

PC Control: The Smart Way to a Complete Solution

Why should I use PC control?

PLCs provide a great solution for many applications, but when your application goes beyond straight-forward ladder logic controlling simple I/O, PC control can be the smarter way to go.

When you have a PLC system that includes an HMI with motion control and/or a vision system, you not only spend time developing and debugging each system independently, you also have to spend significant effort integrating the separate controllers. The result is often difficult to support. Even small changes require editing multiple databases and complex debugging. Add coprocessor modules for communications, complex math algorithms or string/array data manipulation and you start to wonder why there isn't an easier way.

Well, there is, and it's called Think & Do PC Control. Think & Do, America's leading PC control software, brings you all the tools you need to easily handle complex applications.



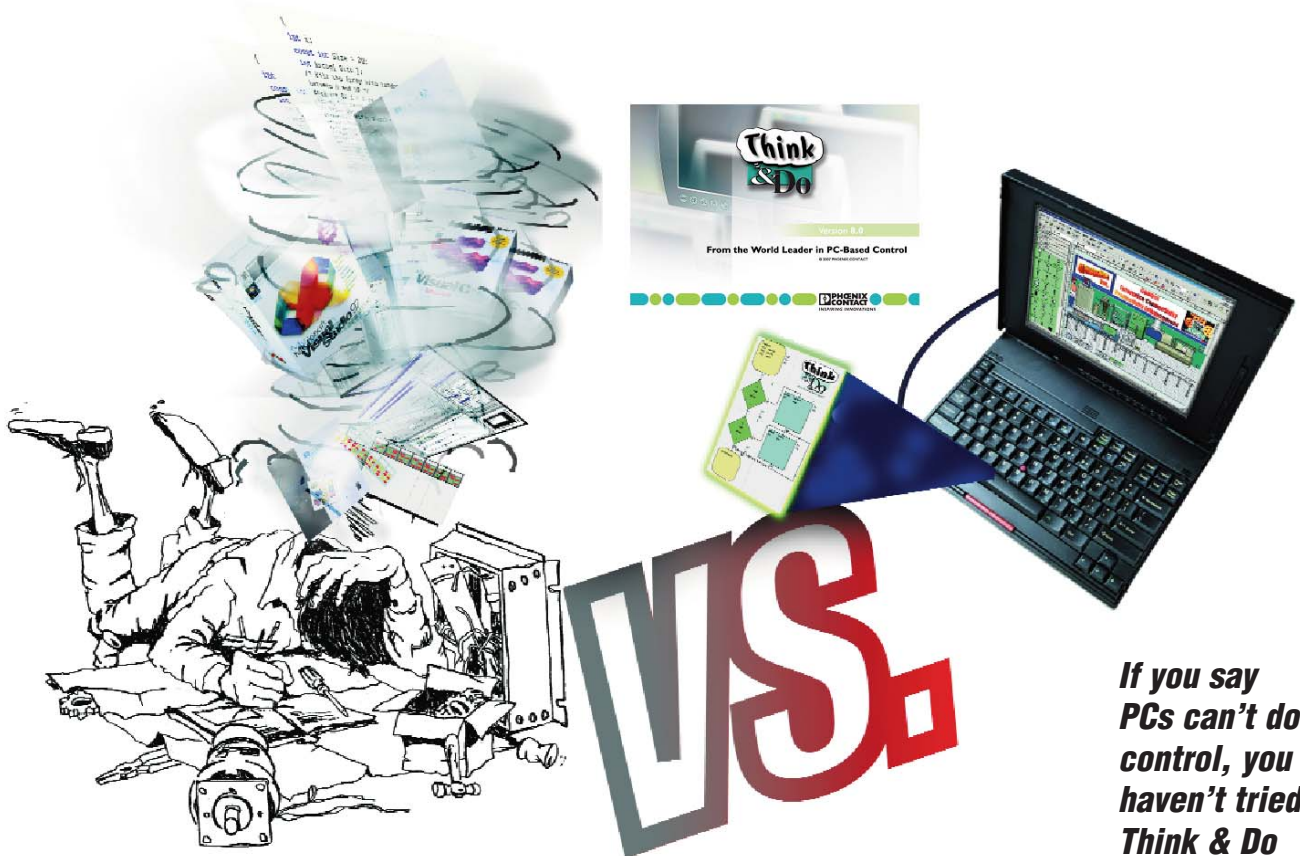
If your application requires:

- HMI as well as control
- Advanced data manipulation (even string arrays) and advanced math functions
- Data exchange with business applications (from spreadsheets to ERP systems)
- One or more third-party PC cards, such as those for motion control or vision systems
- Communication with serial or networked field devices
- Storage or access to large amounts of data
- Large number of PID loops (up to 64)
- Open architecture for C/C++ or VisualBasic

It requires Think & Do PC Control!

Why is Think & Do PC control so much easier?

With Think & Do, your HMI and control share the same database, so there is no duplication. Intuitive flowcharting makes coding the control logic as easy as sketching out the control algorithm. The powerful graphics tools and readily-accessible data tags enable you to create a quality HMI so fast you'll have to experience it to truly believe it. Think & Do includes the math functions and data types found in high-level programming languages, so complex algorithms and data management are a snap. PC architecture allows Think & Do to seamlessly support a variety of specialty motion, vision systems, and field network interface PC cards. The PC and Windows allow Think & Do to provide simple communication links on serial or Ethernet networks. Think & Do simplifies connecting everything from SQL databases to barcode readers with your control application.



***If you say
PCs can't do
control, you
haven't tried
Think & Do
PC control.***

Three PC Control Solutions using Think & Do



Think & Do 8.0

PC-TD8-USB <---->

Keyless Development and USB Runtime key; non-keyed environment provides free WinPLC programming.

PC-TD8-WEB4-USB <---->

Four concurrent with USB key with Web viewing capability

ESS-BASIC <---->

Extended service and support; Basic 1 year

ESS-PREMIUM <---->

Extended service and support; Premium 1 year

Includes:

- Flowchart logic
- Superior HMI features
- Easy SQL interface
- Web view capable (requires web view version)
- Importing screens
- Integrated serial communication
- Modbus TCP, Modbus RTU and Modbus Plus support
- Integrated motion control
- Integrated vision control
- PID process control (64 loops)
- Powerful debugging tools
- Offline logic testing
- Common database for HMI, logic and motion

Choose Think & Do 8.0 when you need

1. to communicate to an SQL database
2. a superior HMI with animation and advanced graphics

System requirements

Development System

Windows 2000 (SP4), XP (SP2), Vista
Pentium IV compatible processor
256 MB RAM (512 MB or higher recommended),
750 MB available hard disk space
CD-ROM drive
64 MB or higher video adapter
Color monitor (min resolution 800 x 600),
Ethernet adapter

Windows 2000/XP/Vista Runtime Target

Windows 2000 (SP4), XP (SP2), Vista
Pentium IV compatible processor
256 MB RAM (512 MB or higher)
500 MB available hard disk space
CD-ROM drive
64 MB or higher video adapter
Color monitor or flat panel display for HMI
min resolution 800x600)
Ethernet adapter

PLC Runtime Target

H2-WINPLC3



Completely compatible with original Think&Do Development Software applications

Think & Do Live!

