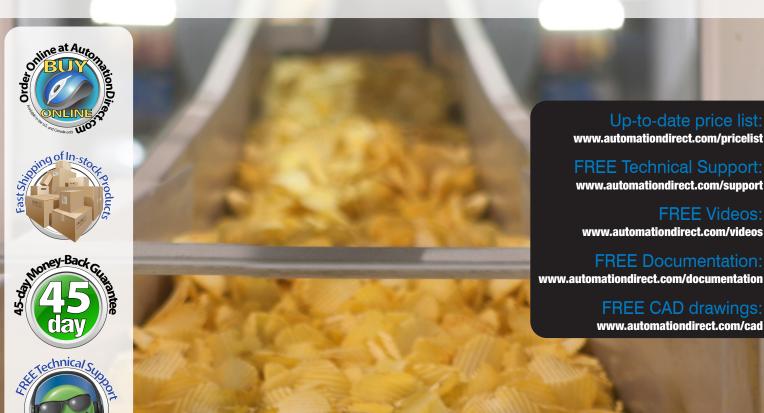
Direct Logic DL05 and DL06 Programmable Logic Controllers (PLC)









www.automationdirect.com

Micro PLCs With Incredible **Features At Affordable Prices**

The DL05 and DL06 are a family of micro PLCs designed to be versatile and fit most applications with ease.







Both the DL05 and DL06 feature:

Discrete on/off control

- AC, DC sink/source and relay I/O available
- 17 models total, in both AC and DC- powered units
- Panel mount and DIN-rail mounting for all unit
- Removable terminal blocks (standard)
- Built-in high-speed I/O for simple single axis motion applications (not available on all models)

Analog control

- 13 choices of analog I/O option modules compatible with both DL05 and DL06, including high-resolution models
- PID with auto-tune (standard on all models)
- Analog I/O is jumper range selectable
- Removable terminal blocks for easy wiring and setup
- Temperature inputs (thermocouple and RTD)

Communication and specialty modules

Starting with the DL05 at 8 inputs/6 outputs, all the way

up to the fully expanded 100 I/O DL06, these PLCs are a

standard that can grow with the changing needs of your

machine or process control application.

- Two built-in serial communication ports (standard on all models)
- Modbus RTU master/slave (standard on Port 2 of all models)
- Two-port serial communication module with *Direct* NET and Modbus RTU
- Triple-port BASIC CoProcessor module
- Ethernet and DeviceNet™ option modules —compatible with all models
- 1-channel in/1-channel out high speed counter/pulse output module

outputs). Four option module slots support up to 24 analog channels or up to 64 additional discrete points. It also includes high-speed counting, pulse output and RS-232/422/485 communication on Modbus RTU master/slave, or use the powerful ASCII In/Out instructions, eight PID loops, and more.

The DL06 includes 36 integrated discrete I/O points (20 inputs/16 The DL05 includes 14 integrated discrete I/O points (8 inputs/6 outputs). One option module slot can support an analog module, discrete module, memory cartridge or DeviceNet Slave module. It also includes integrated features like high-speed counting, pulse output, two communication ports for Modbus RTU master/slave, four PID loops, and more.



DL05: Powerful and Only \$244.00

Top eight reasons to choose a DL05 micro PLC for discrete control applications (and we've even added a little motion control!)

AC

same

The

another PLC at the

also supports

industry

standard

Modbus RTU

protocol (both

slave on Port

2 up to 38.4K

baud). Or, if

you need additional

ports, check out the

D0-DCM module

up to 115.2 Kbps.

with connection speed

master

time.

DL05

and

\$244.00

features at a disposable price.

This allows connectivity to an operator

interface and networking with an

drive

Practical communications

Two RS-232 serial communication

ports are included on all models.

Simple high-speed counting

or pulse output built in (on specific models)

The DL05 includes built-in configurable high-speed I/O.

There's no need to purchase a separate motion controller or

programmable limit switch (PLS) if your application only includes

one simple motion requirement. For motion control on a budget,

consider one of these options already included in the DL05:

- 5 kHz max, inputs for two up-only counters or one

What is it?

