ORBIT360

THE MOST POWERFUL AND VERSATILE DATA LOGGER ENGINEERED EXCLUSIVELY FOR

WIND AND SOLAR MEASUREMENT SYSTEMS

FOR INDUSTRY PROFESSIONALS IN ACCORDANCE WITH IEC-61400-12-1 AND IEC-61724-1

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ORBIT 360 | DATA LOGGER

INDUSTRY LEADING DATA LOGGER AND SOFTWARE FOR MANAGEMENT OF WIND AND SOLAR MEASUREMENT

With more than **20 years of experience** designing and manufacturing remote data acquisition systems, we are proud to present the **Orbit 360 and Atlas**.

The **Orbit 360** is our toughest and smartest data logger for IEC-61400-12-1 wind and solar resource assessment as well as post-construction monitoring of utility-scale photovoltaic projects in accordance with IEC-61724-1.

The data logger is equipped with three RS-485 buses to connect the ever more frequently used digital instruments, a new internal backup battery, new ultra-low power saving mode as well as integrated Modbus RTU RS485 and Modbus TCP ports.

OUR TOUGHEST AND SMARTEST DATA LOGGER

Our data loggers in numbers since 1999

21.000
Used on more than 21.000 measurement locations worldwide

68
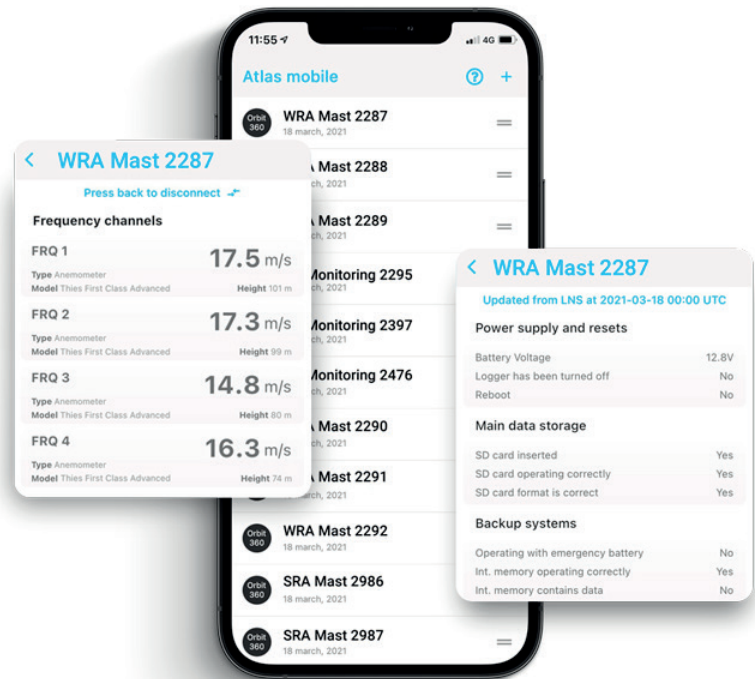Installed in 68 different countries

195 GW
Used to develop approximately 195 GW of global wind power capacity

KEY
BENEFITS

- Up to 16 frequency channels.

- Up to 23 analog channels.

- Alarms and actuators (i.e. obstruction light monitoring, heating on/off control).

- High capacity internal backup battery.

- Expanded internal onboard backup memory.

- Integrated Modbus TCP (no need for external converter for SCADA).

- Three integrated RS485 buses (connect up to 24 sensors with digital output).

- Integrated GSM modem

- New ultra-low power saving mode (remote emergency operation).

- Industrial grade memory card with 20-year storage capacity.

- Secure GPS time-stamp and data encryption.

- Unique password-protected access to wind auditors.

- Ability to communicate with up to three SCADA systems simultaneously.

- Directly compatible with industry sensors incl. cup anemometers, wind vanes and ultrasonic.

- 1-second data storage with 8-year storage capacity.

- Remote OTA firmware upgrades.

- Remote OTA setup and sensor configuration.

- Our segment leading software, Atlas, for secure data logger management.

ATLAS MOBILE

Get real-time sensor output, battery voltage, backup systems status, GPS operation and logger condition directly to your phone.

(Available for both iOS and Android)

REMOTE UPGRADE

Turns out that you want to upgrade the instrumentation on your met mast and introduce sensors with digital output or even integrate the data logger to SCADA. With the remote upgrade feature of the Orbit 360, you can upgrade the data logger from Basic Plus to Premium, at any time.

