

VANTAGE 3000

AN ECONOMIC BREAKTHROUGH IN
PROCESS CONTROL FLOW MEASUREMENT



Eastech Badger
FLOW TECHNOLOGY GROUP



VANTAGE 3000

ULTRASONIC TRANSIT-TIME FLOWMETER

EASTECH BADGER
INTRODUCES AN
ECONOMIC
BREAKTHROUGH IN
NONINTRUSIVE
FLOW MEASUREMENT

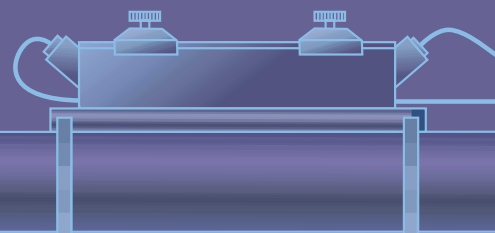
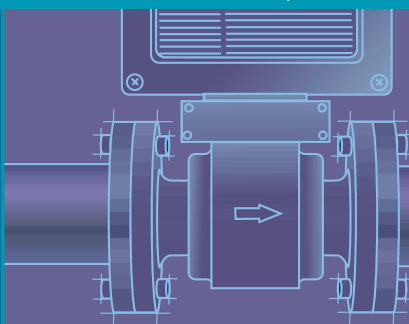
Nonintrusive flow measurement, through the use of transit-time technology, offers installation and operating personnel the economic benefits of reduced material and labor costs. Nonintrusive and devoid of mechanical components, clogging, corrosion and continual recalibration of the flowmeter is eliminated as an ongoing maintenance issue.



MAGMETER (2" PIPE)

TRANSIT-TIME (2" PIPE)

COST ADVANTAGE ANALYSIS



MATERIAL DESCRIPTION	LABOR ¹	MATERIAL	TOTAL COST	LABOR ¹	MATERIAL	TOTAL COST
FLOWMETER	-	3187.00 ²	3187.00 ²	-	2665.00 ²	2665.00 ²
CUT PIPE	100.00	-	100.00	-	-	-
150 RF 304 FLANGES	-	36.56	36.56	-	-	-
WELD FLANGES	100.00	-	100.00	-	-	-
BOLTS, NUTS, GASKETS	-	21.16	21.16	-	-	-
INSTALL MAGMETER	100.00	-	100.00	100.00	-	100.00
3/4" CONDUIT (POWER)	190.50	48.60	239.10	127.00	32.40	159.40
#14 - 3 CONDUCTOR WIRE	18.90	3.90	22.80	12.60	2.60	15.20
3/4" CONDUIT (SIGNAL)	635.00	162.00	797.00	127.00	32.40	159.40
#18 - 2 CONDUCTOR CABLE	305.00	185.00	490.00	61.00	37.00	98.00
TOTAL INSTALLED COST	\$1449.40	\$3644.22	\$5093.62	\$427.60	\$2769.40	\$3197.00

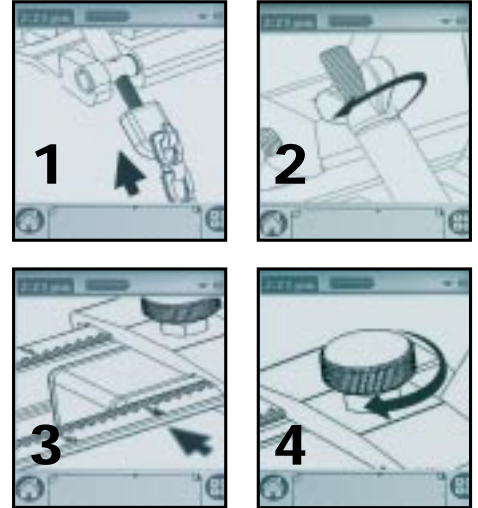
FAST & SIMPLE INSTALLATION

PALM® VISUAL INSTALLATION GUIDE



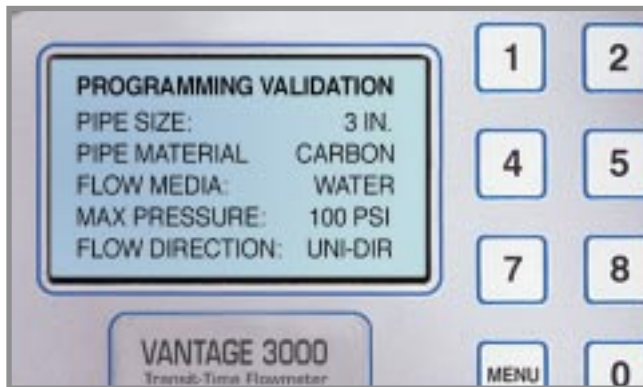
Simple “walk-through” installation instructions are graphically displayed on the Palm® for local reference in the field

