



# Pump Energy Audit

Custom, Reliable Hydronic Systems

[www.tamashydronic.com](http://www.tamashydronic.com)

# HOW MUCH DOES ENERGY WASTE COST YOU EVERY YEAR?

IF YOU DON'T KNOW, IT'S TIME TO FIND OUT

## Simple Solution

The industrial sector is the largest employer of pumps, but most other building types, from hotels to hospitals to private homes, also depend on them for comfort and sanitation.

Pump Audits show that up to 60% of the energy consumed by pumps could be saved. In other words, there is a significant potential for saving money if your old pumps are replaced with new efficient pumps. With rising energy prices, it makes sense to get a professional check-up and to see how fast a new investment may pay back with a new Tamas pump package installed.

A Pump audit is performed by our specialists based on measurements. It focuses on the amount of material the pump is handling and flow variations during a relatively short and well-defined period.

The audit assesses the overall efficiency of your pumps and proposes changes to be made to improve efficiency. The proposals are supported by calculations of the savings to be made, the reduction in CO<sub>2</sub> emissions, and the payback time on any investment.

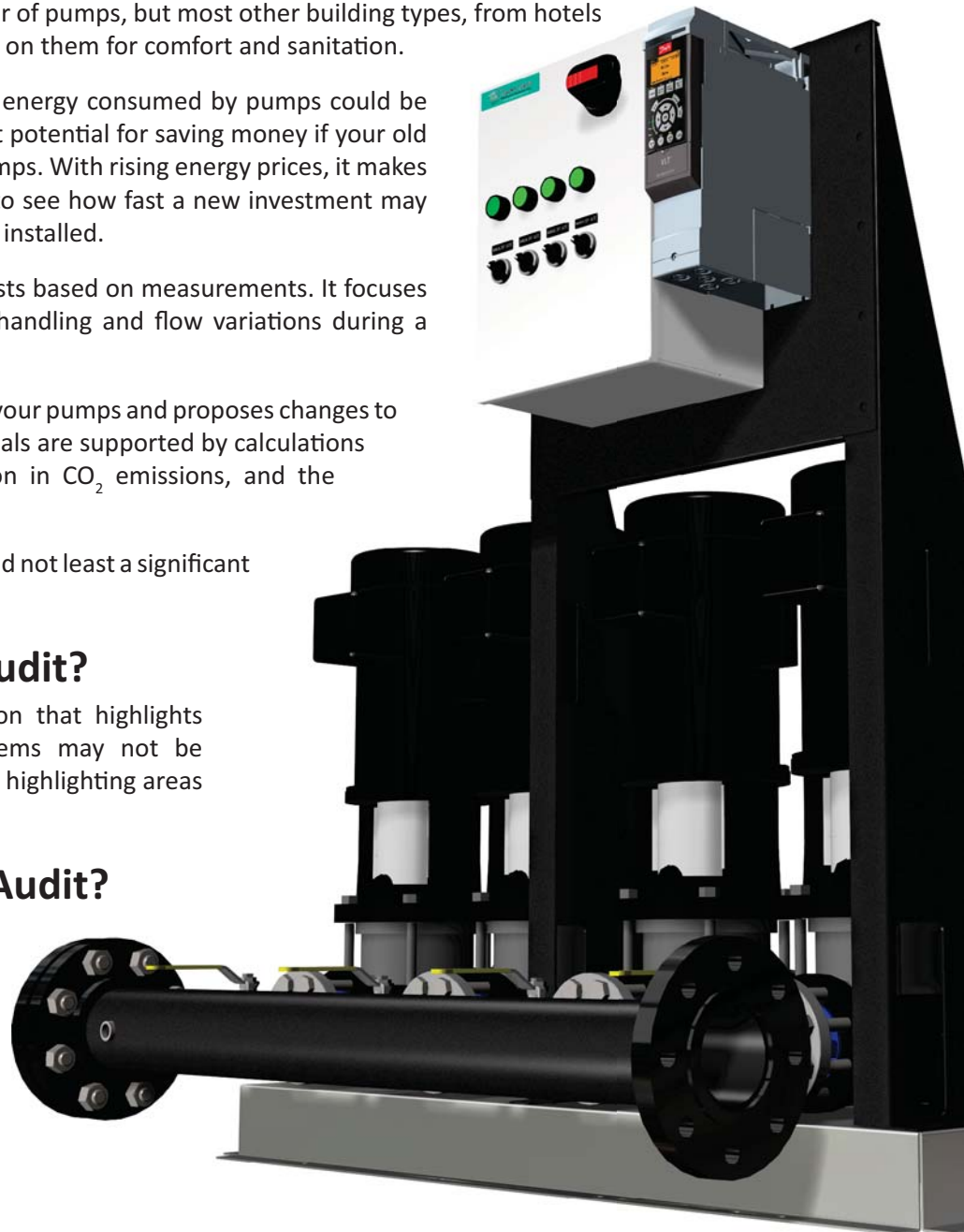
The benefits are operational cost savings and not least a significant reductions to installation carbon footprint.

