Vantage 6000

Portable Ultrasonic Flow Meter

Eastech Badger
FLOW TECHNOLOGY GROUP

The Vantage 6000 portable transit time ultrasonic flow meter was designed for temporary flow monitoring in full pipe flow conditions.
The unit, depending upon the accessories ordered will be supplied with the 6000 hand held electronics module and display, AC power adapter , Pelican carrying case, Speedrail mounting brackets with mounting chain, two strap on sensors, sensor cables, communication cable and silicone grease.

It will be important to place the sensors and Speedrail assemblies at a place on the pipe, downstream from disturbances, to insure well developed velocity profiles to maintain specified accuracies.

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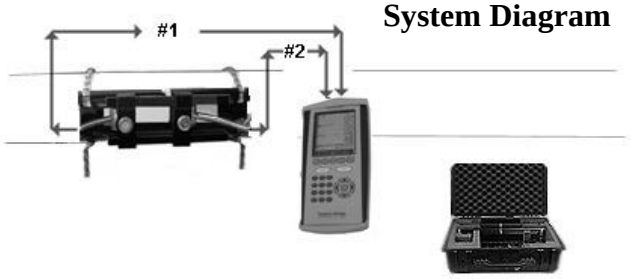
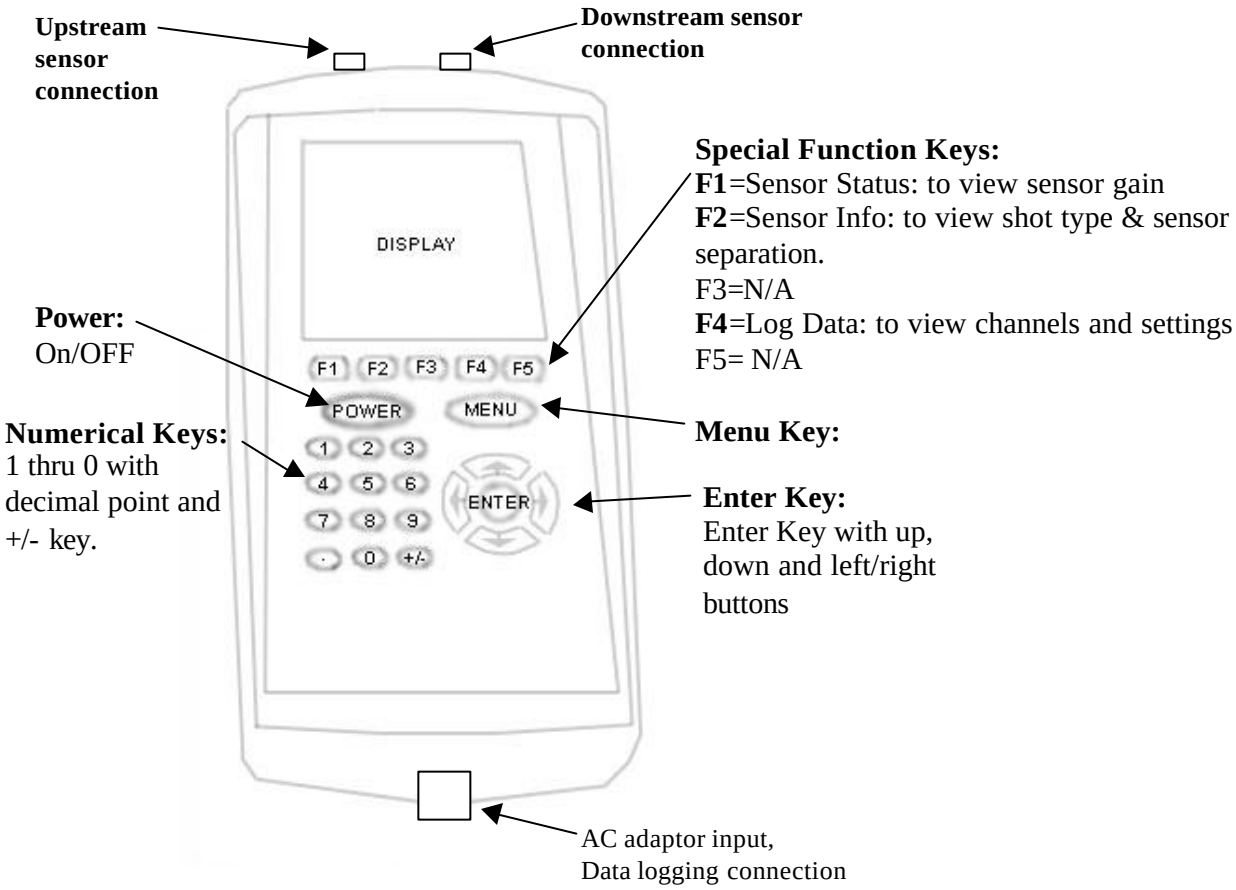
System Diagram



