Control Electronics, Inc.

CPS-460 Ultrasonic Doppler Flowmeter

Technology for a Demanding Future

Featuring

* Detailed Data Logging of Pump Cycles
* 31 Day Data Logged Flow Summary
* Exclusive Valve Control Algorithm
* NIST Traceable
* High Accuracy * Non-Invasive

Control Electronics model CPS-460 Ultrasonic Doppler Flowmeter is a highly accurate, non-contacting liquid flow measuring device. The system is microprocessor controlled and will monitor flows of solid-bearing and/or aerated liquids in most standard pipe materials.

Applications range from monitoring flow rates in sewage works and industrial waste discharges to controlling valve positioning and pump rates.

Year 2000 Compliant

CONTROLLER
Reliable, Accurate, Smart

Precise Flow measurements are continuously made by an ultrasonic sound wave that penetrates through the pipe wall into the flow stream. Advanced techniques, under processor control, evaluate the returned Doppler signal, eliminating and rejecting unwanted components that may interfere with extraction of the true flow signal. This information is converted to an average flow velocity and is applied to the respective pipe size ID selected. The built-in equations calculate a volume flow rate and total flow.

Proportional analog flow rate signals, four relay contact closures and RS-232/485 outputs are available for remote indicating, recording and process control. A detailed Data Logging is also included.

All circuits are protected in a NEMA 4X, IP65 enclosure with a clear polycarbonate hinged cover for easy viewing of flow indications. The optional 460R Controller can be located up to 1000 feet from the measuring site.

PROGRAMMABLE
Flexible, Cost Effective, Simple

Programming of the flowmeter is accomplished by four (4) pressure sensitive buttons on the front panel. All parameters and flow information are indicated on the user friendly menu-driven alpha numeric display. Flow rate indication in PERCENT, GPM, MGD, VELOCITY (FPS) along with Totalized Flow, Signal Strength and Data Logging are all selectable from the front panel.

The programming options in the CPS-460 allow the flowmeter to be extremely flexible in application. The CPS-460 features an exclusive, fully programmable, Valve Control Function that will automatically (or manually) position a valve to a predetermined flow rate using the 4-20mA. output or relay contact closures.

The CPS-460's programmed and totalized flow data is password protected and saved in non-volatile memory in the event of a power failure.

SENSOR
Unique, Efficient, Non-Hazardous

Three different designs
* Single Head
* Dual-Head
* Insertion

The US40 Sensor is a non-contacting, non-contaminating Ultrasonic type probe. A Dual-Head sensor design (US40-DH) is also available. Installation is fast and easy. No stoppage of flow or intrusion into the pipe is required. The Sensor may be installed on steel, PVC, cast iron and some lined pipes of 1" diameter and larger. Our optional US40-IS Insertion Sensor is available for difficult lined pipes. All Sensors are non-hazardous, housed in solid PVC, require no maintenance and are explosion-proof, corrosion resistant and submersible.
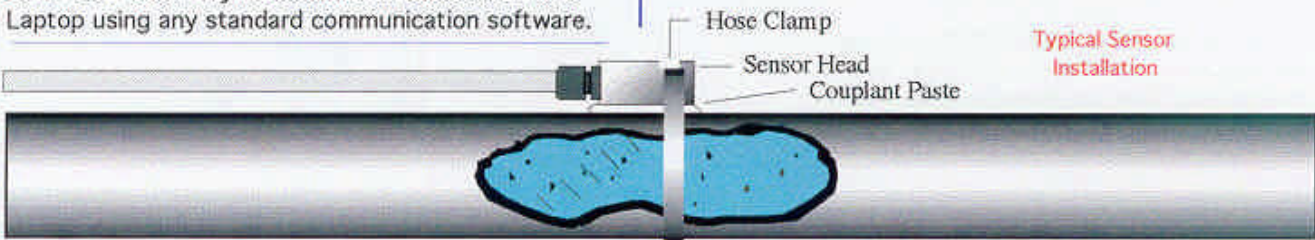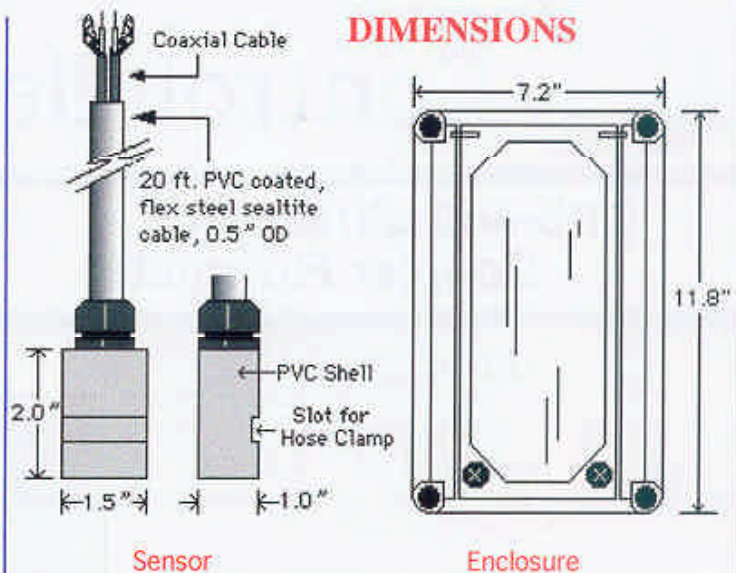
DATA LOGGING
Sophisticated, Extensive, Powerful

