

Application Note

Remote data collection – Meteor Communications

Reference: AN0050

Introduction

Remote data acquisition / viewing is becoming a must have for a lot of users of meteorological data and there are many solutions available on the market depending on the users requirements. These vary from simply display/data collection from a datalogger via direct cable, to Intranet or Internet, and to cloud or Server based services.

Application



MetStream offers users the ability to connect to all Gill meteorological sensors, log data and provides the user with the ability to easily display data or collect data files via internal Intranet or Internet (via Port Forwarding to a public IP address) at an affordable price.

However, MetStream is limited as it requires a direct cabled Ethernet connection, which in remote operations is often not available. Also MetStream is more suited to permanent power supplies due to its power draw (approx. 200mA), which makes remote solar / battery weather stations a challenge.

MetStream offers digital only collection from sensors, whereas a large amount of sensors used in the field still rely on analogue.

Remote Station Requirements

Low power 3G/GPRS, based systems allow the remote collection of data from areas where there is no infrastructure and is perfectly suited to meteorological stations. Traditionally these systems would interface to existing SCADA or direct to a user's PC. With the advent and widespread adoption of cloud based services there is now far greater flexibility in the display and dissemination of remote data.



This application note will focus on the Meteor Communications (http://meteorcommunications.co.uk/) MCC-972 which is compatible with a long list of sensors, including all Gill meteorological sensors.

Meteor Communications

Meteor Communications have worked with Gill to provide numerous remote metrological stations for Water Utilities, Consultants, Power Utilities, Government Agencies and Academic bodies.

The MCC-972 is a vital component of all of Meteor Communications data collection platforms, whether supplied as portable complete system (MCC-972 ESNET) or RTU (MCC-971XS) for integration into existing systems and infrastructure.. It combines control, data logging and telemetry into one compact and purpose-built device. Data is normally sent over 3G/GPRS , with GSM back-up for areas of poor connectivity. The MCC-972 links the devices/sensors in the field and provides data to end users via the internet, whilst ensuring data integrity and security at both ends.

System Connection

Sensors are connected in the field to the MCC-972 via SDI-12, RS232 or analogue interfaces.

A typical connection with a MaxiMet GMX531 is shown below:



The Meteor Communications Managed Data Service

The Meteor Communications service offers a range of options to the end user, which includes remote data collection/ storage, data visualization and alarms (via email or text):

- Data collection can be from a single sensor or a range of sensors due to the multiple RS232, SDI-12 and analogue connections. Equipment can also be remotely controlled (e.g. autosamplers, weir gates) directly from the platform.
- Once a sensor is connected to the MCC-972, Meteor Communications set-up the connection, data collection, alarms and access to the Meteor Data Centre remotely from their servers. This simplifies the user experience and ensures that stations are ready to use from the moment of installation.
- Hundreds of sensors from many different manufacturers are supported allow a complete monitoring station to be connected or just a simple single sensor.
- Data can be collected at various rates (from 5-minutes) to suit the requirement, installation and client (normally every 15-minutes for weather stations), whilst also retaining the flexibility to change the collection rate if an event occurs that needs closer monitoring i.e. every 1-minute.
- Data can be viewed graphically or in tabular whilst displaying station status (alarm/connected etc.) and filter for parameter or station if multiple stations are in operation with the same user.
- Data can be collected from other servers. Data can also be forwarded to clients servers if required. Data can also be exported as CSV files.
- The web portal can be used on any web enabled device (PC, tablet, smartphone) and requires no downloads, just any web browser.
- Historic data is always available online and can be viewed immediately as required.

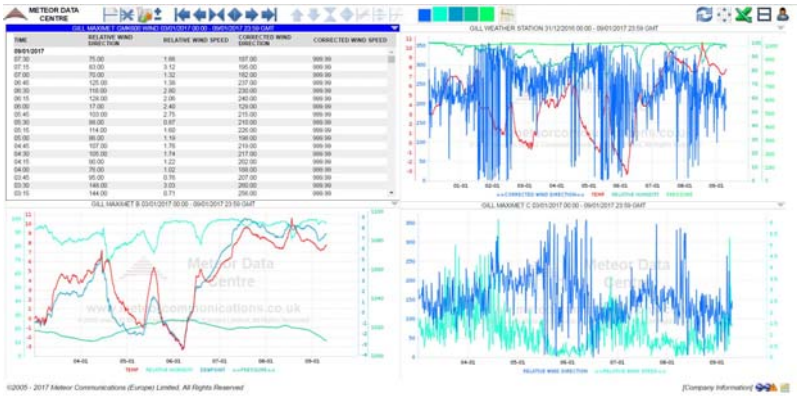
- Other data feeds can be added to the display, for example flow data (available under DEFRA OGL) and weather forecast (Metoffice)
- Individual USERNAME and PASSWORD protected login to the Meteor Data Centre for security.
- Alarm indication on screen, via email and/or via text. Multiple alarm levels (set-up by Meteor Communications).

UK Meteor Installation

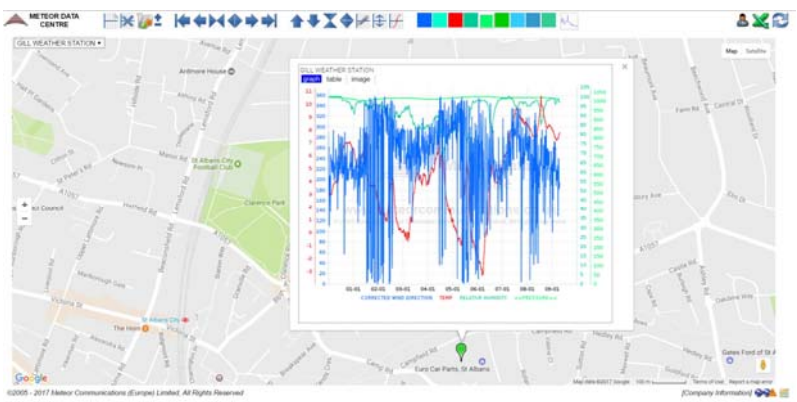


Data display

All parameters from the sensor can be displayed on a single graph or in a single table, however, separate graph/tables can be produced for different parameters as required. Multiple graphs can be displayed, which allows users to separate parameters so that graphs can be scaled to suit the parameter or timescales and can be grouped to suit user requirements:



Stations can also be viewed in geospatial format, which allows user to quickly see the data in geographic context:



Why Gill?

All of our meteorological sensors provide a human readable ASCII output that can be read by the MCC-972, this range from a simple, low cost wind sensor like WindSonic to our versatile compact weather station MaxiMet, which covers most meteorological measurement requirements.



These systems allow users to take the flexibility of a compact weather station like MaxiMet or a configurable weather station like MetPak and provide a complete weather station solution covering wind speed/direction, temperature, relative humidity, pressure, rainfall, solar radiation and more, with data available at the user's desk, mobile phone or tablet via any internet browser.

*** Please note that with MCC-972 data collection services charges apply.**