For small I/O applications, the DL05 can do the job of some of our larger

What's it got?

- Eight inputs and six outputs (integrated)
- Six I/O models of AC, DC and relay I/O
- 2K program memory
- 4K data memory
- Over 250 instructions. including four PID loops
- Powerful functions like FOR/ NEXT loops, subroutines, and drum sequencers
- Removable terminal block

What discrete control can I perform with it?

- Control a small material positioning machine using built-in high-speed counting or pulse output I/O for cut-tolength, pick-and-place, speed monitoring, and more.
- Create a sequence controller using the drum instruction and discrete I/O for piece counting, sortation, stamping, filling, level control, and
- Build an events recorder using sensors and discrete I/O with the real-time clock option module installed.
- Use the 10-30 VDC-powered units in remote locations for data monitoring and control



communication ports. The DL05 micro PLC offers incredible and Modbus RTU.



counting and pulse

output I/O

For higher resolution, use an

Inputs for two up or down counters, or one quadrature encoder (250 kHz max)

H0-CTRIO2 option module:

Two high-speed inputs for

Two configurable high-speed

High-speed counter option module

outputs or one channel pulse ouput control (20 Hz-250 kHz)



master/slave communication to GS1 AC drive

FREE Software - PC-DS100 Simple programming for your applcations

Our *Direct*SOFT (version 6.0) PLC programming software offers our traditional full package version,

which will program every CPU in the DirectLOGIC series of PLCs for only \$462.00. The free PC-D\$100 package has all the features of the full package, but restricts you to a 100-word program download. Many of our DL05, DL105 and DL06 customers are able to take advan-

tage of the free programming software with its great features, like IBox instructions, configurable tool bars, dockable and floatable windows and more.

Memory cartridge/

real-time clock for

Install our D0-01MC into the

only \$91.00

option module slot and

enable the DL05 for event

scheduling. The D0-01MC

also protects data during

extended power removal

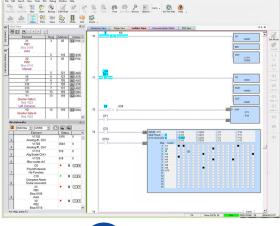
with its on-board battery.

Integrated upload and

download buttons allow

without the need for software.

quick loading of a CPU program



Expansion I/O using option modules

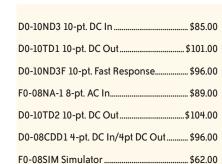
Add up to 16 more discrete I/O points by installing an option module. Choose from 12 different discrete modules, including DC in, AC in, DC out, DC in/out, and relay out, starting at only \$79.00.



Easy connection to ZIPLink modules

D0-01MC

The 16-point option modules can connect to a variety of ZIPLink modules, including the low-cost feedthrough terminals, optional fuse, LED and even ZIPLink relay modules. The powerful 10 amp **ZIP**Link relay system will allow a DL05 to connect to high-current loads like contactors, solenoids and hydraulic valves. (See *ZIP*Links, our "five-second wiring solution" in the Wiring Solutions section or use the convenient **ZIP**Link selector tool to help you find the right ZIPLink modules and cables for your I/O connections)



D0-07CDR 4-pt. DC In/3pt Relay Out \$96.00 D0-08TR 8-pt. Relay Out... F0-04TRS 4-pt. Isolated Relay.. . \$73.00 D0-16ND3 16-pt. DC In.. ..\$87.00 D0-16TD1 16-pt. DC Out. .\$95.00 D0-16TD2 16-pt. DC Out. .\$86.00



Connectivity to the most popular networks

For as little as \$138.00, implement advanced networking solutions for the DL05 with our DeviceNet Slave Module or Ethernet Communications Module. The D0-DCM module supports DirectNet and Modbus (slave) protocols.



