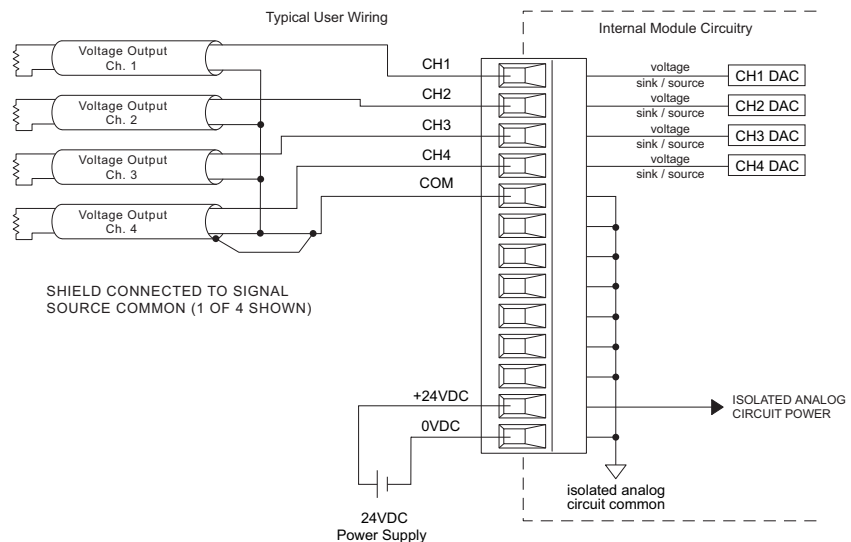
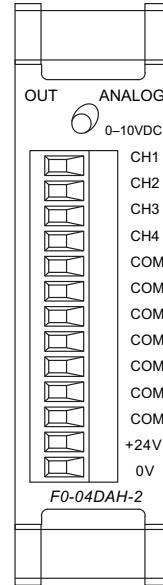


DL05/06 Option Modules

F0-04DAH-2 <--->

4-channel analog voltage output module, high resolution

| Output Specifications | |
|--|---|
| Number of Channels | 4 |
| Output Range | 0-10VDC |
| Resolution | 16-bit, 152µV/bit |
| Output Type | Voltage sourcing/sinking at 5mA max. |
| PLC Data Format | 16-bit, Unsigned Int., 0-FFFF (binary) or 0-65535 (BCD) (Both require 2 words of V-memory) |
| Output value in program mode | 0V |
| Output Impedance | 0.5 Ohms typical |
| Load Impedance | >2000 Ohms |
| Maximum Capacitive Load | 0.01 µF maximum |
| Allowed load type | Grounded |
| Maximum Inaccuracy | 0.2% of range (including temperature changes) |
| Maximum Full Scale Calibration Error (including offset error) | ±0.025% of range max. |
| Maximum Offset Calibration Error | ±0.025% of range max. |
| Accuracy vs. Temperature | ±50 ppm/ °C max. full scale calibration change |
| Maximum Crosstalk | ±10 counts |
| Linearity Error (End to End) | ±16 count max. (±0.025% of full scale) Monotonic with no missing codes |
| Output Stability and Repeatability | ±10 counts after 10 min. warm-up typical |
| Output Ripple | .05% of Full Scale |
| Output Settling Time | .5 ms max., 5 µs min. (full scale change) |
| All Channel Update Rate | 100µs |
| Maximum Continuous Overload | Outputs current limited to 40mA typical. A continuous short circuit will damage the output. |
| Type of Output Protection | 24VDC Peak Output Voltage (capacitor transient voltage suppressor) |
| Output signal at power-up and power-down | 0V |
| Terminal Type (Included) | Removable: D0-ACC-4 |
| External 24VDC Power Required | 30mA |
| Base Power Required (5.0V) | 25mA |



| CPU | Firmware Required | DirectSOFT Required |
|-------------|-----------------------|---|
| DL05 | Version 5.20 or later | DirectSOFT32 Version 3.0c or later |
| DL06 | Version 2.30 or later | DirectSOFT32 Version 4.0, Build 16 or later |

See page 2-68 for part numbers of ZIPLink cables and connection modules compatible with this I/O module.

Field I/O

Software

C-more & other HMI

Drives

Soft Starters

Motors & Gearbox

Steppers/ Servos

Motor Controls

Proximity Sensors

Photo Sensors

Limit Switches

Encoders

Current Sensors

Pressure Sensors

Temperature Sensors

Pushbuttons/ Lights

Process

Relays/ Timers

Comm.

Terminal Blocks & Wiring

Power

Circuit Protection

Enclosures

Tools

Pneumatics

Appendix

Product Index

Part # Index

Cut PLC wiring time to minutes instead of hours

The ZIPLink wiring system eliminates the normally tedious process of wiring PLC I/O to terminal blocks. Simply plug one end of a ZIPLink pre-wired terminal block cable into your I/O module and the other end into a ZIPLink connector module. It's that easy. ZIPLinks use half the space, at a fraction of the total cost of terminal blocks.

ZIPLinks are available in a variety of styles to suit your needs, including fused, relay and sensor/LED connector modules. ZIPLinks are available for all DL05/06 Series PLC discrete and analog input and output modules.

For complete information see ZIPLinks in the Terminal Blocks and Wiring Solutions section.



