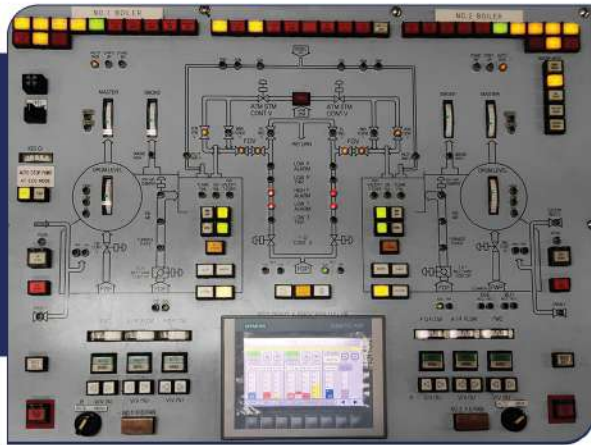
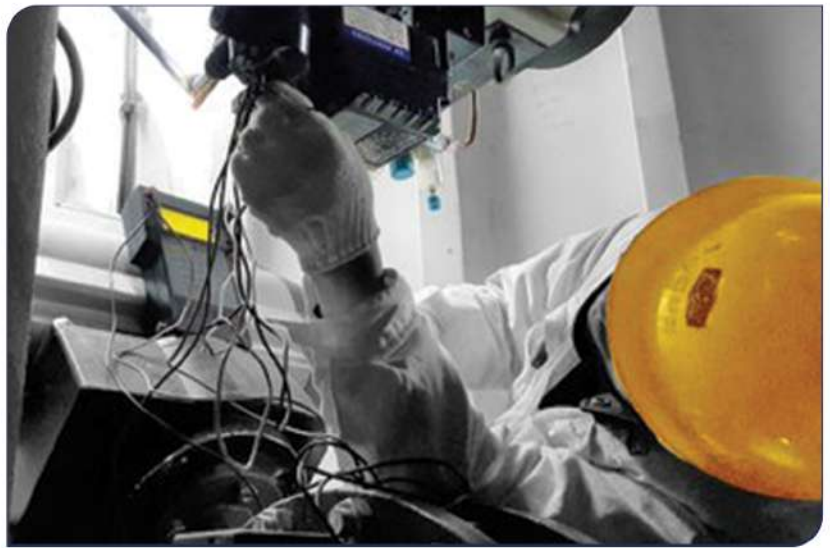




## MARINE AUTOMATION

We manage a professional team of service engineers who have been regularly working on below general shipboard control & instrumentation equipments:

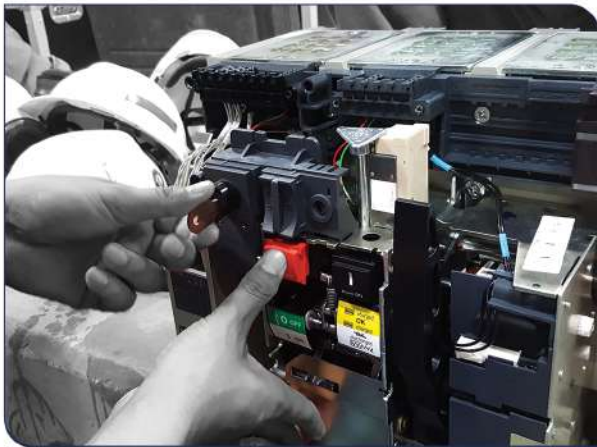
- ME & Aux engines, Alarm monitoring system & controls
- Cargo & ballast tank level monitoring system, overflow alarm system, AUS system.
- Ballast tank & pump room gas sampling system
- Framo system, purifier, bow-thruster system controls.
- ODME & Oily water separator controls



- Fire alarm systems - Testing, Zone calibration or additional points.
- IGG & Boiler automation systems.
- VFD Drives | PCBS | Embedded system development .
- Oil mist system.

