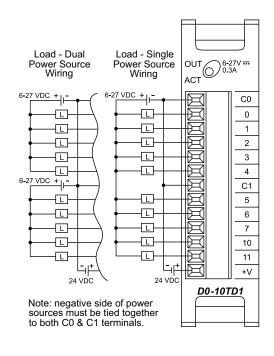
## DL05/06 I/O Option Modules

### D0-10TD1 \$102.00

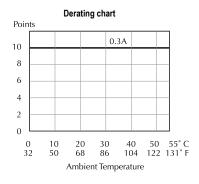
10-point DC output module

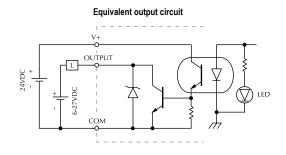
| D0-10TD1 Output Sp            | ecifications                         |
|-------------------------------|--------------------------------------|
| Number of Outputs             | 10 (sinking)                         |
| Operating Voltage Range       | 6–27 VDC                             |
| Output Voltage Range          | 5–30 VDC                             |
| Peak Voltage                  | 50.0 VDC                             |
| Maximum Output Current        | 0.3 A/point,<br>1.5 A/common         |
| Minimum Output Current        | 0.5 mA                               |
| Maximum Leakage Current       | 15µA @ 30.0VDC                       |
| On Voltage Drop               | 0.5 VDC @ 0.3 A                      |
| Maximum Inrush Current        | 1A for 10ms                          |
| Off to On Response            | < 10es                               |
| On to Off Response            | < 60es                               |
| Status Indicators             | Module activity:<br>one green LED    |
| Commons                       | 2 (5 points/common)                  |
| Fuse                          | No fuse                              |
| Terminal Type (Included)      | Removable: D0-<br>ACC-4              |
| External DC Power<br>Required | 20–28 VDC max<br>200mA (all pts. ON) |
| Base Power Required (5V)      | Max. 150mA<br>(all pts. ON)          |





See Wiring Solutions for part numbers of ZIPLink cables and connection modules compatible with this I/O module.







## Wiring Solutions

### Wiring Solutions using the **ZIP**Link Wiring System

**ZIP**Links eliminate the normally tedious process of wiring between devices by utilizing prewired cables and DIN rail mount connector modules. It's as simple as plugging in a cable connector at either end or terminating wires at only one end. Prewired cables keep

installation clean and efficient, using half the space at a fraction of the cost of standard terminal blocks. There are several wiring solutions available when using the **ZIP**Link System ranging from

PLC I/O-to-**ZIP**Link Connector Modules that are ready for field termination, options for connecting to third party devices, GS, DuraPulse and SureServo Drives, and specialty relay, transorb and communications modules. Pre-printed I/O-specific adhesive label strips for quick marking of **ZIP**Link modules are provided with **ZIP**Link cables. See the following solutions to help determine the best **ZIP**Link system for your application.

## Solution 1: DirectLOGIC I/O Modules to ZIPLink Connector Modules

When looking for quick and easy I/O-to-field termination, a **ZIP**Link connector module used in conjunction with a prewired **ZIP**Link cable, consisting of an I/O terminal block at one end and a multi-pin connector at the other end, is the best solution.

Using the PLC I/O Modules to **ZIP**Link Connector Modules selector tables located in this section,

- 1. Locate your I/O module/PLC.
- 2. Select a ZIPLink module.
- 3. Select a corresponding **ZIP**Link cable.



## Solution 2: DirectLOGIC I/O Modules to 3rd Party Devices

For connecting I/O to another device within close proximity of the I/O modules, no extra terminal blocks are necessary when using the **ZIP**Link Pigtail Cables. **ZIP**Link Pigtail Cables are prewired to an I/O terminal block with color-coded pigtail with soldered-tip wires on the other end.

Using the I/O Modules to 3rd Party Devices selector tables located in this section,

- 1. Locate your PLC I/O module.
- Select a ZIPLink pigtail cable that is compatible with your 3rd party device.



