

PLC control system and HMI in the Pharmaceutical World

A typical PLC control system consists of the hardware, software and network components, together with the controlled functions and associated documentation. The PLC hardware can include a rack, power supply, CPU, network interface card, digital or analog I/O cards, and other special purpose cards such as high-speed counter, motion control, pulse input and others.

The software portion of a PLC control system involves firmware – which is the operating system in the PLC world, and programming software tools and application software usually developed by a system integrator as EID ELECTRONICS for a dedicated process control.

Depending on the size of target process and the operational requirements, the structures of PLC control system can vary. More often, a supervisory control and data acquisition system is applied, this is the HMI. Such system consists of a PLC based control on the plant level, graphic screen interface on the operation level, and processing server on the management level.

One of the keys to greater cost and efficiency saving in industrial processes is the HMI .
HMI = Human Machine Interface

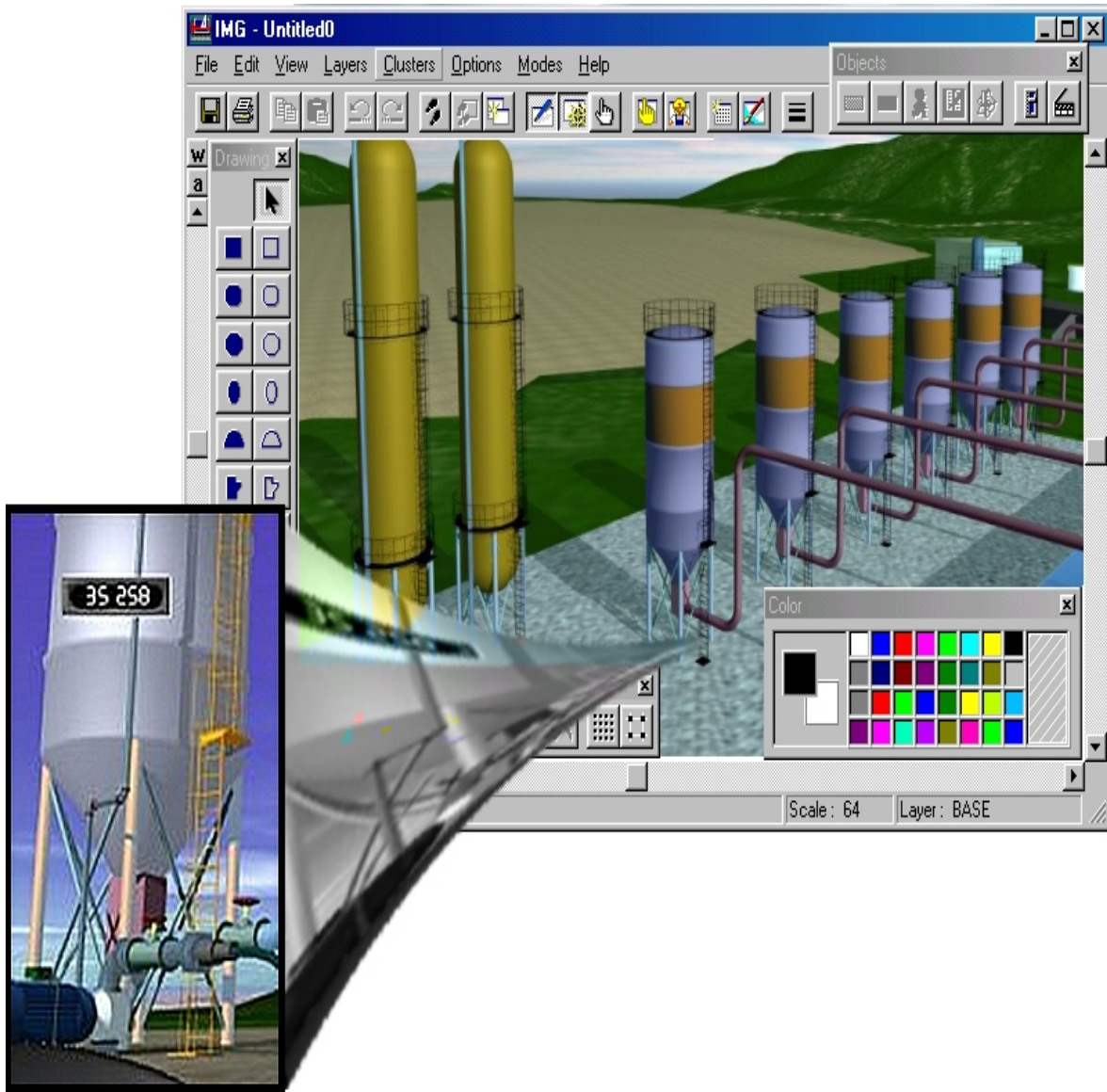
Regardless of whether it's operating in tough industrial conditions or in a sterile room, a well –designed HMI contributes to an improved working environment, better compatibility and greater reliability.

