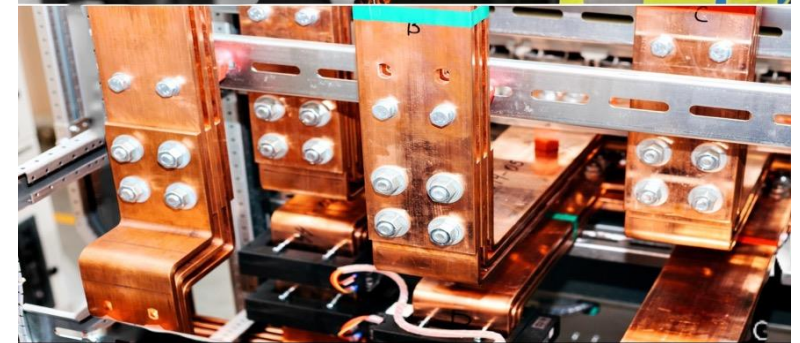




Get Infront of the problems

NON INTRUSIVE PREDICTIVE MAINTENANCE SHOWCASE



MET GROUP

Global Leader's in Ultrasonic Testing

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The Challenge

BACKGROUND: LV & HV Electrical Testing until recent years has relied on blind, costly planned shut downs. Businesses are having to be reactive to issues/faults and this incurs a cost in both money and time.

MET Group's leading-edge solutions allow clients to maintain operations whilst being able to identify faults in a predictive and non-intrusive capacity across ALL HV/LV assets, down to final distribution. The subsequent reporting allows the client to isolate the areas of concern as identified in the report, minimising the overall shutdown timeframe.

Condition Based Monitoring allows for 24/7 364 monitoring with the addition of energised reaction teams.

THE PROBLEM:

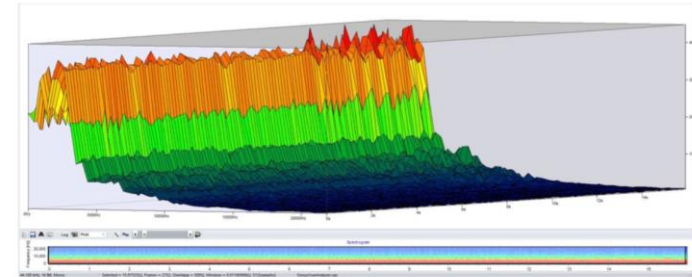
- Travel Hubs, Data and Finance Sector Clients can not shut down areas of the business.
- Massive Cost associated to unplanned reactive shutdowns
- Electrical Testing often takes a back seat to operational needs.
- Current providers striking off large areas of distribution as limitation – No alternative option offered.



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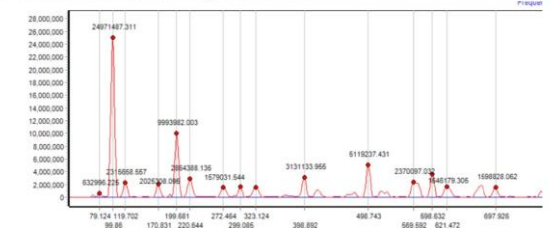
When view this in a 3D Spectrogram there is not enough clear signal to give us the stunning images, we would expect to see in the Time Domain since the amplitude of the unit was too high when the sound wave was captured. The First Spectrogram 3D has the Frequency Domain on the left: going to the center and from the center the Time Domain with the vertical representing the amplitude.



If we look at the F5 out to 17,000 Hz we can see that there are several Harmonics appearing.



If we start at the very first harmonic value at 99.86 Hz we not only notice the large amount of amplitude but smaller harmonics before and after the major harmonic. These values are called sidebands with values being spaced out at 20 Hz before and after.



