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 straightforward 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.

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 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!

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

www.automationdirect.com/software

Software tSTW-3
PC Control Solutions Using Think & Do

Think & Do 8.0

**PC-TD8-USB**  $2,170.00
Keyless Development and USB Runtime key; non-keyed environment provides free WinPLC programming.

**PC-TD8-WEB4-USB**  $2,565.00
Full development package plus four concurrent runtime sessions with USB key; Web viewing capability.

**ESS-BASIC**  $230.00
Extended service and support; Basic 1 year.

**ESS-PREMIUM**  $802.00
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
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, Profinet, and other popular fieldbus networks as well.

**Business System**

*Uplink to Office LAN*

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

*Ethernet link to production databases*

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

*Industrial modem connection*

Supplies machine support data to OEM.

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

Dedicated I/O 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/applicator or another serial device.*

*DL205 I/O on Ethernet supports a wide range of I/O, including the H2-CTRIO(2) counter module*

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

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

*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)*

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

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

*Third-party PC card interface to Ethernet vision inspection system*

*GPIB/IEEE488 to legacy Laser Surface Analyzer*

*SE-SW8U Stride industrial Ethernet switch*

*For the latest prices, please check AutomationDirect.com.*

*1-800-633-0405*
Serial Communications via EBC

H2-SERIO / H2-SERIO-4

In addition to the built-in serial port on the EBC, you can also add as many as nine additional serial ports for Think & Do applications. Install up to eight modules into an H2-EBC(100) base (limits are power budget and number of slots in the base). These modules have “PC-like” serial ports to communicate to multiple serial devices, such as barcode scanners, scales, printers and modems.

The H2-SERIO has three RS-232C ports, while the H2-SERIO-4 has two RS-232C ports and one RS-422/485 terminal. All Think & Do products include advanced string and array functions that make manipulating serial data a snap. Both Think & Do 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(-4) module is capable of full hardware handshaking.

See the DL205 PLC section for H2-SERIO and H2-SERIO-4 specifications and wiring information.

Note: While the H2-SERIO(-4) 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(-4) modules.

Due to the large amount of data inherent with serial devices, the H2-SERIO(-4) module is not supported across an H2-ERM - H2-EBC link. The H2-SERIO(-4) module is only supported in H2-EBC/H2-EBC100 bases connected to a PC system master.
### 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 supports the most popular control networks, such as Ethernet, Profinet and DeviceNet. Check 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.

<table>
<thead>
<tr>
<th><strong>DL205 Discrete Input Modules</strong></th>
<th><strong>DL205 Discrete Output Modules</strong></th>
<th><strong>DL205 Specialty Modules</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>D2-08ND3 8-pt 12-24VDC sink/source</td>
<td>D2-04TD1 4-pt 12-24VDC sink</td>
<td>H2-CTRIO DL205 high speed counter with pulse out</td>
</tr>
<tr>
<td>D2-16ND3-2 16-pt 24VDC sink/source</td>
<td>D2-08TD2 8-pt 12-24VDC sink</td>
<td>F3-08SIM 8-pt input simulator</td>
</tr>
<tr>
<td>D2-32ND3 32-pt 24VDC sink</td>
<td>D2-21ND2-2 32-pt 5-15VDC sink-source</td>
<td>F2-32R04(4) 3-port serial for Win PLC</td>
</tr>
<tr>
<td>D2-08NA-1 8-pt 110VAC</td>
<td>D2-16NA 16-pt 110VAC</td>
<td>F2-08DR 4-ch input, voltage, 12-bit res</td>
</tr>
<tr>
<td>D2-08NA-2 8-pt 170-265VAC, 2 commons</td>
<td>D2-16NA 16-pt 110VAC</td>
<td>F2-08DA 4-ch output, 12-bit res</td>
</tr>
<tr>
<td>D2-16NA 16-pt 110VAC</td>
<td>D2-32TD1 32-pt 24VDC sinking</td>
<td>F2-08DA 4-ch output, 14-bit res</td>
</tr>
<tr>
<td>D2-32TD2 32-pt 24VDC sourcing</td>
<td>D2-08TA 8-pt 18-220VAC</td>
<td>F2-08DA 4-ch output, 16-bit res</td>
</tr>
<tr>
<td>D2-12TA 12-pt 18-220VAC</td>
<td>D2-08RT 8-pt relay 3, 5-30VDC or 5-24VAC</td>
<td>F2-08DA 4-ch output, 20-bit res</td>
</tr>
<tr>
<td>D2-08TRS 8-pt relay 12-24VDC, 12-250VAC</td>
<td>F2-08TR 8-pt relay 12-24VDC, 12-250VAC</td>
<td>F2-08DA 4-ch output, 24-bit res</td>
</tr>
<tr>
<td>D2-12TR 12-pt 3-5VDC or 5-250VAC</td>
<td>F2-08RT 8-pt relay 12-24VDC, 12-250VAC</td>
<td>F2-08DA 4-ch output, 32-bit res</td>
</tr>
</tbody>
</table>

