



## CHAIRMAN'S ADDRESS



Dear Friends,

Wish you all a very Happy New Year . 2023 holds a lot of promise for all of us. I do hope against all predictions of Covid and recession, I truly hope next year will be a very good year for all of us.

This edition release has been timed for new year release to greet all ,through our magazine.

In 2022 I turned 60 and moved on to be Chairman of our group. This also called for lot of restructuring of group activities for good response to market and greater focus on new products development.

There is now a great focus on many Partial Discharge solutions presently by us . We are striving hard to leaders of this segment shortly.

The entire basket of testing equipments have enhanced sufficiently to address not only to power sector but to the Energy sector on the whole.

All our new releases have had very good welcome by all our users.

More than a dozen products are under development and are slated to release in 23/24.

I hope all our new products recieve the same welcome by our users.

On the personal front 2022 was a proud year for a father getting his daughter married. The best part of this is good participation by our entire team and good part of our power fraternity.

I take this opportunity to thank one and all to be part of our event and make it a grand success.

This financial year I wish my team all the very best to achieve an all time highest target.

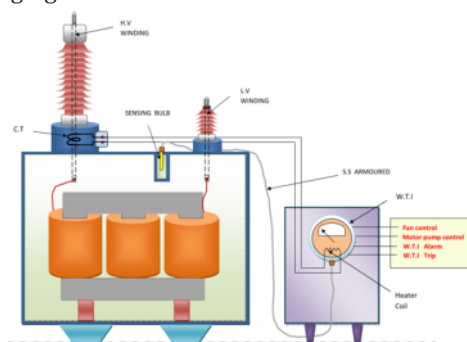
I wish all and their families very good luck for the new year and may all their dreams come true.

Thanks and Regards

**M N Ravinarayan**  
Chairman

## TRANSFORMER HEALTH MONITORING

The WTI means winding temperature Indicator and OTI means Oil Temperature Indicator which indicates the winding temperature & oil temperature of the transformer and operates the alarm, trip, and cooler control contacts. This instrument operates on the principle of thermal imaging and it is not an actual measurement



### Details of Winding Temperature Indicator (WTI):

Winding temperature indicator (WTI) consists of a sensor bulb placed in the oil filled pocket in the transformer tank top cover. The bulb is connected to the instrument housing by means of two flexible capillary tubes. One capillary is connected to the measuring bellow of the instrument and the other to a compensation bellow.

The measuring system is filled with a liquid, which changes its volume with rising temperature. Inside the instrument is fitted with a heating resistance which is fed by a current proportionate to the current flowing through the transformer winding.

The instrument is provided with a maximum temperature indicator.

The heating resistance is fed by a current transformer associated with the loaded winding of the transformer. (The heating resistance is made out of the same materials as that of the winding) The increase in the temperature of the resistance is proportionate to that of the winding. The sensor bulb of the instrument is located in the hottest oil of the transformer; therefore, the winding temperature indicates (WTI) a temperature of hottest oil plus the winding temperature above hot oil i.e the hot spot temperature. In the WTI, there are four nos. of the mercury switch. Two of them is used for Fan and motor pump control and another two nos. The switch is used for high-temperature warning alarm and trip circuit contact.

The switch is S1, S2, S3, S4. The setting of the switches is given below: -

Fan Control	Motor Pump Control	WTI Alarm	WTI Trip
Fan On: 64°C, Fan Off: 58°C	Pump On: 72°C, Pump Off: 68°C	WTI Alarm: 85°C	WTI Trip: 95°C

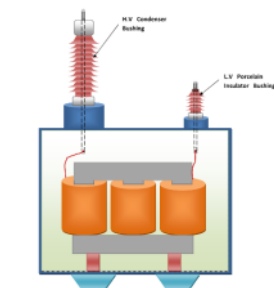
### Oil Temperature Indicator (OTI):

The (OTI) oil temperature indicator consists of a sensor bulb, capacity tube, and a dial thermometer, the sensor bulb is fitted at the location of hottest oil. The sensor bulb and capacity tube are fitted with an evaporation liquid. The vapour pressure varies with temperature and is transmitted to a bourdon tube inside the dial thermometer, which moves in accordance with the changes in pressure, which is proportional to the temperature. In OTI, there are 2 (two) nos. of mercury switch i.e (S1 and S2). S1 is used for Alarm and the S2 switch is used for Trip.

