TCPIP232

Client Server

AVE

AMERICAN VIDEO EQUIPMENT

OPERATION MANUAL

TCPIP232 Client Server

CAUTION!
RISK OF ELECTRICAL SHOCK!
DO NOT OPEN!

TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE THE COVER. DO NOT EXPOSE THE EQUIPMENT TO RAIN OR MOISTURE. NO USER SERVICEABLE PARTS ARE INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

WARNING!

THIS EQUIPMENT GENERATES, USES, AND CAN RADIATE RADIO FREQUENCY ENERGY AND IF NOT INSTALLED AND USED IN AC-CORDANCE WITH THE INSTRUCTION MANUAL MAY CAUSE INTER-FERENCE TO RADIO COMMUNICATIONS. IT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A COM-PUTING DEVICE PURSUANT TO SUBPART J OF PART 15 OF FCC RULES, WHICH ARE DESIGNED TO PROVIDE REASONABLE PRO-TECTION AGAINST SUCH INTERFERENCE WHEN OPERATED IN A COMMERCIAL ENVIROMENT. OPERATION OF THIS EQUIPMENT IN A RESIDENTIAL AREA IS LIKELY TO CAUSE INTERFERENCE IN WHICH CASE THE USER AT HIS/HER OWN EXPENSE WILL BE RE-QUIRED TO TAKE WHATEVER MEASURES MAY BE REQUIRED TO CORRECT THE INTERFERENCE.

CONTENTS

FIGURES

Introduction

The TCPIP232 Client Server Interface is designed to deliver POS / Cash Register Transaction Data to a compatible DVR over an existing Ethernet LAN connection in several configures and protocols.

Client Mode

The Client Mode connects directly to a POS / Cash Register via RS-232 or RS-485 to recieve the POS transaction data. This configuration is one Client for one POS.It also has the ability to connect to the AVE RS-485 Network as a Master or Hydra which allows one Client to read data from up to 16 VSI-Pro Max. The POS transaction data for either configuration can be assigned a single IP address with a unique Port number for each POS so a compatible DVR can determine the origination of the POS transaction data.

The POS transaction data for either configuration can also be assigned an ID and assigned a single IP address with a single Port number which then is translated by the Server Mode to output data of up to 16 POS in the AVE Protocol of Generic ASCII, VSI-ADD or Vnet via RS-232 or RS-485 to compatible DVRs..

Server Mode

The Server Mode has the ability to read the POS transaction data that any Client has placed on the LAN network in either TCP or UDP format and output this data in either RS-232 or RS-485 format with the AVE Generic ASCII, VSI-ADD or Vnet protocol. This data then connects to a compatible DVR or a VSI-Pro Max for overlay. The Server merely passes the data to its Serial port that is sent from any Client or Hydra on the LAN. Therefore you must set the protocol appropriately and similarly for all Clients on the LAN.

Summary

The TCPIP232 Client Server is one device that can be configured in numerous ways as either a Client or Server connecting directly to POS / Cash Registers or via the AVE RS-485 Network. Multiple Clients or multiple Servers can be placed on the same network to achieve any configuration or data speed required.

TCPIP232 Client Server LED Indicators(sequence from left to right)

GREEN	POWER	TCPIP-232 Client Server Power Status
RED	NET	Sending / Receiving RS-232 / RS-485 Data Packet

LAN Network LEDs

YELLOW	SPEED	OFF = 10Mbps, ON = 100Mbps Ethernet.
GREEN	LINK	LAN Status, ON = Ready OFF = Not ready
RED	RECEIVE	TCPIP-232 Client Server Send / Receive data from LAN

TCPIP232 Client Server Connections

Server Mode connect with Client Mode

The DVR receives RS232 or RS485 input in the VSI-ADD or Vnet protocol for Database storage or Text Insertion from the Server mode. The Server has received a data packet from Client over the LAN with a maximum of TCP Client connections is 3 and UDP Client is 16.
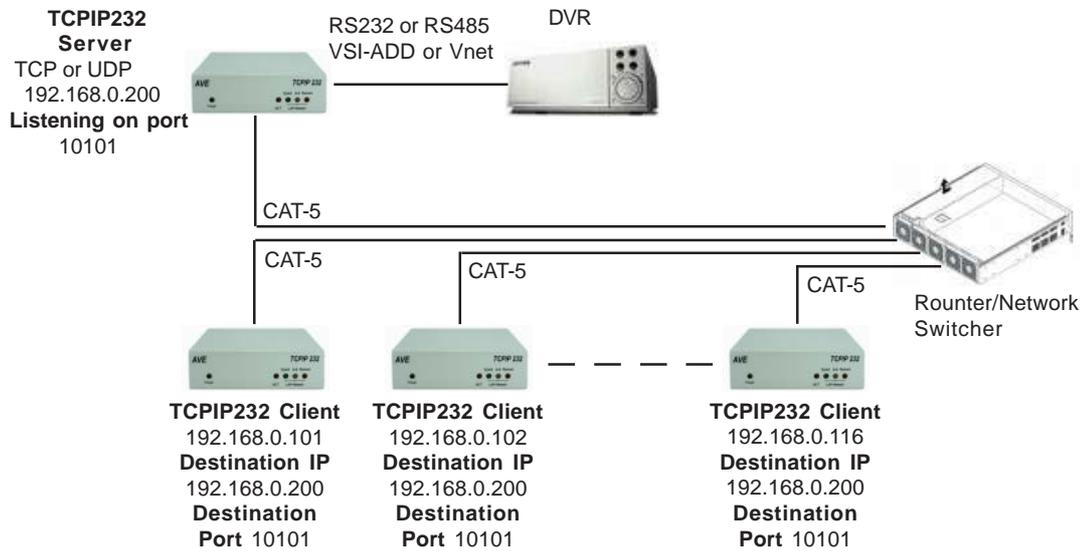
Figure 1. Server Mode connect with Client mode

Server Mode Connect with Clients in Master / Hydra Mode

The DVR receives RS232 or RS485 input in the VSI-ADD or Vnet protocol for Database storage or Text Insertion from the Server mode. The Server has received a data packet from the Client configured as a Master / Hydra mode that connects with up to16 AVE RS-485 network devices like the VSI-Pro Max. For this mode you must set the Client as the Master / Hydra and turn Multiple ports OFF and Packet output must set to be VSI-ADD or VNET.
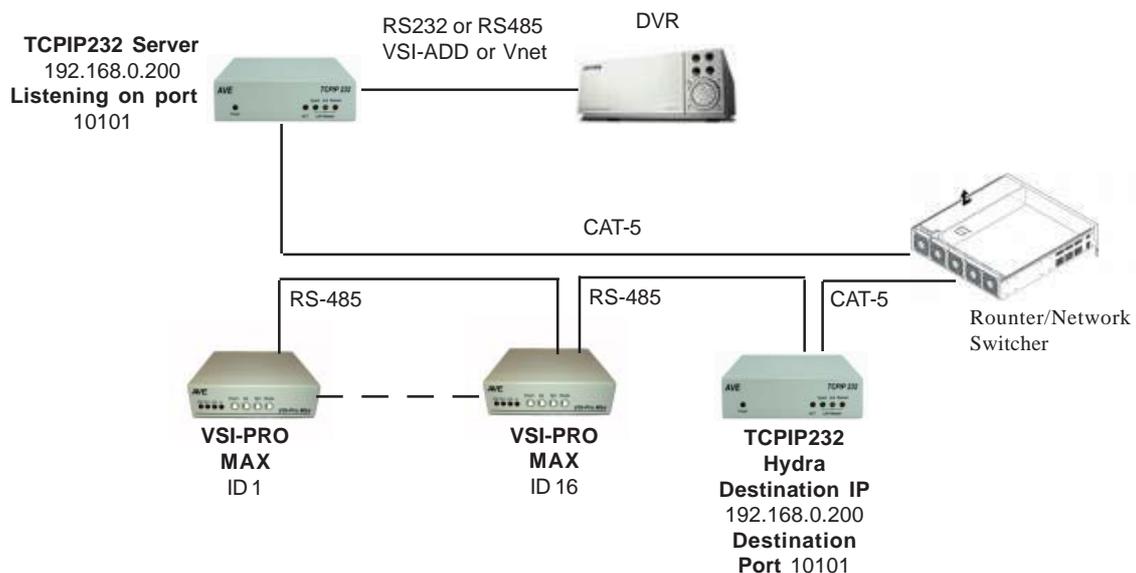
Figure 2. Server Mode connect with Clients as Master / Hydra Mode

Client Mode connect with DVR with multiple listening port text insertion

The DVR supports multiple IP Ports for receiving data packets from up to 16 Clients.

