

LOW VOLTAGE SYSTEM DEVICES

# ABB Ekip Link System

## Total reliability for marine applications



Ekip Link, together with Emax 2 circuit breakers, provides the highest electrical protection for seagoing vessels and improves overall reliability, flexibility and safety.

There is a strong trend in marine vessels towards full electrification. Marine electrical power systems must have very high reliability, safety and flexibility, which is a challenge due to the restricted space available, the complex power system that has to be supplied and the hostile marine environment.

ABB's Ekip Link System, together with Emax 2 circuit breakers, meets these challenges, does away with the need for costly supervision systems and makes the electrification of ships much simpler.

### **Ekip Link and Emax 2**

ABB's Emax 2 is more than a circuit breaker as traditionally defined: compactness and the high reliability that results from pretesting make Emax 2 highly suitable for applications in marine vessels. It is the first intelligent circuit breaker designed to protect, connect and optimize low-voltage microgrids, such as those found on ships.

Accessories - for example, electronic trip units or protection relays - are added to the breaker to achieve all the functions needed.

Further, Emax 2 has programmable contacts that fa-

ilitate additional flexibility such as signaling functions. Ekip Link handles communication between circuit breakers using an internal ABB proprietary bus.

All circuit breakers can intercommunicate over a single Ekip Link connected to the main switch via Ethernet. While observing operational and cyber security requirements, comprehensive electrical system data can be made universally available thanks to remote access via a web browser.

Given the performance demanded of a marine vessel, electrical fault management is a critical aspect of the ship's operation. ABB's Ekip Link and Emax 2 provide a simple and cost-effective way to:

- Isolate the faulty component or system before the failure propagates from one system to another
- Guarantee a disconnection strategy for a faulty system based on detection of fault direction
- Guarantee flexible and redundant power protection systems
- Provide self-monitoring to limit hidden failures



01

01 Ekip Llink module

02 Ekip Connect software configuration screen

### Logic-zone discrimination with Emax 2 equipped with Ekip Link

One very efficient method of handling electrical faults on ships is logic-zone selectivity (or “discrimination”). This approach can accurately isolate the fault branch by quickly opening adjacent circuit breaker(s) and reduce transitory fault time and electrical stresses. Logic-zone selectivity rapidly isolates faults without shipboard systems other than those directly involved seeing any effect.

Behind this scheme lies a logic that defines which breakers should and should not trip in certain situations. With Emax 2, the blocking signal can be realized by traditional hardwiring or by bus communication using Ekip Link. It is also possible to use both in parallel thus providing the redundancy that is often required on marine vessels.

During the setup process, ABB’s Ekip Connect software is used to configure the trip units’ logic-zone selectivity options – ie, define which signals will be received and which will be transmitted to the next



02

circuit breaker in the ship’s electrical system, determine the IP address of each actor and establish the nodes in the system.

Here, a node is a defined group of circuit breakers, one of which is nominated as the “unit reference” and in which logic-zone selectivity options are configured using Ekip Connect.

The actors are the remaining breakers in the group. Logic-zone selectivity using Emax2 equipped with Ekip Link reduces shipboard system installation time by 60 percent, space required by 30 percent and improves reliability, flexibility and safety.

### Linking to the future

The Ekip Link plus Emax 2 air circuit breaker combination forms the basis of a unique solution for low-voltage logic-zone selectivity that has been designed to meet the most demanding requirements of reliability, flexibility and efficiency in marine vessels.

This solution fits different applications such as microgrids or complex power system, where logic zone selectivity can provide major benefits.