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Find the *National Instruments FP-1300* at our website: *Click HERE*

CAN Network Interface for FieldPoint

NI FP-1300

- ISO 11898 Compliant CAN Interface
- Connect up to nine I/O modules per FP-1300 bank
- Channel-based access via NI-CAN 2.0
- Configure with NI CAN interface device for PCI/PXI/PCMCIA
- Deploy on any CAN network
- Small modular package for industrial environments
- DIN rail or panel mounting

Recommended Software

- LabVIEW
- LabWindows/CVI

Driver Software (included)

- FP-1300 Configuration Utility for Windows 2000/NT/2000/Me/XP/9x
- NI-CAN 2.0 Software



Overview and Applications

The National Instruments FP-1300 is a CAN network interface module for FieldPoint. The NI FP-1300 is fully configurable, so you can specify the arbitration ID (standard or extended) and define the frame format (number of data bytes and offset of specific I/O data within the frame). It provides an easy way to add I/O to an existing CAN network or to prototype devices in the development phase.

With FieldPoint, you can connect your sensors directly to high-accuracy analog and discrete I/O modules. The FieldPoint I/O modules filter, calibrate, and scale raw sensor signals to engineering units. Each FP-1300 network interface connects a node of up to nine FieldPoint I/O modules to the CAN network.

The FP-1300 network module manages communications between the CAN network and the I/O modules via a local high-speed bus formed by FieldPoint terminal bases. For simple installation and high reliability during use, the network interface also provides autoconfiguration and diagnostic features. Once configured, the FP-1300 automatically publishes and receives scaled I/O data over any CAN network.

The FP-1300 network modules come with the FP-1300 configuration utility and NI-CAN software. These software tools simplify system setup and configuration so you can select communication settings, change the baud rate, or I/O settings, such as the temperature units (°F/°C/°K) for a thermocouple channel. The FP-1300 configuration utility also displays any warnings or errors from the FieldPoint I/O modules, such as an open thermocouple wire. The FP-1300 network module and I/O modules require an NI-CAN interface for PCMCIA/PCI/PXI to perform configuration. After configuration, you can use the FP-1300 on any CAN network.

INFO CODES
For more information, or to order products online visit *ni.com/info* and enter:
fp1300
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Benefits of NI-CAN

NI-CAN offers real-time operation through LabVIEW for systems where determinism is important. It also provides hardware synchronization capabilities with NI-DAQ, vision, and motion devices using the RTSI or PXI trigger bus. All NI-CAN products are ISO 11898 compliant for standard (11-bit) and extended (29-bit) arbitration IDs. Programming and configuring NI-CAN is made easier through a variety of features, including channels, test panel, NI Spy, and bus monitor. You can configure channels in Measurements & Automation Explorer with scaling factors and units imported from the Vector database or explicitly defined. With the test panel you can communicate with a specific CAN channel without programming, providing a simple debugging tool to experiment with CAN channels. With bus monitor you can quickly monitor all of the CAN network traffic you can log. NI Spy dynamically captures and displays all NI-CAN API calls made by any applications running in the system. NI Spy provides, you an easy way to verify that your application is working properly, troubleshoot problems with your application, and verify the communication with your CAN instrument. NI-CAN also integrates tightly with other NI products, such as LabVIEW, LabWindows/CVI, DAQ, and PXI.

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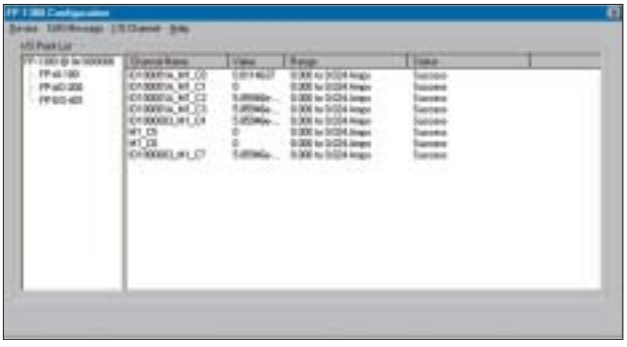


Figure 1. The FP-1300 configuration utility defines the arbitration ID and frame formats.

Features

System Configurations

A single FP-1300 manages a node of up to nine FieldPoint I/O modules, in any mix of analog and discrete I/O modules. The FP-1300 module and terminal bases snap together to form a bank that you can mount on a DIN rail or a panel.

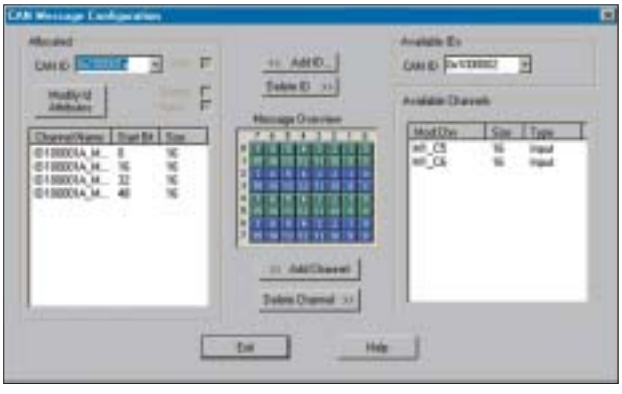


Figure 2. The I/O data is packed and sent as CAN messages.

