



- **World's largest designer & leading expert manufacturer of Electrical Maintenance Safety Devices and solutions for the electrical industry**
- **Based in Bradenton, Florida, USA**
- **Direct sales and technical support available in more than 60 countries**
- **Instructor led Online and site based infrared and ultrasound/PD training provider up to Level 3 (Trainer level)**
- **2022 – Launched Safe-Connect line of thermochromic indicators. Winner of eight global awards for Fire Safety and Maintenance Innovation... so far!**

## Presenter

**Mark Shenton CRL, AAMP**

**Director of Business Development – Europe & Africa**

**IRISS Group**

- *Marine Engineering Artificer (Royal Navy) 903 Entry*
- *Certified Reliability Leader (CRL)*
- *Certified Level 1 IRT & ASU*
- *IRISS Ambassador for DFSR & ODSR*
- *Global Leader Energised Electrical CBM Practices*
- *Live in Hunnington, UK*
- *Passions: My family, travelling and the love of small batch craft gin!*





# Calendar Based Maintenance (CBM)

A tick in the box for compliance

# Condition Based Maintenance/Monitoring (CBM)

**Ability to know the integrity of your asset in real time to enable you to make a decision with condition-based evidence.**

*It is essential to ensure that electrical installations are regularly inspected and tested in order to comply with the Electricity At Work Regulations (1989) and keep people safe. By having regular inspections, any potential hazards can be identified before they cause an accident or injury.*

BS7671:2018

THE  
SAME  
OLD  
THINKING

THE  
SAME  
OLD  
RESULTS

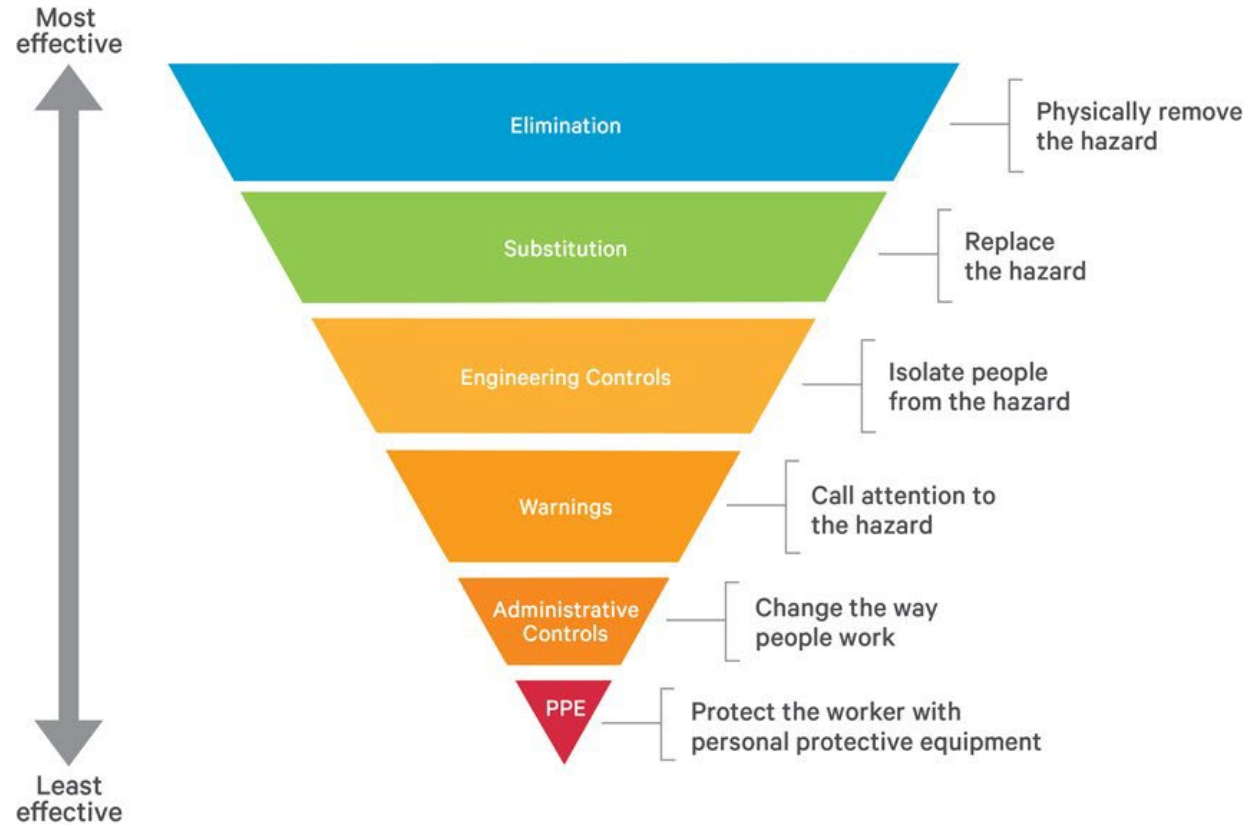
A

Y

EAWR does not apply to the master and crew of sea-going ships in relation to 'normal ship-board activities'



