

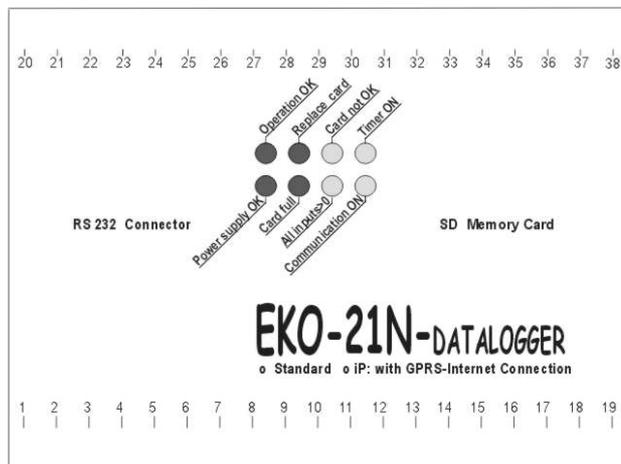
## **EKO21N :ultra low power Datalogger** **EKO21N-iP:wireless iP Telemetry system**

EKOPOWER supplies (for over 20 years) datalogger technology at excellent quality and low price.

The new EKO21N family of dataloggers (4th generation) is a very powerful system with **ultra low power consumption** (up to 10 years running at a lithium battery pack)

The EKO21N has standard a serial interface (RS232 and optional USB cable and modem). By using the control software the setup & setting parameters, like sample interval can be adjusted. The EKO21N is supplied in different configurations, according to the **requirements of the user**: see specifications. Standard configurations are available e.g. 8 inputs of 4..20 mA and can be expanded up to 40 inputs.

**EKO21N-iP** with wireless GPRS internet connectivity it is possible to realise a wireless remote telemetry system over the internet: receive data files at your server and with optional [presentation of data at your website](#) (see [www.ekopower.net](http://www.ekopower.net)). Also alarms can trigger outputs and send alarm notification via SMS. The EKO21N family dataloggers is ideal for **remote or mobile** applications and for online monitoring of all kinds of (remote) processes, such as temperature monitoring of roads etc.



The EKO21N datalogger is ideal for monitoring projects such as:

- \* Remote telemetry
- \* Energy management
- \* Weather stations & meteorology
- \* Environmental data collection
- \* Traffic
- \* Safety
- \* Factory & industrial data acquisition
- \* OEM applications: we design according to your specific requirements (including your brand on the box !)

### **POSSIBILITIES of the EKO21N:**

- > Log data from sensors, voltages, currents and/or serial input (multi channel)
- > Ultra low power consumption for remote or mobile applications
- > Simple operation via control software e.g. adjustable ranges and units for each input
- > SD-card memory for secure data storage or backup: Secure Digital (SD) Memory Card: 128Mb...2 Gb
- > EKO21N-iP: Access remote sensors over the internet or via wireless GPRS internet connection
- > EKO21N-iP: Instantaneous values automatically transferred to website and optional displayed graphically
- > EKO21N-iP: Data files automatically transferred by FTP to a specified server (via wireless GPRS connection)
- > Optional Alarms can trigger outputs andwith EKO21N-iP: send SMS text alerts

### **TECHNICAL FEATURES of the EKO21N:**

- > Inputs configurable for mix of 0/4..20 mA signals, volt inputs, status, temperature, frequency, mVolts, anemometer, wind vane etc.
- > Analog inputs standard 12 bits resolution, optional 16 bits resolution
- > Recording of instantaneous or average values with optional: min, max and standard deviation during each record interval.
- > Up to 5 Counter inputs/unit 12 bits (two 24 bits non-volatile counter for eg kWh pulses and 1 Event-logging input
- > Up to 2 Serial RS232 inputs (protocol according your specifications, eg Windsonic anemometer without moving parts )
- > Web hosting for EKO21N-iP optional available for demo & test purposes (for data files and/or online historical graphs & status)
- > Alarm outputs with optional SMS notification
- > Compact design : small (10 cm width) DIN rail cabinet
- > A wide range of sensor-excitations available (eg internal 24 V loop power for 4..20 mA sensors/transducers)
- > Sensors and Transducers according to your requirements: we also supply complete, ready-for-use systems (like wind, weather sensors)!
- > We supply a wide range of sensors and transducers with 4..20 mA, voltage or serial outputs
- > Ultra low power version EKO21N with RS232 control (no Ethernet) ideal for remote field applications with optional wireless GPRS internet connection (EKO21N-iP) and Lithium power pack for appr 5-10 years.