DVR

192.168.0.200
Listening on port
10101 - 10116

CAT-5

CAT-5   CAT-5   CAT-5

Rounter/Network
Switcher

TCPIP232 Client
192.168.0.101
Destination IP
192.168.0.200
Destination
Port 10101

TCPIP232 Client
192.168.0.102
Destination IP
192.168.0.200
Destination
Port 10102

TCPIP232 Client
192.168.0.116
Destination IP
192.168.0.200
Destination
Port 10116
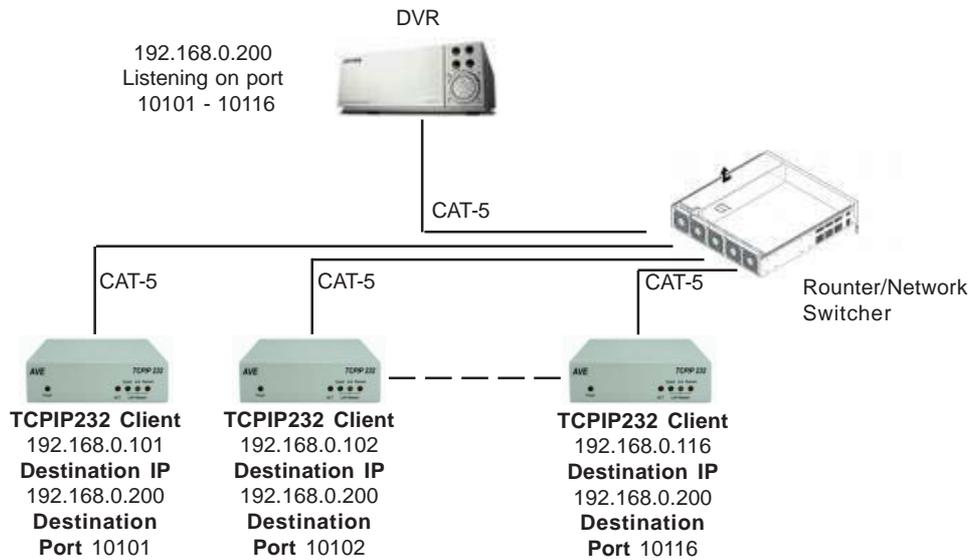
Figure 3. Client mode connect with multiple port DVR.

Master / Hydra Mode connect with DVR with multiple listening port text insertion

The DVR supports multiple IP Ports for receiving data packets from up to 16 Clients. For this mode you must set the Client as the Master / Hydra and turn Multiple ports ON and Packet output must set to be generic.

DVR

192.168.0.200
Listening on port
10101 - 10116

CAT-5

RS-485   RS-485   CAT-5

Rounter/Network
Switcher

VSI-PRO
MAX
ID 1

VSI-PRO
MAX
ID 16

TCPIP232
Hydra
Destination IP
192.168.0.200
Destination
Port 10101 -10116
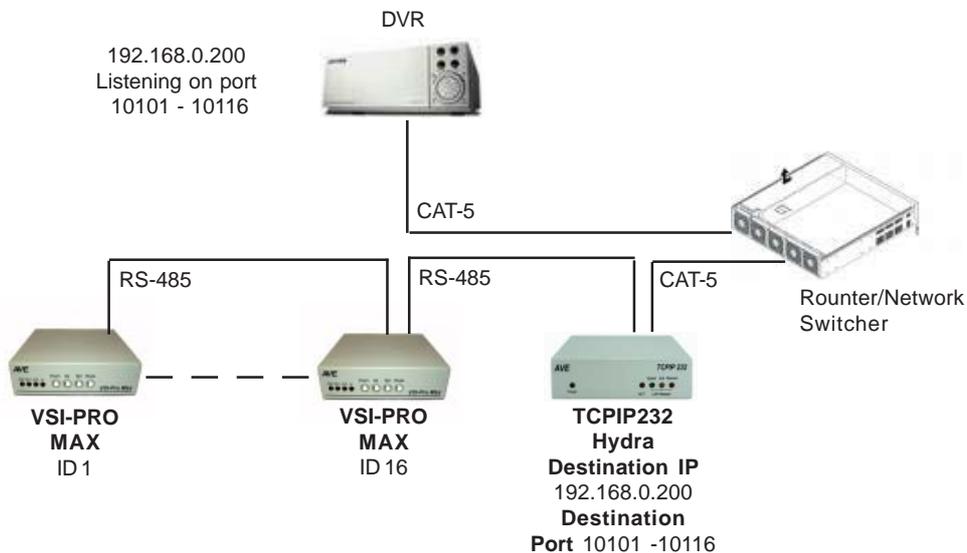
Figure 4. Master / Hydra mode connect with multiple port DVR.

6

TCPIP232 Client Server Settings

TCPIP232 Client Server Settings via Serial Terminal Software

Connect the PC/DVR cable (021-037-SF) which comes with the TCPIP232 Client Server adapter to your serial teminal software.

SerialTerminal software

TCPIP232   RS232
              Serial
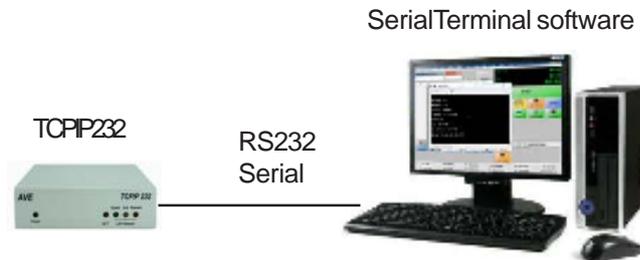
Figure 5. TCPIP232 Client Server Connecting with Serial Terminal Software

Turn on your computer and run serial terminal software using VT-100 emulation mode. The default baudrate for RS232 programming is 19200, no parity, 8-bit data and 1 stop bit and no hardware handshaking. Power up your TCPIP232 Client Server and Press ESC key (1BH) , [(5Bh) and P or p (upper or lower case) (50H) within 5 second to enter to the Main Menu.

When you power up the TCPIP232 Client Server the Speed/Link/Recieve LEDs will briefly illuminate and then go out and the "NET" LED will light. The valid time for entering the ESC [P is from when the "NET" LED is illuminated which is 5 seconds.

Note: If you do not enter to Main Menu within 5 seconds the system will start initializing the RS232 port again depending on the configurations of RS232 communication settings menu but for Master/Hydra mode is still able to program via RS232 port. While in the RS-232 programming mode the TCPIP232 Client Server will disable all functions including LAN and Telnet access. Make sure you Exit the RS-232 programming mode before any usage.

TCPIP232 Client Server
* LAN
- Pos
- Communication
- About Firmware
- Exit

Press the "Arrow" key to move the cursor or change the configurations. Press the "Enter" key to select or save the configurations.

TCPIP232 Client Server PC/DVR Cable(AVE P/N: 021-037-SF)

This is and RS232 Cable to program the IP Address on TCPIP232 and then remove and plug to the DVR to insert ASCII text on Video for stand alone application.

TCPIP232 Port DB9 Male	PC Port DB9 Female	Figure 6. TCPIP232 Client Server PC/ DVR Programming Cable (021-037-SF)
Pin-5 (GND) -- Pin-5 (GND)		
Pin-2 (RXD) -- Pin-3 (TXD)		
Pin-3 (TXD) -- Pin-2 (RXD)		

7

TCPIP232 Client Server Settings via Telnet

Connect the CAT-5 Cross Cable to the TCPIP232 Client Server adapter to your Telnet Client software running on your PC. If you are connecting through a router or switch then you do not need to use a Cross Cable and can use a standard CAT-5 cable.
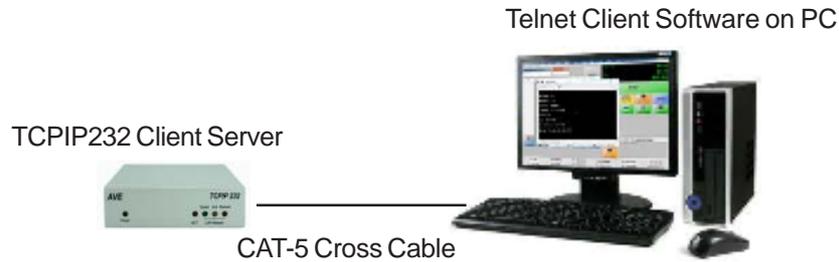
Figure 7. TCPIP232 Client Server connecting with Telnet Client Software on PC Directly
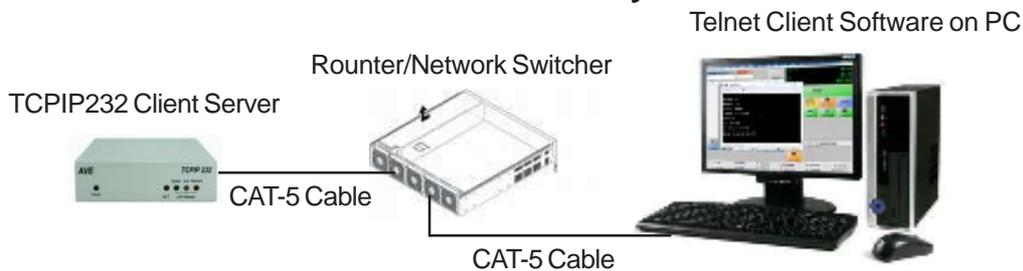
Figure 8. TCPIP232 Client Server connecting with Telnet Client Software on PC through Router

Power up your TCPIP232 Client Server and your computer and open the Telnet Client program on the computer and then Telnet to the default IP 192.168.0.222 Port 23 of the TCPIP232 Client Server. Telnet Client program will appear and ask for the Password that the default telnet password of TCPIP232 Client Server is 9999.

