

# 16430S11- ULTRASONIC FLOW METER, TREATED CHILLED WATER WITH FMS INTERFACE

## GENERAL/PHYSICAL

Flow Computer: Microprocessor based system

Flow Media: Treated Chilled Water

Pipe:                    \_\_\_ inch O.D (nominal)  
                         \_\_\_ inch I.D. (nominal)  
                         \_\_\_ inch (nominal) wall thickness  
                         \_\_\_ carbon steel  
                         \_\_\_ cast iron  
                         \_\_\_ other (PVC, glass ...)  
                         \_\_\_ concrete lined (approx. \_\_\_ inch)  
                         normally full at all times

Distance between processor and all sensors: \_\_\_ft. (max)

Non volatile totalized flow and setup information memory such that loss of power does not result in loss of this information. Also, system must automatically resume, without human intervention, prepower failure operation when normal power is restored.

## FLOW SENSORS

Ultrasonic (wide beam) - NOT DOPPLER TYPE  
Sense flow of treated chilled water -40 to +40 FPS  
Clamp on (no internal pipe obstruction)  
NEMA 4 enclosure  
Mounted \_\_ horizontal \_\_ vertical \_\_ \_\_\_ degree angle  
Must be factory adjustable to work on pipe I.D. +/- 5%

## LOCAL OUTPUT INDICATION

Digital display of gallons-Field selectable divide by n  
Digital display of instantaneous water flow (GPM)

## REMOTE OUTPUTS FOR EMS AND BTU METER INTERFACE

Pulse output representing integral flow (Gallons), (10 PPS Max), min. make 40 ms, min. break 25 ms, dry relay contact type.  
4-20 MA representing instantaneous flow (gallons)  
TTL output of flow system fault alarm  
RS 232C I/O connection equipped for remote output of all data (language - Basic, protocol - ASCII).

## ENCLOSURE

All system components to be enclosed in a NEMA 4 enclosure and all displays and alarms to be visible with enclosure shut.

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**Author: Main Campus PPD**

**Dated: 7/01**

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POWER 115 V.A.C., 60 HZ.

ENVIRONMENT Ambient Temperature: 0 - 120 degree F

LIGHTNING PROTECTION (To be provided by system installer)

All electric/electronic equipment supplied must be externally lightning/transient surge voltage protected on all external power feeder and input/output connections which are subject to surge voltage (lightning) transients. Provide high speed clamping elements which meet IEEE. STD. 472 (SWC) on all digital or analog data channels.

NOTE: If this spec. applies to systems which are to be installed in underground pits, the 115 V.A.C. supply voltage and all remote input/outputs must be lightning protected.

## ACCURACY

System outputs must be within 3% of actual measured quantities over the complete operating range.

Basic Accuracy - 3% actual FLOW

Linearity Error - 0.25%

Repeatability Error - 0.25% Max.

Sensitivity - 0.001 ft/sec (any flow rate)

## DOCUMENTATION

Provide three (3) complete sets of system documentation. Documentation to include installation, calibration, operation, maintenance and repair manuals of sufficient detail to enable customer to install, calibrate, operate, maintain and repair the complete system. Documentation also to include circuit schematics, wiring interconnection diagrams and necessary mechanical drawings.

## ACCEPTABLE MANUFACTURERS

System 990 by Controlotron, 155 Plant Avenue, Hauppauge, N.Y. 11788 or equal.

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