The upgrade is done remotely and introduces additional features including:

- Full compatibility with digital output sensors.
- SCADA integration via Modbus TCP.
- Alarms and triggers.
- 1-second data storage.
- Up to 39 channels.
- Ability to connect to the logger from Atlas Mobile.
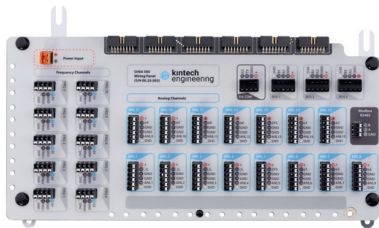
INDUSTRY FIRST REMOTE UPGRADE FEATURE

1-SECOND DATA

With the 1-second data storage capability of the Orbit 360 Premium you can study the wind in even further detail or use it as a data backup when the data logger is connected to a SCADA system.

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ACCESSORIES

For our customers to get the best possible result, our list of accessories include a wide range of products including:

- Enclosures
- Power Supply Systems
- Frequency Channel Expander
- Sensor cables
- GSM and satellite communication modules
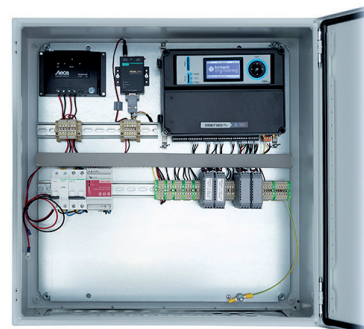- Lightning protection

WIRING PANEL

The Wiring Panel for the Orbit 360 data logger significantly increases the protection of the data logger against electrostatic discharges while preventing mis-wiring. Its push-in spring-cage terminals make it even easier to perform field maintenance.

INTERNET CONNECTED

An optional SIM card that offers internet connection to the Orbit 360 data logger, no matter the country. Fixed yearly cost. One SIM card for all your measurement sites.

ENCLOSURE

To protect the data acquisition system against the climate, potential theft and vandalism, we offer both fiberglass re-enforced polyester as well as metal enclosures. Optionally, our Wiring Panel can be pre-installed for added protection against electrostatic discharges.

MODELS AVAILABLE OF THE ORBIT 360

At present, there are two models available of the Orbit 360 data logger: Basic Plus and Premium. The Orbit 360 Premium include all the latest features including full compatibility with digital instruments, alarms and triggers, 1-second data storage, Modbus RTU and Modbus TCP as well as the ability for you to connect with the data logger remotely via the new Atlas Mobile app.

	ORBIT 360 PREMIUM	ORBIT 360 BASIC PLUS
Frequency channels (pulse counters)	Up to 16*	10
Analog channels (voltage)	Up to 23**	15
Channels for digital instruments	√	N/A
Total number of channels	Up to 39	25
Number of simultaneous digital instruments via RS485	24 (3 buses x 8)	N/A
Remote upgrade (Upgrade from Basic Plus to Premium)	-	√
1-second data storage	√	N/A
Alarms and actuators	√	N/A
Ethernet Port	√	N/A
Integrated Modbus RTU (RS485)	√	N/A
Integrated Modbus TCP (Ethernet)	√	N/A
Atlas Mobile APP (iOS and Android)	√	N/A
Averaging time (minutes)	1, 5, 10	1, 5, 10
RS485 connectivity (for digital instruments)	√	N/A
Maximum & minimum on all channels	√	√
Expanded Internal Backup Memory	√	√
High Capacity Internal Backup Battery	√	√
Ultra-low Power Saving Mode	√	√
Enhanced Sensor Plug Distribution	√	√
Global Internet SIM card available	√	√
2G/3G/4G Modem	√	√
GPS	√	√
Compatible with Iridium satellite communication	√	√
Compatible with BGAN satellite communication	√	√

* The accessory Frequency Channel Expander ads 6 additional pulse counters to the Orbit 360 Premium.