The CPS-460 automatically logs daily flows with auto wrap around. It records the daily average GPM flow rate, total flow pumped, total pump run time, total pump cycles and date for the past 31 days. This means the operator only needs to read his daily totals once a week, month or whatever is convenient.

A second detailed data logging records the date, start time and run time of each pump cycle, the total pumped for cycle, average GPM pumped and sequentially numbers the pump cycle for the past 14 days.

All data logged information may be viewed at the flowmeter and is also available through the optional RS-232/485 output. Data can be DIRECTLY printed to a serial or parallel printer on demand or automatically without the need of a personal computer or additional software. Data may also be downloaded to a PC or Laptop using any standard communication software.

DIMENSIONS

Coaxial Cable

20 ft. PVC coated, flex steel sealtite cable, 0.5" OD

2.0"

←1.5"→

PVC Shell

Slot for Hose Clamp

←1.0"

7.2"

11.8"

Sensor　　　　**Enclosure**

Hose Clamp
Sensor Head
Couplant Paste

Typical Sensor Installation

CPS-460 Specifications

Specifications and design subject to change without notice.
Made in USA　　Bulletin # 98-460-04

Electronics

Power Requirements:	120/220 VAC, ±15%, 50/60 Hz 12-24 VDC @ 12W max.
Temperature:	30°F to 120°F (-5°F with opt. heater)
Display:	2 line x 20 character, Alphanumeric, LCD with LED backlighting
Totalizer:	8 digit accumulative with programmable multiplier. x1, x10, x100, x1000 31 daily, 8 digit totalizers
Outputs:	0-10 VDC adjustable, 4-20 mA isolated into 1000 ohms, RS-232, RS-485, 4 relay outputs - 2 Setpoints and 2 programmable pulse, SPDT 7A/250 VAC
Flow Range*:	0.5-30.0 feet per second
Sensitivity**:	Minimum 75ppm Suspended Solids or entrained gas/air bubbles
Resolution:	0.01FPS, 0.01 GAL/MIN
Accuracy***:	±0.5% of received signal
Memory:	Non-volatile RAM, Flash

*Flow velocities of less than approximately 1 FPS not recommended
**Application Dependent - velocity/pipe may necessitate higher ppm
***Received signal is application dependent. Field/application conditions can affect apparent accuracy.

Sensor

Material:	PVC Housing, Epoxy
Temperature:	-40°F to 160°F exposure
Cable:	20 feet in PVC coated, flexible steel conduit, 0.5" OD. 50 feet max.
Mounting:	1.0" to 72" pipe using stainless steel pipe strap and supplied couplant paste
Pipe Material:	Steel, PVC, Cast Iron, Most FRP and some lined pipes
Dimensions:	1.5"W x 2.0"L x 1.0"H (sensor head only)

Enclosure

Material:	Fiberglass with clear hinged Polycarbonate cover.
Rating:	NEMA 4X, IP65, Water-Tight, Dust-Tight Corrosion-Resistant: CSA, UL listed
Dimensions:	7.2"x11.8"x6.8": mounting 4.92"x12.3" with stainless steel mounting feet

Options

Dual-Head or insertion Sensor, Recorders, 460R remote, Heater/Thermostat, Sensor Cable, SP-100 interface cable ....
Warranty: The CPS-460 system is pre-tested and quality control inspected before shipping. Warranty is against defects in parts and workmanship for a period of 1(one) year.

Control Electronics, Inc.

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SERVONICS INSTRUMENTATION

Sales & Service
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