## DESCRIPTION of EKO21N system

The EKO21N is an easy-to-use, accurate and reliable **ultra low power datalogger system with battery life up to 10 years, ideal for remote or mobile applications** and with versatile inputs :1 up to 40 analog & digital inputs and serial inputs (optional wireless inputs), see datasheet.

The EKO21N has standard a **RS232 serial** communication port (with optional **USB cable and modem**) and a Secure Digital (**SD**) **memory card** (128Mbyte up to 2 Gbyte) for data storage.

Type **EKO21N-iP** has **wireless GPRS internet connection**, see the details below.

The EKO21N dataloggers are an essential tool for state of the art measurements for e.g. meteorology, environmental monitoring, wind energy feasibility studies, but also for general purpose projects: **complete systems according your requirements and specifications!** Controlling and working with the EKO21N is made easy with the EKO21N control software (with help functions).

The EKO21N logger configuration (number and type of input channels) and the logger parameters ( like sample and record interval) are stored on the SD memory card. Besides the logger configuration also the recorded data is secure stored at the SD card.

The logger configuration (which is stored at the SD card) can only be changed by EKOPOWER or by authorized users by using EKO21N control software ( menu part: logger configuration , password available from your supplier). In this menu can be set:

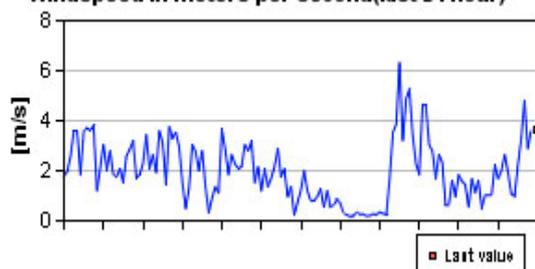
- ranges and units (preset at factory: do not change as this must be according to the physical inputs boards and connected sensors/signals!!)
- alarms: software alarms via e-mail (or SMS using GPRS ) and hardware alarms: open collector output (if present in hardware)
- timing variables (do not change)

The **EKO21N-iP** can send (wireless) data files via **FTP** to a specified server -also with **ultra low power consumption-** at pre-adjusted intervals:

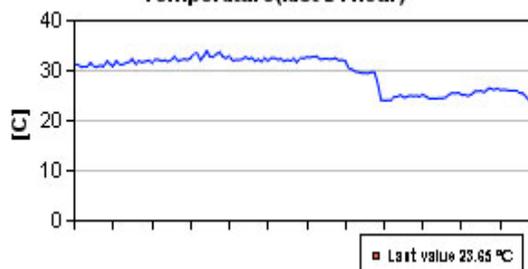
- file with instantaneous values and /or
- file with recorded values (eg average values with optional min/max/standard deviation during each record interval)

Moreover the data can be presented at a website with **online (historical) graphs**, using optional software running at the server, e.g. the server of your website or a PC with Windows XP-Prof, configured as server. See demo at [www.ekopower.net](http://www.ekopower.net) . The graph software is running under php (not in safe mode) and supported by several platforms: Windows, Linux, FreeBSD, Solaris, Mac OS X (PowerPC, Intel). Ask your supplier about the details & conditions. EKOPOWER can supply standard graphs or design special graphs and can assist you to setup the server and to install the graph software. Example of standard graphs:

**Windspeed in meters per second(last 24 hour)**



**Temperature(last 24 hour)**



By using the EKO21N control software it is possible via RS232 / USB interface and/or via SD memory card slot (of notebook or SD reader):

### 1. To set the logger parameters like:

- time and date, sample and record interval
- internet upload parameters for EKO21N-iP: adjusting IP address of server (destination of data) , directory and the upload frequency of :
  - > instantaneous & last recorded values values (and status): after adjustable number of samples (with optional online graphs, see [www.ekopower.net](http://www.ekopower.net) )
  - > recorded values (data files): after adjustable number of record intervals

### 2. Read current and last recorded values, the status of the system and the present logger configuration.

The **optional wireless GPRS modem** for **EKO21N-iP** can be programmed in advance and loaded with the communication parameters in memory registers, like FTP server, passwords, data GPRS provider etc.

**NOTE: A different (but similar) design of the EKO21N is the iBOX , which has Ethernet (no serial communication), with embedded webserver, see separate datasheet.**

**APPLICATIONS:** measurement (industrial and remote field applications) e.g.:

\* *monitoring of machines*

\* *meteorology*

\* *process monitoring*

\* *building physics*

\* *energy management*

\* *research*

\* *feasibility studies*

\* *solar energy projects*

\* *renewable energy projects*

\* *environmental technology*

\* *water level monitoring*

\* *wind energy evaluation*

**(each system can be supplied according to customer specifications: ask for availability !)**

### MAXIMUM SPECIFICATIONS

#### Features

#### iBOX / EKO21N datalogger family

#### MEMORY

memory card

Secure Digital (SD) INTERNAL or removable

memory size

Up to 2 Gb

data file format

ASCII (direct import in Excel)

#### INPUTS

Optional  
wireless

analog inputs (or status)

Up to 16 standard or special\*) inputs in one unit

expansion units

2 (up to 16 extra channels /unit, total max 40)

#### RESOLUTION

counter inputs

Analog: 8 ch 12 bits (optional 32 ch 16 bits)

serial inputs

Up to 5 (12bits) or 2 :24 bits non-volatile possible (kWh counter at DIN rail)

SDI serial input

2 (up to 115.2kb)

Event logging input

Option

Option

#### SAMPLE FREQUENCY

Adjustable max 100Hz : special up to 1kHz

#### OUTPUTS

alarm outputs

up to 2 open collector (8 software) Optional power relais at DIN rail

control outputs

up to 3 open collector

e-mail alarm

Option via ethernet or GPRS connection

sms alarm

Option with GSM/GPRS connection

#### RS 232 control

#### EKO21N

Modem /GSM

Option

GPRS modem : Data via FTP to server and

#### EKO21N-iP

online graphs & status

Remote adjustments of logger parameters

option via internet or serial+ GSM

#### ETHERNET/INTERNET

iBOX Optional WiFi wireless LAN

Control & datatransfer via internet:

yes (optional via GPRS/UMTS router)

Web server

yes

Transfer Datafiles by FTP via internet

yes (optional via GPRS/UMTS router)

Online graph at website

yes (optional via GPRS/UMTS router)

Online status

yes (optional via GPRS/UMTS router)

#### POWER

Standard version iBOX/EKO21N

5-12 Volt DC via 220V Or 24 V DC

ultra low power-field version EKO21N

adaptor

(RS232 version only)

Battery life (using Litium power pack for

Option with Lithium Batteries

EKO21N field systems)

Up to 10 years

#### Internal excitation for 4..20 mA

Option

Backup battery

Option (for logger part rechargeable)

\*) **standard inputs:** 0/4..20 mA, voltage inputs, temperature inputs, **special** inputs for all kinds of sensors and signals (also mV inputs) **on request**

TEMP. RANGE

-40 to +85 C (industrial / field version)

**For remote applications: an ultra low power system EKO21N with battery life up to 10 years, running on one lithium battery pack! (ask for availability)**

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