# HIERARCHY OF CONTROLS



A man in a blue uniform is standing in a control room, writing in a clipboard. The room is filled with various electrical panels, gauges, and switches. The text "Operations Driven Safety and Reliability (ODSR)" is overlaid in the center of the image.

# Operations Driven Safety and Reliability (ODSR)

- ODSR is an asset management program that involves operators in the management of assets through the execution of inspection tasks, aimed at monitoring some process parameters that may be used to evaluate component and system degradation.
- ODSR encourages interaction with maintenance and other departments as a team to reduce the number of failures, thus improving ship-wide asset reliability.



# Replacement Strategies

Moving towards a designed ODSR condition driven repair model is a replacement strategy designed to replace outdated, unnecessary legacy maintenance practices with ODSR condition-based inspections whilst managing the risk of failure

# Mistake Proofing Reliability Utilizing ODSR

- **Design for Safety and Reliability (DFSR)** to prevent defects in our everyday CBM activities and processes
- Errors should not be considered inevitable. Any type of error can be reduced considerably, if not eliminated altogether utilizing **DFSR** strategies
- **DFSR** creates safer work environment
- **DFSR** assures consistency of quality results
- **DFSR** makes problems more visible
- **DFSR** lowers cost of design and cost to manufacture



ポカ

Poka  
(mistake)

ヨケ

Yoke  
(proofing)

# Visual Alarm Systems

- Visual alarm systems are an effective tool for ODSR programs by providing real-time visual indication of equipment status and potential issues.
- Makes it easy for operators to identify and respond to potential problems
- Integrates with other monitoring and diagnostic tools to provide comprehensive equipment status.

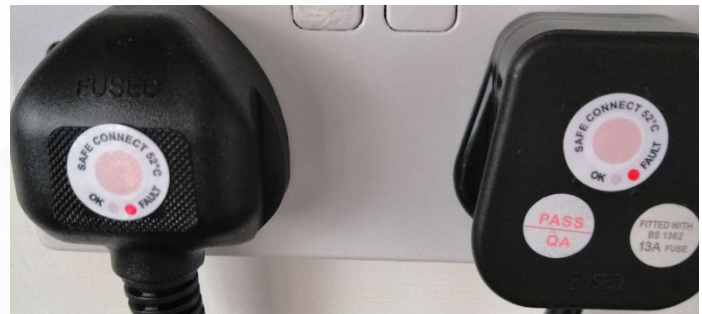




**SAFE-CONNECT**



**IRISS**  
ENGINEERED RELIABILITY

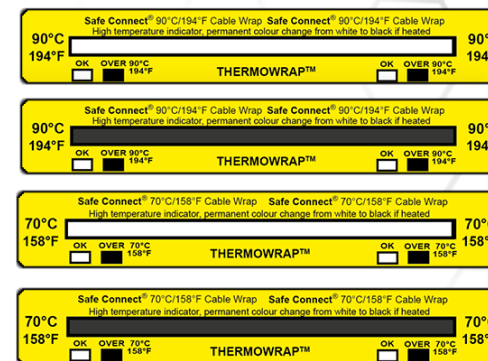


## Safe Connect Thermochromic Solutions

- IR inspections are an excellent condition monitoring tool for electrical distribution systems
- Performed by a two-man team if removing covers, requiring H&S signoff and detailed Method Statements
- IR inspections are typically completed every 12 months and usually (unless using IR windows) conducted during times when the equipment is not fully loaded, so the chance of finding transient faults within the equipment is unlikely
- How well do you know your system between inspections?