If you are using HyperTerminal then set the "Connect To" screen below to the following settings.

8
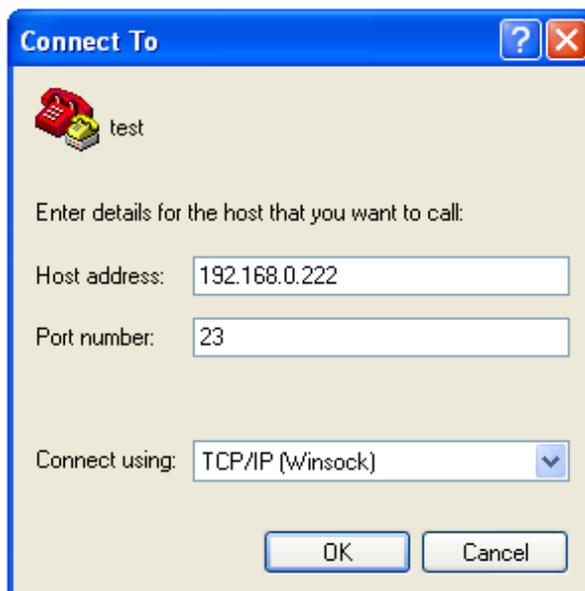
If your laptop is configured for another network or set for Obtain the IP Address automatically you will have to configure as below.

Right click on the Network Connections icon usually at the bottom right of your screen and the large "Network Connections" window below will display. Then right click on the Local Area Connection Icon which is highlighted and select "Network Protocol TCP/IP" highlighted below in the small box "Local Area Connection Properties" lower to the left. Then click on "Properties" and the window to the lower right will display. Change the settings as shown in the box, save and exit.
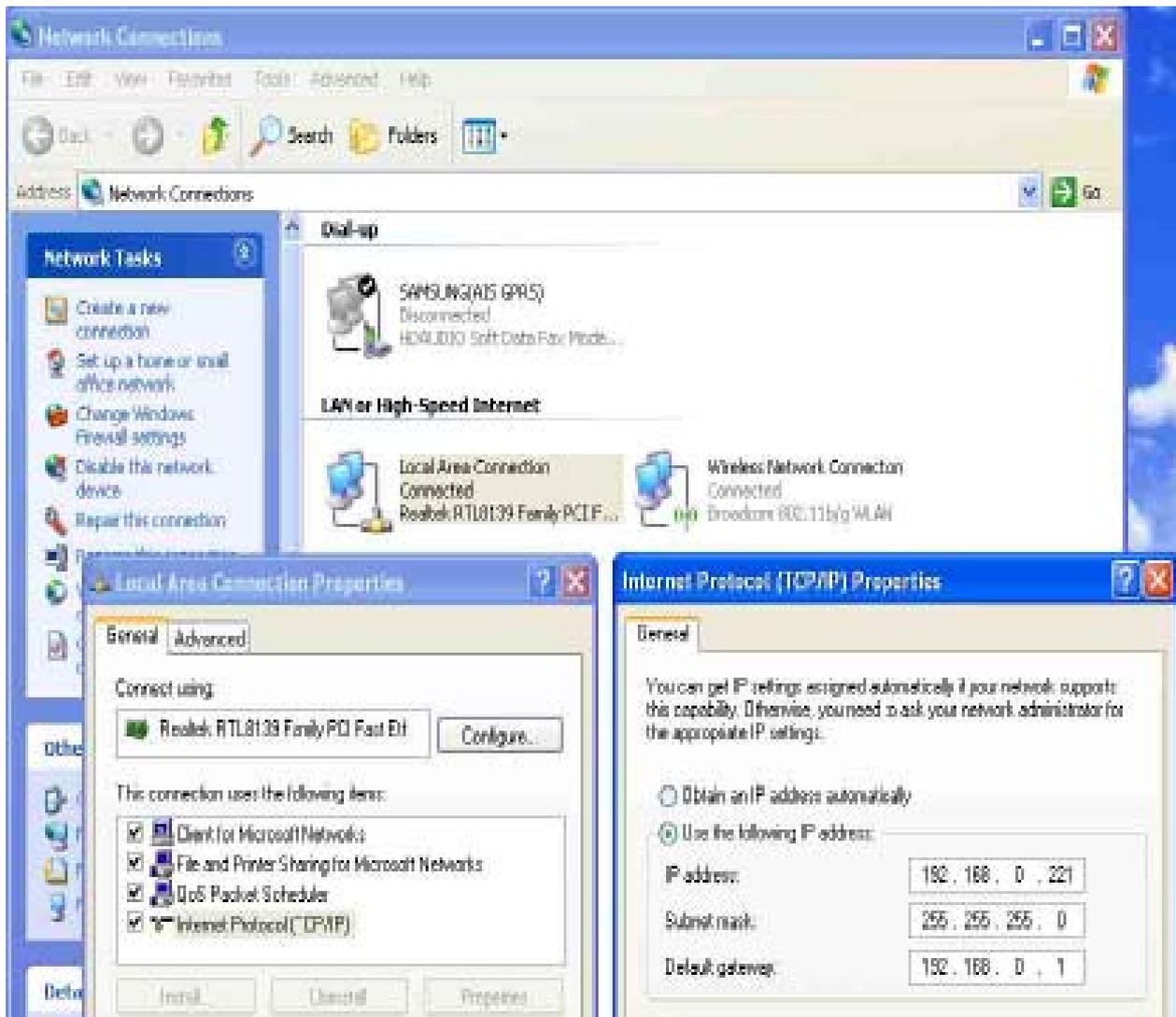
Power up your TCPIP232 Client Server and your computer and open the Telnet Client program on the computer and then Telnet to the default IP 192.168.0.222 Port 23 of the TCPIP232 Client Server. Telnet Client program will appear and ask for the Password that the default telnet password of TCPIP232 Client Server is 9999.

NOTE:

All the above settings are based on the factory default configuration of the TCPIP232 Client Server and all can be changed by the user. Therefore if anything has been changed you will have to use the Serial Programming method to access the TCPIP232 Client Server to check the settings that have been changed and set the above accordingly. If the TCPIP232 Client Server is set for Hydra mode the Telnet function is disabled and must use Serial.

```
Telnet 192.168.0.222                    [ _ ] [ □ ] [ ✕ ]

TCPIP232 Client Server                                   ▲
Password:                                                ▓



                                                         ▼
◄           III                         ►
```
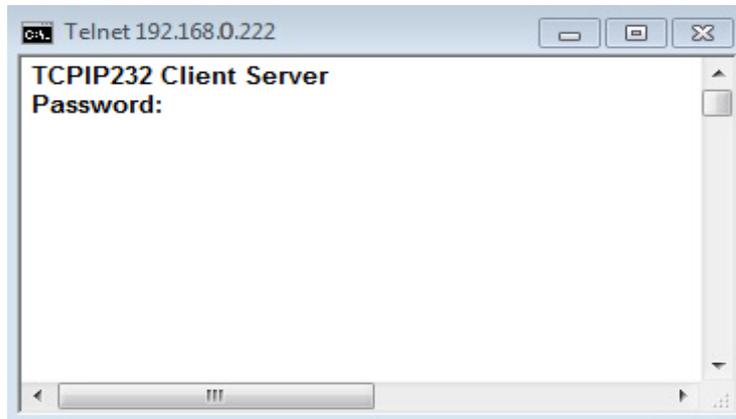
After you enter the correct password which the default is 9999 then the following Menu will appear on the Telnet client program screen.

```
          TCPIP232 Client Server
* LAN
- POS
- Communication
- About Firmware
- Exit
```

Press the "Arrow" button to move the cursor or change the configurations. Press the "Enter" button to select or save the configurations.

Note : All the menu settings that appear on the Telnet client program will be the same with the menu settings of the serial terminal software. However once you enable the Hydra mode via Telnet and Exit the Telnet mode which means the TCPIP232 Client Server will reboot with the new Hydra mode. When the TCPIP232 Client Server is in the Hydra mode the Telnet programming mode is no longer supported. Therefore any further changes will need to be done via the Serial Programming mode.

The Telnet can remain active while the TCPIP232 Client Server is operational and will not effect its operation.

TCPIP232 Client Server Menu Settings

Press the "Up" or "Down" button to move the cursor to the menu you need to program and press the "Enter" button to enter the selected submenu.