EID ELECTRONICS offers you good design based on many years of experience, many applications we developed, and many projects we made in HMI.

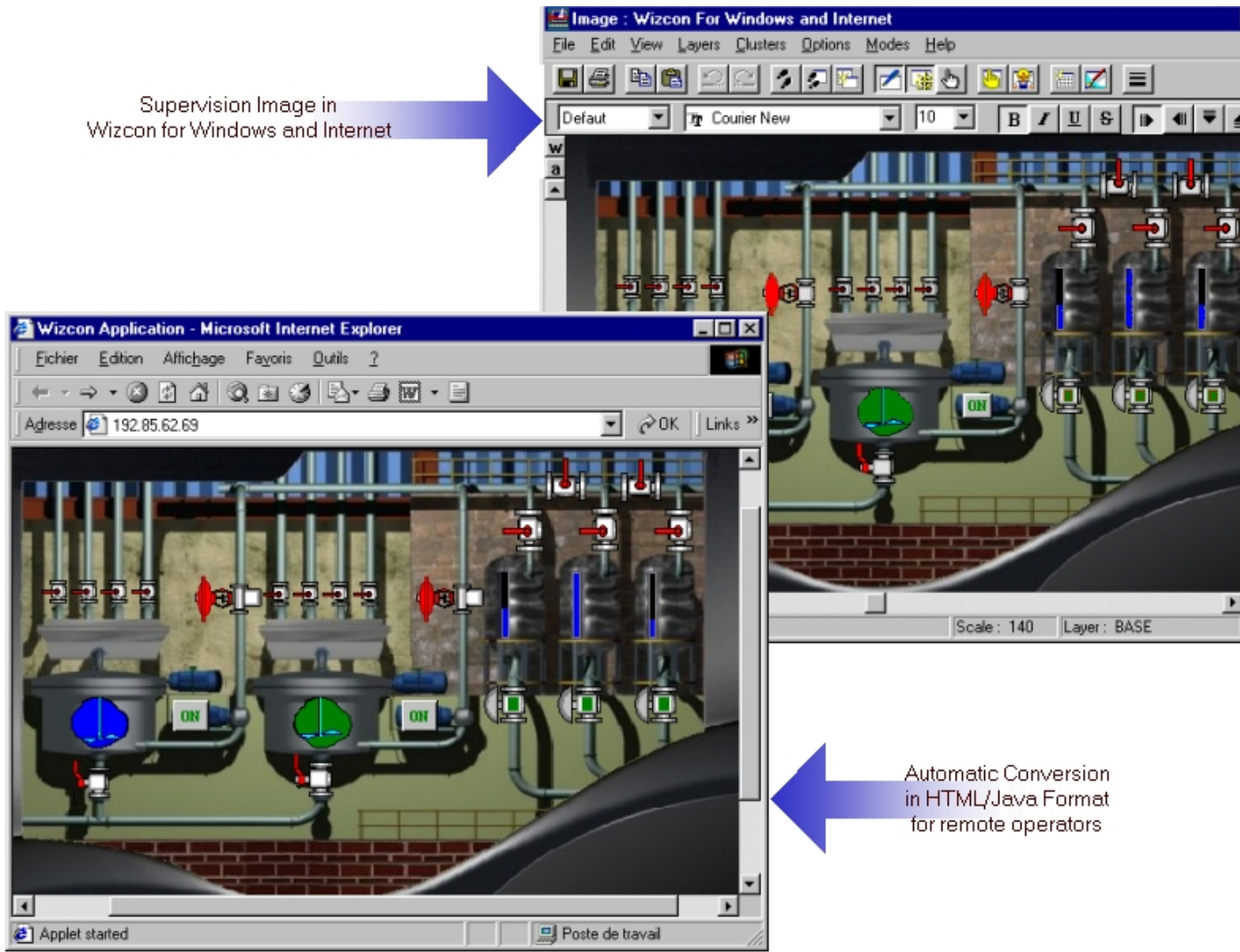
Good design means paying particular attention to making the user interface as user friendly as possible. The user interface can be a computer screen or operator terminal.