PC-ENT-LIVE <---->
Development/run-time license

Includes:

- Flowchart logic
- HMI creator
- Reuseable subcharts
- Integrated serial communication
- Integrated motion control
- OPC Client and Server
- Modbus TCP & Modbus RTU Support
- PID process control (64 loops)
- Powerful debugging tools
- Offline logic testing
- Common database for HMI, logic and motion
- Productivity Analysis tools
- WinPLC support

Choose Live! when

- 1) HMI requirements are moderate
- 2) no SQL is required
- 3) projects are created by a single developer

System requirements

Development System

Windows NT/2000/XP-Certified Pentium 133
Windows NT/2000/XP Operating System
Ram Requirements:
Windows NT - 32 MB
Windows 2000- 64 MB
Windows XP - 128 MB
450 MB available hard disk space
CD-ROM drive
Color monitor (min resolution 800 x 600)

Windows Runtime Target

Windows NT/2000/XP-Certified Pentium 300 (or higher)
Windows NT/2000/XP Operating System
128 MB RAM
300 MB available hard disk space
CD-ROM drive (optional)
Color monitor or flat-panel display for HMI (min resolution 640 x 480)
I/O scanner or network card

PLC Runtime Target

H2-WINPLC3



The WinPLC is our lowest cost PC control solution

The WinPLC, a hybrid PC/PLC solution

H2-WPLC3-EN <---->
CPU module for Think & Do,
8 MB ROM/8 MB RAM

The WinPLC is a truly unique hybrid solution providing Think & Do PC control programming benefits on a PLC-style device. Develop applications with Think & Do and download them to the WinPLC.

Use a WinPLC when you need:

1. The advantages of PC control: complex math, data manipulation and connectivity
2. A PLC's rugged industrial form, non-volatile memory and standard PLC I/O

Or when:

1. A standard OI will suffice for your HMI
2. You don't need a PC

System requirements

Think & Do Live! for WinPLC Programming (PC-TD8-USB)

The non-keyed development environment for Think & Do 8.0 provides FREE programming for the WinPLC. Includes flowchart logic, reusable subcharts, PID functions, serial drivers, Modbus TCP/IP and a free OPC/DDE server.

Development System

Windows NT/2000/XP-Certified Pentium 133
Windows NT/2000/XP Operating System

RAM Requirements:

Windows NT - 32 MB
Windows 2000- 64 MB
Windows XP - 128 MB
450 MB available hard disk space
CD-ROM drive
Color monitor (min resolution 800 x 600)

PLC Runtime Target

H2-WINPLC3

Note: PC Runtime Target not supported

Think & Do 8.0 Overview



Think & Do™ Version 8.0 (PC-TD8-USB) is an integrated control environment that lets you do more with a given PC platform. It supports development, deployment and operation of high-value automated control systems for material handling and manufacturing. Think & Do 8.0 provides an intuitive, open-architecture environment that readily integrates with hardware and software components from virtually all major suppliers.

Projects created with Think & Do 8.0 integrate seamlessly with enterprise information systems to provide valuable data about system operation. Major components of Think & Do 8.0 are:

- ProjectCenter: Provides ready access to all project elements and the fully integrated tagname database using the Data Item Explorer.
- FlowView: For creating control logic.
- ScreenView: For creating HMI screens.
- I/O View: For configuring project I/O.
- AppTracker: For fast, graphical debugging.
- Runtime Engine: Provides a robust, deterministic project execution environment.

Think & Do 8.0 makes it easy to target your project to the Microsoft Windows platform that best suits your needs. Whether you create a project for a Certified PC or CE, scaling for a different platform requires only minor adjustment. There are four USB key versions available, so selecting the

product that best meets your needs is easy. There are two USB key development packages, one with and one without web viewing capabilities.

Extended Software Service and Support (ESS) Products

We offer two extended support products, a basic package and a premium package. The basic ESS package, **ESS-BASIC**, is a one-year subscription and includes

- 8 AM to 5 PM EST telephone support directly from Phoenix Contact
- E-mail support
- USB-Parallel key swaps
- Defective or damaged key replacements
- Software maintenance updates.

The premium ESS package, **ESS-PREMIUM**, is also a one-year subscription. It contains everything in the basic package, plus

- Webex training seminars
- A 50% discount on training seats
- Major software platform updates
- Upgrade from Think & Do Live! version 5.x to Think & Do 8.0 plus hardware key
- Or an upgrade from Think & Do Studio version 7.x via a hardware key field upgrade or replacement.

Note: ESS products cannot be purchased online. The order must be phoned in (800-633-0405) and a valid software serial number is required.

Conversion from Think & Do Studio and Live!

Studio: Flowcharts developed in Studio can be converted to Think & Do 8.0, but HMI screens cannot be converted.

Live!: Flowcharts and HMI screens developed in Live! cannot be converted to Think & Do 8.0.

Think & Do 8.0

PC-TD8-USB

Includes keyless development and USB runtime key. Use to develop or modify a Think & Do v8 project on a PC. Non-keyed environment provides free WinPLC programming.

Demo Mode

To see if Think & Do 8.0 is right for you, you can install and use it for up to 40 hours within a 30-day time period at no cost.

System requirements

Development System

Windows 2000 (SP4), XP (SP2), Vista
Pentium IV compatible processor
256 MB RAM (512 MB or higher recommended),
750 MB available hard disk space
CD-ROM drive
64 MB or higher video adapter
Color monitor (min resolution 800x600),
Ethernet adapter

Windows 2000/XP/Vista Runtime Target

Windows 2000 (SP4), XP (SP2), Vista
Pentium IV compatible processor
256 MB RAM (512 MB or higher)
500 MB available hard disk space
CD-ROM drive
64 MB or higher video adapter
Color monitor or flat panel display for HMI
min resolution 800x600)
Ethernet adapter

PLC Runtime Target

H2-WPLC3-EN

Training

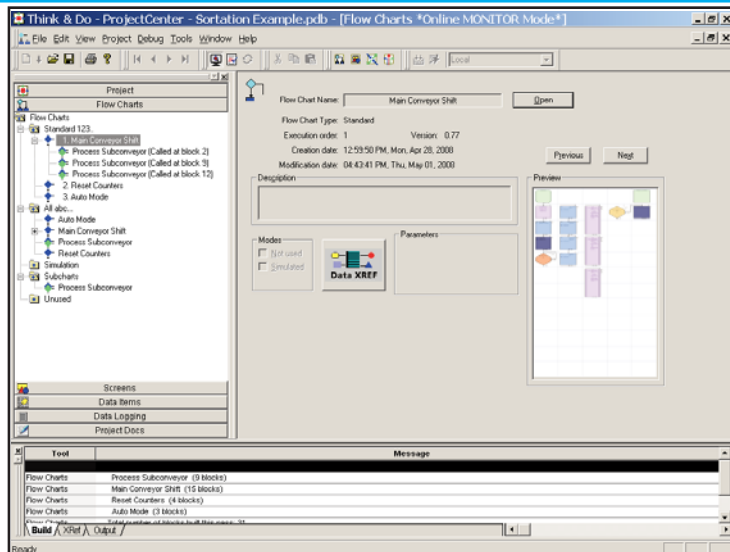
Phoenix Contact offers training courses led by certified Phoenix Contact Solution Providers at their headquarters in Ann Arbor, MI.

