STALKER PRO II SVR

PRODUCT SPECIFICATION

10/15/2008

GENERAL DESIGN CONSIDERATIONS

The 2007 SVR family will consist of two models.

𝕾𝖙𝖆𝖑𝖐𝖊𝖗 SVR – Share the case design of the **𝕾𝖙𝖆𝖑𝖐𝖊𝖗 PRO II**

𝕾𝖙𝖆𝖑𝖐𝖊𝖗 SVR Speed Sensor – not addressed in this document

Both models will be waterproof to two feet of water depth.

Hand-held model will have reduced operating temperature due to the battery in the handle:

1. -30° C to +70° C (-22° F to 158° F) operating
2. 0° C to +45° C (32° F to 113° F) charging

These following battery chargers are required:

1. 115 VAC Wall Charger for the **SVR** – plugs into the 8-Pin I/O connector. This Wall Charger be designed to charge the battery handle – while attached to the **SVR** model
2. The existing **𝕾𝖙𝖆𝖑𝖐𝖊𝖗 II** fast charger (200-0668-00) will be offered as an optional charger for the **SVR**

Other accessories required:

1. A Tripod Saddle Bracket with ¼-20 thread for both models
2. An RS-232 Serial Cable for both models
3. An RS-484 Serial Cable for both models

LCD DISPLAY

The *STALKER SVR* will use the display elements as shown in the graphic below.
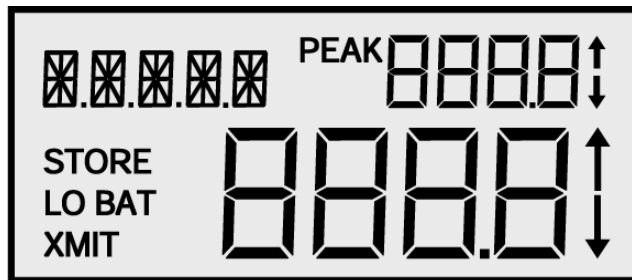
LCD DISPLAY

1. LAST SPEED window: Four 7-Segment Characters (888.8)
2. SPEED AVERAGING window: Four 7-Segment Characters (888.8)
3. MESSAGE window: Five 14-Segment characters (⊠.⊠.⊠.⊠.⊠)
4. **PEAK** icon
5. **STORE** icon
6. **LO BAT** icon
7. **XMIT** icon
8. Four speed window direction arrows

LCD ICON INDICATOR DEFINITION

PEAK: The **PEAK** icon indicates that the current speed measurement is valid and will affect the reported average

STORE: The **STORE** is on when recalling speeds from the RECALL queue.

LO BAT: The **LO BAT** icon indicates the battery voltage is too low. It turns off when the battery voltage is restored

XMIT: The **XMIT** icon indicates speed measurement in progress.

↑ or ↓   A ↑ or ↓ shown to the right of the last speed window
(TO THE RIGHT OF A SPEED WINDOW) indicates the direction of travel of the target (in Auto Direction Mode) or the direction of sensitivity (in Inbound or Outbound Modes). The direction of the ↑ is defined by the table below.

ARROW INDICATOR DEFINITION

TARGET DIRECTION	ARROW
INBOUND	↓
OUTBOUND	↑
EITHER DIRECTION	↑ ↓

Power Modes

1. The radar has four power modes:
2. Transmit Mode – all circuits operating with or without backlight on
3. Standby Mode - all circuits operating except the gunn oscillator. Operating the trigger will initiate transmitting again. After 10 seconds in Standby Mode, the unit will go into Sleep Mode if running on battery power only.
4. Sleep Mode - all circuitry off except the display driver and LCD – about 10mA. Pressing any key will return the radar to Standby Mode. Operating the trigger will place the unit into Transmit Mode.
5. Off – about 10µA. After 30 minutes of inactivity, the unit will power off if running on battery power only.

