

# MAINTNODE®

Assets diagnostic tests and supervision

## Use the permanently installed MAINT-NODE® systems in order to:

- (i) Acquire structured operating data from your plant and machinery, using commercial off-the-shelf sensors
- (ii) Implement **COMBINED** preventive maintenance technologies (vibration analysis, ultrasounds, electric measurements, thermodynamic diesel engine analysis)
- (iii) Manage energy inspections
- (iv) Organize your assets using international standards
- (v) Remotely control your equipment
- (vi) Integrate directly with computer maintenance management systems (CMMS)
  - All in one operating system
  - Simply, fast, innovatively
  - Compatible subsystems from leading manufacturers



## Operating with great ease of use

- Plan/review measurements on PCs and mobile devices
- View alarms and export reports
- Store data, sounds and images
- View historical data
- Use it in **ALL** of your plant applications

## References by industry

- Facilities & buildings
- Packaging, delivery & mail
- Transportation
- Water treatment
- Power generation & distribution
- Steel & heavy
- Pulp & paper
- Shipping
- Oil & gas
- Chemical & pharmaceutical
- Food & beverage

## MAINTNODE® applications

The system can be used in the following applications:

### General purpose data collection and inspections support device

Record, store and edit with the use of sensors:

- Pressure
- Temperature
- Thermography
- Flow
- Speed of revolution
- Asset status

### On-site machine check/monitoring

- Bearings status
- Wear check
- Cavitation
- Speed reducing gears/gearboxes
- Pumps/motors
- Lack of lubrication/over-lubrication

### On-site electrical inspection analysis

For detection and analysis of the following faults:

- Electric Arc
- Tracking
- Corona
- Voltage and current waveforms distortion

For use in these applications:

- Switchgears
- Transformers
- Insulators
- Relays
- Bus-bars
- Motors

### On-site leak detection/energy conservation analysis

- Valves
- Steam traps
- Compressed air
- Compressed gases

### Fault detection for industrial/marine Diesel engines

- Quality control of cylinder, fuel pump, injector, turbo compressor, air cooler
- Operation optimization

## Review measurements with ease

The nodes use the available networks, such as ETHERNET, WIFI or GSM in order to communicate.

The Mechbase® software is being used so you can have reliable access from anywhere. It employs a powerful SQL database and modern application technologies.

The system is compatible with the MODBUS and OPC protocol

The system allows for a **specialist (internal or external) partner to diagnose problems remotely.**

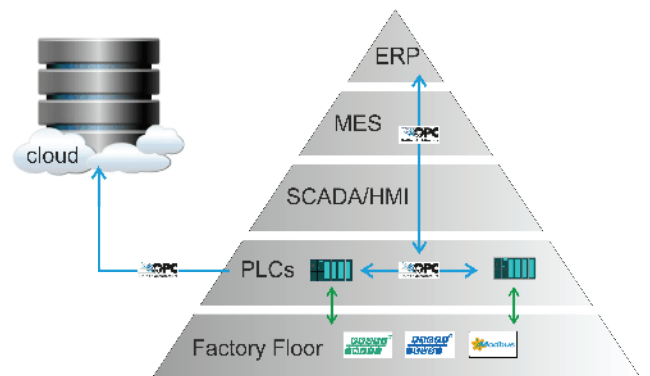
Operating or maintenance personnel can perform the inspection and a remote specialist advises. Quickly and wirelessly.

Findings are automatically uploaded to the computer maintenance management system (CMMS) if one is already in place, so that appropriate corrective actions can be scheduled. interface.

## Assets classification and hierarchy

A comprehensive set of classification and **hierarchy standards** are also included with categories of: business activities, assets, subsystems, failures, corrective actions.

It can be a powerful assisting tool in making decisions about the equipment state whether you are focusing on the component level or you want to concentrate on the overall condition of your enterprise assets status.



## MAINTNODE® technical characteristics

### Data acquisition

Sampling rate	up to 100 kHz / channel (max)
Channels	Unlimited
Event counter	Yes
Maximum measurement range	+/- 10V
Input impedance	> 1MΩ

### Auxiliary inputs

Digital inputs	Unlimited
TTL inputs	Yes
1-Wire sensors	Yes
Modbus Master (RTU / TCP)	Yes

### Outputs

Integrated relays	Yes
Digital outputs	Unlimited

### Compatible items

Compatible sensors	Standard IEPE (IEEE 1451.4) industrial accelerometers (with warning capability for short circuit or no connection) Ultra - Trak®/UE Systems Inc. ultrasound equipment Sensors 0-10V (revolution speed, static and dynamic pressure temperature, infrared radiation, humidity, voltage/current, force, torque, strain)
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### General characteristics

CPU	1.2GHz Quadcore ARM Cortex-A53
RAM	1GB
Data storage	16GB
Connectivity	IEEE 1588 Ethernet 10/100
Power supply	9-29 VDC

### Compliances

Regulatory compliance	EU Directives, RoHS, EN 61010-1:2010, EN61010-2-032:210 EN61010-2-033:2012, EN61010-031:2015, EN61326-1:2013, EN61326-2-2:2013, EN61326-2-3:2013
Classification and hierarchy standards	NACE Rev.2, ISO13373-2:2016 ISO14224:2006, MIMOSA™
Compatibility with CMMS software	AIMMS/Atlantis, Coswin 8i®/Siveco Group
Compatibility with OEE software	Evocon



[www.arpedon.com](http://www.arpedon.com)

ΙΩΝΙΑΣ 80, ΑΛΙΜΟΣ

T: 2109933536 F: 2109941647 E: [info@arpedon.com](mailto:info@arpedon.com)