DL05/06 Data Communications Module

DATA Communications Module

D0-DCM \$219.00



Overview

The D0-DCM Data Communications Module offers two communication ports for a variety of simultaneous communications possibilities:

- Extra communications port to connect a PC, operator interface, etc.
- Network interface to DirectNET
- Network interface to a Modbus network using the RTU protocol

The top RJ12 RS-232 port (Port 1) can be used for PLC programming, connection to an OI panel or as a single K-sequence, DirectNet or Modbus RTU Server. The 15-pin front port (Port 2) can be used for RS-232/422/485 communications and supports the following protocols: K-sequence Server, DirectNET Client/ Server and Modbus RTU Client/Server.

Module Configuration

Since the D0-DCM does not have DIP switches to set baud rate, station address, parity, etc., ladder logic programming is required to configure its communication parameters, unless the default settings are acceptable for your application. If the D0-DCM is to be used as a network Client, you must use ladder logic code to configure these parameters.

Specifications			
Module Type		Intelligent	
Modules per CPU		DL05: one; DL06: up to four	
Field Wiring Connectors		Port 1: 6-pin RJ12 RS-232 Port 2: 15-pin HD-sub connector RS-232, RS-422/485	
Communications	Port 1	RS-232 signal levels, DirectNET Server, K-sequence Server, Modbus RTU Server, protocols, baud rate selectable from 9.6K to 115.2K baud, odd or no parity, selectable address, 8 data bits, one start/stop bit, DirectNET HEX or ASCII mode. (Defaults: Server, 9600 bps, odd parity, address 1, auto-detect protocols)	
	Port 2	RS-232/422/485 signal levels, DirectNET Client/Server, K-sequence Server, Modbus RTU Client/Server, non-sequence ASCII protocols, baud rate selectable from 300 to 115.2K baud, odd/even/no parity, selectable address, 7 or 8 data bits, one start bit, 1 or 2 stop bits, selectable timeout/response- delay times, DirectNET HEX or ASCII mode. (Defaults: Server, 19200 bps, odd parity, address 1, eight data bits, one stop bit, auto-detect protocols)	
Recommended Cable		RS-422: Belden 9729 or equivalent; RS-485: Belden 9841 or equivalent	
Internal Power Consumption		250mA maximum at 5VDC (supplied by base)	
Operating Environment		0°C to 60°C (32°F to 140°F), 5% to 95% humidity (non-condensing)	
Manufacturer		Koyo Electronics	

CPU	Firmware Required	DirectSOFT Required	
DL05	Version 5.00 or later	Version 3.0c or later	
DL06	Version 1.90 or later	Version 4.0, Build 16 or later. ASCII functions require version 5.1 or his	



Extra communications ports for DL05/06

If additional communication ports are needed in the PLC, they can easily be added by installing DCM modules. Connect additional devices such as operator interfaces, PCs, etc. Set the DCM communication parameters using DirectSOFT programming software, connect the cables, and start transferring data. Make sure the connected device has a DL05/06 compatible driver.

DL05/06 Data Communications Module

DirectNET network interface

The DCM can be used as a network interface for applications requiring data to be shared between PLCs, or between PLCs and an intelligent device such as a host PC. DirectNET allows you to upload or download virtually any type of system data including Timer/Counter data, I/O information, and V-memory information from any DirectLOGIC or compatible PLC. Port 2 on the DCM allows the DL05/06 to function as a DirectNET network Client or Server using RS-422 communications (RS-232 can be used for single Server networks). Use RX and WX instructions in your RLL program to initiate communications.