Modbus DeviceNet Ethernet (Modbus TCP)

\$298.00

quadrature encoder

- One external interrupt

input or pulse catch

- One 7 kHz maximum

pulse output (step and direction or

clockwise and counter clockwise

pulse ouputs

selectable)

width 100 µSec)

input (minimum pulse

mDL5-4 DL05 / DL06 PLCs 1 - 8 0 0 - 6 3 3 - 0 4 0 5 **VAUTOMATION DIRECT**

mDL5-5 DL05 / DL06 PLCs

www.automationdirect.com

DL05 Expands To Support Analog

Top six reasons to choose a DL05 micro PLC for analog control

What is it?

The DL05's analog capabilities are a great fit for a variety of applications at a fraction of the competition's price. Install one of our analog option modules and wire directly to the most common analog devices, such as pressure and level transmitters, proportional valves, AC drives and panel meters.

What's it got?

- Four PID loops with auto-tune
- A large selection of analog option modules
- Signal ranges of 4-20 mA or 0-20 mA, and 0-5 V or 0-10 V input and output ranges available
- 12 or 16-bit resolution modules
- Thermocouple and RTD temperature inputs
- Removable terminal blocks available on all modules

What type of analog control can I perform with it?

- Build a micro process controller using the PID loops combined with one of the analog option modules. Add a local operator interface to set and view parameters.
- Monitor and control the level of a remote tank, well, or pumping station by combining a DL05 with our industrial telephone modem.
- Create a Modbus RTU network of several DL05 PLCs, each with an analog option module, for a low cost distributed control system. Even incorporate a PC HMI on the same network for a complete SCADA system.

Really low prices

Combine a \$129.00 4-channel analog input module with our \$244.00 DL05 PLC for low-cost analog monitoring. Use the built-in PID loops and build a micro process control system at an unbeatable price. The DL05 matches or beats the competition in features, then finishes them off with two-for-one pricing. And if you want to do a little analog control, use a combo 2-channel in/ 2-channel out analog module (\$175.00).



Practical built-in connectivity

With two RS-232 serial communication ports included, this little PLC is no silent black box. Connect an operator interface on Port 1, then connect Port 2 to a PC-HMI or other serial device

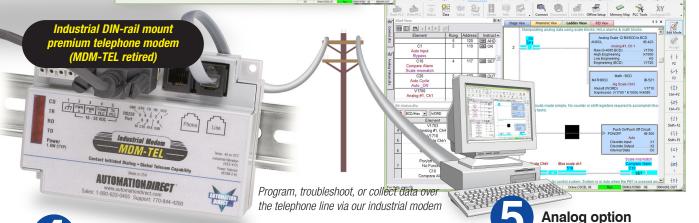
for data acquisition or operator control at the time. same Supports industry standard Modbus RTU protocol (both master and slave on Port 2 up to 38.4K baud).

PC-DS100 - Free programming software includes all of the full package features like graphical PID loop trending.



The DL05 complements its great analog capabilities with four PID loops included at no additional charge. It also features:

- Automatic loop scheduling
- Fill-in charts for alarms and ramp/soak profiles
- **Direct**SOFT programming software includes the loop tune screen with trending
- Auto-tune feature to allow th e CPU to determine the nearoptimum loop settings (based upon the time constant of your process at the time auto-tune procedure is performed)



RTU system when combined with our industrial modem

Combine a DL05 AC- or DC-powered unit with our industrial telephone modem and avoid the high cost of an advanced Remote Telemetry System (RTU) that prob-

ably has a PLC as its brain anyway. With its configurable Port 2 timing settings, the DL05 easily accommodates our industrial telephone modem for almost any remote dial-up application, such as pump stations, level control and monitoring, even golf course irrigation. This combination can really save you money on service calls, data acquisition, up-anddown-time trending and more.

These little analog modules save you space and money. We have thirteen models to choose from, with flexible features including 4-20 mA

or 0-20 mA, and 0-5V or 0-10V input and output ranges along with modules accepting temperature input.

