



TWinSoft Automation for Microsoft Applications

SEMAPHORE PRODUCTS: TWINSOFT PROGRAMMING ENVIRONMENT AND T-BOX PRODUCT LINE

INTRODUCTION

Semaphore's T-BOX products are renowned for their IP/Web/telemetry technology platform featuring an integral web server, push communications, alarm management, data logging, protocol conversion and IP forwarding. T-BOX also greatly benefits from a powerful, programming environment, TwinSoft SUITE. TWinSoft supports not only dual programming languages, IEC 61131-3 Ladder Diagram (LD) and BASIC, it also provides an opening to Windows Automation.

Increasingly popular among systems integrators, TWinSoft Automation allows configuration of TWinSoft using Microsoft applications. For large-scale projects, TWinSoft Automation significantly eases program development and reduces systems project hours. While TWinSoft becomes invisible, it allows end users access only to configuration parameters with which they are familiar.

TWinSoft BACKGROUND

TWinSoft consists of programming tools and personalized development tools for equipment manufacturers and systems integrators. In TWinSoft, a user-friendly and interactive Ladder Diagram editor that complies with the IEC 61131-3 standard facilitates design and testing of the control program.

The editor is immediately familiar to the LD programmer and intuitive for the novice programmer. A simple combination of mouse and keyboard commands is all that is needed to complete development.

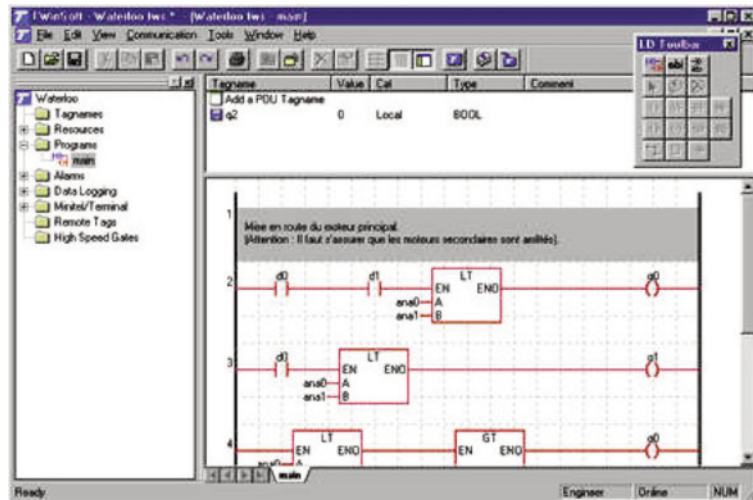
TWinSoft contains a complete set of tools, including an LD editor, compiler, documentation generator, library manager, and online control. It is very easy to add lines or comments, duplicate entire parts of the program, or create new variables, modules, and macros.

Using TWinSoft, users minimize design time by directly using libraries of predefined functions and subprograms, which include control, mathematical functions and conversions, and Boolean functions. Dynamic analytical tools and system variables allow programmers to rapidly perfect their applications and include dynamic control of communication, alarms, data logging, and timers, locally or remotely, in complete security.

For programmers who are more at ease with high-level languages, programming in BASIC is also available.

Whether the application requires a few lines of programming or several thousand, process automation specialists will quickly learn TWinSoft. Specific attention has been paid to the quality of online help.

T-BOX processing capabilities are appropriate to automation requirements as well as custom calculations and logic. The LD programmer will find the IEC 61131-3 ladder diagram editor to be familiar and intuitive. For those who prefer structured text, TWinSoft also supports a BASIC environment.



T-BOX LT is an “all-in-one,” compact RTU that meets the monitoring and automation needs for installations using up to 32 I/O points. T-BOX LT includes Ethernet and a wide area communication device such as a GSM/GPRS modem or spread spectrum radio. Not only does it provide the T-BOX IP/web/telemetry technology platform that features an integral web server and push communications, it is also fully programmable using Semaphore’s TWinSoft SUITE environment. TWinSoft Automation allows end users to configure only the necessary parameters using a Microsoft application while TWinSoft is invisible.



TWinSoft allows users to:

- Define stations (I/O, communications, etc.), alarms (type, messages, and calendar), the information and select its criteria for filing your interface screens for operator terminals
- Create, modify, and quickly debug the automation program presented in the form of an IEC 61131-3 diagram.
- Analyze, locally or remotely, the station status:
 - List the alarms that have appeared and their status.
 - List the contents of the archives.
 - Diagnose the status of the automation system.
- Update (directly and without hardware manipulation) the software versions of the various stations.

The T-BOX WM “Wireless Monitor” combines an IP/Web technology platform, alarm management, data logging and intelligent programming in a single package that is cost effective for ultra-low-power applications running on batteries. Even monitoring-only applications, which are typical of this product, can benefit from TWinSoft Automation as it can present a configuration environment that is very familiar to the user.



TWinSoft AUTOMATION AND MICROSOFT APPLICATIONS

TWinSoft Automation is a component that allows control of TWinSoft in “silent mode” through another program. From a practical point-of-view, the user configures the T-BOX application without even knowing that TWinSoft is running.