Check www.phoenixcon.com/software for training dates. Training is half price for subscribers to Premium Extended Service and Support, ESS-PREMIUM.

Features

ProjectCenter for creating your project

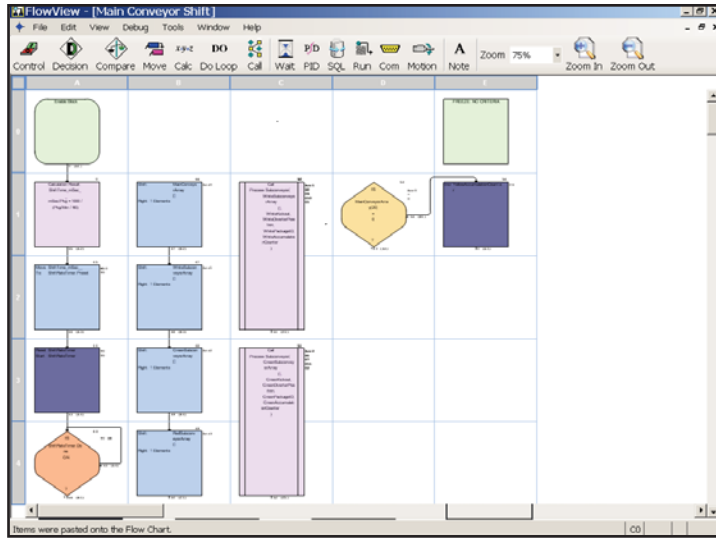
ProjectCenter is the starting point for developing your project and provides access to all Think & Do development tools, such as menus, project information and runtime settings. It provides ready access to all project elements and the fully integrated tagname database.



Think & Do 8.0 Overview

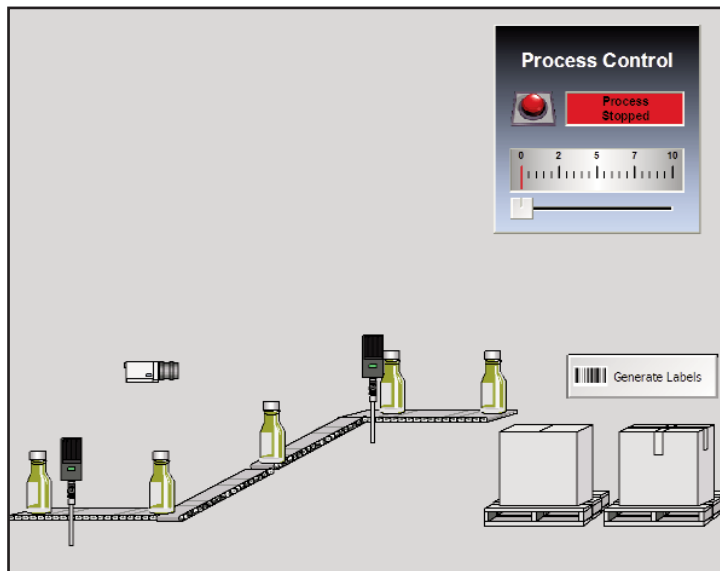
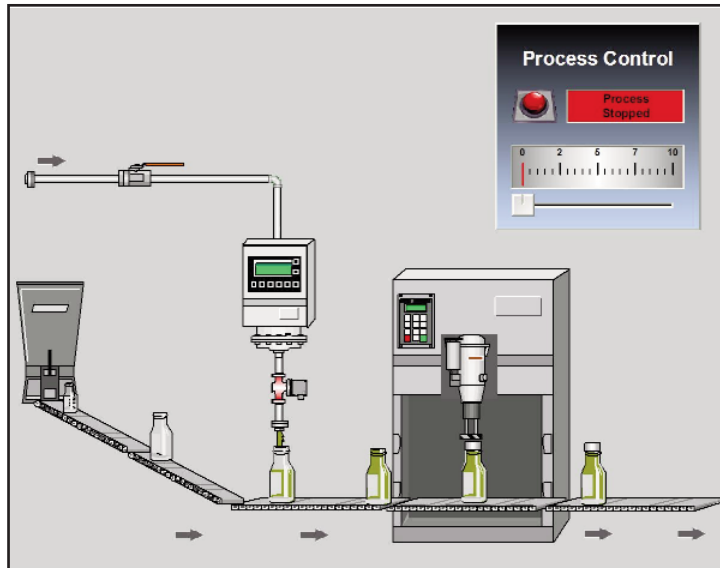
FlowView for creating control logic in easy-to-use and read control flowcharts

Think & Do uses flow chart control programs and FlowView is where you develop control flowcharts. Menus provide access to all commands in FlowView, as well as online help.



ScreenView for creating and editing HMI screens

The most dramatic improvement in this revision of Think & Do is the new HMI screen tool. ScreenView appears in an independent window that provides a complete HMI screen development environment. The graphical capabilities and functionality in v8.0 far surpass any previous screen tools we have employed for this PC-based control environment.