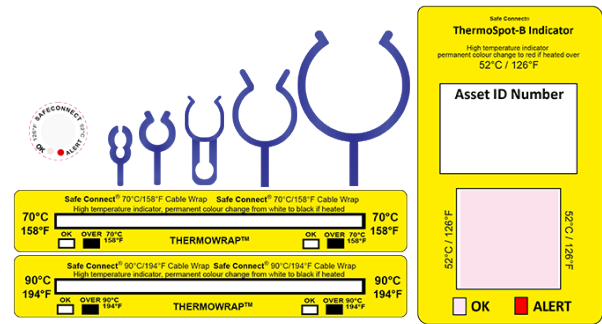
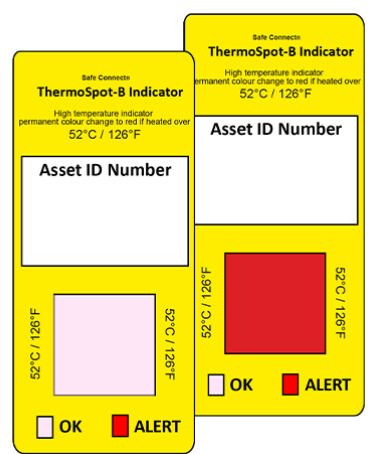
Now we have a simple solution...  
**Overtemperature Indicators**