## BOILER AND IGG CONTROL SERVICES

- Experienced Team to carry out the boiler life cycle service management services including refurbishing controls, upgrades of PLC with new programming.
- Trouble shooting Burner automatic firing sequence controls.
- PLC renewal/upgrade & Boiler programming including refurbishing of all controls. Provision of HMI/Scada. You do not have to look at OEM for providing expensive replacement of PLC. We can provide you entire upgrade
- Provision of manual firing controls for IGG as standalone control system.
- Provision of dual Oxygen analysers, provision of oxygen data loggers & Digital O2 analyser for IGG/IG system.







## General Maintenance jobs

- MSB & ACB maintenance and testing- Maintenance, reset mechanism, protection & safety mechanism, adjustments & certification.
- Servicing of bus bar panel, inspection, and thermal imaging to locate loose connections which can left unnoticed can lead to fires.
- Modification of bus bar for new installations such as BWT.
- Synchronization, AVR, Excitation issues, Automatic load sharing, Diode issues.
- Commissioning of equipment's like BWT, Scrubber, Supply of complete Control panels, Cable laying & termination, transformers relocation, VFD repairs.

## Alternator Overhaul & Maintenance

ship electrician can barely do in-situ maintenance thru inspection windows which is an eyewash. On other hand drydock charges hefty money for overhaul and never agrees to carry out in-situ proper maintenance leaving owners without options. We can arrange for team to visit ship and do maintenance. We recommend following.

- **In-situ Partial maintenance** by removal of pedestal bearing and taking the weight of the shaft on chain blocks and thereby giving better access to the stator rotor winding for cleaning by special nozzles and cleaning agents.



- **In situ full maintenance** by removal of rotor out carefully by rail guide system provided by us which also involves disconnection of alternator from flywheel end.



## Variable Frequency drive systems

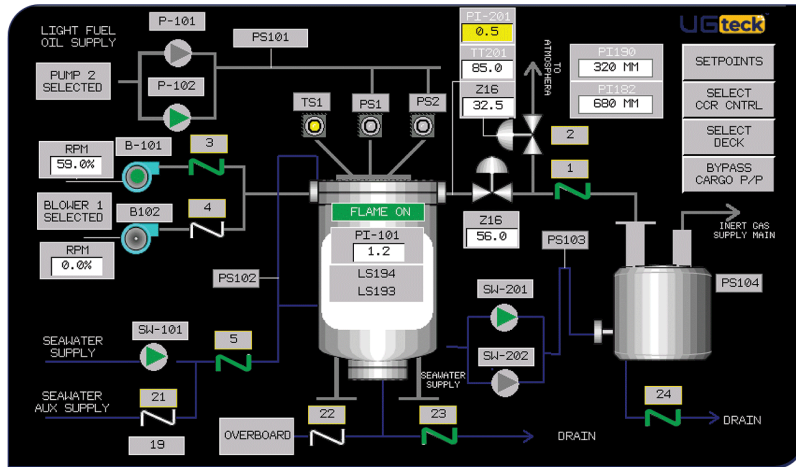
- Expertise in configuration and programming of various makes of VFD's such as Delta, L&T, Siemens etc.
- Repairs of VFDs in our PCB Lab.
- Electrical Starter to VFD conversion with calculations on savings & Carbon.

## PLC PROJECTS & REMOTE COMMISSIONING

Having the smartest team around in Marine industry to work on your entire PLC based system who can DO ALL for you including supplying new PLC & hardware, Logic Designing and PLC Programming for various makes of PLC for any onboard system by physical attendance or even Remote commissioning.

### Shipboard PLC Projects

Do not run out of options with outdated defective controls or PLC systems or with extremely high OEM costs. We refurbish and upgrade the existing defective control and monitoring system, maintaining the originality of the equipment.



