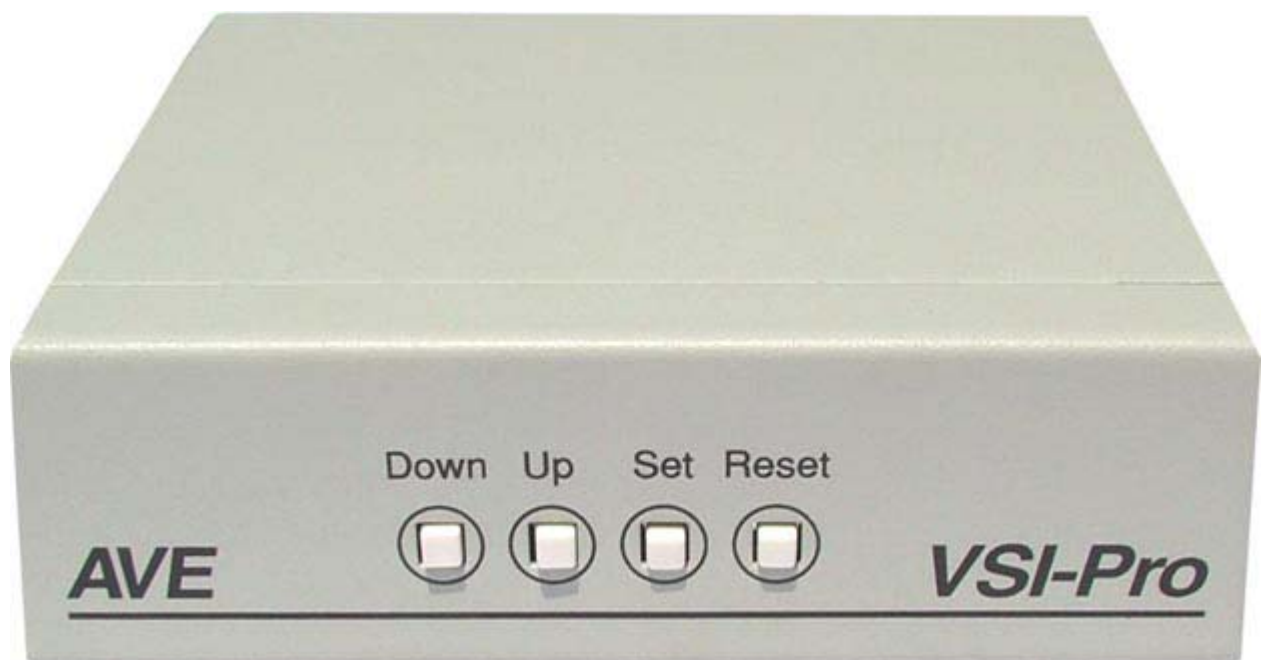# VSI-Pro RADAR

Version 13

Radar / Laser Speed Gun / GPS Magnetic Card / Alcohol Meter Interface

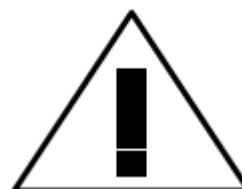Operation Manual

November 2010

VSI-Pro Radar

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 ACCORDANCE WITH THE INSTRUCTION MANUAL MAY CAUSE INTERFERENCE TO RADIO COMMUNICATIONS. IT HAS BEEN TESTED AND FOUND TO COMPLY WITH THE LIMITS FOR A CLASS A COMPUTING DEVICE PURSUANT TO SUBPART J OF PART 15 OF FCC RULES, WHICH ARE DESIGNED TO PROVIDE REASONABLE PROTECTION 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 REQUIRED TO TAKE WHATEVER MEASURES MAY BE REQUIRED TO CORRECT THE INTERFERENCE.

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1. INTRODUCTION

The Video Serial Interface (VSI-Pro) allows characters to be inserted into any video source via an RS-232 / RS-422 / RS-485 link. This allows Radar or Laser Speed Guns, GPS or Alcohol Meters or any RS-232 / RS-485 / RS-422 communicating device to display alpha-numerics in the video picture of any CCTV system. Simple front panel push-buttons allow the user to simply program all functions and features of the VSI-Pro. This includes characters position, gray scale and a wide variety text processing function including exceptions and alarming features.

The VSI-Pro Radar can be used to trigger switchers, time lapse VCRs, DVRs, remote transmission devices or other alarming devices via the 2 hardwired open collector alarm outputs.

The VSI-Pro Radar also has an additional RS-232 output that can send the formated ASCII text to a DVR that can store the data as an electronic file in addition to inserted in the actual video image.

The Exception Processor of the VSI-Pro Radar provides the intelligence to monitor the data stream and alarm or notify is the speed higher than the legal limit, any data has changed, a vessel has arrived at the proper latitude or longitude or a suspect blood alcohol is above the legal limit. When used with a compatible DVR, the VSI-Pro Radar will command the DVR to automatically search to the transaction in question for instant review of the recorded video.

The AVE line of VSI-Pro is fully networkable with our "Networker", "Vnetworker", "Hydra" and "Regcom" line of products. These device connect to the VSI-Pro directly and communicate back via an RS-485 network to the central location. The Hydra is used to convert this RS-485 network to be compatible with many models of DVRs while the other devices connect at the device end. PC Windows-based software can also be used as the controller of this network and store data files for up to 64 units for remote viewing or downloading to produce reports for management.

The VSI-Pro Radar is fully remotely downloadable and uploadable from one VSI-Pro Radar to another VSI-Pro Radars by Download/Upload data cable. This is mainly used for dealer maintanence or for single station user programming. The Vnetworker allows the ability to remotely program up to 16 VSI-Pro Radars with our VNetworker PC based Software which allows all the features of the Networker plus remote programming and setup.

Firmware is also downloadable in the field with our Firmware Download Function so new updates and features can be easily passed to customers without changing EPROMs or opening the unit.

VSI / VSI+ / VSI-Pro Backward Compatibility

Since 1990 various versions of the VSI have been on the market solving all kinds of data logging and detection problems. Several special version are available to interface to other RS-232 devices like GPS Interface, RADAR Gun,LASER Gun, Alcohol Meter along with other generic RS-232 devices. The first VSI, Version 9 had no exception processing until the release of Version 10. However these versions had the ability to output the data so are compatible with the Regcom line of networking adapters. As features increased we moved to the VSI+ Version 11, which had the first powerful set of exception processing and printing functions. This version also had hardware handshaking capability which allows it to be fully operational with the Networker and Regcom line. The introduction of the VSI-Pro Radar Version 12 added on-screen selection of various model registers for ease of installation and supported many characters sizes for multiple units to display data on one camera view. This version also supports the Networker and Regcom products. The current VSI-Pro Radar Version 13.14 has improved features and additional units. All Version 13.14 VSI-Pro Radar support the Networker and Regcom products. All Version 13.14 can be upgraded to the latest Release 11. This latest software adds Firmware update externally and Vnetworker support along with Networker and Regcom compatibility.

Contact the AVE factory for additional details on upgrading and networking with any DVR or learn about the advanced features when integrated with the AVE line of text insertion and search DVRs locally or remotely.

2. FEATURES & SPECIFICATIONS

2.1 FEATURES

............All popular GPS Data Formats NEMA0183, AIR, NORTHM2
............All popular Speed Radar Units, Decatur, MPH, Kustom, Stalker, Targetron, Tribar, Municipal
............All popular Speed Laser Units, LTI, Laser Atlanta, Stalker, Kustom
............Intoxilyzer and Alcolmeter Alcohol Meters
............Magnetic Card Readers
............User selectable hardware communications example Magnetic Card

> RS-232C
> RS-485 / RS-422
> Passive tap (Hi-Z)

............Serial output of all data or exceptions to printers, computers, modems and DVRs
............Cross Hair Programmable for vehicle targeting
............Programmable time-stamp on exception output
............Time/Date Searchng with Compatible DVR
............Universal time/date format
............100 lines exception history buffer
............16 triggered text associated with 16 alarms
............Large data buffers for input/output to accommodate newer, faster registers
............2 built-in alarm outputs
............Powerful data filtering algorithms
............Easy on-screen menu-driven setup and programming
............Auto baud rate detection
............24 field programmable exceptions with numeric range
............On-screen flagging of exceptions with asterisk or reverse text
............Programmable alarm outputs.
............Alarm input for drawer open, safe open, etc.
............Programmable delayed screen blanking
............Choice of 1 to 11 lines displayed on-screen
............On-screen titler up to 40 characters
............Gray scale and border selection from front panel
............Built-in test mode
............Built-in Radar Gun demo
............Upload/download programming to another VSI-Pro Radar
............Data captured either to the memory or to the serial port
............Local Firmware Downloadable
............Supports Hydra/Regcom/Networker/Vnetworker networking communications products

Figure 1: Front of VSI-Pro Radar

VSI-Pro Radar Interface

2.2 SPECIFICATIONS

Video In (BNC)	1V P-P Terminated 75 ohms +/- 20%
Video Out (BNC)	1V P-P Terminated or Unterminated
Video S / N	better than 50dB
Video B / W	better than 7MHz

Power (DC Coax 2.1mmx5.5mm)	9-12VDC 170mA
Battery Backup NiMH	1 year with 24 hour charge

Serial Port

(DB-9 Female)	RS-232C	RS-485 / RS-422	PassiveHi-Z
	RXD - Pin 2	A - Pin 4	RXD - Pin 2
	TXD - Pin 3	B - Pin 6	TXD - Pin 3
	GND - Pin 5	GND - Pin 5	GND - Pin 5

Baud Rate	AUTO, 135, 150, 300, 600, 1200, 2400, 4800, 9600, 19.2K, 28.8K, and 38.4K
Word Length	7 or 8
Parity	ODD, EVEN, NONE
Stop Bits	1
RTS / CTS Handshaking	ON or OFF 3.3K Pull Up
DTR / DSR	3.3K Pull Up
Data Buffer	32K bytes

Alarm Outputs Pin 1 & 9	Open Collector 12VDC @ 20mA

Real Time Clock	12 or 24 Hr with Auto Daylight Savings Time Programmable
Date Format	MM/DD/YY, DD/MM/YY, YY/MM/DD Julian Calendar

Display Characters	40
Number of Lines	1-11
Character Gray Scale	8 levels of Gray
Matte Character Border	8 levels of Gray

Screen Update Delay .5s	ON or OFF
Auto Scolling from last line	
Line Processing	Compress, Truncate, Left Justify
DVR Support	MVDR2000, 3000, 4000, 5000
	DMS-3001, DVR-3011, DVR-3021

Watchdog Timer Hardware and Software
Local Firmware Downloading
History Buffer Downloadable / Searchable

Temperature Rating	0 - 50 degrees Celsius
	32 - 122 degrees Fahrenheit
Humidity	Non-Condensing 85% RH
Weight	0.68 Kg or 1.5 lbs
Metal Enclosure Beige	130L x 127W x 38H (mm)
	5.12L x 5W x 1.5H (in)
Maximum Size with Connectors	145L x 127W x 43H (mm)
	5.7L x 5W x 1.7H (in)
Packed in White Box with Manual	1.02 Kg or 2.26 lbs
	340L x 190W x 85H (mm)
	13.4L x 86.2W x 3.35H (in)

VSI-Pro Radar Interface

3. CONNECTIONS

The VSI-Pro Radar will overlay the characters on any input video source. The video input can be virtually any baseband or composite video source. The VSI-Pro Radar will accept NTSC, RS-170, RS-330, CCIR, PAL or SECAM video formats.

The Video input to the VSI-Pro Radar is a standard BNC connector, terminated at 75 [ohms].

> ### NOTE ✍
>
> **The input video level must be 1[V] Peak to Peak. If this level is not maintained within +/- 20%, the VSI-Pro Radar will have difficulty locking the character display over the input video source.**

After completing the interface installation as described in the separate Installation Guide for your specific cash register,computer, radar gun or other serial device, connect the video input source to the video input BNC on the rear of the VSI-Pro Radar. The BNC video output goes out to the video system (VCR, DVR, quad, switcher, multiplexer, or monitor). This connection is shown in Figure 3. The video output from the VSI-Pro Radar is 1[V] Peak to Peak into a 75 [ohm] load. Most monitors or televisions with direct video inputs are terminated with a 75 ohm load. If the monitor is not terminated, the VSI-Pro Radar will still output 1[V] Peak to Peak. The VSI-Pro Radar will be able to drive two terminated loads without loss of video level.

> ### NOTE ✍
>
> **The VSI-Pro Radar will not enter the programming mode unless it is connected to a video source.**

VSI-Pro Radar recommended power supply is a 9-12 VDC @300 [mA] UL/CSA power supply which must be plugged into the Power input on the VSI-Pro Radar's Rear Panel.

Figure 2: VSI-Pro Radar Rear Panel

Serial Input   Power   Video Input   Video Output
Figure 3: VSI-Pro Radar Cable Connections

VSI-Pro Radar Interface

PIN #	FUNCTION	DIRECTION
1	Alarm Out 1	Open Collector Transisitor
2	Receive Data	To VSI-Pro Radar
3	Transmit Data	From VSI-Pro Radar
4	DTR	From VSI-Pro Radar (Remain High)
5	Ground	
6	DSR	From VSI-Pro Radar (Stay High)
7	RTS (Alarm In)	To VSI-Pro Radar
8	CTS	From VSI-Pro Radar
9	Alarm Out 2	Open Collector Transistor

**Table 1: Pin-Out of the DB-9 Female Connector on the VSI-Pro Radar RS-232**

3.1 RS-232 SERIAL INPUT

The VSI-Pro Radar accepts serial data via the DB-9 female connector located on the rear of VSI-Pro Radar. This connector is similar to "AT" type computer RS232 serial ports and the pin out is identical. Table 1 shows the standard pin out for VSI-Pro RS-232 female connector. On the other hand Table 2 compares the VSI-Pro Radar RS-232 with standard "AT" computer's RS-232 connector.

PIN #	SIGNAL NAME (RS232)	VSI-Pro Radar
1	CD (Carrier Detect)	Alarm Out 1
2	RxD (Recieve Data)	RxD
3	TxD (Transmit Data)	TxD
4	DTR (Data Terminal Ready)	Aways True
5	SG (Signal Control)	GND
6	DSR (Data Set Ready)	Aways True
7	RTS (Request to Send)	CTS (Option)
8	CTS (Clear to Send)	RTS (Option)
9	RI (Ring Indicator)	Alarm Out 2

Table 2: RS-232 DB-9 Pin-Out vs VSI-Pro Radar DB-9 Pin-Out

VSI-Pro Radar Interface

CONNECTIONS

PIN #	FUNCTION	DIRECTION
1	Alarm Out 1	Open Collector Transisitor
2	No Function	No Function
3	TXD RS-232	From VSI-Pro Radar
4	RS-485 A Data	To VSI-Pro Radar
5	Ground	
6	RS-485 B Data	To VSI-Pro Radar
7	RTS (Alarm In)	To VSI-Pro Radar
8	CTS	From VSI-Pro Radar
9	Alarm Out 2	Open Collector Transistor

Table 3: Pin-Out of the DB-9 Female Connector on the VSI-Pro Radar RS-422 / RS-485
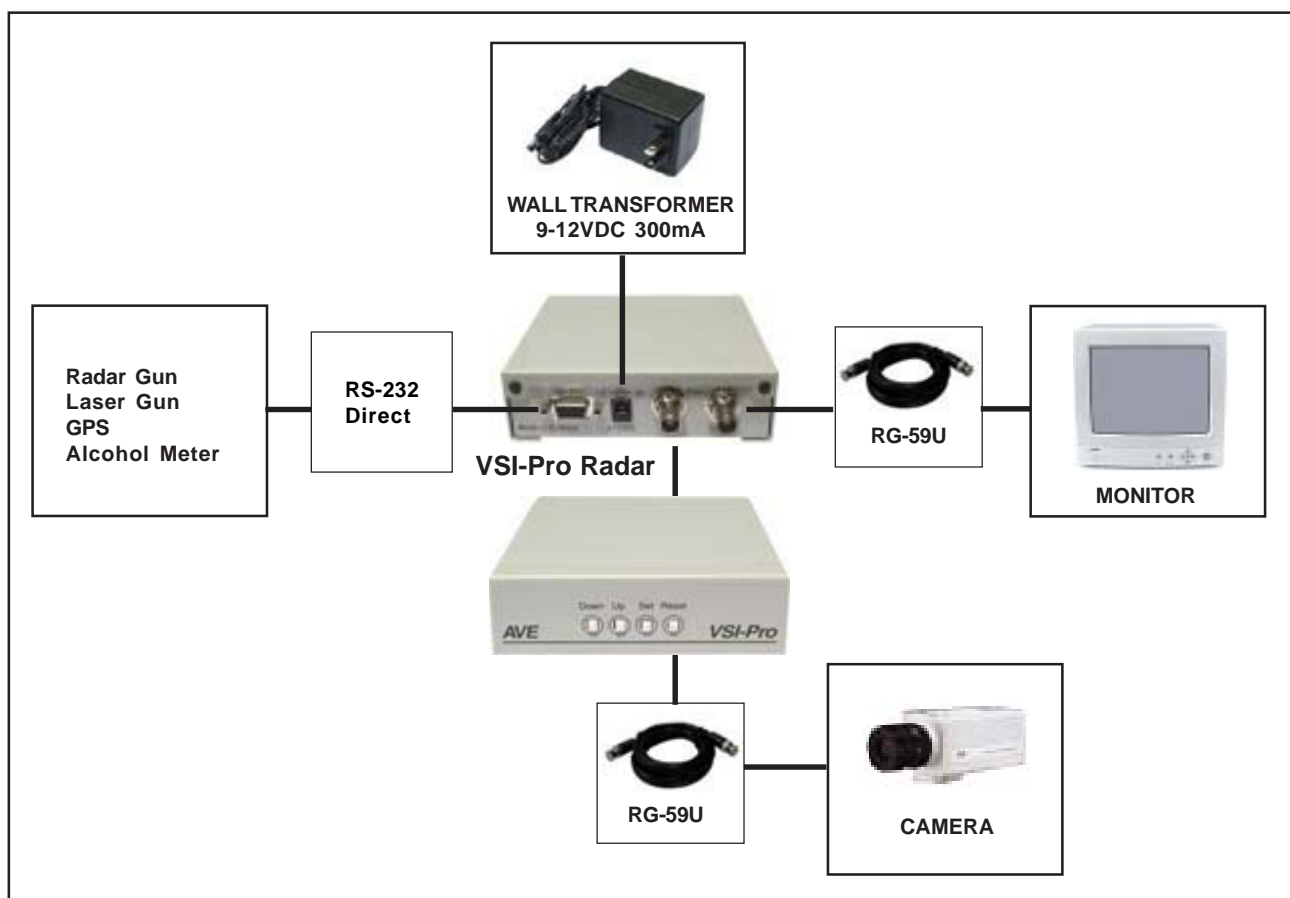
Figure 4: VSI-Pro Radar Connections

