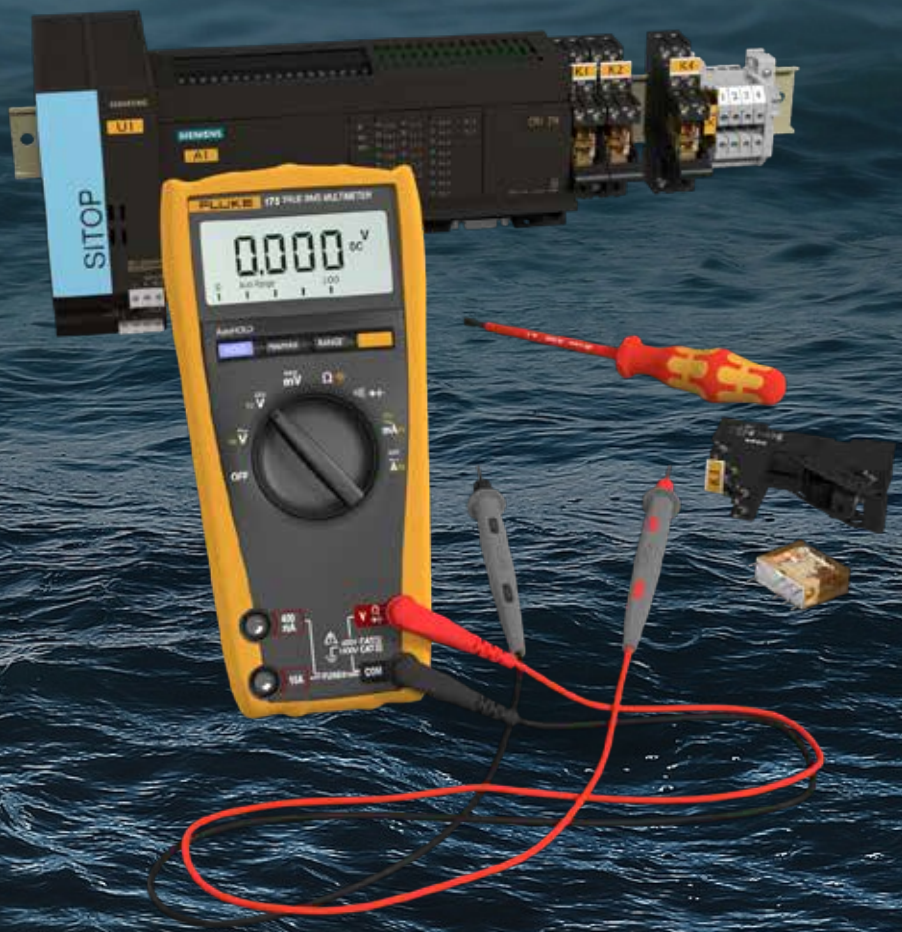
ETC

*Training that works for engineers who work onboard*

# TROUBLESHOOTING SHIP'S AUTOMATION

Training for Marine Engineers and ETOs v.7.0_01_20




*Troubleshooting Ship's Automation is a comprehensive reference guide for all aspiring and qualified engineers within the shipping industry. This interactive training provides an ideal instructional and technical resource for any engineer or ETO requiring a practical working knowledge and understanding of up-to-date vessels electrical automation appliances.*

# *Introduction*

Modern ships have become increasingly automated and this has raised awareness of the inadequacy of existing seafarers' automation education and training. Should any aspect of the automation fail, the crew is often not trained to use alternative systems or respond effectively. A second problem has arisen from a review of the arguments from the IMO Maritime Safety Committee (reports MSC 82.15/2 and MSC 82/15/3, 2006), suggesting that operators rarely understand all the characteristics of automatic systems or their weaknesses and limitations, which has been a significant factor in marine accidents.

Problems encountered with the application of automated systems and failures of any aspect of automation and processor-based switchgears will be factors that contribute to future marine incidents. It is therefore essential that Marine Engineers and ETOs have a good understanding of these systems and ensure that they are maintained in an efficient and safe operational condition. This can be achieved by upgrading the knowledge and skills of all onboard fleet engineers, who have to deal with the ever-changing demands of new ships' building technology, through training programs.

Since 2003, when the draft training program Troubleshooting Ships' Automation was implemented, we go on helping Marine engineers to comply with the STCW Regulations and the company's SMS, while working onboard without an ETO, and to improve their understanding and troubleshooting capabilities of modern ships automation electrical applications.

It was designed to give engine personnel who lack the necessary troubleshooting skills an opportunity to develop them and feedback from the fleet technical inspections suggest that this training has proved to be highly efficient in achieving this.

Our training experience:

- Training was attended by over 2,5 thousand of management and operational level engineers and ETOs;
- 380 TSA training groups are behind.

Despite this success and to keep training in line with new regulations implemented by Manila Amendments and achievements in a training process development, the updated version of TSA v.7.0 was released in 2020. New version also includes a library of 3D models created with an aim to improve a training core, which vector has also turned to switch over to 3D training environment in nearest future.

In a meantime a part of the training materials were approved by The Institute of Marine Engineering, Science and Technology (IMarEST) and it was also considered with Witherby Publishing Group to use their publications for a sake of training process.

This training would be appropriate for the following personnel:

- Management level Marine engineers;
- Operational level Marine engineers;
- ETOs at any stage of their carrier;
- Apprentices and cadets;

*Wish all of you Good Luck and fair troubleshooting onboard.*

*Alexandr Yakimchuk*
*Superintendent*
*TSA© Author and executive trainer*

**TSA - ETC Training Modules:**

- *Working with IEC, EN and DIN standardized electrical diagrams;*
- *Relays' logic and applicable measurements through control circuits;*
- *Marine automation control components and protection means;*

- *3 phase induction motors;*
- *Switchgears and control circuits;*
- *Applicable measurements and troubleshooting technique;*

- *Marine LV Power Plants, Power management system features and protection means;*
- *Synchronous brushless generators excitation systems;*
- *Troubleshooting technique.*

- *PLC based applications, related logic and programming languages;*
- *Process monitoring and data acquisition;*
- *Analogue signals flow and signals conversion;*
- *Applicable measurements and troubleshooting technique;*

We'll also do our outmost to meeting any proposal from ship owners technical inspections and crewing agencies in adjusting our training curriculum to particular needs of marine technical personnel onboard of their fleet.

# TSA training interface outline

*Amendments came in force 01.2020*

*TSA Curriculum*

# Approvals and acknowledgements

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*A part of training materials is approved by The Institute of Marine Engineering, Science and Technology (IMarEST). Web: https://www.imarest.org/*

*Technical assistance in training development and approval for fleet engineers and ETOs training by fleet operation management of:*

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