MET GROUP INTRODUCES ULTRASONIC TESTING

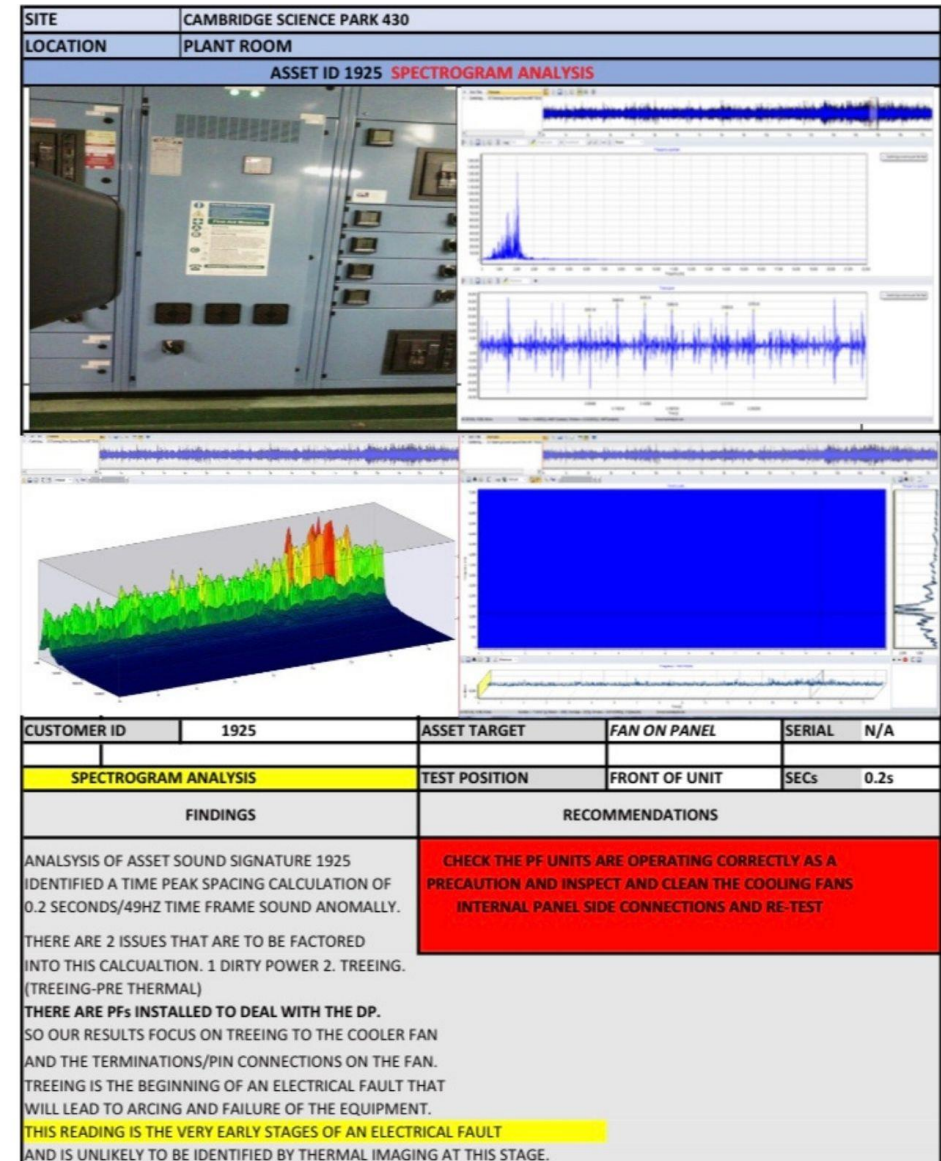
ULTRASONIC INSPECTION AND REPORTING

In Depth on site and post visit analysis. Ultrasound picks up everything the human ear can not hear. MET Group engineers listen to the internals of all the HV, LV and Mechanical Plant Assets. This leading-edge solution allows us to identify faults/issues at the pre-thermal and thermal state on electrical assets and to identify sounds out of the frequency range of the human ear, or that are drowned out by Mechanical Plant, in order to identify faults in mechanical plant motors. The sound signature is translated into 3D Graphs and the Engineers can assess and identify through the software and their extensive experience the exact fault and the work needed to bring the asset back to optimal efficiency. This allows for the planned maintenance to be targeted, getting rid of the need for long, laborious, costly and unnecessary shutdowns, and allowing for shorter term isolations to work in the reported issues. The information is saved and MET Group engineers conduct trending analysis in order to identify and report on progressive issues.

