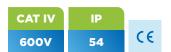# IoTx - I

Features

- ✓ Online streaming of transformer's parameters
- ✓ Geotagging of the device
- ✓ Detection of protection relay status change and alerts through email/SMS
- ✓ Real-time alerts and notifications
- ✓ Centralized monitoring of the transformer data
- ✓ Trend monitoring and predictive analysis based on monitored parameters
- ✓ Seamless integration to existing equipment
- ✓ Dynamic copper loss, hotspot temperature, aging rate, and residual life

IoTx - I

Transformer Monitoring Device-Industrial

CAT IV	IP
600V	54

CE

IOTX-I is a transformer monitoring device that needs to be installed near a transformer to measure its vital parameters such as RYB voltage and current, oil temperature, winding temperature, and protection relay status. Through the Motware platform, one can easily monitor the streaming parameters of the transformer. The Motware platform allows you to do predictive analysis of the dynamic copper loss, hot spot temperature, aging rate, and the residual life of the transformer. The device includes a GSM module to transmit the data to our cloud-based Motware application every 5 minutes, or as per the customer specified, transfer rate depending on the set parameters. The data transferred is stored in the memory of the device In the event of a network failure, it will transfer the data back to the cloud once the network is established. The device operates in mains and battery and comes with a geotagging facility.

Applications

The IoTx-I transformer monitoring device is a digital wireless and reliable solution, which is designed to monitor the transformer's parameters. It helps to overcome the limitations of the current conventional transformer monitoring systems by sending real-time data to the Motware IoT platform. It helps to review the transformer's parameters at regular intervals to help in easy predictive analysis and preventive maintenance. Transformer losses can be acutely monitored and streamed over a GSM network that is connected to the cloud-based Motware application. The user can make productive and informative decisions based on the data captured in the transformer monitoring device. The Motware application provides alerts based on the limits applied on the streamed parameter values to avoid any damage.

Our solution can be used for various segments like :

- ■ Utilities,
- ■ Transformer OEMs
- ■ Industries
- ■ Commercial premises
- ■ Railways and Metro

Power Supply

Mains Power supply : 90-528VAC Frequency 50/60Hz with OVP & OCP

Battery power : Rechargeable Battery 14.8V,2600mAh

Features

Type of measurement

3 phase Current (R, Y, B) LV	Range : 1A/5A as per measurement CT secondary, Resolution : 0.1
3 phase-neutral Voltage (R, Y, B) LV*1	Range : 230 VAC +/- 10%, Resolution : 0.1
Oil Temperature	Range: 0-150 0C (Customisable as per the customer's requirement), Signal type:4-20mA Resolution:0.1
Winding Temperature	Range: 0-150 0C (Customisable as per the customer's requirement), Signal type:4-20mA Resolution:0.1
Oil Level (High/low)	Range: The Oil level low-level indication is set 25% below the transformer conservator tank.
	Oil level high set above 25% of the transformer conservator tank, Signal type:0-5V
Panel temperature up to 2 panels*2	Range: 0°C to 100°C OR -20°C to 80°C, Signal type:4-20mA
	OR
Panel Humidity up to 2 panel*2	Range: 0 to 100% RH, Signal type:4-20mA
Ambient temperature and Humidity	Range: $0-50^{o}$C ,20-90% RH, Accuracy-35% RH/32°C

Collector

OLTC Tap change indication up to 35 Tap*3 , Signal type:4-20mA

GPS Location (Latitude & longitude)

Alarm/trip status : 24V DC to 125V DC voltage level can be applied to each channel. The Alarm/Trip status will show as Healthy/Operated on

the Motware application

PRV (Pressure relief valve) Trip status

OSR (Oil surge relay) Alarm/Trip status

Gas Operated Relay Alarm/Trip status

Buchholz Alarm/Trip status

OTI (Oil temperature Indicator) Alarm/Trip status

WTI (Winding Temperature Indicator) Alarm/Trip

MOG (Magnetic Oil Level Gauge) Alarm/Trip status

Capacitor Bank ON/OFF status

Outgoing Feeder ON/OFF status, up to 4 feeders

Controller

Microcontroller : 32bit ARM running at 72MHz

Real time clock : Battery backed internal RTC

Memory : Data can store up to 2 days depends on the time interval

Protection on input channels

3 phase voltage i/p channel protection : Surge protection

Temperature i/p channel protection : ESD, EFT, Surge protection

Alarm/trip channel protection: Surge protection, OPTO isolation

Communication

Communication wireless: GSM/GPRS

Frequency range : 850Mhz/900Mhz/1800Mhz/1900Mhz

Supported SIM card type: 2G/3G/4G

GPS: Operating frequency:1575.4231 MHz

Indication

Display type :16x2 LCD

Display colour : White on Blue background

LED Indicators : RYB phase indication, Status, Power Indication, Data Transmit/Receive Indication

Mechanical

Enclosure material : Metal MS CRCA sheet

Mounting mode : Wall mount/Pole mount*4

Weight : 6Kg Approx.

Dimension : 480(L)x127(W)x405(H) mm Approx.

Environment

IP Degree of protection: IP65

Operating temperature range: -10°C to 55°C, Relative Humidity: < 95% RH Non-Condensing.

Storage temperature range: -20°C to 70°C

Accessories

Standard Mounting Bracket

Note:

1. PT output will be required for higher rated voltage levels

2. Panel Temperature OR Humidity –anyone of the parameter will read per panel.

3. Tap positions are interfaced with the device through the Tap position indicator which is connected to the power transformer with OLTC.

4. Mode of mounting needs to be specified at the time of ordering.

MOT-WARE Cloud Application

Motwane has designed and developed MOT-WARE – a cloud based test data platform to aid in accurate Asset Health Assessment. It is accessible from web based applications. In addition, it offers an open architecture that can seamlessly integrate with any asset for quick and authentic digital data. MOT-WARE also has the facility to upload data history and the breakdown history of the transformer. Digital test data enables data analytics and visualization which offers multiple statistical advantages. It improves productivity & efficiency, reduces costs, and improves the life of the asset. Data analysis done through MOT-WARE includes trends analysis. As an add-on, MOT-WARE also offers 'Motwane AI Analytics'(Link to AI Analytics page) which uses a proprietary AI algorithm and Machine Learning to make accurate predictions about your asset's life based on its behavioral patterns and operating conditions.

Contact Details

The MOTWANE Manufacturing Company Private Limited

Gyan Baug, Nashik Road,
422101 Maharashtra, India

www.motwane.com

Toll-free number:
1800 233 7766

https://www.linkedin.com/company/motwanemanufacturing