



Infinite Uptime provides Diagnostics as a Service (DaaS) that helps to prevent unplanned downtime of Machines. Industrial Data Enabler (IDE) vEdge 4.2 device is used as an interface to measure machine parameters and it helps to monitor machines wirelessly. The data acquisition is performed with the help of Industrial Data Enabler (IDE) vEdge 4.2 and it is mounted on the machine surface and it sends data to the cloud in the presence of Wi-Fi.

The Industrial Data Enabler (IDE) vEdge 4.2 device needs to be configured on the Industrial Data Analytics Platform (IDAP). Auto Diagnostics system performs trend-based and spectrum-based analysis and generates the Observation Diagnostic Recommendation (ODR). The results are syndicated by domain experts to deliver high-impact fault notifications with time-bound actionable insights via Digital Reliability Services (DRS). It has local RS485-Modbus RTU communication capability, dashboard, and reports to provide an end-to-end solution to our customers.

Industrial Data Enabler (IDE) vEdge 4.2, is compact with better Wi-Fi and Bluetooth Low Energy (BLE) connectivity, and OTA firmware upgrade technology. It gives immediate feedback through visual fault detecting indicators, remotely monitors any critical mechanical rotating equipment to mirror notifications and provides real-time diagnostic insights.

Functions and Features

Machine Monitoring

- Rotating Machine Fault Detection and Alerts
- Real-Time and Long-Term Data Reporting with Trend monitoring
- FFT for Spectral Analysis of Rotating equipment
- Detection of Bearing fault based on bearing type selected from the list
- Fixed and variable rotation speed input option available for better analysis
- Availability of Automatic and Manual rollback feature for firmware upgrade OTA (Over the Air) by wireless technology
- Visual feedback through LEDs and color codes
- Polarity reversal and Overload power supply protection
- Easy 1-minute installation through Mobile Application



Device Specifications

Parameter	Specification / Description
Vibration Sensing & Processing	
Vibration Sensor	MEMS based Triaxial accelerometer
Frequency range / Bandwidth of accelerometer with vibration pad mounting	Up to 2.5 kHz for X, Y & Z axis
Configuration Range	F _{max} : 325 Hz to 2.5 kHz LOR: 100 to 12800 (LOR = Lines of Resolution)
Vibration Sampling Rate	Configurable up to 6.6 kHz
g-range with vibration pad mounting (Refer Appendix B) for description)	Up to ± 16 G
Machine RPM that can be analysed	20 RPM to 3900 RPM
Resolution of accelerometer	16 bit
Derived values	3-axis acceleration RMS and velocity RMS 3-axis acceleration and velocity FFT 3-axis spectral features as per configuration
FFT frequency resolution (delta-f)	Configurable up to 0.025 Hz (depends on F _{max} and LOR settings)
Temperature	
Temperature sensor	Semiconductor based sensor
Contact temperature range (with vibration pad mounting)	-20 degree C to 85 degree C
Wireless Interfaces	
Wi-Fi features	<ul style="list-style-type: none">• MAC address displayed in Android/iOS app for MAC filtering in the Company network• Static & Dynamic IP support
BLE features	<ul style="list-style-type: none">• Low power• 5 m open-air range• Connect the Industrial Data Enabler (IDE) vEdge 4.2 to the Android device (Operating System version 9 and above) or iOS device (Operating System version 12 and above) to:<ul style="list-style-type: none">○ Configure the Industrial Data Enabler (IDE) vEdge 4.2○ Visualize real-time data
Data transactions	
Transfer to server	Wi-Fi



Interface	
Transfer interval	<ul style="list-style-type: none">• Real-time transfer every 2 Second, 7 Second, 12 Second, 25 Second, 35 second, and 55 second (depending on Fmax and LOR selection chosen in the configuration)• FFT data transfer every 30 minutes under the described bandwidth and RSSI specifications
Local viewing	<ul style="list-style-type: none">• Mobile Android Application• iOS Application
Minimum Requirements for Android and iOS Application	<ul style="list-style-type: none">• Android device (operating system version 9 and above) or iOS device (operating system version 12 and above) to:<ul style="list-style-type: none">○ Configure the Industrial Data Enabler (IDE) vEdge 4.2○ Visualize real-time data• Screen Size (for Android device): Supports screen size of 6" and above
OTA	Over-The-Air - remote firmware upgrade
Configuration	<ul style="list-style-type: none">• Remotely on the dashboard• Locally through the android device or iOS device meeting minimum requirements.
RSSI level between Access point and the device	-60 dBm minimum
Throughput / Bandwidth from the device to server	Minimum 50 Kbps upload and download speed per device.
Recommended Access Point/Wi-Fi Router	Access point make and configuration: <ul style="list-style-type: none">• Make: Teltonika• Model: Teltonika RUT200/Teltonika RUT240/ Teltonika RUT360• Antennas: 2.4 GHz• Gain: 5 dBi• Radios: 2.4 GHz of IEEE 802.11 b/g/n
	<ul style="list-style-type: none">• Make: Silbo• Model: SILBO-RB44• Antennas: 2 x SMA for LTE, 2 x SMA for Wi-Fi• antenna connectors• Gain: Mobile antenna @ 5dBi and for Wi-Fi antenna: 5 dBi• Max RF Power: 23 dBm@LTE, 20 dBm@ Wi-Fi
Electrical	
Power supply	External power supply 24 VDC@200 mA DC.



