



Control Electronics, Inc.

PDS-360 Ultrasonic Open Channel Flowmeter

Technology For A Demanding Future

Features

- * 6 Months of Daily Flow Totals with Flow Summary
- * Time Stamped Data Logging of Average Flow Rate with EVENT List
- * 5 Programmable Relay Outputs
- * 2 Independent 4-20 mA. Outputs
 - * Quick, Easy Setup
 - * Non-Contacting

Control Electronics PDS-360 Series Ultrasonic Open-Channel Flowmeters are non-contacting, highly accurate liquid flow measuring systems. They are microprocessor controlled and will monitor liquid flow through any flume or weir. Applications range from monitoring flow rates in sewage works to industrial waste discharges.

CONTROLLER *Reliable, Accurate, Smart*

Precise flow depth measurements are continuously made under processor control. Ultrasonic sound pulses are transmitted from the sensor and elapsed time of echo return is accurately calculated. This information is converted to a depth-of-flow and is applied to the respective equation for the flow device selected. The built-in equations or user defined equation produce a flow rate and totalized flow.

Proportional analog flow rate signals (4-20 mA.), relay contact closures and RS-232 outputs are available for remote indicating, recording, sampling and process control. Data logging of flow rate and a **6 month summary of Min, Max, Avg flow and totals** are available for downloading and analysis.

All circuits are protected in a NEMA 4X (IP65) fiberglass enclosure with a clear polycarbonate hinged cover for easy viewing of all flow indications.



PROGRAMMABLE *Flexible, Cost Effective*

Programming of the flowmeter is accomplished by four pressure sensitive buttons on the front panel. All parameters and flow information are indicated on the menu-driven alpha numeric display. Flow rate indication in PERCENT of scale, GPM, MGD, DEPTH of flow along with accumulated TOTAL gallons, sensor temperature and data logging are all selectable from the front panel.

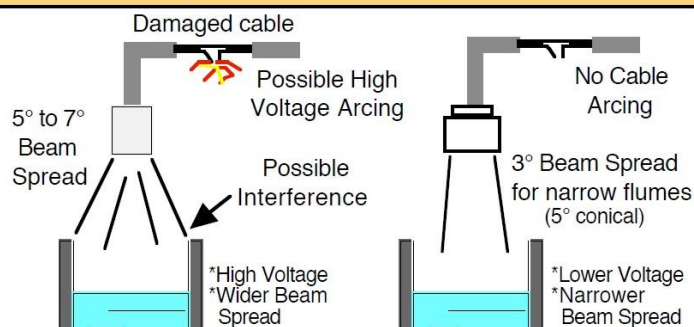
Programming options in the PDS-360 allow the flowmeter to be extremely flexible in application. Two (2) scalable and independent 4-20 mA. outputs with four (4) control relays with independent ON/OFF settings and one (1) programmable pulse (sampler) relay outputs will satisfy just about any application requirement.

The PDS-360 will measure a Parshall Flume today and easily monitor a Palmer-Bowlus or other flume/weir tomorrow. All programmed data, totalized flow and data logging are password protected and saved in nonvolatile memory in the event of a power failure.

SENSOR *Non-Hazardous, Non-Intrusive*

The Sensor is a non-contacting, non-contaminating Ultrasonic type probe with temperature compensation. Unlike some systems that apply a high voltage (as much as 400 to 1500 volts) to their sensor cable, the PDS-360 sensor (US70TC) requires a pulse of only 50 volts maximum. This means the sensor is non-hazardous, eliminating potential arcing of a faulty cable which could be a threat to personnel or the environment. Installation is fast and easy **using only an inexpensive twisted pair shielded cable**. No stoppage of flow or intrusion into the flow is required. The rugged sensor is housed in solid PVC, requires no maintenance and is considered explosion-proof, corrosion resistant and submersible.