High resolution DL05/06 16-bit high-resolution modules are available in 4-channel or 8-channel out, and 8-channel in with either current voltage or voltage signal types.

modules



sensor to an analog input through an option module. Then, allow the DL05 discrete outputs to control process loads like heater elements and/ or mixers using "time-proportioning" and the built-in PID.

mDL5-6 DL05 / DL06 PLCs mDL5-7 1 - 8 0 0 - 6 3 3 - 0 4 0 5 DL05 / DL06 PLCs **VAUTOMATION DIRECT** www.automationdirect.com

DL06 - The Mighty Micro

From 36 to 100 I/O, starting at only \$452.00

What is it?

Our DL06 combines its fixed I/O of 20 inputs and 16 outputs with four option module slots for expansion (discrete, analog, temperature, communication modules), all in the same package. With the DLO6, you can use the same PLC panel layout for all applications from 36 to 100 I/O.

\$129.00 Optional LCD Display

Add operator display capability right on the PLC with this optional LCD display featuring:

- Two rows x 16 characters backlight display

- your ladder logic program

What's it got?

- 14.8K of total memory
- Over 275 instructions, including 8 PID loops
- Two communication ports, including RS-232/422/485 capability
- Supports integrated networking for Modbus RTU master/slave, and ASCII in/out $\,$
- Integrated high-speed inputs or pulse output (on select models)
- Built-in real-time clock/calendar
- Optional LCD display for operator display or maintenance troubleshooting
- Ethernet, DeviceNet, Modbus option modules
- High-speed counter/pulse output option module



mDL5-8 DL05 / DL06 PLCs **mDL5-9 VAUTOMATION DIRECT** 1 - 8 0 0 - 6 3 3 - 0 4 0 5 DL05 / DL06 PLCs www.automationdirect.com

| X0 | X2 | G1 | X3 | X7 | X10 | X12 | G2 | X11 | X10 | X14 | X16 | G2 | X11 | X20 | X10 | X12 | X17 | X20 | X12 | X20 | X10 | X11 | X20 | X10 |

1 - 8 0 0 - 6 3 3 - 0 4 0 5

DC in/DC out/AC supply



D0-06DD2 \$456.00 DC in/DC out/AC Supply



\$474.00 D0-06DR DC in/Relay out/AC supply



\$487.00 DC in/AC out/AC supply



AC in/Relay out/AC supply



\$513.00 AC in/AC out/AC supply



DO-06DD1-D \$454.00 DC in/DC out/DC supply



D0-06DD2-D \$458.00 DC in/DC out/DC supply



D0-06DR-D \$468.00DC in/Relay out/DC supply

DL06 - For Practical On/Off Control

Check out the top six reasons why the DL06 is a \$452.00 great fit for discrete applications

Thirty-six built-in I/O points on all models

All nine DL06 models include 20 inputs and 16 outputs for a total of 36 built-in discrete I/O in a variety of AC, DC and relay combinations. No need to spend money on a larger PLC to get the correct combination of AC, DC, or relay I/O needed for your application. Check out the rest of these I/O features:

- All DC inputs are sink/source capable
- Removable terminal blocks for easy wiring
- Standard M3 terminals suitable for common wire spades, lugs, etc.
- 300 mA 12/24 VDC auxiliary power supply included on AC models

Available in nine models

DL06 PLC line includes nine models to choose from in both AC and DC powered models. With its wide range of power supply capabilities (100-240 VAC and 12-24 VDC), the DL06 won't need an additional transformer in most applications. This makes the DL06 a great fit for even high voltage, 220-240 VAC applications or remote 12 VDC applications, and everything in between.



- Supports over 230 instructions, including IBox instructions, floating point math, FOR/NEXT loops, subroutines, immediate I/O, fill-in-the-blank ASCII in/out instructions and more
- Convenient features like compare contacts, bit-of-word addressing, and assignable nicknames make programming and troubleshooting simple
- Program in conventional ladder logic or use our RLL PLUS Stage programming, which combines the best of flowchart style programming with ladder logic.
- * Maximum 100 word program size. For larger projects, see our full package, PC-DSOFT6, which sells for \$462.00

Practical communications

The DL06 includes two serial communication ports on all models. Port 1 supports programming and operator interface connectivity, while Port 2 can be used for RS-232/422/485 networking, or ASCII in/out to other devices. This allows

> connectivity to an operator interface and networking to an AC drive or another PLC, all at the same time. Supports industrystandard Modbus RTU protocol (both

> > 0000000 000000000

00000000 00000000

master and slave on Port 2 up to 38.4K baud). Or, if you need additional ports, theck out the D0-DCM module.

