

Application Note

Remote data collection – Data Monitoring Systems

Reference: AN0051

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 simple 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. 150-200mA), which makes remote solar / battery weather stations a challenge.

Remote Station Requirements

Low power GPRS (3G & 4G) based systems allow the remote collection of data from areas where there is no infrastructure and is perfectly suited to meteorological stations. These systems can be a direction to a user's PC or a remote server, however, requirements are shifting with IoT (Internet-of-Things) requiring Cloud based services.



This application note will focus on the Data Monitoring Systems (DMS) Mini Gateway / Data Gateway that are compatible with a long list of sensors, which amongst a large list of manufacturers includes Gill WindSonic and MaxiMet sensors.

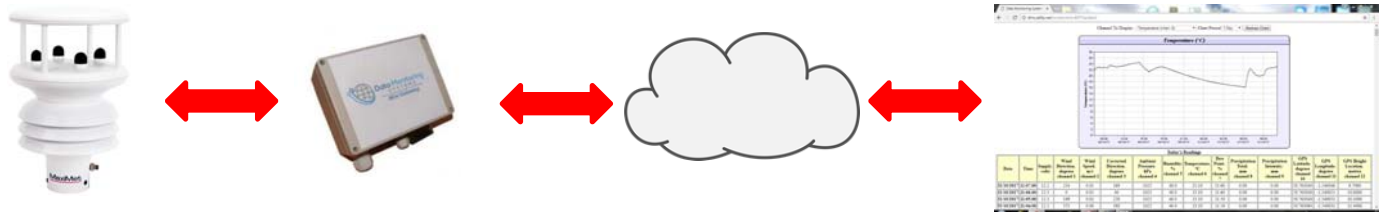
Data Monitoring Systems

Offering innovative, cost effective and reliable remote monitoring systems using wireless technologies such as GPRS (3G & 4G) and WiFi. Communicate to your remote devices from all over the world, allowing you to receive your data directly to your desktop. The systems are truly plugin and play, no complex configuration is required.

System Connection

Sensors are connected to the Mini Gateway or Data Gateway, which uses an international roaming SIM card (supplied by either Data Monitoring Systems or from the Client). The data is automatically sent to the server on the cloud, ready to be read live from Site Manager, and/or Reports package. The data may also be read from the Control Panel, or received by email and ftp.

A typical connection with a MaxiMet GMX550 is shown below:



What does Data Monitoring Systems offer?

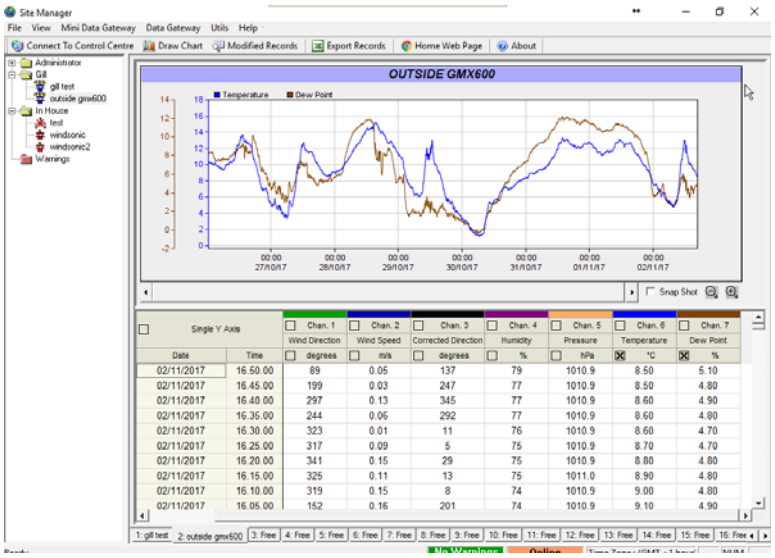
The Mini Gateway / Data Gateway cloud service offers a range of options to the end user, which includes remote data collection/cloud storage, data visualization and alarms via email.