### Following are usual systems onboard where PLC upgrades are done onboard the vessel

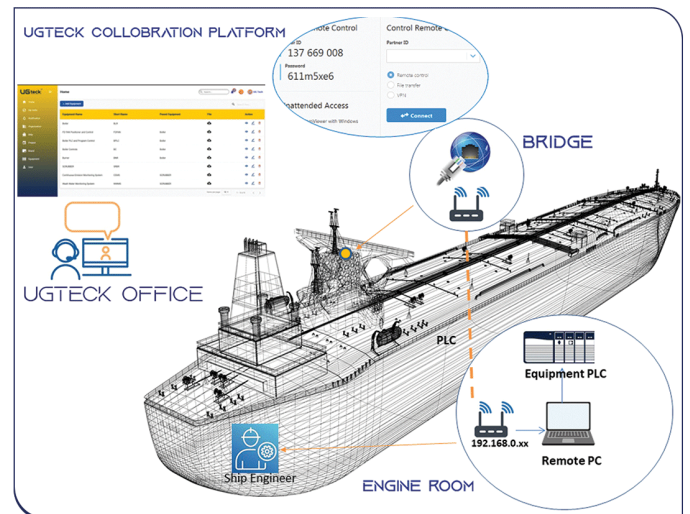
- Engine Alarm Monitoring system.
- Boiler, IGG & Incinerator including provision for manual controls
- Purifier control system:
- Bow thruster controls.
- Fixed Gas sampling system.
- Aircon & Provision plants.
  - Cargo alarm monitoring & gauging system.
  - Framo system.

## UGROCKIT Remote Commissioning Kit

If you are stuck due to travel restrictions while your machine is out of order, we provide you entire Commissioning kit to do remote commissioning with our UGteck™ remote assist platform. This will allow Ship, Client office and our office connected in real time. The ship electrician will do the commissioning whereas we take control of your PLC directly.

Our Remote commissioning kit comprise of

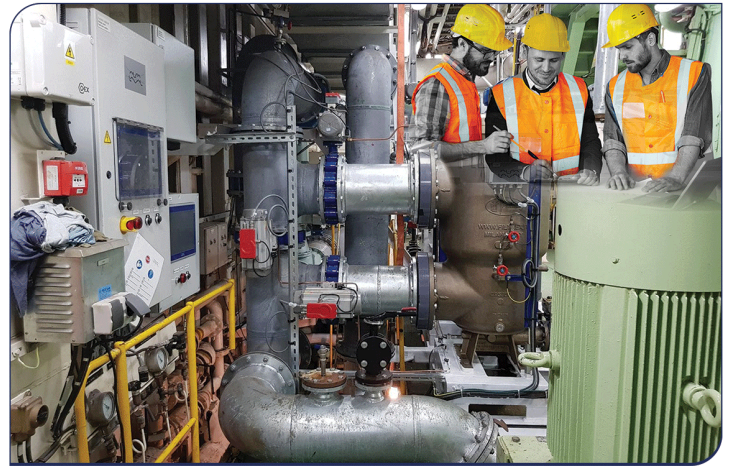
- PLC package
- Pre written PLC program
- Wireless Package which has required hardware for connecting the PLC in Engine room with our office.





### Installation Commissioning Services

- Supervision for entire installation of BWT in shipyard or During sailing including provision of riding team for installation. Other than sea chest modification, entire job can be undertaken in sailing.
- The team has experience of various BWTs such as Tech Cross, Alpha Laval, DESMI, Blue Ballast, Headway etc.