SWITCHES

1. Trigger (MEASURE)(starts/stops active measurement)
2. MENU
3. DOWN/LIGHT
4. UP/RECALL
5. FLOW
6. ANGLE
7. ON/OFF

All Rear Panel Switches are mechanical

SWITCH DEFINITION

Trigger:	Starts or stops active measurement
MENU:	Puts unit in Menu Mode
DOWN/LIGHT:	Toggles the backlight or, in menu mode, cycles down through menu items
UP/RECALL:	Cycles through previous readings stored in volatile memory or, in menu mode, cycles up through menu items
ANGLE:	Cycles through horizontal cosine angles
FLOW:	Selects water flow direction sensitivity mode (Outbound, Inbound, Auto*)
ANGLE:	Selects horizontal angle (0° - 60° in 5° increments)
ON/OFF:	Toggles power

* When directional sensitivity mode is set to **Auto**, the unit looks for signals in either direction and sets directional sensitivity to the best signal. ↑ and ↓ indicate direction of selected sensitivity.

SVR OPERATOR MENU

OPERATOR MENU OPERATION – Setting up the radar unit is fast and easy. Press the **MENU** key on the keypad to enter the OPERATOR MENU. Press the **MENU** key again to step through the menu items. The **SELECT** key changes the value. To exit the OPERATOR MENU press the trigger. The factory default, for each setting, is indicated by the bold underlined setting.

OPERATOR MENU

Menu Step	Description	FEATURE Step down by pressing MENU key	SETTINGS Change using the SELECT key
1	Sensitivity	SENS	1- 10(**5**)
2	Horizontal Angle	HZANG	**0°**-60° (in 5° steps)
3	Vertical Angle *	VTANG	**0°**-60° (in 5° steps)
4	View Auto Tilt Angle	ANGLE	0°-360°
5	Backlight On/Off	LIGHT	On/**OFF**

* Vertical Angle only appears if VTILT is set to SEL in Option Menu.

SVR OPTION MENU

OPTION MENU OPERATION – Press and hold the **MENU** key while in the OPERATOR MENU to enter the OPTION MENU. Press the **MENU** key again to step through the menu items. The **SELECT** key changes the value. To exit the OPTION MENU, press the trigger. To return to the OPERATOR MENU, press and hold the **MENU** key. The factory default, for each setting, is indicated by the bold underlined setting.

OPTION MENU

Menu Step	Description	FEATURE Step down by pressing MENU key	SETTINGS Change using the UP/DOWN keys
1	Tilt Sensor	VTILT	**Auto**, SEL
2	Units	MPH, KMH, **M/S**, CM/S	Unit
3	Serial Port Speed	BAUD	12, 24, 48, **96**, 192, 384
4	Serial Port Format	FOR	**-**, A, AP
5	Leading Zero *	LEADØ	ZEro, **SPAC**, nonE
6	Message Termination *	TERM	**Cr**, CrLF, u Cr, u CL
7	Calibrate The Tilt Sensor	T CAL	Strt⇨PArA⇨PErP⇨donE
8	Reset	RESET	YES, **no**
9	Reset Confirmation **	SURE?	YES, **no**

* The **Leading Zero** and **Message Termination** menu items only show if Serial Port Format is A or AP.

** The **Reset Confirmation** menu item only shows if **Reset** is set to YES. In this case, only the **Reset** and **Reset Confirmation** menu items are available.

SERIAL PORT FORMAT:

Available message formats are: "-" and "A".

    1.   -   -   Indicates NO OUTPUT.

    2.   A   -   Indicates TARGET SPEED format

A Format (Target Speed Only) - Resolution = tenths

Byte #	Description	
1	Speed hundreds digit (ASCII)	
2	Speed tens digit (ASCII)	
3	Speed ones digit (ASCII)	
4	Decimal Point (0x2E)	
5	Speed tenths digit (ASCII)	
6(+)	Carriage Return (0x0D)	

The **Leading Zero** setting:

When set to SPAC (default setting), ASCII spaces are used for leading zeros:

    "500.0(CR)"

    " 50.0(CR)"

    " 5.0(CR)"

When set to 2Ero, ASCII zeros are used for leading zeros:

    "500.0(CR)"

    "050.0(CR)"

    "005.0(CR)"

When set to nonE, leading zero characters are not transmitted:

    "500.0(CR)"

    "50.0(CR)"

    "5.0(CR)"

The **Message Termination** setting:

When set to Cr (default setting), each message is terminated with only a carriage return (0x0D).

When set to CrLF, each message is terminated with carriage return and line feed (0x0D, 0x0A).

When set to u Cr, each message is terminated with the speed's units and a carriage return: "500MPH(0x0D)".