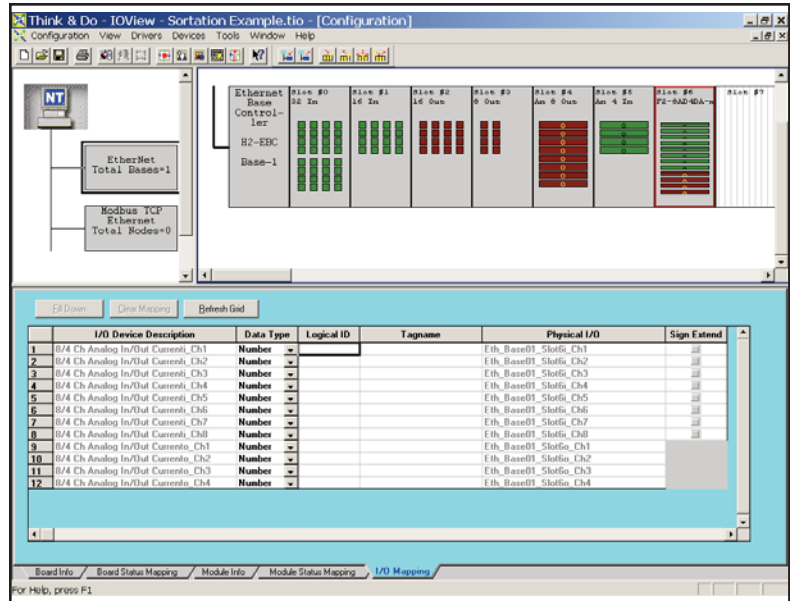


Think & Do 8.0 Overview

I/OView for configuring your project I/O

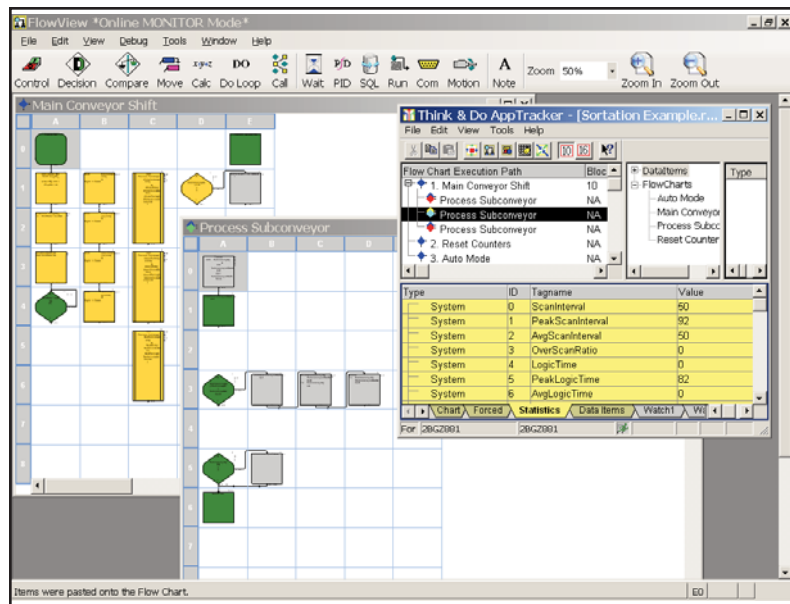
Use I/OView to easily:

- Specify inputs, outputs, and data items
- Configure I/O
- Add I/O drivers and devices
- Map I/O
- Scan and monitor I/O
- Use a watchdog timer



AppTracker provides a fast, graphical debugging tool

AppTracker is a stand-alone application. It can run even if the development tools in ProjectCenter are not running and can help identify problems easily during development.



Think & Do Live! Overview



Think & Do Live! (PC-ENT-LIVE) is a full-featured control and Human Machine Interface (HMI) development tool. A common tag database and built-in HMI make Live! a great low cost PC-based control solution. Live! contains these features:

For control, HMI, motion, PID, and serial communications

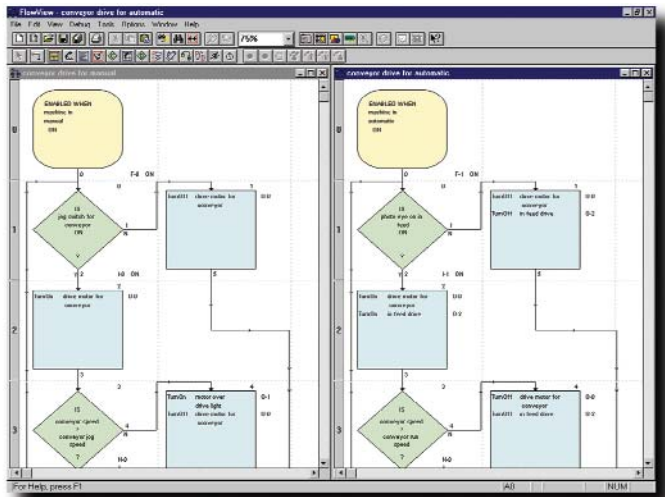
Chances are you think your application out in flowcharts, so why not use them to program the control logic? Think & Do Live! is completely compatible with original Think & Do Development Software applications.

Choose Live! when:

- You do not currently use or do not plan to use Windows Vista Operating System
- HMI requirements are moderate
- Hardware costs must be kept low
- SQL communications are not required

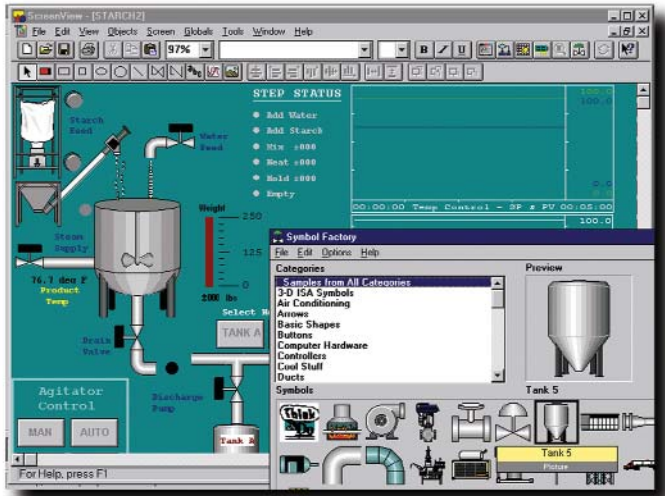
Flowcharts for control

- Easy- to-use and easy-to-read flowcharts for control let you program like your machine or process operates, rather than one device at a time
- Subcharts (subroutine flowcharts) let you develop your logic once and reuse it on multiple projects
- Online changes are supported with graphical debugging to simplify troubleshooting your application
- Develop for Windows 2000, Windows XP and Windows CE platforms in the same environment



Built-in HMI with same database

- Full screen editor with over 2,000 bitmapped graphic symbols, such as buttons, lights, pumps, motors, conveyors, and tanks
- Single database for HMI and control functions means there are no communication errors
- Text, numeric display, messaging, and trend charts
- Import any bit map or metafile format graphics to display CAD drawings, company logos, or digital photographs
- Function key and touch screen support to give you flexibility in design



Communicate to business systems

- OPC (OLE for process control) support allows easy connectivity to other standard software applications at host and ERP levels
- DCOM/COM for communications to other programs or for network communications
- OXC allows direct connections to Visual Basic® and C++ user programs
- Easy serial communication and string manipulation

System requirements

- Development System**
Windows NT/2000/XP-Certified Pentium 133
Windows NT/2000/XP Operating System
- RAM Requirements:**
Windows NT - 32 MB
Windows 2000- 64 MB
Windows XP - 128 MB
450 MB available hard disk space
CD-ROM drive
Color monitor (min resolution 800 x 600)