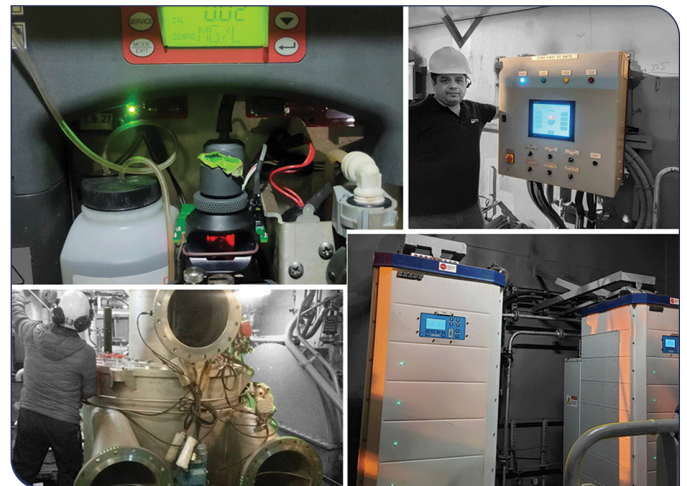


### Electrical Commissioning

- Entire control commissioning in shipyard or during sailing including electrical cable laying, termination, loop testing, integrating with shipboard controls & hydraulic systems. Prepare for presenting to OEM engineer for start-up.
- Main switch board modifications for installing the new breakers or higher capacity breakers including the modification of bus bar or its extension.
- Supply of Electrical hardware: Provision of any control system as per the project requirements including starters/VFD panel to suit the new electrical motors.

### Troubleshooting Services

- Ship Attendances: Our Service Team attend the ships for various troubleshooting in operating BWTs for any type of control equipment's, rectifiers etc.
- BWT PCB Repair: We can repair any complicated PCB in our PCB Repair Lab in Mumbai.



## SCRUBBER SERVICES



### CEMS Services:

- Servicing of complete CEMS, of various makes like Norske Analyse, SICK, Green instruments. We can overhaul the complete unit. In case of PCB damage, we can repair in our PCB Lab.
- Our engineers are trained by Scrubber manufacturers and have been working on CEMS and Scrubber controls. 100+ Projects.
- Annual Calibration of Scrubber & Supply of scrubber calibration gas "ShipCalGas™"

### Calibration Services

- We not only carry out overhaul of CEMs but also calibration of CEMs. Each CEMs has different operating range, and it is necessary to know the operating range for correct usage of the calibration gas.
- Entire system sensors, pressure gauges, temp gauges need annual calibration which can be done either by physical presence or Remotely with our UGteck™ App.

### WWMS

Servicing, calibration and sensor replacement of Wash water monitoring system services of various makes like Green-instruments, Chelsea Technologies, Sigrist etc



### Scrubber General Services

- Inspections & Passivation: Scrubber internal inspection & Passivation services for any corrosion related issues.
- Scrubber Overboard pipe inspection: Our inspection procedures are made in line with class requirements.
- Remote service support by our remote service platform.
- Scrubber Customized solutions: PI review our website UGSCAN & UGSMC



## UTI & MMC TAPES LAB SERVICE

(Setting new standards in calibration excellence)



Most of the service companies merely test the tape but do not calibrate as they do not have any testing facility. Do you realize that for every 1 Deg of temp error on 50K oil tanker, the Revenue losses is \$17K.

Hence do not compromise on the Quality of testing and adopt only standard testing & Calibration labs.

### State of the art Testing Bench

- UTI is not just serviced in our service labs but tested in our state-of-the-art testing bench facility with simulates the tank changing level by synchro-step motors. The fitted tank radars validate the readings recorded by the UTI tapes. The test report is automatically printed from the system. The subsequent digital certificate is generated from our Field service software UGteck™ with a unique certificate ID.
- The sensors which are defective are repaired in our PCB Repair Lab.