This is the most advanced form of Electrical and Mechanical Testing in the World.

This service can inspect but is not limited too:

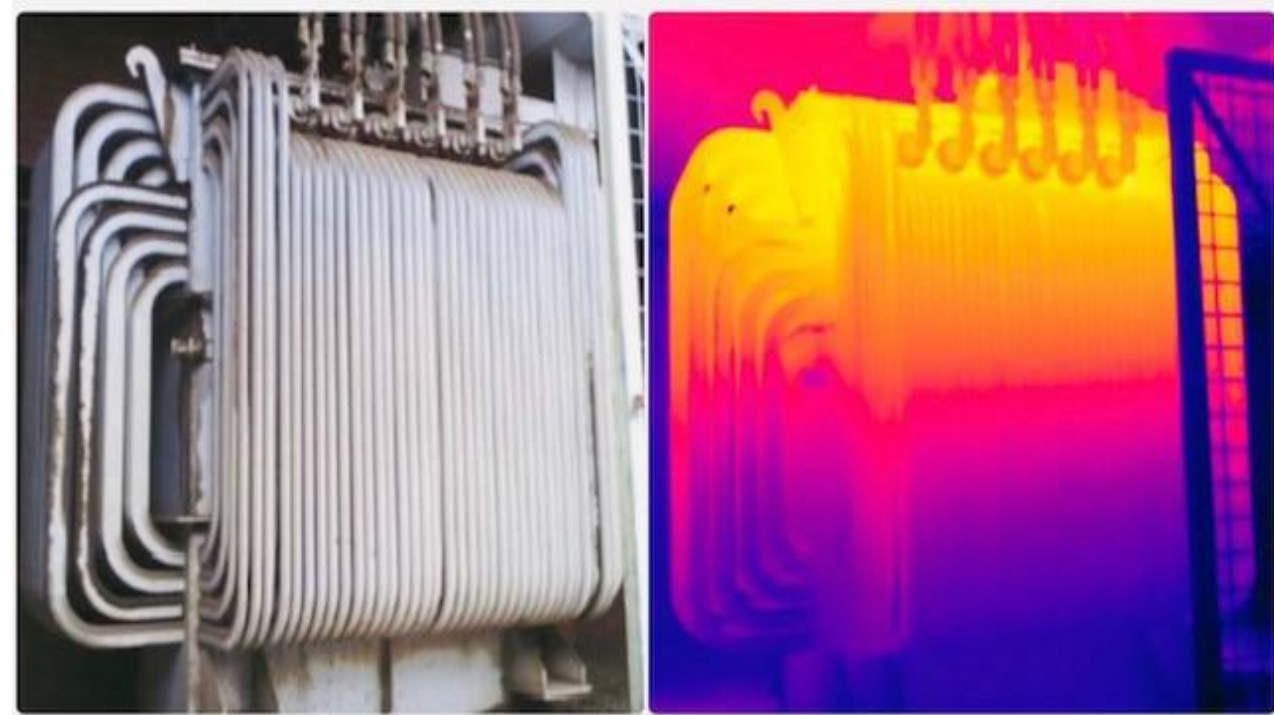
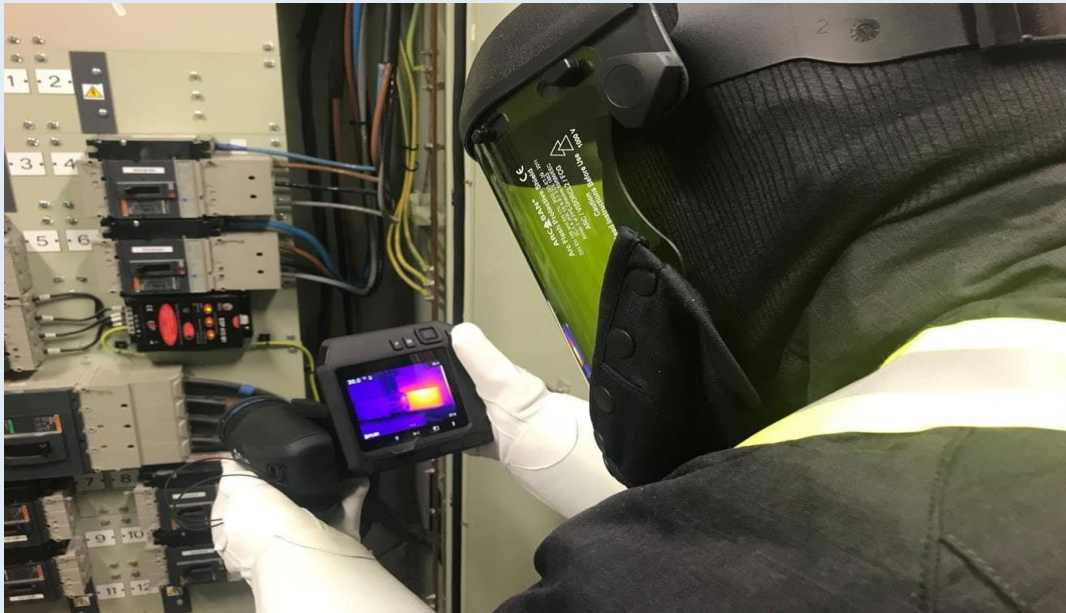
- Transformers
- LV/HV Switch complete
- Busbars/Risers & Elevated Busbars
- Distribution Panels
- Distribution Boards
- HVAC/Plant
- Water Pumps



