2

Installing the F2–DEVNETS–1 Base Controller

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- — Installing the F2–DEVNETS–1 Base Controller
- — Configuring the Controller
- — Master/Slave Communications
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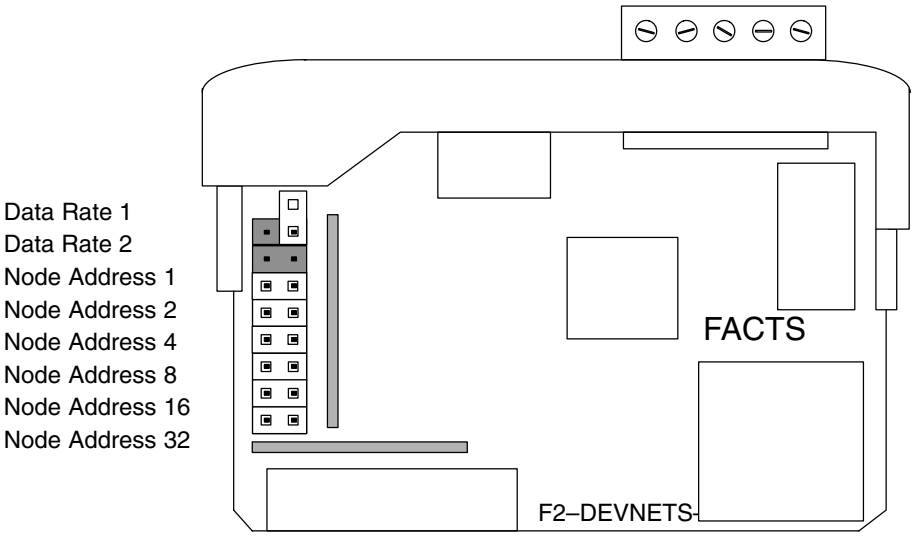
Installing the F2–DEVNETS–1

Setting the Module Jumpers

The F2–DEVNETS–1 controller has a 8 jumpers which are used to set baud rates and the node address.

Note: Be sure to look closely at the default settings below. If you are connecting to an existing DeviceNet network, you may need to change the DeviceNet Baud Rate on your F2–DEVNETS–1. *The factory default baud rate is 125kbps.*



Factory Default Settings Shown (125K Baud/MAC ID = 63)

Set the DeviceNet baud rate.

DeviceNet Baud Rate		
Baud Rate	**Jumper 1**	**Jumper 2**
125 kbps	OFF	OFF
250 kbps	ON	OFF
500 kbps	OFF	ON
See Appendix E, Compatibility Mode	ON	ON

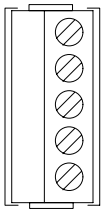
Set the combination of Node Address jumpers to match the desired Node Address (MAC ID).

Node Address Examples

Node Address	Jumper 1	Jumper 2	Jumper 4	Jumper 8	Jumper 16	Jumper 32
1	ON	OFF	OFF	OFF	OFF	OFF
63	ON	ON	ON	ON	ON	ON
10	OFF	ON	OFF	ON	OFF	OFF
43	ON	ON	OFF	ON	OFF	ON

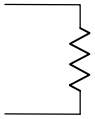
Wiring the Controller to a DeviceNet Network

Connect the DeviceNet cable (Belden 3085A, YR–29832 or equivalent) to the removable connector as shown below. Be sure to connect a terminating resistor (121 Ohm 1%, 1/4W).



V+ (red)
CAN* High (white)
Shield (bare)
CAN* Low (blue)
V– (black)

* Controller Area Network (CAN)



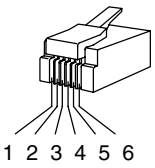
Connect a terminating resistor across the CAN High (white) and CAN Low (blue) screw terminals.

The terminating resistor is 121 Ohm 1%, 1/4 Watt. (2 resistors are included with each F2–DEVNETS–1).

Tip: Be sure that each end of the DeviceNet network 'trunk' has a proper terminating resistor connected as shown above.

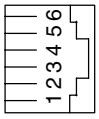
Serial Port (RS–232)

The F2–DEVNETS–1 serial port is used to update the firmware when necessary. Use cable part number **FA–CABKIT** to connect the F2–DEVNETS–1 to a PC, or use the following information to make a cable.