## What is a Pump Energy Audit?

A Pump Energy Audit gathers information that highlights areas where pumps and pumping systems may not be operating at optimum efficiency, as well as highlighting areas for improvement.

## Why Get a Pump Energy Audit?

By undertaking a Pump Energy Audit, we will provide you with a report that recommends ways to improve pump efficiency and quotes for the remedial work, as well as calculating the payback period for any new equipment or repairs.



## How does a Pump Energy Audit work?

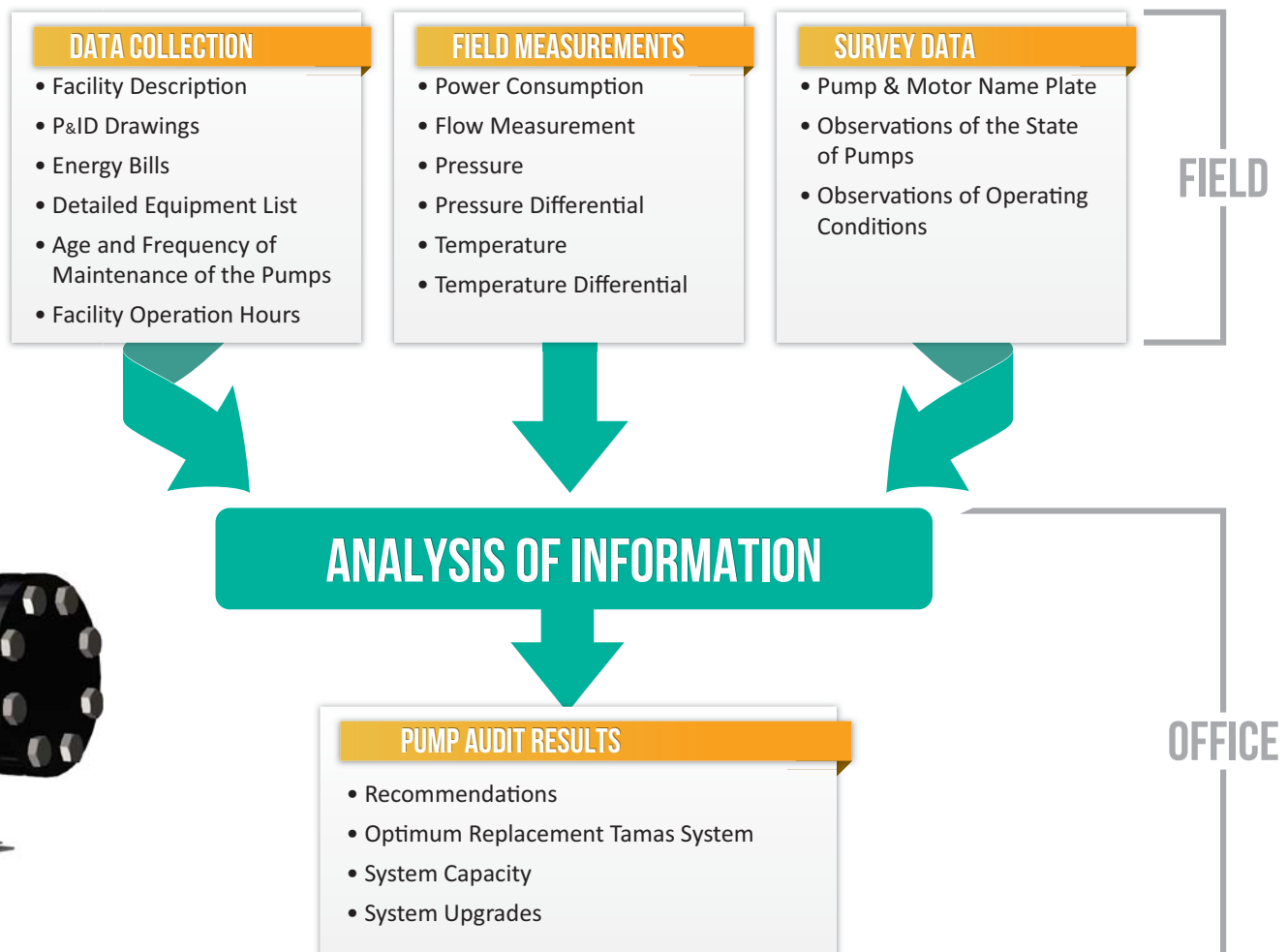
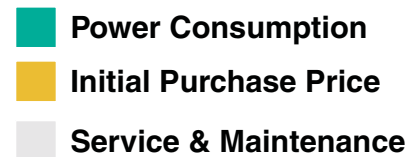
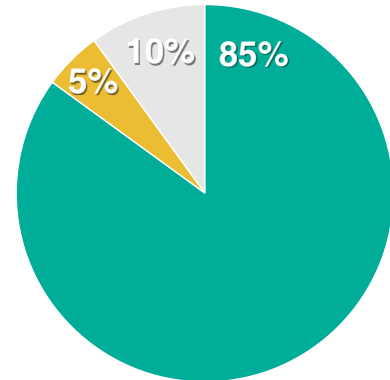
The first stage in a Pump Energy Audit is the data gathering. We will send a trained technician to set up monitoring equipment on your premises. The technician will ask questions about operating conditions – are they used all the time, or are they used only at particular times?