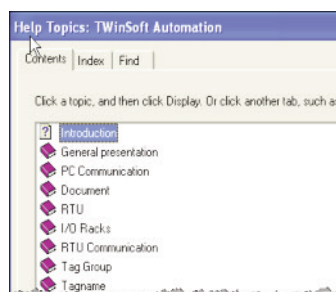
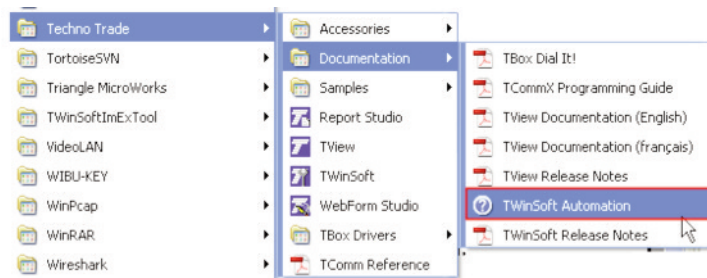
The key advantage of TWinSoft Automation is that it allows development of customized interfaces, which show only the parameters that need to be changed and, thus, considerably simplifies the interface shown to the end user. The end user need not even be familiar with TWinSoft!

TWinSoft Automation is ideal for OEM and system integrator applications, which call for use of familiar, PC applications rather than HMI or configuration environments that are either considered proprietary or specific to another industry.

TWinSoft Automation supports, but is not limited to, the following development environments:

- Visual Basic 6.0, C, C++
- Microsoft .Net Platform (VB, C#, Java)
- VB Script, Jscript
- Microsoft Excel

As shown in this sequence of two menus, TWinSoft Automation is fully documented and accessible to beginners. Documentation is oriented to use of Visual BASIC.



TWinSoft AUTOMATION EXAMPLES

“MyProduct Configurator”

In this application example, end users enter a small set of communications parameters on a simple menu. Once the parameters are entered, they save and send the program. All TWinSoft references have been removed — including the extension of the application files.

Using "MyProduct Configurator," users see only the small number of parameters that need entry. All TWinSoft references are invisible.

The screenshot shows the 'MyProduct Configurator' window with two sections: 'RTU Properties' and 'IP Settings'. Under 'RTU Properties', there are fields for 'RTU Type' (set to '<none>'), 'RTU Name', 'Modbus Address', and 'Modbus Sub Address'. Under 'IP Settings', there are fields for 'IP Address', 'Subnet Mask', and 'Gateway'.

TwinSoft Application Generated by Excel Work Sheet

In this example, the TWinSoft application is generated from data contained in an Excel work sheet. Popularity of Microsoft Excel means that there is virtually no learning curve involved in entry of the parameters for this application.

This type of capability has been very useful in OEM and systems integration projects. It considerably reduces configuration time in systems requiring a large number of similar, RTU applications, in which a small number of parameters differ from one installation to the next, for example:

- Station Name
- IP address
- Modbus address
- Alarm parameters

Data entry through Microsoft Excel allows application configuration with virtually no learning curve.

The screenshot shows an Excel spreadsheet with columns for client information. The data includes:

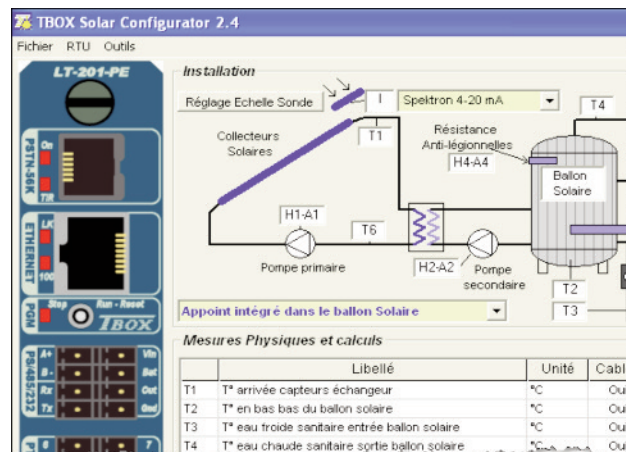
ID	NOM	Commune	Adresse	Type	1-BP	2-BSP	3-BSP	4-DELTA	Pression	lecture	min.	max.	résol.	H	Seuil	Filtre	mail	garde	Hys
1	01.001	Auderghem	Ch. De Tenseren - Av. Thacon	1	24 mbar	0	100	0.1	27.5	3	4	2							
2	01.002	Auderghem	Av. G. Van Nieuwen - Av. H. Van Der Goele	3	24 mbar	0	100	0.1	27.5	3	4	2							
3	01.003	Andelst	Rue de Zuen	1	24 mbar	0	100	0.1	27.5	3	4	2							
4	01.004	Bruxelles 1	Rue de la Dyle	3	100 mbar	0	200	0.1	125	3	4	2							
5	01.005	Schaerbeek	Rue Masu - Av. De la Reine	1	24 mbar	0	100	0.1	27.5	3	4	2							
6	01.006	Evreux	Rue de Lombardie - Rue du Marquis	1	24 mbar	0	100	0.1	27.5	3	4	2							
7	01.007	Evreux	Av. Du Gibet	1	24 mbar	0	100	0.1	27.5	3	4	2							

Solar Infrastructure Application

TISI (Telecontrol by Internet for Solar Infrastructures) is a Semaphore application for monitoring and control of solar power systems using the T-BOX LT product.

Semaphore has developed an end user-oriented application in Visual BASIC to allow easy configuration of the parameters associated with the solar power system.

This user-oriented menu provides for viewing and modification of parameters associated with a solar power system.



CONCLUSION

TWinSoft Automation supports Microsoft applications in a manner in which the TWinSoft environment is invisible. Users need only be familiar with the Microsoft application with which they're working. TWinSoft Automation provides numerous benefits to end users as well as OEM's and systems integrators:

- Practically eliminates the learning curve through the use of familiar, PC-based applications.
- Significantly reduces project expenditures for development, testing, installation and commissioning.
- Makes it easy to download identical programs into multiple RTUs while modifying the limited parameters that differ from one installation to the next.
- Eases programming changes to allow for continuous improvement.

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