The TCPIP232 Client Server setting menu will appear like below if the "Mode" select in "Mode Setting" menu (refer to page 10) is select to be "Client".

```
            TCPIP232 Client Server
* LAN
- POS
- Communication
- About Firmware
- Exit
```
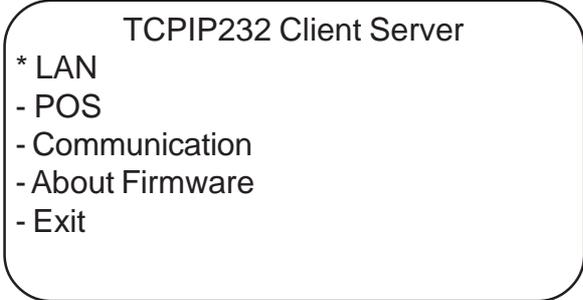
The TCPIP232 Client Server setting menu will appear like below if the "Mode" select in "Mode Setting" menu (refer to page 10) is selected to be "Server" or "Hydra".

```
            TCPIP232 Client Server
* LAN
- Communication
- About Firmware
- Exit
```
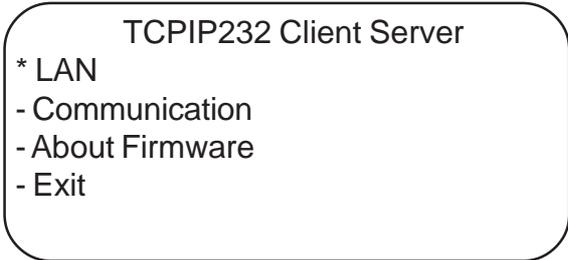
LAN Settings

To select the LAN Setting menu press the "Up" or "Down" button to move the cursor to "LAN" and press the "Enter" button. The LAN Settings sub menu will appear.

The "LAN" setting menu will appear like below if the "Mode' select in :Mode Setting" menu (refer to page 10) is selected to be "Client" or "Server"

```
            LAN Settings
* IP Address
- Mode
- Telnet
- Exit
```

The "LAN" setting menu will appear like below if the "Mode" select in "Mode Setting" menu (refer to page 10) is selected to be "Hydra"

```
            LAN Settings
* IP Address
- Mode
- Exit
```

IP Address Settings

To define an IP Address, Subnet Mask and Gateway of the TCPIP232 Client Server, press the "Up" or "Down" button to move the cursor to "IP Address" and press the "Enter" button. The "IP Address Settings" sub menu will appear like below.

The "IP Address" setting menu will appear like below if the "Mode" select in "Mode Setting" menu (refer to page 10) is selected to be "Client" or "Hydra"

```
            IP Address Settings
* IP Address            192.168.0.0
- Destination IP        192.168.0.0
- Subnet Mask           255.255.0.0
- Gateway               192.168.1.1
- Exit
```

The "IP Address" setting menu will appear like below if the "Mode" select in "Mode Setting" menu (refer to page 10) is selected to be "Server"

```
            IP Address Settings
* IP Address            192.168.0.0
- Subnet Mask           255.255.0.0
- Gateway               192.168.0.0
- Exit
```
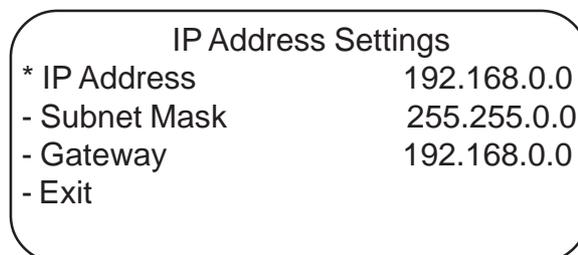
IP Address

To define the IP Address of the TCPIP232 Client Server, press the "Up" or "Down" button to move the cursor to "IP Address" and press the "Enter" button. The cursor will start to flash. Press the "Up" or "Down" or press the number button on your keyboard to define the IP Address from 0 - 255 and then press the "Enter" button when the desired value is displayed.

Destination IP

To define the Destination IP of the TCPIP232 Client Server, press the "Up" or "Down" button to move the cursor to "Destination IP" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" or press the number button on your keyboard to define the Destination IP from 0 - 255 and press the "Enter" button when the desired value is displayed.
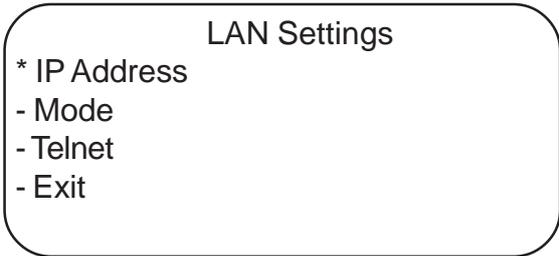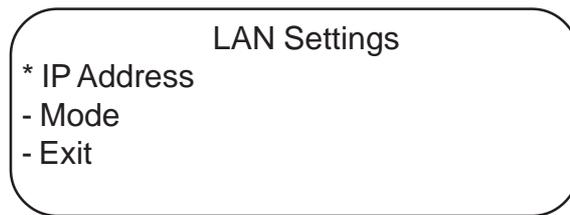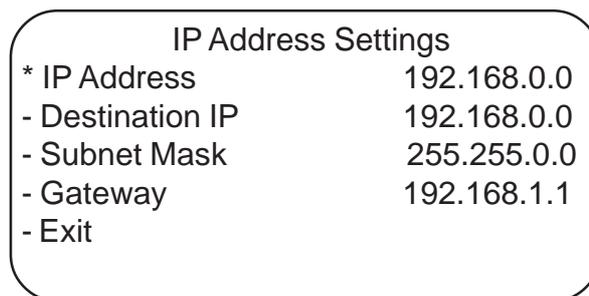
Subnet Mask

To define the Subnet Mask of the TCPIP232 Client Server. Press the "Up" or "Down" button to move the cursor to the "Subnet Mask" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" or press the number button on your keyboard to define the Subnet Mask from 0 - 255 and press the "Enter" button when the desired value is displayed.

Gateway

To define the Gateway of the TCPIP232 Client Server. Press the "Up" or "Down" button to move the cursor to the "Gateway" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" or press the number button on your keyboard to define the Gateway from 0 - 255 and press the "Enter" button when the desired value is displayed

Mode Settings

To select an operating mode of the TCPIP232 Client Server. Press the "Up" or "Down" button to move the cursor to the "Mode" and press the "Enter" button. The Mode Settings sub menu will appear.

```
              Mode Setting
* Mode                        Client
- Protocol                       TCP
- Destination Port             10101
- Local ID                       N/A
- Exit
```

Mode

The "Mode" settings configures the TCPIP232 Client Server into one of three operating modes, the Client, Server or Hydra.

Client Mode

The Client mode allows the device to connect to one POS / Cash Register, VSI-Pro or VSI-Pro Max via RS-232 or RS-485 and send this data over the LAN in either TCP or UDP Protocol with an IP Address and Port Number assigned to that device. The Client has different performance specifications depending on the configuration, see the following page for details.

Server Mode

The Server mode allows the device to recieve data from multiple Clients or Hydras on the LAN network and send this data out via RS-232 or RS-485 to a compatible DVR or device. The protocol of this output is configured on the Client or Hydra device so all need to be set similarly. This mode supports either TCP or UDP protocol.

Note: The Servrer has different performance specifications based on the system configuration, see below.

Hydra Mode

The Hydra Mode is a special type of a Client mode that supports the AVE RS-485 Network protocol to connect up to 16 VSI-Pro Max with one device. In this mode it can be configured to send all 16 POS data to the Server Mode using only one IP:Port or assign a single IP address and unique:Port to each POS. The later method is commonly used to deliver data to compatible DVRs. This mode supports either TCP or UDP protocol. See below for the performance specifications based on system configuration.

Performance Based on Configuration

The Server has different performance specifications for different configurations.

Server can support only 3 Clients with unique IP:PORT and TCP Protocol
Server can support 16 Clients with unique IP:PORT and UDP Protocol
Server can support Hydra connected to 16 VSI-Pro Max with one IP:PORT with TCP or UDP
Server can support only 3 Hydras with unique IP:PORT and TCP Protocol
Server can support 16 Hydras with unique IP:PORT and UDP Protocol
Server can support only 3 units of any combination of Client or Hydras using TCP.
Server can support up to 16 units of any combination of Client or Hydras using UDP

The Hydra when supporting Multiple Ports with TCP protocol with many VSI-Pro Max connected as slaves may exhibit a slow down of the update of the POS data in high transaction rate installations. If this is the case you must reduce the number of VSI-Pro Max slaves connected to one Hydra and add additional Hydra units to accomodate the remaining VSI-Pro Max up to 16 maximum. Therefore in this type of installation high transaction rate POS units should be connected with low transaction rate POS units to one Hydra to balance the data throughput. UDP Protocol does not exhibit this slow down to any significant level.