The measuring equipment may be in place from a few days to a few weeks, depending on the size and complexity of the system. Sometimes, our technician may need to move the equipment to capture data from different pumps.

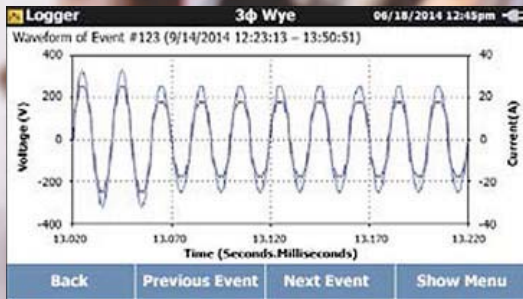
We analyze the data and provide a report that identifies all recommended actions for improvement, along with estimated costs and payback periods. For example, this may include replacing or repairing a pump or motor, redesigning a hydraulic circuit, or installing a variable speed drive.

Our Pump Audit will check-up on the efficiency of your pumps. During a test period it will reveal how much energy you could save by switching to a different and maybe more modern pump model. The audit outlines the recommended changes, the energy saving, CO<sub>2</sub> reduction and the payback time.

Pumps require energy to run and energy costs account for over 85% of the total running cost of a pumping system. And much of the energy that you are paying for is going to waste. Thus, it is not difficult to understand the necessity to optimize energy consumption.

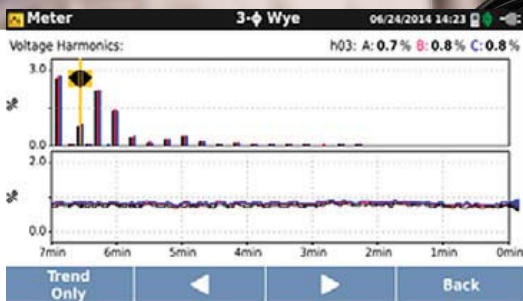






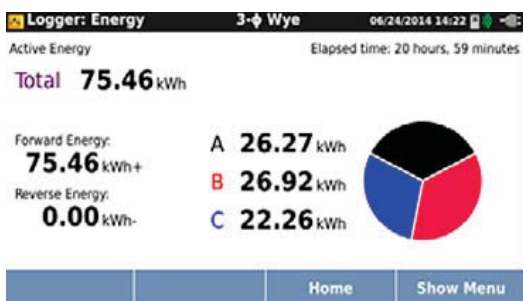
### Energy Assessments

Quantify energy consumption before and after improvements to justify energy saving devices.



