DL105 I/O Specifications

Wiring diagram and specifications

Power requirements

Voltage range	
	100–240 VDC (30W)
DC input specification	15
Number of input points	10 (sink/source)
Number of commons	3 (isolated)
Input voltage range	(X0-X3):10-26.4 VDC
	(X4–X11):10–26.4 VDC or
	21.6–26.4 VAC
Input impedance	2.8 kq @ 12–24 VDC
ON current/voltage level	> 3mA / > 9VDC
OFF current/voltage level	< 0.5 mA / < 2VDC
OFF to ON response	X0–X3: 50µ
	X4–X11: 2-8 ms
ON to OFF response	X0–X3: 50µs
	X4–X11: 2–8 ms
Fuses	None
Relay output specifico	ations
Number of output points	8
Number of commons	4 (isolated)
Output circuitry	Relay
Output voltage range	12–250 VAC
	12–30 VDC
Maximum voltage	
Maximum current	
Maximum inrush current	12A
Minimum load	10mA
Minimum OFF resistance	100Mq @ 500VDC
OFF to ON response	15ms
ON to OFF response	5ms
FusesNo	one (external recommended)
Auviliary 24 VIIC Out	10111

Auxiliary 24 VDC Output

Voltage range	21.6–26.4 VDC
Output	500mA max., isolated
Ripple	less than 200mV p-p

Typical Relay Life (Operations) at Room Temperature			
Voltage and Type	Load Current		ent – – –
of Load	50mA	5A	7A
24VDC Resistive	10M	600K	300K
24VDC Solenoid	—	150K	75K
110VAC Resistive	—	600K	300K
110VAC Solenoid	—	500K	200K
220VAC Resistive	_	300K	150K
220VAC Solenoid	_	250K	100K

Points



Derating Chart for Relay Outputs







Equivalent Circuit Standard Inputs (X4-X11)



Equivalent Output Circuit



Features and Specifications

The DL105 micro PLCs contain the CPU, power supply and I/O all in the same housing. If you examine the CPU

Review the specs

Make sure these features can satisfy the requirements of your application. Since these units are completely selfcontained, you cannot expand the system or replace the CPU as you would in a modular system.

System capacity

System capacity is the ability to accommodate a variety of applications. For ladder memory, most Boolean instructions require one word. Some other instructions, such as timers, counters, etc., require two or more words. Our V-memory words are useful for data storage, etc.

Performance

The performance is simply the scan time, which is the amount of time required to read the inputs, solve the RLL program and update the outputs.

Instructions and diagnostics

Make sure the unit offers the instructions you need.

Communications

All DL105 units offer one RS-232 port, capable of 9600 baud.

Specialty features

With the DC input and/or DC output versions, we also offer several high-speed I/O features.

Specifications table, you'll see that we included many features found in our modular CPUs.

AC-powered units F1-130DR

10 DC inputs, 4 inputs are filtered inputs, can also be configured as a single 5kHz high-speed counter, interrupt input, or pulse catch input 8 relay outputs, 7A/point

Programming

Handheld programmerD2-HPP
DirectSOFT Programming for Windows
PC-DSOFT6
PC-DS100
PC-R60-U (upgrade)

Note: Either high-speed input or pulse output can be used, but not in the same configuration.

DL105 CPU Specifications

System canacity	
Total memory available (words)	2 4K
Ladder memory (words)	2.048
FFPROM	_,• ••
V-memory (words)	384
User V.	256
Non-volatile user V	128
Battery backup	No
Total I/O	18
Inputs	10
Outputs	8
I/O expansion	No
Performance	
Contact execution (Boolean)	3.3 µs
Typical scan (1K Boolean)1	5–6 ms
Instructions and diagnostics	Mar
KLL ladder Style	Yes
RLLPLUS/flowchart style (Stages)	Yes/256
	No
Variable/fixed scan	Variable
Control relays	256
Timers	64
Counters.	64
Immediate I/O	Yes
Subroutines	No
For/next loops	No
Timed interrupt	Yes
Integer math	Yes
Floating-point math	No
PID	No
Drum sequencers	.Yes
Bit of word	No
ASCII print.	NO No
Real-time clock/calendar	NO Voc
Descword coourity	TES Multi Iovol
System and user error log	No
Communications	NO
Built-in ports one RS-23	2-0
K-sequence (proprietary protocol)	Yes
DirectNET™	No
MODBUS master/slave	No
ASCII out	No
Baud rate (fixed)	9600 baud
Specialty features	
Filtered inputs	Yes2
Interrupt input	Yes2
High-speed counter	Yes, 5kHz2
Pulse output	Yes, /kHz2
Pulse catch input	res2
1- Our 1K program includes contacts coils and scan	
overhead If you compare our products to others	
make sure you include their scan overhead	
2. Input fosturos aro only available on units with DC	
2- input icatures are only available on units with DC	

2- input reatures are only available on units with DC inputs. Output features are only available on units with DC outputs.