Discrete I/O option modules to mix and match Starting at only \$47.50, these discrete I/O option modules allow the

DL06 to expand with the needs of your application for just a few dollars

more. Take a look at these features:

- Smallest I/O modules in its class
- Choose from 12 models
- Input, output and combination versions
- Removable terminal block
- ZIPLink compatible for 16-point versions

Actual sizes



Price check D0-10ND3 10-pt. DC In. \$85.00 D0-10TD1 10-pt. DC Out ..\$101.00 D0-10ND3F 10-pt. Fast Response\$96.00 F0-08NA-1 8-pt. AC In .. D0-10TD2 10-pt. DC Out.... D0-08CDD1 4-pt. DC In/4pt DC Out.......\$96.00 D0-07CDR 4-pt. DC In/3pt Relay Out \$96.00 D0-08TR 8-pt. Relay Out..... F0-04TRS 4-pt. Isolated Relay D0-16ND3 16-pt. DC In... D0-16TD1 16-pt. DC Out. ..\$95.00 D0-16TD2 16-pt. DC Out.... F0-08SIM 8-pt. Input Simulator... \$62.00

Easy connection to ZIPLink modules

The 16-point option modules can connect to a variety of ZIPLink modules, including low-cost feedthrough terminals, and an optional fuse,

LED, and even relay modules. Protect your valuable output devices by connecting the ZIPLink fuse modules to 16-point output option modules. Fuse modules include a fuse per point and a fuse per common for maximum protection, and all fuses

> are replaceable. The convenient LED modules allow for easy status display of each connected 16-point input module. option Connect to high current loads like contactors, solenoids and hydraulic

valves using the powerful 10A ZIPLink relay system. All relays are isolated and have a status LED. (See the ZIPLinks, our "five-second wiring solution." in the Wiring Solutions section)

Use the convenient **ZIP**Link selector tool to help you find the right *ZIP*Link modules and cables for your I/O

ZIPLink Selector

DL06 - Great Fit For Flexible Analog Control

| CO | X1 | X0 | X4 | X0 | C2 | X11 | X19 | X4 | X10 | C2 | X11 | X23 | X2 | X10 | X12 | X2 | X10 | X12 | X2 | X10 | X12 | X10 | X10

Top six reasons to use the DL06 for analog control

Two-for-one pricing

Combine these analog I/O modules with any DL06 for low cost analog control. You can buy two DL06 systems, with any one of our analog modules, for the price of one of our competitors' systems. Check out the chart at the bottom of this page to compare.

C-more panels offer a low-cost window into your application

Our *C-more* panels have some of the best features in the market for process HMI applications. Key features include a Factory Symbol Library, PID faceplates, recipe download objects, meters, trend graphs, bar graphs, and much more.

Common analog devices

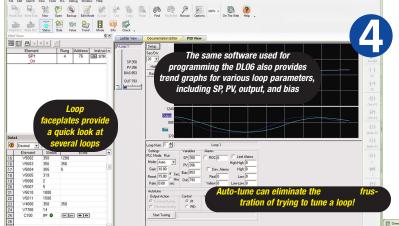
With the analog option modules, the DL06 offers direct wiring to the most common analog devices such as pressure

Direct wiring to the most

and level transmitters, proportional valves, AC drives, panel meters, etc.