4. USER FRONT PANEL CONTROLS

The VSI-Pro Radar is programmed by pressing and releasing specific combinations of the four front panel push button.Via these four simple buttons, all of the powerful programming features of the Text Inserter are available. A video source and a monitor must be connected in order to see the programming menus.
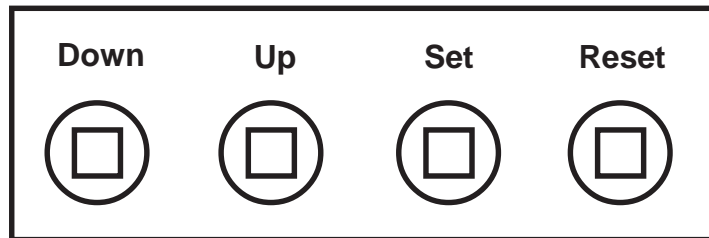
Figure 5: Four Front Pannel Push Buttons of VSI-Pro Radar

4.1 FRONT PANEL CONTROLS

The front panel controls are provided to allow simple changing of the display's vertical and horizontal position and the gray scale or border. This eliminates the need of the user to enter the main menu and inadvertently change important programming setups.

Changing the Gray Scale
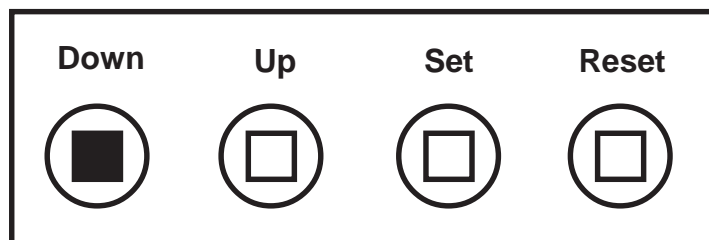
Figure 6: Four Front Pannel Push Buttons of VSI-Pro Radar (Down)

1) Press and hold the "Down" button.
2) Press and release the "Reset" button.
3) Release the "Down" button.
4) Press "Down" or "Up" to select the Gray Scale.
5) When choice is made, press and release the "Set" button.

VSI-Pro Radar Interface

USER FRONT PANEL CONTROLS
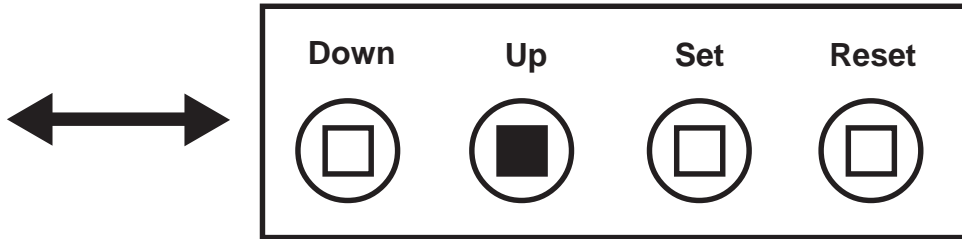
Changing the Horizontal Position

Figure 7: Four Front Pannel Push Buttons of VSI-Pro Radar (Up)

1. Press and hold the "Up" button.
2. Press and release the "Reset" button.
3. Release the "Up" button.
4. Press "Down" or "Up" to move the text block.
5. When the choice is made, press and release the "Set" button.

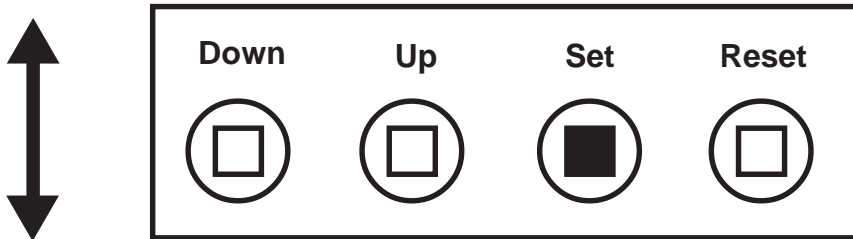### *Changing the Vertical Position*

Figure 8: Four Front Pannel Push Buttons of VSI-Pro Radar (Set)

1) Press and hold the "Set" button.
2) Press and release the "Reset" button.
3) Release the "Set" button.
4) Press "Down" or "Up" to move the text block.
5) When the choice is made, press and release the "Set" button.

5.1 GETTING STARTED

To access the main-menu of the VSI-Pro Radar, simultaneously hold down the "Down" & "Up" buttons and press and release the "Reset" button and then release the "Down" & "Up" buttons. This will take you to the main programming menu. To navigate through this menu, simply use the "Down" and "Up" buttons to position the cursor in front of the desired function, then press "Set" to access that function.

If you have difficulty entering the main-menu, try the following procedure exactly. With your left thumb, lightly press and hold in the two buttons to the left (Up & Down). While holding down these buttons, press and release the "Reset" button with your right thumb. Then release the other buttons.

NOTE ✍

If a sub-menu has an "EXIT" selection, always go there and press "Set". Pressing "Reset" at the main-menu exits you from the programming mode.

5.2 MAIN PROGRAMMING MENU

Following is a detailed description of the menu selections and the programming capabilities of the VSI-Pro Radar.

```
⦿ DEVICE SELECT
○ SCREEN SETUP
○ TEXT DISPLAY
○ COMMUNICATION
○ EXCEPTION REPORT
○ ALARM OUTPUTS
○ TEST/DEMO MODE
○ DOWNLOAD/UPLOAD SETUP
○ HELP
```
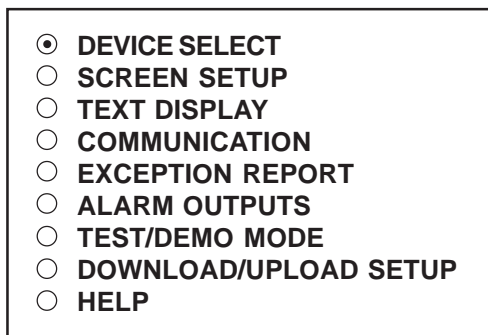
Figure 9: VSI-Pro Radar Main-Menu

5.3 DEVICE SELECT

To select a specific device, press the "Up" or "Down" button to move the cursor to "DEVICE SELECT" and press "Set". The DEVICE SELECT menu will bring up a sub-menu consisting of devices shown in Figure 10. You can go to the next or previous page by placing the cursor in front of "NEXT" or "PREVIOUS" and then pressing "Set". To select the desired device, press the "Up" or "Down" button to move the cursor to that device and press "Set". After selecting the device, exit out of the DEVICE SELECT menu by pressing the "Up" or "Down" button to move the cursor to "EXIT" and then pressing "Set". In the main-menu, press "Reset" to activate the programing for that specific device. DEVICE SELECT automatically formats the VSI-Pro Radar to match your device's communication settings. However, if you need to change these settings, you can do so through the COMMUNICATION menu described later in this manual.

NOTE ✍

Whenever you select a device in this menu, certain programming features are reset to the default settings. Always set the device selection first, get the data on-screen, then proceed with additional programming.

PROGRAMMING

VSI-Pro Radar

Press the "Up" or "Down" button to move the cursor to "DEVICE SELECT" and press "Set". The DEVICE SELECT menu will appear:

```
  ◉  GENERIC
  ○  GPS INTERFACE
  ○  RADAR GUN
  ○  LASER GUN
  ○  ALCOHOL METER
  ○  CARD READER
  ○  EXIT
```

Figure 10: DEVICE SELECT Sub-Menu

Press the "Up" or "Down" button to move the cursor to "GENERIC" and press "Set" to select, The Generic mode has no filter or driver but simply displays all the printable ASCII characters sent to the VSI-Pro Radar. If you are testing a new device use this setting first to verify data and then select the appropriate driver.

GPS INTERFACE

Press the "Up" or "Down" button to move the cursor to "GPS INTERFACE" and press "Set". The GPS INTERFACE menu will appear:

```
  ◉  FORMAT        NEMA0183
  ○  TIME          ON
  ○  DATE          ON
  ○  SPEED         KNOT
  ○  DIRECTION     ON
  ○  EXIT
```

Figure 11: GPS INTERFACE Sub-Menu

FORMAT

Choices: NEM0183, AIR, NORTHM2

Chooses one of the three available formats. Press the "Up" or "Down" button to move the cursor to " FORMAT" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between formats and press "Set" when the desired format is displayed.

TIME / DATE / DIRECTION

Choices: ON, OFF

Turns the Time/Date/Direction on or off. Press the "Up" or "Down" button to move the cursor to "TIME" or "DATE" or "DIRECTION" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between "ON" or "OFF" and press "Set" when the desired value is displayed.

SPEED

Choices: KNOT, KPH, MPH

Chooses one of the three available unit of speed. Press the "Up" or "Down" button to move the cursor to " SPEED" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between unit of speed and press "Set" when the desired unit of speed is displayed.

RADAR GUN

Press the "Up" or "Down" button to move the cursor to "RADAR GUN" and press "Set". The following menu options will apprear.

```
  ◉  DECATUR
  ○  KUSTOM
  ○  MPH PHYTHON
  ○  MPH Z35
  ○  MUNICIPAL TS-4
  ○  RG2RS
  ○  ----------------NEXT PAGE
  ○  EXIT
```

Figure 12: Radar Gun Sub-Menu Page 1

```
  ◉  -----------PREVIOUS PAGE
  ○  STALKER DUAL SL
  ○  STALKER SPORT
  ○  STALKER ATR
  ○  STALKER II SDR
  ○  TARGETRON RAPID FIRE
  ○  TRIBAR MUNI QUIP
  ○  EXIT
```

Figure 13: Radar Gun Sub-Menu Page 2

DECATUR

Press the "Up" or "Down" button to move the cursor to "DECATUR" and press "Set". The DECATUR menu will appear:

```
  ◉  GENESYS I/II
  ○  HUNTER
```

Figure 14: DECATUR Sub-Menu

Note that when selecting the Hunter model this requires a special TTL Mod adapter for inside the VSI-Pro Radar. Please contact the factory for further information.

Press the "Up" or "Down" button to move the cursor to "GENESYS I/II" or "HUNTER" and press "Set" to select and back to previous menu.

VSI-Pro Radar Interface

KUSTOM

Press the "Up" or "Down" button to move the cursor to "KUSTOM" and press "Set". The KUSTOM menu will appear:

```
⊙  GOLDEN EAGLE
○  KUSTOM ICFT
```

Figure 15: KUSTOM Sub-Menu

Note that Kustom Signals has many versions of software for RS-232 output of their radar guns. Particularly they encode the data so the customer can not use with 3rd party video systems. Contact Kustom to obtain the proper generic software version for your radar gun.

Press the "Up" or "Down" button to move the cursor to "GOLDEN EAGLE" or "KUSTOM ICFT" and press "Set" to select and back to previous menu.

MPH PHYTHON

Press the "Up" or "Down" button to move the cursor to "MPH PHYTHON" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit.

MPH Z35

Press the "Up" or "Down" button to move the cursor to "MPH Z35" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit.

MUNICIPAL TS-4

Press the "Up" or "Down" button to move the cursor to "MUNICIPAL TS-4" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit.

RG2RS

Press the "Up" or "Down" button to move the cursor to "RG2RS" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this device.

The RG2RS is an AVE additional adapter that allows interfacing to older radar guns via remote display and other special protocols prior to the common RS-232.

STALKER II SDR

Press the "Up" or "Down" button to move the cursor to "STALKER II SDR" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit.

STALKER DUAL SL

Press the "Up" or "Down" button to move the cursor to "STALKER DUAL SL" and press "Set". The STALKER DUAL SL menu will will appear:
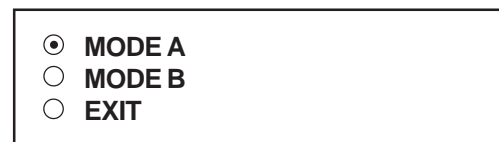
```
⊙  MODE A
○  MODE B
○  EXIT
```

Figure 16: STALKER DUAL SL Sub-Menu

Press the "Up" or "Down" button to move the cursor to "MODE A" or "MODE B" and press "Set" to select and then press the "Up" or "Down" button to move the cursor to "EXIT" and press "Set" then back to previous menu.

STALKER SPORT

Press the "Up" or "Down" button to move the cursor to "STALKER SPORT" and press "Set". The STALKER SPORT menu will will appear:

```
⊙  MODE A
○  MODE B
○  EXIT
```

Figure 17: STALKER SPORT Sub-Menu

Press the "Up" or "Down" button to move the cursor to "MODE A" or "MODE B" and press "Set" to select and then press the "Up" or "Down" button to move the cursor to "EXIT" and press "Set" then back to previous menu.

STALKER ATR

Press the "Up" or "Down" button to move the cursor to "STALKER ATR" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit.

The STALKER ATR either requires the RG2RS adpater or is supported by the VSI-Pro Mini RG which only available in PCB form or is an integral part of the Portable Radar Set.

TARGETRON RAPID FIRE

Press the "Up" or "Down" button to move the cursor to "TARGETRON RAPID FIRE" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit.

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TRIBAR MUNI QUIP

Press the "Up" or "Down" button to move the cursor to "TRIBAR MUNI QUIP" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit.

LASER GUN

Press the "Up" or "Down" button to move the cursor to "LASER GUN" and press "Set". The LASER GUN menu will appear:

```
⊙ LTI20-20
○ LASER ATLANTA
○ STALKER LIDAR FORMAT6
```

Figure 18: LASER GUN Sub-Menu

LTI20-20

Press the "Up" or "Down" button to move the cursor to "LTI20-20" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit and back to previous menu.

LASER ATLANTA

Press the "Up" or "Down" button to move the cursor to "LASER ATLANTA" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit and back to previous menu.

STALKER LIDAR FORMAT6

Press the "Up" or "Down" button to move the cursor to "STALKER LIDAR FORMAT6" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit and back to previous menu.

ALCOHOL METER

Press the "Up" or "Down" button to move the cursor to "ALCOHOL METER" and press "Set". The ALCOHOL METER menu will appear:
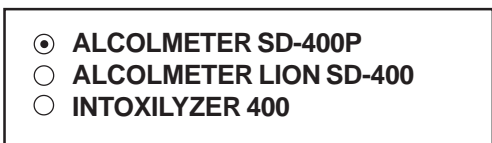
```
⊙ ALCOLMETER SD-400P
○ ALCOLMETER LION SD-400
○ INTOXILYZER 400
```

Figure 19: ALCOHOL METER Sub-Menu

ALCOLMETER SD-400P

Press the "Up" or "Down" button to move the cursor to "ALCOLMETER SD-400P" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit and back to previous menu.

ALCOLMETER LION SD-400

Press the "Up" or "Down" button to move the cursor to "ALCOLMETER LION SD-400" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit and back to previous menu.

INTOXILYZER 400

Press the "Up" or "Down" button to move the cursor to "INTOXILYZER" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit and back to previous menu.

CARD READER

Press the "Up" or "Down" button to move the cursor to "CARD READER" and press "Set". No menu will apprear and merely sets the VSI-Pro Radar to support this unit.