MET GROUP INTRODUCES THERMOGRAPHIC TESTING

THERMOGRAPHIC INSPECTION & REPORTING

In Depth on site and post visit analysis. Thermography picks up everything the eye can not see. MET Group's highly experienced engineers can find issues in their finite infancy. This is then reported on, with findings, conclusion and recommendation of work. This should always be done with the panels removed. Some clients prefer the non-intrusive option of Ultrasonic only, but for those who want the full service, MET Group Engineers utilise Thermography as a second stage to the service, ensuring all faults/issues are identified and reported against. The information is saved and cross checked each visit for trending analysis. Arc Flash Calculations are carried out prior to removing any panels.



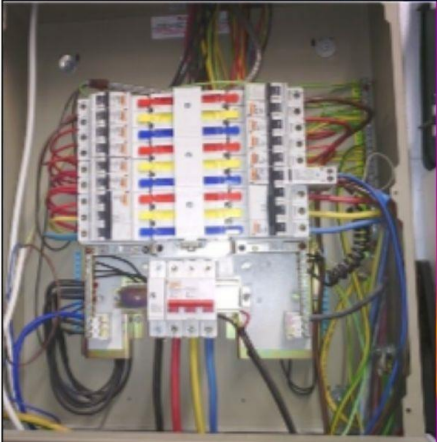
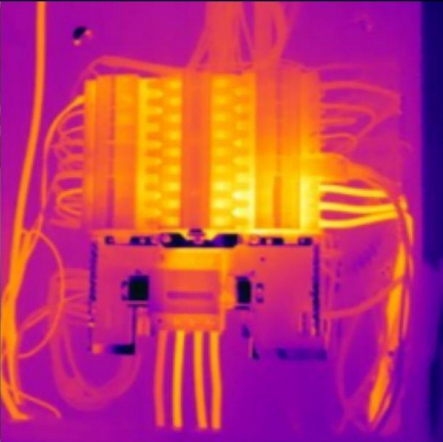
Inclusive of Ultrasound and Thermography to the DB's. Many clients have areas they can not shut down and have several DB's that are being struck off as limitations. MET Group ensures that every asset has some form of testing that is reported against and has certification post inspection.

