the record

Insert Year	Enables year insertion
Insert Century	Enables century insertion
Insert date at:	Sets the date insertion position
General	
PABX Baud Rate	Sets the baud rate of the PABX port
Buffer Name	Sets the buffer name. MUST be a 6 character name
Beep enabled	Enables Beeping
Autodump enabled	Enables auto dump mode
Autodump delay (x 50 mS)	Sets the delay before dumping
Send timer (x 50 mS)	Sets OnEmpty delay
Retry Count	Sets the number of retries for a UnAcked packed
Network reset time (mins)	Sets the reset time for the Network I/F
Software Version:	Will output the revision number of the buffer
Date / Timer	
Date	Sets the date
Time	Sets the time

10. CONTACT DETAILS

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