

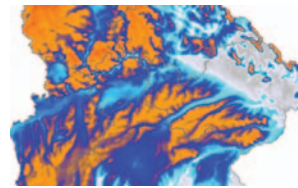
Wind and Solar Energy Assessment. SCADA. Power Curve Measurement.

Ammonit Meteo-40 Data Logger

Accurate. Reliable. Efficient.



Wind and Solar Maps



Wind Resource Assessment



Solar Resource Assessment



Solar Power Plant Monitoring



Wind Farm Monitoring (SCADA)



Climate Research



Site Assessment in Cold Climate



Power Curve Measurement



Benefit from latest technology

Various inputs and outputs for different measurement purposes

USB | Ethernet connection

USB-A ports for modem, wireless adapter or memory device;
USB-B port for PC; Ethernet port for LAN or SCADA

Display & Keys

User-friendly menu to configure and
check certain data logger settings

Analog Current

for sensors with
output current

Analog Voltage

for barometric pressure sen-
sors, temperature humidity
sensors, pyranometers, etc.



RS485 master / RS485 slave

for ultrasonic anemometers
and smart sensors; SCADA
applications

5V | Switches

for modem and sensor
heating, etc.

Pulse Counter

for anemometers, precipitation
sensors, etc.

Digital / Serial / Status

for serial wind vanes (e.g., Thies TMR),
precipitation monitor, ext. activation, etc.

User-friendly configuration via protected web interface

You can easily configure measurement devices and communication methods using wizards in the Meteo-40 web in-
terface. Conveniently access the web interface in your browser via **encrypted HTTPS connection**.

System configuration

- System administration, e.g., time
- Heating manager

Sensor library and channel overview

- Sensor configuration via wizards
- Real-time electric values

Statistics and source data

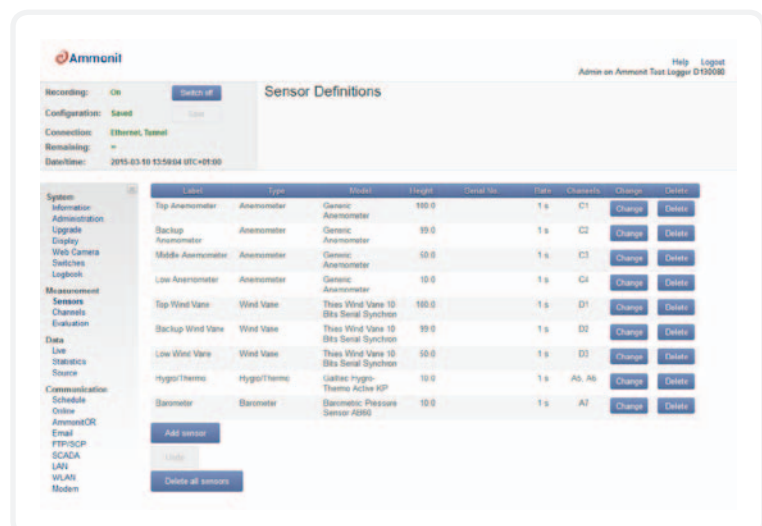
- Configuration of statistics interval
- 1-sec data list

Data transfer and online availability

- Scheduler for data transmission
- Modem configuration via wizard

SCADA integration

- Configurable Modbus register map
- Selectable statistics interval

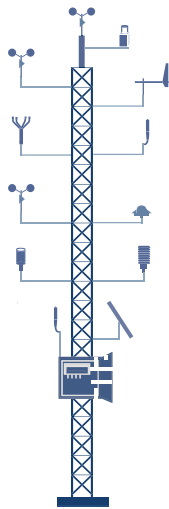


All you need for reliable and secure communication and data transfer

Various communication and data transfer options

Select your preferred communication method with Meteo-40: wired or wireless, via GSM or SAT modem, local or remote. You can choose from a range of different options for data transfer, e.g., statistics file upload to a server of your choice or sending files via e-mail.

Individually decide which communication and data transfer method you prefer.



Local communication

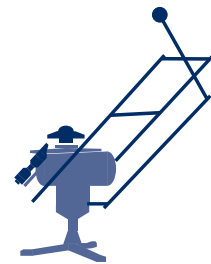
- LAN, link-local or USB
- Wireless access via WiFi USB stick