The setting of the switches is given below:

OTI Alarm	OTI Trip
OTI Alarm: 80°C	OTI Trip: 90°C

The Bushing of power transformer is a type of porcelain or ebonite post insulator put on the top or side of the transformer tank through which connections are made to the external circuit.



**There are some important functions of this equipment as follows:**

- Indicate instantaneous temperature of oil and windings of the transformer and record maximum temperature rises of oil and windings.
- Operate high-temperature alarm at a predetermined value of allowable temperature limit.
- Trip the circuit breakers associated with the power transformer when the temperature of oil or winding reaches a predetermined limit.
- Control the cooling system of the transformer. Turn on the cooling equipment when the winding attains a preset high temperature and turn it off when the temperature decreases by a set differential.

#### Uses

- For the safety, reliability and long operational life of the transformer, a good temperature surveillance system is necessary.
- A good temperature surveillance system should provide the following features:
- Accurate temperature measurement and display for Oil and Winding Temperature.
- Alarm and Trip signals for Oil and Winding temperatures
- Cooling fan controls.
- EMI / EMC conformity and should be suitable for switchyard environmental conditions.
- Sensor Fault monitoring and indication.
- Maximum temperature registering.
- Signal for remote indication and SCADA / DAS

#### Advantages

Compact single unit for OTI & WTI.

- Super bright displays offer unambiguous readings even in ambient light conditions.
- Installation convenience The layout is to customer choice and convenience. With non-separable dangling capillaries in dial type unit, it is quite inconvenient to handle.
- Low rating CT required.
- Interchangeability of main unit & sensor due to standardization leads to ease in installation, maintenance and service.
- Ease of calibrating at end customer's place. This is not possible with conventional ones.

By AMIM SHAHBAZ, Asst. Manager

## THIRD HARMONIC LEAKAGE CURRENT MEASUREMENT AND HEALTH MONITORING OF SURGE ARRESTERS WITH LARGE DIA AND BLUE TOOTH

Surge arresters are installed on transmission and distribution substations between phase and earth in order to improve the lightning performance and reduce the failure rates. High-energy stresses and housing deterioration are the main factors of degradation and damage of surge arresters. Thus, there is need for testing and monitoring the surge arresters, in order to verify their good condition and their ability to effectively protect the lines.

There are number of methods are available to measure the arrester's leakage current like compensation method, harmonic analysis method. The most common method used, is the measurement of the arrester's 3rd Harmonic Current as per IEC-60099-5 due to quick, accurate, simple & safe, which is an indicator of the surge arrester's condition, since every change, deterioration or damage leads to an increase of the 3rd Harmonic leakage current.

- Non-Contact measurement of Lightning arrester Leakage current for analysing the healthiness of the Metal oxide Surge Arrester.
- In addition to measured values, location registration by GPS, temperature, date and time can also be saved
- The least influence from the external magnetic field and noise by shielding for CT.
- Compliant with IEC6099-5.

- Measurement value can be kept in our cloud server through our APP "Multi-Tracer".
- Enabled the measurement for minimum 0.1µA resolution and harmonics current.
- Wide range of Measurement: 1000uA/10mA/100mA /1000mA.
- Clamp Dia- suitable for 765/ 400kV Application – 68MM.

**MEASUREMENT VALUE**

**MEASUREMENT TIME**

**TEMPERATURE & HUMIDITY**

**MEASUREMENT POINT**

**BLUE TOOTH**



By Akarsha, Asst. Manager

## NO COMPROMISE ON SAFETY AT MAN LIFT BUCKETS



No compromise on safety; ensure you are safe from Live Voltage and Induced voltage-

Everyone is panic if there is an accident! Can we avoid this just taking right precaution?

Yes, it is possible. VOLTCHER is designed with universal connector it can be fixed on the Boom lift. If there is live voltage in the moving direction of boom man lift, before getting in the arcing zone it will identify live voltage. You may stop moving further towards live voltage. Even after

the shutdown there is chance of high induced voltage due to is missing earthing or poor earthing. The kit helps to identify high Induced voltage percent before operation getting come contact with conductor.