When set to u CL, each message is terminated with the speed's units, a carriage return and a line feed:

"500MPH(0x0D0A)"

TILT SENSOR CALIBRATION

The tilt sensor calibration menu item initiates a calibration sequence. The sequence is advanced by the **UP** button; pressing the **DOWN** button at any time aborts and restarts the sequence. Strt is displayed first, prompting the user to hit the **UP** button to start the sequence. PArA is then displayed. The user should level the gun (i.e. make it *parallel* with the ground) and hit the **UP** button. If the gun is not close to level, Eror will be displayed and the sequence will start over. Next, PErP is displayed. The user should point the gun straight down (i.e. *perpendicular* to the ground) and hit the **UP** button. Again, the message Eror indicates that the gun is not in the appropriate position. DonE is then displayed, indicating that the calibration sequence has completed successfully.

DEVICE OPERATING MODES

Menu Mode

General Description
This mode is activated either by pressing the **MENU** key to access the **Operator Menu**, or by pressing and holding the **MENU** key to access the **Option Menu**. In either menu mode, the **MENU** button advances to the next settion and the **UP/DOWN** buttons cycle through the available options.

Recall Mode

General Description
This mode is active by default. It is, in effect, the idle mode. Pressing the **RECALL** button cycles through the 10 previous measurements. **STORE** indicates this mode is in effect.

Key Functionality
Trigger	Switch to Measurement Mode
MENU	Switch to Menu Mode
DOWN/LIGHT	Toggles the backlight
FLOW	First press displays current setting, subsequent presses cycle through flow direction mode settings, returns to basic Recall Mode on timeout or other key press
UP/RECALL	Cycle through stored measurements
ANGLE	First press displays current horizontal angle setting, subsequent presses cycle through horizonal angles from 0° to 60° in 5° increments. A long key press decrements angle. Returns to basic RecallMode on timeout or other key press.
ON/OFF	Toggle power

Display Usage
Last Speed Window	Measured speed
Duration Window	Measurement duration associated with measured speed
Message Window	Alternating between Units and storage slot number *

* Storage slot number is not displayed when first returning to Recall Mode. Alternating display of units and slot number is invoked only after the Recall button is pressed and a storage slot greater than one is displayed.

When displaying/changing Direction setting:
Last Speed Window	Inb, Outb, or Auto
Duration Window	blank
Message Window	FLO

When displaying/changing Horizontal Angle:
Last Speed Window	0 to 60
Duration Window	blank
Message Window	ANG

Measurement Mode

General Description
This mode is activated by **Trigger**. It is the active measurement mode. Pressing **Trigger** again completes the measurement and exits Measurement Mode, storing the result in the Recall list.

Key Functionality
Trigger   Terminate measurement and return to Recall Mode
MENU   Abort measurement and enter Menu Mode
DOWN/LIGHT Toggles backlight
FLOW   First press displays current setting, subsequent presses cycle through flow direction mode settings, returns to basic Measurement Mode on timeout or other key press—measurement is restarted by changing the direction setting
UP/RECALL -none-
ANGLE   First press displays current horizontal angle setting, subsequent presses cycle through horizonal angles from 0° to 60° in 5° increments, long key press decrements angle, returns to basic Measurement Mode on timeout or other key press—measurement continues, but if angle is change the measurement is restarted
ON/OFF   Toggle power

Display Usage
XMIT icon is lit, indicating that speed measurement is in progress. ↑ and ↓ to the right of the Last Speed Window indicate either the direction of current measurement (in Auto Direction Mode) or the selected sensitivity direction (in Inbound or Outbound Modes). The **PEAK** icon lights to indicate valid speed measurement.

Last Speed Window   Current average speed measurement
Duration Window   Displays "tnn.n" where nn.n is the number of seconds worth of measurement data being included in the average
Message Window   Instaneous speed measurement

When displaying/changing Direction setting:
Last Speed Window   Inb, Outb, or Auto
Duration Window   Current average speed measurement
Message Window   FLO

When displaying/changing Horizontal Angle:
Last Speed Window   0 to 60
Duration Window   Current average speed measurement
Message Window   ANG

SERIAL PORT COMMAND SET

Command Table:

TBD

GENERAL SPECIFICATIONS

Operational:

TBD