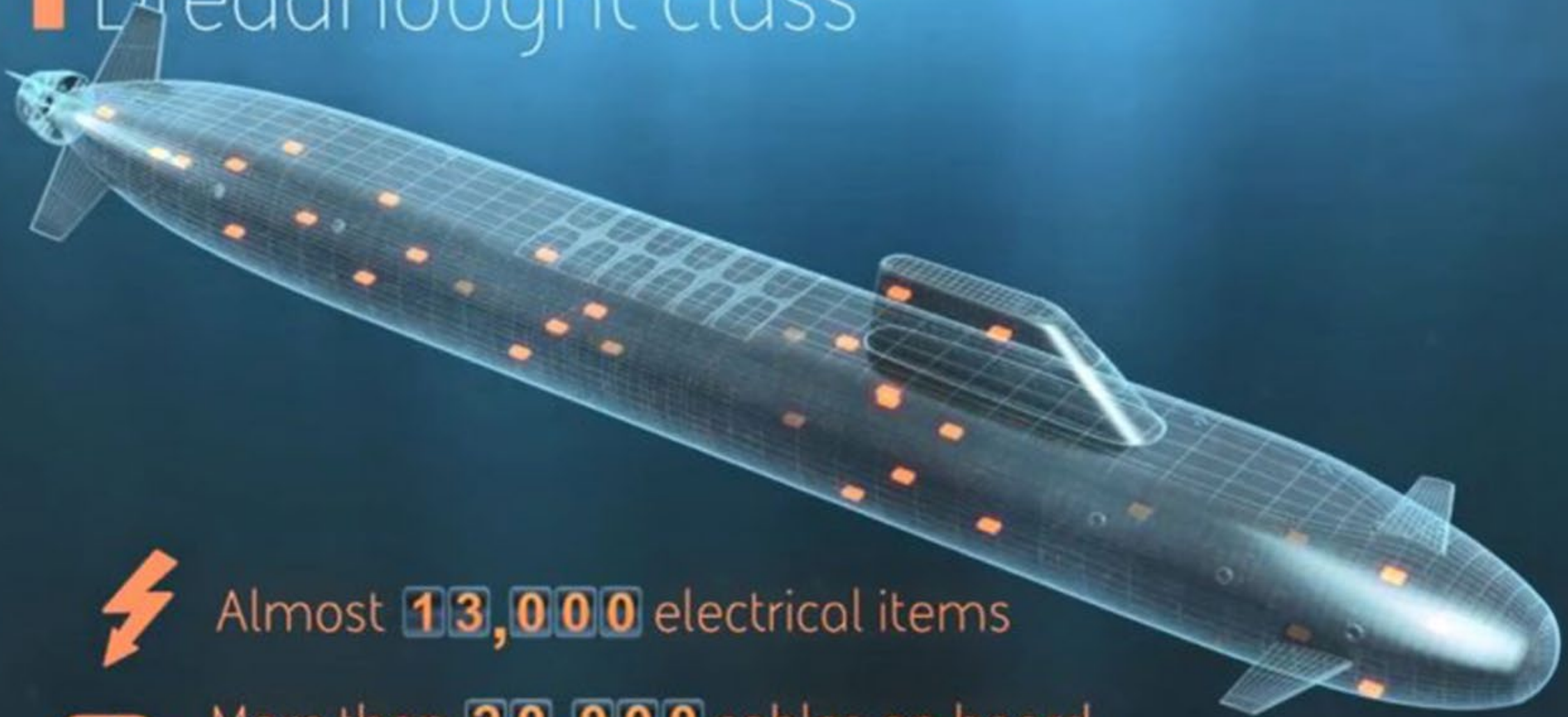


# Safe-Connect | Safe Alert

## Thermochromic Solutions



# ■ Dreadnought class



Almost **13,000** electrical items



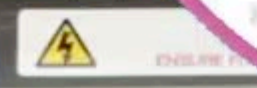
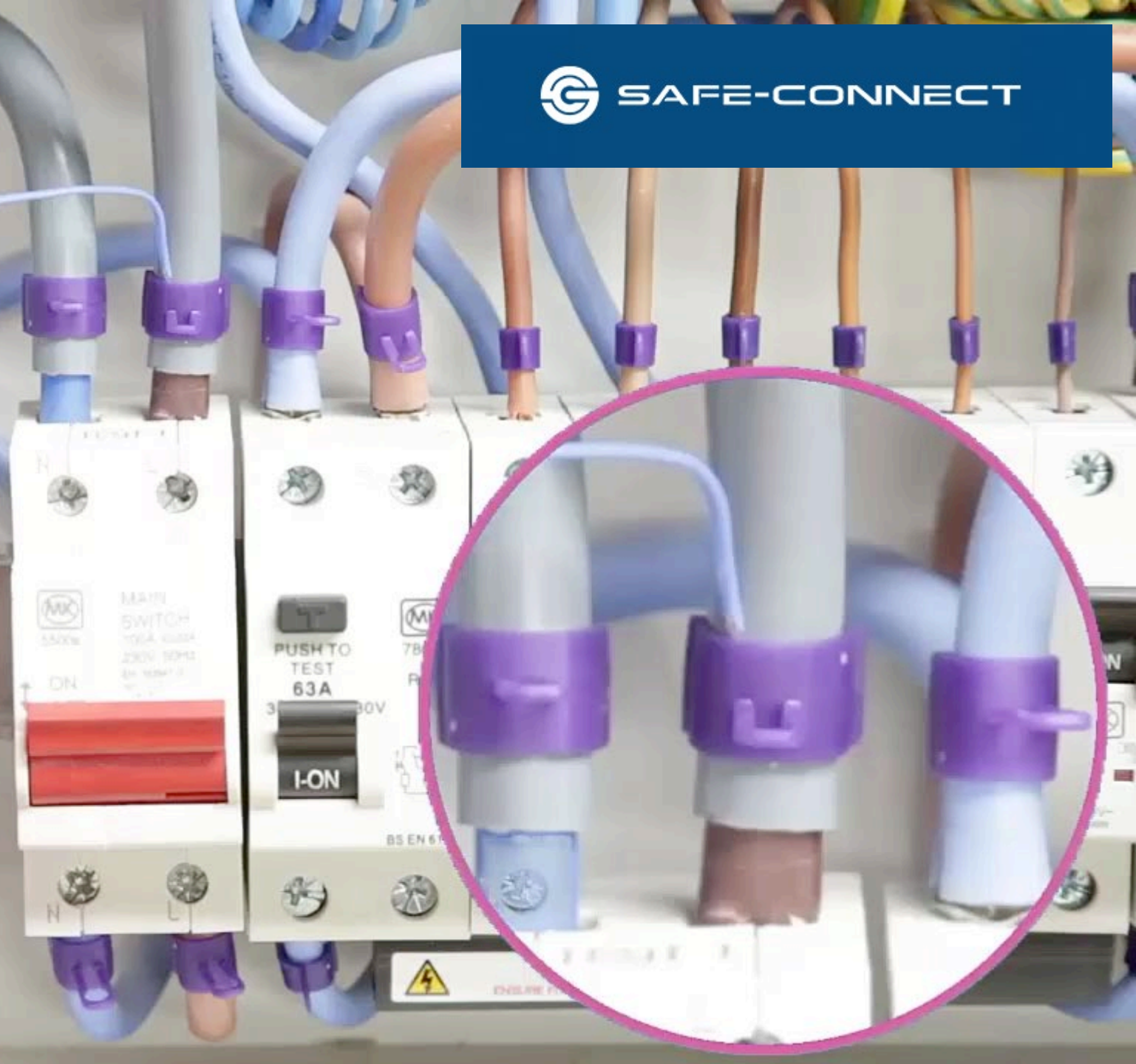
More than **20,000** cables on board  
(equates to more than 347km)