The FDA guidelines on principles of process validation says:

"Establishing documented evidence which provides a high degree of assurance that a specific process will consistently produce a product meeting its predetermined specifications and quality attributes".

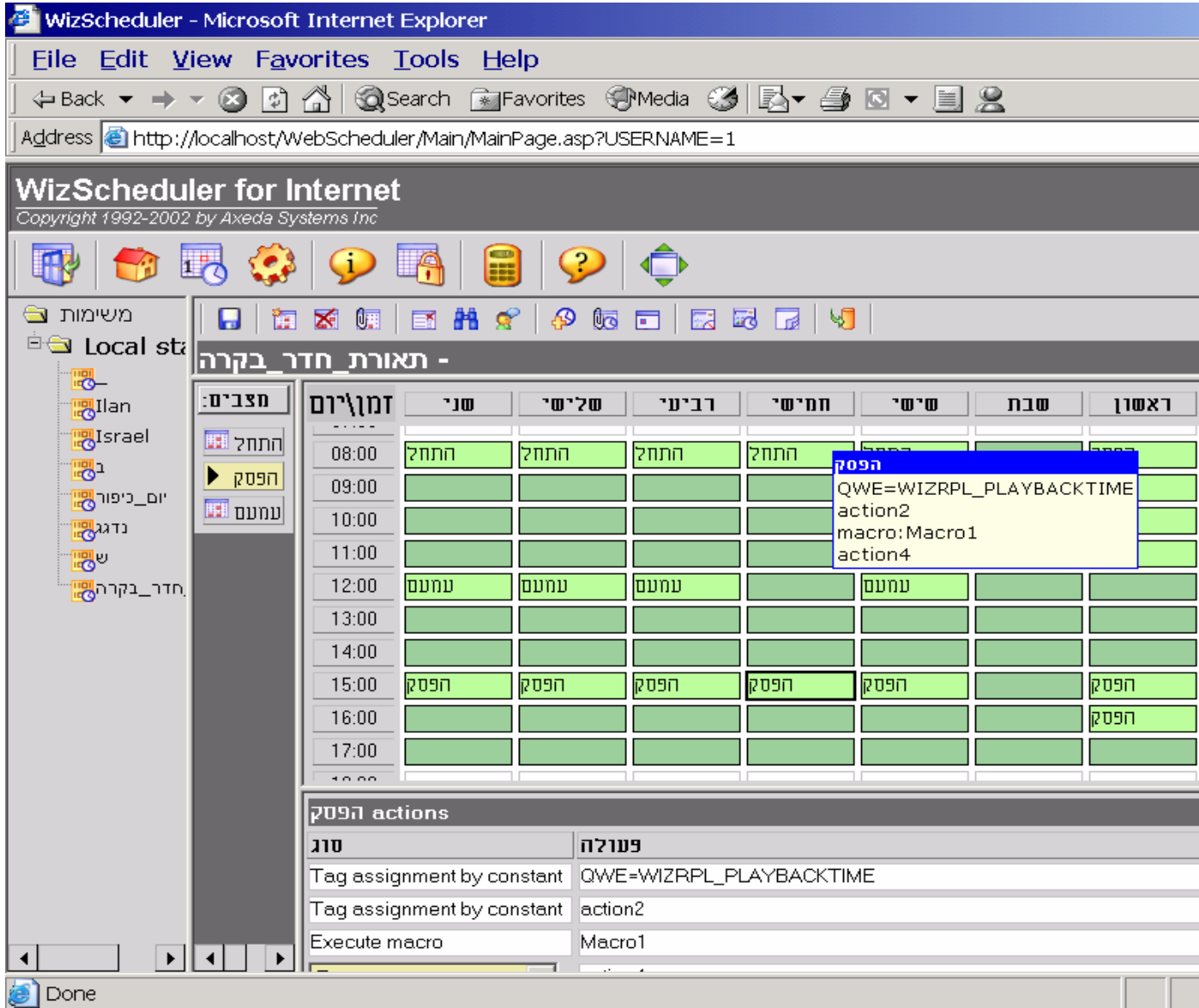


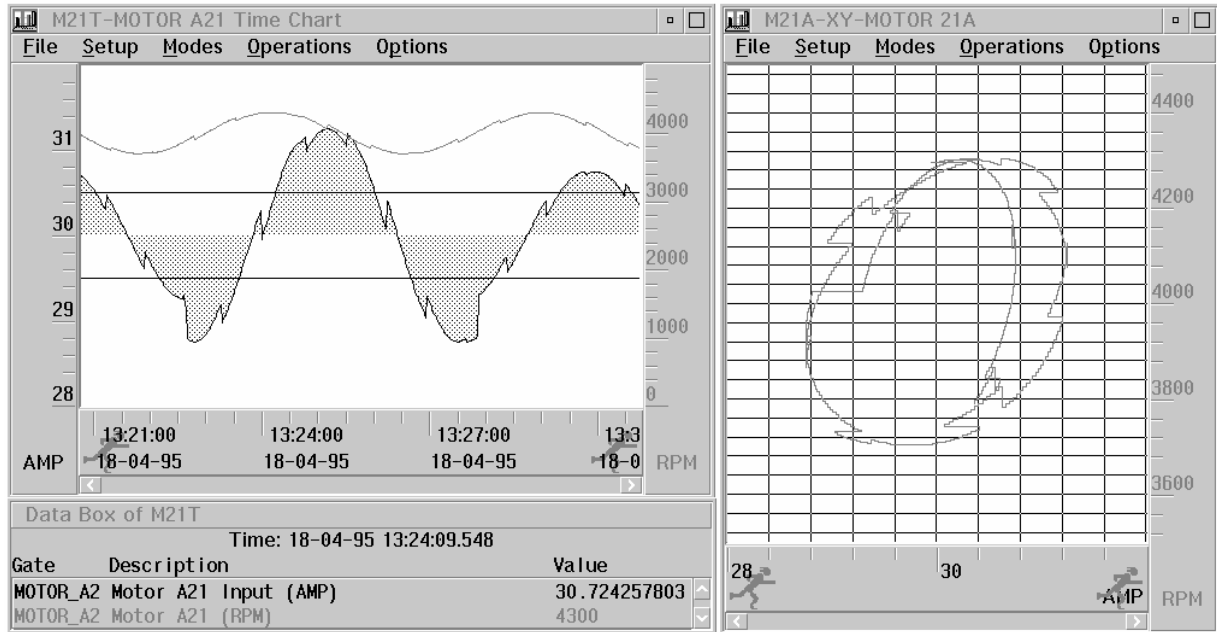
The HMI have the ability to be a web server and have its own web address. With this you can store HTML pages that contain real-time data. It has the ability to incorporate SMTP (Simple Mail Transfer Protocol) which allows the HMI to send alarms and text reports as e-mails.



Good HMI design help you to do your job better. It integrate into existing products lines. The crucial characteristics are safe backup even when power fails, an open operating system, remote usage when needed and unlimited communication to other devices.

EID ELECTRONICS provides in Automated Systems in Pharmaceutical Manufacturers sites sufficient documentary records to ensure that the user accepts and validates the system. Use of EID ELECTRONICS as integrator can simplify the overall validation process.





The following tools are for programming a PLC in IEC 61131-3 :

Function Block Diagram (FBD)- is a graphical language using defined function blocks from the system library or user-defined library and wiring them together on the screen to accomplish certain functions. This is one of the programming options in the M3 manufactured by CROUZET.

There are two types of FBD"s, the predefined FBD provides by the system like AND,OR etc, and user defined FBD developed by the programmer to accomplish a certain project oriented function.

Ladder Diagram (LD) – is the traditional method of representing logical equations and simple actions as if they were relay switches. LD and FBD may be freely mixed in the M3.

Sequential Function Chart- (SFC) – is the core language of the IEC 1131 standard.