6–pin Male (RJ–12)
Modular Plug

6–pin Female (RJ–12)
Modular Jack



Serial Port Pinout	
Pin	**Signal**
1	0V
2	Internally shorted to Pin 5
3	RS232C Data in
4	RS232C Data out
5	Internally shorted to Pin 2
6	0V

Configuring the Controller

Configuring the DeviceNet Base Controller

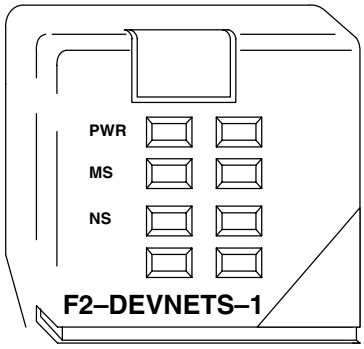
Use the software of your DeviceNet master to configure the controller for your network. *Refer to the software Help file and/or manual for help with configuration.* Follow these basic steps when configuring your F2–DEVNETS–1 controller.

1. **Set the Controller Node Address:**
   In the DeviceNet master software, make sure the Controller node address is set to an available node number on the DeviceNet network (from 0 to 63).
2. **Add the EDS file (if required by the software):**
   In your DeviceNet software, add the F2–DEVNETS–1 Electronic Data Sheet (EDS) file from the disk which came with this manual or from our web site **www.automationdirect.com**. Some software may not provide for the use of EDS files.
3. **Add the F2–DEVNETS–1 to the Scan List:**
   Add the F2–DEVNETS–1 to the Scan List in your DeviceNet Master software.
4. **Set the Input/Output Bytes:**
   If required by your DeviceNet software, set the I/O Parameters to Tx = Output bytes and Rx = Input bytes (on the Scanner's Scan List tab), for Polled I/O.
5. **Map the I/O to the Master:**
   Map the F2–DEVNETS–1 I/O to the Scanner using Auto Map, or map the I/O to another location if desired.
6. **Scan:**
   Go Online (or Scan) to verify the configuration and check for errors.
7. **View Indicators on the Controller:**
   Refer to the Status Indicators when connecting to the network.

The F2–DEVNETS has three LED's: PWR, MS and NS.

The MS LED represents the Module Status.

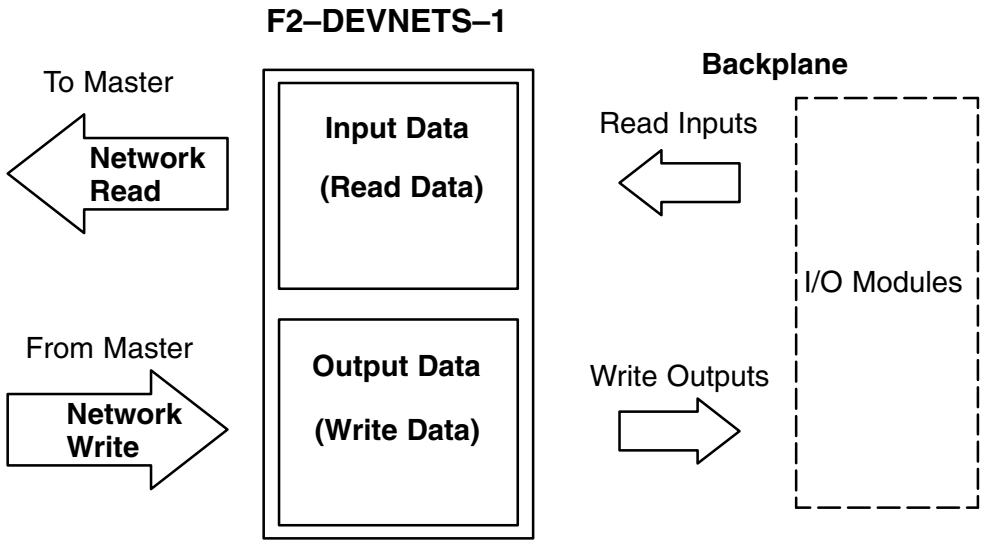
The NS LED indicates the Network Status.



