Case Study

Thermal Heat flow metering utilising Clamp-On Ultrasonic water measurement provides cost-effective, minimal disruption, installation and maintenance solution for Campus District Heating Systems

Kings College - London heats its campus sites via a number of boiler houses, generating thermal energy for distribution to individual buildings via LTHW (Low Temperature Hot Water) networks.

A pilot system of new meters was installed 12 months ago to identify the thermal energy use of individual buildings, facilitate their management as Energy Cost Centres and provide information for Building Energy Labelling in line with European Directives.

The new meter installations on the Guys campus, which represent circa 10% of the university is currently being manually read. However, the plan is for the meters to be read automatically via the university's BEMs system, to provide continuously updated information for Monitoring and Targeting including benchmark comparisons with energy consumption norms for the university sector.

Having considered various measurement alternatives Clamp-On Ultrasonic meters were selected due to the installation and maintenance/service benefits associated with the non-invasive technology including low cost

Micronics UF2000 Clamp-on, Ultrasonic flow meters combined with CalecST heat calculators were chosen because they are non-invasive i.e. they can be installed without the need to cut into existing pipework.

U2000 Flow Meter

CalecST heat calculator

The clear benefits are:

- Significantly lower installations costs (40% Less) than an alternative in–line meter installation!
- Less disruption than installing an alternative in-line meter.
- Avoidance of residual venting problems associated with system drain down.

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Ultraflow 2000

- Simple set-up menu.
- Current, pulse or set point outputs.
- High temp. Transducers-option.
- Energy meter version.

Electronics:- ABS housing with clear polycarbonate front panel waterproof and dustproof to IP66.
Temperature Range:- +5°C to + 60°C.
Keypad:- 16 key panel for set up, Diagnostics. Access password protected
Display: 2 x 16 LCD. Backlit.
Power Input:- 110/240VAC +/-10% 50/60Hz @ 50watts 24VDC +/- 10%, 6 watts.
Outputs:- Flow proportional 0/4 – 20mA Active opto isolated into 1000ohms. Bi-directional; 5v Pulse or set point relay. 5A- SPDT. Selectable rate and totaliser to 12 digits.

Transducers:- A, B, C or D sensors factory selected based on flow rate.
Range:- 0.5m/sec to 10m/sec.
Operating Temp. –20°C to +125°C Optional hi-temp to 175°C
Accuracy:- < +/- 3% of reading or +/- 0.02/sec whichever is the greater
Repeatability:- < +/- 1% with unchanged Transducer positions.

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CalecST Heat Meter

- Allows accurate energy calculations - used in conjunction with a flow meter
- Quick and easy setup.

Sensor probes:- 4 wire PT100 clamp-on 150mm/ 2 wire PT500 insertion.
Power:- Mains 240Vac/24Vdc/Battery (6 year life).
Options:- AMBUS central hub with GSM/Ethernet for up to 240 CalecSTs.
Output options:- Pulse / Pulse with Mbus / 4-20mA / LON
Units:- Selectable, volume, Delta T, Hot and Cold temperature, Kwh Total, Instant energy.
Programming:- No programming required- set and forget.

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