By utilizing the Palm® handheld included with each order for the Vantage 3000, a vast amount of installation, start-up and operating information is simply and graphically made available to plant personnel. Plant operating personnel now have on-site access to graphically displayed sensor mounting and wiring instructions, that can be utilized prior to contacting factory technical support. If re-programming is required in the field, the Palm PDA will graphically display the revised sensor mounting instructions.



A Palm® PDA is provided at no charge with each purchase order for the Vantage 3000 Series.

FACTORY PRE-PROGRAMMING



Every Vantage 3000 is shipped to the field factory pre-programmed to the conditions set forth by the customer. Pre-programming specifications are electronically confirmed on the display of the transmitter. If changes to the meter's factory pre-programming is required, re-programming can simply be accomplished on the meter keypad or through the **Auto-Programming** feature. This feature allows plant personnel to re-program the Vantage 3000 by simply downloading the revised flow data from a PC or laptop to the Palm® PDA supplied with the meter. The Palm will re-program the unit to the new specifications.

SPEEDRAIL® SENSOR MOUNTING

Since the externally mounted sensor is the preferred design for transmitting signals through pipe or conduit, a new one-piece **SpeedRail™** sensor mounting system was developed. Mounting of both sensors is quickly and accurately accomplished in two simple steps. Lock the self-aligning mounting rail to the pipe or conduit and load in the sensors.

Once the sensors are connected to the transmitter, the Vantage 3000 is ready to measure flow.



ACCURACY & RELIABILITY

ACCURACY

Eastech Badger was the first company to utilize a phase shift detection system in the design of transit-time flowmeters. This technique greatly improves time difference detectability, which in turn, enhances accuracy and operating stability while substantially reducing the effects of noise.

Rangeability: 40 to 0.1 ft/sec
Turndown: 400:1
Repeatability: 0.25%
Accuracy: ±0.5% of actual rate of flow

Each Vantage 3000 is provided with an NIST traceable flow calibration certificate.

RELIABILITY

Nonintrusive in design and devoid of any mechanical components, clogging of the meter, corrosion and continual recalibration is eliminated as an operating concern. Due to the auto-corrections feature designed into the electronics of the meter, the Vantage 3000 will maintain a consistently accurate reading over changing process conditions and time.



Sensors:
 Class I & II,
 Div. 1 & 2
Groups A - G
Transmitter:
 Class I, Div. 2
Groups A - D

OPERATING SPECIFICATIONS

PERFORMANCE (forward and reverse flow)

Linearity	± 0.5%
Repeatability	0.25%
Accuracy	±0.5% of actual rate of flow
Rangeability	40 to 0.1 ft./sec.
Turndown	400 : 1
Power Supply	High immunity: Approvals CE, UL, CSA
Input Range	85 to 265 VAC
Input Freq. Range	47 to 440 Hz

SENSORS



Pipe Diameter	1" to 8"
Temperature Rating	-30° to 150° F Optional to 300° F
Max. Cable Distance:	1000 ft.
Materials of Construction	
Sensors:	Anod. Alum./Ultem®
Speedrail hardware	Anod. Alum. (304 SS optional)
Sensor Cable	Triax Beldon 9222 (50 ft. std.)
Hazardous Area Installations All sensors have been Factory Mutual approved for use in Class I & II, Division I, Groups A - G, hazardous areas, except in acetic atmospheres.	

