

Turn Your Keysight Handheld Meter into a Data Logger

Case Study

Petros Electric Uses
Keysight Handheld Meters
as Data Loggers

Introduction

Peter Argyropoulos, owner and sole employee of Petros Electric, is a professional electrician open to trying new tools to improve his service. Peter groups his work into two categories: service calls and contracting jobs. Contracting jobs are typically installations that have a well-defined scope. In contrast, the majority of service calls are from homeowners unable to resolve electrical issues on their own. These problems typically involve performing diagnostics and troubleshooting, and require test and measurements tools to identify the root cause. Recently Peter tried the Keysight Technologies wireless remote connectivity solution, which allowed him to use his Keysight handheld meters together as a data logger system.

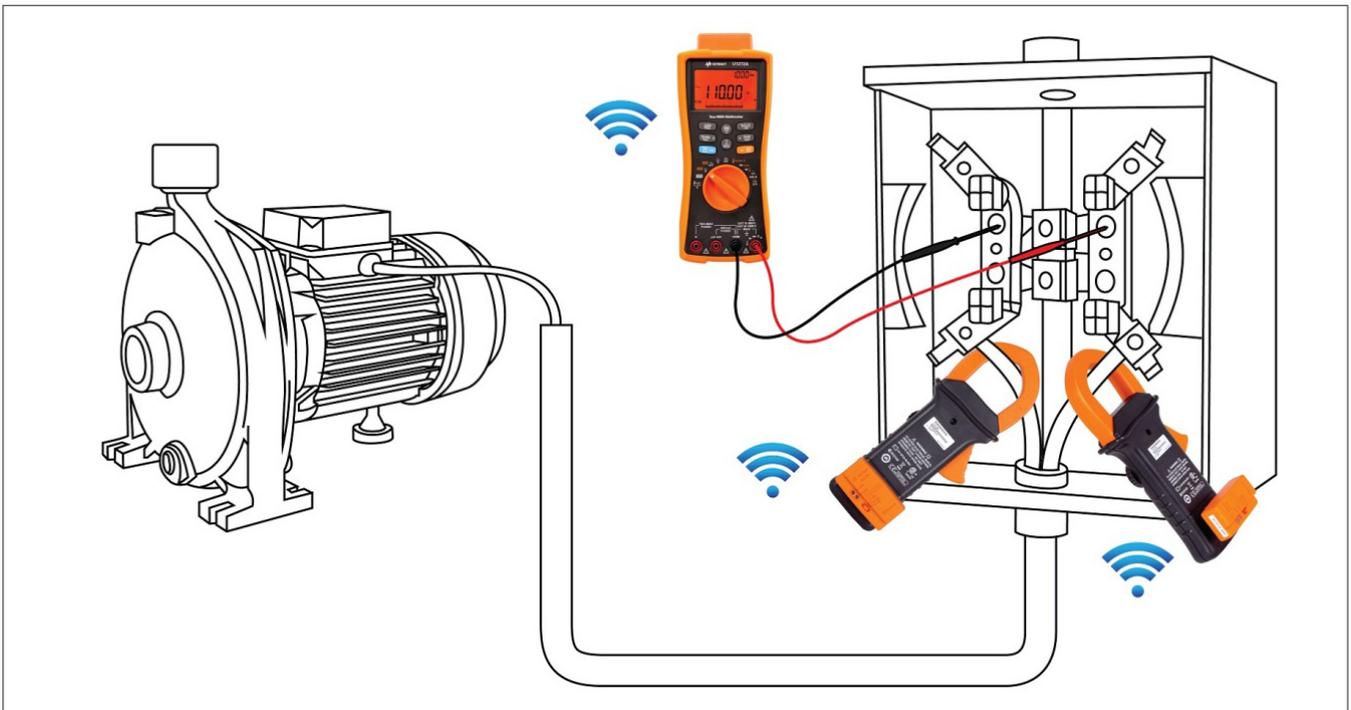


Figure 1. Application configuration

Problem

One of Petros Electric’s customers owns a small farm. This customer was concerned about his extremely high electricity bill, which covered a 30-day billing period during the winter months. Even though his usage habits had not changed over that duration, he was charged for significantly higher usage. Like many small farms, his was not an energy intensive operation. Most of the electricity was used in the main house and a small bungalow for typical loads, like lighting, cooking, HVAC, and hot water. Without any idea why power consumption had changed so drastically, he called Petros to isolate the problem.

Solution

To initiate troubleshooting Peter needed to monitor the farm’s power loads over a period of time. Without a data logger, this troubleshooting task would be difficult however he used Keysight’s newly-introduced wireless remote connectivity solution. The configuration used one Keysight U1272A handheld multimeter and two U1212A clamp meters, each equipped with Keysight U1177A Bluetooth® adapters. The solution also included an android tablet or phone loaded with a free Keysight Mobile Logger application.

Using the two clamp meters, he was able to monitor the current on the two “hot” wires of the service as show in Figure 1. The Keysight U1272A multimeter was used to measure the voltage between the two “hot” wires.

After monitoring the main service feeders for about 1.5 hours, Peter was able to spot a large, intermittent load. The graph (similar to the one shown in Figure 2) showed that something was running approximately 1 minute and 20 seconds every four minutes. It was now possible to narrow the problem down to the water pump, which lead to the discovery of a broken underground water pipe in an outbuilding. Under normal conditions, the pump would only run when someone was using the water. The constantly running water pump had played the major role in the farm owner’s high electricity bill along with a number of other small loads like a space heater used that winter and a water bed heater, both of which showed up on graph as constant, low level loads.