To select the Mode of the TCPIP232 Client Server. Press the "Up" or "Down" button to move the cursor to "Mode" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" to change the mode to "Client" , "Server" or "Hydra" and Press the "Enter" button when the desired value is displayed,

Mode setting menu will appear like below if Mode is selected to be "Client".

```
               Mode Setting
* Mode                          Client
- Protocol                         TCP
- Destination Port               10101
- Local ID                         N/A
- Exit
```

Mode setting menu will appear like below if Mode is selected to be "Server".

```
               Mode Setting
* Mode                          Server
- Protocol                         TCP
- Listening Port                 10101
- Exit
```

Mode setting menu will appear like below if Mode is selected to be "Hydra".and "Multiple Ports" in Mode Setting menu is selected to be "ON" (refer to page 12).

```
               Mode Setting
* Mode                          Hydra
- Protocol                         TCP
- Multiple Ports                    ON
- ID Settings
- Exit
```

Mode setting menu will appear like below if Mode select in Mode setting menu is select to be "Hydra". And Multiple Ports in Mode setting menu is select to be "OFF"(refer to page 12).

```
               Mode Setting
* Mode                          Hydra
- Protocol                         TCP
- Multiple Ports                   OFF
- Destination Port               10101
- Exit
```

Protocol

To select the protocol of TCPIP232 Client Server. Press the "Up" or "Down" button to move the cursor to "Protocol" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" to change the Protocol to "TCP" or "UDP" and press the "Enter" button when the desired value is displayed

Listening Port

If the Mode select is set to "Server" then the Listening Port will appear. To define the Listening Port press the "Up" or "Down" button to move the cursor to the "Listening Port" and press the"Enter" button. The cursor will start flashing. Press the "Up" , "Down" or press the number button on your keyboard to change the Listening port port from 0 - 65535 then press the "Enter" button when the desired value is displayed

Destination Port

If the Mode select is set to "Client" or Mode select to set to be "Hydra" and Multiple Ports is set to "OFF" then the Destination Port will appear. To define the Destination port of TCPIP232 Client Server. Press the "Up" or "Down" button to move the cursor to "Destination Port" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" or press the number button on your keyboard to change the Destination port from 0 - 65535 press "Enter" button when the desired value is displayed.

Local ID

If the Mode select is set to "Client" then Local ID will appear. To define the Local ID. Press the "Up" or "Down" button to move the cursor to "Local ID" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" to change the ID from N/A ,1 - 16 and press the "Enter" button when the desired value is displayed. N/A acutally None so if selected no ID will be added to the data.

Multiple Ports

If the Mode is selected to be "Hydra" then Multiple Ports will appear. To select the Multiple Ports. Press the "Up" or "Down" button to move the cursor to "Multiple Port" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" to change the Multiple Ports to "ON" or "OFF" and press the "Enter" button when the desired value is displayed

ID Settings

If the Mode is selected to be "Hydra" and Multiple Ports is set to "ON" then ID Settings Ports will appear.To select the ID setting. Press the "Up" or "Down" button to move the cursor to "ID Settings" and press the "Enter" button. The ID Setting sub menu will appear like below.

```
            ID Settings
* ID                          1
- Destination Port        10101
- Exit
```

ID

To define the ID. Press the "Up" or "Down" button to move the cursor to "ID" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" to change the ID from 1 - 16 and press the "Enter" button when the desired value is displayed

Destination Port

To define the Destination Port of each ID. Press the "Up" or "Down" button to move the cursor to "Destination Port" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" or press the number on your keyboard to change the Destination Port from 0 - 65535 and press the "Enter" button when the desired value is displayed

Telnet Settings

Press the "Up" or "Down" button to move the cursor to "Telnet Settings" and press the "Enter" button. The Telnet Settings menu will appear.
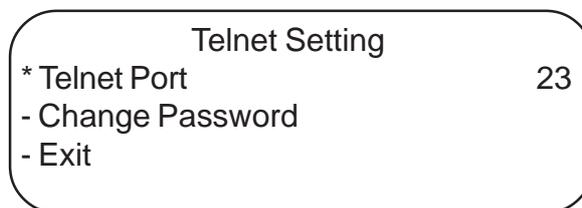
```
           Telnet Setting
* Telnet Port                      23
- Change Password
- Exit
```

Telnet Port

To define the Telnet Port. Press the "Up" or "Down" button to move the cursor to "Telnet Port" and press the "Enter" button. The cursor will start flashing. Press the "Up" , "Down" or press the number on your keyboard to change the Telnet Port from 0-65535 and the Telnet Port default is 23 then press the "Enter" button when the desired Telnet port is displayed. If you set the Telnet port to zero then it will be disabled for zero is not allowed to be assigned as a port.

Change Password

To define the Telnet password. Press the "Up" or "Down" button to move the cursor to "Change Password" and press the "Enter" button. Then the Change Password submenu will appear and asking for input a New Password then press the "Enter" button will ask again to input Confirm Password again. The Telnet password default is 9999.

```
          Change Password
New Password:
```

Exit

Press the "Up" or "Down" button to move the cursor to "Exit" and press the "Enter" button to exit from the LAN Settings menu and back to TCPIP232 Client Server Main Menu.

POS Settings

To select a POS Setting menu by press the "Up" or "Down" button to move the cursor to "POS" and press the "Enter" button. The POS Setting sub menu will appear

```
POS Settings
* Exception Report
- Alarm Notification
- Exit
```

Note : POS Setting menu will appear if Mode selcet to be Client in Mode setting menu only.

Exception Report

The Exception Report gives you the option to assign text output, trigger an alarming device, send internet data packet or send data to another serial device on any questionable transaction that you have preprogrammed into the TCP232 Client Server. The TCPIP232 Client Server will allow programming of up to 24 separate exceptions. These exceptions can be VOIDS, REFUNDS, COUPONS, PAID OUT, RETURNS, individual departments, specific items, or any transaction that you determine (by programming) to be "exceptional" or questionable.

```
Exception Report
* Exception NO              1
- Output                   ON
- Operator               NONE
- Value                   0.00
- Exception String
NO SALE
- Exit
```

Exception NO

To select the Exception No. that you wish to program from 1 to 24, press the "Up" or "Down" button to move the cursor to "Exception NO." and press "Enter". The cursor will start flashing. Use the "Up" & "Down" button to sequence from 1 to 24. Make your selection and press the "Enter" button.

Output

The Output controls data from the TCPIP232 Client Server ON or OFF. Typically this is sent to an RS232/RS485 device or a Network device.

To make your selection, press the "Up" or "Down" button to move the cursor to "OUTPUT" and press "Enter". Press the "Up" or "Down" button to toggle between "ON" or "OFF". Make your selection and press the "Enter" button

Operator

The Operator determines the behavior of the value set in the Value setting.

You can define ranges for your exceptions and have the TCPIP232 Client Server alarm when an exception falls within the range's parameters. The choices are "Greater Than (>)" , "Less Than (<)", "Equal To (=) " , "Greater Than or Equal (>=)" , "Less Than or Equal (<=)" , "Not Equal (NE)" and "NONE". To program the operator, press the "Up" or "Down" button to move the cursor to "OPERATOR" and press the "Enter" button. The cursor will start flashing. Press the "Up" or "Down" button to cycle through the operator selections and press the "Enter" button when the desired value is displayed.

Value

The Value defines from *0 - 99,999,999.99* the limits of the Operator. These are numeric only.

To program the value, press the "Up" or "Down" button to move the cursor to "Value" and press the "Enter" key. The first "0" in the range starts to flash. This means it is active and ready for programming. Press the "Up" or "Down" button to cycle through the values or use your keypad to enter in the numeric value. Use the "Right" or "Left" keys to move to the next numerial. Press the "Enter" button when the desired value is displayed to save.

Exception String

The TCPIP232 Client Server compares the data entered in the Exception String to the incoming data from the POS.The Exception String can also be used without a defined range. Example of this would be to assign a word " VOID" as an exception. TCPIP232 Client Server will look for that string so range definition is not necessary. However,exception string " VOID" could be further defined by assigning a Range, i.e. all "VOID" over $20.You can also define a global exception to remove the transactions.

 You can also use a wild card symbol "*", an asterisk on any data location or "?" for any single character. An example of this would be instead of assigning eight different exception strings for dept 00 to dept 07, you can assign only one exception string e.g. "dept *" or "dept 0?". That wild card exception string will handle exceptions for all eight departments.

To program the exception string, press the "Up" or "Down" button to move the cursor to "Exception String" and press "Enter". The first 40 character exception will become active after flashing.

Exit

Press the "Up" or "Down" button to move the cursor to "Exit" and press "Enter" key for exit from the POS setting menu and back to the TCPIP232 Client Server main menu.