VSI-Pro Radar Interface

5.4 SCREEN SETUP

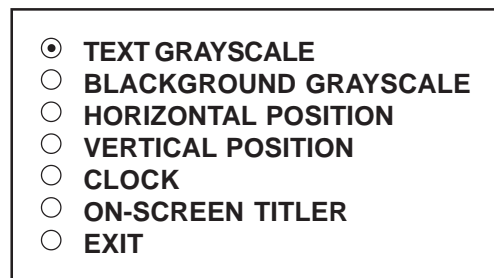Press the "Up" or "Down" button to move the cursor to "SCREEN SETUP" and press "Set". The following menu will appear:

```
┌─────────────────────────────────────┐
│   ⦿  TEXT GRAYSCALE                  │
│   ○  BLACKGROUND GRAYSCALE           │
│   ○  HORIZONTAL POSITION             │
│   ○  VERTICAL POSITION               │
│   ○  CLOCK                           │
│   ○  ON-SCREEN TITLER                │
│   ○  EXIT                            │
└─────────────────────────────────────┘
```

Figure 20: SCREEN SETUP Sub-Menu

TEXT GRAYSCALE

To change the display border and/or the grayscale of the text on screen, press the "Up" or "Down" button to move the cursor to "TEXT GRAYSCALE" and press "Set". Cycle through the selections by pressing the "Up" or "Down" buttons. There are 10 settings to choose from. Make your selection and press "Set" to return to the previous menu.

BACKGROUND GRAYSCALE

To change the display border and/or the grayscale of the text on screen, press the "Up" or "Down" button to move the cursor to "BACKGROUND GRAY SCALE" and press "Set". Cycle through the selections by pressing the "Up" or "Down" buttons. There are 10 settings to choose from. Make your selection and press "Set" to return to the previous menu.

HORIZONTAL POSITION

To change the horizontal position of the inserted text on-screen, press the "Up" or "Down" button to move the cursor to "HORIZONTAL POSITON" and press "Set". Press the "Up" or "Down" buttons to move the text to the desired horizontal position.

VERTICAL POSITION

To change the vertical position of the inserted text on-screen, press the "Up" or "Down" button to move the cursor to "VERTICAL POSITION" and press "Set". Press the "Up" or "Down" buttons to move the text to the desired vertical position.

┌───┐
│ *NOTE* 🖎   │
│   │
│ *Upon powering up for the first time or when the battery becomes   │
│ depleted, the on-screen Time / Date display may be incorrect or   │
│ have unreadable characters. If this is the case, enter the clock   │
│ menu and "Reset Time / Date". The Time / Date will then show   │
│ readeable characters and be unaffected by a Master Reset.*   │
└───┘

CLOCK

To program the clock's functions, press the "Up" or "Down" button to move the cursor to "CLOCK" and press "Set". The following menu will appear:

```
  ⊙ T/D DISPLAY              ON
  ○ TIME FORMAT          12 HOUR
  ○ DATE FORMAT         MM/DD/YY
  ○ DAYLIGHT SAVING    DISABLED
  ○ SET TIME / DATE
  ○ RESET TIME / DATE
  ○ T/D LOCKING             ON
  ○ EXIT
```

Figure 21: CLOCK Sub-Menu

T/D DISPLAY turns the time/date display on or off. Press the "Up" or "Down" button to move the cursor to "T/D DISPLAY" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between "ON" or "OFF" and press "Set" when the desired value is displayed.

TIME DISPLAY selects either 12-hour AM/PM or 24-hour Military Time format with AM/PM. Press the "Up" or "Down" button to move the cursor to "TIME DISPLAY" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between time formats and press "Set" when the desired format is displayed.

DATE FORMAT chooses one of the three available formats. Press the "Up" or "Down" button to move the cursor to "DATE FORMAT" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between date formats and press "Set" when the desired format is displayed.

DAYLIGHT SAVING selects, for example, USA, Canada, UK, Australia, Tasmania or is disabled. Press the "Up" or "Down" button to move the cursor to "DAYLIGHT SAVING" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between values and press "Set" when the desired value is displayed.

SET TIME/DATE sets the clock manually. Press the "Up" or "Down" button to move the cursor to "SET TIME/DATE" and press "Set". The time/date will appear and the cursor will start flashing. Press the "Up" and "Down" button to change the value and press "Set" when the desired value is displayed. The value is selected and the cursor will advance to the next position. When the desired time/date is displayed, press the "Up" and "Down" buttons simultaneously to enter the time/date into memory and return to the previous menu.

RESET TIME/DATE resets the clock to the default value. Press the "Up" or "Down" button to move the cursor to "RESET TIME/DATE" and press "Set" to reset the time/date.

T/D LOCKING turns the time/date locking on or off. If the time/date locking is turned on, make sure that the time and date format selected is the same as the ATM time and date format. Press the "Up" or "Down" button to move the cursor to "T/D LOCKING" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between "ON" or "OFF" and press "Set" when the desired value is displayed.

If the T/D LOCKING is turned on, make sure that the time format selected is the same as the register's time/date format. If the T/D LOCKING is turned on, the VSI-Pro will monitor the incoming data string. If it finds a valid time and date in one or two consecutive lines, it will set the clock to whatever time/date it finds. A valid time has the following formats:

> HH:MM, HH:MM:ss
> HH:MM AM, HH:mm:ss AM
> HH:MM PM, HH:MM:ss PM

where hh is a number between 0 and 12 (24 if either AM or PM not present)
A valid date has the same format as for date display and has either "/" or "-" as a separator.

ON-SCREEN TITLER

Press the "Up" or "Down" button to move the cursor to "ON-SCREEN TITLER" and press "Set". The following menu will appear:

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```
 ⊙  TITLER              OFF
 ○  TITLE


 ○  EXIT
```

Figure 22: ON-SCREEN TITLER Sub-Menu

TITLER

To change the status of the on-screen titler, press the "Up" or "Down" button to move the cursor to "TITLER" and press "Set". The cursor will start flashing. Select either "ON" or "OFF" by pressing the "Up" or "Down" button. After making a selection, press "Set". This will return the cursor to the non-flashing mode. Now select "EXIT" to return to the previous menu.

TITLE

The VSI-Pro Radar gives you the option of a 40-character display for easy unit identification in addition to the actual unit transaction data.

To create a title, press the "Up" or "Down" button to move the cursor to "TITLE" and press "Set". You will see a row of 40 boxes and the first box will be flashing.

To change the character in the first position, press the "Up" or "Down" buttons to cycle through the alpha-numeric selections from the following list of available characters.

ABCDEFGHIJKLMNOPQRSTUVWXYZ
abcdefghijklmnopqrstuvwxyz =:.+-*/9876543210

The solid white box is used for a blank space. Make your selection and press "Set". This will advance to the next block, repeat until you have entered the desired title. When finished, simultaneously press and release the "Down" & "Up" buttons to enter your title into memory. The white boxes will disappear and your title will be displayed as it will appear on-screen. Press the "Up" or "Down" button to move the cursor to "EXIT" and press "Set" to return to the previous menu.

> **NOTE** ✍
>
> *Remember, enabling the TITLE will limit text insertions to 10 lines maximum.*

EXIT

Press the "Up" or "Down" button to move the cursor to "EXIT" and press "Set" to return to the previous menu.

5.5 TEXT DISPLAY

This menu will give you more control over the actual text block formatting and its appearance on the screen. To access the menu, press the "Up" or "Down" button to move the cursor to "TEXT DISPLAY" and press "Set". The following sub-menu will appear:

```
 ⊙  SCREEN BLANK         20
 ○  DISPLAY LINES        10
 ○  DISPLAY FORMAT       TOP
 ○  LINE COMPRESS        OFF
 ○  SPACE COMPRESS       OFF
 ○  LEFT JUSTIFIED       OFF
 ○  SCROLL DELAY         OFF
 ○  DISPLAY              ON
 ○  CROSS HAIR
 ○  EXIT
```

Figure 23: Text Display Sub-Menu

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SCREEN BLANK

Choices: NONE, 6, 12, 20, 30, 60, 120, 180, 300

This is the amount of time that the VSI-Pro Radar text display will remain on-screen after data sent before blanking itself off (not the video picture, just the radar data) until the next transaction.

To change the SCREEN BLANK setting, press the "Up" or "Down" button to move the cursor to "SCREEN BLANK" and press "SET". The cursor will begin flashing. Press the "Up" or "Down" buttons to cycle through the selections. Press "Set" when the desired time is displayed. The cursor will stop flashing and you may continue programming.

> *NOTE* ✍ ***Choosing "NONE" means No Blanking. The VSI-Pro Radar will display the last transaction until a new transaction is performed.***

DISPLAY LINES

You have the choice of how many lines of text to display on-screen for register transactions. The choices are up to 11 lines.

To change the DISPLAY LINES setting, press the "Up" or "Down" button to move the cursor to "DISPLAY LINES" and press "Set". The cursor will begin flashing. Press the "Up" or "Down" buttons to cycle through the selections. Press "Set" when the desired number is displayed. The cursor will stop flashing and you may continue programming.

> *NOTE* ✍
>
> ***All register transaction data will scroll up regardless of the number of lines you choose to display on-screen and the more lines you display on-screen, the greater the amount of time that the transaction data will be recorded. However, some applications may limit the number of lines and the size of the on-screen display.***

> *NOTE* ✍ ***If you are using an on-screen title, it will occupy Line 1, leaving 10 lines for the text insertion. If you enable the on-screen Time/Date then this takes one additional line also.***

DISPLAY FORMAT

If "TOP" is selected which is the default, the data scrolls from the top most line down to the selected number of lines displayed. "T/D" and/or "TITLE" is displayed at the top of the screen. If "BOTTOM" is selected then the data scrolls up from the bottom most line to the top of the screen and "T/D" and/or "TITLE" is displayed at the bottom of the screen.

LINE COMPRESS

The VSI-Pro Radar automatically compresses the spaces in a line first as it reaches 40 characters. With LINE COMPRESS "ON", the VSI-Pro Radar will additionally remove multiple spaces and then vowels from the text to further compress the display as necessary.

To make this selection, position the arrow in front of "LINE COMPRESS" and press and release "Set". The arrow will start flashing. Cycle through "ON" or "OFF" by pressing either the "Up" or "Down" button, and press "Set" when your choice is displayed. The cursor will stop flashing and you can continue programming.

> *NOTE* ✍ ***Set your Exceptions first before enabling this feature.***

SPACE COMPRESS

Space Compress allows you select the number of maximum spaces next to each other in a line. The selections are 1,2,3,4,5 and OFF. If you select "1" then if three spaces are shown on the receipt the VSI-Pro Radar will delete 2 and only show 1 space between characters on the video and on the output data to the DVR.

LEFT JUSTIFICATION

When LEFT JUSTIFIED is "ON", the VSI-Pro Radar will start each line of text with no leading spaces from the left margin of the text display block.

SCROLL DELAY

Scroll delay ensures that lines of text remain on-screen a minimum of 0.5 seconds. This is especially useful with registers that run at a high baud rate, time-lapse VCRs in extended record modes, switchers, or multiplexers. Sometimes, the register can produce characters so quickly that they can scroll up too fast on the screen to be recorded. When SCROLL DELAY is "ON", the VSI-Pro Radar slows down this data feed just enough to insure that each line of text is recorded.

The choices for SCROLL DELAY are either "ON" or "OFF". To make this selection, position the arrow in front of "SCROLL DELAY" and press and release "Set". The arrow will start flashing. Cycle through "ON" or "OFF" by pressing either the "Up" or "Down" button, then press "Set" when your choice is displayed. The cursor will stop flashing and you can continue programming.

> *NOTE* ✍
>
> **At high baud rates, the SCROLL DELAY on the internal buffer of the VSI-Pro Radar may overflow. This will cause lost text. The internal buffer can hold up to 20K characters before overflowing so it is more than enough for almost all applications.**

DISPLAY

You have the choice to globally turn "ON" or "0FF" the complete VSI-Pro Radar text insertion function. This means no data will be visible on the monitor if you select DISPLAY "OFF". However, if you select the DISPLAY "OFF", you can still command each exception independently to either display on-screen or not through its program setup menu under "EXCEPTION REPORTS". You may also choose to enable an alarm output to occur during an exception while not displaying the exception data through the program set-up in the ALARM OUTPUTS menu. With the display "OFF", the VSI-Pro Radar will still perform all functions as programmed, for example, exception reporting will still function, but the information will not appear on-screen unless programmed to do so in the EXCEPTIONS REPORT menu. Also the data will not show in the history buffer if not displayed.

CROSS HAIR

Press The "Up" or "Down" button to move the cursor to "CROSS HAIR" and press "Set". The following menu will appear:

```
◉ CROSS HAIR              ON
○ COLOR MODE            NIGHT
○ VERTICAL ADJUST
○ HORIZONTAL ADJUST
○ EXIT
```
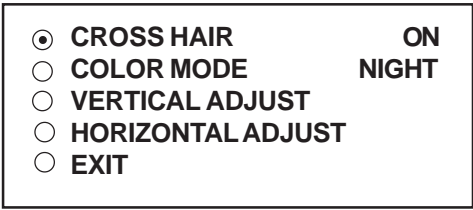
Figure 21: CROSS HAIR Sub-Menu

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PROGRAMMING

The Cross Hair puts a targeting crosshair into the video image so the user can better target the car or license plate of the vehicle they are detecting. This cross hair is recorded in the video so can be used as legal evidence the office targeted the proper vehicle with the radar. The Color mode selects a white cross hair for Night and a black cross hair for Day.

CROSS HAIR

Choices : ON, OFF

Turns the crosshair on or off. Press the "Up" or "Down" button to move the cursor to "CROSS HAIR" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between "ON" or "OFF" and press "Set" when the desired value is displayed.

COLOR MODE

Choices : DAY, NIGHT

selects either black crosshair for Day or white crosshair for Night. Press the "Up" or "Down" button to move the cursor to "COLOR MODE" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between time "NIGHT" or "DAY" and press "Set" when the desired color mode is displayed.

VERTICAL ADJUST

To change the vertical position of Cross Hair, press the "Up" or "Down" button to move the cursor to "VERTICAL ADJUST" and press "Set" button. Press the "Up" or "Down" buttons to move the Cross Hair to the desired vertical position, then press "Set" button to return to the Cross Hair Sub Menu.

HORIZONTAL ADJUST

To change the horizontal position of Cross Hair, press the "Up" or "Down" button to move the cursor to "HORIZONTAL ADJUST" and press "Set" button. Press the "Up" or "Down" buttons to move the Cross Hair to the desired horizontal position, then press "Set" button to return to the Cross Hair Sub Menu.

EXIT

Press the "Up" or "Down" button to move the cursor to "EXIT" and press "Set" to return to the Text Display Sub-Menu.

5.6 COMMUNICATION

This was discussed briefly in the section under "DEVICE SELECT" and will be fully explained here. When you choose your unit type under the DEVICE SELECT menu, this automatically formats the VSI-Pro Radar to the appropriate settings needed to communicate with your unit. There may be times when you will need to amend these settings for a specific unit.

To access the Communication menu, press the "Up" or "Down" button to move the cursor to "COMMUNICATION" and press "Set". The following menu will appear:

```
⊙  INTERFACE TYPE      RS-232
○  RX BAUD RATE        AUTO
○  TX BAUD RATE        AUTO
○  PARITY              NONE
○  DATA BITS           8
○  HANDSHAKE           ON
○  AUTO LINEFEED       ON
○  EXIT
```

Figure 25: COMMUNICATION Sub-Menu

INTERFACE TYPE

Choices: RS-232, PASSIVE TAP, RS-485

To set the interface type for your particular device, press the "Up" or "Down" button to move the cursor to "INTERFACE TYPE" and press and release "Set". The cursor will start flashing. You can now use the "Up" or "Down" button to make your selection. When your selection appears, press "Set" again. The cursor will stop flashing and you can proceed to the next menu item for programming. RS-232 and RS-485 are defined by IEEE standards, however, the Passive Tap is a high impedance (100K) input with full diode protection. Refer to Table 1 and 1A for respective pin-outs of RS-232 or RS-485.

RX BAUD RATE

Choices: AUTO, 150, 300, 600, 1200, 2400, 4800, 9600, 14.4K, 19.2K, 28.8K, 38.4K

To set the baud rate for your particular device, press the "Up" or "Down" button to move the cursor to "RX Baud Rate" and press "Set". The cursor will start flashing. You can now use the "Up" or "Down" button to make your selection. When your selection appears, press "Set" again. The cursor will stop flashing and you can proceed to the next menu item for programming.

TX BAUD RATE

Choices: AUTO, 150, 300, 600, 1200, 2400, 4800, 9600, 14.4K, 19.2K, 28.8K, 38.4K

This is a new feature that allows you to set the transmit baud rate to a separate device if you are looping the data back out of the VSI-Pro Radar.

To set the TX Baud Rate for your particular device, press the "Up" or "Down" button to move the cursor to "TX BAUD RATE" and press "Set". The cursor will start flashing. You can now use the "Up" or "Down" buttons to make your selection. When your selection appears, press "Set". The cursor will stop flashing and you can proceed to the next menu item for programming.

> **NOTE** ✍
>
> **When selecting 38.4K, the TX and RX Baud rate must both be 38.4K. However, with any lower baud rate the TX and RX can be any different baud rate.**

PARITY

Choices: NONE, ODD, EVEN

Press the "Up" or "Down" button to move the cursor to "PARITY" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

DATA BITS

Choices: 7 or 8

If you select 7 Data Bits, you must select "ODD" or "EVEN" Parity in the Parity menu. Press the "Up" or "Down" button to move the cursor to "DATA BITS" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

HANDSHAKE

Choices: ON, OFF

Handshaking is an electrical signal that tells the unit or computer that the VSI-Pro Radar is ready to receive data. It may not be necessary and/or need not be connected to an outgoing signal from the unit or computer since the VSI-Pro Radar does not require handshaking. The VSI-Pro Radar handshaking signal is always true signally the unit or computer to send data.

Handshaking guarantees that the internal buffer is not over run or text is not lost. Most AVE interfaces do not support this function. Also since the VSI-Pro Radar has a 20K buffer this feature is generally not required.

Press the "Up" or "Down" button to move the cursor to "HANDSHAKE" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

AUTO LINEFEED

Choices: ON, OFF

Auto Linefeed makes the VSI-Pro Radar 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 "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

EXIT

Press the "Up" or "Down" button to move the cursor to "EXIT" and press "Set" to return to the previous menu.

5.7   EXCEPTION REPORTS

EXCEPTION REPORT OVERVIEW

The Exception Report gives you the option to assign an on-screen flag, trigger an alarming device, or send data to another serial device on any questionable data that you have preprogrammed into the VSI-Pro Radar. The VSI-Pro Radar will allow programming of up to 24 separate exceptions. These exceptions can be any data new, speed over 120kph, arriving at a designated GPS location, blood alcohol over the legal limit or any data that you determine (by programming) to be "exceptional" or questionable.

You may even set ranges for the exceptions. For example, spped over 90 MPH, between 55 and 75, or lower than 10 and greater than 100, all data by a specific car, or whatever data you need to watch exceptionally close.

The following is a brief overview of how to set up Exception Reports.
1. On the main-menu, press the "Up" or "Down" button to move the cursor to "EXCEPTION REPORT" and press "Set".
2. On the sub-menu, press the "Up" or "Down" button to move the cursor to "EXCEPTION HISTORY" and press "Set".
3. On the sub-menu, press the "Up" or "Down" button to move the cursor to "DVR SELECTION" and press "Set". Thenn select the model of DVR you are using.
4. Exit and press the "Up" or "Down" button to move the cursor to "SET EXCEPTION" and press "Set".
5. To select the Exception No. that you wish to program, press the "Up" or "Down" button to move the cursor to the desired Exception No. then press "Set". Press the "Up" or "Down" button to toggle between the choices.
6. Make sure that "HISTORY BUFFER" is set to "ON" for any exception data to be saved in the Exception History.
7. Program the Exception String in the Exception Report to compare the data that shows on the screen for time search mode in the Exception History menu.
8. After you have set up the desired configurations, press the REC button on the DVR to record video into a hard drive or use alarm output for triggering the DVR at record input.
9. The monitor should display a flashing REC message and the REC button will light up indicating the DVR is in the recording mode.

ON-SCREEN FLAGS

You have several options for programming your Exception Report. The first option typically has all programmed exceptions display a flashing asterisk in the upper right corner of the on-screen display, or reversing the entire text display. This on-screen flag is controlled through the ALARM OUTPUTS menu. You assign a corresponding alarm to an exception and set the parameters for the flag in this menu. You do this by choosing "DISPLAY" for the corresponding exception number and selecting "ON". With this option, all questionable transactions (exceptions) will be "flagged" with the flashing asterisk.

You can then review these exceptions by putting your DVR or VCR in play and pressing the FF button. This will give you a fast scan of the tape and you can go into normal play when you see the flashing asterisk and view that transaction in real time or slow play or frame by frame, depending on the type of playback options of your particular DVR or VCR.

HARD ALARM OUTPUT

The VSI-Pro Radar allows you to program exceptions to trigger external alarming devices such as time-lapse VCR's, quads, enunciators, LED's etc. Using the ALARM OUTPUT you can have your time-lapse VCR record only exceptions, or have an alarming quad go to full screen on an exception, or even trigger a buzzer to alert you that an exception has occurred.

PRINTER or DVR OUTPUT

There may be situations where you do not want cashiers or other employees to know what triggers an exception. In this case, the VSI-Pro Radar provides a separate output that will send data to a remotely located serial printer. If you turn the on-screen display off and the output on and you have a remote serial printer hooked up to the VSI-Pro Radar, then, whenever an exception is reported, it is sent out to the serial printer only. The printer will give you a hard copy printout of the questionable transaction with the time and date. With this hard copy printout of the exception report, you can then review the tape by going directly to that exception's time.

The serial printer output of the VSI-Pro Radar can be programmed to send out the entire transction. The output can be connected to the other equipment such as DVRs, computers, phone line transmissions or digital storage devices for later retrieval.

The VSI-Pro Radar also has a "triggered text" feature. This feature allows programmed text or control characters to be sent out when an exception occurs to trigger devices like DVR's to save the data file for future review. Other computer devices can wait for this specified text string and do other functions at this time via the serial communication process.

From the main programming VSI-Pro Radar menu, press the "Up" or "Down" button to move the cursor to "EXCEPTION REPORT" and press and release "Set". The following menu will appear:
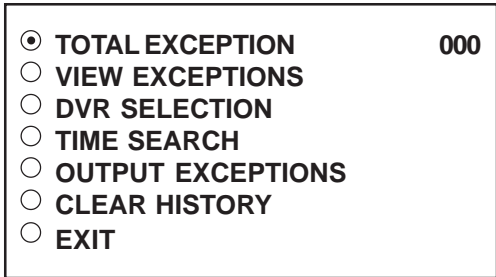
Figure 26: EXCEPTION REPORT Sub-Menu

```
⊙ EXCEPTION HISTORY
○ SET EXCEPTION
○ OUTPUT                      ON
○ TIME STAMP                  ON
○ EXIT
```
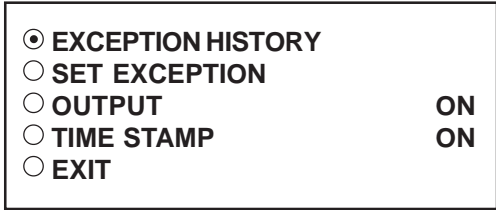
EXCEPTION HISTORY

Press the "Up" or "Down" button to move the cursor to " EXCEPTION HISTORY " and press "Set". The following menu will appear:

Figure 27: EXEPTION HISTORY Sub-Menu

```
⊙ TOTAL EXCEPTION            000
○ VIEW EXCEPTIONS
○ DVR SELECTION
○ TIME SEARCH
○ OUTPUT EXCEPTIONS
○ CLEAR HISTORY
○ EXIT
```

TOTAL EXCEPTIONS

This is not a selection for just displays the total exception count kept in the Exception History Buffer.

VIEW EXCEPTIONS

This displays the buffered exceptions on-screen, starting with the oldest exception in the buffer. Press the "Up" or "Down" button to move the cursor to "VIEW EXCEPTIONS" and press "Set". Once in the exception displaying screen, press the "Up" or "Down" button to scroll to the next screen. Press "Set" to exit and return to the previous menu. Remember, you must turn the DISPLAY "ON" for exceptions to be saved in history.

For example:

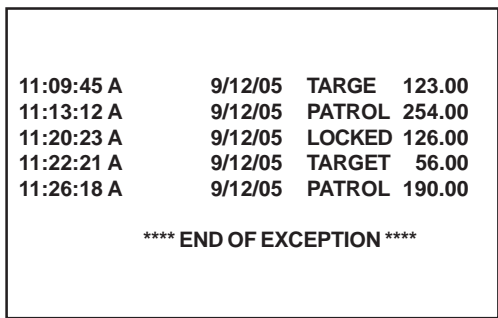Define " ⊙ " as an exception string In Exception No. 2 , HISTORY BUFFER to be "ON", and define OPERATOR "NONE".

```
11:09:45 A        9/12/05   TARGE   123.00
11:13:12 A        9/12/05   PATROL  254.00
11:20:23 A        9/12/05   LOCKED  126.00
11:22:21 A        9/12/05   TARGET   56.00
11:26:18 A        9/12/05   PATROL  190.00

          **** END OF EXCEPTION ****
```

Figure 28: Display of View Exceptions

> ✎ *NOTE*
>
> *For any exception you must program History Buffer "ON" for any exception data to be saved in the Exception History.*
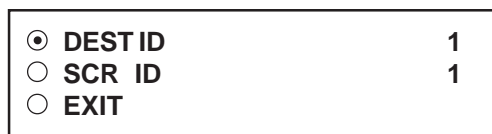
DVR SELECTION

Press the "Up" or "Down" button to move the cursor to "DVR SELECTION" and press "Set". The following menu will appear:

```
⊙ DMS-3001
○ DVR-3011.3021
○ EXIT
```
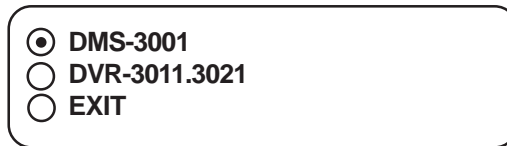
Figure 29: DVR Selection Sub-Menu

DVR-3011 / DVR-3021

Press the "Up" or "Down" button to move the cursor to "DVR-3011.3021" and press "Set". An asterisk appears to indicate your selection.

```
⊙ DEST ID          1
○ SCR  ID          1
○ EXIT
```
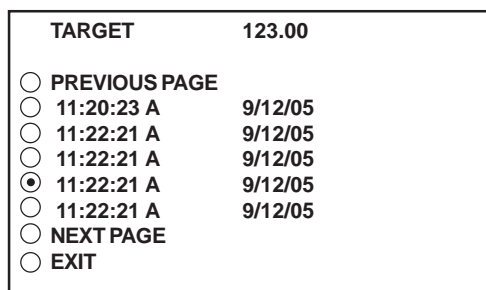
Figure 30: DVR-3011.3021 Sub-Menu

DEST ID and SRC ID

Choices: 1 through 32 **Note:** *The DEST ID and SRC ID can not be the same value or can not send any command.*

TIME SEARCH

Press the "Up" or "Down" button to move the cursor to "TIME SEARCH" and press "Set". The following sub-menu will appear:

```
   TARGET        123.00

○ PREVIOUS PAGE
○ 11:20:23 A      9/12/05
○ 11:22:21 A      9/12/05
○ 11:22:21 A      9/12/05
⊙ 11:22:21 A      9/12/05
○ 11:22:21 A      9/12/05
○ NEXT PAGE
○ EXIT
```

Figure 31: Display of TIME SEARCH

Use the "Up" or "Down" button to scroll to the desired exception in the transaction history. As you select the lline the exception string will display at the top of the page.

Then press "Set" and the DVR will be commanded by the VSI-Pro Radar to go to the selected transaction via its Time/Date Search function. Therefore you must make sure the T/D of the DVR is very close to the setting of the VSI-Pro Radar or their will be an effor in the actual search time. Verify the proper connection to the DVR from the diagram on the following page.

EXAMPLE

Define " ⊙ " as an exception string In Exception No. 2 , HISTORY BUFFER to be "ON", and define OPERATOR "NONE". If the screen is displayed any data, the VSI-Pro Radar will keep this displayed on Exception History.
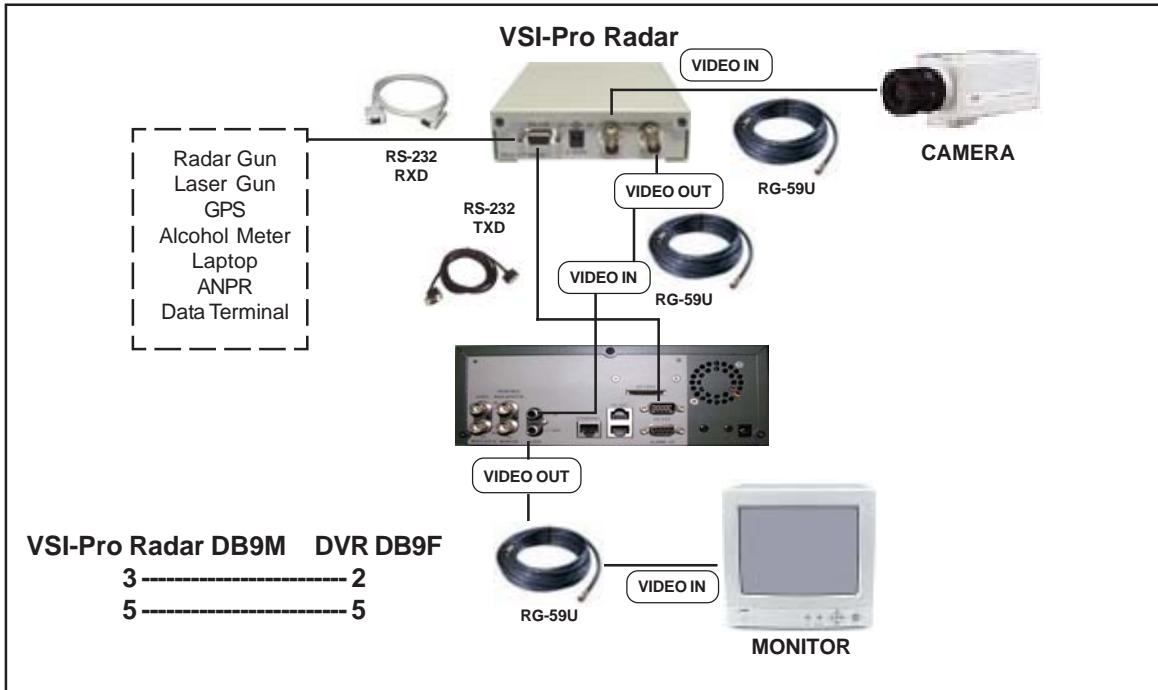
Figure 32: VSI-Pro Radar with DVR Connections

OUTPUT EXCEPTIONS

This selection allows you to have the buffered exceptions sent out for printing. This is a global setting for all exceptions, but you also need to turn on the output for each independent exception.

CLEAR HISTORY

This selection clears all the buffered exceptions and resets the TOTAL EXCEPTIONS counter.

EXIT

Press the "Up" or "Down" button to move the cursor to "EXIT" and press "Set" to return to the previous menu.

SET EXCEPTION

Press the "Up" or "Down" button to move the cursor to "SET EXCEPTION" and press "Set". The following sub-menu will appear:

```
○ EXCEPTION NO.        1
○ DISPLAY             ON
○ OUTPUT             ON
○ HISTORY BUFFER     ON
○ SCROLL MATCHING    OFF
○ EXCEPTION STRING
◉
○ RANGE
  0000.00 - 0000.00
○ OPERATOR          NONE
○ EXIT
```

Figure 33: SET EXCEPTION Sub-Menu

EXCEPTION NO.

Choices: 1 through 24

To select the Exception No. that you wish to program, press the "Up" or "Down" button to move the cursor to "EXCEP-TION NO." and press "Set". The cursor will start flashing. Use the "Up" & "Down" button to sequence through the choices. Make your selection and press "Set". The cursor will stop flashing and you may continue to the next menu item.

DISPLAY

Choices: ON, OFF

The DISPLAY item lets you control whether or not this particular exception is displayed on the video monitor. Please understand that if you are not using a remote serial printer and if you do not turn on the Exceptions display here, you will not have the on-screen flag and consequently no record of the exception when it occurs.

To make your selection, press the "Up" or "Down" button to move the cursor to "DISPLAY" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to toggle between "ON" or "OFF". Make your selection and press "Set". The cursor will stop flashing and you may continue to the next menu item.

> 🗁 **APPLICATION NOTE**
>
> ***If the display of the Exception is turned off here, the exception data will actually be erased from the screen. This feature can be used to generate what we refer to as "Negative Exceptions", allowing the removal of unwanted text from the screen. See "Negative Exceptions" that follows.***

OUTPUT

Choices: ON, OFF

The OUTPUT controls the RS-232 data from the VSI-Pro Radar. Typically this is sent to a remote Serial Printer to provide a hard copy of Exceptions with time and date on it. This data can also be sent out to a computer with appropriate software and give you the ability to analyze data. You could also use an auto answer modem and have the data sent to a central office or even to your home. The serial devices must have the same Baud Rate, Parity, and Data Bits as the VSI-Pro Radar for optimum performance of data transfer.

To make your selection, press the "Up" or "Down" button to move the cursor to "OUTPUT" and press "Set". Press the "Up" or "Down" button to toggle between "ON" or "OFF". Make your selection and press "Set". The cursor will stop flashing and you may continue to the next menu item.

HISTORY BUFFER

Choices : ON ,OFF

The history buffer stores all the exceptions that are occur in the VSI-Pro Radar. Sometimes this can be very large and consume a large portion of the memory of the VSI-Pro Radar. This can be used to automatically search a compatible DVR, upload to a PC to save or print out and view on screen on the VSI-Pro Radar. This setting allows the user to enable or disable this feature as to conserve memory allocation for other features.

To make your selection, press the "Up" or "Down" button to move the cursor to "HISTORY BUFFER" and press "Set". Press the "Up" or "Down" button to toggle between "ON" or "OFF". Make your selection and press "Set". The cursor will stop flashing and you may continue to the next menu item.

VSI-Pro Radar Interface

SCROLL MATCHING EXCEPTION STRINGS ON/OFF

Scroll Matching is a feature to better remove those advertising scrolling messages on the customer display of cash registers so they do not clutter up the video recording. To better understand how to use this, first we must discuss how the Exception String is processed.

Exception Strings (with Scroll Matching OFF) are compared to any text in a line or any text after a CR LF up to 20 characters. If the line is longer than 20 characters we insert a virtual LF CR. Therefore exception string can not be longer than 20 characters. If you use a wild card in front of or behind of a normal exception string then no matter what letter is recieved in that position of the wild card it will be accepted as part of exception string.

Typically to erase these scrolling messages we would use the Negative Exception feature and turn "Off" the display after we entered in the words with or without wildcards. However this left many unwanted bits and pieces of the scrolling message visible because the transactions interrupt the scrolling message and then when the transaction is completed the scrolling message goes back to the exact place in the message where it was interrupted. This is different than normal transactions for they always start with a the description, quantity and price usually in one line.

In scrolling messages we may not have LF and sometimes no CR. This has the first character of every line different of the scrolling message possibly different and even partial words starting at any place within any one of the words of the scrolling message. Therefore conventional Exceptions even with the wild card does not remove all.

Scroll Matching "On" allows you to enter an exception string with or without wildcards and no matter when this string is detected the entire line is erased. This feature "On" does not process the exception string any differently than normal exceptions with Display "Off" but gives a higher priority than any normal exception set with Scroll Matching "Off" and Display "On".

This means that if you set an Exception for "Shipping" with or without a dollar figure associated and a normal transaction that you wanted to generate an exception and set Display "On". Everytime you hit the "Shipping" key your would get an exception. However if you had a scrolling message "You can rely on us for all your Shipping needs" Then you might want to erase this entire line and by doing so the word shipping would be included in the exception with scroll matching "On". In this case you would never see the normal transactions with Shipping $4.50 either as an exception or displayed for the Scroll Matching would override.

A rule of thumb is to never use a scroll matching word the same word as any word in an item description or any partial word that is a partial of any item description.

To make your selection, press the "Up" or "Down" button to move the cursor to "SCROLL MATCHING" and press "Set". Press the "Up" or "Down" button to toggle between "ON" or "OFF". Make your selection and press "Set". The cursor will stop flashing and you may continue to the next menu item.

> 🗁 *PROGRAMMING NOTE*
>
> *The following sections defines the Exceptions Strings, the Operator and the Range. The Exception String is programmed first, then Range is defined and finally the Operator is selected. The VSI-Pro Radar looks at the Exceptions String first, and if there is data that matches, it then checks to see if a Range has been defined.*

EXCEPTION STRING

The VSI-Pro Radar compares the data that is printed to video to the data entered in the Exception String. The Exception String can also be used without a defined range. Example of this would be to assign a word "Target" as an exception. VSI-Pro Radar will look for that string so range definition is not necessary. However, exception string " Target" could be further defined by assigning a Range, i.e. all "Target" over 80MPH.

You can also define a global exception to flag all negative transactions. An example of this using the a radar gun would be the following exception to flag any speed that contains a "-", or negative sign. For example, in the an assigned Exception string "..-" will flag all speeds in the reverse direction say on a one way street and send out to the monitor.

You can also use wild card symbol ".", a centered dot on any data location. 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 .".". 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 "Set". The first 40 character exception will become active after flashing. Program in your exception string.

> *NOTE* ✍
>
> *Remember to enter your Exception String based on the way that data prints to video, including spaces. Also remember pressing "Set" advances to the next position. Pressing "Down" and "Up" at the same time enters the string into memory and returns to the menu for further programing.*

> 🕯 *TIP*
>
> *If you make a mistake and need to erase a character, pressing "Up" and "Set" at the same time will change the character back to a blank space.*

NEGATIVE EXCEPTION

You can remove unwanted text from the screen using the VSI-Pro Radar. The VSI-Pro Radar displays data in the text block 11 lines by 40 characters wide for total of 440 characters. To remove unwanted messages from the register data you first determine how the unwanted messages prints to the video. For example, a typical message which scrolls on the customer display or appears on the video monitor.

The removing of the above string is referred to as the Negative Exception. Follow the following steps to program the negative exception. Turn the display off for that exception. In the Exception String enter the words "Patrol" exactly as they appear on the screen, including spaces.

VSI-Pro Radar Interface

> ### NOTE ✍
>
> ***Only 40 characters are allowed in each Exception String, including blank spaces.***

OPERATOR

Choices: NONE, IN, OUT

The Operator determines the behavior of the Range. Think of the Operator in mathematical terms. Setting the correct range and specifying "IN" or "OUT" will make the Operator perform "greater than", "less than", "equal to", "in the range", or "out of the range" calculations.

With this version of the VSI-Pro Radar, you can define ranges for your exceptions and have the VSI-Pro Radar alarm when an exception falls within the range's parameters or outside the range of the two numbers. The choices are "IN", "OUT", and "NONE". To program the operator, press the "Up" or "Down" button to move the cursor to "OPERATOR" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

RANGE

Choices: 0000.00-9999.99

The Range defines the limits of the Operator. These are numeric only. As you can see from the previous examples, the range has two separate fields that are separated by a double-sided arrow. This format must be followed.

To program the range, press the "Up" or "Down" button to move the cursor to "RANGE" and press "Set". 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 and press "Set" when the desired value is displayed. This will advance the active block to the next character. While you are on an active block, pressing the "Up" and "Set" buttons simultaneously will return that block back to a blank, which is designated by a solid white box. You can follow this format to program your range. When you have finished and want to set this range into the VSI-Pro Radar memory, simultaneously press and release the "Up" and "Down" buttons.

When you are ready to exit and continue on, simultaneously press and release the "Up" and "Down" buttons. This will set the range in the VSI-Pro Radar memory and exit you back to the previous menu.

EXMAPLES FOR SETTING EXCEPTION

EQUAL

Suppose Exception #2 would be flag all $10 sales on Register Department 1. This would be the settings for this Exception: (For these examples, we are using the Samsung ER-4715 Electronic Cash Register)

Exception	No. 2
Display	ON
Output	ON,OFF (depending on presence of serial printer)
Exception String	1 . . .
Range	0010.00-0010.00
Operator	IN

OUT RANGE

Suppose Exception #3 would "FLAG" every transaction on Department 2 that is under 10 cents and over $100 dollars. This would be the settings for this Exception:

Exception	No. 3
Display	ON
Output	ON, OFF (Depending on presence of serial printer).
Exception String	2 . . .
Range	0000.10 -0099.99
Operator	OUT

IN RANGE

Suppose Exception # 5 would flag all transactions between $50.00 & $100.00 on Department 3:

Exception No.	3
Display	ON
Output	ON or OFF (Depending on presence of serial printer).
Exception String	3 ...
Range	0049.99-0099.99
Operator	IN

With this exception all sales between $50 and $100 dollars will be flagged.

IN RANGE

Suppose Exception # 5 would flag all transactions between $50.00 & $100.00 on Department 3:

Exception No.	3
Display	ON
Output	ON or OFF (Depending on presence of serial printer).
Exception String	3 ...
Range	0049.99-0099.99
Operator	IN

With this exception all sales between $50 and $100 dollars will be flagged.

GREATER THAN

This example will show you how to program an exception to flag all sales in department 5 greater than $100 dollars

Exception	No. 2
Display	ON
Output	ON or OFF
Exception String	5...
Range	0000.01- 0099.99
Operator	OUT

Now whenever anyone rings a sale of $100 or more on Department 5, the transaction will be flagged.

LESS THAN

This example will show you how to program an exception to flag all sales in Department 6 of less than $100. 00:

Exception	No. 4
Display	ON
Output	ON or OFF
Exception String	6
Range	0000.01-0099.00
Operator	IN

EXCEPTION REPORT MENU CONTINUED

OUTPUT

Choices: ON, OFF

This is global output to send data to the serial printer. When "ON" is selected all the data will be send to the serial printer regardless of what setting of out put has selected in the individual output in set exception menu. When "OFF" is selected only those exception will send to the serial printer whose out put is "ON" under set exceptions menu for individual exceptions. To turn output "ON" or "OFF", press the "Up" or "Down" button to move the cursor to "OUTPUT" and press "Set". Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

TIME STAMP

Choices: ON, OFF

If TIME STAMP is selected "ON" then printer will print the exception with time stamp flag, otherwise just print the Exception. To turn TIME STAMP "ON" or "OFF", press the "Up" or "Down" button to move the cursor to "TIME STAMP" and press "Set". Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

EXIT

Press the "Up" or "Down" button to move the cursor to "Set" to return to the previous menu.

5.8   ALARM OUTPUTS

To access alarm output, press the "Up" or "Down" button to move the cursor to "ALARM OUTPUTS" and press "Set". The following sub-menu will appear:

```
  ⊙  ALARM NO.                    1
  ○  ALARM TRIGGER                1
  ○  NORMAL STATE                NO
  ○  ALARM DURATION              20
  ○  FLAG TYPE              FLASH *
  ○  FLAG DURATION             000
  ○  TRIGGERED TEXT
  ○  ALARM TYPE              DWELL
  ○  EXIT
```

Figure 34: ALARM OUTPUTS Sub-Menu

The ALARM OUTPUTS menu controls not only the formatting of the external alarms but also the formatting of the on-screen flags assigned to individual exceptions.

ALARM NO.

Choices: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24

The VSI-Pro Radar 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 Number that you want to program, press the "Up" or "Down" button to move the cursor to "ALARM NO." and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

ALARM TRIGGER

Choices: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23,24 , 1-12, 13-24, 1-24

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

Choices: Exceptions 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, and 24 (alarms when data is received that matches what you have set in these exception strings).

Exceptions 1-12*:* alarms when data is received that matches any data set in Exception 1-12.

Exceptions 13-24*:* alarms when data is received that matches any data set in Exception 13-24.

Exceptions 1-24*:* alarms when data is received that matches any data set in Exception.

RTS

External alarm input. The VSI-Pro Radar 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.

📂   *RTS   APPLICATION NOTE*

The RTS alarm input can be connected to a timer on the drawer of a cash register to alarm and send the message "DRAWER OPEN" to the screen if the drawer is open too long.

To select the alarm trigger that you want to program, press the "Up" or "Down" button to move the cursor to "ALARM TRIGGER" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

NORMAL STATE

Choices: NO (Normally open), NC (Normal closed)

There are two choices: NO (normally open) or NC (normal closed). These selections determine whether the alarm outputs will act as a normally open switch or a normally closed switch.

To select the Normal State that you want to program, press the "Up" or "Down" button to move the cursor to "NORMAL STATE" and press "Set". The cursor will start flashing . Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

ALARM DURATION

This is the amount of time in seconds that the alarm will remain activated once it is triggered. The selections for alarm duration are: PULSE, 6, 12, 20, 30, 60, 120, 180, and 300 seconds. (PULSE sends a 200mS alarm pulse to the alarm device.)

To select the amount of time in seconds that you want to program the alarm duration, press the "Up" or "Down" button to move the cursor to "ALARM DURATION" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

FLAG TYPE

This feature allows you to insert a visual alarm flag on each exception that you program to aid in the review of the video tape. This flag can appear as an asterisk "*", a flashing asterisk, reverse text, or flashing reverse text.

To make your selection, press the "Up" or "Down" button to move the cursor to "FLAG TYPE" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

FLAG DURATION

Choices: 6, 12, 30, 60, 120, 180,..., 300

This is the amount of time in seconds that the on-screen FLAG, either the Asterisk or the Reverse mode, will remain activated once it is triggered.

NOTE ✍

Flag Duration is independent of the Alarm Duration. Flag Duration is the amount of time the on-screen flag will remain on after activation, while, Alarm Duration is the amount of time that the hard-wired Alarm Output remains activated after it is triggered.

To select the amount of time in seconds that you want to program for the flag duration, press the "Up" or "Down" button to move the cursor to "FLAG DURATION" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

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. Therefore, only 13 control codes maximum can be programmed in one Triggered Text. To program the TRIGGERED TEXT, go to the ALARM OUTPUTS sub-menu. Select desired ALARM NO or RTS for external alarm. Then go to the TRIGGERED TEXT sub-menu.

```
  ⊙  DISPLAY TEXT          OFF
  ○  OUTPUT TEXT           OFF
  ○  SET TRIGGERED TEXT
  ○  EXIT
```

Figure 35: TRIGGERED TEXT Sub-Menu

DISPLAY TEXT

Choices: ON, OFF

Press the "Up" or "Down" button to move the cursor to "DISPLAY TEXT" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed. Selecting "OFF" will not display any exception text on the video output.

OUTPUT TEXT

Choices: ON, OFF

Press the "Up" or "Down" button to move the cursor to "OUTPUT TEXT" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed. Selecting "OFF" will not send any exception text to the serial printer.

SET TRIGGERED TEXT

Press the "Up" or "Down" button to move the cursor to "SET TRIGGERED TEXT" and press "Set". The following sub-menu will appear:

```
  ○  DISPLAY TEXT              OFF
  ○  OUTPUT TEXT               OFF
  ◉  SET TRIGGERED TEXT
  ○  EXIT
```

Figure 36: Set Triggered Text Sub-Menu

You can enter 2 lines with 40 alpha numeric text on each line. You can also enter non-printable data (control code) instead of triggered text. Each control code occupies 3 charactors, therefore you can enter 13 control codes in a line. To enter control code, first print up arrow ^ follwed by 2 hex digit. For example, hex code 01 has to be entered like ^ 01.

Press "Up" and "Down" simultaneously to exit..

ALARM TYPE

Choices : DWELL, TIMED

There are two choices : DWELL or TIMED. If select DWELL, the VSI-Pro Radar will generate many alarm. If select TIMED, VSI-Pro Radar will generate alarm only one time until lock data is changed or cleared.

To select the Alarm Type that you want to program, Press the "Up" or "Down" button to move the cursor to "ALARM TYPE" and press "Set". The cursor will start flashing. Press the "Up" or "Down" button to cycle through the values and press "Set" when the desired value is displayed.

EXIT

Press the "Up" or "Down" button to move the cursor to "EXIT" and press "Set" to return to the previous menu.

5.9   TEST/DEMO MODE

The TEST/DEMO MODE provides you with several ways to test the VSI-Pro Radar and demonstrate its capabilities as a Radar Gun or unit interface. Press the "Up" or "Down" button to move the cursor to "TEST/DEMO MODE" and press "Set". The following sub-menu will appear:

Figure 37: TEST/DEMO MODE Sub-Menu

```
  ◉  PORT 1 TEST
  ○  DATA CAPTURE
  ○  RADAR GUN DEMO
  ○  VERSION  ID
  ○  EXIT
```

VSI-Pro Radar Interface
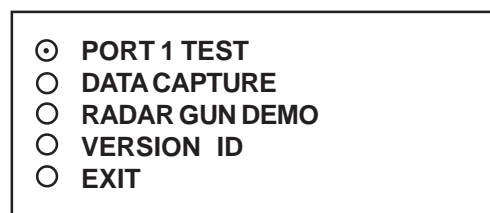
PORT 1 TEST

Sending and receiving data performance can be analyzed under the PORT 1 TEST sub-menu. Press the "Up" or "Down" button to move the cursor to "PORT 1 TEST" and press "Set". The following sub-menu will appear:

```
⊙ RECEIVE [ RX ] TEST
○ TRANSMIT [ TX ] TEST
○ RX/TX TEST
○ BAUD RATE SCAN
○ EXIT
```
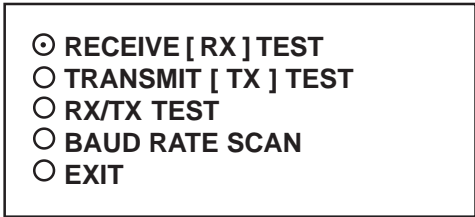
Figure 38: PORT 1 TEST Sub-Menu

RECEIVE [RX] TEST

The purpose of this test is to determine that if VSI-Pro Radar is receiving the data or not. Press the "Up" or "Down" button to move the cursor to "RECEIVE [RX] TEST". The following display will appear (example only):

```
RX BAUDRATE :               AUTO
TX BAUDRATE :               2400
PARITY :                    NONE
DATA BIT :                   8
HANDSHAKING :               OFF
RECEIVING :
 BAUDRATE   DETECTION..
```
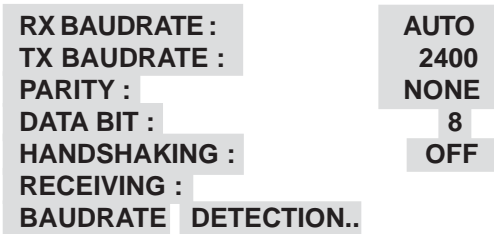
Figure 39: RECEIVE [RX] TEST Display

Receiving data will be appear in three sperate lines, scrolling from right to left. The first line is the actual ASCII data coming from the register while last two lines are HEX conversion of ASCII data. If you do not receive any data, check the connections between VSI-Pro Radar and device or any additional interfacing device.

Press "Set" to return to the previous menu.

TRANSMIT [TX] TEST

The purpose of this test is to determine that if the VSI-Pro Radar is able to transmit data or not. Press the "Up" or "Down" button to move the cursor to "TRANSMIT [TX] TEST" and press "Set". The following display will appear (example only):

```
RX BAUDRATE :               AUTO
TX BAUDRATE :               2400
PARITY :                    NONE
DATA BIT :                   8
HANDSHAKING :               OFF
TRANSMITTING :
 BAUDRATE   DETECTION..
```
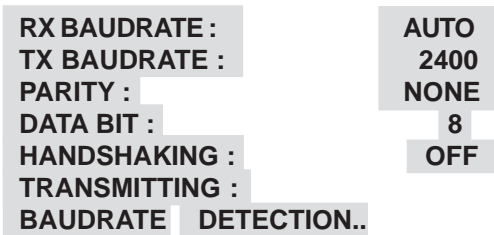
Figure 40: TRANSMIT [TX] TEST Display

If VSI-Pro transmitting data you will see some predefined ASCII character on the screen. If you don't see any characters on the screen, check the connections and try again.

Press "Set" to return to the previous menu.

VSI-Pro Radar Interface

> *NOTE* ✍
>
> ***In any of the above tests, you can stop the scrolling data by holding down either "Up" or "Down" button.***

RX / TX TEST

In the RX/ TX test the VSI-Pro Radar echos whatever it receives. Press the "Up" or "Down" button to move the cursor to "RX/TX TEST" and press "Set". The following display will appear (example only):

