

P.O. Box 4904
5604 CC Eindhoven, The Netherlands
Tel: +31.40.2814458 Fax: +31.40.2814119
Internet: www.ekopower.nl info@ekopower.nl
BTW/VAT nr: NL 0724.40.314.B01
KvK/CoC nr: 17087267

General description of WindOne windmonitoring system with [EKO21N](#) or [iBOX](#) datalogger module

Subject : WindOne: FIRST CLASS , AFFORDABLE highly accurate& reliable [Wind Energy/ Meteo MONITORING SYSTEM](#)

Application: Wwind energy feasibility studies and power performance evaluation of wind energy projects.
with optional remote wireless GPRS internet connection: receive data files at your desk or server via FTP

Date: september 2009

Dear lady/sir,

Thank you for your interest in EKOPOWER wind monitoring systems.

EKOPOWER is the European leader for affordable, accurate and reliable wind monitoring equipment **for professional use** and **supplies the worlds first online field datalogger with wireless GPRS internet connection**, using the new ultra low power datalogger module EKO21N (with RS232 interface) or iBOX (with Ethernet interface) and both with optional remote wireless GPRS internet connection (see www.ekopower.nl).

Please refer to separate datasheets for technical information and specifications (as links in the spreadsheets)

We offer you the best solution to meet the requirements for the described project.

The system meet the recommendations of the **International Standard** for Wind Turbine power performance testing **IEC 61400-12 & WMO no8 specifications**. EKOPOWER also supply also dataprocessing services and software.



The EKO21N or iBOX unit can easily be mounted to a DIN rail or with wall bracket in waterproof cabinet (easy replaceable for service)

For wind monitoring projects a mast is usual required. If you want EKOPOWER can arrange masts up to 80 meter, Including installation of the mast, together with our mast partners.

This cooperation result in a very high quality & cost effective system, supplied by experienced specialists.

The new WindOne is an ultra low power system First class wind monitoring system,

which can be powered by batteries also if a GPRS modem (for EKO21N) or GPRS/3G router (for iBOX) is present.

The battery pack makes the system more reliable then with solar power supply and less sensitive for vandalism.

A battery pack (alkaline or lithium for high/low temperatures) is enough for some years of operation of the datalogger and the GPRS modem/router (with daily upload)!

The system is built in waterproof vandalism resistant cabinet with lock and stainless steel clamps for mounting to mast, which are only to remove using a special tool, so vandalism resistant!

The SD memory cards (standard 128 MB, up to 2 GB possible) are specified for high temperature range.

A laptop pc can be used for local connection to the EKO21N datalogger (by RS232 or USB) for reading values, adjusting parameters, reading status etc. For iBOX via ethernet cable to PC, using the embedded webserver. The control software is very user friendly and not protected (data can be imported directly in Excel etc). Easy to use dataprocessing software is supplied for making calculations and graphs The 128 MB SD memory card can store a lot of recordings of 10 min values, (including for all windinputs each 10 min: average, min, max and turbulence intensity and time & date) resulting in a capacity of **several years** of data! Status of power supply is indicated by LED on logger (voltage to read with laptop). The sample and record interval are adjustable, also too choose 10 minutes! Each station has its own identification number and text for location can be entered before use. A password is required to change the configuration- settings of the logger. The offered anemometer MAX40+ is a first class accurate and reliable, sold may thousands during many years! Heating is not required but a possible option, the same with the windvane .

A SMS message/email can be send when the battery is LOW.
For additional details, proposed configuration, prices and datasheets please refer to the appendix of this quotation.
Configuration of the datalogger can be choosen standard 12 bits or 16 bits for high resolution system.

DATA PRESENTATION

Data can be read via computer monitor (also by graphs): current data or recorded values (adjustable average period).
Data can be imported directly in e.g. Excel for data processing (dataprocessing utilities are available from EKOPOWER).