### Solution 3: GS Series and DuraPulse Drives Communication Cables

Need to communicate via Modbus RTU to a drive or a network of drives?

**ZIP**Link cables are available in a wide range of configurations for connecting to PLCs and SureServo, SureStep, Stellar soft starters and AC drives. Add a **ZIP**Link communications module to quickly and easily set up a multi-device network.

Using the Drives Communication selector tables located in this section.

- 1. Locate your drive and type of communications.
- 2. Select a **ZIP**Link cable and other associated hardware.





# **Wiring Solutions**

#### **Solution 4: Serial Communications Cables**

**ZIP**Link offers communications cables for use with DirectLOGIC, CLICK, and Productivity3000 CPUs, that can also be used with other communications devices. Connections include a 6-pin RJ12 or 9-pin, 15-pin and 25-pin D-sub connectors which can be used in conjunction with the RJ12 or D-Sub Feedthrough modules.

Using the Serial Communications Cables selector table located in this section,

- 1. Locate your connector type.
- 2. Select a cable.



#### Solution 5: Specialty ZIPLink Modules

For additional application solutions, *ZIP*Link modules are available in a variety of configurations including stand-alone relays, 24VDC and 120VAC transorb modules, D-sub and RJ12 feedthrough modules, communication port adapter and distribution modules, and SureServo 50-pin I/O interface connection.

Using the **ZIP**Link Specialty Modules selector table located in this section,

- 1. Locate the type of application.
- 2. Select a **ZIP**Link module.



#### Solution 6: ZIPLink Connector Modules to 3rd Party Devices

If you need a way to connect your device to terminal blocks without all that wiring time, then our pigtail cables with color-coded soldered-tip wires are a good solution. Used in conjunction with any compatible **ZIP**Link connector modules, a pigtail cable keeps wiring clean and easy and reduces troubleshooting time.

Using the Universal Connector Modules and Pigtail Cables table located in this section,

- 1. Select module type.
- 2. Select the number of pins.
- 3. Select cable.



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DL05 / DL06 PLCs tDL5-50



# PLC I/O Modules to ZIPLink Connector Modules - DL05/06

|                 | L05/06 PL  | C Input Mod                              | ule <i>ZIP</i> Link Sel | ector                            |  |  |
|-----------------|------------|--|-------------------------|----------------------------------|--|--|
| Pl              | LC         |  | <b>ZIP</b> Link         |                                  |  |  |
| Input<br>Module | # of Terms | Component Module Part No. Cable Part No. |                         |                                  |  |  |
| <u>D0-10ND3</u> | 13         | Feedthrough                              |                         | ZL-D0-CBL13                      |  |  |
| D0-10ND3F       | 13         | Feedthrough                              | ZL-RTB20                |                                  |  |  |
|                 |            | Feedthrough                              |                         | ZL-D0-CBL24-L                    |  |  |
| <u>D0-16ND3</u> | 24         | Sensor                                   | ZL-LTB16-24-1           | ZL-D0-CBL24-1L<br>ZL-D0-CBL24-2L |  |  |
| F0-08NA-1       | 10         | See Note 2                               |                         |                                  |  |  |

| DL05/06 PLC Combo In/Out Module ZIPLink Selector |            |             |                    |                |  |
|--|------------|-------------|--------------------|----------------|--|
| P  | LC         |             | <b>ZIP</b> Link    |                |  |
| Combo<br>Module                                  | # of Terms | Component   | Module Part<br>No. | Cable Part No. |  |
| D0-07CDR   | 10         | See Note 2  |                    |                |  |
| D0-08CDD1  | 13         | Feedthrough | ZL-RTB20           | ZL-D0-CBL13    |  |