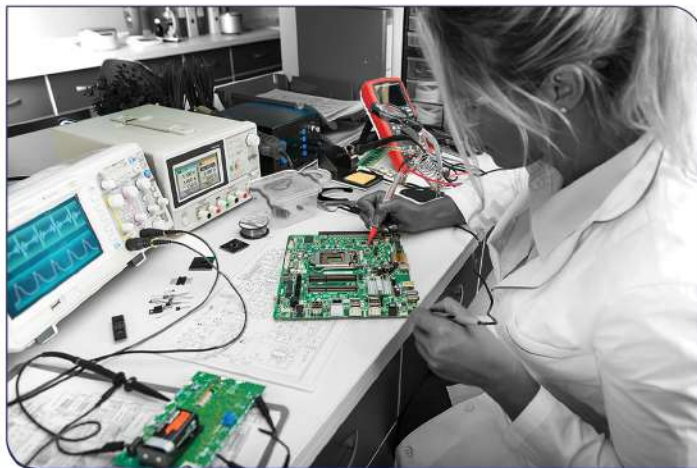
### UTI Tapes Remote Calibrations

- No more worries of shore technician unable to attend the ship for calibration or any hush hush calls to service company prior Oil major or surveys for attendances.
- The first company to develop Remote Assist Calibration in our proprietary Field Service software UGteck™, which is in process for accreditation by DNV Management system.
- At the heart of our strategy is the concept of Do-it-yourself (DIY) which means the ship has to service & Calibration the tapes themselves with the assistance of our remote assistance tools & validated by us in the system. View our website for details.



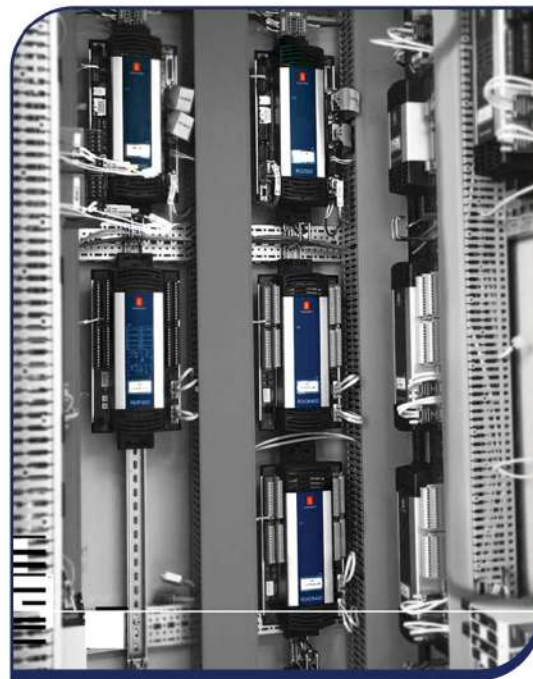
## UG PCB REPAIRS

- State of the art PCB service lab with the team comprising specialist who have enormous year of experience of PCB repairs.
- We undertake repairs of PCB Cards repair up to microchip level control cards of all machinaries fitted onboard, Russian defence system cards on Naval ships. Our PCB management systems are DNV approved.



### List and type of Major category of cards

- Main & Auxiliary Engine electronic control cards of various types like Electronic Governor, Alarm monitoring system, IO cards, servocontrol cards, etc. Ex Wartsila, Kongsberg I/O modules.
- Boiler sequence control, IGG control modules & cards. Like Saacke, Aalborg, Kangrim etc.
- Ballast treatment plant control cards.
- Refrigeration & air condition plant electronic control cards.
- Bow thruster and other auxiliary machines such as compressors, pump controls electronic cards and modules.
- Cathodic protection PCBs.
- Navigation equipment's such as ship Radar, auto pilot, steering gear, gyrocompass
- VFD drives cards etc.
- Tank radar, Cargo control and alarm monitoring PCBs
- Ship cargo cranes control cards like Liebherr, Hyundai crane modules
- Ship hydraulic machinery control cards.



## Equipment Makers



Disclaimer: All logos, brands used here are property of their respective owners which are used for identification purpose only & does not imply endorsement or any association.



## UG CRANE SERVICES

We provide wide range of Crane Repair services on various popular makes such as on Mitsubishi, IHI, Tsuji, DongNam, Lieherr.