- 4-20 mA, 0-20 mA, input and output ranges
- 0-5 V and 0-10 V input and output ranges
- All ranges jumper selectable

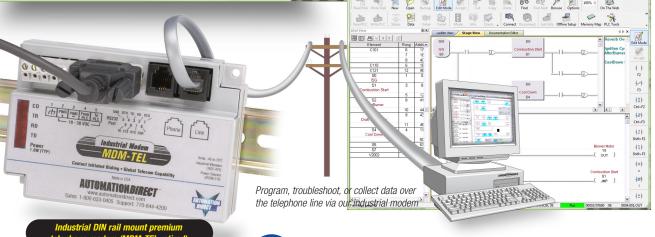




Eight PID loops with "auto-tune"

The DL06 supports its great analog capabilities with PID and floating point math at no additional charge. It also features:

- Automatic loop scheduling
- Charts to fill out for alarms and ramp/soak profiles
- Direct SOFT programming software includes the loop tune screen with trending (as shown)
- Auto-tune feature allows CPU to determine the near-optimum loop settings (based upon the time constant of your process at the time auto-tune procedure is performed)







Powerful built-in and expansion communication

Combine a DL06 AC or DC-powered unit with our industrial telephone modem and avoid the high cost of an advanced Remote Telemetry System (RTU) that probably has a PLC as

its brain anyway. The DL06, with its configurable Port 2 timing settings, easily accommodates our industrial telephone modem for almost any remote dial-up application like pump stations, level control and monitoring and even golf course irrigation. This combination can really save you money on service calls, data acquisition, up-and-down-time trending and more.

And if you need additional ports, check out the D0-DCM module.

Our analog modules do not disappoint

These little analog modules save you space and money. There are thirteen models to choose from, with flexible features, including 4-20 mA or 0-20 mA, 0-5V or 0-10V input and output ranges, and high-resolution models. All ranges are jumper selectable and include removable terminal blocks.

High-Resolution

Price Check

F0-04AD-1 4 ch current in	.\$139.0
F0-04AD-2 4 ch voltage in	\$204.0
F0-2AD2DA-2 2 ch in/2 ch out current	\$264.0
F0-4AD2DA-1 4 ch in/2 ch out current	\$336.0
F0-4AD2DA-2 4 ch in/2 ch out voltage	.\$372.0
F0-08ADH-1 8 ch hi-res. in current	.\$235.0
F0-08ADH-2 8 ch hi-res. in voltage	\$248.0
F0-08DAH-1 8 ch hi-res. out current	\$330.0
F0-08DAH-2 8 ch hi-res. out voltage	.\$314.0
F0-04DAH-1 4 ch hi-res. out current	.\$251.0
F0-04DAH-2 8 ch hi-res. out voltage	\$236.0

DL05 / DL06 PLCs

mDL5-12 DL05 / DL06 PLCs VAUTOMATION DIRECT 1-800-633-0405 www.automationdirect.com

TESZETS.

DL06 - For Communication-enabled Applications

Check out the top five reasons the DL06 is great for communication-enabled applications

Flexible communications ports, built right in! The DLO6 has two built-in communication ports for maximum flexibility. Network the DL06 to other PLCs, AC drives, or other

compatible devices with multi-drop capability.

- Port 2 supports RS-232/422/485
- Master or slave capable
- Modbus RTU supports up to 247 nodes

Connect directly to the most common ASCII devices

Our DL06 allows you to easily perform ASCII operations at no additional charge! Check out these powerful features:

- Port 2 supports ASCII in or out on RS-232/422
- Error detection bits on both ASCII in and
- Data rates from 1,200 to 38.4K baud
- Simple programming within ladder logic



Programming port can also be used for operator interface

LACEST 2

HMI Software

DataWorx data

collection software

Port 1 on the DL06 is most often used for programming, but can also be used for an operator interface. After your programming is complete, use this port for one of our *C-more* panels as a low cost operator interface solution. You can leave Port 2 available for networking or other device control. The DL06 is also programmable over Ethernet with the optional H0-ECOM100 module.

Ethernet connectivity to PLCs and HMI/SCADA systems

The H0-ECOM100 Ethernet Communications Module provides a 100 Mbps Ethernet link for PLC systems and can be used for peer-topeer PLC communication between two or more DirectLOGIC DL05/06 PLCs. It also provides data serving to HMI/SCADA and information systems using OPC over Ethernet. For simple data logging, DataWorx (see Software section) easily connects the DLO6 via Ethernet to standalone PCs or network servers. Collect data without the need for special PC programming or any 3rd party HMI, SCADA, or DAQ software application.

