Application Notes

Subject: WindMaster and WindMasterPro RS485 2-Wire Networking

Reference AN0031

WindMaster and WindMasterPro RS485 2-Wire Networking



Introduction

RS485 2-wire "multi-drop" networking is now available in WindMaster (WM) and WindMasterPro (WMP).

Simplifying system set-ups is always a priority when using multiple sensors across a wide area and this could be a bridge, mast or building based system. Being able to connect multiple sensors to a single communications cable simplifies the infrastructure and lowers the cost and possible failure points compared to having sensors individually cabled to a datalogger.

WindMaster Modes

SyncPoll 1

In this mode when a Poll command is received it will trigger a single 50mS or 31.25mS ultrasonic measurement and at the same time it will trigger a wind measurement output resultant from the previous polled measurement.

- The minimum poll rate supported in this mode is 20Hz.

NB: Analogue inputs are not supported in SyncPoll mode 1.

PCI Card

In tests four WM/WMP were connected to a PC PCI card and using a single RS485 2-wire port 20Hz data was collected from each sensor. The sensors were set to 57600 baud.

Gill Instruments Limited
Saltmarsh Park, 67 Gosport Street, Lymington, Hampshire, SO41 9EG, UK
T +44 (0)1590 613500 | **F** +44 (0)1590 613501 | **W** gillinstruments.com

Campbell CR6 Logger

In tests two sets of two WM/WMP were connected to two individual RS485 2-wire ports to allow 20Hz data to be collected from all four sensors. A Campbell CR6 datalogger was used in "sequential mode" and the sensors were set to 57600 baud.

SyncPoll 0

In this mode Data Output is asynchronous to the poll command.

- The maximum poll rate is 10Hz in default SyncPoll 0 mode.

PCI Card

In tests four WM/WMP were connected to a PC PCI card and using a single RS485 2-wire port 1Hz and 5Hz data was collected from each sensor. The sensors were set at 57600 baud. Note – tests were also carried out at 10Hz where a small amount of data loss was observed, leading to 99% of data being collected.

Ammonit

In tests five WM/WMP were connected to an Ammonit datalogger using a single RS485 2-wire port allowing 1Hz data collection from each sensor. The sensors are set at 38400 baud.

NB: some converters can cause data loss. Where possible, connect directly to RS485 ports.

Why Gill

Gill anemometers are extensively chosen for projects requiring 3-axis wind measurement due to a reputation for high quality, easy installation and solid-state construction, which offers huge advantages over mechanical instruments as they require no regular maintenance.

The WindMaster and WindMasterPro are accepted by research and industrial users worldwide due to their high accuracy and high output rates of 20Hz or 32Hz maximum. All Gill anemometers provide an automatic quality message, giving confidence that data received is valid and can be trusted.