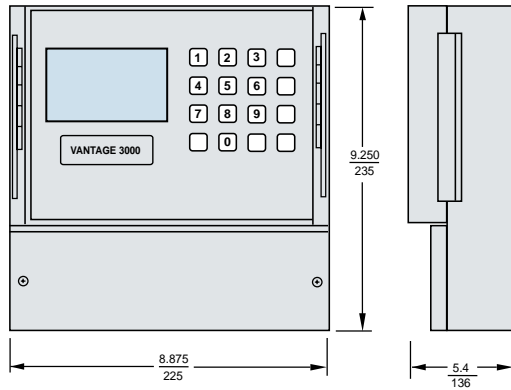
TRANSMITTER



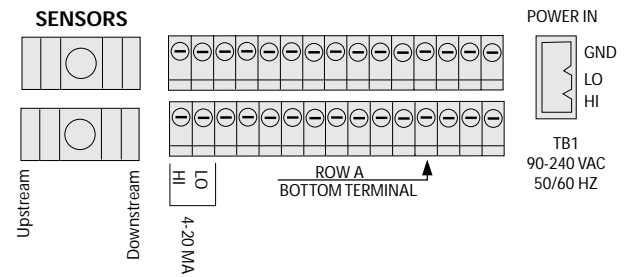
3 Year Warranty

ENCLOSURE	
Standard	Nema, 4, 4X polycarbonate (9.25" x 8.87" x 5.38") Nonincendive Class I, Grps. A - D, Div. 2
Optional	Explosionproof, Aluminum Class I, Grps. C & D, Class II, Grps. E, F, G, Div. 1 & 2
Accessories	Heater and Thermostat, doorlock, modem
TEMPERATURE	
Standard	-4° to 158°F (-20 to 70°C)
With Heater	-40° to 158°F (-40 to 70°C)
OUTPUTS	
4-20 mA	Analog isolated into 800 ohms max, monitored to detect open circuits. RFI and gas discharge surge protection and two fuses.
DISPLAY	
Backlit LCD	128 x 64 Graphic Module
POWER	
Wattage	12
Voltage	80/240 VAC, 50/60 Hz / 12-28VDC @ 250 mA.

DIMENSIONS (inches/mm)



WIRING SCHEMATIC



VANTAGE 3000 SUGGESTED SPECIFICATIONS

A transit-time ultrasonic microprocessor-based flow/velocity meter shall be installed at the location on the plan in accordance with the manufacturer's recommendation. The flow-meter shall be programmed for a pipe size of _____ inches with a pipe material consisting of _____. The flowmeter shall be scaled to a maximum flow of _____ (max. flow and engineering units). The transit-time ultrasonic unit shall have the following features.

Enclosure: IP66/NEMA 4X, Class I, Groups A, B, C, D, Division 2. (FM approved)

Power: 80/240 VAC 50/60 Hz to 12-28 VDC @300mA with surge suppression and fuse.

Outputs: One 4-20 mA isolation into 800 ohms, monitored to detect open circuits, with RFI and gas discharge surge protection and two fuses.

Electronics: The display for the electronics must be a 128 x 64 graphic display with the ability to control the backlighting (On or Off) from the front panel keypad and also adjust the contrast. The meter must employ a menu-driven programming style of data entry. All programming functions, data entry and collection shall be initiated by the display and the 16-button keypad.

Strap on Sensors: The sensors shall be installed per the manufacturer's recommendation. The sensors shall be designed for use in Class I, Division I, Groups A, B, C, & D hazardous areas (FM approved).


The sensors shall be corrosion resistant and be supplied with 50 ft. of cable, 1000 ft. maximum cable runs allowed. Splices shall be made waterproof. All mounting hardware for the sensors shall be provided as a single integrated assembly.

Programming and Installation: Each unit shall be factory pre-programmed to the specific requirements of each application. A visual installation guide, viewable in the field through a handheld device or laptop shall be provided for each application. The device must also have the capability to field re-program each meter.

Warranty: The electronics and sensors shall carry a 3-year warranty.

The unit shall be Vantage 3000 as manufactured by Eastech Badger, Tulsa OK or equal.

ORDERING GUIDE (Please specify pipe size, pipe material, schedule, flow media and flow direction)

Enclosure	Sensors (1" thru 8" pipe dia.)	Extra Cable	Options
3000 Nema 4, 4x FM rated: Nonincendive: Class I, Group A-D, Division 2  • One 4-20mA output	Standard Temperature -30° to 150°F TS-1 High Temperature 300°F TS-3	<p>Note: Each sensor is equipped with 50 feet of cable as standard.</p> <p>100 ft. B</p> <p>Above 100 ft. Please specify exact cable length. _____ ft.</p>	Factory Calibrated A (No Charge) Heater & Thermostat B Keylock C Splice Kit D

*With each purchase order for Vantage 3000's, a Palm PDA is included at no charge.