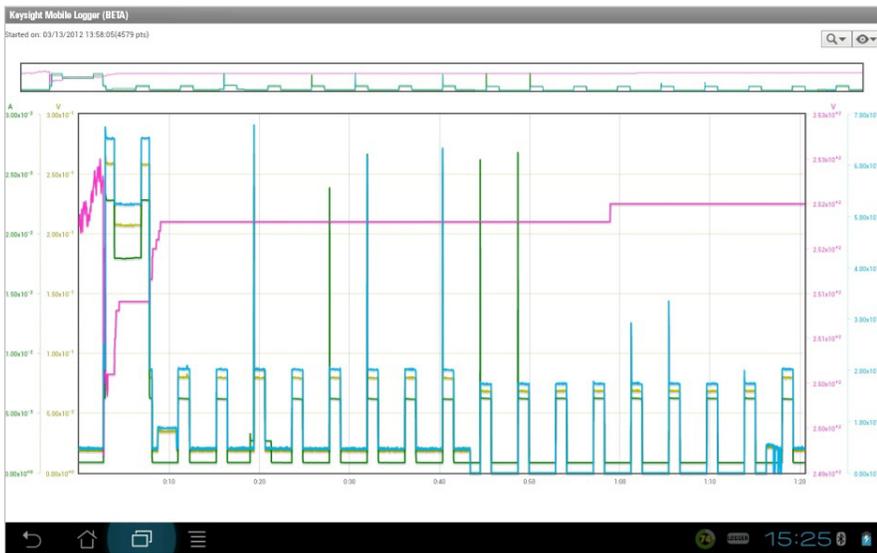


Figure 2. Voltage, current, and power trend logging with Keysight Mobile Logger app



Summary

Investigating faults that trigger high electricity bills can be a very challenging and time-consuming task. With a simple tool like the Keysight U1177A *Bluetooth* adapter, you can now turn your Keysight handheld multimeter into a trend logging device to gather important data for troubleshooting. This information allows you to analyze usage and determine if the loads in an electrical system are performing normally. Upon activation, the Keysight Mobile Logger can be deployed and left unattended to measure and record information for monitoring a specified time period. This allows a graph to be created that provides a comprehensive, accurate picture of the load conditions being monitored, at down to one second intervals which provides a much better illustration of what is going on in comparison to multiple, single measurements taken at unrelated points in time. The Keysight wireless remote connectivity solution frees you from needless repetitive testing and allows you to achieve higher productivity.

myKeysight

myKeysight

www.keysight.com/find/mykeysight

A personalized view into the information most relevant to you.



www.axistandard.org

AdvancedTCA® Extensions for Instrumentation and Test (AXIe) is an open standard that extends the AdvancedTCA for general purpose and semiconductor test. Keysight is a founding member of the AXIe consortium.



www.lxistandard.org

LAN eXtensions for Instruments puts the power of Ethernet and the Web inside your test systems. Keysight is a founding member of the LXI consortium.



www.pxisa.org

PCI eXtensions for Instrumentation (PXI) modular instrumentation delivers a rugged, PC-based high-performance measurement and automation system.



Three-Year Warranty

www.keysight.com/find/ThreeYearWarranty

Keysight's commitment to superior product quality and lower total cost of ownership. The only test and measurement company with three-year warranty standard on all instruments, worldwide.



Keysight Assurance Plans

www.keysight.com/find/AssurancePlans

Up to five years of protection and no budgetary surprises to ensure your instruments are operating to specification so you can rely on accurate measurements.



www.keysight.com/quality

Keysight Technologies, Inc.
DEKRA Certified ISO 9001:2008
Quality Management System

Keysight Channel Partners

www.keysight.com/find/channelpartners

Get the best of both worlds: Keysight's measurement expertise and product breadth, combined with channel partner convenience.

Bluetooth and the Bluetooth logos are trademarks owned by Bluetooth SIG, Inc., U.S.A. and licensed to Keysight Technologies, Inc.

ATCA®, AdvancedTCA®, and the ATCA logo are registered US trademarks of the PCI Industrial Computer Manufacturers Group

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at: www.keysight.com/find/contactus

Americas

Canada	(877) 894 4414
Brazil	55 11 3351 7010
Mexico	001 800 254 2440
United States	(800) 829 4444

Asia Pacific

Australia	1 800 629 485
China	800 810 0189
Hong Kong	800 938 693
India	1 800 112 929
Japan	0120 (421) 345
Korea	080 769 0800
Malaysia	1 800 888 848
Singapore	1 800 375 8100
Taiwan	0800 047 866
Other AP Countries	(65) 6375 8100

Europe & Middle East

Austria	0800 001122
Belgium	0800 58580
Finland	0800 523252
France	0805 980333
Germany	0800 6270999
Ireland	1800 832700
Israel	1 809 343051
Italy	800 599100
Luxembourg	+32 800 58580
Netherlands	0800 0233200
Russia	8800 5009286
Spain	0800 000154
Sweden	0200 882255
Switzerland	0800 805353
	Opt. 1 (DE)
	Opt. 2 (FR)
	Opt. 3 (IT)
United Kingdom	0800 0260637

For other unlisted countries:
www.keysight.com/find/contactus
(BP-06-23-14)