DATA TRANSFER & DATA COMMUNICATION options

There are seval ways to transfer the recorded data to the office for dataprocessing:

- 1) A local (untrained) person replaces the memory card and send it the office
- 2) A local person can download the data into a laptop PC (by PC Card drive or serial usb interface)
- 3) If the GPRS network (for datacommunication) is available the automatic datatransfer (and system check) is possible.
EKOPOWER supplies optional [hosting service for obtaining data from server](#) and/or webpages with [online graphs](#).

INPUTS: recommended inputs:

- **wind speed (standard 1-3, optional up to 8)**: using the unique running average technique, including overvoltage/static discharge protection (1.5kW), appropriate for anemometer MAX40+ HIGH RESOLUTION 0.01 m/s, lightning protection unit (up to 20.000 A). Range 0-50 m/s, resolution 0,01 m/s (optional 0,001 m/s), achieved by special signal conditioning, which result in unbeatable ultra high accuracy for average values and standard deviation (16 bits calculation procedure)
- **wind direction(standard 1-2, optional up to 6)**: including overvoltage/static discharge protection (1.5kW), pulsed excitation for saving power and determination of polar average (scalar average is not appropriate for wind direction, due to the discontinuity at 0 and 360 degrees!). This input is appropriate for windvane, lightning protection unit (up to 20.000 A). Range 0-360 degr resolution 0.1 degr OPTIONAL:
- 1 temperature range -30 to, +70 C, resolution 0,01 C , with optional humidity sensor.
- 1 atm pressure sensor (600...1150 hPa) resolution 1 hPa
- optional inputs possible (eg 4..20 mA, volt, counters, status,output power, current (AC/DC) etc)

GPRS communication enables to send the datafiles automatically to a server (data transfer via internet).

SENSORS & TRANSDUCERS: (wind speed sensors eg at 4 heights: 10, 30,40 and 50 meter)

- Anemometer type MAX40+ supplied with standar calibration (typ. 0.2 m/s accuracy), with optional Measnet or NIST Calibration certificate (certified accuracy 0.1 m/s) OR any other anemometer, like First class anemometer
- Wind vane type DIR21+ (or 200P): a high-quality lightweight vane with a fast response with long life potentiometer, accuracy appr +/-4 degr., with stainless steel mounting materials.
- Temperature (accuracy typ 0.2 C) TS21 in shield WS21
- Atm pressure sensor APS21 built in the EKO21N with typ. 1 hPa accuracy at 25 C
- Optional sensors possible like humidity, rain, power, current (AC/DC) etc.

For detailed technical information about datalogger and users worldwide please refer to attached files and our website.

For GPRS system (quad band system for world wide use) a sim cards is required from local supplier and can be tested by us in advance if roaming is activated.
Also the used frequency of the GPRS provider must be specified at order: default 900/1800 system see also <http://www.gsmworld.com/>.



*Waterproof cabinet with EKO21N or iBOX module and battery pack for long unattended operation
The datalogger module can easily be taken out for service or replacement*



Waterproof cabinet with lock and additional humidity protection inside



The waterproof cabinet can be mounted at the mast using special stainless steel clamps, with optional special tool (7sided) to fix and is not to remove without that tool. Together with the built in battery pack a highly vandalism resistant system!

Price total : see separate price lists (total price depending on configuration) ex. VAT (BTW) (for export free of VAT!)
Price Validity : 30 days (unless otherwise agreed)
Delivery : freight to be specified
Origin: : complete system:European Union
Time for delivery : usual appr 2-4 weeks including MEASNET certificates (after receipt of payment)
Terms : METAALUNIE conditions, see email
Guarantee : 2 year carry-in for construction faults
Payment : in advance

EKOPOWER is specialist in wind & meteo monitoring systems since 25 years and exported equipment all over the world. If you have any question please contact us. We are looking forward to carry out your order!

Yours sincerely,

Ir Peter H. van Emden
EKOPOWER

Refer also [online manual](#) with links to hardware manuals and to most significant features of WindOne windlogger
See [http://www.ekopower.nl/pdf/Most significant features EKO21N.pdf](http://www.ekopower.nl/pdf/Most%20significant%20features%20EKO21N.pdf)