E-T-A PowerPlex®
Get Smart With Your Systems
PowerPlex® – At a Glance:
Enhanced safety
- Switching and monitoring of DC and AC electrical loads
- Energy management
- Tank and pump monitoring
- Displaying single alarms and alarm lists

Increased convenience
- Compatible with well-known all-weather Multifunction Displays (MDFs), tablets and smartphones via PowerPlex® Web Server
- Custom designed lighting environments
- Visual presentation of tank levels, battery status and motor data
- Compatible with NMEA 2000, SAE J1939, MODBUS networks via PowerPlex® Gateway
**PowerPlex® - Digital Switching**

Get ready for building smart boats

The construction of innovative boats with conventional technology has long reached its limits. With **PowerPlex®**, E-T-A offers a comprehensive, on-board system which combines safety and reliability for you and your customer’s convenience. The time has passed when electrical systems were just about power distribution. A modern on-board system connects, regulates, controls and monitors a wide variety of loads – easily and securely. It allows individual and flexible lighting concepts on and below deck, automatically switches loads and will immediately inform the crew about active alarms. This will ensure that everything works as it is designed to – reassuring when loads are not always visible. E-T-A **PowerPlex®** is all about the future. Ideally matched software and hardware components provide a total solution with an enormous potential for individual customization. You need smart electrical systems on your boats – install and configure **PowerPlex®**.

**PowerPlex®** is certified by Germanischer Lloyd and Lloyd’s Register. It ensures reliable control and monitoring of all electrical equipment and functions. **PowerPlex®** is the smart digital switching system for today’s and tomorrow’s needs.

Your benefit

- Increased flexibility for your on-board systems
- Professional and fast **PowerPlex®** installation
- Variety in design and function
- More comfort
- Opportunity for customization – your competitive advantage
More flexibility
Simply connecting everything via CAN bus system

With PowerPlex®, you have access to a modern, forward-looking system. Simply connecting everything. Lights, heating, air con, pumps and more. Convenient and user-friendly control by smartphone or tablet.

Our modular system design makes your engineering work even more flexible. Various DC and AC control modules as well as different operating devices make up the comprehensive PowerPlex® product range for realisation of intelligent on-board electrical systems. The system scope is a direct result of the boat specification and your individual control and automation requirements. They will be realised and programmed by means of the configuration. The communication of the PowerPlex® products is via an SAE J1939 compliant CAN bus, which reliably transmits all relevant data even in critical situations. Our goal is smooth integration of all PowerPlex® products.

A PowerPlex® system solution can be quickly installed and put into operation, and it can flexibly be extended. Any customer wishes uttered later can still be implemented.

Should one PowerPlex® component fail, all others remain fully functional. Replacement devices are detected automatically and configured via the neighboring modules.

More flexibility
Simply connecting everything via CAN bus system

PowerPlex® is a system that you offer a wealth of options for controlling your on-board systems through modern power electronics.

Your benefit
- Smart power distribution using well-proven CAN technology
- Protection and control of your electrical DC and AC devices
- Auto-configuration of exchanged PowerPlex® components
- Integrated diagnostic and monitoring functions
- Professional and fast installation
- Easy to configure with the PowerPlex® Suite
- Less cable and required space
Efficient engineering
Comfortable configuration for automation

Each PowerPlex® installation is customised and application-specific. The idea of modular engineering extends through all product levels. The PowerPlex® Suite is equipped with a comprehensive set of features which ensures a well-structured workflow. It is a tool for configuration, graphics, debugging and simulation all in one. All system-relevant processes and data are supplied by this single software. The software is intuitional and easy to understand. Programming skills are not required. The Suite helps the user to define the entire behaviour of the PowerPlex® system entirely individually. The user can define, save and revise individual configurations regarding power distribution, control and monitoring.

A library of components, pre-defined functional blocks and an adjustable work space are just some of the new software’s features. The Suite helps you to define application-specific pop-up masks and alarm lists, informing you about system failures in operation.

Configuration of a PowerPlex® system is carried out directly in the PowerPlex® Suite: I/O data of the modules, GUI preparation, alarm messages etc.

Your benefit
- Convenient configuration thanks to an intelligent menu navigation
- Easy creation and test of user interfaces due to an integral display simulator
- Cost-saving service features with various diagnostic and debugging functions
- Unique customization possibilities through a variety of options and adjustable parameters
- Intuitive to understand, no programming skills required
Variety in design and function

*PowerPlex*® TouchPC Software

Your main page
Unnecessary trips to various areas of your boat are a thing of the past. Let *PowerPlex* do this for you with the practical scenarios feature. *PowerPlex* examines each power consumer, and determines if and for how long it’s needed for a selected board scenario. Increase the security and comfort for your customers through intelligent power distribution, control and monitoring.