** 15 plus 8 channels. 15 physical analog channels and 8 extra channels for digital sensors

ATLAS

Atlas is an entirely new desktop application to manage and connect with Orbit 360 data loggers in the field.
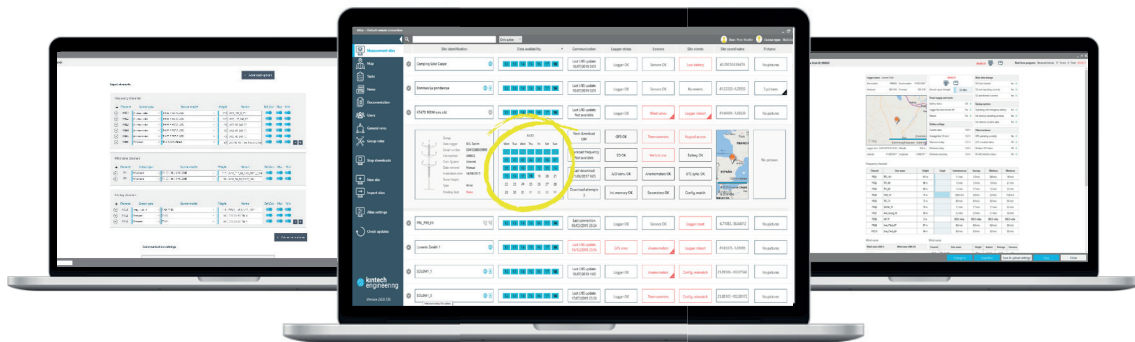
While Atlas automatically downloads and keeps track of the data from all your met masts, including site pictures and installation reports, you have unlimited remote access to your entire fleet of data loggers and can perform real-time connections 24/7.

KEY BENEFITS AND NEW FEATURES

COMPREHENSIVE
USER CONTROL

- Automated data downloads and instantaneous data backup on client server.

- Real-time connections available 24/7 including access to live hardware condition monitoring.

- Intelligent sensor status flags. Essential for immediate field deployment in case of sensor malfunctions.

- Comprehensive user control with exclusive access permission for wind auditors.

- Easy setup of alarms and triggers for remote condition monitoring of obstruction lights or on/off control for heating or ventilation units.

- Intuitive dashboard listing all your data loggers with quick access to logger and sensor status and data availability.

- Automatic software updates.

- All your measurement sites on a single world map.

NEW FEATURES IN DETAIL

USER DEFINED ROLES FOR BETTER MANAGEMENT OF YOUR MEASUREMENT CAMPAIGN

Feature that enable administrators to create user-defined roles and manage access to measurement data as well as individual data loggers or even logger features. There are even built-in predefined site roles with privileges commonly needed for management of wind and solar measurement projects.

ALARMS AND TRIGGERS

A powerful alarm feature in Atlas and Orbit 360, enabling level-based alarms, as well as "differential" triggers. Setup automated actions based on the created alarms (e.g. activate the ventilation unit of a pyranometer or heating of an anemometer).

SMART GSM CONNECTION

Atlas now automatically detects when a data logger connects to the local GSM network and automatically proceeds to download the data from that data logger. This improves download success rates.

DATA AVAILABILITY CALENDAR

A neat calendar that now indicates daily data availability from each of your measurement systems. This makes it easier for you to supervise loggers and quickly detect malfunctions.

LIVE DATA (available 24 hours a day)

With Atlas you can connect to the Orbit 360 data logger and get instant access to live data. A live data connection to the logger lets you quickly check the condition of all the sensors, power supply system, as well as all the main hardware components of the data logger.

DATA SCREENING

The status flags are an integral part of the main dashboard in Atlas and offer a simple and quick way to check the condition of the most important hardware components on the met mast. As soon as data is downloaded from the data logger, Atlas automatically screens the data for potential sensor malfunctions. The status flags are shown in order of importance. Screening filters are user-configurable.

SITE HISTORY

Wind measurement campaigns usually take several years to complete, so keeping track of sensor replacements, maintenance visits and other logger modifications during a period of for example 1-3 years, is important for the success of the project. To make it easier to keep track of things, we have built a new summary page with all the sensor and logger modifications during the entire measurement campaign.

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ENTERPRISE	PROFESSIONAL	FREE
Server / Client Setup	x	x
User Administration	x	x
Customizable Site Permits	x	x
Multi-User	Single User	Single User
Include Atlas Upgrades	Include Atlas Upgrades	x
Add Site Documentation	Add Site Documentation	x
Complete Site History	Complete Site History	x
Auditor Access	Auditor Access	x
Visualize Sites on Map	Visualize Sites on Map	x
User Notes	User Notes	x
Smart Connection (GSM)	Smart Connection (GSM)	Smart Connection (GSM)
Data Availability Calendar	Data Availability Calendar	Data Availability Calendar
Condition Monitoring Flags	Condition Monitoring Flags	Condition Monitoring Flags
Alarms*	Alarms*	Alarms*
Automated Triggers*	Automated Triggers*	Automated Triggers*
Live data (available 24/7)	Live data (available 24/7)	Live data (available 24/7)
Data via Email	Data via Email	Data via Email
Automatic Downloads	Automatic Downloads	Automatic Downloads
Automated Data Forwarding	Automated Data Forwarding	Automated Data Forwarding
Generate Periodic Datasets**	Generate Periodic Datasets**	Generate Periodic Datasets**
Advanced Search Option	Advanced Search Option	Advanced Search Option
Unlimited # Loggers	Unlimited # Loggers	Unlimited # Loggers
Automatic Software Updates	Automatic Software Updates	Automatic Software Updates