PWR (Power) Indicator	
Indication	**Status**
OFF	No power or defective LED.
Solid Green	Power is ON.
MS (Module Status) Indicator	
Indication	**Status**
OFF	No power or defective LED.
Flashing Red–Green	LED test during power up cycle.
Solid Green	Allocated to a master.
Solid Red	Module Error.
NS (Network Status) Indicator	
Indication	**Status**
OFF	No power, defective LED or No Network Connection
Flashing Red–Green	LED test during power up cycle.
Flashing Green	A 0.25 sec. ON–OFF cycle indicates online and ready to accept commands from the master.
Solid Green	Under control of a master.
Flashing Red	A 0.25 sec. ON–OFF cycle indicates a communication fault or loss of Bus Power.
Solid Red	No bus power or a unrecoverable communications fault.

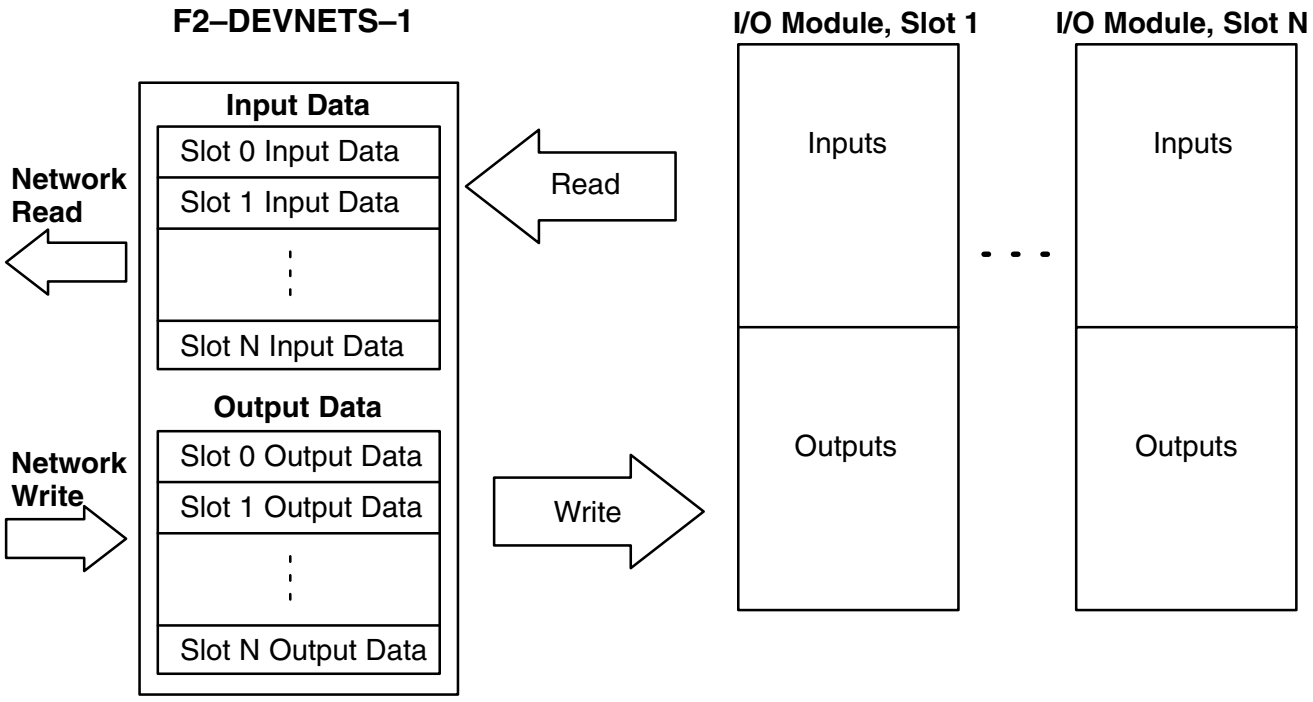
Master/Slave Communications

The F2–DEVNETS–1 controller (slave) communicates with the DeviceNet scanner (master) by sending Input Data and receiving Output Data. The controller *reads* Inputs from I/O Modules and *writes* Outputs to I/O Modules.