Remote communication

- UMTS, GSM or SAT modem
- SMS
- RS485 or Ethernet e.g. for SCADA applications

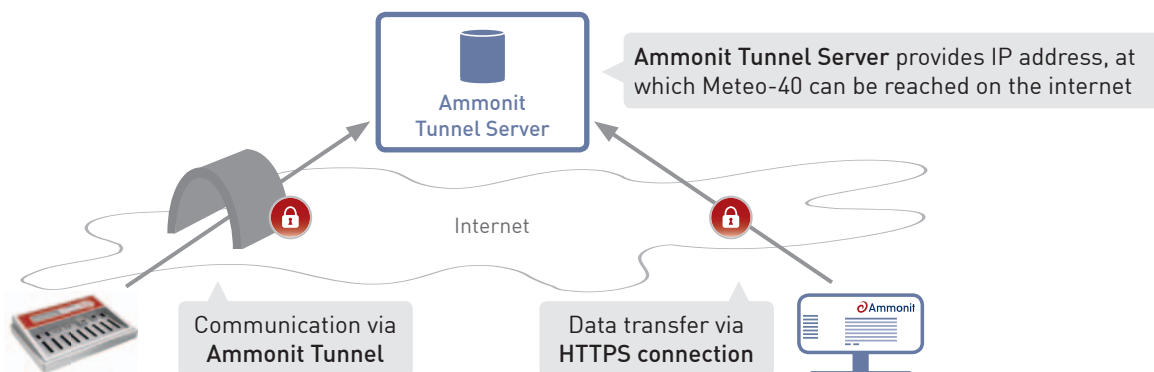
Reliable and secure data transfer

- Data upload via FTP / SCP to your server
- Data upload via SCP to AmmonitOR
- E-mail data to your account
- Data retrieval via Modbus TCP/IP or RTU
- Data download on USB memory stick



Working cost-effective and secure in the field with the Ammonit tunnel server

Securely work on your Meteo-40 in the field via our **Ammonit Tunnel Server** using an **encrypted HTTPS connection**, which cannot be accessed illegally. Thus Meteo-40 automatically obtains a **unique subdomain** from the tunnel server. You can use a standard SIM card with dynamic IP address in your modem. The **tunnel server automatically manages the subdomains**. Just enter the subdomain, e.g., <https://serialnumber.tunnel.ammonit.com>, to access the Meteo-40 web interface. An expensive **SIM card with static IP address is not necessary**.



Ammonit Tunnel Server: Advanced technology for higher security and cost effectiveness.

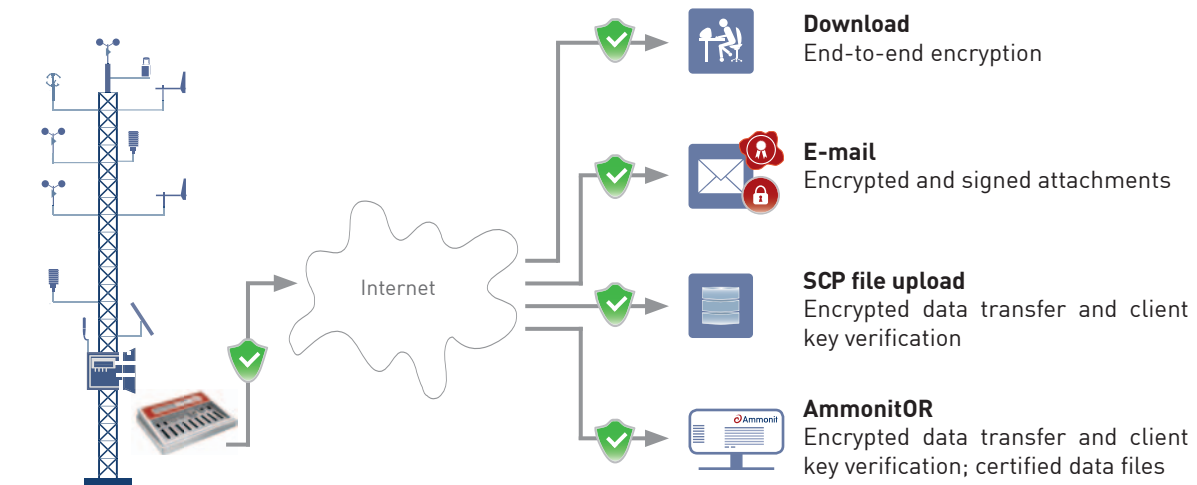
Ammonit Meteo-40 Data Logger: 100% Traceability. 100% Protection.

Ensuring data authenticity and integrity by using digital signatures and encryption

Measurement data is valuable and irreplaceable. To protect your data, we use **public key cryptography** acc. to the **OpenPGP standard** on Meteo-40 data loggers. Hence, Meteo-40 can encrypt and digitally sign data.

A valid digital signature indicates that the message was created by a known sender (authentication) and that the message was not manipulated on transit (integrity).

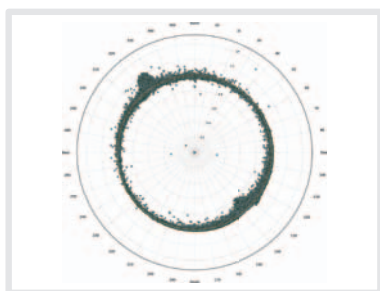
Encryption is a process of encoding information in a way that only authorized parties can read it. Only an authorized recipient can easily decrypt the message with the key provided by the originator.