- Data collection via GPRS (optional Wi-Fi, 3G & 4G) can be from a single sensor connected via RS232 as standard (or optional RS422, RS485). The data is stored on the cloud for 1 year, which may be recovered from the reports package, or Control Panel.
- Mini Gateway allows connection of a single sensor logging up to 20 parameters whereas Data Gateway allows up to 20 sensors to be connected.
- Remote sensor set-up may be setup live via "Site Manager" software, or directly from the Control Panel.
- Data can be collected at various rates 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.
- 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 may be forwarded automatically to client's servers via FTP, or connection to our IIS server. This can create an automatic feed to your own reports application. Data can be exported as CSV files.
- To save battery power, the Wi-Fi/GPRS/3G/4G may be switched off during certain hours i.e. overnight. When switched back on, all data saved will be sent.
- Individual USERNAME and PASSWORD protected login to Mini Gateway / Data Gateway for security.
- Alarm indication on screen and via email.
- Several weeks of on-board storage if connection is lost to GPRS/3G/4G (or optional Wi-Fi).
- Operates with Windows XP, 7, 8 & 10 (compatibility mode)
- Low cost of ownership / data access for light users.
- Ability to interrogate sensor live via Site Manager, thus reducing site visits by engineer.
- Reports can be produced and exported from the cloud data using DMS Archive.

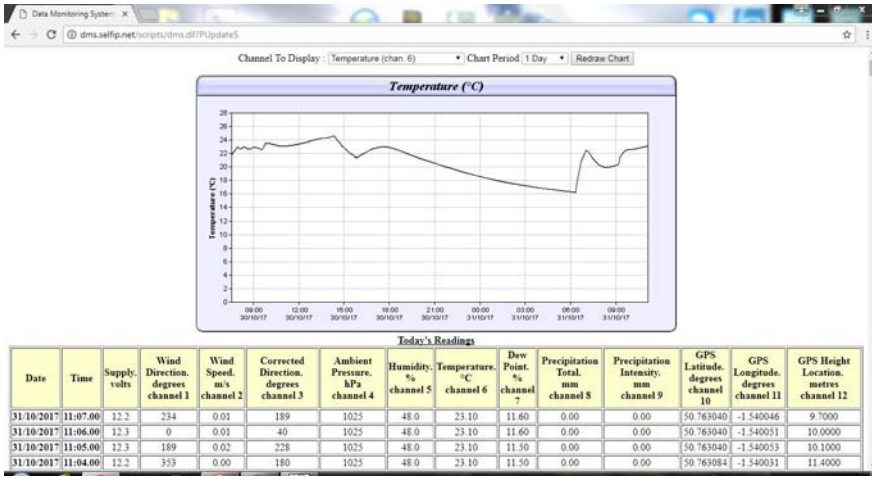
Mini Gateway / Data Gateway Details

Site Manager and Control Panel are free to use, Site Manager offers real-time viewing of the data and communication directly with the Mini Gateways, both allow for configuration of the Gateway stations.

The picture on the right shows the data on the Site Manager Software. You can see all of the different channels (parameters) and select / deselect as required.

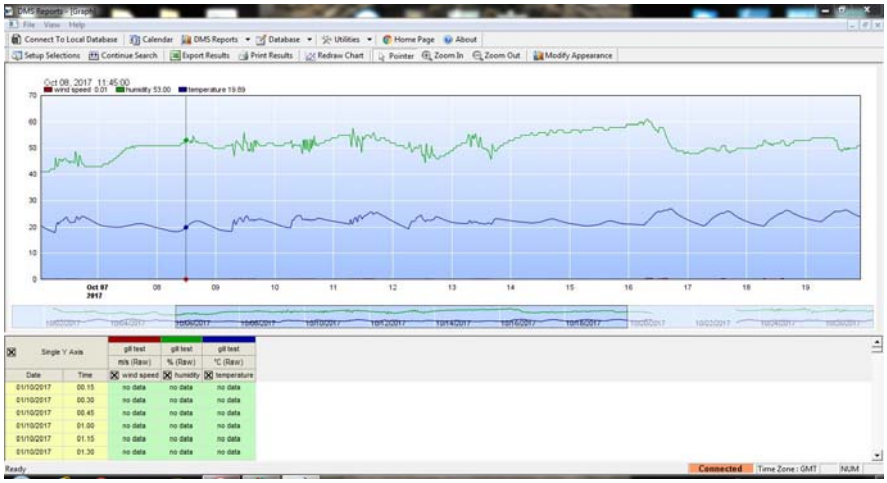


The Control Panel also allows data to be emailed or sent to a specific FTP server at set intervals. Web page shown the last 7 days is available for each station (on the right)



The Reports application (on the right) is a Windows package that uses a local database, which is available for a monthly subscription, and is a very flexible piece of software. It allows for logged data from multiple Gateways to be imported, automatically synchronised and plotted using a variety of different methods/techniques.

