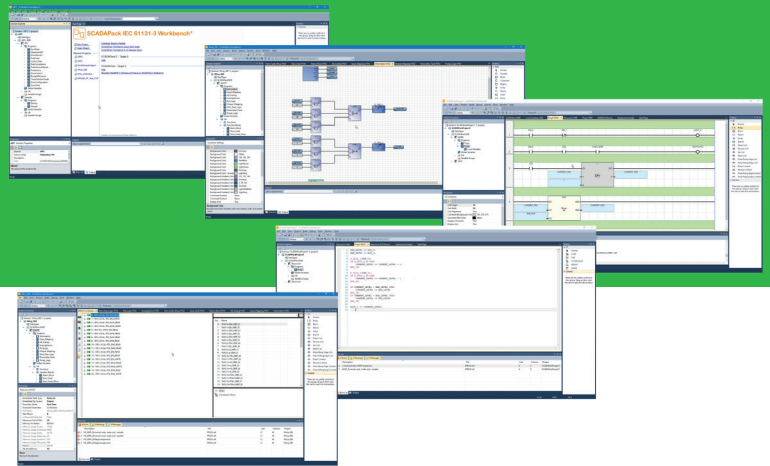


SCADAPack Workbench & Utilities

IEC61131-3 Programming
Language Suite
for SCADAPack Smart RTUs



Product at a glance

- An intuitive environment based on the Visual Studio framework
- Supports the three most popular IEC 61131-3 languages:
 - Functional Block Diagram (FBD)
 - Ladder Diagram (LD)
 - Structured Text (ST)
- Pre-defined controller templates
- User-defined functions and custom functions for SCADAPack Smart RTUs
- Personalized workspace with flexible GUI
- On-line debugging and monitoring

Overview

Schneider Electric unites its industry-standard family of SCADAPack™ Smart RTUs with the open standard IEC 61131-3 automation software; creating a powerful solution for your SCADA system automation needs.

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Flexible Development Environment

The SCADAPack IEC 61131-3 Workbench and Utilities provide an intuitive, flexible environment for developing, debugging and downloading SCADAPack Smart RTU logic code.

The Workbench is an intuitive programming environment based on the Visual Studio framework and installs directly on Windows® operating systems. Offering Drag & Drop graphical programming, it supports import, edit, and debug of the three most popular IEC 61131-3 languages:

Language	Type of Application
Functional Block Diagram (FBD)	Process Flow
Ladder Diagram (LD)	Electrical Flow
Structured Text (ST)	Textual, Calculative

Language types can be mixed within the same project and within the same program. This flexibility enables developers to choose the language that best suits their level of programming proficiency, programming style, and the nature of the application itself. For example, in a typical application, a custom function could be programmed using ST and then made accessible, as a function block, in a FBD or LD program.

The editing tools offer pre-defined controller templates, variable import/export, and automatic variable type matching. This means that when attaching variables to Function Blocks(FB) the variable type needed by the FB is automatically loaded whether you are creating a new variable or selecting it from a filtered list. Editing ST programs is also made easy with auto-filling as you type FB names, creating the FB instance and showing FB arguments in hover text.

Custom functions for the SCADAPack Smart RTU include diagnostics and configuration functions for communication ports and protocols. This allows the application to dynamically monitor com port and protocol statistics, (useful in communication management algorithms); and configure communication parameters, (ideal for systems that use a variety of protocols and communication parameters).

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Features

Functions

Custom IEC 61131-3 functions have been specifically designed by Schneider Electric for use with SCADAPack Smart RTUs. These functions, which bring SCADA-specific operability to the IEC 61131-3 Workbench, include:

- Functions for sending Modbus™ protocol commands over serial and IP connections
- *Dial* and *inimodem* for dial-up modem connections
- Various HART functions for communicating with HART-compatible devices
- *pida* and *pidd* for analog and digital output-based PID control
- *total* for analog input-based, non-volatile totalizing
- *flow* for pulse input (turbine meter)-based, non-volatile flow totalizing
- Various *dlog* functions for data logging and retrieving
- *rxstring* and *txstring* for receiving and transmitting text strings on a serial port

SCADAPack Configurator

A companion application included with Workbench for controller-specific configurations and utilities including:

- Communication port and protocol configuration
- Controller firmware updating
- File management operations
- Real-time clock settings
- Controller initialization

Backwards Compatibility for pre-existing V3.x Programs

Workbench v.6 may be used to import existing SCADAPack program files created with Workbench v.3. Programs, functions, and FBs written in LD, ST and FBD may be edited and debugged after importing.¹

On-line Debugging and Monitoring

SCADAPack Workbench supports on-line debugging and monitoring of program logic. While in the debug mode, code written in any of the graphic-based languages can be viewed in real-time, with indication of logic power flow and variable values. Global and local variable values may also be viewed or forced from the dictionary and I/O wiring list views.

Two additional features make on-line debugging even more powerful:

- Spy Lists permit the user to create, display, and save, any combination of variables, thereby allowing the focus to be placed on a group of related variables.
- ISaView is a built-in mini HMI package. Variable values can be displayed in a number of graphical representations including text, bar graph, curve, boolean icon and bit field. External bitmap files can be imported to furnish a background on which these graphics can be placed; and the entire display can be saved and retrieved at any time.

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Features - continued

Concurrent C/C++ Code Execution

For additional programming power, an IEC 61131-3 application can execute in the SCADAPack Smart RTU concurrently with up to 32 independent C/C++ programs. Process data generated in either application can be passed to the other. This means, for example, that the results of complex mathematical algorithms, calculated using C/C++, can then be used by the IEC 61131-3 application to control the process.

In a typical oil and gas application, Schneider Electric's RealFlo™ flow computer C/C++ code handles the gas or liquid flow calculation and logging functions, while a concurrently-executing IEC 61131-3 application handles the remainder of the well site automation duties, which may include production optimization, and the control of equipment such as pumps and motor starters.

System Requirements

The table below lists the basic hardware and software required to install and operate SCADAPack Workbench and SCADAPack Configurator:

Item	Requirements
Operating system	One of the following with the latest updates: • Windows 8.1 Professional (32-bit or 64-bit) • Windows 10 Professional (32-bit or 64-bit)
Processor	2.2 GHz or higher CPU
RAM ²	• x86 operating systems: 1 GB • x64 operating systems: 2 GB
Hard disk	• Space: 4 GB available • Minimum 5400 RPM; 7200 RPM or higher is recommended

Footnotes:

¹ Program files written in Instruction List (IL), Sequential Function Chart (SFC) and Flow Chart (FC) languages may be imported and debugged, but not edited. Editing for IL, SFC and FC must be completed in Workbench v3 before importing. Editing for IL, SFC and FC must be completed in Workbench v3 before importing.

² Virtual machine, add 512 MB of RAM

Disclaimer:

The information provided in this document contains general descriptions and/or technical characteristics of the performance of the described products or services. For detailed specification, performance and instruction of use, refer to corresponding Catalogs and user guides if available.

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