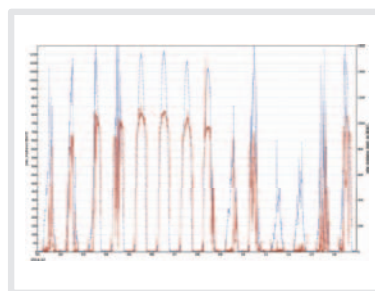
Transparency and traceability to fulfil data quality standards according to IEC, MEASNET and Germany's TR6.

AmmonitOR: Effective MEASNET-compliant campaign monitoring

AmmonitOR (Ammonit Online Report) simplifies managing your measurement campaigns. Connect your Meteo-40 with AmmonitOR to conveniently monitor the quality of your measurement data according to the MEASNET site assessment guideline.



Shadow zone plot



XY plot

| Month/Day | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 2014-12 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2014-11 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2014-10 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2014-09 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2014-08 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2014-07 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2014-06 | 100 | 100 | 100 | 99 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2014-05 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2014-04 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| 2014-03 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

Data calendar for completeness check

Your advantages

- Data verification using diagrams and curves
- Data plausibility check with customisable filters
- Data completeness check with calendar
- Campaign documentation in PDF reports
- Efficient problem detection
- Configurable alert messages, e.g., low power supply
- Configurable data exports for further data processing
- Certified data files and encrypted data transfer

Effective monitoring of measurement systems - 24/7 wherever you are.

Ammonit measurement systems perform reliably around the world

Benefit from full-service packages provided by our global partner network



Wind energy assessment in Kenya



Solar measurement station in Brazil



Solar energy assessment in Turkey



Wind measurement in Bulgaria



Wind measurement in Austria



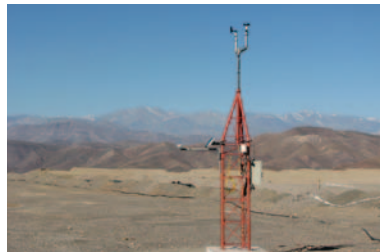
Wind farm monitoring in Spain



Wind farm monitoring in Portugal



Wind measurement in Antarctica



Solar resource assessment in Chile



Wind resource assessment on Aruba



Wind measurement in Australia



Solar measurement in Mexico



Wind resource assessment on Curaçao



Wind energy assessment in Turkey

Thanks to our partners Australian Radio Towers, CLIMATIK, DESAMD, Ecosem, Energiewerkstatt, ENISOLAR, Eunivy Resources, IEM, SME Wind and WindUp for providing the photos for this brochure. For further Ammonit partners refer to www.ammonit.com

Ammonit Meteo-40 Data Logger: Specifications

| | | Meteo-40S | Meteo-40M | Meteo-40L | Description |
|-----------------------------|---------------------------------|---|--|--|---|
| Order Number | | M11010 | M21010 | M31010 | |
| Input Channels | Pulse Counters | 4 | 8 | 12 | Anemometers, precipitation sensors |
| | Digital Serial (Status) | 2 | 4 | 8 | Wind vanes serial, precipitation monitors, ext. activation |
| | Analog Voltage | 4 $\pm 0.1V, \pm 1V, \pm 10V$ 16bit | 8 $\pm 0.1V, \pm 1V, \pm 10V$ 16bit | 12 $\pm 0.1V, \pm 1V, \pm 10V$ 16bit | Barometric pressure, temperature, humidity sensors, pot. wind vanes, pyranometers, pyrheliometers |
| | Analog Current | 1 $\pm 1mA, \pm 10mA, \pm 100mA$ 16bit | 1 $\pm 1mA, \pm 10mA, \pm 100mA$ 16bit | 2 $\pm 1mA, \pm 10mA, \pm 100mA$ 16bit | Sensors with DC output, e.g., temperature humidity sensor (0 ... 20mA) |
| | RS485 (M) | (1) RS485 Master for up to 8 smart sensors | | | Ultrasonic anemometers |
| Output Channels | RS485 (S) | (1) RS485 Slave | | | SCADA monitoring software |
| | 5V Switches | 2 | 4 | 8 | Sensor supply, relay for modem, heating supply. |
| | Current Source | 1 | 1 | 2 | Pt1000, Pt100 |
| Connectivity | USB | (2) USB-A host (1) USB-B device | | | PC, modem, memory stick, Ethernet, WiFi, GPS, web cam |
| | Ethernet | (1) Ethernet | | | LAN, router, media converter, sat.modem, outdoor camera |
| Storage Size | Source Data (1-sec data) | 1 GB | 2 GB | 2 GB | |
| | CSV Data (10-min data) | > 50 MB | | | |
| Display & Keys | | (20x4) LC display with backlight, five keys | | | |
| Power Supply | | 9 ... 36 V DC | | | |
| Protection (Housing) | | IP65 | | | |
| Housing Dimensions | | 260x194x50mm | | | |
| Weight | | 950g | | | |
| Accessories | | External modules, plug connector, mounting kit, steel cabinet | | | |