Important Considerations



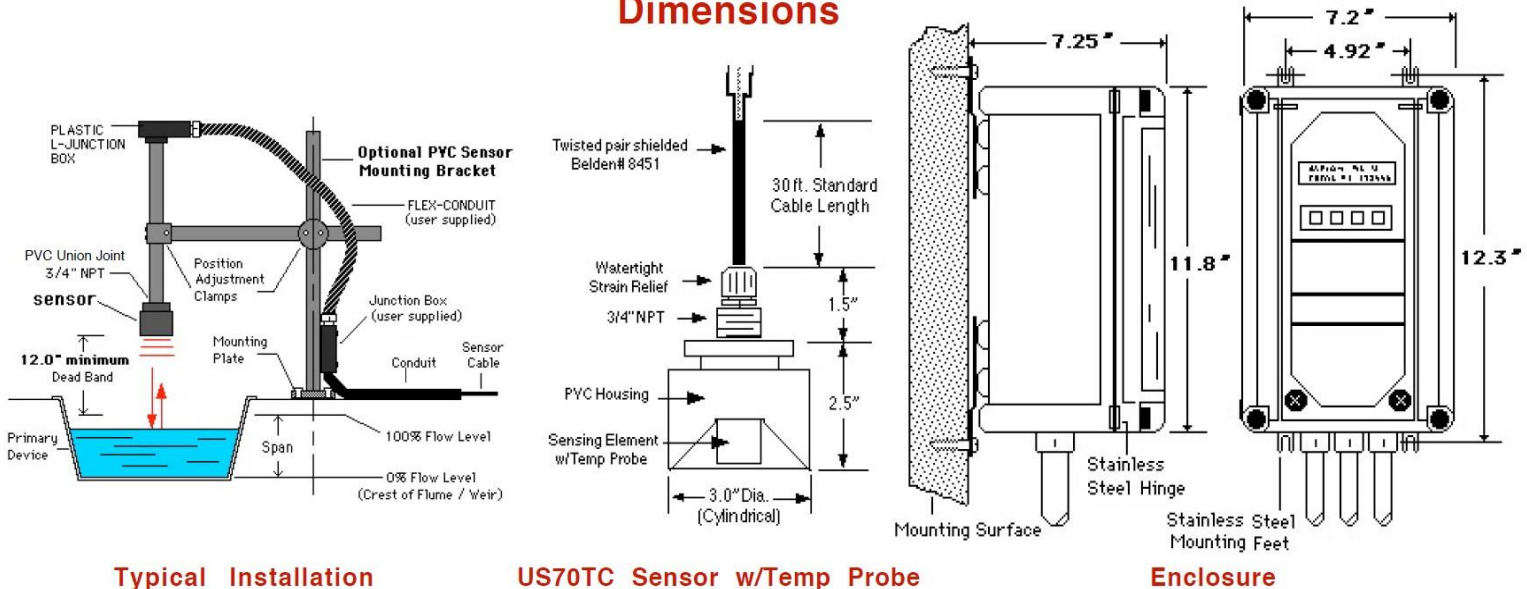
Competitor Designs US70TC Sensor Design

DATA LOGGING *Sophisticated, Extensive, Powerful*

The PDS-360 automatically logs daily flows for the past 6 months with auto wrap around. It records the date, daily average GPM rate, min/max GPM flow rate with time they occurred and total flow for each day. This means the operator only needs to read the daily totals once a week, month or whatever is convenient. The system also logs and time stamps the average flow rate between samples taken. The logging sample rate is programmable from 0-99 minutes in 1 minute increments.

A time stamped EVENT list is also included to record actions the flowmeter has made such as relay ON/OFF, when programmed, signal or power loss etc. All data logged information is preformatted and may be downloaded to a PC through the RS-232 output using any standard communication software package such as HYPER-TERMINAL.

Dimensions



Typical Installation

US70TC Sensor w/Temp Probe

Enclosure

PDS-360 Specifications

Specifications and design subject to change without notice.
 Made in USA. Bulletin # 97 - 360 -17 -11

Electronics

Power Requirements: 120/220 VAC, $\pm 15\%$, 50/60 Hz
 12-24 VDC @ 15W 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 of x1, x10, x100, x1000
 200 daily, 8 digit totalizers

Outputs: Two (2) independent 4-20 mA isolated into 1000 ohm, RS-232 terminal, RJ11 modular jack, 5 relays - 4 control and 1 programmable pulse (sampler), SPDT 5A/250 VAC contacts

Span Range: 0-1.00" to 0-150.00" full scale

Dead Band (blanking): 12.0" to 36.0"

Display Resolution: 0.01", 0.01 gal/min

Accuracy*: $\pm 0.5\%$ of range, calculated error less than $\pm 0.04\%$

Memory: Flash and nonvolatile RAM

Flow Equations: Parshall, Palmer-Bowlus, Leopold-Lagco, Rectangular Weirs with or without end contractions, V-Notch Weirs, User Defined, Programmable Lookup Table

Data Log: 200 day 24 hour flow summary: min, max, AVG GPM, Total Gallons - time stamped
 Avg GPM flow rate with programmable log rate of 00-99 minutes in 1 minute increments - time stamped
 EVENT List: time stamped

Sensor w/temp probe (US70TC)

Material: PVC Housing, Epoxy

Temperature: -40°F to 160°F exposure

Cable: 30 foot corrosion resistant, 1000 feet max. Twisted Pair Shielded, Belden# 8451 or equal.

Beam/Freq.: 5° Conical, 40 kHz. Pulsed, 50Vp-p

Mounting: 3/4" NPT male

Dimensions: 3.0" dia. x 4.0" Len.

Sensor is considered explosion proof, immersible, suitable for Class 1, Div. 1, Grps. C, D.. Class II, Div. 1, Grps. E,F,G environments.

Enclosure

Material: Fiberglass, clear hinged Polycarbonate cover

Rating: NEMA 4X, IP65, Dust-Tight, watertight, Corrosion Resistant, CSA, UL listed

Dimensions: 7.2"x11.8"x6.8"

Mounting: 4.92"x12.3", Stainless Steel mounting feet

Options

Heater/Thermostat, Sensor Cable, PVC Sensor Mounting Bracket

PDS-360DX ... same as PDS-360 w/o relays or data logging

Warranty: the PDS-360 system is pre tested and inspected before shipping. Warranty is against defects in parts and workmanship for a period of one (1) year from ship date.

* Field conditions, such as turbulence, poor installation etc. may affect the apparent accuracy.