- Windows Runtime System**
Windows NT/2000/XP-Certified Pentium 300 (or higher)
Windows NT/2000/XP Operating System
128 MB RAM
300 MB available hard disk space
CD-ROM drive (optional)
Color monitor or flat-panel display for HMI (min resolution 640 x 480)
I/O scanner or network card
- PLC Runtime Target**
H2-WINPLC3

NOT Vista operating system compatible

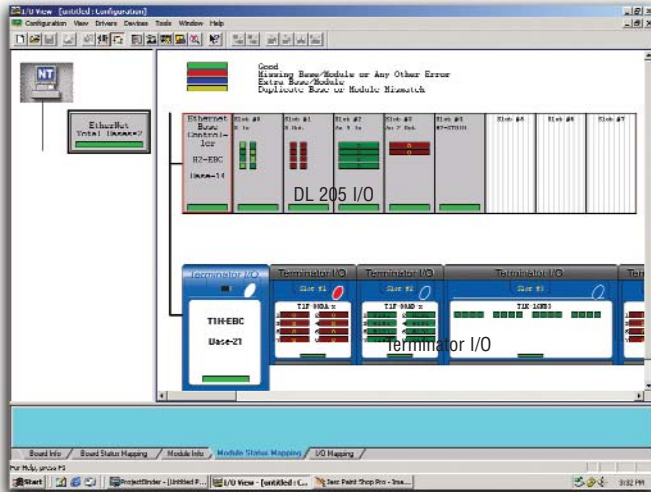
Think & Do Live! Overview



Lots of features for a little price

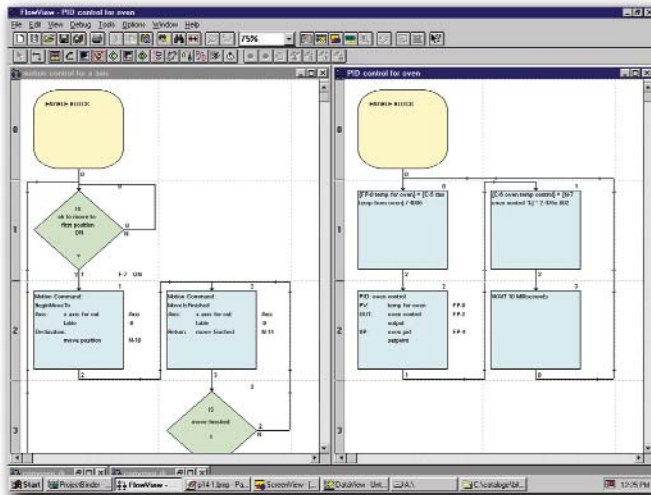
Think & Do Live! Development & Runtime Licenses PC-ENT-LIVE

Includes one Live! development and runtime license. Use to develop or modify a Think & Do Live! project on a PC.



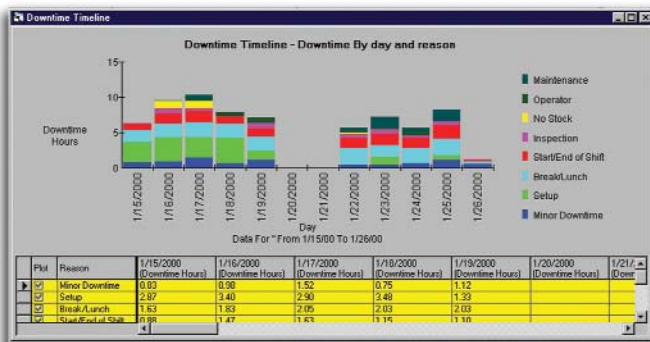
Easy connection to I/O and serial devices

- All I/O drivers are included, with virtually no limit on I/O tags including Ethernet, Profibus, DeviceNet and SDS
- Built-in serial communication block within the flowchart environment allows easy communication to barcode readers, drives, and other smart devices
- All motion drivers are included for both serial and PC-card based motion



Integrated motion and PID control with easy-to-use flowchart blocks

- Common flowchart language for motion control independent of the motion card you choose
- All motion parameters accessible to flowcharts and screens
- Several motion drivers supported; check the Phoenix Contact Web site for the latest list
- Easy to synchronize motion and control with your flowchart logic
- 64 full function PID loops
- Advanced PID functions like cascaded loops, bumpless transfer, anti-windup and wildflow variables allow you to perform complex process control applications



Productivity analysis tools

- Downtime analysis — monitor machine downtime by reason codes to identify production bottlenecks
- Cyclotime analysis — View machine cycle time by hour, shift or operator to enable you to increase machine and production yield
- Capacity analysis — compare production yield versus maximum capacity to determine maintenance schedules, identify supply problems, or to justify new equipment purchases

Also includes

Powerful debugging and offline logic testing tools

Check out

www.phoenixcon.com/software for full details

PC Control with Field I/O

Think & Do, with your choice of I/O, is a powerful, flexible solution for all your automation needs. The example below uses Ethernet, but Think & Do PC Control supports DeviceNet, Profibus, and other popular fieldbus networks as well.

Business System



Uplink to Office LAN



Terminator I/O distributes small groups of I/O at control points throughout the process

Ethernet Base Controller's [TIH-EBC(100)] on-board serial port provides a link to label printer/applier or another serial device.

Dedicated I/O LAN



Main factory floor PC coordinates production, manages product database, and controls material handling systems

Fail-safe mode choices:

- 1) All I/O off
- 2) Timer-based I/O hold
- 3) Preset pattern

(For all distributed I/O mastered from a PC.)

Control PCs using separate Ethernet ports to isolate the control networks from the business LAN(s)



DL205 I/O on Ethernet supports a wide range of I/O, including the H2-CTRIO counter module

Ethernet link to production databases

Data tags from other PCs are shared over LAN for HMI and control



Think & Do Live! controls automated grinding machine. Local HMI with touchscreen replaces pushbuttons



Third-party PC card controlling three-axis servo system for grinding heads.

Industrial modem connection supplies machine support data to OEM



Third-party PC card interface to Ethernet vision inspection system



SE-SW8U Stride industrial Ethernet switch



GPIB/IEEE488 to legacy Laser Surface Analyzer

Think & Do Live! controls application of specialty surfaces in oven using complex flow calculations. Also performs visual inspection of finished product

All industrial hardware shown is available in this catalog

Company Info.

PLCs

Field I/O

Software

C-more & other HMI

AC Drives

AC Motors

Power Transmiss.

Steppers/Servos

Motor Controls

Proximity Sensors

Photo Sensors

Limit Switches

Encoders

Current Sensors

Pressure Sensors

Temp. Sensors

Pushbuttons/Lights

Process

Relays/Timers

Comm.

