ENNOSYS

ENABLING DIGITAL INNOVATION!

IOT Device Specifications

+IDE+ Sensor

Varying colors of LED lights on IDE+ indicate its status:

BLUE: IDLE / GREEN - SAFE
YELLOW - CAUTION / RED - ALERT

Y Axis

Z Axis   X Axis

IDE+ measures tri-axial (X, Y, Z axis) vibrational parameters of machines

The three-metre long USB cable that is part of the IDE+ device.

IDE+ has a powerful built-in magnet on its flat back surface, that helps in secure installation of IDE+ on any machine.
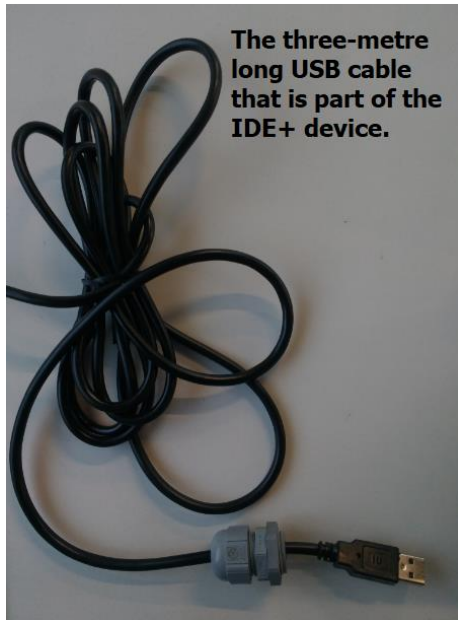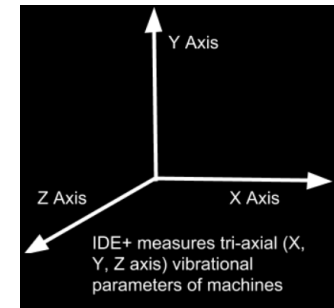
+ Device Technical Specifications

| S. No.	Characteristics	Specification
1	Input Power	5V DC
2	Size	84 x 58 x 30 mm
3	Weight	200 grams
4	Current drawn	250 mA max
5	Data transfer protocol	Wi-Fi, USB and Bluetooth
6	In-built sensors	Vibration, acoustic, temperature, and GNSS
7	Operation states: 4 different indications	Idle, Safe, Caution, Alert

+ Device technical specification (1/4)

Power, Physical & Environment 🌿

Dimension (L x W x H)	103mm x 65mm x 30mm
Weight	80g
Power Supply	USB Type-A (5V, 0.5A)
Battery	non-replaceable Li-SOCl 2 3.6v battery, 5200mAh (or none, depending on application)
Waterproof ISO Certification	IP67 certified
Explosion proof certification	Intrinsically Safe, under PESO certification
Operating Temperature Range	-40 to +85°C

Bluetooth ❋

Transceiver Module	Nordic nRF52832 SoC
Version	Bluetooth 4.2 (Bluetooth Smart) Concurrent Central & Peripheral (S132)
Frequency Range	2.360GHz to 2.500GHz
Transmit Power	Range: -30dBm to +4dBm
Receive Sensibility	Nominal: +4dBm
Antenna	Integrated
Operating Temperature Range	-40 to +85°C
Encryption	AES-128

Device technical specification (2/4)
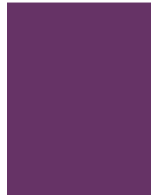
WiFi

Standard	FCC/CE/TELEC/SRRC
Protocol	802.11 b/g/n/e/i support
Frequency Range	2.4GHz to 2.5GHz (2400MHz to 2483.5MHz)
Transmit Power	802.11 b: +20 dBm, 802.11 g: +17 dBm, 802.11 n: +14 dBm
Receive Sensibility	802.11 b: -91 dbm (11 Mbps), 802.11 g: -75 dbm (54 Mbps), 802.11 n: -72 dbm (MCS7)
Antenna	Integrated
Operating temperature range	-40 to +125°C
Security	WPA/WPA2
Encryption	WEP/TKIP/AES
Network protocols	HTTP, MQTT, TCP/IPv4

Sensors - 3-axis accelerometer

Output data rate	Up to 6.6kHz
Resolution	[0.061mg, 0.122mg, 0.244mg, 0.488mg], Nominal: 0.122mg
Operating temperature range	-40 to +85°C
Derived values	- 3-axis acceleration RMS - 3-axis velocity RMS - 3-axis displacement RMS - 3-axis acceleration, velocity and displacement FFT - 3-axis spectral features as per requirement
FFT frequency resolution (delta-f)	Nominal: 1.95Hz

