

Low power precision data logger for stable long-term measurement



Flexibility | Ease-of-Use | Reliability

General Description

EasyLogGSM data logger is based on an ultra-low power microcontroller combined with high precision analog-digital converters and real time multitasking operating system. This ensures flexible and reliable continuous operation with long battery life and system reliability.

- Built-in watchdog timers and low-level intelligence ensure reliable operation which has been verified over the years.
- Analog sensor front end offers 4 inputs with 12 bit resolution (relative humidity, wind direction...) and 4 inputs with 24 bit resolution for precision measurements (temperature, solar radiation, pressure...).
- Each of the 4 digital inputs can be user configured to measure frequency (wind speed), time period (sunshine duration) or as a counter (rain gauge).
- In addition to the serial RS-232 data port for connection to PC or 3rd party devices, this data logger features a user selectable RS232/485 port for connecting smart sensors and other intelligent devices.
- All inputs are software configurable and offer basic statistics - average, minimum, maximum and standard deviation. 16 user defined polynomials (polynomials) are used for calculation to convert raw sensor values to engineering units.
- 12V Lead Acid (Pb) battery management is provided on board. Overcharge and deep discharge protection is ensured. Power source choices include AC Power Supply, Solar or any DC source in the range of 4-20V.
- Internal memory of about 4MB and SD memory card are used for data recording and storage.
- Real time clock with 3V lithium backup battery. Time precision is achieved by time synchronization once a day over GPRS network with worldwide time zones.
- Remote data transfer is supported by software via email or FTP using integrated quad-band GSM/GPRS modem.

SENSOR INPUTS

Analog Inputs 8

Single Ended (12bit)	4x 0 ... 2.5V
Differential (24bit)	4x $\pm 19\text{mV}$... $\pm 2.5\text{V}$
Accuracy	0.1% SE 0.05% DIFF
Input Noise	cca $0.2\mu\text{V}$
Input Offset	$0.5\mu\text{V}$ max

Digital Inputs 4

Input Range 0...2kHz

Configurable to:

- Frequency (wind speed)
- Time period (sunshine duration)
- Counter (rain gauge)

PT100 Inputs 3 + 1 reference

- Ratiometric measurements (for 4 wire PT100 precision connection)
- Excitation for PT100 cca 0.5mA

Communication ports 2

- RS232 data connection
- RS485 / RS232 selectable (8 sensors)

Serial Sensors 8x (RS-485 or RS-232)

- Baud Rate 300...115kBaud
- Measurement Interval 1...3600 s
- Logging Interval 1...3600 s
- Statistics Avg, Min, Max, StDev

Applications

- Professional meteorological networks
- Solar power systems analyses and evaluation
- Pollution monitoring
- Environmental protection
- Industrial waste management
- Flood early warning
- Research, education
- Calibration systems

Memory

Internal Memory 4MB
Data Storage Medium SD card (up to 4GB)

Realtime Clock

Time Synchronization via GPRS
Time synchronization frequency 1/day
Time Zone worldwide
Backup Battery 3V lithium
Indication 2 LEDs

Remote Data Transfer

Full support for GPRS email and FTP data transfer

Power Consumption

Sleep 40µA max
Measuring 7mA typ
Transmitting signal strength dependent

Battery Management

Battery type 12V Pb (lead acid)
Deep discharge protection
Overcharge protection

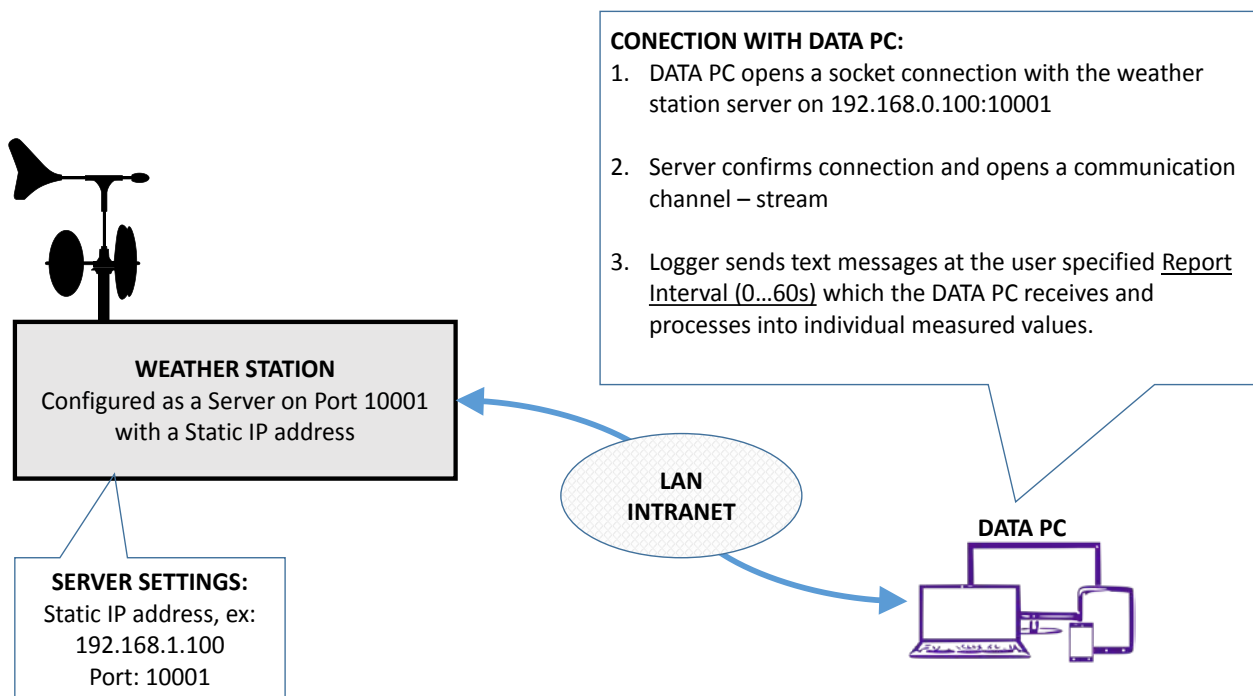
Power Options

DC source with battery charging 5V ...12VDC
DC source without battery 4V... 20VDC
Solar power 12V system

Environmental Operating Range

Temperature Range -30°C ...+60°C
Protection IP65

Customization available per request



HOW TO CONNECT A PC TO THE WEATHER STATION VIA ETHERNET:

1. The RS-232 to Ethernet converter inside the weather station is configured as a Server, which is listening on Port 10001. It has a fixed IP address. IP address and port are both user configurable. (Example:192.168.0.100:10001)
2. The internal Ethernet converter starts actively listening on Port 10001 immediately after the weather station is turned on.
3. When it receives a request to connect from a DataPC via the Ethernet connection, together they create an open bi-directional data stream. (This connection can be verified by setting up a connection on 192.168.0.100:10001 in HyperTerminal on the DataPC.)
4. Weather station and DataPC are connected and sending live data. (In HyperTerminal you should see text messages is measured values.)
5. DataPC must collect the data that it receives.
6. In case of an interruption in the connection with the weather station, the connection will remain closed until it receives a request to connect from a DataPC.

OUTPUT DATA FORMAT:

Date Time Data1 Data2 Data3... CRLF

Example:

07.06.2017 04:43:39 3.117 13.839 99.043 -61.000

If required, CSV data format can be set:

07.06.2017,04:43:39,3.117,13.839,99.043,-61.000