```
RX BAUDRATE :               AUTO
TX BAUDRATE :               2400
PARITY :                    NONE
DATA BIT :                     8
HANDSHAKING :               OFF
ECHOING :
BAUDRATE   DETECTION..
```

Figure 41: RX /TX TEST Display

Press "Set" to return to the previous menu.

BAUD RATE SCAN

The Baud Rate Scan test can scan the baud rate of your register. Press the "Up" or "Down" button to move the cursor to "BAUD RATE SCAN" and press "Set". The following display will appear (example only):

```
RX BAUDRATE :               AUTO
TX BAUDRATE :               2400
PARITY :                    NONE
DATA BIT :                     8
HANDSHAKING :               OFF
BAUDRATE  SCAN :
BAUDRATE   DETECTION..
```

Figure 42: Baudrate Scan Display

Enter a transaction from the register. The VSI-Pro Radar will detect the baud rate and display it in front of RX Baud rate.

Press "Set" to return to the previous menu.

EXIT

Press the "Up" or "Down" button to move the cursor to "EXIT" and press "Set" to return to the previous menu.

DATA CAPTURE

This feature allow user to store the data either internal memory of VSI-Pro Radar or some external data storing device. Press the "Up" or "Down" button to move the cursor to "DATA CAPTURE" and press "Set". The following sub-menu will appear:

```
⊙ CAPTURE TO PORT 1
○ CAPTURE TO MEMORY
○ DUMP MEMORY
○ EXIT
```

Figure 43: DATA CAPTURE Sub-Menu

Press "Set" to return to the previous menu.

CAPTURE TO PORT 1

This feature redirect the incoming data to VSI-Pro Radar to its output (Pin 3 of AT type RS-232 female connector) where that data can be stored to data storing devices (e.g. PC). This feature is useful to store non-RS 232 format data. Press the "Up" or "Down" button to move the cursor to "CAPTURE TO PORT 1 and press "Set". The following display will appear (example only):

```
RX BAUDRATE :          AUTO
TX BAUDRATE :          2400
PARITY :               NONE
DATA BIT :              8
HANDSHAKING :          OFF

  BAUDRATE   DETECTION..
```
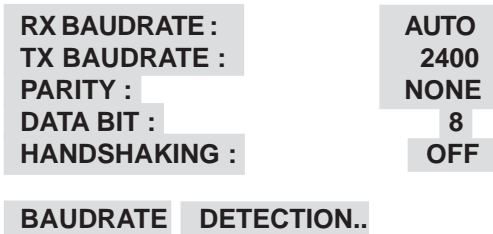
Figure 44: CAPTURE TO PORT 1 Display

Press "Set" to return to the previous menu.

CAPTURE TO MEMORY

This feature allow you to store the data in the internal memory of VSI-Pro Radar. You can store up to 20 kilobytes of data in the internal memory of VSI-Pro Radar. Power up the VSI-Pro Radar for 24 hours prior to download of data. This will provide VSI-Pro Radar's internal battery a full charge to hold data in its memory. Press the "Up" or "Down" button to move the cursor to "CAPTURE TO MEMORY" and press "Set". The following display will appear (example only):

```
RX BAUDRATE :          AUTO
TX BAUDRATE :          2400
PARITY :               NONE
DATA BIT :              8
HANDSHAKING :          OFF

  BAUDRATE   DETECTION..
```
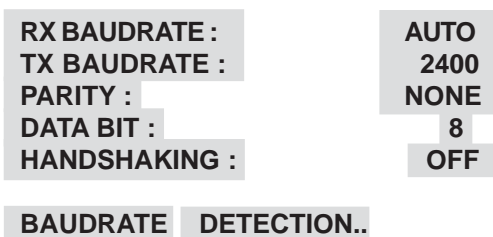
Figure 45: CAPTURE TO MEMORY Display

Press "Set" to return to the previous menu.

NOTE ✍

VSI-Pro Radar can only hold up to 20 kilobytes of data to make sure that you only transfer the data which is in correct format.

> NOTE ✍ *Any Programming or data transfer of any kind can overwrite the saved data in memory.*

DUMP MEMORY

You can upload any saved information from the VSI-Pro Radar memory to any PC or some specific communication devices using appropriate upload cable. To upload the information into a PC you must have any communication software which can transfer the binary data. Press the "Up" or "Down" button to move the cursor to "DUMP MEMORY" and press "Set". The VSI-Pro Radar will start uploading the data.

RADAR GUN DEMO

This demonstration simulates the data from an actual radar gun. This is used to demonstrate the VSI-Pro Radar's capabilities with just a monitor and camera without having a device hooked up. When the demo mode is active the VSI-Pro Radar thinks the data is actually coming from a real radar gun. You can use this demo data to configure exceptions and alarms to be fully functional for a complete customer demonstration.

Press the "Up" or "Down" button to move the cursor to "RADAR GUN DEMO" and press "Set". You will see the following;

```
  ⊙  DEMO
  ○  DEMO ON POWER UP          OFF
  ○  EXIT
```

Figure 46: RADAR GUN DEMO Sub-Menu

Selecting "DEMO" will start the demo after a few seconds. To exit this demo, press and release "Reset". If data is sent to the VSI-Pro Radar during this demo mode with "DEMO ON POWER UP" set to OFF then the demo mode will be disabled and you must go back into the programming mode and select again as described above.

If you select "DEMO ON POWER UP" as "ON" then pressing the "Reset" or powering up or down will have no effect on the demo mode and will continuously work until disabled by this menu selection. If you connect the VSI-Pro Radar to a device and it sends data to the VSI-Pro Radar during this demo mode then the demo mode will also be disabled until you press "Reset" or power down and up again.

VERSION ID

When selected, this will display the version of software in use by the VSI-Pro Radar shown detail (example below).

**VSI-PRO   Version 13.14R11**
06/17/2008

EXIT

Press the "Up" or "Down" button to move the cursor to "EXIT" and press "Set" to return to the previous menu.

5.10 DOWNLOAD/UPLOAD SETUP

This feature lets you upload or download data between two VSI-Pro Radar's. This feature is especially helpful on multi-interface installations. You can program one VSI-Pro Radar and download the data to another VSI-Pro Radar with the download/upload feature and a data transfer cable. The cable is made up of two male DB-9 connectors and the pin-out is below. **NOTE:** This feature is only available to like versions and release. Therefore you can only program a Ver. 13.14 R6 with a same exact VSI-Pro Radar Version and Release or errorenous data will occur.

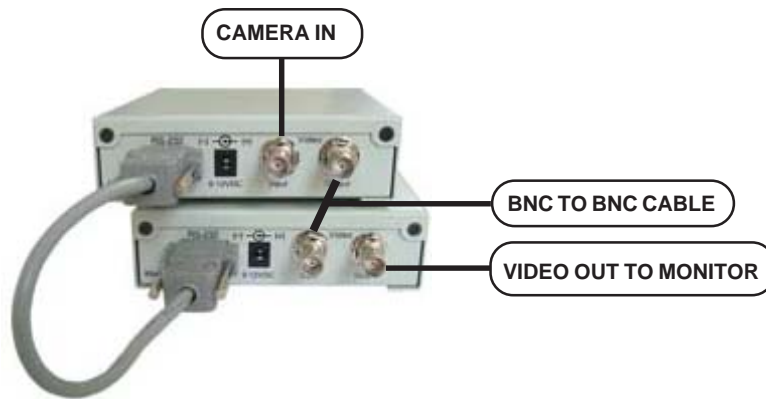**Figure 47: Download/Upload Data Cable**

```
DOWNLOAD/UPLOAD DATA CABLE

  PIN 2 -------------------- PIN 3
  PIN 3-------------------- PIN 2
  PIN 5 -------------------- PIN 5
```
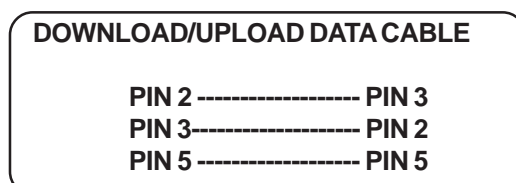
DOWNLOAD/UPLOAD SETUP USING VSI-Pro Radar TO VSI-Pro Radar

To insure that the DOWNLOAD/UPLOAD process is accomplished, you need to access the programming menu for both VSI-Pro Radars, so each VSI-Pro Radar needs a video input and a monitor. The optimum way to perform the DOWNLOAD/UPLOAD process would be to have a system set up with two separate cameras and monitors and the programmed VSI-Pro Radar with the download data cable attached. The VSI-Pro Radra programming data is stored internally in a battery backed 32K x SRAM. This would allow you to program one VSI-Pro Radar on-site and bring the programmed VSI-Pro Radar back to the shop or office and program additional VSI-Pro Radars quickly. We realize this may not always be possible to do and that there may be a need for field programming. The only difficulty with the field DOWNLOAD/UPLOAD process is accessing the programming menus of both VSI-Pro Radars simultaneously.

The use of the diagram in Figure 48 will let you perform the DOWNLOAD/UPLOAD process in the field. For this, you will need a short BNC to BNC cable approximately a foot long, the data cable, and a monitor that can be used next to the VSI-Pro Radars.

Figure 48: DOWNLOAD/UPLOAD SETUP Using VSI-Pro Radar to VSI-Pro Radar

The PROGRAMMED VSI-Pro Radar will upload data to the UNPROGRAMMED VSI-Pro Radar. In the configuration in the Figure 48, you can get the programming menus for both VSI-Pro Radars on the screen at the same time. Use the front panel shortcut to position the text block from the PROGRAMMED VSI-Pro Radar on the left side of the screen. To do this, press and hold down "Up", then press and release "Reset" and then release "Up". Now, by using the "Up" and "Down" buttons you can move the display side to side on the screen. Move the text block as far to the left as you can and press "Set" to exit. To move the display to the top of the screen, press and hold down "Set" and press and release "Reset", then release "Set". Now by using the "Up" and "Down" buttons you can move the display up and down on the screen. Move the display to the top of the screen. When you have it in the correct position, press "Set" to exit.

Go to the UNPROGRAMMED VSI-Pro Radar and follow the same instructions to move the display to the right side of the screen. After you have both displays positioned properly, the next step is to bring up both programming menus.

Let's bring up the PROGRAMMED VSI-Pro Radar first. To do this, simultaneously press and hold "Up" and "Down" and press and release "Reset", then release "Up" and "Down". This will bring up the main-menu and it should be on the top left of the screen. Now go to the UNPROGRAMMED VSI-Pro Radar and do the same thing. You should now have both programming menus side by side.

NOTE ✍

Depending on the size of the monitor you are using, these two menus may overlap, but should not be a problem.

VSI-Pro Radar Interface

To proceed with the DOWNLOAD/UPLOAD SETUP, we will configure the UNPROGRAMMED VSI-Pro Radar first. From the main-menu, press the "Up" or "Down" button to move the cursor to "DOWNLOAD/UPLOAD SETUP" and press "Set". The following sub-menu will appear:

```
⊙ DOWNLOAD SETUP
○ UPLOAD SETUP
○ UPDATE FIRMWARE
○ EXIT
```
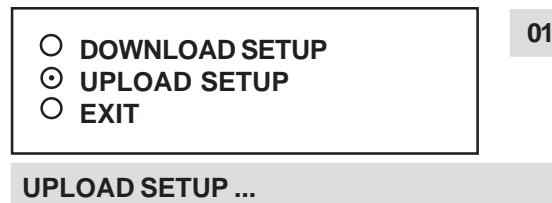
Figure 49: DOWNLOAD/UPLOAD SETUP Sub-Menu

Press the "Up" or "Down" button to move the cursor to "DOWNLOAD SETUP" and press "Set". The following sub-menu will appear. Move to the cursor to "DOWNLOAD SETUP" and press "Set" and the display "DOWNLOAD SETUP..." will appear:

```
⊙ DOWNLOAD SETUP
○ UPLOAD SETUP
○ EXIT
```
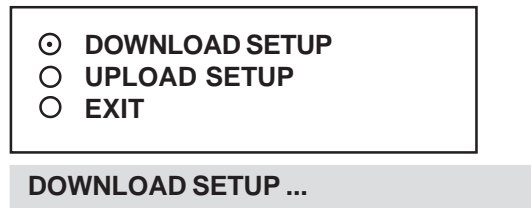
DOWNLOAD SETUP ...

**Figure 50: DOWNLOAD SETUP Sub-Menu & Display**

The UNPROGRAMMED VSI-Pro Radar is now waiting to receive data from the PROGRAMMED VSI-Pro Radar.

Now go to the main-menu of the PROGRAMMED VSI-Pro Radar and follow the previous instructions to get to "UPLOAD SETUP" and press "Set". The following sub-menu will appear. Move to the cursor to "UPLOAD SETUP" and press "Set" and the display "UPLOAD SETUP..." will appear:

```
○ DOWNLOAD SETUP          01
⊙ UPLOAD SETUP
○ EXIT
```

UPLOAD SETUP ...

Figure 51: UPLOAD SETUP Sub-Menu & Display

The data transfer will begin and you will have a screen count down of the status that reads:

Programmed VSI	*Unprogrammed VSI*
UPLOADING ...	*DOWNLOADING ...*
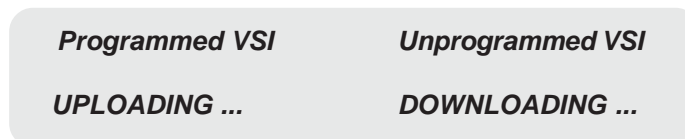
The count will end at 100. When this prompt clears the screen, the data transfer is complete. Press "Reset" to exit this menu on both VSI-Pro Radar's.

Now go to the main-menu of the previously UNPROGRAMMED VSI-Pro Radar on the right side of the screen. Enter the EXCEPTIONS menu. You should see your exceptions and other programmed data just as they were on the original PROGRAMMED VSI-Pro Radar.

VSI-Pro Radar Firmware Download Menu

To update the VSI-Pro Radar, Select the VSI-Pro Radar Firmware Download Function and follow the instructions below. Then select "UPDATE FIRMWARE" from the menu selection.

Figure 52: UPDATE FIRMWARE Sub-Menu

○ **DOWNLOAD SETUP**
○ **UPLOAD SETUP**
◉ **UPDATE FIRMWARE**
○ **EXIT**

VSI-Pro Radar Firmware Download Function

This document describes the VSI-Pro Radar V13.14 R10 The new features of this version are able to download firmware update via the RS-232 port. The LDROM 4K boot strap loader must be burner to the uP via a conventional programmer. Then the executable program is then loaded via any terminal program such as Hyper Terminal via a PC or compatible device. All firmware files are encoded to the AVE proprietary format and decoded by the bootstrap loader for standard program execution.

Update Firmware of VSI-Pro Radar

You have to connect the VSI-Pro Radar with a Serial Program Terminal such as HyperTerminal, IC etc. But advise to use HyperTerminal.First, you have to set the baud rate HyperTerminal to 19200
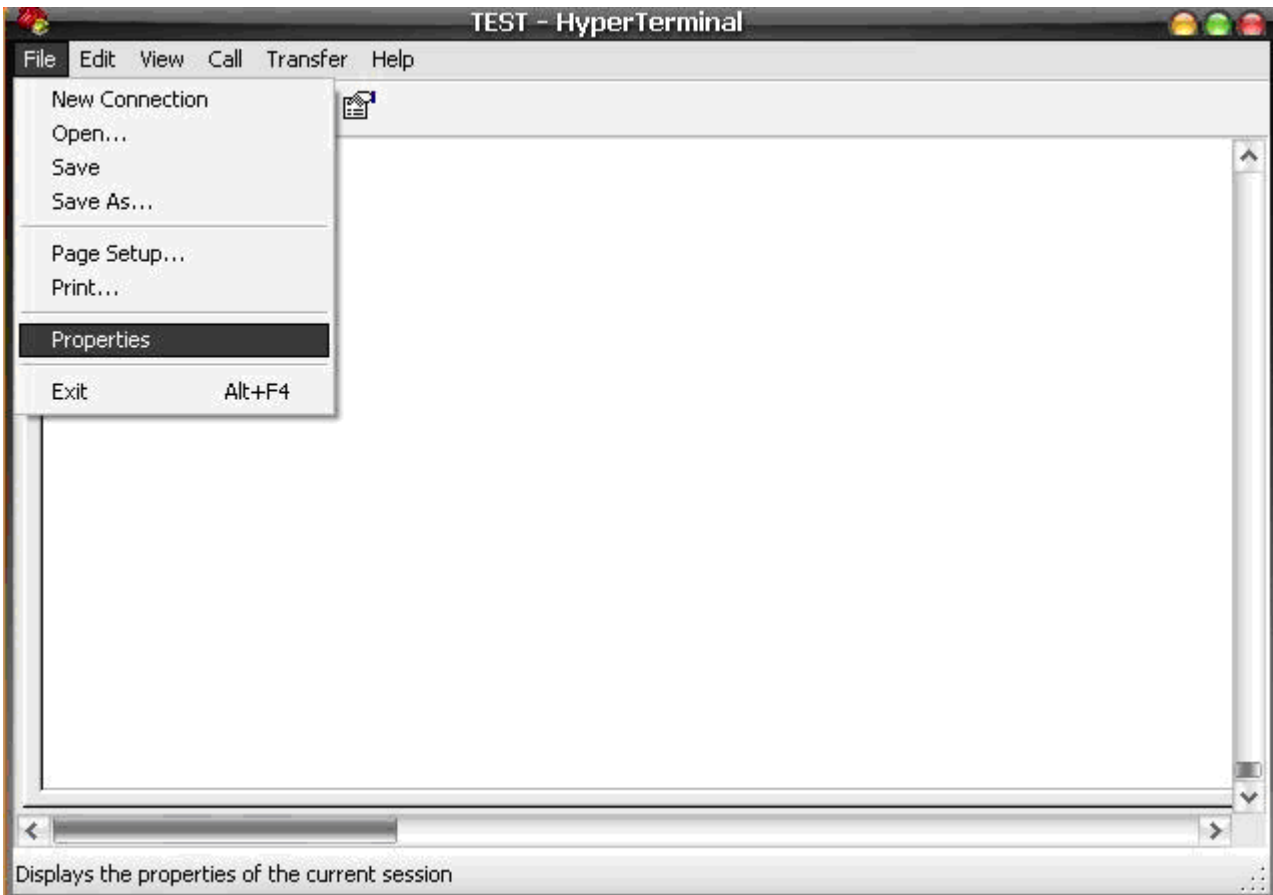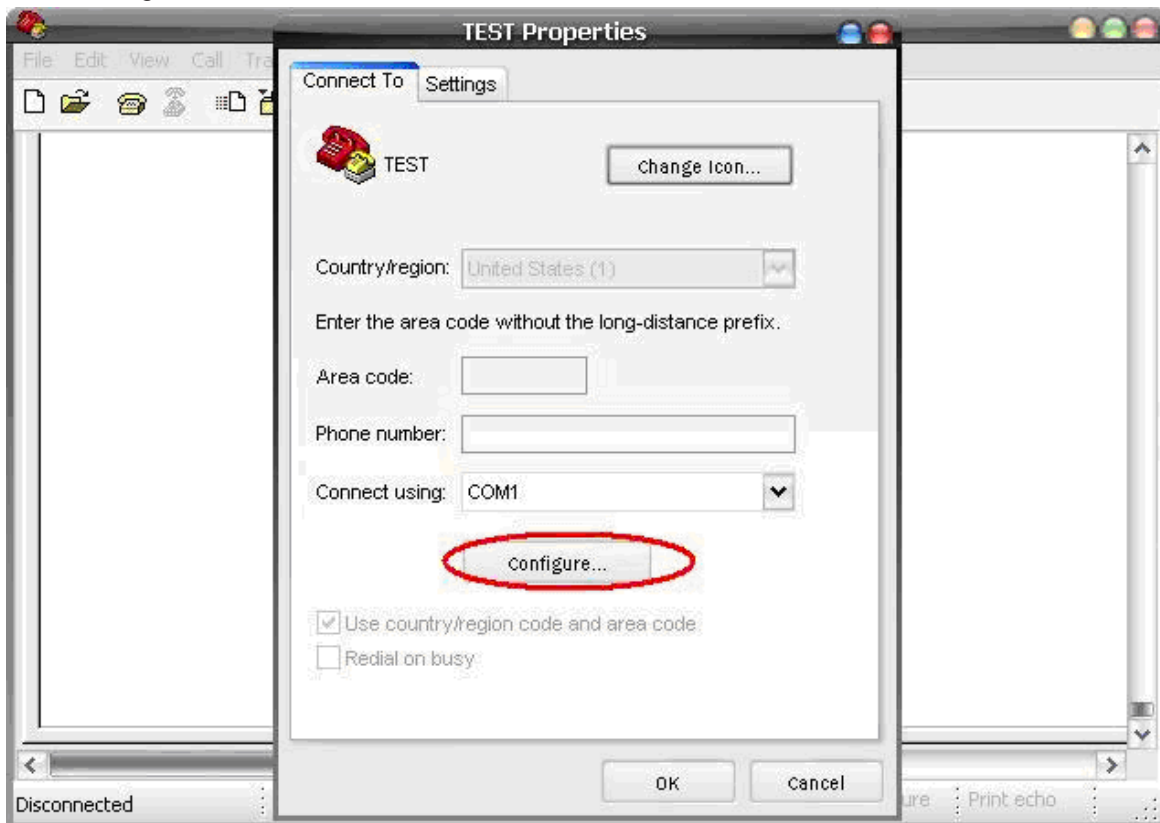
See PC Windows below to verify proper HyperTerminal setup.

Figure 53 : HyperTerminal Main Menu

Click File ==> Properties
You will see the configuration frame and then click.

Choose Bits per second to 19200 and press connect.
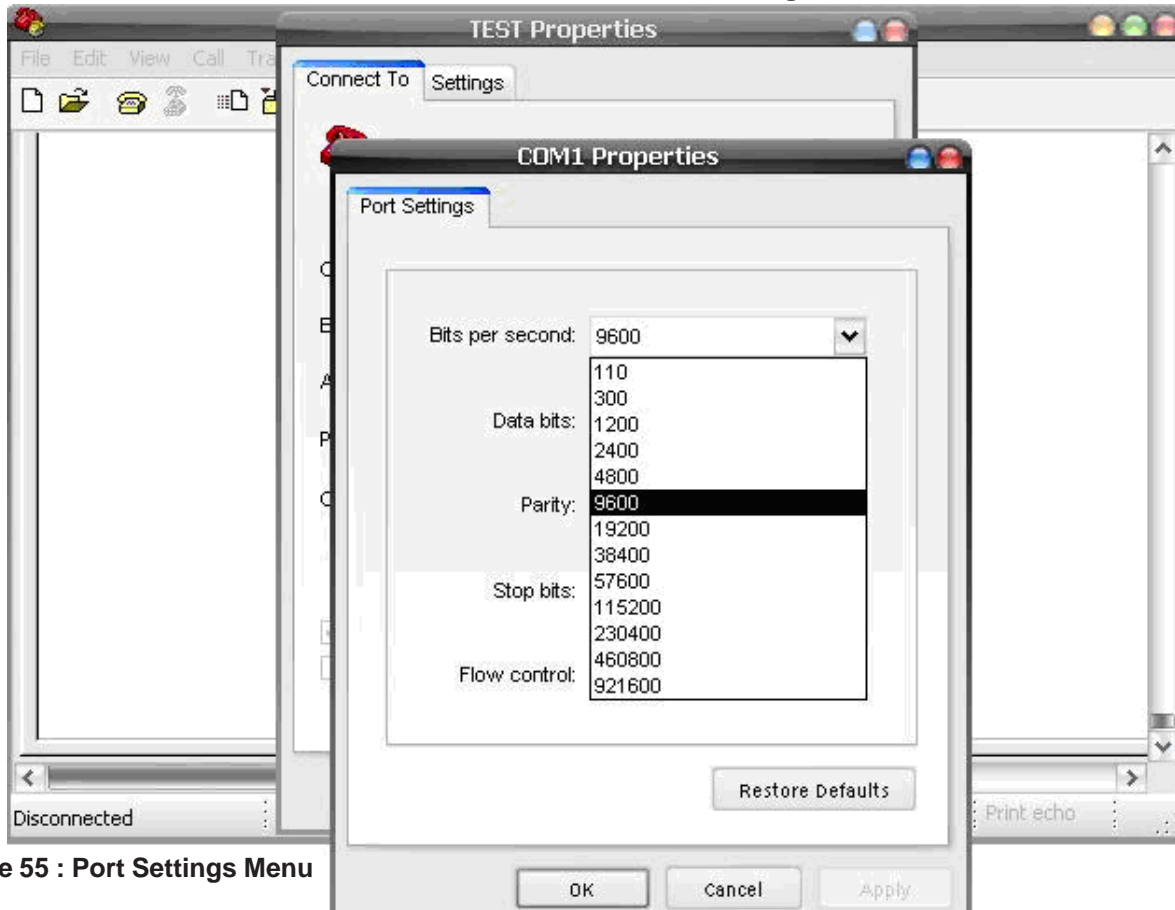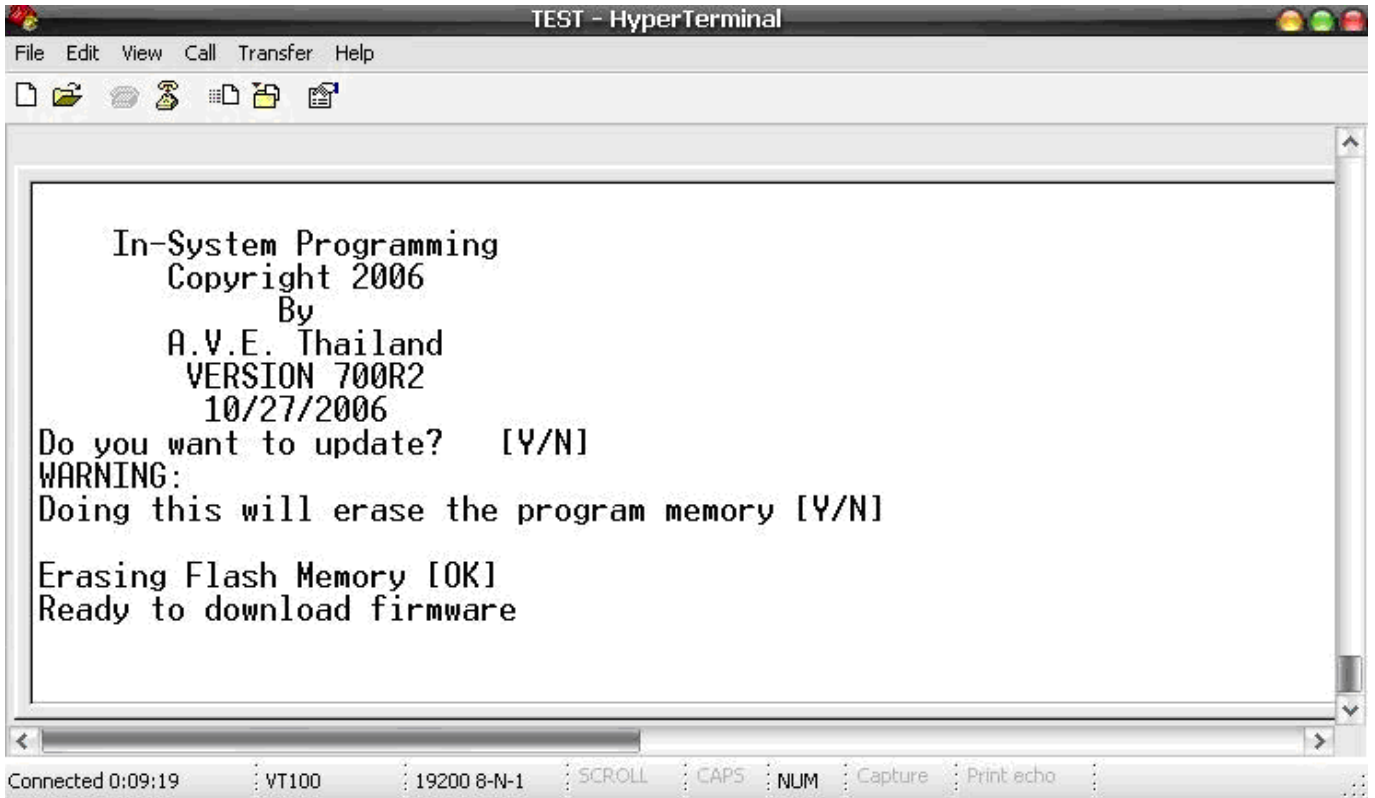
Figure 54 : Connect To Menu

Figure 55 : Port Settings Menu

VSI-Pro Radar Interface

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Second, you go to the menu of the VSI-Pro Radar "Download/Upload Setup" then select ==> "Update Firmware" and then press Set. Now you will see message in Hyper Terminal.

Figure 56 : In-System Programming Display

"Do you want to update?   [Y/N]"
Press "Y" to accept update.
You will see message warning again.
"Doing this will erase the program memory   [Y/N]"
Press "Y" again to accept update.

NOTE: Pressing "Yes" again will permanently erase the entire program memory and the VSI-Pro Radar will not function until firmware is loaded. Make sure you have the proper firmware file ready or the VSI-Pro Radar will be rendered useless.

Finish erasing the program memory step.
Next, you have to send file to update firmware by click on "Transfer Menu" and select "Send Text File" and wait until finished programming. Progress dots will be displayed on the terminal program until finished and takes approximately 2.5 minutes.

NOTE: If for some reason you are disconnected from the VSI-Pro during downloading, power is lost to the VSI-Pro Radar or PC or the firmware update does not finish for any reason you can repeat the procedure above again. The bootstrap loader never is erased and will always request for a valid firmware update until achieved.

To do this just power up the VSI-Pro Radar or press reset while the terminal program is connected and you will see the prompt messages as above window.

5.11 HELP

"HELP" on the main-menu provides a quick reference guide of the functions of the "Up" and "Down" and "Set" buttons.

