

Hello and thank you for subscribing. This month we continue our smart city series.

You can download a pdf copy of this newsletter [here](#).



Contents

- * [MQTT - Communication for the Internet-of-Things](#)
- * [Your DAQ Questions Answered](#)
- * [Data Acquisition News Round-Up](#)

MQTT - Communication for the Internet-of-Things

Web link: <https://www.windmill.co.uk/mqtt-internet-of-things.html>

MQTT is a simple messaging protocol, using very low bandwidth. It's the perfect solution for Internet-of-Things applications. MQTT makes it easy to establish communications between millions of devices and so is ideal for [Smart City applications](#).

When a publisher in the Smart City - such as a pollution sensor - has new information to distribute, it sends a message with the data to the connected "broker" or server. The broker then distributes the information to any "clients" that have subscribed to that topic, such as an app showing today's levels of nitrogen dioxide and other pollutants.

Some terms used in MQTT

MQTT Messages

Information that devices exchange. Either commands or data.

MQTT Topics

A label attached to a message. Lets a device register interest for that type of message, or sets where it wants to send its message.

MQTT Broker or Server

Receives messages and publishes them to all clients subscribed to that topic. The terms server and broker are interchangeable for MQTT.

MQTT Client

Subscribes to a topic and receives information from the broker, for example an app running on a mobile phone showing people counts. A client may also publish messages to the broker, so a people counter could be a client.

Publish

When a publisher, like a people counter or temperature sensor, sends information to the broker.

Subscribe

When a client, like a reporting system, wants to get a specific type of information from the broker.

Your Data Acquisition Questions Answered:

Question

I am interested in a simple DAQ package. Purpose is to link Circutor energy power meters together with some China meters. Circutor meters have RS485 while the China ones have both TCP and RS485 outputs. Can this be done with your software? If so what are all the components needed?



Answer

You can download the free comDebug software from <https://www.windmill.co.uk/serial.html> and try for each meter type. This will allow you to read from either RS485 or tcp meters. If you can get the readings you want you can download the full Windmill package which will let you collect from multiple devices, using the files you have created in comDebug.

comDebug can take readings from all sorts of devices communicating over RS232, RS422, RS485, Modbus and TCP/IP.

DAQ News Round-up

Welcome to our round-up of the data acquisition and control news. If you would like to receive more timely DAQ news updates then follow us on [Twitter](#) - [@DataAcquisition](#) - or grab our [rss feed](#).

Honeybees can solve maths tests without using numbers

The insight could be used to design more sophisticated machines based on the brains of animals, which have evolved to find the simplest, most efficient way to carry out certain tasks.

Source: The University of Sheffield

<https://www.sheffield.ac.uk/>

New device measures fat burning in breath

Breath holds the key to monitoring fat burning, and a research group from in Japan has created a compact device that uses an ultraviolet lamp to gauge exhaled acetone gas, which is produced in the blood through the metabolic reaction of fat.

Source: Tohoku University

<https://www.eng.tohoku.ac.jp/>

Soft sensor could map pressure points for amputees

A soft, flexible sensor system created with electrically conductive yarns could help map problematic pressure points in the socket of an amputee's prosthetic limb

Source: NC State University

<https://news.ncsu.edu/>

Wearable device turns the body into a battery

Researchers in the US have developed a low-cost wearable device that transforms the human body into a biological battery.

Source: University of Colorado Boulder

<https://www.colorado.edu/>

Biosensors monitor plant well-being in real time

The information from the sensors may help agriculture to adapt production as the world faces climate change.

Source: Purdue University

<https://liu.se/>



Underwater glider could silently survey the seas

Autonomous underwater vehicles have become versatile tools for exploring the seas. But they can be disruptive to the environment - new design solve these problems.

Source: SCUBA News

<https://news.ncsu.edu/>

* Copyright Windmill Software Ltd

* For more articles see <https://www.windmill.co.uk/>

We are happy for you to copy and distribute this newsletter, and use extracts from it on your own web site or other publication, providing you credit Windmill Software as the source and link back to our website.

Subscribe or read previous issues at

<https://www.windmill.co.uk/newsletter.html> For previous issues by subject see <https://www.windmill.co.uk/monitorindex.html>

CANCELLING SUBSCRIPTION

Visit %%unsubscribe%% to unsubscribe. Any problems contact monitor@windmillsoft.com.

Windmill Software Ltd, PO Box 58, North District Office,
Manchester, M8 8QR, UK

Telephone: +44 (0)161 833 2782

Facsimile: +44 (0)161 833 2190

E-mail: monitor@windmillsoft.com

<https://www.windmill.co.uk/>

<https://www.windmillsoft.com/>