

Unlocking Semi-Autonomous Plants

World's most user-validated Prescriptive AI



Product Name: **vEdge 3XT**

Product Version: **vEdge 4.x (4.2)**

The "**vEdge 3XT**" is mounted on asset surface for data acquisition

KEY FEATURES

- | | | |
|---|--|---|
| <ul style="list-style-type: none">• Rotating equipment Fault Detection and Alerts• Real-Time data capture• FFT for Spectral Analysis of Rotating equipment• Visual feedback through LEDs and color codes | <ul style="list-style-type: none">• Detection of Bearing fault based on bearing type selected from the list• Polarity reversal and Overload power supply protection• Easy 1-minute installation through Mobile Application | <ul style="list-style-type: none">• 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 |
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EQUIPMENT & ENVIRONMENTAL SUITABILITY

Equipment with transient load patterns, operating between Revolution Per Minute (RPM) of 20 RPM to 3900 RPM such as

- Blowers
- Compressors
- Mills
- Pumps
- Gearboxes

ASSET FAILURE MODES COVERED

- | | | |
|---|---|--|
| <ul style="list-style-type: none">• Unbalance• Angular Misalignment• Gear Defects• Bearing Defects | <ul style="list-style-type: none">• Parallel Misalignment• Structural Looseness• Gear Defects | <ul style="list-style-type: none">• Rotating Looseness• Structural Looseness• Pump Flow Issues |
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For External Circulation

For further information please reach out to support@infinite-uptime.com

Vibration Sensing & Processing	
Vibration Sensor	MEMS based Triaxial accelerometer
Asset RPM that can be analyzed	20 RPM to 3900 RPM
Frequency range / Bandwidth of accelerometer with vibration pad mounting	Up to 2.5 kHz for X, Y & Z axis
Configuration Range (in PlantOS Platform)	<ul style="list-style-type: none"> Fmax: 325 Hz to 2.5 kHz Fmin: 0.2 Hz to 10Hz LOR: 100 to 12800 (LOR = Lines of Resolution)
g-range with vibration pad mounting	Up to ± 16 G The vibration pad is affixed to the equipment as specified in the <i>User Guide: Prescriptive Maintenance (Sense & Ingest Module)</i> . Apply tightening torque as per the User Guide. When mounted with the vibration pad, the device supports measurements up to 16 g
Vibration Sampling Rate	Configurable up to 6.6 kHz
Resolution of accelerometer	16 bit
Derived values	<ul style="list-style-type: none"> 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 Fmax and LOR settings)
Temperature	
Temperature sensor	Semiconductor based sensor
Contact temperature range (with vibration pad mounting)	-20°C to 85° 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 vEdge 3XT 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 vEdge 3XT Visualize real-time data
Wi-Fi Protocol	IEEE 802.11 b/g/n support
Frequency Range	2.4 GHz
Antenna	Integrated with vEdge 3XT
Security	WPA / WPA2 - PSK based authentication
Encryption	TKIP/AES
Communication Protocol	MQTTs (for MQTT data), HTTPS (for FFT data) and TCP/IPv4
Data Transactions	
Transfer to server interface	Wi-Fi
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	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 vEdge 3XT Visualize real-time data <ul style="list-style-type: none"> Screen Size (for Android device): Supports screen size of 6" and above
OTA	Over-The-Air - remote firmware upgrade

Data Transactions	
Configuration	<ul style="list-style-type: none"> Remotely on the PlantOS Platform Locally through the android device or iOS device meeting minimum requirements.
RSSI level between Access point and the vEdge 3XT	-60 dBm minimum
Throughput / Bandwidth from the vEdge 3XT to server	Minimum 50 Kbps upload and download speed per vEdge 3XT
Recommended Access Point/Wi-Fi Router	<p>Access point make and configuration:</p> <ul style="list-style-type: none"> Make: Teltonika Model: Teltonika: RUT200/RUT240/ RUT241/RUT360/ RUT361/RUTX50/RUTX12/RUTX10 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 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
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° C to 90° 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° C
Axis orientation	Y-axis along with the power cord
Size	<p>Approx. 51.9 (L) mm x 32.6 (W) mm x 24.8 (H) mm without connector.</p> <p>Approx. 61.6 (L) mm x 32.6 (W) mm x 24.8 (H) mm with connector.</p>
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 1meter

General	
Mounting	<p>Recommended mounting procedure: Using Vibration Pad</p> <p>Recommended Glue:</p> <ul style="list-style-type: none"> For installation using a vibration pad, Bondtite structural adhesive is recommended. If the asset surface or ambient temperature exceeds 70°C, it is advised to use LOCTITE AA 326 adhesive in conjunction with LOCTITE SF 7075 activator. <p>Note: vEdge 3XT should be firmly fixed to a flat surface (spot face surface may be needed to be produced and cable anchored to the vEdge 3XT body)</p>
Mounting accessories	Vibration pad (28 mm x 8 mm, SS410)
Operating ambient temperature	0° C to 85° 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)
Encryption	AES 256
Cryptographic Algorithm	SHA-256
Whitelisting – vEdge3XT to Server Communication	<p>IP (Source IP and Destination IP), Allow only secure ports 8883, 443, and 8000 with TLS enabled for all device-to-server communication, URL or MAC Address (depending on the network)</p> <p>Note: Ports 80 (HTTP) and 1883 (MQTT) should be used only for device testing and OTA firmware updates, if required, and must be disabled after completion.</p>
vEdge 3XT Authentication	Certificate-based authentication (as per configuration)
Restricted Network Access	Only Whitelisted URL IPs are allowed
MAC Security	MAC-based Authentication
Bluetooth	
Version	Bluetooth 4.2 (Low Energy) Concurrent Central & Peripheral (S132)
Frequency Range	2.4 GHz
Encryption	AES-128 (between the vEdge 3XT and the Mobile Application)
Range (Open Air)	5 meters
Certifications	
Sealing	IP68 (Waterproof and Dustproof)
ATEX	Self-Certified
Packaging	
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	Two vEdge 3XT, 2 cables
Appearance and color	Appearance as shown in Appendix A .

Appendix A
Packaging Box

Component	Appearance
Packaging Box – Inner contents	 <p>Inner View of the Packaging Box</p>
Packaging Box – Top Foam material	 <p>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>vEdge 3XT locating foam material of Packaging Box (the picture shows two pieces placed one over the other)</p>