Energy management
Electrical equipment increases comfort on board and various energy concepts can be configured using *PowerPlex*. This allows the generator to start automatically when AC devices are switched on - depending on the configuration. With an existing shore connection, the generator would not be turned on by *PowerPlex*. For each on-board battery, the current status will determined and displayed. This allows the automatic shutdown of unimportant loads when pre-determined battery levels have been reached, preserving the limited available battery capacity.

Panel management
The conventional switch panel can be combined with or completely replaced by *PowerPlex*. All loads with DC 12 V / DC 24 V as well AC 120 V / AC 230 V can be switched on or off via the touch screen. On-screen buttons provide the ON/OFF function of switches. Here, *PowerPlex* opens up new possibilities for the boat designer. Via the systems configuration, it is possible to switch several loads simultaneously using just one button. The complete electrical on-board system can also be configured to operate in a pre-determined way using the scenario-functions i.e. night mode or cruising mode.
Pump and tank management

*PowerPlex* controls and monitors the status of the pumps and, via sensors, the various tank levels. The system provides information via the displays, alerts the crew when critical levels have been reached and activates the pumps. The monitoring function of *PowerPlex* switches off the respective pump when pre-set tank levels have been reached again and prevents their idling. On the user interface, the state and location of the pumps and the tanks will be indicated.

Safety management

Increased safety on-board is made possible by using special customized safety management functions.

*PowerPlex* monitors, informs and alerts the crew of any malfunctions of the electrical installation. For example, the bilge tank or the fresh water alarm will be clearly displayed in a list. In order to better see any malfunctions, all alarms of the last 30 days are listed in an alarm history. Warnings and other messages are displayed as pop-up’s and also entered into the alarm history.

Your Benefits

- Integration of any Windows-based Touch PCs
- Individual designs of your graphical user interface (GUI)
- Intuitive to understand, no programming skills required
- Increased usability
Flexible operation – no matter from which device

- Monitoring and controlling of PowerPlex® via WiFi or LAN
- Smart operation by means of smartphone, tablet or multi-function displays
- Customer-specific user interfaces
- Harmonised layout on all devices included in the system
- User-friendly configuration and parameter selection
User Experience
Full Control and Monitoring

PowerPlex® HMI Solutions
Increase your clients' comfort. The PowerPlex® HMI devices allow convenient observation and intuitive operation. Visualise status, alarm or error messages. Select your favourite from various keypads, touch displays for your PowerPlex® application. The PowerPlex® Suite helps you to create your own design.

Integration of third-party systems
Integration of third-party systems is indispensable for building a smart boat. E-T-A has partnered with marine electronics companies to improve the user experience. PowerPlex® control and monitoring is possible at the touch of a finger on various boat areas such as the helm, salon or via mobile devices.

Your benefit
- Increased convenience for your customers
- Comfortable control and monitoring of the electrical installation
- Status control at a glance - on board or from a distance
- Superior performance and high quality
- Easy to install
Your Customization Potential
Overview of the PowerPlex® Components

DC Modules

<table>
<thead>
<tr>
<th>Component</th>
<th>Power Module</th>
<th>Panel Module</th>
<th>Compact Module</th>
<th>Mini Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total voltage</td>
<td>DC 12 V</td>
<td>DC 12 V</td>
<td>DC 12 V</td>
<td>DC 12 V</td>
</tr>
<tr>
<td></td>
<td>DC 24 V</td>
<td>DC 24 V</td>
<td>DC 24 V</td>
<td>DC 24 V</td>
</tr>
<tr>
<td>Total current max.</td>
<td>102 A per module</td>
<td>20 A per module</td>
<td>60 A per module</td>
<td>12 A per module</td>
</tr>
<tr>
<td>Inputs digital</td>
<td>8</td>
<td>32</td>
<td>10</td>
<td>10 multifunctional</td>
</tr>
<tr>
<td>analog</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>inputs, configurable</td>
</tr>
<tr>
<td>Outputs</td>
<td>4 (max. 1 A)</td>
<td>4 (max. 1 A)</td>
<td>10 (max. 10 A, two are</td>
<td>8 (max. 1.5 A)</td>
</tr>
<tr>
<td></td>
<td>6 (max. 8 A, FLPC)</td>
<td>2 (max. 8 A, FLPC)</td>
<td>configurable as H-bridge)</td>
<td></td>
</tr>
<tr>
<td>Protection class</td>
<td>IP22</td>
<td>IP22</td>
<td>IP20</td>
<td>IP22</td>
</tr>
<tr>
<td>Approvals</td>
<td>GL, LR</td>
<td>GL, LR</td>
<td>E1</td>
<td>E1</td>
</tr>
<tr>
<td>Part number</td>
<td>PP-M-DC024-000-0-0-0-00</td>
<td>PP-M-PM024-000-0-0-00</td>
<td>PP-C-COM24-00E-0-Z-00</td>
<td>PP-M-MM300-000-0-0-00</td>
</tr>
<tr>
<td>Description</td>
<td>PowerPlex® for DC systems incorporates high-end power semiconductors with integral protective elements for switching and protecting electrical loads. The DC modules are free of any mechanical components and thus hardwearing as well as shock- and vibration-proof.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Your Benefits