Alarm Notification

To select a Alarm Notification menu by press the "Up" or "Down" button to move the cursor to "Alarm Notification" and press the "Enter" button. The Alarm Notification sub menu will appear;

```
┌─────────────────────────────────────┐
│          Alarm Notification         │
│  * Alarm NO                     1   │
│  - Alarm Trigger              EX 1  │
│  - Triggered Text              ON   │
│                                     │
│  - Exit                             │
└─────────────────────────────────────┘
```

Alarm NO

The TCPIP232 Client Server allows you up to 16 alarms that may be used with any of the user programmed exceptions. However there are only 2 hardwired alarm outputs and these correspond to Alarm 1 & 2 only. The other 14 alarms can be used to send trigger text, serial data out or flash the screen. To select the Alarm NO that you want to program, press the "Up" or "Down" button to move the cursor to "ALARM NO." and press "Enter". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values from 1 to 16 and press "Enter" when the desired value is displayed.

Alarm Trigger

An Alarm Trigger is the source of activity programmed to activate a certain alarm. The alarm trigger tells the TCPIP232 Client Server what exception to use to trigger the alarming device or the on-screen flag.

Exceptions1-12 :alarms when data is received that matches any data set in
                     Excep tion 1-12.
Exceptions13-24:alarms when data is receive that match any data set in
                     Exception13-24.
Exceptions1-24 :alarms when data is received that matches any data set in
                     Exception.
RTS: External alarm input. The TCP232 Client Server has 1 alarm input, if you are not using the handshaking function. A contact closure to ground on pin 7 (pin 5 is ground) will trigger this alarm. Coupled with the RTS Triggered text, you can now display a 40 character message from an external alarm input.

Triggered Text

A Triggered Text is a data string that associates with one of the 16 alarms or with external RTS alarm. When the alarm is triggered by a source, the associated string is sent out and/or displayed, if enabled respectively. Each Triggered Text can contain up to 40 printable ASCII data. If non-printable data (control code) is included, each control code occupies 3 printable spaces if you need to use control code such as Line feed for Triggered Text by writing '^' , '0' and 'A'. Therefore, only 13 control codes maximum can be programmed in one Triggered Text. To program the Triggered Text, press the "Up" or "Down" button to move the cursor to "Triggered Text" and press "Enter" button. Press the "Up" or "Down" button to toggle between "ON" or "OFF". Make your selection and press "Enter". The cursor of next line will flash for waiting to put the ASCII text by type the keyboard of press "Up" or "Down" button for change the charactor and press "left" or "right" button for move the curser. And press "Enter" button when the desired value is displayed.

Exit

Press the "Up" or "Down" button to move the cursor to "Exit" and press "Enter" button for exit from POS setting menu and back to TCPIP232 Client Server main menu.

Communication Settings

To select Communication Setting menu by press the "Up" or "Down" button to move the cursor to "Communication" and press "Enter" button. The Communication Setting menu will appear.

```
        Communication Settings
 * RS232
 - RS485
 - Exit
```

Communication Settings menu will appear like below if Mode select in Mode Setting menu (refer to page 10) is select to be "Client" or "Hydra".

```
        Communication Settings
 * RS232
 - RS485
 - Packet Output
 - Exit
```
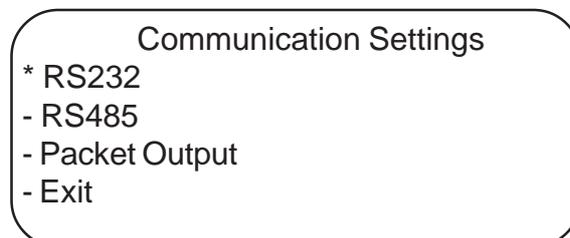
RS232 Settings

To select the RS232 Setting menu, press the "Up" or "Down" button to move the cursor to "RS232 Setting" and press "Enter" button. The RS232 Setting menu will appear.

```
                    RS232 Settings
* Baudrate                        19200
- Bit and Parity                8,NONE
- Handshaking                       OFF
- Auto Linefeed                       ON
- Exit
```

Baudrate

To set the baud rate for your particular device, press the "Up" or "Down" button to move the cursor to "Baudrate" and press "Enter". The cursor will start flashing. You can now use the "Up" or "Down" button to make your selection *1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600 or 115200*. When your selection appears, press "Enter" again. The cursor will stop flashing and you can proceed to the next menu item for programming.

Bit and Parity

Press the "Up" or "Down" button to move the cursor to "Bit and Parity" and press "Enter". The cursor will start flashing. Press the "Up" or "Down" button to cycle through *"8,NONE" , "8,ODD" , "8,EVEN" , "7,ODD" or "7,EVEN"* and press "Enter" when the desired value is displayed.

Handshaking

Handshaking is an input that require TCPIP232 Client Server to stop sending data until TCPIP232 Client Server receive ready signal from external device to continue sending data again. Handshaking guarantees that the external device buffer is not over run or text is not lost. Press the "Up" or "Down" button to move the cursor to "Handshaking" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through "ON" , "OFF" or "XON/XOFF" and press "Set" when the desired value is displayed.

Auto Linefeed

Auto Linefeed makes the TCPIP232 Client Server append a CR/ LF after each displayed line. The default of this function is "ON", but if you would like to disable it then press the "Up" or "Down" button to move the cursor to "Auto Linefeed" and press "Enter". The cursor will start flashing. Press the "Up" or "Down" button to cycle through "ON" or "OFF" and press "Enter" when the desired value is displayed.

Exit

Press the "Up" or "Down" button to move the cursor to "Exit" and press "Enter" button for exit from RS-232 setting menu and back to Communication Setting sub menu.

RS485 Settings

To select the RS485 Setting menu, press the "Up" or "Down" button to move the cursor to "RS485 Setting" and press "Enter" button. The RS485 Setting menu will appear.

```
                    RS485 Settings
  * Protocol                          OFF
  - Baudrate                         19200
  - Bit and Parity                 8,NONE
  - Exit
```

Protocol

If Mode select in Mode setting menu (refer to page 13) is select to be "Client" and "Server" Press the "Up" or "Down" button to move the cursor to "Protocol" and press "Enter". The cursor will start flashing. Press the "Up" or "Down" button to toggle between *"OFF" and "GENERIC"* and press "Enter" when the desired value is displayed. (AVE RS485 Network Protocol is refer to page 24)

If Mode select in Mode setting menu (refer to page 14) is select to be "Hydra" Press the "Up" or "Down" button to move the cursor to "Protocol" and press "Enter".The cursor will start flashing. Press the "Up" or "Down" button to make your selection "Regcom 9600" , "Regcom 57600" or "Vnet" and press "Enter" when the desired value is displayed. (AVE RS485 Network Protocol is refer to page 24)

Baudrate

To set the baud rate for your particular device, press the "Up" or "Down" button to move the cursor to "Baudrate" and press "Enter". The cursor will start flashing. You can now use the "Up" or "Down" button to make your selection *1200, 2400, 4800, 9600, 14400, 19200, 28800, 38400, 57600 or 115200*. When your selection appears, press "Enter" again.

Bit and Parity

Press the "Up" or "Down" button to move the cursor to "Bit and Parity" and press "Enter". The cursor will start flashing. Press the "Up" or "Down" button to cycle through *"8,NONE" , "8,ODD" , "8,EVEN" , "7,ODD" or "7,EVEN"* and press "Enter" when the desired value is displayed.

Exit

Press the "Up" or "Down" button to move the cursor to "Exit" and press "Enter" button for exit from RS485 setting menu and back to Communication Setting sub menu.

Packet Output

If Mode select to be "Client" or "Hydra" in Mode Settings menu(refer to page 13) then Packet Output will appear. To select Packet Output Settings menu by Press the "Up" or "Down" button to move the cursor to "Packet Output" and press "Enter" button. The Packet Output Settings menu will appear.

```
        Packet Output Settings
* Packet Output          ASCII+CRLF
- Exit
```

If Mode select in Mode setting menu (refer to page 13) is select to be "Client" with Local ID is set to be N/A . Press the "Up" or "Down" button to move the cursor to "Packet Output" and press "Enter". The cursor will start flashing. Press the "Up" or "Down" button to cycle through *"ASCII+CR" or "ASCII+CRLF"* and press "Enter" when the desired value is displayed.

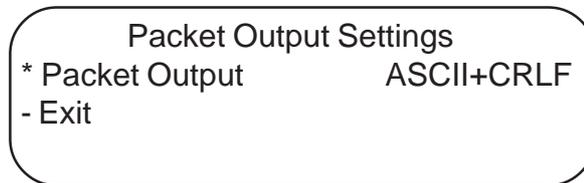If Mode select in Mode setting menu (refer to page 13) is select to be "Client" with Local ID is not set to N/A . Press the "Up" or "Down" button to move the cursor to "Packet Output" and press "Enter". The cursor will start flashing. Press the "Up" or "Down" button to cycle through *"ASCII+CR" , "ASCII+CRLF" , "VSI-ADD" and "VNET"* and press "Enter" when the desired value is displayed.