General Specifications

Accuracy	+/- 0.5%
Linearity	+/- 0.5%
Repeatability	0.25%
Temperature Rating:	
Electronics	32 deg to 160 deg F
Sensors	-30 deg to 200 deg F
Humidity Rating	5 to 95%
Output	RS232 Data Logger
Display	160 x 128 Pixels graphical, LED backlit
Keypad	24 button tactical feed back
Power Requirement	Internal rechargeable 9.6 VDC battery
	External 115 to 230 VAC adaptor/charger
Electronics Enclosure:	Water resistant molded polyamide with rubber Boot
Dimensions	11 in x 5.5 in x 3.5 in.
Sensor Material	Ultem plastic, anodized aluminum
Sensor Cable	3 meter length, optional 6 meter extension
SpeedRail	Anodized aluminum and 316s/s
Mounting chain	Stainless steel
Carrying case	Pelican* Series 1550
Total carrying weight=	@ 25 lbs.

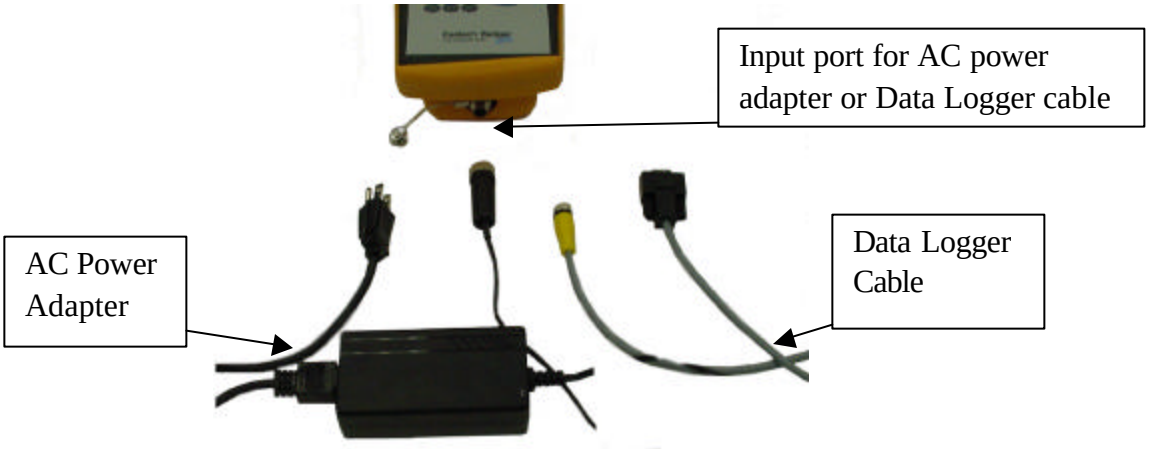
6000 Electronics Module



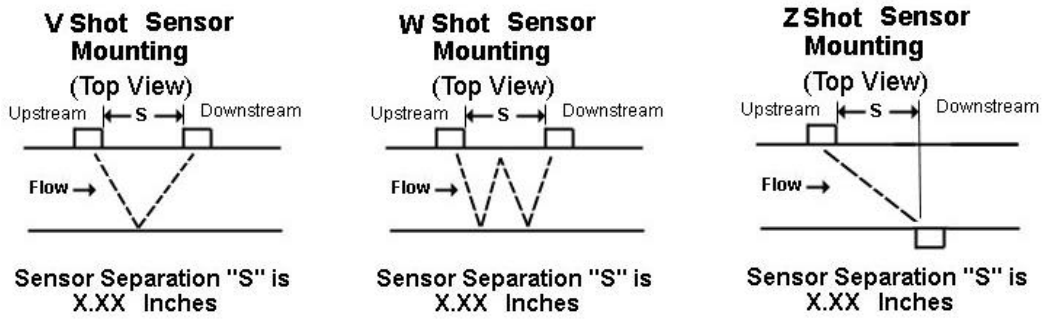
Cables provided with the Vantage 6000 are:

1 each	AC adaptor module and cable: end connection AC wall plug to 8 pin connector. (PN 544748-0001)
1 each	Data logger cable, end connections DB9 to 8 pin connector. (PN 544749-0001)
2 each	Sensors and cables 10ft with 8 pin end connections

Battery is 9.6 VDC (PN 501735-0001)



01)Review Meter: Shot styles and sensor separations. (Also available from Main Screen, key F2)



To Program Meter for Specific Applications: Press the "Menu" key, then the 02 keys.
To Select specific items type the number displayed in front of the required selection.

02)Program

01)Measure Units → Flow Units: Select flow units desirec GPM, MGD, etc → Flow Display Format: Select format desired XX., XX.X , etc → Velocity Units: Select velocity units desired FPS, MPS → Dimension Units: Select units desired. Inch, Feet, mm, etc

02)Sensor Install → Sensor type: Select sensor style to be used
- 01) Strap On
- 02) Wetted
- 03) Windowed
- 04) Special

→ Sensor Style: Select sensor style with matching frequency. Tagged on side of sensors. → Pipe Material: Select pipe material Carbon Steel, PVC, etc → Pipe Schedule: Select pipe class or schedule. If "other", enter wall thickness. → Pipe size: Select size of pipe. If "other" enter the pipe OD

→ Liner Material: Select liner material, if any, and enter thickness → Fluid type: Water, Other. If other enter specific gravity, viscosity (cp) and sonic velocity → Sensor Shot type: Select shot type used V, W or Z shot. (See 01, Review Meter)

Press the "Menu" key then the "Enter" key to store new programming data.
Press the "F2" key on the keypad to review sensor separation distances.

02)Program (miscellaneous)

03)Totalizer → Totalizer Units: Select units desired, GAL, LTR, etc → Totalizer Multiplier: Select multiplier desired X10, x100, x1000, etc

04)Damping → Damping Time: Select time desired None, 10 seconds, etc

05)Lost Signal → Lost Signal Time: Select time desired 5 seconds, 10 seconds, etc → Lost Signal Action: Select action desired Fail to zero, Fail to Span, Hold Last

06)Setpoints → Set Point Selection: Select Setpoint desired. Set Point #1, #2 or #3 → Setpoint # xx ON: Type in flow rate desired for the ON setpoint → Setpoint # xx OFF: Type in flow rate desired for the OFF setpoint

07)Meter Factor → Meter Factor:
- 01) Manual
- 02) Auto

→ 01) Manual Select Zero Offset for meter. → To Adjust Meter Factor.

→ 02) Auto To Adjust Meter Factor

08) Flow Cutoff → To Adjust low flow rate shutdown. Recommended @ 2% of full scale flows.

03)Daily Sum

To view the last eight days of:
Maximum, minimum and average flows and the time of the event.
Use the left arrow to view the previous day.

04)Data Logger

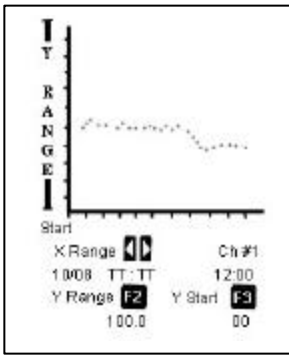
01)Set Time Date → Set time Date:
To set the internal clock for time and date.

02)Storage Rate → Storage Rate:
To select time interval for logged data

03)Secondary → Secondary:
To select time interval for secondary time value

04)Log Channels → Log Channel #:
Select channel number to set logging function → Set Log channel # xx:
Select desired logging function for identified channel.

05)Logged Graph → Select Channel # to Log Graph. → Y Range= Selected Logged Function.(ie, Flow)
X Range= Time



06)Logged Data → To review programmed Channels and the Present logged functions.

07)Amount Stored → To view the logger time and time to store and the amount of bytes stored and the amount of free space.

08)Clear Data → To clear the data logger of all logged data. Press “5” to clear.

05)System Setup

01)Display → To select contrast and backlight on/off of the diplay

02)Data Port → To select Baud Rate, Flow Control, Slave ID and Modem Init.

03)Display Modes → Display Mode 01 is the only function used at this time.