### Harmonics Measurements

Uncover harmonic issues that can damage or disrupt critical equipment.



### Load Studies

Verify electrical system capacity before adding loads.

**Voltage and Current Event Capture**  
monitor for dips and swells that cause spurious resets or nuisance circuit breaker tripping.



## Energy Meter

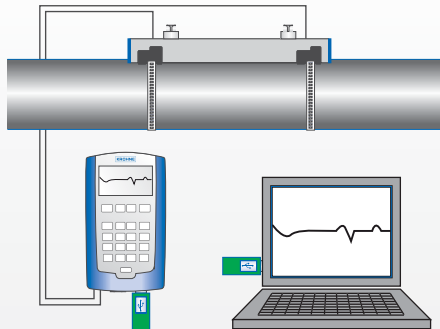
Fluke 1736

Power monitoring is an important process in identifying current and potential power quality issues and addressing them before they get out of hand. Good power monitoring equipment can provide reliable information about power quality, demand and flow.

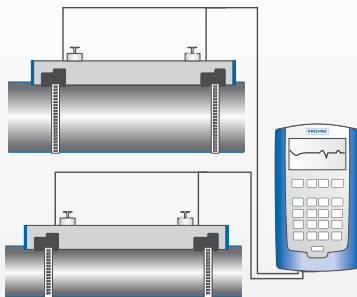
Power quality is a measure of how well a system supports reliable operation of its loads. A power disturbance or event can involve voltage, current, or frequency. Power disturbances can originate in consumer power systems, consumer loads, or the utility.

Our Energy Audits classify basic measurements of voltage and current in such a way that the state of health of the electrical system can be quantified. The Audit also measures incoming and outgoing pressure, and logs it for desired time periods. Using these measurements, with the input of the energy cost, we can directly calculate the actual cost of the energy used by the system during a specific time period.

### Singular measurement

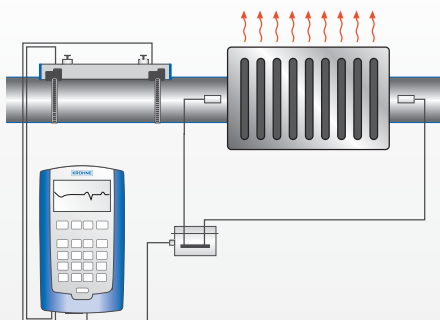


### Dual measurement



Two flow sensors of the same type can be connected to the converter electronics simultaneously for dual path or dual pipe flow measurement.

### Heat flow volume measurement



The ultrasonic flow meter can calculate thermal energy using the input of 2 temperature sensors and providing a temperature difference.



## Ultrasonic Flow Meter

### Optisonic 6300P



The flow meter is a battery powered, ultrasonic non-invasive clamp-on flowmeter that can be fitted on the outside of piping to measure the flow rate of liquids. It consists of a combination of one or two clamp-on sensor(s) and one handheld electronic signal converter.

The ultrasonic flow meter is a perfect measuring device for temporary flow monitoring in numerous hydronic applications, with an accuracy of within 1%. Thanks to its mobility, the device is equally suited to comparative measurements on stationary measuring equipment or for use as a short-term replacement for faulty devices.





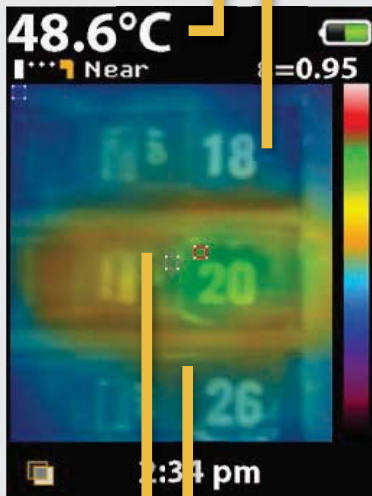
## Visual IR Thermometer

Fluke VT04



Center-point  
temperature  
(°C/°F)