Terminal Blocks & Wiring

Power

Circuit Protection

Enclosures

Tools

Pneumatics

Appendix

Part Index

PC Control on a WinPLC

The WinPLC has open PC functionality and maintains what you love about PLCs, including the PLC package and price.

The WinPLC is a product that brings the best of the PC control and the PLC worlds to a common platform. PLCs control more automation than any other form of controller. However, it often isn't enough just to control I/O for today's business-aware applications. From the proprietary operating system and ladder logic programming to the hardware design, PLCs were not designed for handling string or array data, complex math, or network collaboration with other software applications and intelligent devices. For success with these applications, use the WinPLC.

The WinPLC module fits into the CPU slot of the popular DL205 series PLC bases for fast, convenient control of DL205 I/O modules. Programs are downloaded on the WinPLC just like a PLC. However, the WinPLC uses Windows CE, a real time operating system, with the advantages of PC software such as OPC, ActiveX® and other Microsoft communication tools. The WinPLC offers both deterministic control and PC connectivity. Control, data management, communication and integration with business systems are easy with the WinPLCs advanced software development tools.

Develop projects for the WinPLC with Think & Do 8.0 (non-keyed environment provides free WinPLC programming) or Think & Do Live!, which includes flow-chart logic, reusable subcharts, PID functions, serial drivers, Modbus TCP and a free OPC/DDE server.

Or, for qualified OEMs or software developers, the WinPLC comes in a CE-only version (available from Host Engineering directly) for VB and C++ programmers to develop their own control code. If you are interested in the CE-only version, visit www.hosteng.com for details.



Best of the PC world

- Easily handles complex math algorithms and string or array data
- Easy serial communications
- Built-in Ethernet port
- Standard Windows (Win CE)
- Seamless integration with HMI, SCADA and Enterprise systems
- Advanced software development tools

* The WinPLC does not support Think & Do PC Control Software's HMI graphics, SQL communications, productivity analysis, and some motion control features.

WinPLC features

- Fits into DL205 CPU slot
- Backplane communications to DL205 I/O
- 100 MHz CPU
- 8 MB ROM/8 MB RAM
- Microsoft® Windows® CE operating system
- 10 Mbps Ethernet port and RS232 serial port



Best of the PLC world

- Direct backplane access to I/O
- Standard micro PLC form factor
- Diskless operation
- Non-volatile program and data memories
- Logic control independent of HMI
- Low cost



It's more than a PLC, it's a WinPLC !

WinPLC CPU

For Think & Do

8 MB ROM/ 8 MB RAM

H2-WPLC3-EN (100 MHz)....<---->

WINPLC Starter Kit

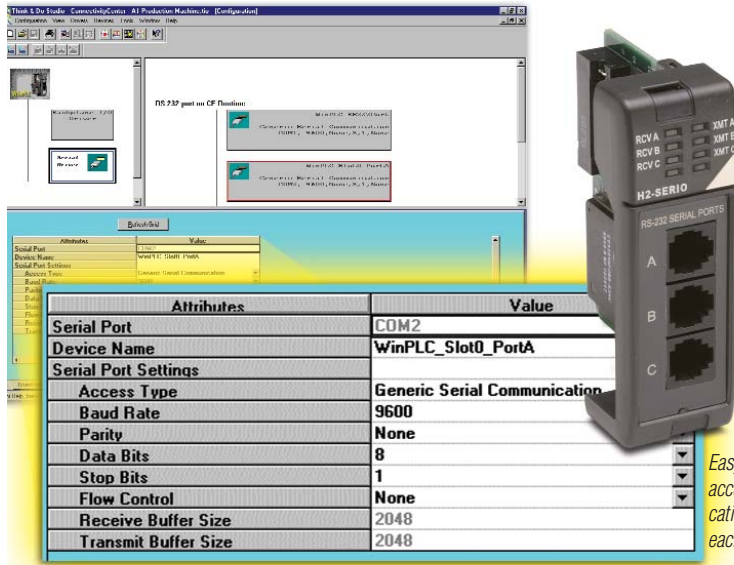
WinPLC Starter Kit for building a PC-based control system with the WinPLC. Includes Think & Do Live! WinPLC Programming Pack software, a DL205 4-slot base with power supply, H2-WPLC3-EN WinPLC, a 10 ft. Ethernet connecting cable, an Ethernet Adapter card for your PC, a DL205 8-point input simulator module, and a DL205 8-point relay output module.

NOTE: WinPLC Starter Kit orders are limited to one per customer.

PC-WPLC-START

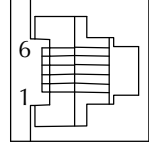
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Serial Communications via EBC or WinPLC



Easy point and click access to set communication parameters for each port individually

H2-SERIO Specifications	
Module Type	Intelligent module for use with H2-EBC and all WinPLCs
Number of Modules Supported per WinPLC	3
Connector	RJ12 jack
Power Consumption	210mA @ 5VDC
Operating Environment	0 to 60°C (32°F to 140°F), 5% to 95% RH (non-condensing)
Baud Rates	300 baud - 57.6 Kbaud



H2-SERIO port pin assignments

- 1 0V Power (-) connection (GND)
- 2 CTS Clear to Send
- 3 RXD Receive Data (RS232C)
- 4 TXD Transmit Data (RS232C)
- 5 RTS Request to Send
- 6 0V Signal Ground (GND)

RJ12 (6P6C) female modular connector

H2-SERIO <--->

In addition to the built-in serial port on the WinPLC or EBC, you can also add as many as nine additional serial ports for Think & Do applications. Install up to three H2-SERIO modules into a WinPLC base or an H2-EBC base, and you have "PC-like" serial ports to communicate to multiple serial devices, such as barcode scanners. All Think & Do products include advanced string and array functions that make manipulating serial data a snap.

Both Think & Do Studio and Think & Do Live! support easy point-&-click access to set baud rate, parity, data bits, and stop bits for each port. Think & Do allows each port to be designated as a Modbus slave or a generic serial device. Each port on the H2-SERIO module is capable of full hardware handshaking.

Note: While the H2-SERIO will support virtually any serial device, processing large amounts of serial data will increase system response time. This is important to consider when using multiple H2-SERIO modules, especially in a WinPLC local base that also includes an H2-ERM, H2-CTRIO or other specialty modules.

Due to the large amount of data inherent with serial devices, the H2-SERIO module is not supported across an H2-ERM - H2-EBC link. The H2-SERIO module is supported in a WinPLC local base and in H2-EBC bases connected to a PC system master.

Ethernet I/O from a WinPLC Base



H2-ERM <--->
H2-ERM-F <--->

H2-ERM(-F)

The Ethernet Remote Master H2-ERM (-F) allows a WinPLC solution to expand beyond a single I/O base, over a high speed Ethernet link. Add an H2-ERM to a WinPLC local base and connect it with one EBC (Ethernet Base Controller) to control larger amounts of I/O or to distribute your I/O for more convenient wiring. Both Think & Do Studio and Think & Do Live! support the H2-ERM module.