04)Total Reset → To Reset the totalized values to zero

05)New Password → To Enter a new Password for security. Shipped from factory as 00000000

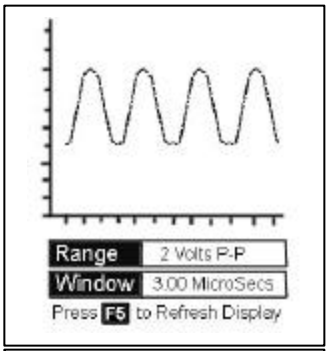
06)Summary Reset → To reset the Summary values to zero

07)Sensor Option → 01) To select sensor power to High or Normal values. Typically strap on sensor are selected as High power. → 02) To select Normal or Reversed sensor polarity.

08)Meter Reset → To Reset the meter to factory default parameters. Unit will need to be reprogrammed to application data.

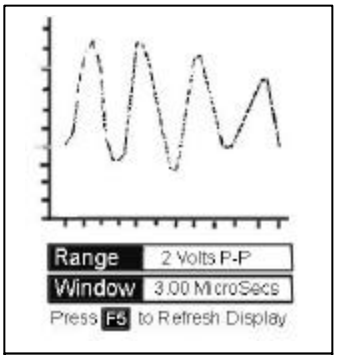
09)New Firmware → **DO NOT USE THIS SCREEN**: Unless the lat est firmware from the factory has been provided.

06)View Signal

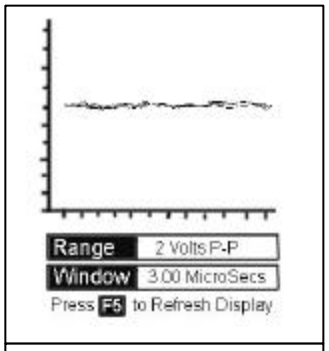


Good Signal Condition:
2 Volts Peak to Peak
3.00 Micro Second Width

Okay Signal on Main Display



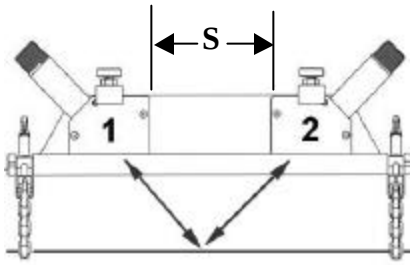
Distorted Signal Condition:
1. Verify pipe programming
2. Verify Sensor spacing
3. Possible Aeration



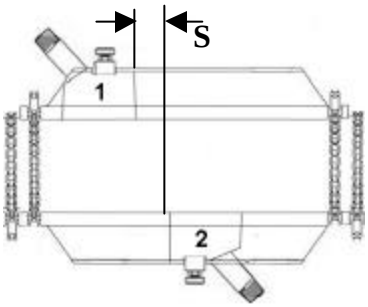
No Signal Condition:
1. Verify Pipe Programming
2. Verify Sensor spacing
3. Verify full pipe condition.
4. Possible aeration

Press the F5 key to refresh display at @ 15 second intervals.

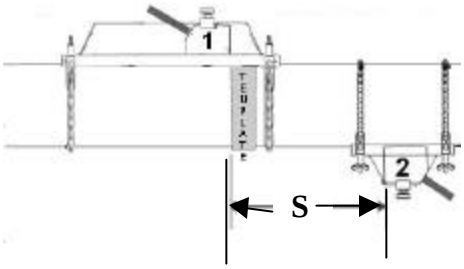
V or W shot
Using One VZC Speedrail



Zshot 1" to 24" pipe
Using VZC Speedrails



Zshot >24" and Larger
Using Template



TOP VIEW OF PIPE
(For all three shot styles)

Sensor and Speed Rail Installation:

1. **Refer to "F2" key on keypad or "Review" in meter programming for sensor separation for programmed application.**
2. **Sensor Rails are to be placed on the side of the pipe. (not the top or bottom of pipe)**
3. **Wrap chain around the pipe and attach to the clip on the clip and thumb screw assembly.**

4. **Tighten the wing nuts to secure rail to the pipe.**

5. **Place silicone grease on the face of the sensor.**

6. **Place sensor #1 into position in the speedrail and slide the retaining bracket over the sensor. Noting orientation of sensor cable.**
7. **Tighten the thumb screw to where the sensor is snug with the pipe.**
8. **Repeat steps 5 through 7 for sensor #2.**