Power Factor Correction

ACB Testing

Energy Surge Spike Testing

[illegible][illegible]

SITE		ASDA HYDE SK14 1BD			
LOCATION		MAIN OFFICE AREA			
ASSET ID DB4		THERMAL IMAGE DB4			
					
TEST PARAMETERS & RESULTS					
	TARGET TEMPERATURE RESULTS		EMISSION	REFLECTION TEMP	CAMERA
PHASE 1	PHASE 1	34°C	34°C	34°C	MANF FLIR
PHASE 2	PHASE 2	34°C	34°C	34°C	MODEL T540
PHASE 3	PHASE 3	34°C	34°C	34°C	SERIAL 5567/A
FRONT OF ASSET		34°C	34°C	34°C	CALIB Nov-21
Findings			Recommendations		
READINGS RECORDED TO INCOMING MAINS CABLE & FRONT OF ASSET. ALL 4 READINGS WITHIN MANUFACTURERS RANGE OF HEAT EXPOSURE			NO FURTHER WORKS REQUIRED		
THERMOGRAPHER ENGINEER			DATE		
DAVID WAKEFIELD			23-Nov-10		

MET GROUP INTRODUCES – MET PRO SOFTWARE

ERIC

DASHBOARD

REPORT

PROFILE PAGE

SIGN OUT

NO ISSUES FOUND

Test every 12 months to trend kit

ASSET ID: 004

TEST PARAMETERS AND RESULTS

TEST FREQUENCY	25 HZ	SENSITIVITY SETTING	70 NUMBER
ULTRASONIC DECIBEL ONE	0 DB	HZ PEAK	16 HZ

ASSET INFORMATION

MANUFACTURER	ABB	VOLTAGE	400	MANF	UE
MODEL	SACE EMAX PR-122	UNIT RATING	800A	MODEL	15000
CUSTOMER		IP RATING	IP4X	SERIAL	UP6899L
APPLICATION	ACB	TEST POSITION	FRONT OF ASSET	CALIB	NOV 21