Sensors - Digital Microphone

Output data rate	48kHz
Sound frequency range	Wide frequency response from 60 Hz to 20 kHz
Sensitivity	-26dB FS ±1 dB
Operating temperature range	-40 to +85°C
Derived values	- Sound Level A-weighting (dB A), FFT, Spectral features as per requirements

Device technical specification (4/4)

Sensors - GNSS Module

Supported GNSS (Global Navigation Satellite Systems)	GPS, Galileo, GLONASS, BeiDou
Antenna	Embedded
Sensitivity	-145dBm
Output data rate	Up to 1 GPS fix per minute
Resolution	Down to < 2.5m, Nominal: < 50m
Security	- Built-in spoofing detection - Signal integrity with SHA256 signature
Operating temperature range	-40 to +85°C

Sensors - Platinum Resistance Temperature Detectors (RTDs)

|	
Hardware	2 Analog-to-Digital Converters (ADCs) and up to 2 PT-100 probes (1 probe per ADC).
Output data rate	Up to 1Hz
Resolution	Nominal: 0.03125°C (varies due to RTD non-linearity)
Operating temperature range	-40 to +125°C

+ IDAP Online Specifications (Dashboards)

- Production monitoring:
  Production cycles detection
  Part counting
  Cycle time measurement, OEE reporting

- Machine monitoring:
  Activity mode detection
  Anomaly detection and alerts
  Long term reporting, trend analysis, etc FFT analysis for rotating equipment

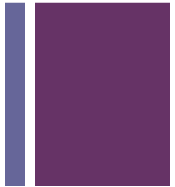- Up to 6 months expected battery in light monitoring mode (1% active duty)

Vibration IDE Analyzer Device Detail for Heavy Equipment/Motors
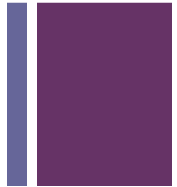
PRODUCT NAME	Vibration Analyzer for Manufacturing, Heavy equipment monitoring and Test Rigs
SIZE	103mm x 30mm x 65mm
WEIGHT	250 Grams
INPUT VOLTAGE	5V DC
CURRENT DRAW	100 mA
CONTENTS	One smart sensor, USB Power Cord, Data Visualization Tab, Instruction Manual
IN-BUILT SENSORS	Tri-axial Vibration, triaxial gyroscope, triaxial magnetometer, pressure, broadband acoustics, temperature
MONITORING INDICATION	4 States- Blue (Idle) Green (Within normal operating specs) Yellow (Warning) Red (Danger) Via RGB LED bulbs
MOUNTING	Magnetic
ENVIRONMENT TOLERANCE	IP66- Waterproof and Rustproof
BATTERY LIFE	1 week to 1 month depending on sensor ranges used
COMMUNICATION	Bluetooth Low Energy (BLE)
OUTPUT DATA	Vibration energy, Velocity in X, Y and Z axes, Temperature, Noise level
DATA STORAGE	Cloud, Data recording on tab with file creation functionality
ALERTS	Email or message, on Yellow or on Red

Compact Vibration IDE Analyzer Device Detail: Heavy Equipment/Motors

PRODUCT NAME	Industrial Data Enabler COMPACT for MFG and bearing monitoring & predictive maintenance
SIZE	38mm x 30mm x 13mm
WEIGHT	78 Grams
INPUT VOLTAGE	5V DC
CURRENT DRAW	100 mAt
CONTENTS	One smart sensor, USB Power Cord, Data Visualization Tab, Instruction Manual
IN-BUILT SENSORS	Tri-axial Vibration, tri-axial gyroscope, tri-axial magnetometer, pressure, broadband acoustics, temperature
MONITORING INDICATION	4 States- Blue (Idle), Green (Within normal operating specs), Yellow (Warning), Red (Danger) on RGB LED
MOUNTING	Magnetic
ENVIRONMENT TOLERANCE	IP66- Waterproof and Rustproof
BATTERY LIFE	No battery- continuously plugged in
COMMUNICATION	Bluetooth Low Energy (BLE)
OUTPUT DATA	Vibration energy, Velocity in X, Y and Z axes, Temperature, Noise level
DATA STORAGE	Cloud, Data recording on tab with file creation functionality
ALERTS	Email or message, on Yellow or on Red