DL105 Hardware Features

CPU Status Indicators

RUN	ON	CPU is in RUN mode
	OFF	CPU is in PROGRAM mode
PWR	ON	CPU power good
	OFF	CPU power failure
CPU	.ON	CPU internal diagnostics
		has detected an error
	.OFF	CPU is OK

Mode Control

The DL105 units do not have mode switches like many of our modular CPUs. You can set the unit (using special V-memory locations) so that it will power up in RUN mode.

Communications Port

K-sequence slave
Can connect with HPP,
DirectSOFT, DV-1000
C-More Panels
6P6C RJ12 connector
RS-232-C, 9,600 baud,
Odd parity,
Fixed station address (1),
8 data bits (one start,
one stop bit),
synchronous, half-duplex, DTE

RJ12 Connector Port 1 Pinout

Pin		Signal
1		٥v
2		5V
3	RS-232	Data in
4	RS-232	Data out
5		5V
6		0V

Fixed EEPROM memory

The DL105 units offer built-in EEPROM memory.

NOTE: Terminals accept 16–24 AWG. For 16 AWG, use type TFFN or Type MTW. Other types of 16 AWG may be acceptable, but it really depends on the thickness of the wire insulation.



Dimensions and Installation

It is important to understand the installation requirements for your DL105 system. This will help ensure that the DL105 products operate within their environmental and electrical limits.

Plan for safety

This catalog should never be used as a replacement for the user manual. The user manual, D1-USER-M, contains important safety information that must be followed. The system installation should comply with all appropriate electrical codes and standards.

Unit dimensions and mounting orientation

Use the following diagrams to make sure the DL105 system can be installed in your application. DL105 units must be mounted horizontally to ensure proper airflow for cooling purposes. It is important to check these dimensions against the conditions required for your application. For example, we recommend that you leave 2" depth for ease of access and cable clearance; however, your distance may be greater or less. Also, check the installation guidelines for the recommended cabinet clearances.



Note: There is a minimum of 2" (50mm) clearance required between the panel door or any devices mounted in the panel door and the nearest DL105 component.

Dimensions and mounting



Environmental Specifications		
Storage Temperature	-4°F to 158°F (-20°C to 70°C)	
Ambient Operating Temperature	32°F to 131°F (0° to 55°C)	
Ambient Humidity	30% to 95% relative humidity (non-condensing)	
Vibration Resistance	MIL STD 810C, Method 514.2	
Shock Resistance	MIL STD810, Method 516.2	
Noise Immunity	NEMA(ICS3-304)	
Atmosphere	No corrosive gases	

Power Supply and Type of I/O

Power supply options

This product family offers units that operate on 110/220 VAC and 12/24 VDC. Choosing the power supply is probably the most important consideration when specifying a DL105 system, since not all I/O combinations are offered with each power supply option. The table to the right provides the I/O choices and power supply specifications for each type unit.

Choosing the I/O

The DL105 product family offers several different combinations of I/O points. Once you have chosen the power supply option, you need to choose the unit that offers the type of I/O points needed in your application.

Fixed I/O

All DL105 Micro PLCs have "fixed" I/O that is updated on every scan. This means that all units have 10 inputs and 8 outputs, regardless of the actual type of points on the units (DC in/ Relay out, DC in/DC out, etc.) The DL105 micro PLC is non-expandable, so you cannot add I/O points. If you are concerned about future system expansion, check our DL06 (36 base I/O expandable to 100 total I/O), or the DL205 micro-modular product family. The DL205 also offers a wide array of features and flexible I/O arrangements with several different base sizes.

Power Supply Options		
Specification	AC Powered Units	
Part Numbers	F1-130DR F1-DVNET-AR, F1-DEVNET-DD F1-DVNET-DR	
Voltage Withstand (dielectric)	One minute @ 1500VAC between primary, secondary and field ground	
Insulation Resistance	> 10Mq @ 500VDC	
External Power Requirement	85–132 VAC (110 nominal) 170–264 VAC (220 nominal) 100–264 VDC (125 nominal)	
Auxiliary 24 VDC Output	500mA max.	
Maximum Inrush Current	12A	
Maximum Power	30VA max.	

Addresses automatically assigned

The DL105 uses automatic addressing, so for the vast majority of applications, there is no setup required. We use octal addressing for many of our products, which means there are no 8s or 9s.

The first eight input points use addresses X0-X7, and the last two input points use X10 and X11. If you plan on using the high-speed counting features, there is some very minimal setup required in special V-memory locations.

AC-powered units

Part No.	I/O Mix
F1-130DR	10 DC in
	8 relay out

