

SAE – Automation - Solid And Effectively working
partner for development of YOUR products and
industrial automation

As we know, many of the modern electronic modules from various producers are designed as microcontroller embedded systems. This allows customers to achieve different functionality by modifying some module parameters, which are, in contrast to a main firmware, configurable by the external configuration software run on a desktop, laptop or handheld computer.

The measured value converter is a typical example of such module. Many producers offer electronic systems which, by using common hardware modules, make possible to process the inputs from various types of sensors, and convert them into unified current and voltage outputs (e.g. 0-10V, 0-20mA, 4-20mA, etc.). Some functionality of such device thus depends on the actual configuration stored in the memory of the converter.

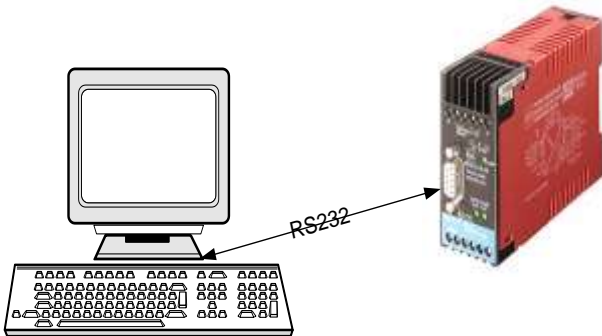


Figure 1: Measured value converter, configurable by PC software

The typical features of configuration software are:

- The configuration of a valid set of module parameters. The configuration software ensures that the final configuration will contain only those values and combinations of parameters that are actually allowable in terms of proper functionality of the electronic module.
- Storing the parameters into a database or a configuration file for later use (e.g. use of modules with identical functionality)
- Download feature (configuration parameters from PC are downloaded into electronic module, in order to adjust the behavior of the module)
- Upload feature (configuration parameters are loaded from electronic module to PC in order to store the actual configuration)
- Printing of the configuration
- Creation of log file about the progress of parameterization
- Monitoring of module operation
- Simple monitoring of the measured values (data can be displayed as graphic or text)

Firmware is often stored in updatable Flash memory, which makes possible to update it (or parts of it) in case of need. Manufacturers of such memory modules use to provide special software tools or modules, able to do this procedure with ease. They may be added to configuration software in order to extend its scope of use to the areas such as manufacturing of electronic modules.

The configuration software may be also utilized to configure far more complex devices than the converters mentioned above. Programmable logic controllers (PLC) and operator terminals can be also based on microcontrollers. As for the PLC, sophisticated computer applications are used to create PLC programs. These offer are either text-based programming methods (such as "Instruction List" - IL or "Structured Text" - ST) or graphical based programming methods (such as „Sequential Function Chart" - SFC, „Ladder Diagram" – LD or „Function Block Diagram" - FBD).

As for the operator terminals, there are visualization applications which are able to create visualizations of technological process.

Besides of configuring various microcontroller embedded systems, the configuration software may also be applied to applications like OPC servers, SoftPLCs and database systems.

SAE Automation has been developing the configuration software for various customers over the past few years, thus gained a lot of experience of this kind. We developed or participated in the following configuration tools:



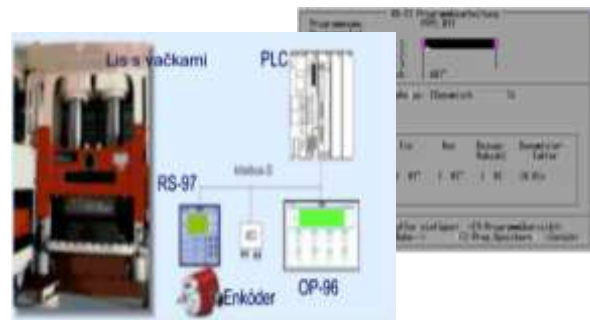
SPSPlusG

Figure 2: Graphical terminal MT-120, configurable via SPSPlusG

SPSPlusG was the projection software run under DOS. We created the following parts:

- Font editor
- Graphical screen editor
- Download and upload features for graphical types of terminals
- Printing features

RS-97



Figures 3 and 4: Exploitation of electronic camshaft in the car compactor, and offline programming of the RS-97

Highlights:

- Configuration tool for the electronic camshafts
- Project setup for the group of compactors with camshafts
- Printing features

SPSPlusWin



Figure 5.: Overview window with the view of all screens of the project



Figure 7: Importing SPSPlusG configuration to SPSPlusWin



Figure 6.: Drag-and-drop functionality (works within the project scope as well as between two projects)

SPSPlusWin is the projection software under Windows. Highlights:

- the ability to import configurations from older SW SPSPlusG
- font editor and convertor (.fnt and .fon files)
- graphical screen editor for graphic and text terminals
- adjustment of download and upload features for various terminals
- download/upload to/from graphic and text configurators
- print-out generator
- drag-and-drop functionality

UTM-95



Figure 8: UTM-95 Figure 9: Configurator and terminal for UTM-95

Highlights:

- configuration tool and terminal program in one application
- configurations stored in .ini files
- ability to change the configuration online (via GSM network)
- service mode allows the user to load .log files from UTM-95 module via network

OpcDbGateway – configurator



Figure 10: OpcDbGateway configurator

Highlights:

- runtime configuration (programming) of SoftPLC, embedded in OpcDbGateway
- configuration of process database and configuration database
- ability to configure OPC server address spaces
- monitoring of process points connected through external OPC servers
- ability to runtime-configure alarms, which are processed in OpcDbGateway
- report definition and management
- log file management
- verification of configuration files, error locating
- creating configurations (programs) in graphical editor

Configurator for OpenModbus OPC server

Highlights:

- configuration of OPC server address space
- monitoring of process points connected through external OPC servers

I.S.Wizard for I.S PAC

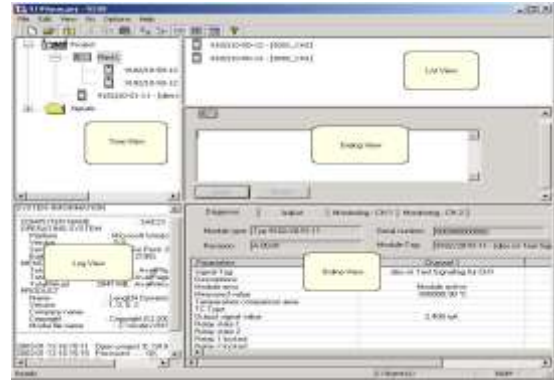


Figure 11: Configuration software I.S.Wizard for I.S PAC

Highlights:

- configuration of measured value converter
- allows to create projects for converter employment
- printing of project information
- configuration download
- configuration upload
- monitoring of process points (both graphical and numerical form)
- ability to copy and clone modules within a project
- ability to copy and move entire subdirectories within a project

BMS2 configuration software



Figure 12: Configurator for BMS2

BMS2 is programmable radio remote control system.

BMS2 configurator allows to:

- configure I/Os of mobile industrial machine controlling system
- adjust parameters of radio communication
- adjust parameters of CAN bus communication
- download/upload configuration
- print the configuration
- download firmware to BMS2 flash memory

Configuration software for OPC Server telecontrol:

Highlights:

- configuration of OPC server address space
- monitoring of process points connected through external OPC servers