*Only available for Orbit 360 Premium / **(Daily, Weekly, Monthly)

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SPECIFICATIONS ORBIT 360 PREMIUM

INPUTS	Total frequency channels available:	up to 16	10 plus 6 channels: 10 physical frequency channels and 6 extra channels. The extra channels can be either exclusively for digital sensors or for frequency output sensors by using the Frequency Channel Expander.
	Total analog channels available:	up to 23	15 plus 8 channels. 15 physical analog channels and 8 extra channels for digital sensors.
	Total channels available:	up to 39	
OUTPUTS	5V	10	One for every physical frequency channel
	+	12	Battery voltage
	out	6	Pulsating battery voltage / Actuator alarm
	5V⊓	4	Pulsating 5V
PROTOCOLS	RS485 - Logger as master	3	For smart sensors with RS485 output (device specific and modbus protocols).
	Integrated Modbus TCP (2 Ethernet ports) -Logger as slave	1	Two simultaneous Modbus TCP connections
	Integrated Modbus RTU -Logger as slave	1	RS485
POWER SUPPLY	External	5...30 VDC	Failsafe power plug, reverse polarity protection
	Internal	7.2 VDC (17.000 mAh)	Internal backup battery for stand-alone operations up to 100 days without external power supply
DATA COLLECTION	Sampling rate	1 Hz	Frequency measurement according to IEC-61400-12-1
	Recording interval	1, 5 or 10 minutes	User configurable
	Recorded values		Average, st. dev., min., max. for all channels
	Turbulence		Calculated for recorded intervals + TI 30 sec. for frequency channels 1 & 2
	Gust		1...3 sec. precision 0.05 m/s
	Standard deviation		Precision 0.01 m/s
DATA STORAGE	Removable memory	SD / MMC	Storage capacity: approx. 20 years
	Internal memory	EEPROM	Storage capacity: approx. 100 days
	Optional additional removable memory	Micro SD	1-second data storage capacity: approx. 9 years. Used for Power Performance Test, IEC-61724-1 Class A Solar Monitoring, SCADA data backup.
DATA RETRIEVAL AVAILABLE 24/7	Telemetry		GSM/GPRS, Satellite (BGAN or Iridium)
	Local		Removable SD card, RS232, FTP, Optional removable micro SD card
	Email		Automatic daily email from logger

SPECIFICATIONS ORBIT 360

ATLAS AND **ATLAS MOBILE**	Data logger management software (Desktop)		Atlas Enterprise, Atlas Professional, Atlas Free
	Atlas Mobile (Mobile app)		Compatible with both IOs and Android. Available on App store and Google Play store (From logger firmware version 2.25)
SECURITY	Data encryption		All data are encrypted and password protected (config.)
	Digital signature		All datasets are digitally signed with GPS coordinates
	Access logging		Remote connections, keypad access with date & time, power on reset, GPS changes
	Timestamp		GPS synchronized and geolocated data
USER INTERFACE	Display		LCD with 64x128 resolution
	Keypad		Robust 5 buttons keypad
	Slots	3	SIM Card, MMC memory card, optional micro SD card
	LEDs	3	Modem, GPS, CPU
PHYSICAL CONNECTIONS	Terminal blocks		Enhanced sensor plug distribution (no more cluttered cables)
	Power Plug		New seperate failsafe power connector
	Antennas	2	GSM, GPS
PHYSICAL	Dimensions	W x L x D	263 mm x 180 mm x 88 mm
	Weight		1.8 kg
	Materials		Polycarbonated plastic
ACCESSORIES	Wiring Panel for Orbit 360		Easier to perform field maintenance and prevent mis-wiring, while significantly increasing the protection of the data logger against electrostatic discharges.
	Frequency Channel Expander		With the Frequency Channel Expander you can add 6 frequency channels (pulse counters) to the 10 frequency channels already available on your Orbit 360 Premium data logger.
	Global Internet SIM Card		Global internet connection - Automatic checks for best local GSM operator
	Power supply module		PV panel + Solar Charge Regulator + Battery
	Satellite Module		BGAN or Iridium satellite communication

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