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<tr>
<th><strong>DL205 Combination Discrete Modules</strong></th>
<th><strong>DL205 Analog Modules</strong></th>
<th><strong>DL205 Temperature Modules</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>D2-08CDR Combo 4-pt 24VDC in and, 4-pt relay out</td>
<td>F2-04AD 4-ch input, 4-20mA 12-bit res</td>
<td>F-08RD0 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-08AD-1 4-ch input, 4-20mA 12-bit res</td>
<td>F2-04AD-2 4-ch input, voltage 12-bit res</td>
<td>F-08RD1 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-08AD+1 4-ch input, 4-20mA, 12-bit res</td>
<td>F2-08AD 8-ch input, 12-bit res</td>
<td>F-08RD2 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-08AD-2 4-ch input, 4-20mA 12-bit res</td>
<td>F2-08DA 4-ch input, voltage, current</td>
<td>F-08RD3 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-02DA-2 2-ch output 4-20mA, 12-bit res</td>
<td>F2-08DA 4-ch isolated analog input, voltage</td>
<td>F-08RD4 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-02DA-1 2-ch output 4-20mA, 12-bit res</td>
<td>F2-08DA 4-ch isolated analog input, current</td>
<td>F-08RD5 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-02DA-1L 2-ch output 4-20mA, 12-bit res</td>
<td>F2-08DA 4-ch isolated analog input, output</td>
<td>F-08RD6 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-02DA-2L 2-ch output 4-20mA, 12-bit res</td>
<td>F2-08DA 4-ch isolated analog input, output</td>
<td>F-08RD7 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-08DA-1 8-ch, 4-20mA, 12-bit out</td>
<td>F2-08DA-1 8-ch, 0-5VDC 12-bit out</td>
<td>F-08RD8 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-08DA-2 8-ch, 0-5VDC or 0-10V, DC, 12-bit out</td>
<td>F2-08DA-2 8-ch, 0-5VDC or 0-10V, DC, 12-bit out</td>
<td>F-08RD9 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-40D0DA 4-ch in/2-ch out, 4-20mA 12-bit res.</td>
<td>F2-08DA-2 8-ch, 0-5VDC or 0-10V, DC, 12-bit out</td>
<td>F-08RD10 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-80DA0A-1 4-ch input, 4-20mA, 12-bit res.</td>
<td>F2-08DA-2 8-ch, 0-5VDC or 0-10V, DC, 12-bit out</td>
<td>F-08RD11 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-80DRD 4-ch input, 4-20mA, 12-bit res.</td>
<td>F2-08DA-2 8-ch, 0-5VDC or 0-10V, DC, 12-bit out</td>
<td>F-08RD12 8-ch rel rel source</td>
</tr>
<tr>
<td>D2-04RTD 4-channel RTD, 0.1 DEG C res</td>
<td>F2-04THM 4-channel RTD, 0.1 DEG C res</td>
<td>F-08RD13 8-ch rel rel source</td>
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<td>F2-08DA 4-ch output, voltage, current</td>
<td>H1-16AD1 16-ch analog output 4-20mA 14-bit res</td>
</tr>
</tbody>
</table>

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