



# IP BASED INSTALLATION

Description

We specialize  
in SCADA  
software for  
Wind turbines

# Technology at work for you

## HOW TO CONVERT TURBINES TO TCP/IP

The "Alarm Center solution", "Hosted IP solution" and "Orion Server solution" is based on IP connections to the turbines. The advantage of an IP connection is that the turbines are continuously "online" with our server. This means you will always know that your turbines are in operation and in the event of an alarm will it be transmitted to you by Email or SMS.

To ease the conversion to the hosted IP solution we can supply a range of equipment that will allow a quick and easy installation in a large range of wind turbines.

There are three steps in converting a turbine to an IP solution:

- Accessing the turbine's communication interface / loop
- Converting the communication interface to IP
- Remote access software.

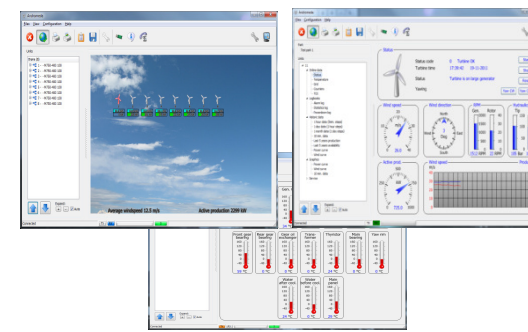
## ACCESSING THE TURBINE COMMUNICATION INTERFACE

The turbine's communication interface can be different depending on the turbine types. Some have a direct RS232 interface used for the original modem, but some do not have any interface installed or use a custom manufactured interface. If the turbine has a direct RS232 interface it can directly be converted to IP via an RS232 to IP converter. Depending on the selected Internet connection this can be done via a land line or via a mobile line (GPRS). If the turbines do not have the interface installed or it needs to be converted we can deliver the necessary equipment for this operation. An example: For a Vestas turbine it is typically necessary to convert the existing current loop signal from the Telecom modem box to a RS232 interface. For this purpose we can deliver a Vestas current loop converter. The same goes for a Bonus turbine with a WTC-1 controller. Here, the interface is typically missing or the wrong type. In this case we can deliver a new interface card that converts the turbine's signals to RS232.

## CONVERTING THE RS232 COMMUNICATION INTERFACE TO IP

When the turbine is prepared with an RS232 or RS485 port we can convert it to IP using a RS232 / 485 to IP converter. Here, we can deliver two different types: A land based converter or a mobile GPRS based converter.

The land based converter depends on the existing IP infrastructure in the park. This would typically be ISDN or ADSL. The mobile solution is based on GPRS and it is therefore necessary to buy a SIM card with data access. We designed our system so that it can use any SIM card with data traffic, we recommend the standard SIM card with dynamic IP, but it can also use SIM cards with static IP.



## REMOTE ACCESS SOFTWARE: ANDROMEDA

The remote access to the turbines is done via the Andromeda client. The Andromeda client is licensed on a protocol basis. This means that it is possible to custom design the program to the specific needs of the customer.



## DOCUMENTATION

When ordering the necessary equipment for your turbine, it will be supplied together with a detailed guide that explains how to connect the hardware and if needed how to configure the turbine parameters.

## ACCESSORIES

We can also supply a wide range of accessories like Antennas, magnetic cable mountings, DIN mounting brackets and external power supplies.



## Connection

No need for PSTN lines in turbine or on the client side.

The hosted solution uses TCP/IP connection via GPRS modems or ADSL lines.

Andromeda can be used to get access to the turbines via a TCP/IP connections through the our hosted solution.



## 24/7 monitoring

The hosted solution monitors the turbines 24/7 and reports all alarms or loss of connection immediately via SMS or E-Mail



## Platform support

Andromeda can run on a wide range of windows operating systems starting from Windows XP to Windows 8.

It supports both 32 and 64 bit platforms

Access to a wide range of turbine types:

- Nordtank
- NEG-Micon
- Micon
- Vestas
- Wind World
- Wincon
- HAG
- Jacobs
- Bonus / Siemens
- Repower
- DeWind
- Fuhrländer
- Nordex
- Tacke
- SüdWind
- FDV
- DanWind
- Orbital
- Lagerwey

And many more

Please contact us if your turbine is not on the list.

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