The H2-ERM connects to your control network using a Category 5 UTP cable for cable runs up to 100 meters. Use repeaters to extend distances.

Our fiber optic version uses industry standard 62.5/125 ST-style fiber optic cables and can be run up to 2,000 meters.

Specifications	H2-ERM	H2-ERM-F
Communications	10BaseT Ethernet	10BaseFL Ethernet
Data Transfer Rate	10Mbps	
Link Distance	100 meters (328 ft.)	2K meters (6560 ft.)
Ethernet Port	RJ45	ST-style fiber optic
Ethernet Protocols	TCP/IP, IPX	
Power Consumption	530mA @ 5VDC	670mA @ 5VDC
Usage	One ERM per WinPLC system	

The WinPLC with the H2-ERM can be configured in complex systems with any of several specialty modules. Therefore, to ensure reliable performance on any system, default support for the H2-ERM product is one H2-ERM with one H2-EBC.

- Company Info.
- PLCs
- Field I/O
- Software
- C-more & other HMI
- AC Drives
- AC Motors
- Power Transmiss.
- Steppers/Servos
- Motor Controls
- Proximity Sensors
- Photo Sensors
- Limit Switches
- Encoders
- Current Sensors
- Pressure Sensors
- Temp. Sensors
- Pushbuttons/Lights
- Process
- Relays/Timers
- Comm.
- Terminal Blocks & Wiring
- Power
- Circuit Protection
- Enclosures
- Tools
- Pneumatics
- Appendix
- Part Index

A PC with WinPLC System

A great material handling solution

Data flows between control system and order processing system



Multi-port Ethernet card(s) save the cost of a managed switch (IP-forwarding must be enabled)



PC controls sortation machine and has HMI and motion control. Tracks packages from induction to diverting location

Think & Do Live! with H2-SERIO and H2-ERM support



Terminator I/O on Ethernet for fastest response

Terminator I/O combines I/O modules with a terminal block base for very compact I/O enclosures along sortation system



Data tag links between WinPLC and PC systems



SE-SW8U Stride industrial Ethernet switch



Touch panel



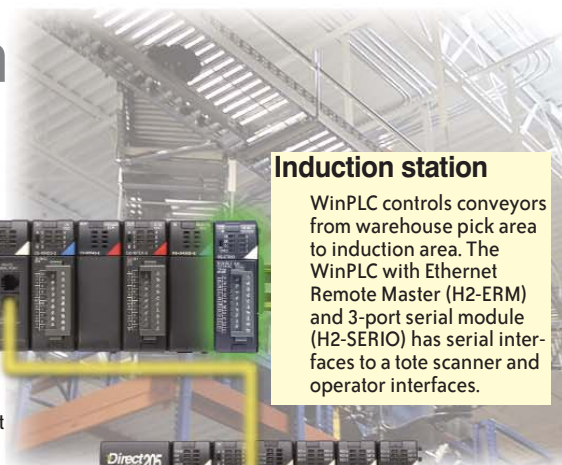
WinPLC used here for local logic. Don't need local logic? Use an H2-EBC for the same I/O and serial functionality with Live! or Studio V8.0



Add packaging station modules as required

Induction station

WinPLC controls conveyors from warehouse pick area to induction area. The WinPLC with Ethernet Remote Master (H2-ERM) and 3-port serial module (H2-SERIO) has serial interfaces to a tote scanner and operator interfaces.



Serial link to tote scanner

Touch panel



Packing stations

WinPLC with local I/O for indicator lights, packing station sensors and interlocks to take-away conveyors. H2-SERIO 3-port serial modules provide links to packing station devices. Operators pack and weigh the packages, and apply and scan each label before sending packages to the shipping area.



Up to 10 serial ports per WinPLC base

Note: Large volumes of serial data will impact WinPLC I/O scan time.

I/O Selection Guide for PC Control

Our PC-based control architecture allows you to choose I/O from our most complete and flexible I/O families. AUTOMATIONDIRECT I/O also supports the most popular control networks, such as Ethernet, Profibus and DeviceNet. Check out this chart to see most of the available options. Refer to I/O specifications in the PLC or Field I/O section for a complete list.