If Mode select in Mode setting menu (refer to page 13) is select to be "Hydra"Press the "Up" or "Down" button to move the cursor to "Packet Output" and press "Enter". The cursor will start flashing. Press the "Up" or "Down" button toggle between *"ASCII+CR" , "ASCII+CRLF" ,"VSI-ADD" and "VNET"* and press "Enter" when the desired value is displayed.

Exit

Press the "Up" or "Down" button to move the cursor to "Exit" and press "Enter" button for exit from the Packet Output Setting menu and back to Communication Setting sub menu.

Typical Examples of Packet Outputs

ASCII+CR = ASCII Text is end with Carriage return
Ex Packet output of "NO SALE"
'N'   0x4E
'O'   0x4F
' '   0x20
'S'   0x53
'A'   0x41
'L'   0x4C
'E'   0x45
CR   0x0D
Internet packet = **N**[0x4E]**O**[0x4F] ' ' [0x20]**S**[0x53]**A**[0x41]**L**[0x4C]**E**[0x45]**CR**[0x0D]

ASCII+CRLF = ASCII Text is end with Carriage return and line feed
Ex Packet output of "NO SALE"
'N'   0x4E
'O'   0x4F
' '   0x20
'S'   0x53
'A'   0x41
'L'   0x4C
'E'   0x45
CR   0x0D
LF   0x0A
Internet packet = **N**[0x4E]**O**[0x4F]' '[0x20]**S**[0x53]**A**[0x41]**L**[0x4C]**E**[0x45]**CR**[0x0D]
             LF[0x0A]

VSI-ADD
Starting with Escape , Address , Text and end with Carriage return
Ex Packet output of "NO SALE" from Address NO or ID NO 3.
ESC 0x1B
ADD 0x03
'N'   0x4E
'O'   0x4F
' '   0x20
'S'   0x53
'A'   0x41
'L'   0x4C
'E'   0x45
CR   0x0D
Internet packet = **ESC**[0x1B]**ADD**[0x03]**N**[0x4E]**O**[0x4F] ' ' [0x20]**S**[0x53]**A** [0x41]
             L[0x4C]**E**[0x45]**CR**[0x0D]

VNET

Starting with Start of heading , 2 bytes of ASCII address , Start of Text , Text , Carriage return , Block Check Character and End Text

Ex Packet output of "NO SALE" from Address NO or ID NO 2.

SOH	0x01
'0'	0x30
'2'	0x32
STX	0x02
'N'	0x4E
'O'	0x4F
' '	0x20
'S'	0x53
'A'	0x41
'L'	0x4C
'E'	0x45
CR	0x0D
BCC	0x37

BCC 0x37   Block Check Character is the Exclusive OR the previous message character after **STX** , excluding **ETX**

ETX 0x03

Internet packet =**SOH**[0x01]**0**[0x30]**2**[0x32]**STX**[0x02]**N**[0x4E]**O**[0x4F]**' '**[x20]
      S[0x53]**A**[0x41]**L**[0x4C]**E**[0x45]**CR**[0x0D]**BCC**[0x37]**ETX**[0x03]

Exit

Press "Up" or "Down" button to move the cursor to "Exit" and press "Enter" button for exit from Communication Setting menu and back to TCPIP232 Client Server main menu.

About Firmware

To select About Firmware by Press the "Up" or "Down" button to move the cursor to "About Firmware" and press "Enter" button. The Firmware information will appear on the screen. Press "Enter" button for exit from Firmware information screen and back to TCPIP232 Client Server main menu.

Exit

Press "Up" or "Down" button to move the cursor to "Exit" and press "Enter" button for exit from TCPIP232 Client Server setting and back to operating mode.

Cables and Pin assignments

```
RS-232 Pin Out
```

DB9F

Pin 1   **Alarm 1 Normally Open (NO) Open Collector Output 12VDC @ 20mA Max**
Pin 2   **RXD RS-232C Port 1 (POS or Programming Port)**
Pin 3   **TXD RS-232C Port 1 (POS or Programming Port)**
Pin 4   **RESET Active Low to Reboot Unit**
Pin 5   **GND**
Pin 6   **TXD RS-232C from Port 2 (RS-485 Port)**
Pin 7   **RTS Alarm Input Active Low 12VDC Max**
Pin 8   **VCC 12V for RS-232 Handshaking only @ 10 mA Max**
Pin 9   **ALARM 2 Normally Open (NO) Open Collector Output 12VDC @ 20mA Max**

Figure 9. RS-232 Pin Out

TCPIP232 Client Server RS485 - VSI-Pro MAX(AVE P/N:021-139-SF)

This is an RS485 cable for TCPIP232 Client Server Adapter connect to VSI-Pro MAX RJ45 Network connections for the purpose of transaction logging. Use standard CAT5 cable.
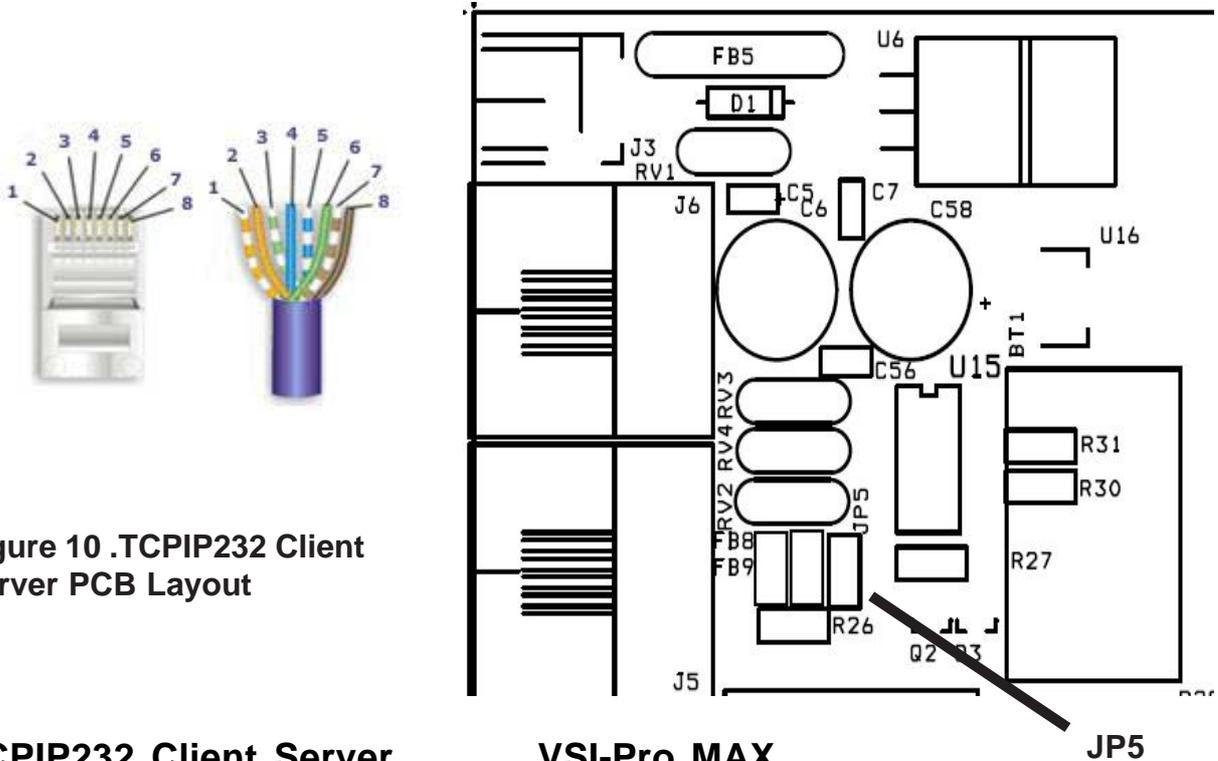

Figure 10 .TCPIP232 Client Server PCB Layout

JP5

TCPIP232 Client Server	VSI-Pro MAX
Pin-1(NC) - White/Orange ---------------------------	Pin-1(NC) - White/Orange
Pin-2(NC) - Orange ----------------------------------	Pin-2(NC) - Orange
Pin-3(NC) - White/Green -----------------------------	Pin-3(NC) - White/Green
Pin-4(+/A) - Blue ------------------------------------	Pin-4(+/A) - Blue
Pin-5(-/B) - White/Blue ------------------------------	Pin-5(-/B) - White/Blue
Pin-6(NC) - Green ------------------------------------	Pin-6(NC) - Green
Pin-7(NC) - White/Brown -----------------------------	Pin-7(NC) - White/Brown
Pin-8(NC) - Brown -----------------------------------	Pin-8(NC) - Brown

Figure 11 RS-485 RJ45 Pin Out

RS485 Termination: Open Cover of the TCPIP232 Client Server and locate JP5 in the Right Conner , Close JP5 for termination and open for unterminated. Consult the VSI-Pro Max manual for termination as well.
Note: If the RS485 port is RJ45 connector just use CAT-5 LAN cable(Straight Through)

TCPIP232 Client Server PC/DVR Cable(AVE P/N: 021-037-SF)

This is and RS232 Cable to program the IP Address on TCPIP232 and then remove and plug to the DVR to insert ASCII text on Video for stand alone application.