DL205 Backplane Communications

The Controller communicates with its I/O modules over the backplane. The I/O is mapped in consecutive order as shown.



I/O Module Memory Map

Module Type	Part Number	ID Code (Hex)	F2–DEVNETS–1 Mode	
			Bytes Produced	Bytes Consumed
Discrete Inputs	F2–08SIM	14	1	0
	D2–08ND3	14	1	0
	D2–16ND3–2	08	2	0
	D2–32ND3	05	4	0
	D2–08NA–1	14	1	0
	D2–08NA–2	14	1	0
	D2–16NA	08	2	0
Discrete Outputs	D2–04TD1	0A	0	1
	D2–08TD1	13	0	1
	D2–16TD1–2	06	0	2
	D2–16TD2–2	06	0	2
	D2–32TD1	0F	0	4
	D2–08TA	13	0	1
	F2–08TA	13	0	1
	D2–12TA	06	0	2
	D2–04TRS	0A	0	1
	D2–08TR	13	0	1
	F2–08TR	13	0	1
	F2–08TRS	13	0	1
	D2–12TR	06	0	2
Discrete Combo	D2–08CDR	0E	1	1
Analog In	F2–04AD–1(L)	03	8	0
	F2–04AD–2(L)	03	8	0
	F2–08AD–1	01	16	0
	F2–08AD–2	01	16	0
Temperature In	F2–04RTD	15	9	0
	F2–04THM	15	9	0
Analog Out	F2–02DA–1(L)	04	0	4
	F2–02DA–2(L)	04	0	4
	F2–02DAS–1	17	0	4
	F2–02DAS–2	17	0	4
	F2–08DA–1	16	0	16
	F2–08DA–2	16	0	16
Analog Combo	F2–4AD2DA	02	8	4

Modules Not Supported:
F2–CP128
H2–CTRIO, H2–ERM (–F), H2–ECOM (–F)
D2–DCM, D2–CTRINT, D2–RMSM

Analog Module Mapping

Module Type	Part Numbers	Data Format	Data Description	Comments
4 Channel AI (12 Bit)	F2–04AD–1(L) F2–04AD–2(L)	Word 1 Word 2 Word 3 Word 4	Ch1 Data Ch2 Data Ch3 Data Ch4 Data	The MSB (Bit) of each word of channel data is a diagnostic bit. ON indicates broken transmitter or no 24VDC.
8 Channel AI (12 Bit)	F2–08AD–1 F2–08AD–2	Word 1 Word 2 Word 3 Word 4 Word 5 Word 6 Word 7 Word 8	Ch1 Data Ch2 Data Ch3 Data Ch4 Data Ch5 Data Ch6 Data Ch7 Data Ch8 Data	The MSB (Bit) of each word of channel data is a diagnostic bit. ON indicates broken transmitter or no 24VDC.
4 Channel Temperature Input (16 Bit)	F2–04THM F2–04RTD	Word 1 Word 2 Word 3 Word 4 Byte 9	Ch1 Data Ch2 Data Ch3 Data Ch4 Data Burnout Byte	Each of the Low 4 bits of the burnout byte corresponds to a channel. ON indicates burnout.
2 Channel AO (12 Bit)	F2–02DA–1 F2–02DA–2	Word 1 Word 2	Ch1 Data Ch2 Data	
2 Channel AO (16 Bit)	F2–02DAS–1 F2–02DAS–2	Word 1 Word 2	Ch1 Data Ch2 Data	
8 Channel AO (12 Bit)	F2–08DA–1 F2–08DA–2	Word 1 Word 2 Word 3 Word 4 Word 5 Word 6 Word 7 Word 8	Ch1 Data Ch2 Data Ch3 Data Ch4 Data Ch5 Data Ch6 Data Ch7 Data Ch8 Data	
4 Channel AI 2 Channel AO (12 Bit)	F2–4AD2DA	Word 1 Word 2 Word 3 Word 4 Output Word 1 Output Word 2	Ch1 AI Data Ch2 AI Data Ch3 AI Data Ch4 AI Data Ch1 AO Data Ch2 AO Data	

Bytes=8 Bits, Word=16 Bits