| DLO              | 05/06 PLC <i>A</i> | Analog Modu            | le <i>ZIP</i> Link Sele | ector       |
|------------------|--------------------|------------------------|-------------------------|-------------|
| PL               | C                  |                        | <b>ZIP</b> Link         |             |
| Analog<br>Module | # of Terms         | Component Module Cable |                         |             |
| F0-04AD-1        | 8                  | See Note 2             |                         |             |
| F0-04AD-2        | 8                  |                        |                         |             |
| F0-08ADH-1       | 13                 |                        |                         |             |
| F0-08ADH-2       | 13                 | Feedthrough            | ZL-RTB20                | ZL-D0-CBL13 |
| F0-04DAH-1       | 13                 |                        |                         |             |
| F0-08DAH-1       | 13                 |                        |                         |             |
| F0-04DAH-2       | 13                 |                        |                         |             |
| F0-08DAH-2       | 13                 |                        |                         |             |
| F0-2AD2DA-2      | 8                  |                        |                         |             |
| F0-4AD2DA-1      | 8                  |                        |                         |             |
| F0-4AD2DA-2      | 8                  |                        |                         |             |
| <u>F0-04RTD</u>  | Matched<br>Only    | See Note 2             |                         |             |
| F0-04THM         | Matched<br>Only    |                        |                         |             |

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|----|--------|--|
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| // | =      |  |
| 4  |        |  |

Note: ZIPLink Connector Modules and ZIPLink Cables specifications are in the **ZIP**Link catalog section.

|                       | DL05/06 PLC 0 | utput Module                              | ZIPLink Selo          | ector         |
|-----------------------|---------------|---|-----------------------|---------------|
|                       | PLC           |   | <b>ZIP</b> Link       |               |
| Output<br>Module      | # of Terms    | Component Module Part No.  Cable Part No. |                       |               |
| <u>D0-10TD1</u>       | 13            | Feedthrough                               | ZL-RTB20              | ZL-D0-CBL13   |
|                       |               | Feedthrough                               | ZL-RTB20              | ZL-D0-CBL24 * |
| <u>D0-16TD1</u>       | 24            | Fuse                                      | ZL-RFU20 <sup>3</sup> | ZL-D0-CBL24 * |
|                       |               | Relay (sinking)                           | ZL-RRL16-24-1         | ZL-D0-CBL24 * |
| D0-10TD2              | 13            | Feedthrough                               | ZL-RTB20              | ZL-D0-CBL13   |
|                       |               | Feedthrough                               | ZL-RTB20              | ZL-D0-CBL24 * |
| D0-16TD2              | 24            | Fuse                                      | ZL-RFU20 <sup>3</sup> | ZL-D0-CBL24 * |
| <u> </u>              | 27            | Relay<br>(sourcing)                       | ZL-RRL16-24-2         | ZL-D0-CBL24 * |
| D0-08TR               | 10            | See Note 2                                |                       |               |
| F0-04TRS <sup>1</sup> | 13            | Feedthrough                               | ZL-RTB20              | ZL-D0-CBL13   |

|      | DL05/06 PL0           | Fixed I/O Z | <i>IP</i> Link Select                     | or            |  |
|------|-----------------------|-------------|---|---------------|--|
|      | PLC                   |             | <b>ZIP</b> Link                           |               |  |
| PLC  | # of Terms            | Component   | Component Module Part No.  Cable Part No. |               |  |
| DL05 | 18                    | See Note 2  |   |               |  |
|      | 20 (Input side only)  | Feedthrough | ZL-RTB20                                  | ZL-D06X-CBL20 |  |
| DL06 | 20 (Output side only) | Feedthrough | ZL-RTB20                                  | ZL-D06Y-CBL20 |  |

<sup>\*</sup> Select the cable length by replacing the \* with: Blank = 0.5 m, -1 = 1.0 m,

when used with the ZIPLink wiring system.

These modules are not supported by the ZIPLink wiring system.

To ensure proper operation, do not exceed the voltage and current rating of ZIPLink module. ZL-RFU20 = 2A per circuit; ZL-RFU40 = 400mA per circuit.



or -2 = 2.0 m.

Caution: The F0-04TRS relay outputs are derated not to exceed 2A per point

Note: Fuses (5 x 20 mm) are not included. See Edison Electronic Fuse section for (5 x 20 mm) fuse. S500 and GMA electronic circuit protection for fast-acting maximum protection. S506 and GMC electronic circuit protection for time-delay performance. Ideal for inductive circuits.