**IRISS**  
ENGINEERED RELIABILITY

00:00

 SAFE-CONNECT



# Safe-Connect Range

## Thermo Spot Series

- Small dot thermochromic indicators
- Recommended for residential applications like plugs, receptacles and breakers
- Recommended for commercial applications like plugs, receptacles and breakers
- 52°C (127°F) temperature change



# Applications

- Cables
- Switchgear – LV,MV,HV, busbars, busway junction boxes
- Battery banks
- Local electrical distribution – passageways, messdecks, galleys, cabins, comms rooms, SCC.
- Boiler rooms
- Rotary equipment – motors, pumps, compressors, bearing housings
- Portable appliances – phone chargers, hand tools etc.



# Critical Asset Surveillance Technologies (CAST)

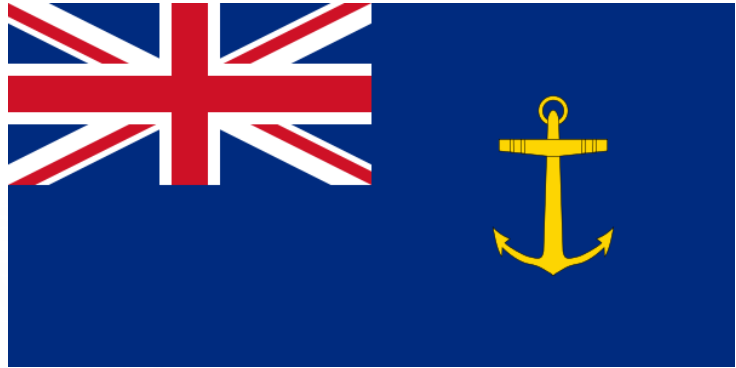


## What is the optimum time to take a thermographic survey?

*It is imperative that **as many circuits as possible** are in operation whilst carrying out the thermographic survey as it is only when the electrical system is under load, that weaknesses (hot spots) are most readily identified.*

*Building fabric is a factor in effective thermal imaging. In order to gain the maximum benefit from the survey, **it is better to remove covers or open doors wherever possible**, as thermal imaging cameras measures surface temperature. Excessive temperatures can however still be identified where this is not practical, as heat will radiate out and warm the covers and doors.*

*Guardian Electrical Compliance Website*





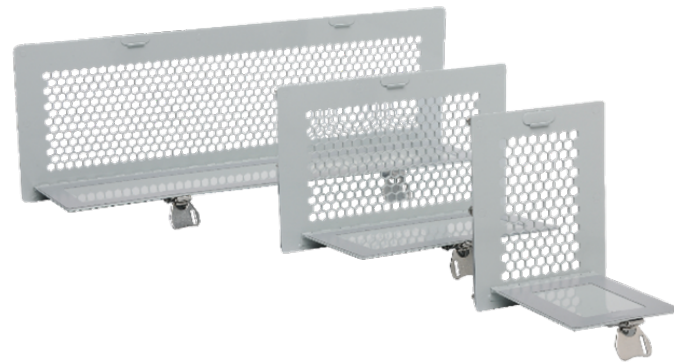


REC SERVICES  
Location: Device Room  
IP Address: 192.168.1.10  
Device ID: E65 352



# Maintenance Inspection Windows

- Allows closed panel inspections in the visual, IR and UV spectrums
- Should include ultrasound/PD access ports
- Available in round, rectangular and custom-built solutions



