EPEC SOFTWARE PRODUCTS

From the engineering viewpoint of a control system, it is not enough to only have the sufficient hardware for the physical implementation of a system, in modern control systems software plays a key role. Epec provides software tools and an extensive set of application libraries in order to help developers improve their overall productivity. Epec software tools help system engineers in programming, configuring, adjusting and diagnosing the control system and its application.

CANmoon configuration and diagnostics tool

CANmoon is a powerful CANopen based software tool. It can be used to configure, monitor and diagnose nodes on CAN bus. It can also be used for downloading applications to Epec control units, and updating their firmware.

With CANmoon, CAN messages can be logged and saved to files for offline diagnostics, for example, when it is not possible to go onsite personally. Log file format is commonly used and compatible with third party analysing tools to enable flexible interoperability between different tools. With CANmoon it is also possible to play the saved CAN log data back to CAN bus. This playback feature, together with the possibility to define and send CAN messages to the bus and the possibility to use Python scripting makes CANmoon a powerful simulation and testing tool. It is possible to, for example, create automatic test sequences or simulate CAN devices like sensors or remote controllers without the actual hardware present.

Support for CAN databases, makes it convenient to monitor and debug control system specific CAN messages. Instead of complex hexadecimal format, the data is automatically interpreted and shown in decimal values together with meaningful variable names. CAN database can be generated, for example, from Epec MultiTool.

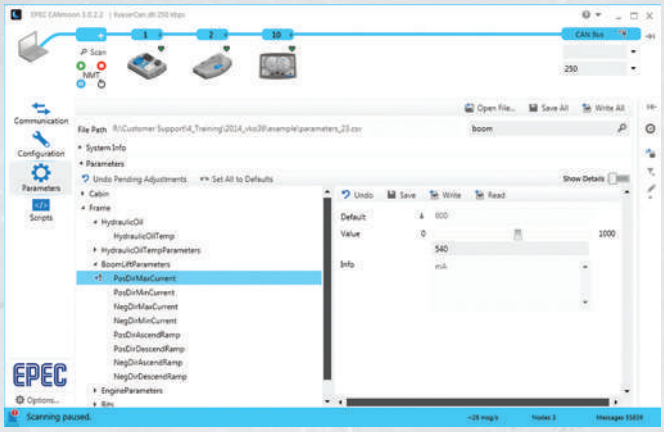
CANmoon also includes an interpreter for CANopen messages such as NMT, SDO and PDO. The CANopen messages are interpreted from hexadecimal format to descriptive texts and/or decimal values according to CANopen standard.

CANmoon works seamlessly with Epec MultiTool to maximize the productivity in control system project development. For example, control system parameters can be exported from MultiTool to a file which can then be imported to CANmoon. Based on this file, CANmoon generates an easy to use graphical interface for adjusting machine parameters, such as calibration values, alarm limits, etc.

It is possible to customize CANmoon for any use. By a simple, yet versatile Python scripting language, it is possible to expand CANmoon functionality and even change the whole user interface of CANmoon. Creating a customized software download tool or service tool for a PC has never been easier!

CANmoon is easy to use with just basic computer skills, and it works with any computer running Microsoft Windows 7 or 8 operating systems. It supports the most commonly used CAN adapters in the market.

CANmoon is available to our customers free of charge from Epec extranet.



MultiTool helps developers concentrate on functionality

Epec MultiTool is a system design and configuration tool that helps developers concentrate on functionality while hiding the inherent complexity of programmable devices.

Configurations made with MultiTool's intuitive user interface are generated into a code template. The otherwise slow and error prone steps, such as CAN protocol initializations, are automatically done by MultiTool. In addition, MultiTool speeds up the start of making the actual customer application with machine functionalities. The customer application is implemented on top of the code template using CODESYS IEC 61131-3 programming languages.

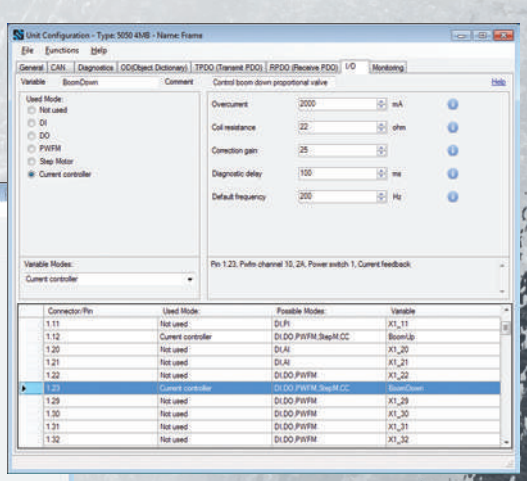
Epec MultiTool provides easy-to-use interfaces to select preferred programmable control units to the system and create CANopen object dictionaries (ODs) as well as I/O configurations for these devices. Furthermore, third party CANopen devices, such as sensors, are easily added to the control system by importing EDS (Electronic Data Sheet) or DCF (Device Configuration File) files from the device manufacturer to the MultiTool project.