* KEPSeverEX may be purchased from Kepware and will support any existing applications. (https://www.kepware.com/en-us/products/kepserverex)

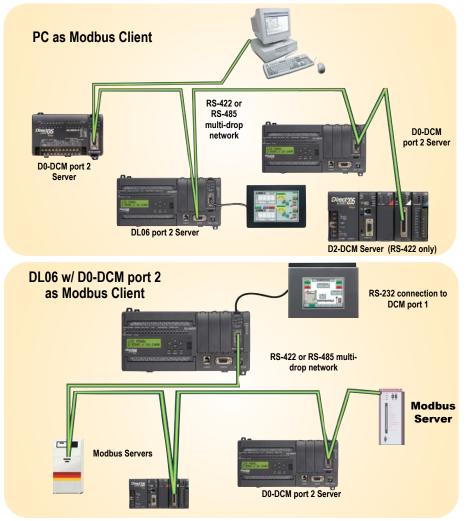
Modbus RTU interface

The DCM can be used as a Client or Server station interface to connect your DL05/06 system to a Modbus ® network using the Modbus RTU protocol. Port 2 on the DCM allows the DL05/06 to function as a Modbus RTU network Client or Server using RS-422 or RS-485 communications (RS-232 can be used for single Server networks). Use RX and WX instructions in your RLL program to initiate communications.

DirectNET network



Modbus RTU networks



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 Power Supplied by Base Units			
Part Number	5 VDC (mA)	24 VDC (mA)	
D0-06xx	1500mA	300mA	
D0-00XX	2000mA	200mA	
D0-06xx-D	1500mA	none	

DL06 Base Unit Power Required			
Part Number	5 VDC (mA)	24 VDC (mA)	
<u>D0-06AA</u>	800mA	none	
<u>D0-06AR</u>	900mA	none	
<u>D0-06DA</u>	800mA	none	
<u>D0-06DD1</u>	600mA	280mA*	
D0-06DD2	600mA	none	
<u>D0-06DR</u>	950mA	none	
<u>D0-06DD1-D</u>	600mA	none	
<u>D0-06DD2-D</u>	600mA	none	
<u>D0-06DR-D</u>	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)	
<u>D0-06LCD</u>	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	A	1500mA	300mA
(select row A or B)	в	2000mA	200mA
Current Required		5VDC power (mA)	24VDC power (mA)
D0-06DD1		600mA	280mA*
D0-16ND3		35mA	0
<u>D0-10TD1</u>		150mA	0
D0-08TR		280mA	0
F0-4AD2DA-1		100mA	0
D0-06LCD		50mA	0
Total Used		1215mA	280mA
Domoining		285mA	20mA
Remaining	В	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 Modu	les
Part Number	5 VDC (mA)	24 VDC (mA)
<u>D0-07CDR</u>	130mA	none
<u>D0-08CDD1</u>	100mA	none
<u>D0-08TR</u>	280mA	none
<u>D0-10ND3</u>	35mA	none
<u>D0-10ND3F</u>	35mA	none
<u>D0-10TD1</u>	150mA	none
<u>D0-10TD2</u>	150mA	none
<u>D0-16ND3</u>	35mA	none
<u>D0-16TD1</u>	200mA	none
<u>D0-16TD2</u>	200mA	none
<u>F0-04TRS</u>	250mA	none
<u>F0-08NA-1</u>	5mA	none
<u>F0-04AD-1</u>	50mA	none
<u>F0-04AD-2</u>	75mA	none
<u>F0-08ADH-1</u>	25mA	25mA
<u>F0-08ADH-2</u>	25mA	25mA
<u>F0-04DAH-1</u>	25mA	150mA
<u>F0-08DAH-1</u>	25mA	220mA
<u>F0-04DAH-2</u>	25mA	30mA
<u>F0-08DAH-2</u>	25mA	30mA
<u>F0-2AD2DA-2</u>	50mA	30mA
<u>F0-4AD2DA-1</u>	100mA	40mA
<u>F0-4AD2DA-2</u>	100mA	none
<u>F0-04RTD</u>	70mA	none
<u>F0-04THM</u>	30mA	none
<u>DO-DEVNETS</u>	45mA	none
<u>HO-CTRIO2</u>	250mA	none
<u>H0-ECOM100</u>	300mA	none
<u>F0-08SIM</u>	1mA	none
<u>D0-DCM</u>	250 mA	none
<u>F0-CP128</u>	150 mA	none
F0-08SIM	1 mA	none