DL205 Discrete Input Modules			DL405 Discrete Input Modules			DL405 Temperature Modules		
D2-08ND3	8-pt 12-24VDC sink/source	<--->	D4-08ND3S	8-pt 12-24VDC source	<--->	F4-08RTD	8-ch RTD	<--->
D2-16ND3-2	16-pt 24VDC sink/source	<--->	D4-16ND2	16-pt 12-24VDC source	<--->	F4-08THM	8-ch thermo F/type, (J,E,K,R,S,T,B,N,C)	<--->
D2-32ND3	32-pt 24VDC	<--->	D4-16ND2F	16-pt 12-24VDC input, fast response	<--->	DL405 Specialty Modules		
D2-32ND3-2	32-pt 5-15VDC	<--->	D4-32ND3-1	32-pt 24VDC sink/source	<--->	D4-HSC	DL405 high speed counter	<--->
D2-08NA-1	8-pt 110VAC	<--->	D4-32ND3-2	32-pt 5-12VDC sink/source	<--->	D4-16SIM	8/16 pt input simulator	<--->
D2-08NA-2	8-pt 170-265VAC, 2 commons	<--->	D4-64ND2	64-pt 20-28VDC source	<--->	Terminator I/O Discrete Input Modules		
D2-16NA	16-pt 110VAC	<--->	D4-08NA	8-pt 110-220VAC	<--->	T1K-08ND3	8-pt 12-24VDC sink/source	<--->
DL205 Discrete Output Modules			D4-16NA	16-pt 110VAC	<--->	T1K-16ND3	16-pt 12-24VDC sink/source	<--->
D2-04TD1	4-pt 12-24VDC sink	<--->	D4-16NA-1	16-pt 220VAC	<--->	T1K-08NA-1	8-pt 110VAC	<--->
D2-08TD1	8-pt 12-24VDC sink	<--->	D4-16NE3	16-pt 12-24VAC/VDC sink/source	<--->	T1K-16NA-1	16-pt 110VAC	<--->
D2-08TD2	8-pt 12-24VDC source	<--->	F4-08NE3S	8-pt 90-150VAC/DC sink/source isolated	<--->	Terminator I/O Discrete Output Modules		
D2-16TD1-2	16-pt 12-24VDC sink, 0.1A/pt 1.6A/mod	<--->	DL405 Discrete Output Modules			T1K-08TD1	8-pt 12-24VDC sink	<--->
D2-16TD2-2	16-pt 12-24VDC source, 0.1A/pt 1.6A/mod	<--->	D4-08TD1	8-pt 12-24VDC sink	<--->	T1K-08TD2-1	8-pt 12-24VDC source	<--->
D2-32TD1	32-pt 24VDC sinking	<--->	F4-08TD1S	8-pt 24-150VDC sink/source isolated out	<--->	T1H-08TDS	8-pt 12-24VDS isoated sink/source	<--->
D2-32TD2	32-pt 24VDC sourcing	<--->	D4-16TD1	16-pt 5-24VDC sink	<--->	T1K-16TD1	16-pt 12-24VDC sink	<--->
D2-08TA	8-pt 18-220VAC	<--->	D4-16TD2	16-pt 12-24VDC source	<--->	T1K-16TD2-1	16-pt 12-24VDC source	<--->
D2-12TA	12-pt 18-110VAC	<--->	D4-32TD1	32-pt 5-24VDC, sink	<--->	T1K-08TA	8-pt 110-240VAC	<--->
D2-04TRS	4-pt isolated relay 5-30VDC or 5-250VAC	<--->	D4-32TD2	32-pt 12-24VDC, source	<--->	T1K-16TA	16-pt 110-240VAC	<--->
D2-08TR	8-pt relay, 5-30VDC or 5-240VAC	<--->	D4-64TD1	64-pt 5-24VDC sink	<--->	T1K-08TR	8-pt relay 5-30VDC or 5-240VAC	<--->
F2-08TR	8-pt relay, 10A/com, 5-30VDC or 5-240VAC	<--->	D4-08TA	8-pt 18-220VAC	<--->	T1K-16TR	16-pt relay 5-30VDC or 5-240VAC	<--->
F2-08TRS	8-pt relay 12-28VDC, or 12-250VAC	<--->	D4-16TA	16-pt 18-220VAC	<--->	T1K-08TRS	8-pt isolated relay 5-30VDC or 5-240VAC	<--->
D2-12TR	12-pt relay, 5-30VDC or 5-250VAC	<--->	D4-08TR	8-pt relay 5-30VDC or, 5-250VAC	<--->	Terminator I/O Analog Modules		
DL205 Combination Discrete Modules			F4-08TRS-1	8-pt relay 12-30VDC or, 12-250VAC	<--->	T1F-08AD-1	8-ch analog input 4-20mA 14-bit res	<--->
D2-08CDR	Combo 4-pt 24VDC in and, 4-pt relay out	<--->	F4-08TRS-2	8-pt relay 12-30VDC or, 12-250VAC	<--->	T1F-08AD-2	8-ch analog input voltage 14-bit res	<--->
DL205 Analog Modules			D4-16TR	16-pt relay 5-30VDC or, 5-250VAC	<--->	T1F-08DA-1	8-ch analog output 4-20mA 12-bit res	<--->
F2-04AD-1	4-ch input, 4-20mA 12 bit res	<--->	Network Bus Interfaces and I/O Bases			T1F-08DA-2	8-ch analog output voltage 12-bit res	<--->
F2-04AD-2	4-ch input, voltage 12 bit res	<--->	DL205 and DL405 bases, Terminator I/O power supplies and terminal bases, Bus adapter modules for PC control: DL205 (Ethernet, Profibus, DeviceNet, SDS), DL405 (Ethernet); Terminator I/O (Ethernet, Profibus, DeviceNet)			T1F-16AD-1	16-ch analog input 4-20mA 14-bit res	<--->
F2-04AD-1L	4-pt in 4-20mA, 12 bit, ext 12VDC pwr	<--->	DL405 Analog Modules			T1F-16AD-2	16-ch analog input voltage 14-bit res	<--->
F2-04AD-2L	4-pt in voltage, 12 bit, ext 12VDC pwr	<--->	F4-04AD	4-ch analog input voltage/current	<--->	T1F-16DA-1	16-ch analog output 4-20mA 12-bit res	<--->
F2-08AD-1	8-ch input 4-20mA, 12-bit res	<--->	F4-04ADS	4-ch isolated analog voltage/current	<--->	T1F-16DA-2	16-ch analog output voltage 12-bit res	<--->
F2-08AD-2	8-ch input voltage, 12-bit res	<--->	F4-08AD	8-ch analog input, voltage/current	<--->	T1F-14THM	14-ch thermocouple 16-bit res	<--->
F2-02DA-1	2-ch output 4-20mA, 12-bit res	<--->	F4-16AD-1	16-ch analog input, current, 12-bit	<--->	T1F-8AD4DA-1	I/O 8-ch analog input 4-ch analog output, current	<--->
F2-02DA-2	2-ch output voltage, 12-bit res	<--->	F4-16AD-2	16-ch analog input, voltage, 12-bit	<--->	T1F-8AD4DA-2	I/O 8-ch analog input 4-ch analog output, voltage	<--->
F2-02DA-1L	2-ch 4.20 mA out 12-bit, ext 12VDC pwr	<--->	F4-04DA-1	4-ch analog output, current, 12-bit	<--->	Terminator I/O Specialty Modules		
F2-02DA-2L	2-ch voltage out 12-bit, ext 12VDC pwr	<--->	F4-04DA-2	4-ch analog output, voltage, 12-bit	<--->	H2-CTRIO	DL205 high speed counter with pulse out	<--->
F2-02DAS-1	Isolated, 2-ch 4-20mA 16-bit out	<--->	F4-04DAS-1	4-ch isolated, 16-bit analog out, 4-20mA	<--->	F2-08SIM	8-pt input simulator	<--->
F2-02DAS-2	Isolated, 2-ch voltage 16-bit out	<--->	F4-04DAS-2	4-ch isolated 16-bit analog output, voltage	<--->	H2-SERIO	3-port serial for Win PLC	<--->
F2-08DA-1	8-ch, 4-20mA, 12-bit out	<--->	F4-08DA-1	8-ch analog output, current	<--->			
F2-08DA-2	8-ch, 0-5VDC or 0-10V, DC, 12-bit out	<--->	F4-08DA-2	8-ch 0-5VDC or 0-10VDC, 12-bit analog out	<--->			
F2-4AD2DA	4-ch in /2-ch out., 4-20mA 12-bit res.	<--->	F4-16DA-1	16-ch analog output, current	<--->			
F2-8AD4DA-1	8-ch in/4-ch out, current, 16-bit	<--->	F4-16DA-2	16-ch 0-5VDC or 0-10V DC 12-bit analog out	<--->			
F2-8AD4DA-2	8-ch in/4-ch out, voltage, 16-bit	<--->						
F2-04RTD	4-channel RTD, 0.1 DEG C res	<--->						
F2-04THM	4 ch thermocouple or, 16-bit volt. input	<--->						
DL205 Specialty Modules								

Note: All networked I/O has fail-safe mode choices 1. All I/O off 2. Leave I/O in last state 3. Fail-safe pattern