- Our technical team carries expertise to provide troubleshooting such as Electrical faults such as tripping, Problem with slip rings, electronic controls, Drives, PLC, communications, encoders and contactors issues.
- Hydraulic fault trouble shooting & tracing fault with valves, motors, oil circuits etc. We also recondition hydraulic motor and controls.
- Mechanical Repairs such as Sleeve renewal, Gear box overhaul etc or Riding repairs.
- Crane health check to ensure crane that you have clarity on the health of your crane. Based on same we provide the recommendations on what is critical to be addressed immediately and what can be differed till major planned repairs.
- Hydraulic system performance assessment.
- Condition of hydraulic valves, motors, hoses.
- Visual inspection of wear & tear components such as sheaves (wire grooves, bearing conditions, greasing condition), Hooks
- Rocking test, Cut-offs & safeties
- Electric motor condition & Insulation test.
- Electrical controls conditions

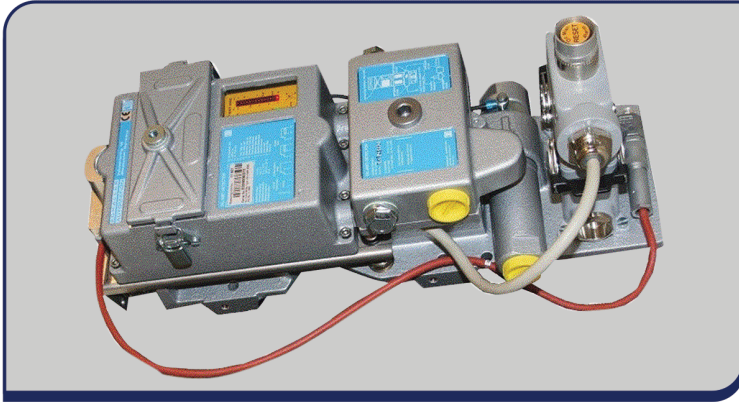


## Port Support Services

We can provide customized support during cargo Operations to attend to any trouble during cargo to ensure sudden breakdowns are attended and minimum downtime.



## UG Spares Refurbishing



### Refurbishing:

We do the refurbishing of various Electronics components. the list is long and specific to component however please do ask. To name few are ballast tank sensors, Tank Radar Sensors, Pneumatic Actuators, temp Controllers, OMD, ODME, OWS, Fire alarm system, Gas monitoring systems, tank gauging systems, ballast tank sensors, Cargo tank radar system etc for all popular makes onboard.

### Predefined overhauling procedure:

We have predefined procedures for overhaul of major list of equipment along with testing protocol. We are in process of further defining same and bring on digital platform UGteck™

## Calibration Gases & Measuring meters

We are equipped to provide Calibration gas from our Calibration gas brand ShipCalGas™ any port in India. We can not only provide you Scrubber gas but also can provide maker trained engineer for calibration or service of the Scrubber CEMs.

All the aftermarket equipments originate from ship breaking yard can only be tested in service Labs with specialised equipments. We have taken first step to organise this sector with setting up standards for refurbishing.



### Reverse Engineering:

Our expert team also does the reverse Engineering on many components which are not available and demanded by Technical Managers. These equipment's can be Tank gauging radars, Ballast tank sensors and few more.

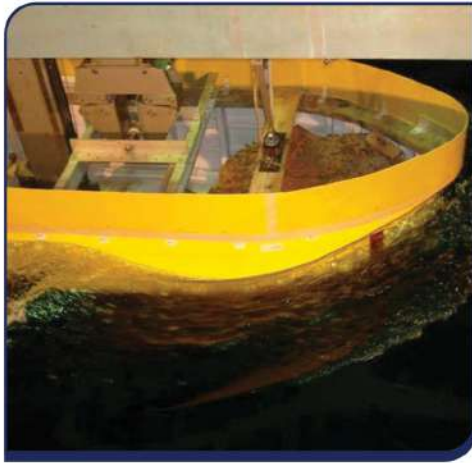
Our Refurbishing management systems are approved by DNV.