Infrared  
Heat Map  
Overlay



Hot & Cold  
Markers

Digital Image for  
Context

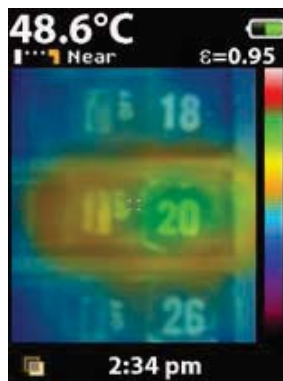
Every Fluke Visual IR Thermometer has a built-in digital camera with an infrared heat map overlay to instantly identify the exact location of the problem.

The VT04 Visual IR Thermometer combines a center-point temperature measurement with a blended digital image and heat map overlay and find heating. The Visual IR Thermometer scans a broad area with the blended digital image and heat map overlay to quickly identify temperature anomalies that need more inspection.

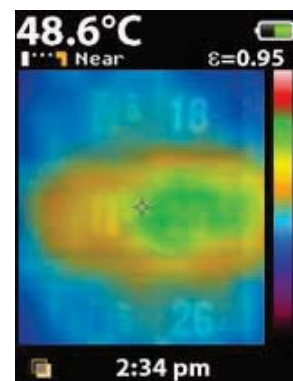
The Visual IR thermometer is ideal for electrical panel inspection, pump and motor inspection. The device finds heating and ventilation problems and is a non-contact monitoring of pumps, electrical motors and panels.



25% Heat Map



50% Heat Map



75% Heat Map

# Pump Energy Audits - Potential Savings

## Case Study Examples



**Before** **After**

**Apartment Building**  
Edmonton, AB  
Heating Pump Application

|                           | Before      | After       |
|---------------------------|-------------|-------------|
| # of Pumps                | 2           | 2           |
| Output Power              | 10 HP       | 5HP         |
| Energy Use                | 305,464 KWh | 116,177 KWh |
| Energy Savings (%)        |             |             |
| Energy Savings (\$)       |             |             |
| CO2 Savings (Metric Tons) |             |             |
|                           | 61.97%      |             |
|                           | \$26,500.00 |             |
|                           |             | 171.68      |

Data Collected over 570 Days of Operation



**Before** **After**

**Condominium Tower**  
Edmonton, AB  
Heating Pump Application

|                           | Before      | After       |
|---------------------------|-------------|-------------|
| # of Pumps                | 2           | 2           |
| Output Power              | 10 HP       | 7.5HP       |
| Energy Use                | 398,797 KWh | 142,873 KWh |
| Energy Savings (%)        |             |             |
| Energy Savings (\$)       |             |             |
| CO2 Savings (Metric Tons) |             |             |
|                           | 64.17%      |             |
|                           | \$35,829.00 |             |
|                           |             | 232.12      |

Data Collected over 1299 Days of Operation



**Before** **After**

**Apartment Complex**  
Edmonton, AB  
Booster Pump Application

|                           | Before      | After       |
|---------------------------|-------------|-------------|
| # of Pumps                | 2           | 2           |
| Output Power              | 15 HP       | 5HP         |
| Energy Use                | 463,132 KWh | 164,395 KWh |
| Energy Savings (%)        |             |             |
| Energy Savings (\$)       |             |             |
| CO2 Savings (Metric Tons) |             |             |
|                           | 64%         |             |
|                           | \$41,823.00 |             |
|                           |             | 270.95      |

Data Collected over 862Days of Operation

## Energy Saving Products For Your Building

### FEATURES

- Highly efficient plus a variable frequency drive, saves energy costs
- Available in cascade control or parallel applications
- Can run up to 5 pumps
- Pumps Sizes from ½ HP to 300 HP
- Simple installation and operation
- Thoroughly tested systems that arrive ready to install
- An affordable option for your pressure boosting applications

Multi-stage pumps achieve efficiency with up to 30% improvement compared to single-stage spiral housing pumps with a large impeller diameter.

Simple solutions, such as cascade controls, high efficiency motors, and multiple pumps offer an improvement over existing large, single stage inefficient pumps.







**Custom, Reliable Hydronic Systems**

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