## Power Budgeting for the DL06

The DL06 has four option module slots. To determine whether the combination of modules you select will have sufficient power, you will need to perform a power budget calculation.

### **Power supplied**

Power is supplied from two sources: the internal base unit power supply and, if required, an external supply (customer furnished). The D0-06xx (AC powered) PLCs supply a limited amount of 24VDC power. The 24VDC output can be used to power external devices.

For power budgeting, start by considering the power supplied by the base unit. All DL06 PLCs supply the same amount of 5VDC power. Only the AC units offer 24VDC auxiliary power.

Be aware of the trade-off between 5VDC power and 24VDC power. The amount of 5 VDC power available depends on the amount of 24VDC power being used, and the amount of 24VDC power available depends on the amount of 5VDC power consumed. Determine the amount of internally supplied power from the table to the right.

# Power required by base unit

Because of the different I/O configurations available in the DL06 family, the power consumed by the base unit itself varies from model to model. Subtract the amount of power required by the base unit from the amount of power supplied by the base unit. Be sure to subtract 5VDC and 24VDC amounts.

# Power required by option modules

Next, subtract the amount of power required by the option modules you are planning to use. Again, remember to subtract both 5VDC and 24VDC.

If your power budget analysis shows surplus power available, you should have a workable configuration.

| DL06 Powe   | er Supplied by | Base Units  |
|-------------|----------------|-------------|
| Part Number | 5 VDC (mA)     | 24 VDC (mA) |
| D0-06xx     | 1500mA         | 300mA       |
|             | 2000mA         | 200mA       |
| D0-06xx-D   | 1500mA         | none        |

| DL06 Bas    | se Unit Power | Required    |
|-------------|---------------|-------------|
| Part Number | 5 VDC (mA)    | 24 VDC (mA) |
| D0-06AA     | 800mA         | none        |
| D0-06AR     | 900mA         | none        |
| D0-06DA     | 800mA         | none        |
| D0-06DD1    | 600mA         | 280mA*      |
| D0-06DD2    | 600mA         | none        |
| D0-06DR     | 950mA         | none        |
| D0-06DD1-D  | 600mA         | none        |
| D0-06DD2-D  | 600mA         | none        |
| D0-06DR-D   | 950mA         | none        |

<sup>\*</sup> Only if auxiliary 24VDC power is connected to V+ terminal.

| DL06 Power Consumed<br>by Other Devices |            |             |  |
|---|------------|-------------|--|
| Part Number                             | 5 VDC (mA) | 24 VDC (mA) |  |
| <u>D0-06LCD</u>                         | 50mA       | none        |  |
| D2-HPP                                  | 200mA      | none        |  |
| DV-1000                                 | 150mA      | none        |  |
| C-more<br>Micro-Graphic                 | 210mA      | none        |  |

| Pow                    | er l | Budgeting Ex       | ample               |
|------------------------|------|--------------------|---------------------|
| Power Source           |      | 5VDC power<br>(mA) | 24VDC power<br>(mA) |
| D0-06DD1               | Α    | 1500mA             | 300mA               |
| (select row A<br>or B) | В    | 2000mA             | 200mA               |
| Current Require        | d    | 5VDC power<br>(mA) | 24VDC power<br>(mA) |
| D0-06DD1               |      | 600mA              | 280mA*              |
| <u>D0-16ND3</u>        |      | 35mA               | 0                   |
| D0-10TD1               |      | 150mA              | 0                   |
| D0-08TR                |      | 280mA              | 0                   |
| F0-4AD2DA-1            |      | 100mA              | 0                   |
| D0-06LCD               |      | 50mA               | 0                   |
| Total Used             |      | 1215mA             | 280mA               |
| Domoining              | Α    | 285mA              | 20mA                |
| Remaining              | В    | 785mA              | note 1              |

<sup>\*</sup> Auxiliary 24 VDC used to power V+ terminal of D0-06DD1 sinking outputs.