Fill-in-the-blank instructions for **ASCII and Modbus**

The DL06 includes some cool communication instructions for ASCII operations and Modbus. Using DirectSOFT version 4.0 or higher, you can implement your communication requirements more easily than ever.

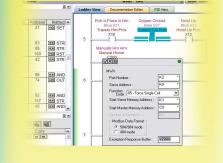
Check out some examples:

ASCII input made easy for text or numeric data

The DL06 supports several ASCII input capabilities on its Port 2 serial port, including raw ASCII strings and embedded ASCII via a supported protocol (Modbus, DirectNET, K-Sequence) from an external HMI or similar master. Interface your ASCII devices, like barcode readers, weigh scales, or embedded controllers to the DL06 using our simple 'AIN' instruction.

ASCII output for printers, labelers or any compatible serial interface

The DL06 also supports several ASCII output capabilities from its Port 2 serial port, including printing text strings, embedding memory register values in text strings, even time/date stamps in American, European and Asian formats. Add almost any compatible serial device to receive ASCII from the DLO6, using our simple PRINT and VPRINT instructions.



Modbus RTU specific instructions

The DL06 also includes our Modbus instructions to allow the PLC to speak the industry standard Modbus RTU "language" of its connected device. Enter native Modbus addresses into your ladder program. No more calculating address conversions from DirectLOGIC V-memory addresses — just point, click, and enter your desired Modbus register number.

mDL5-14 mDL5-15 DL05 / DL06 PLCs **VAUTOMATION DIRECT** 1 - 8 0 0 - 6 3 3 - 0 4 0 5 DL05 / DL06 PLCs www.automationdirect.com

DL06 - For High-Speed Counting or Pulse Output on a Budget

With the DL06, there is no need to purchase a separate motion controller or programmable limit switch (PLS) if your application only includes one simple motion requirement. Check out some of the features we include at no extra charge (on select models), or for high-performance counting applications, use our H0-CTRIO2 module (\$298.00).



- 7 kHz max inputs for two up-only counters or one quadrature encoder
- One external interrupt input or pulse catch input (min pulse width 100 µSec)
- One 10 kHz max pulse output, step and direction, or clockwise (CW) and counter-clockwise (CCW) pulse outputs selectable
- Two high-speed inputs for edge timing, pulse catch, count reset/inhibit/capture or home search
- Two configurable high-speed outputs or one channel pulse ouput control (20 Hz-250 kHz) step and direction, or clockwise (CW) and counter-clockwise (CCW) pulse outputs selectable

DL06: Snap-in LCD Display

Need a display to provide maintenance information in the control cabinet?

For only \$129.00 you can have a bright two-line LCD display right on the PLC:

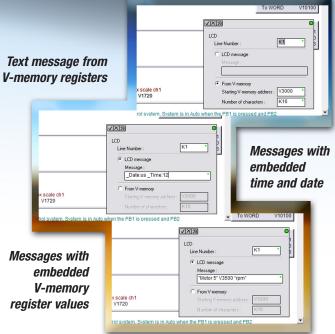
- Two-line x 16-character display simply snaps into the face of the DL06. No cable or special mounting required!
- ESC, MENU and ENT keys, along with four arrow keys allow for easy and
- intuitive navigation
- Password protection capabilities available for system parameters like date and time
- Backlight can be turned off for bright locations



User-defined LCD messages

(D0-06LCD) \$129.00

You won't need to drag a laptop to your DL06 panel just to get a critical piece of information in a memory register or a PLC fault message. Simply program user-defined messages in ladder logic for display on the DL06 LCD message unit to show important values, events, alarms or faults (see the sample instruction at right). Let the LCD display direct the technician right to the problem so they can arrive with their tools in hand (instead of their laptop).



mDL5-16 DL05 / DL06 PLCs VAUTOMATION DIRECT 1-800-633-0405 www.automationdirect.com DL05 / DL06 PLCs mDL5-17