FINDINGS

RECOMMENDATIONS

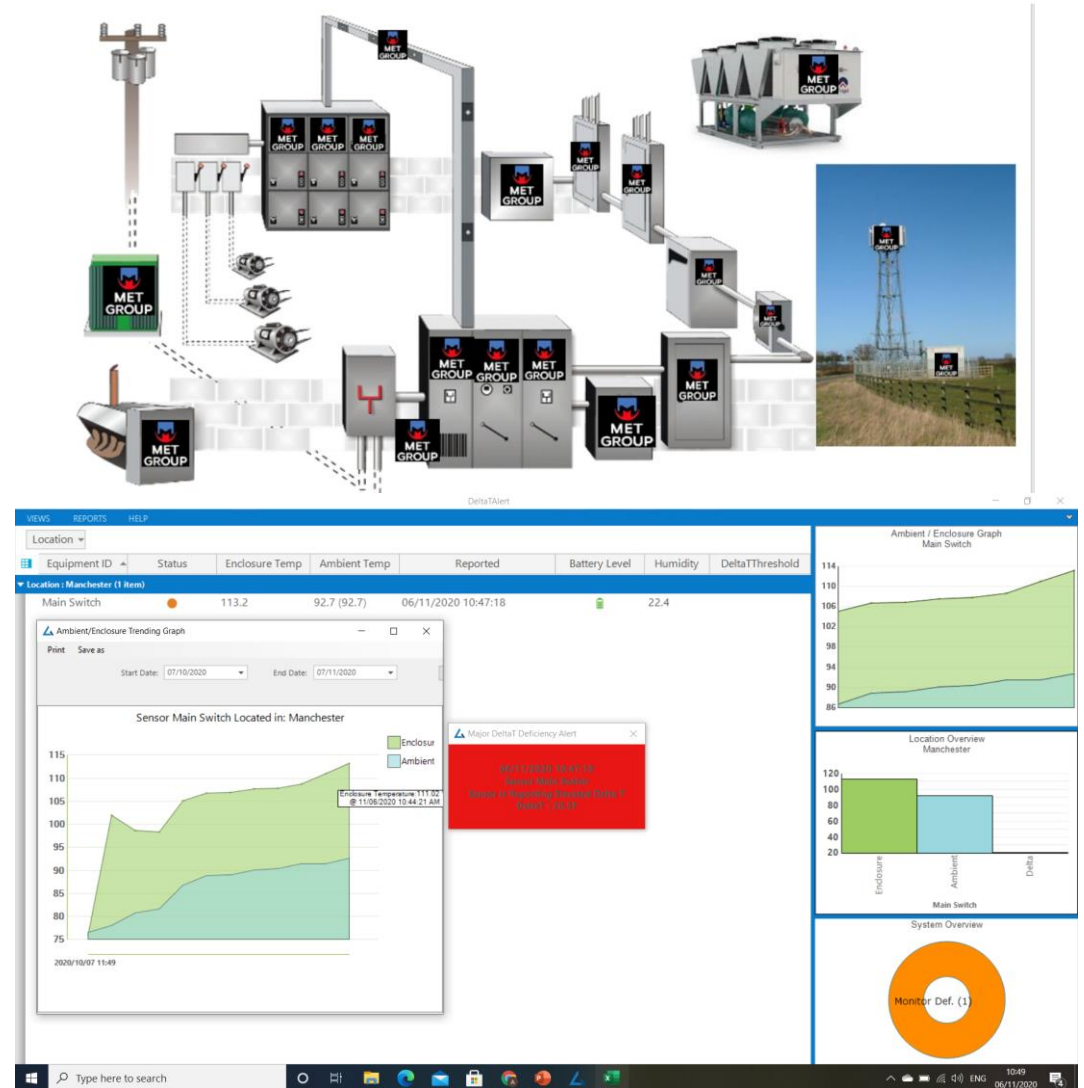
MET GROUP INTRODUCES CONDITION BASED MONITORING

CONDITION BASED MONITORING

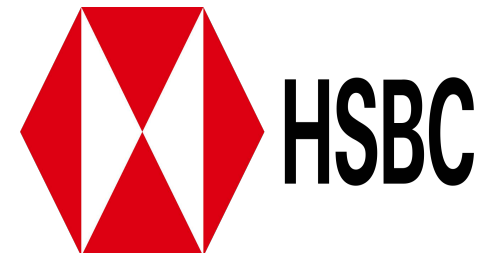
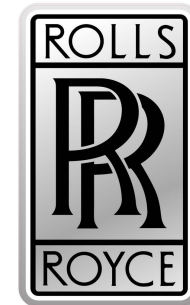
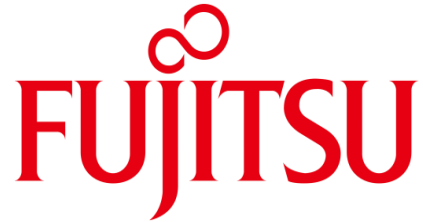
MET Groups leading edge technology can monitor the operating temperatures of all the clients' critical electrical assets. We can provide sensors that report through a gateway to the software. The client receives live reporting via desktop, tablet or mobile phone. A built-in alarm system triggers if the asset temp surges. MET Group provide energised emergency response teams who can deploy to site, get in front of the asset under load and assess, isolate and if required fix.

The software can be web or client computer based. The technology comes with data tag technology as an addition, allowing for more fluid engineering inspection. Complete with reporting system.

This service can monitor HV/LV Mains, Chillers, Mobile Phone Masts, Wind Farms and more.



BUSINESSES EMBRACING ENERGISED TESTING & CONDITION BASED MONITORING



MET GROUP



IMPLEMENTATION

Site and DWG Survey -
Quotation

ROI

- Minimising Shut Down Time
- Extension of Life Expectancy of Electrical Distribution
- Less Costly than laborious shut downs

PROVEN TECHNOLOGY AND SERVICE

Adopted as the leading form
of electrical distribution
monitoring and testing in the
Finance, Data and
Manufacturing Sectors