Note 1: If the PLC's auxiliary 24 VDC power source is used to power the sinking outputs, use power choice A, above.

| by Option Modules           Part Number         5 VDC (mA)         24 VDC (mA)           D0-07CDR         130mA         none           D0-08CDD1         100mA         none           D0-08TR         280mA         none           D0-10ND3         35mA         none           D0-10ND3F         35mA         none           D0-10TD1         150mA         none           D0-10TD2         150mA         none           D0-16ND3         35mA         none           D0-16TD1         200mA         none           F0-04TRS         250mA         none           F0-04TRS         250mA         none           F0-04AD-1         50mA         none           F0-04AD-2         75mA         none           F0-08ADH-1         25mA         25mA           F0-04DAH-1         25mA         25mA           F0-08DAH-1         25mA         25mA           F0-08DAH-1         25mA         220mA |   |
|---|---|
| D0-07CDR         130mA         none           D0-08CDD1         100mA         none           D0-08TR         280mA         none           D0-10ND3         35mA         none           D0-10ND3F         35mA         none           D0-10TD1         150mA         none           D0-10TD2         150mA         none           D0-16ND3         35mA         none           D0-16TD1         200mA         none           D0-16TD2         200mA         none           F0-04TRS         250mA         none           F0-08NA-1         5mA         none           F0-04AD-1         50mA         none           F0-04AD-2         75mA         none           F0-08ADH-1         25mA         25mA           F0-04DAH-1         25mA         25mA           F0-04DAH-1         25mA         150mA  |   |
| DO-08CDD1         100mA         none           DO-08TR         280mA         none           DO-10ND3         35mA         none           DO-10ND3F         35mA         none           DO-10TD1         150mA         none           DO-16TD2         150mA         none           DO-16ND3         35mA         none           DO-16TD1         200mA         none           DO-16TD2         200mA         none           FO-04TRS         250mA         none           FO-08NA-1         5mA         none           FO-04AD-1         50mA         none           FO-04AD-2         75mA         none           FO-08ADH-1         25mA         25mA           FO-04DAH-1         25mA         25mA           FO-04DAH-1         25mA         150mA  |   |
| DO-08TR         280mA         none           DO-10ND3         35mA         none           DO-10ND3F         35mA         none           DO-10TD1         150mA         none           DO-16TD2         150mA         none           DO-16ND3         35mA         none           DO-16TD1         200mA         none           DO-16TD2         200mA         none           FO-04TRS         250mA         none           FO-08NA-1         5mA         none           FO-04AD-1         50mA         none           FO-04AD-2         75mA         none           FO-08ADH-1         25mA         25mA           FO-04DAH-1         25mA         150mA  |   |
| D0-10ND3         35mA         none           D0-10ND3F         35mA         none           D0-10TD1         150mA         none           D0-10TD2         150mA         none           D0-16ND3         35mA         none           D0-16TD1         200mA         none           D0-16TD2         200mA         none           F0-04TRS         250mA         none           F0-08NA-1         5mA         none           F0-04AD-1         50mA         none           F0-04AD-2         75mA         none           F0-08ADH-1         25mA         25mA           F0-08ADH-2         25mA         25mA           F0-04DAH-1         25mA         150mA  |   |
| D0-10ND3F         35mA         none           D0-10TD1         150mA         none           D0-10TD2         150mA         none           D0-16ND3         35mA         none           D0-16TD1         200mA         none           D0-16TD2         200mA         none           F0-04TRS         250mA         none           F0-08NA-1         5mA         none           F0-04AD-1         50mA         none           F0-04AD-2         75mA         none           F0-08ADH-1         25mA         25mA           F0-04DAH-1         25mA         150mA  |   |