To save the life of the electrical engineer who works EHV standing on Boom lift this safety practice has to be implemented immediately.

Recent demonstration at various paces of EHV user, this practice is appreciated and accepted.

**By Shridhar U G, Sr. General Manager**

## BIRTHDAY WISHES

Gourav Khatri	4 Jan	Alex Jerald	22 Mar
H M Ravi	11 Jan	Sumit Kumar	2 Apr
Shridhar U G	18 Jan	Atish Kumar Biswal	5 Apr
Anurag Soni	9 Feb	Indranil Jha	6 Apr
A T Ravindra	2 Mar	Pavan Kumar	8 Apr
Bikesh Kumar Roy	5 Mar	Somnath Chakraborty	8 Apr
Srinivasa	18 Mar	Geetha K	18 Apr
Srinivas S	18 Mar	Sanjeev Kumar	24 Apr
Vinaya N S	21 Mar		



## WELCOME NEW TAURUS COLLEAGUES



**Indranil Jha**

Engineer Presales GRID-M



**Sumit Kumar**

Engineer Presales GRID-M



**Thejas A**

Project Coordinator



**Geetha K**

Executive Inside Sales



**Somen Sengupta**

Assistant Manager – Sales



**Somnath Chakraborty**

Commercial Executive



**V Srinivasa**

Soldering Technician



**Pavan Kumar**

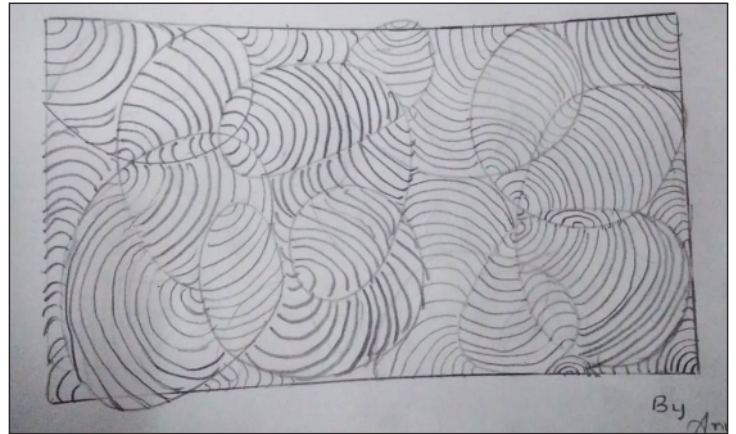
Front Office Executive



## HIDDEN TALENT



By Sanchit Srivastava, Manager-Tech, Product, AUMSRI & Sales



By Anuska Kamal Daughter of Prajitha

## FROM EDITOR'S DESK



### Dear Readers,

To all the readers out there, I welcome you all to our 9th edition of the Watts Up magazine. It's a digital initiative in the form of a quarterly magazine released by Taurus Powertronics Private Limited, to educate, inform and update on the latest and greatest innovations, inventions and research happening in the field of power.

You have been such a blessing to the company! We appreciate you doing your best to contribute to our success. As this year concludes, may our teamwork continue to grow. Happy New Year!

Congratulations for having such a productive year! We are proud to see you grow with our company and unlock potential you didn't think you had in the first place. We are excited to start a new year with you. Cheers to more challenges and milestones!

Dear Reader, Ready or not, 2023 is coming, and with-it time for a refreshing and a restart for all. As you reflect back on all 2022 held and look ahead to your resolutions for the New Year, you will likely want to send New Year wishes in a meaningful to the people in your life too.

IEEMA is organizing 6th Reverse Buyer-Seller Meet, concurrently with ELECRAMA-2023 exhibition, from 18th to 22nd February 2023 at India Expo Mart Ltd. Greater Noida, Delhi NCR, India.

I request all the reader to visit our stall to meet us Hall no 12- Stall No-B1 - H12B1 & explore our new innovation in field of Electrical Transmission lines & Sub-Station testing with latest technology.

Happy new Year to all! See You soon in Elecrama.

By Atish Kumar Biswal, Sr. General Manager

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