- Four Level Protection Concept (FLPC)
  - Software-controlled overcurrent protection with current measurement
  - Hardware-controlled safety disconnection
  - Intrinsic protection of power transistors
  - Thermal protective elements with manual switching function
- Override function for the unlikely event of a catastrophic failure

Control Elements

<table>
<thead>
<tr>
<th>Product</th>
<th>Keypads Series</th>
<th>Web Server</th>
<th>Touch Panel 7.0®</th>
<th>Touch PC 12®</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part number</td>
<td>Series 100</td>
<td>Series 200</td>
<td>PP-M-WS300-000-0-0-00</td>
<td>PP-M-TP070-000-0-0-00</td>
</tr>
<tr>
<td></td>
<td>2-, 6- or 8-way keypad</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PP-M-KP100-02-000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PP-M-KP100-06-000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PP-M-KP100-08-000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15-way keypad with 7-segment-display</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PP-M-KP200-15-000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note: The PowerPlex® Web Server provides control and monitoring via smartphone, tablet, multi-function display or computer.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part number</td>
<td>Series 100</td>
<td>Series 200</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>XPP-TPCHW - without TouchPC Software</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>XPP-TPC-Z001 - incl. SW and USB/CAN converter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>XPP-TPC-Z002 - incl. SW and USB/CAN converter (opto-decoupled)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
AC Modules

<table>
<thead>
<tr>
<th>Component</th>
<th>AC Module</th>
<th>AC8345R Module</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total voltage</td>
<td>AC 120 V</td>
<td>AC 120 V</td>
</tr>
<tr>
<td></td>
<td>AC 230 V</td>
<td>AC 230 V</td>
</tr>
<tr>
<td>Total current max.</td>
<td>75 A per module</td>
<td>100 A per module</td>
</tr>
<tr>
<td></td>
<td>30 A per channel</td>
<td>80 A per channel</td>
</tr>
<tr>
<td>Channels</td>
<td>16 (single pole)</td>
<td>14 (single pole)</td>
</tr>
<tr>
<td></td>
<td>8 (double pole)</td>
<td>10 (double pole)</td>
</tr>
<tr>
<td>Circuit breaker type</td>
<td>8335 Series (1-pole/2pole)</td>
<td>8345R Series (1-pole/2-pole)</td>
</tr>
<tr>
<td>Protection class</td>
<td>IP65</td>
<td>IP67</td>
</tr>
<tr>
<td>Order number</td>
<td>PP-M-AC230-000-0-Z-00</td>
<td>X8345R-S00-0649</td>
</tr>
<tr>
<td>Description</td>
<td>Our customers’ specific requirements determine our AC solutions. They differ in the number of slots, the circuit breakers used for protection of the AC loads as well as in the housing type.</td>
<td></td>
</tr>
</tbody>
</table>

Your benefit
- Integral, easily replaceable hydraulic-magnetic circuit breakers
- Perfect separation of the AC and DC side
- Changes of the nominal current settings of a channel possible

Others

<table>
<thead>
<tr>
<th>Gateway</th>
<th>TouchPC Software</th>
<th>USB/CAN Converter</th>
<th>USB/CAN converter, opto-decoupled</th>
<th>PowerPlex® Suite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part number</td>
<td>PP-M-CG300-000-0-0-00</td>
<td>XPP-TPCSW</td>
<td>XPP-USBC0</td>
<td>XPP-USBC1</td>
</tr>
</tbody>
</table>
E-T-A
Worldwide Service Network

Europe
- Austria
- Belgium
- Bosnia-Herzegovina
- Bulgaria
- Croatia
- Czech Republic
- Denmark
- Finland
- France
- Germany
- Hungary
- Ireland
- Italy
- Luxembourg
- Macedonia
- Montenegro
- Netherlands
- Norway
- Poland
- Portugal
- Russia
- Serbia
- Slovakian Republic
- Slovenia
- Spain
- Sweden
- Switzerland
- Turkey
- United Kingdom

America
- Argentina
- Brazil
- Canada
- Chile
- Mexico
- USA

Asia
- Brunei
- China
- Hong Kong
- India
- Indonesia
- Japan
- Korea
- Malaysia
- Philippines
- Singapore
- Taiwan
- Thailand

Africa
- South Africa
- Tunisia

Oceania
- Australia
- New Zealand