| D0-10TD1         150mA         none           D0-10TD2         150mA         none           D0-16ND3         35mA         none           D0-16TD1         200mA         none           D0-16TD2         200mA         none           F0-04TRS         250mA         none           F0-08NA-1         5mA         none           F0-04AD-1         50mA         none           F0-04AD-2         75mA         none           F0-08ADH-1         25mA         25mA           F0-04DAH-1         25mA         150mA  |   |
| D0-10TD2         150mA         none           D0-16ND3         35mA         none           D0-16TD1         200mA         none           D0-16TD2         200mA         none           F0-04TRS         250mA         none           F0-08NA-1         5mA         none           F0-04AD-1         50mA         none           F0-04AD-2         75mA         none           F0-08ADH-1         25mA         25mA           F0-08ADH-2         25mA         25mA           F0-04DAH-1         25mA         150mA   |   |
| D0-16ND3         35mA         none           D0-16TD1         200mA         none           D0-16TD2         200mA         none           F0-04TRS         250mA         none           F0-08NA-1         5mA         none           F0-04AD-1         50mA         none           F0-04AD-2         75mA         none           F0-08ADH-1         25mA         25mA           F0-08ADH-2         25mA         25mA           F0-04DAH-1         25mA         150mA   |   |
| D0-16TD1         200mA         none           D0-16TD2         200mA         none           F0-04TRS         250mA         none           F0-08NA-1         5mA         none           F0-04AD-1         50mA         none           F0-04AD-2         75mA         none           F0-08ADH-1         25mA         25mA           F0-08ADH-2         25mA         25mA           F0-04DAH-1         25mA         150mA  |   |
| D0-16TD2         200mA         none           F0-04TRS         250mA         none           F0-08NA-1         5mA         none           F0-04AD-1         50mA         none           F0-04AD-2         75mA         none           F0-08ADH-1         25mA         25mA           F0-08ADH-2         25mA         25mA           F0-04DAH-1         25mA         150mA  |   |
| FO-04TRS         250mA         none           FO-08NA-1         5mA         none           FO-04AD-1         50mA         none           FO-04AD-2         75mA         none           FO-08ADH-1         25mA         25mA           FO-04DAH-1         25mA         150mA   |   |
| FO-08NA-1         5mA         none           FO-04AD-1         50mA         none           FO-04AD-2         75mA         none           FO-08ADH-1         25mA         25mA           FO-04DAH-1         25mA         150mA   |   |
| FO-04AD-1         50mA         none           FO-04AD-2         75mA         none           FO-08ADH-1         25mA         25mA           FO-04ADH-2         25mA         25mA           FO-04DAH-1         25mA         150mA   |   |
| FO-04AD-2         75mA         none           FO-08ADH-1         25mA         25mA           FO-08ADH-2         25mA         25mA           FO-04DAH-1         25mA         150mA   |   |
| FO-08ADH-1         25mA         25mA           FO-08ADH-2         25mA         25mA           FO-04DAH-1         25mA         150mA   |   |
| FO-08ADH-2         25mA         25mA           FO-04DAH-1         25mA         150mA  |   |
| <b>F0-04DAH-1</b> 25mA 150mA  |   |
|   |   |
| <b>F0-08DAH-1</b> 25mA 220mA  |   |
|   |   |
| <b>F0-04DAH-2</b> 25mA 30mA   |   |
| <b>F0-08DAH-2</b> 25mA 30mA   |   |
| <b>F0-2AD2DA-2</b> 50mA 30mA  |   |
| <b>F0-4AD2DA-1</b> 100mA 40mA   |   |
| <b>F0-4AD2DA-2</b> 100mA none   |   |
| <b>F0-04RTD</b> 70mA none   |   |
| <b>F0-04THM</b> 30mA none   |   |
| <b>DO-DEVNETS</b> 45mA none   |   |
| <b>H0-CTRI02</b> 250mA none   |   |
| <b>H0-ECOM100</b> 300mA none  |   |
| <b>F0-08SIM</b> 1mA none  |   |
| <b>D0-DCM</b> 250 mA none   | - |
| <b>F0-CP128</b> 150 mA none   |   |
| <b>F0-08SIM</b> 1 mA none   |   |