Stations that are not purchased through Data Monitoring Systems Ltd may also be imported directly into the database.

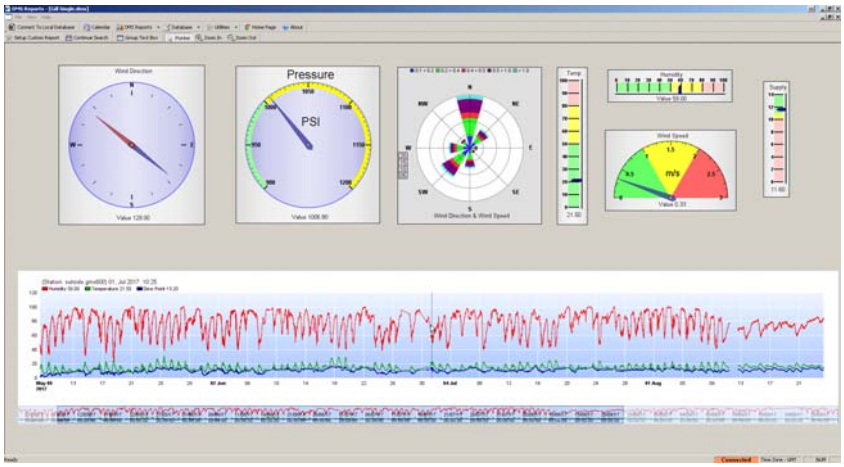


Create your custom reports with a combination of gauges and line graphs.

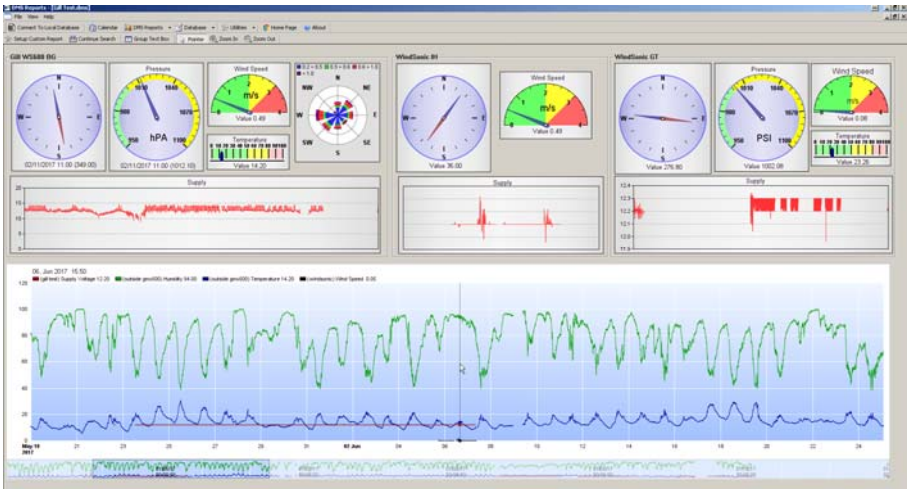
Read in months of data in a couple of seconds.

Moving over the main line chart will update the gauges shown, with the values at that instant.

Screen on the right shows a custom report of a single station.



Screen on the right shows a custom report combining of 3 stations.



Why Gill?

All of our meteorological sensors provide a human readable ASCII output that can be read by the Gateway / Data Gateway, these 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 simple WindSonic and provide a weather station solutions covering wind speed/direction, temperature, relative humidity, pressure, rainfall, solar radiation and more, with data available at the user's desk.

*** Please note that with the Mini Gateway / Data Gateway cloud based data collection services charges apply.**
**** Details courtesy of Data Monitoring Solutions Ltd http://www.datamonitoring.co.uk/**