TCPIP232 Port DB9 Male	PC / DVR Port DB9 Female
Pin-5 (GND) ---	Pin-5(GND)
Pin-2 (RXD) ---	Pin-3(TXD)
Pin-3 (TXD) ---	Pin-2(RXD)

AVE RS485 Network Protocol

TCPIP232 Client Server is able to interface with multiple devices on AVE RS485 Network that TCPIP232 Client Server is a Master unit and connect to the Slave devices with maximum connection is 16 units.

Before connecting to the RS485 network, you must program the TCPIP232 Client Server Adapter to be the same protocol of the RS485 network so the ID will not duplicate with another devices.

The Master unit will poll to the Slave devices start ing from address 1 until 16 then poll address 1 again. Tthis is a routine for checking the information of each the Slave devices.

Regcom 9600

Master >>> Slave

The Master polls the Slave device with baudrate 9600,n,8,1 by sending <2FH(/)><Address(1-16)> to each address within 10 miliseconds if there is no response from the Slave device then the Master will poll another address. If the Master get a reply from the Slave then increase time out for getting the data within 150 miliseconds.

Slave >>> Master

After the Slave get a polling from the Master then the Slave will respond to the Master if the data is not available then the Slave send <2FH(/)><6EH(n)>. If the data is available then send <01H(SOH)><ADD-1>TEXT<0DH(CR)>

EX The Master polls the Slave address 3
Master: <2FH(/)><03H(ADD)>
If the data is not available at address 3 then
Slave: <2FH(/)><6EH(n)>
If the data is available at address 3 then
Slave: <01H(SOH)><02H(ADD-1)><4EH(N)><4FH(O)><20H(SPACE)><53H(S)>
        <41H(A)><4CH(L)><45H(E)><0DH(CR)>

Regcom 57600

Master >>> Slave

The Master polls the Slave device with baudrate 57600 Multiprocessor mode (ADD byte set Bit9 , DATA byte clear Bit9) by sending <ADD><05H(ENQ)> within 10 miliseconds if there is no response from the Slave device then the Master will poll another address. If the Master get a reply from the Slave then increase time out for getting the data within 30 miliseconds.

Slave >>> Master

After the Slave get a polling from the Master then the Slave will respond to the Master if the data is not available then the Slave send <ADD><15H(NAK)>. If the data is available then send <ADD>TEXT<0DH(CR)>

EX The Master polls the Slave address 7
Master: <07H(ADD,Bit9 =1)><05H(ENQ,Bit9 = 0)>
If the data is not available at address 7 then
Slave: <07H(ADD,Bit9 =1)><15H(NAK,Bit9 = 0)>
If the data is available at address 7 then
Slave: <07H(ADD,Bit9 =1)><4EH(N,Bit9 = 0)><4FH(O,Bit9 = 0)>
        <20H(SPACE,Bit9 = 0)><53H(S,Bit9 = 0)><41H(A,Bit9 = 0)>
        <4CH(L,Bit9 = 0)><45H(E,Bit9 = 0)><0DH(CR,Bit9 = 0)>

Vnetworker

Master >>> Slave
The Master polls the Slave device with baudrate 19200,n,8,1 by sending
<SOH><ADD(Ten)><ADD(One)><STX><ENQ><ETX> to each address within 10
miliseconds if there is no response from the Slave device then the Master will poll another
address. If the Master get a reply from the Slave then increase time out for getting the data
within 50 miliseconds.

Slave >>> Master

After the Slave get a polling from the Master then the Slave will respond to the Master if the
data is not available then the Slave send
<SOH><ADD(Ten)><ADD(One)><STX><NAK><NAK><ETX>
If the data is available then send
<SOH><ADD(Ten)><ADD(One)><STX>TEXT<BCC><ETX>
NOTE: BCC is a Block Checksum Character This is a checksum value generated by
taking the exclusive OR (XOR) of the ASCII values of all the characters transmitted after
STX that excluding SOH,ADD(Ten),ADD(One),STX and ETX.

Note: ADD(Ten) and ADD(One) are the ASCII format of the address.

EX The Master polls the Slave address 10
Master: <01H(SOH)><31H(ADD TEN)><30H(ADD ONE)><02H(STX)>
        <05H(ENQ)><03H(ETX)>
If the data is not available at address 10 then
Slave: <01H(SOH)><31H(ADD TEN)><30H(ADD ONE)><02H(STX)>
        <15H(NAK)><15H(NAK)><03H(ETX)>
If the data is available at address 10 then

Slave: <01H(SOH)><31H(ADD TEN)><30H(ADD ONE)><02H(STX)>
        <4EH(N)><4FH(O)><20H(SPACE)><53H(S)>
       <41H(A)><4CH(L)><45H(E)><0DH(CR)>
        <37H(BCC)><03H(ETX)>

LIMITED WARRANTY (Terms and Conditions)

For **2 Years** from the date of shipment, Seller warrants to Buyer that the Product is free from defects in material or workmanship **under normal use and service.** Equipment manufactured by other than Seller but furnished by Seller carries the same warranty to Buyer as Seller receives from the other manufacturer, notwithstanding any provision to the contrary. If Buyer has specified a particular manufacturer's product which is not the brand standardly supplied by Seller, Buyer shall look only to the other manufacturer's warranty and Seller shall not warrant such item.

EXCLUSIONS. Seller's warranty does not cover the following:
   (1)   In-transit damage claims, improper handling by carrier or post office (Note: only the consignee of the shipment can file a claim with the common carrier)
   (2)   Damages caused by incorrect use, modification, carelessness, improper storage, hostile operating conditions, or unauthorized service, installation or repairs without proper training from the Seller
   (3)   Damages caused by fire, flood, lightning, collision, acts of God or other events beyond the control of Seller
   (4)   Products or parts thereof that have had serial numbers removed, altered or defaced
   (5)   Products returned without an RMA number and sales or delivery receipt showing the date of original purchase
   (7)   Use of components that do not meet Seller's specifications
   (9)   External parts such as cabinets or keypads
   (10) Periodic maintenance and adjustments resulting from normal use

WARRANTIES EXCLUDED. **SELLER EXPRESSLY DISCLAIMS AND EXCLUDES ANY EXPRESS OR IMPLIED WARRANTY OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEEDS OR IS INCONSISTENT WITH THE WARRANTY HEREIN EXPRESSLY SET FORTH**.

NON-WARRANTY CLAIMS. In the event Buyer makes a warranty claim and Seller's warranty does not apply, Buyer shall reimburse Seller for all reasonable expenses incurred by Seller in diagnosing the installation/repair problem.

BUYER'S EXCLUSIVE REMEDIES. If the Product supplied shall fail to conform to the contract or any applicable warranty, Buyer shall immediately notify Seller of such condition and afford Seller a reasonable opportunity to inspect said Product. Seller shall, at its option, either repair or replace such nonconforming Product. Seller shall not be responsible for labor charges for removal or installation of such equipment or material or charges for transportation, handling and shipping except as provided in Seller's written service policy. No Product shall be returned without Seller's prior written consent.

SELLER SHALL NOT BE LIABLE FOR ANY SPECIAL, DIRECT INCIDENTAL OR CONSEQUENTIAL DAMAGES OF A COMMERCIAL NATURE ARISING OUT THE USE OF OR INABILITY TO USE SELLER'S PRODUCT BY REASON OF THE FACT THAT SUCH PRODUCT DOES NOT CONFORM TO THE CONTRACT OR TO ANY EXPRESS OR IMPLIED WARRANTY. SELLER'S MAXIMUM LIABILITY SHALL BE LIMITED TO THE COST OF REPAIR AND/OR REPLACEMENT OF THE PRODUCT CLAIMED TO BE DEFECTIVE OR NONCONFORMING, SUBJECT TO SELLER'S RIGHT OF REMOVAL AND RETURN OF PRODUCT.

All of the foregoing constitute Buyer's sole and exclusive remedy and Seller's sole and exclusive liability for supplying nonconforming or defective Product.

RETURNS. AVE products are fully inspected and carefully packed to ensure you are delivered a quality product in good condition. If you are not fully satisfied with our product, returns of standard stocking items with no restocking fee can be made within thirty (30) days of invoice to Buyer. All such returns must have prior consent of Seller by obtaining an RMA number and must include the sales or delivery receipt showing the date of original purchase and be in an unused condition contained in its original packaging. Any other returns must have prior written consent of Seller and are subject to a restocking fee of fifteen percent (15%) and freight charges.

RMA NUMBER. The RMA (Return Material Authorization) number must be obtained by contacting Seller prior to the shipment of the the product for return. The RMA number is valid only for 15 days from the date of issue. The RMA number must be clearly displayed on all shipping labels.

NOTES:

AVE

AMERICAN VIDEO EQUIPMENT

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