Specify your ZIPLink system

Use the Compatibility Matrix table below:

| | |
|--|---|
| Step 1 | Locate the I/O Module part number. |
| Step 2 | Locate Connector Module Type. (Feedthrough Module, Fuse Module, etc...) |
| Step 3 | Select the cable length by replacing the # symbol with: Blank = 0.5m, -1 = 1m, -2 = 2m ¹ |
| ¹ Note: Cable part number denotes compatibility between Connector Module and I/O Modules. | |

| ZIPLink Wiring System Compatibility Matrix for DL05/06 PLCs | | | | | | |
|---|---------------------|---------------------|--------------|---------------|----------------------|---------------|
| Step 2: Connector Module Type | | Feedthrough Modules | Fuse Modules | Relay Modules | Sensor Input Modules | Pigtail Cable |
| Step 1: I/O Module | Number of Terminals | ZL-RTB20 | ZL-RFU20 | ZL-RRL16-24 | ZL-LTB16-24 | |
| | | Step 3: Cables | | | | |
| Inputs | | | | | | |
| DO-10ND3 | 13 | ZL-D0-CBL13# | | | | |
| DO-10ND3F | 13 | ZL-D0-CBL13# | | | | |
| DO-16ND3 | 24 | ZL-D0-CBL24#L | | | ZL-D0-CBL24#L | ZL-D0-CBL24#P |
| FO-08NA-1 | 10 | ZL-D0-CBL10# | | | | |
| Outputs | | | | | | |
| DO-10TD1 | 13 | ZL-D0-CBL13# | | | | |
| DO-16TD1 | 24 | ZL-D0-CBL24# | ZL-D0-CBL24# | ZL-D0-CBL24# | | ZL-D0-CBL24#P |
| DO-10TD2 | 13 | ZL-D0-CBL13# | | | | |
| DO-16TD2 | 24 | ZL-D0-CBL24# | ZL-D0-CBL24# | | | ZL-D0-CBL24#P |
| DO-08TR | 10 | ZL-D0-CBL10# | | | | |
| FO-04TRS* | 13 | ZL-D0-CBL13# | | | | |
| Combo In/Out | | | | | | |
| DO-07CDR | 10 | ZL-D0-CBL10# | | | | |
| DO-08CDD1 | 13 | ZL-D0-CBL13# | | | | |
| Analog | | | | | | |
| FO-04AD-1 | 8 | ZL-D0-CBL8# | | | | |
| FO-04AD-2 | 8 | ZL-D0-CBL8# | | | | |
| FO-08ADH-1 | 13 | ZL-D0-CBL13# | | | | |
| FO-08ADH-2 | 13 | ZL-D0-CBL13# | | | | |
| FO-04DAH-1 | 13 | ZL-D0-CBL13# | | | | |
| FO-08DAH-1 | 13 | ZL-D0-CBL13# | | | | |
| FO-04DAH-2 | 13 | ZL-D0-CBL13# | | | | |
| FO-08DAH-2 | 13 | ZL-D0-CBL13# | | | | |
| FO-2AD2DA-2 | 8 | ZL-D0-CBL8# | | | | |
| FO-4AD2DA-1 | 8 | ZL-D0-CBL8# | | | | |
| FO-4AD2DA-2 | 8 | ZL-D0-CBL8# | | | | |
| FO-04RTD** | | | | | | |
| FO-04THM** | | | | | | |

* Caution: The FO-04TRS relay outputs are derated not to exceed 2 Amps per point when used with the ZIPLink wiring system.

** The F2-04RTD and F2-04THM modules are not supported by the ZIPLink wiring system. These modules require wire specific to the signal type.

ZIPLink Connector Modules and cable specifications are shown in Terminal Blocks and Wiring Section

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 24 VDC power. The 24 VDC 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 5 VDC power. Only the AC units offer 24 VDC auxiliary power.

Be aware of the trade-off between 5 VDC power and 24 VDC power. The amount of 5 VDC power available depends on the amount of 24 VDC power being used, and the amount of 24 VDC power available depends on the amount of 5 VDC 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 5 VDC and 24 VDC 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 5 VDC and 24 VDC.

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

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

| DL06 Base 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 |

* Only if auxiliary 24VDC power is connected to V+ terminal.

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

| Power Budgeting Example | | | |
|------------------------------|---|-----------------|------------------|
| Power Source | | 5VDC power (mA) | 24VDC power (mA) |
| D0-06DD1 (select row A or B) | A | 1500mA | 300mA |
| | B | 2000mA | 200mA |
| Current Required | | 5VDC power (mA) | 24VDC power (mA) |
| D0-06DD1 | | 600mA | 280mA* |
| D0-16ND3 | | 35mA | 0 |
| D0-10TD1 | | 150mA | 0 |
| D0-08TR | | 280mA | 0 |
| F0-4AD2DA-1 | | 100mA | 0 |
| D0-06LCD | | 50mA | 0 |
| Total Used | | 1215mA | 280mA |
| Remaining | | A | 285mA |
| | | B | 785mA |
| | | | note 1 |

* 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.

| DL05/06 Power Consumed 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 |
| 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 |
| F0-08DAH-1 | 25mA | 220mA |
| F0-04DAH-2 | 25mA | 30mA |
| F0-08DAH-2 | 25mA | 30mA |
| F0-2AD2DA-2 | 50mA | 30mA |
| F0-4AD2DA-1 | 100mA | 40mA |
| F0-4AD2DA-2 | 100mA | none |
| F0-04RTD | 70mA | none |
| F0-04THM | 30mA | none |
| D0-DEVNETS | 45mA | none |
| H0-PSCM | 530mA | none |
| H0-ECOM | 250mA | none |
| H0-CTRIO | 250mA | none |
| H0-ECOM100 | 300mA | none |
| F0-08SIM | 1mA | none |
| D0-DCM | 250 mA | none |
| F0-CP128 | 150 mA | none |
| F0-08SIM | 1 mA | none |