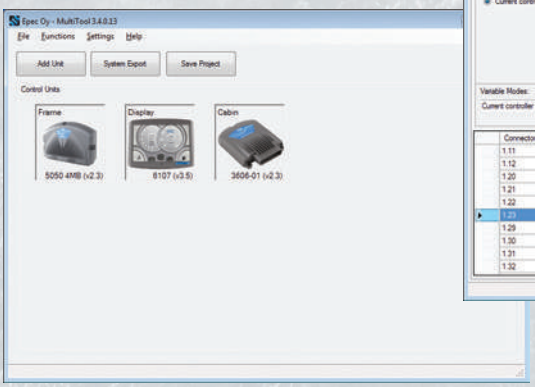
In order to enable system developers to select the most suitable tools for testing and analysing the control system, MultiTool generates CAN databases to export CAN data structures for diagnostics/analyzing tools such as Epec CANmoon. File format is commonly used in the market, which makes it possible to utilize the feature also with third party analysing tools. This makes it easy to test, verify and optimize the control system's performance.

MultiTool supports CODESYS versions 2.3 and/or 3.5 depending on the control units used in the system.

SOME OF THE KEY FEATURES OF MULTITOOL:

- Manage the whole control system in one project
- Fast configuration of CANopen communication with easy to use graphical user interface
- Automated SAE J1939 communication using standard predefined PGNs
- Simple to use configuration of I/O interface
- Many diagnostic features built-in and automatically included in the code template
- Library Manager ensures that you have the correct libraries in your project
- Create Your CODESYS project with full CAN communication, I/O and diagnostic features already built in the code template – All with just one click of your mouse!





Libraries to make the job easier

Epec provides an extensive selection of CODESYS libraries. With these libraries, software development time is decreased significantly.

All Epec libraries have been built to work seamlessly together. The libraries have also been built from smaller building blocks, so developers can use the same building blocks to make their own functionality.

Epec libraries include ready to use blocks for commonly used sensors and actuators, such as voltage, current and resistive sensors, encoders, joysticks, proportional valves, etc., connected to either control unit I/O or CAN interface. These library blocks include built in diagnostics for commonly encountered faults in electronic control systems, such as broken wires, short circuits, broken sensors and actuators.

Epec also provides library implementations of different CAN protocols. Epec CANopen and J1939 libraries are both known for their high performance level, reliability and flexibility. Both protocols can handle high busloads with little or no effect on program cycle time.

EPEC LIBRARIES PROVIDE, FOR EXAMPLE, SOLUTIONS TO THE FOLLOWING FUNCTIONALITIES:

- Communication protocols, CANopen & SAE J1939
- Diagnostics for digital outputs
- CANopen network management
- Controlling and diagnostics for proportional valves
- Diagnostics and calibration for most commonly used sensor types
- Diagnostics and calibration for different types of joysticks and pedals
- Different kinds of filtering and conversion functions
- Event/Error handling and logging
- Solutions for updating applications and adjusting parameters with CODESYS programmable HMI.

All Epec libraries have passed our thorough testing and have been used in various applications over the years. Epec Programming and Libraries Manual provides useful information for developers, including programming examples. The manual is easily accessible from CODESYS help, while programming Epec units. Epec Libraries and Programming Manual is also available from Epec extranet.

Epec is committed to further develop software tools and libraries based on customer needs. All Epec libraries are available for CODESYS versions 2.3 and 3.5. Libraries and MultiTool tool are available to our customers free of charge from Epec extranet as an installation package called Epec SDK.

Epec SDK for easy installation and configuration management

Epec releases and distributes its tools, libraries and manuals needed for programming as a release and installation package called Epec SDK (Software Development Kit). SDK is an easy to use installer that installs all needed components ready for use. It includes Epec MultiTool, Epec application libraries, Programming and Libraries Manual, CAN adapter drivers and target/device description files for all Epec units. This way we can ensure that the customer always has the correct tools and library set installed, which are compatible with each other.

For further information about Epec software tools and libraries, please contact techsupport@epec.fi