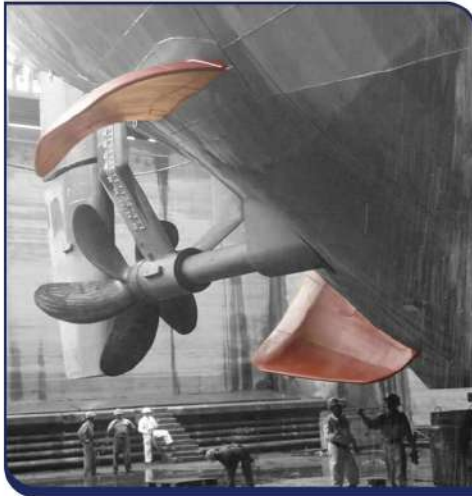
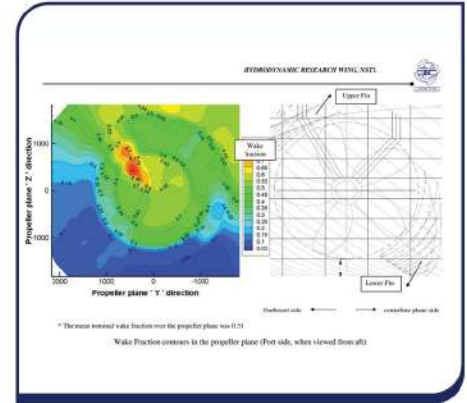
## EEXI & CII Services

We offer complete scope of service related with EEXI or CII such as



### EEXI Consultancy:

- Calculate attained EEXI and Required EEXI for the existing ship.
- Engine Power Limitations: Study on Engine Power Limitation or Shaft Power Limitation. Estimation of speed loss and improvement in EEXI value based on Engine power limitation.
- Study on increase in deadweight for EEXI compliance.
- Analysis on the use and type of Energy Efficiency Device on the given vessel.
- Prepare the EEXI Technical File.



### Computational Fluid Dynamics (CFD) Calculation

The ship speed ( $V_{ref}$ ) for EEXI calculation should be obtained from the simple formula, the tank test results or CFD analysis

- The simple formula takes a 5% margin and hence it is worst option.
- Tank test model is not easy mean as require documents for ship propulsion performance and tank test reports.
- CFD Analysis: Hence new CFD analysis is carried out for estimate of power curve

### We provide the following services

- CFD analysis of hull without energy efficiency device
- CFD analysis of hull with energy efficiency device fitted on the hull
- EEXI Technical File (as per CFD analysis)

## CII Intelligence Services

### Soft starter to VFD conversion:

We provide end to end solution

- VFD calculations for Carbon saving & return on investments.
- VFD design & Class approval
- VFD Supply & Installation

### Engine power limitations:

For older engines, It will require a control unit for calculating and limiting the power transmitted by the shaft to the ship's propellers. We have experienced team to do some limitations by various means.



## WE ARE CHANNEL PARTNERS OF FOLLOWING MAKERS



## EXPERIENCE OF FOLLOWING BRANDS EQUIPEMENTS

Honeywell Enraf

ROSEMOUNT  
Tank Gauging

KROHNE

Consilium

SIEMENS

ABB

-weishaupt-

TERASAKI

NOR  
CONTROL

Allen-Bradley

Danfoss

SICK  
Sensor Intelligence.

MANILA  
IMIS

KSB  
KSB Seil Co., Ltd.

MITSUBISHI  
ELECTRIC

Schneider  
Electric

KANGRIM

RIVERTRACE  
Control Systems

DEIF

GREEN  
INSTRUMENTS

AALBORG  
INDUSTRIALS

FRAMO

SMIT

NORSK  
ANALYSE

TrOS

## STRENGTH & ACHIEVEMENTS



15+ Engineers



200+ Project  
Executed

## UGteck Marine Pvt Ltd.

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