# Reduced Carbon Footprint

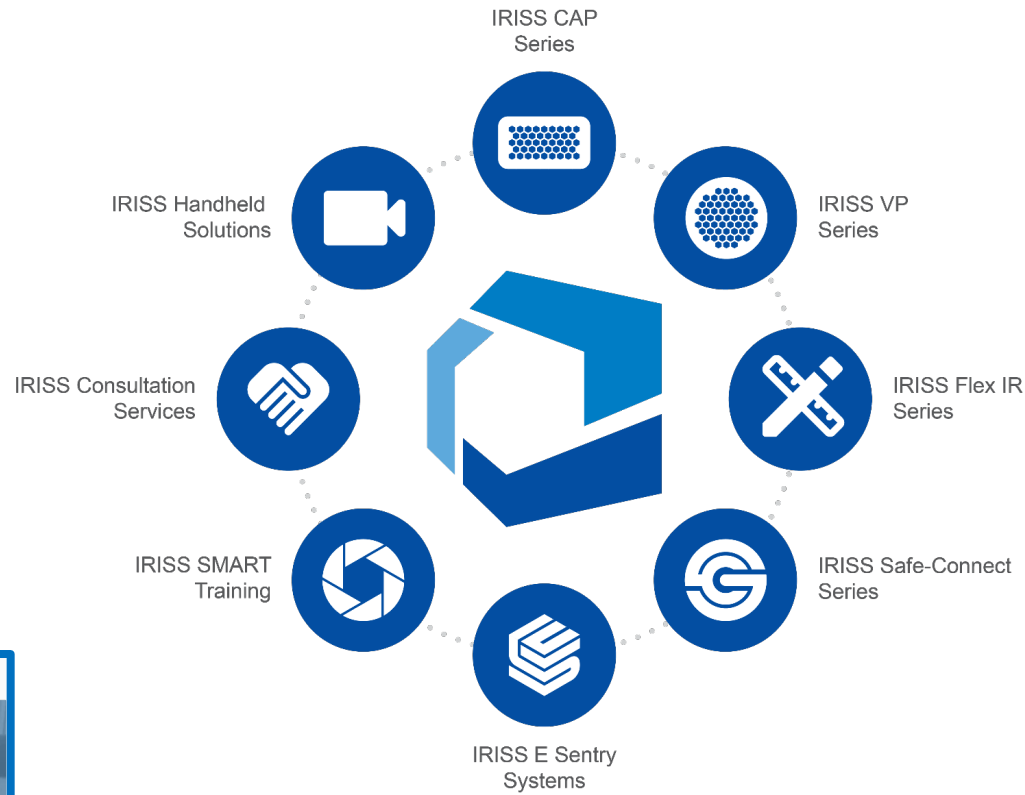
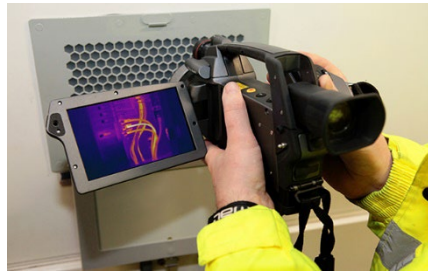


Increased equipment reliability through reduced time-based maintenance has significant impacts on our Carbon Footprint and is driving the implementation of efficient, reliability-based equipment management programs

# ODSR Program Carbon Footprint Benefits

- Reduction in downtime (fewer shutdowns)
- Reduction in spare parts
- Reduction in lubricants and service items
- Reduction of waste
- Reduction in shipping and support costs
- Increased availability of skilled manpower
- Increased operational readiness through increased asset utilization
- Increased asset availability (fewer shutdowns)

# IRISS Ecosystem



### Instructor Led Courses

**Enrolled**

**CAT 1 Ultrasound – Instructor Led**

Designed to advance the theory of ultrasound into the next generation. It surmount and surpasses the ISO 18436-part 8 CAT 1 ASU outline. This course teaches students about the principles of ...

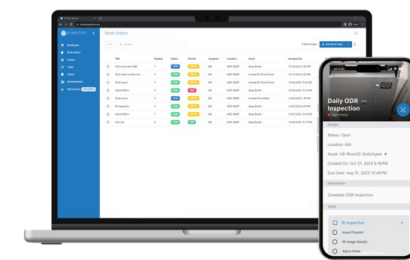
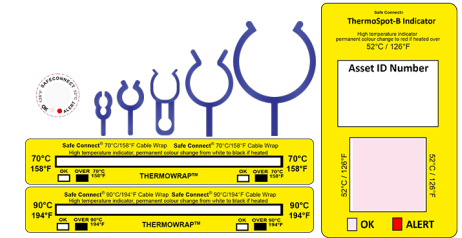
[See more...](#)

**Enrolled**

**CAT 1 Infrared – Instructor Led**

Designed to meet and exceed ISO 18436 and ANSI/ASNT CP-105 & CP-189 2016 recommended practices, this course teaches students about the principles ...

[See more...](#)



***The Electric Light Did Not Come  
From The Continuous  
Improvement of Candles***

***Either choose to disrupt or be  
disrupted***





**Design your systems  
and processes to  
make it easier to do  
the right thing and  
harder to do the  
wrong thing**

**Final Thought....**



[Questions?]

