1972

2000

2018

UTECO

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Company Progress

- 1972 Personal company «PYROTECHNIKI» was found
- 1977 Establishment of UTECO LTD
- 1992 Through the merging of the two above companies, UTECO ABEE is established.
- 1997 UTECO ABEE becomes the first Greek company certified with ISO 9001 for temperature sensor manufacturing
- 2001 Establishment of UTECO North Greece Sales Center
- 2010 Production line expands to meet export needs
- 2015 Marine Type Approval Certification
  - **Lloyd's Register,** certified the series | UBMR Series | UMIC Series | UCON Series | UCBWR Series of Temperature Sensors/Probes/ Transducers
  - **Lloyd's Register's Type Approval System, Test Specification Number 1- February 2015**

  (Marine and offshore applications for use in environmental category ENV2, ENV3 and ENV4)

Company Profile

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Company is focused on Five Business Units Working towards creating value and achieving sustainable growth

USP - Uteco Sensors Production
APM-Automation Power & Motion
M&I- Measurement & Instrumentation
C&C- Cables & Components

The company's activities are divided in the following levels:

Temperature Sensors & Level Switches Production

Supply of instrumentation

- ✓ Sensors, transmitters,
- ✓ Panel instruments
- ✓ Frequency Inverters for AC induction motors
- ✓ Signal and compensation cables, Special cables
- ✓ PLC, SCADA,
- ✓ Intrinsic Safety ,explosion protection devices and systems Eexi, Eexd,…
- ✓ Pneumatic instrumentation

Technical Services

Technical services are separated in to the following sections:

- ✓ Repair,
- ✓ Configuration,
- ✓ Calibration,
- ✓ Application Development,
- ✓ Training

USP-UTECO Sensors Production

Quality

UTECO has as target to offer steadily high quality products and services and so, it has been certified according to ISO 9001:2000 since 1997 for the process of temperature sensor production.

At the same time, the performing of a series of quality tests during the production process and having a completely equipped laboratory, secure the high quality of the temperature sensor's production.

Four series, such as UBMR Series, UMIC Series, UCON Series and UCBWR Series, are certified by Lloyd's Register

Marine and offshore application for use in environmental category ENV2, ENV3 and ENV4 as defined in Lloyd's Register's Type Approval System, Test Specification Number 1- February 2015

Uteco Sensors Production

UTECO Sensors Production (USP)

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We have the capability to produce **Temperature Probes & Level Switches** with all kind of standardized elements and interfaces such as:

- **Thermocouples** (K, J, T, N, R, S, B etc.)
- **Level Switches**
- **Resistance thermometers** (Pt 100, PT 1000, Ni 100 etc.)
- **Thermistors** (NTC, PTC)
- **Transmitters** : 4-20 mA, 0-10 V, HART, Profibus, ATEX etc.

HEMEXPO · W.I.M.A. · ISO 9001 BUREAU VERITAS Certification · Lloyd's Register

Measuring & Control Instrumentation
Complete Automation Solution

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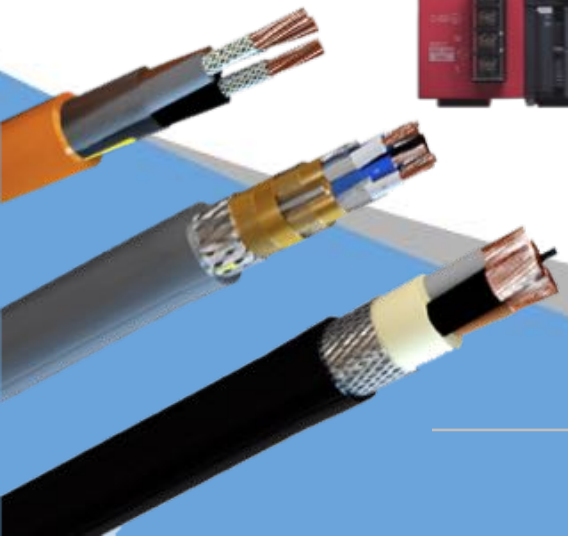


Shore to Ship / Ship Electrification

Shore to ship (Cold ironing) benefits

- Less cost during berth for the shipowner and less pollution (SOx, NOx, CO2 etc) – a large cruise ship can cut fuel consumption by 18 tons and reduce CO2 emissions by 55 tons for a 10 hours stay @ port -> equivalent of the total annual emissions of approx. 30 European cars (euro 6 standard)