```
Key Definitions :
UP/DOWN             _ _  Change value
SET                 _ _  Enter change mode
                          Save change
                          Go to position
UP AND DOWN         _ _  Save string input
UP AND SET          _ _  Erase character
```

Figure 57: HELP Sub-Menu

PROBLEM SOLVING GUIDE   APPENDIX A

NO DATA ON-SREEN

1. Press the "Reset" button on the VSI-Pro Radar front panel.
2. Incorrect unit selected in the DEVICE SELECT menu.
3. Data cable is miswired.
4. Data cable is too long or did not use shielded cable.
5. May be connected to the wrong port.

PROBLEMS WITH RG2RS

1. Check the cable to the unit.
2. If VSI-Pro Radar was working and stopped, power cycle the system. Turn off the device, unplug the power to the RG2RS, and unplug the power to the VSI-Pro Radar. Now power up the system, plug in the VSI-Pro Radar and the RG2RS. The data should re-appear.
3. Check the cable between the VSI-Pro Radar and the RG2RS.

NO VIDEO ON MONITOR

1. VSI-Pro Radar transformer not plugged in, or is malfunctioning.
2. Video In/Out connectors reversed, or BNC connector is not correctly wired.
3. No video input signal.
4. Bad video cable or connector.
5. Camera Iris is closed.
6. Other video device in system is off or malfunctioning.

CHARACTERS JITTER, JUMP, OR SKEW

1. Darken the gray scale of the characters.
2. The VSI-Pro Radar requires the input video signal to be 1V P-P +/-20%, terminated @ 75ohms. If the voltage is too high or low, then the VSI has trouble syncing the text to the video. Use an amplifier such as AVE's VDA-401 to get the proper level.
3. Poor input sync signals - too many AC coupled amplifiers in the video input signal.
4. Noisy or poor quality video source. Replace with better source.
5. Check for double termination.
6. Video level too high; VSI-Pro Radar will clip video.
7. The text block is too close to the edge of the screen. Try repositioning the text block. Also, changing the size may help.
8. Too much light in the video picture may cause character distortion. Reposition the camera or reduce the amount of light to which the camera view is exposed. If the camera you're using has an auto iris lens, try adjusting the iris to average and then reduce or increase the level.

NOTE ✍

The VSI-Pro Radar requires 1V P-P +/- 20 percent, terminated @ 75 ohms.

FUNNY CHARACTERS OR GARBAGE ON SCREEN

1. Power disconnected for too long and memory is lost.
2. Lightning strike, power line noise or power surge.
3. RG2RS make sure data cable is plugged in correctly.
4. Ground and Data wires are reversed. Verify correct DB-9 cable wiring.

HOW TO DO A MASTER RESET ON VSI-Pro Radar

1. Press and hold in simultaneously the "Down", "Up" and "Set" buttons.
2. While holding those three buttons in, press and release the "Reset" button and then release the other three buttons.
3. This will display the copyright notice.
4. Restores the VSI-Pro Radar to all the factory default settings.

REGCOM / HYDRA COMMUNICATION PROTOCOL

OPERATION

The Regcom receives RS-232 data from a radar, laser, Alchol meter, VSI-Pro Radar, or any RS-232 device. It then stores this data in its buffer before sending it on to the Hydra via the RS-485 network.

The Regom & Hydra use a bi-directional, 2-wire RS-485 databus to communicate with each other. The Hydra is a "master" device and the Regcom is a "slave" device. One master device can be connected to a maximum of 16 slave devices. Only one master device can exist on a single network.

The master device controls the flow of data by polling each of the slaves in turn. When polled, a slave device will either respond with a ''No Data'' code to say it has no data to send, or it will begin sending data from its buffer.

The Hydra can support many manufactures of DVR for direct storage of the transaction data on the DVR as a file rather than just inserting in the video image for recording. It also supports the VSI-ADD (VSI Addressable) format which allows multiple VSI-Pro Radars to be mounted in a convenient rack and connected on Hydra for display of cash register data remotely.

HYDRA COMPATABILITY LIST

DVR

■ Norbain Columbus
■ GE StoreSafe
■ Kalatel StoreSafe
■ NOVAR VP
■ Dallmeier
■ Appro
■ Pinetron

Other

■ RegCom
■ Networker
■ Vnetworker
■ VSI-ADD

Figure 58: DS-20-OF VSI-Pro Radar PCB Rack using VSI-ADD protocol

REGCOM RS232 / RS485 INTERFACE DEVICES

OVERVIEW

The Regcom is an interface device that allows the connection of multiple RS-232 terminals to a master unit for the purpose of transaction logging.
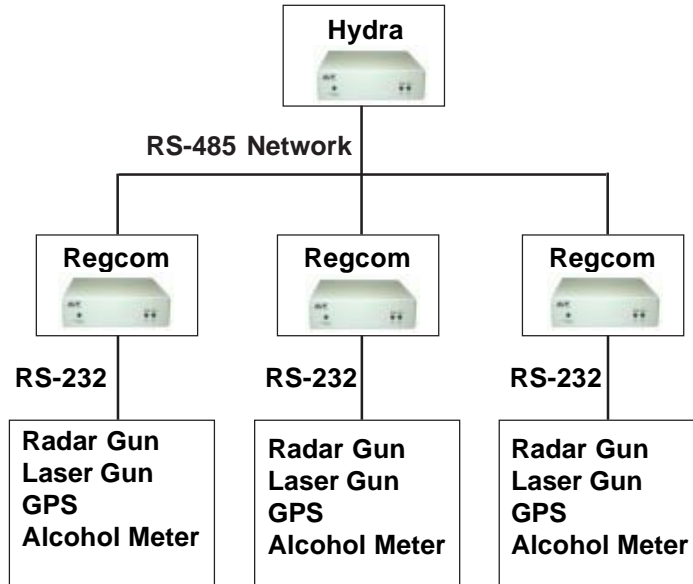
CONNECTION DIAGRAM

Figure 59: RS-485 Connection Diagram

NETWORK TERMINATION

The device at end of the network must be "TERMINATED". An 8 DIP switch on the rear of the unit is used to set the termination. When the switch is set to "ON", the device is terminated. When the switch is set to "OFF", it will be un-terminated.

DB-9 Pin-Out

Pin 1	
Pin 2	RX (RS-232)
Pin 3	TX (RS-232)
Pin 4	
Pin 5	Ground
Pin 6	
Pin 7	
Pin 8	
Pin 9	

Table 4: DB-9 Pin-Out

RJ-45 Pin-Out

Pin 1	
Pin 2	
Pin 3	
Pin 4	RS-485 (+)
Pin 5	RS-485 (-)
Pin 6	
Pin 7	
Pin 8	

Table 5: RJ-45 Pin-Out

VSI-Pro Radar Interface

RS-485 NETWORK DATA CABLE WIRING

(120 Ohm impedance, twisted pair)

RJ-45	RJ-45
Pin 4	Pin 4
Pin 5	Pin 5

Table 6: RS-485 Network Data Cable Wiring

SPECIFICATIONS

Electrical Characteristics

Operating voltage	9-12V DC
Supply Current	<200mA @ 12 V
Data Ports	1xRS-232 (DB-9), 2xRS-485 (RJ-45)

Table 7: Electrical Characteristics

Physical Characteristics

Size	160 x 35 x 110 (mm)
Weight	300 g
Color	Gray
Case material	Plastic

Table 8: Physical Characteristics

RS-232 Parameters

Baud rate	9600
Data bits	8
Parity	None
Stop bits	1

Table 9: RS-232 Parameters

Network Parameters

Standard	RS-485
Max line length	4000 ft
Cable type	120 Ohm twised pair

Table 10: Network Parameters

VSI-Pro Radar Interface

ADDRESS SELECTION

Each Regcom unit on the RS-485 network must be set with a unique network address.

The address is selected using switches 1-5 from the bank of DIP switches on the rear of the unit. The address must correcspond to the DVR channel number that the text is to be associated with.

The address must be set in binary code (see below), SW1 being the "least significant bit".

Address No.	SW1	SW2	SW3	SW4	SW5
1	ON	OFF	OFF	OFF	OFF
2	OFF	ON	OFF	OFF	OFF
3	ON	ON	OFF	OFF	OFF
4	OFF	OFF	ON	OFF	OFF
5	ON	OFF	ON	OFF	OFF
6	OFF	ON	ON	OFF	OFF
7	ON	ON	ON	OFF	OFF
8	OFF	OFF	OFF	ON	OFF
9	ON	OFF	OFF	ON	OFF
10	OFF	ON	OFF	ON	OFF
11	ON	ON	OFF	ON	OFF
12	OFF	OFF	ON	ON	OFF
13	ON	OFF	ON	ON	OFF
14	OFF	ON	ON	ON	OFF
15	ON	ON	ON	ON	OFF
16	OFF	OFF	OFF	OFF	ON

Table 11: Address Selection

LED STATUS INDICATION

Status light A illuminates whenever data is sent from the Regcom to the master unit .

Status light B illuminates to indicate the Regcom is correcly connectly connected via the RS-485 network to the master unit.

Figure 60: Hydra / Regcom Front Panel

Figure 61: Hydra / Regcom Rear Panel

VSI-Pro Radar Interface

RS-485 NETWORKER

The RS-485 Networker is designed to convert the RS-232 serial port output of the VSI-Pro Radar to be a poll/select network. This allows all the transaction data to be collected by one computer for up to 64 VSI-Pro Radars.

APPLICATION

Many users of the VSI-Pro Radar want to capture all the transaction data from several units to one device. The RS-485 Networker allows all data from up to 64 VSI-Pros to be recorded on one PC or sent to one DVR. The user can then later search data history for evaluation. With remote software like PC Anywhere, a remote location could dial into many sites and review exception history and provide a value added service their existing customers.

THEORY

The VSI-Pro Radar contains an internal data buffer of 24K bytes. The VSI-Pro Radar can also be programmed for this buffer to hold all the on-screen data or just exceptions optionally containing Time/Date and other trigger text. The "handshaking" option in the VSI-Pro Radar allows for external hardware handshaking for this output port to be controlled by the "RTS" input. When this hardware handshaking input is false, the data is saved to the internal buffer. When this input is true the data is sent out the serial port. The RS-485 Networker controls this handshaking signal to the VSI-Pro Radar and when the networker is addressed by the host the data from the VSI-Pro Radar is sent to the host. The data from each Networker is saved to a log file on the PC which can be read later as a data history from each VSI-Pro Radar.

RS-485 NETWORK

Up to 64 RS-485 Networkers can be connected on one RS-485 2-wire network. A unique address for each RS-485 Networker is set by its internal dipswitch. The protocol is basically poll/select. The baud rate is set at 19.2K.

RS-485 to RS-232 CONVERTER

A standard PC or Laptop is used with the supplied software. The RS-485 to RS-232 Converter converts the PC or DVR RS-232 to RS-485. The handshaking signals of the PC control the direction of the RS-485 communications.
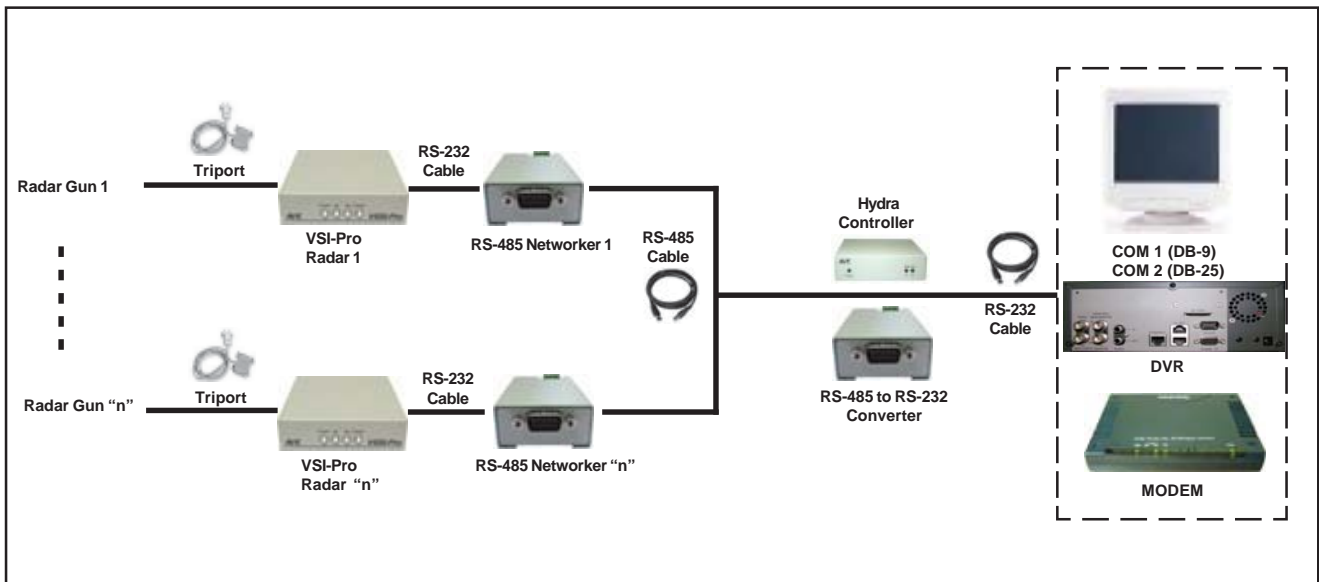
"n" means up to 64 Devices / VSI-Pro Radars / RS-485 Networkers can be connected on one RS-485 Network

Figure 62: Connection Diagram for RS-485 Network

The simple to install and use the Networker PC Software allows up to 64 VSI-Pro Radars and Radar Gun unit to be configured on an RS-485 network and report all the transaction data back to a single monitoring computer. This Windows-based software can be configured to display in a windowing horizontal format below or tiling in a vertical format. All data files are stored separately as independent files on the PC and can be downloaded or searched locally or remotely to find specific transaction data or information. This can be used in conjuction with Windows-based DVR or Radar Gun software and eliminates the use of an additional PC for the collection, search, or transmission.
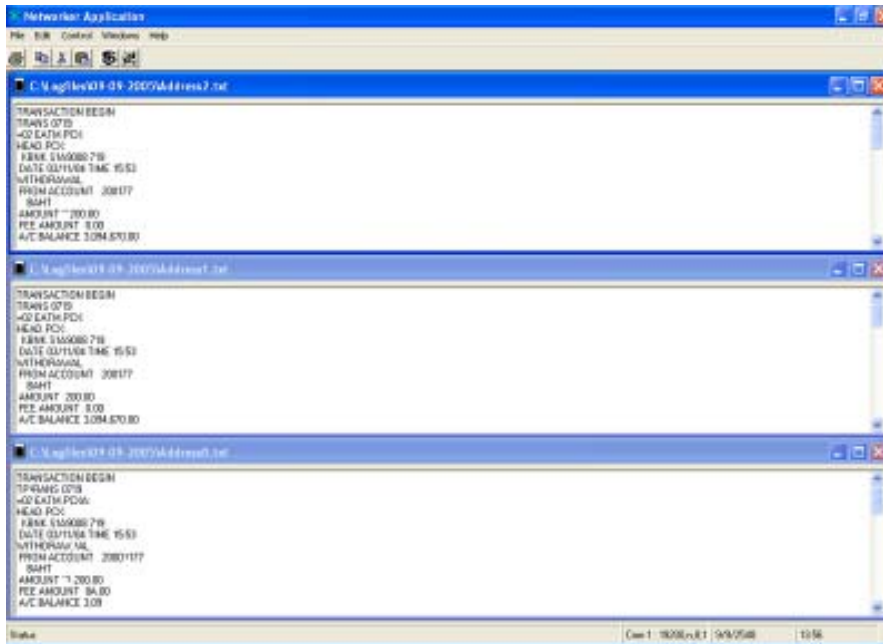
WINDOWS TILE HORIZONTAL

Figure 63: Windows Tile Horizontal

The VSI-Pro Radar provides two open collector transistor alarm outputs to trigger alarming devices. These are Alarm 1 & 2 in the Alarm menu. Upon an Exception, a VSI-Pro Radar can be programmed to trigger a VCR to go to its fastest record time, have a Quad go full screen, home a switcher, trigger a preprogrammed PTZ, or provide visual or audible alarms. The VSI-Pro Radar provides two alarm outputs that are rated at 12VDC @ 20mA maximum.

The following are some basic circuit designs to take advantage of the alarm output option of the VSI-Pro Radar.
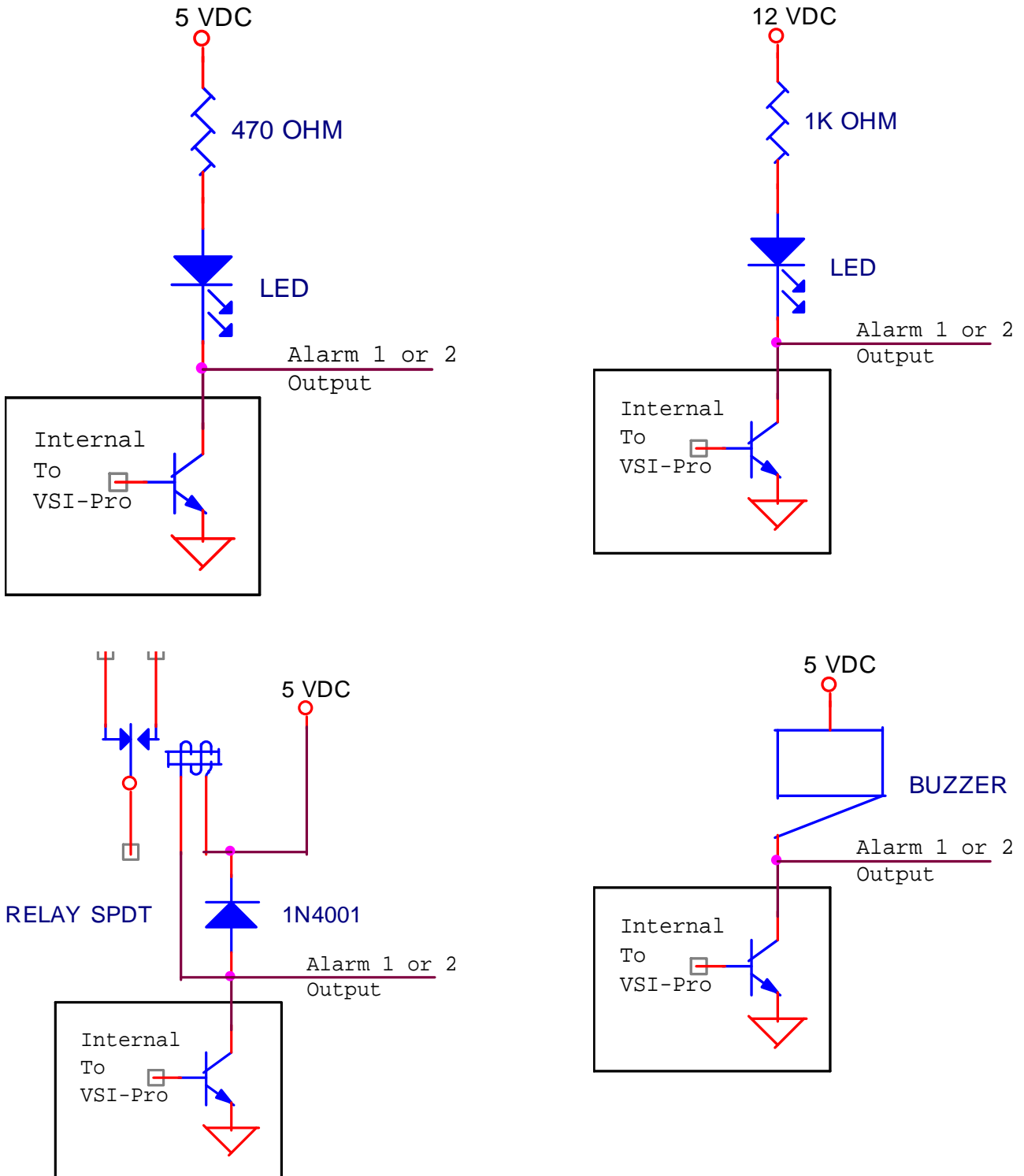

Figure 64: Hard Alarm Output

WARNING!

DOING A MASTER RESET CLEARS ALL PROGRAMMING AND
THE VSI-Pro Radar DEFAULTS TO THE FACTORY SETTINGS.

If you have difficulty entering the main-menu or you changed EPROMS in your VSI-Pro Radar, do the following procedure exactly: Lightly press and hold in the 3 buttons to the left ("Up", "Down" & "Set"). While holding down these buttons, press and release the "Reset" button. Then release the other buttons. Wait a few seconds and the copyright notice will appear on-screen along with the version of software installed in your VSI-Pro Radar.

Upon powering up the VSI-Pro Radar for the first time, if the battery is depleted the master reset should be done. However in some cases the Time/Date display may not have the correct or legible characters. If this occurs, go to the Clock programming section of the menu and reset the clock and program the correct time. The Time/Date display will then function properly and any subsequent master resets will not affect the time.

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.

(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.

6. Use of components that do not meet Seller's specifications.

7. External parts such as cabinets or keypads.

8. Periodic maintenance and adjustments resulting from normal use.

VSI-Pro Radar Interface

> *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 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.

VSI-Pro Radar Interface

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