Power Supply Protection	Polarity reversal protection, Overload protection
Connector	4-pin M8 connector [V+, 0, (A)DATA+, (B) DATA-]
Cable	<ul style="list-style-type: none">• 28 AWG 2-core shielded 5 m cable with the open leads of 25 mm- standard cable for SMPS Connection.• Cable with inbuilt, moulded surge protection.• Cable has heat shrink of 20mm.
	<ul style="list-style-type: none">• 28 AWG 4-core shielded 5 m cable with open leads of 25 mm- optional cable for MODBUS Connection• Cable with inbuilt, moulded surge protection.• Cable has heat shrink of 20mm <p>Note: 4 core cable is applicable only for Modbus communication users.</p>
Cable Material	XLPE
Cable temperature range	0 degree C to 90 degrees C
Local Communications	
Protocol (Functionality)	Modbus RTU (Slave)
Physical standard	RS 485, 2 Wire
Supported Baud	4800 bps to 115200 bps (excluding 57,600 bps)
Parity	None, Even
Data bits	8 bits
Stop bits	1
General	
Enclosure	Aluminium base with Polycarbonate cover
LEDs	4 RGB LEDs, one on each corner of the enclosure, rated up to 85 degrees C
Axis orientation	Y-axis along with the power cord
Size	Approx. 51.9 (L) mm x 32.6 (W) mm x 24.8 (H) mm without connector.
	Approx. 61.6 (L) mm x 32.6 (W) mm x 24.8 (H) mm with connector.
Weight	80 g
Resistance to impact requirement as per IEC 60079-0 Section 26.4.2	Resistance to the impact of 1 kg mass dropped from 0.7m height



Drop test requirement as per IEC 60079-0 Section 26.4.3	Resistance to drop from a height of 1 meter
Maximum g-range that can be withstood (Refer Appendix B)	+/- 16g
Mounting	Using Vibration Pad
Mounting accessories	Vibration pad (28 mm x 8 mm, SS410)
Operating ambient temperature	0 degree C to 85 degrees C
Storage temperature	-20°C to 85°C
Relative humidity at storage conditions tested as per MIL-STD-810H, Method 507.6-7 Aggravated Temperature Humidity Cycle	0 to 100% RH (Non-Condensation)
Network Security	
Wi-Fi Network access	Pre-shared key (PSK), Open, Hidden Network (Hidden SSID)
Communication Protocol	MQTT, HTTP / MQTTS, HTTPS (as per configuration)
Encryption	AES 256
Cryptographic Algorithm	SHA-256
Whitelisting	IP (Source IP & Destination IP), Port (For Secured :8883,443,8000 & For Unsecured 1883, 80), URL or Mac-Address (Depending upon the network)
Device Authentication	Certificate-based authentication (as per configuration)
Certifications & Approvals	
IP68 (Waterproof and Dustproof)	Certified
ATEX	Self-Certified



Wireless Specifications

Wi-Fi

Parameter	Specification
Protocol	IEEE 802.11 b/g/n support
Frequency Range	2.4 GHz
Antenna	Integrated with device
Security	WPA / WPA2 - PSK based authentication
Encryption	TKIP/AES
Network Protocol	MQTT, HTTP / MQTTS, HTTPS (TCP/IPv4), As per configuration

Bluetooth

Parameter	Specification
Version	Bluetooth 4.2 (Low Energy) Concurrent Central & Peripheral (S132)
Frequency Range	2.4 GHz
Encryption	AES-128 (between the device and the Mobile Application)




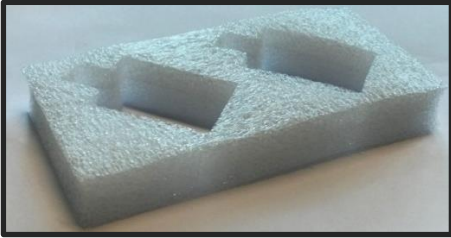
Packaging

Parameter	Specification
Packaging box dimensions	150 mm x 75 mm x 75 mm (Length x Width x Height)
Material of Package	Cardboard, Expanded Polyethylene foam sheet
Weight of complete package	470 g
Contents of the package	2 Industrial Data Enabler (IDE) vEdge 4.2 Devices, 2 cables
Appearance and color	Appearance as shown in Appendix A .



Appendix A

Packaging Box

Component	Appearance
Packaging Box – External View	 <p>Figure 1 - External View of the Packaging Box</p>
Packaging Box – Inner contents	 <p>Figure 2 - Inner View of the Packaging Box</p>
Packaging Box – Top Foam material	 <p>Figure 3 – Top foam material of the Packaging Box (the picture shows two pieces placed one over the other)</p>
Packaging Box – Device Locating Foam material	 <p>Figure 4 - Device locating foam material of Packaging Box (the picture shows two pieces placed one over the other)</p>



Appendix B

Mounting with Vibration Pad

The vibration pad has adhered to the equipment as mentioned in the “User Manual for Installation and Configuration of IDE vEdge”. The tightening torque shall be as per the Installation Manual. The device can measure up to 16G forces with vibration pad mounting.