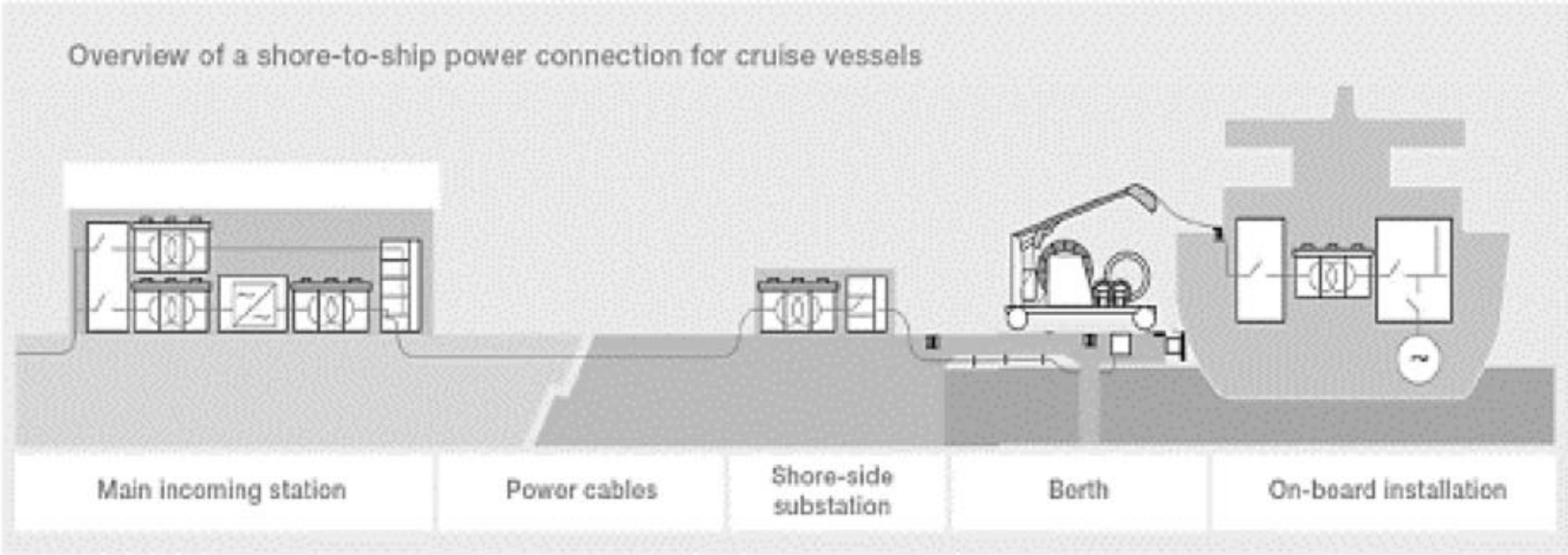
- Less vibration & noise from auxiliary

- Long term, less health issues

- Cleaner air -> happy citizens

- Aesthetic improvement

- Green port



Shore to Ship / Ship Electrification

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Pure Electrification benefits

- Improved overall energy efficiency
  - Typically diesel fueled
    - From well to tank -> 80% efficiency
    - From tank to propeller -> 25% efficiency
    - Overall -> 20% efficiency
  - Full Electric
    - From power production to battery -> 85% efficiency
    - From battery to propeller -> 70% efficiency
    - Overall -> 59,5% efficiency
    - If power production is from renewables (solar, wind, hydro) added benefit is no emissions
- Less operating costs
- Increased flexibility in ship design and power production
- Future connection to mini grids / smart grids-ports

Shore to Ship / Ship Electrification

Pure Electrification benefits

- Less noise during voyage

- Less vibrations during voyage

- Reduced emissions (from power production to ship)
  - If power production is from renewables (solar, wind, hydro) no emissions
  - Typically diesel fueled

- Environmental benefits
  - One cruise ship operating for 8hours @ port with auxiliary engines alone, emits approximately the same NOx levels as approx. 5,000 cars running a distance of 2.000klm each.

Shore to Ship / Ship Electrification

Pure Electrification Current Limitations

- Operating range (currently up to 40miles)

- Long re-charge time

Pure Electrification Future Possibilities

- New batteries with 20x times the current energy density leading to longer voyages

Li-air

Lead-Acid Batteries

Efficiency = 90%
Energy Density = 40 Wh/kg
Lifetime = 500 cycles

Lithium-ion Batteries

Efficiency = 98%
Energy Density = 250 Wh/kg
Lifetime = 8000 cycles

Shore to Ship / Ship Electrification

Future port technologies

- Hybrid power supply systems (i.e. main grid and local PV plant or wind farm depending on availability)
- Port owned solar or wind farm
- Mini/smart grids -> multidirectional power supply
- Port Operation based on real time data and not historical data – smart port

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Thank you for your attention

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