Network Communications Interface

You can configure the FP-1300 network module to communicate on the CAN network at maximum baud rate of 1 Mb/s. The base arbitration ID can be set with switches located on the FP-1300 or through the FP-1300 configuration utility. This base ID sets the starting point and address range for the I/O modules on the FieldPoint bank. All arbitration IDs are software configurable within this range.

Fully Configurable CAN Messages

You can use the FP-1300 configuration utility to configure CAN messages. You can configure the 8 data bytes of the CAN message with data from different I/O modules. This means you can configure a CAN message containing both analog and digital I/O data.

Channel-Based Access

After you have configured the I/O channels and CAN messages, you can load the configuration into Measurement and Automation Explorer and access it with NI-CAN. This eliminates the need to provide offset and scaling information to decode the I/O data contained in the CAN message.

Easy Installation and Diagnostics

The FP-1300 implements a number of features to make installation, configuration, and maintenance as quick and easy as possible. You can quickly add powerful input and output capabilities to your CAN network and increase productivity.

Self-Test and Diagnostics

On power-up, the FP-1300 network module performs a self-test suite to verify the operational status of itself, the CAN network, and the I/O modules. If it detects an error, the FP-1300 indicates the failure via status LEDs.

User-Defined Power-Up States

You can easily define the power-up output states and I/O configurations for the entire FieldPoint node. With the FP-1300 configuration utility, you can individually configure the settings for each I/O channel, storing the information in storage on the network interface. After power up, but before the FP-1300 initializes the I/O modules, the outputs will go to a default output state. Then the FP-1300 will initialize the I/O modules to the configurable output states you have chosen.

Status LEDs

The FP-1300 interface includes three LEDs to indicate operational status:

- POWER indicates that the network interface is functioning
- CAN STATUS indicates status of CAN network
- Module STATUS indicates self-test failure of I/O modules

Power

An external 11 to 30 VDC supply powers the FP-1300 and I/O bank connected to power terminals. The FP-1300 isolates, filters, and regulates the power input, providing power for communication to the I/O modules via the FieldPoint communication bus. The I/O module screw terminals are optically and galvanically isolated from this communication bus with 250 V_{rms} maximum isolation. The CAN port on the FP-1300 must be externally powered with a 10 to 30VDC power supply. For external power supply options, refer to the FieldPoint Accessories section on page 572.

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Mounting

The FP-1300 mounts directly on a standard 35 mm DIN rail. Each FP-1300 includes a pair of DIN rail end brackets for secure mounting. For mounting a network interface to a panel, you must use the Panel-Mount Adapter Kit (777609-01). Refer to page 572 for more information on accessories, including the panel-mount adapter, DIN rail, and NEMA-rated enclosures.

Software

FieldPoint FP-1300 software includes a full-function configuration utility, as well as server and driver software for easy integration into application software packages. The FieldPoint software kit includes the following components:

- FP-1300 Configuration Utility
- NI-CAN 2.0

Tech Tip

You can perform configuration of the FP-1300 using an NI CAN device and the NI-CAN 2.0 software. In addition to providing configuration capabilities, the NI-CAN hardware and software also provide the ability to read and write to any CAN device and to import and export sensor configuration data to databases.

For more information on other National Instruments CAN products, please go to page 746.

Ordering Information

FP-1300 777517-1300

Specifications

Installation

Network interface	CAN
Compatibility	ISO 118918
Communication rates	Up to 1 Mbps
Maximum cabling distance	0.3 m (11.81 in.)
CAN bus power supply range	10 to 30 VDC
CAN bus power consumption	
Typical	0.72 W (30 mA at 24 VDC)
Maximum	7 W
FieldPoint bank power supply range	11 to 30 VDC
FieldPoint bank power consumption	
Maximum terminal bases per bank	9
Maximum power supplied by network module	9 W
Maximum number of banks	Determined by network topology
Weight	254 g (8.96 oz)1 W 1.1 S(I/O Module Consumption) _ +
Terminal wiring	16–26 AWG copper conductor wire

Appendix C Specifications

Isolation Voltage

For isolation voltage ratings, refer to the I/O modules specifications and labels

Environmental

FieldPoint modules are intended for indoor use only.

Operating temperature	-40 to 70°C
Storage temperature	-55 to 85 °C
Humidity	10 to 90% RH, noncondensing
Maximum altitude	2,000 m

Safety

This product is designed to meet the requirements of the following standards of safety for electrical equipment for measurement, control and laboratory use:

IEC 61010-1, EN 61010-1
UL 3121-1
CAN/CSA C22.2 No. 1010.1

Note: For UL or other safety certifications, refer to the product label or go to ni.com.

Electromagnetic Compatibility

Emissions	EN 55011, ISM Group 1, Class A @ 10 meters. FCC Part 15A above 1 GHz
Immunity	EN 61326-1;A1:1998, Table 1 CE, C-Tick and FCC Part 15 (Class A) compliant

Note: For EMC compliance; operate this device with shielded cabling.

CE Compliance CE

This product meets the essential requirements of applicable European Directives, as amended for CE Marking, as follows:

Low-Voltage Directive (safety)	73/23/EEC
Electromagnetic Compatibility Directive (EMC):	89/336/EEC

Note: Refer to the Declaration of Conformity (DoC) for any additional compliance information. To obtain the DoC for an NI product, click Declaration of Conformity at ni.com/hardref.nsf/. This Web site lists the DoCs by product family. Select the appropriate family and product, and a link appears to the DoC in Adobe Acrobat format. Click the Acrobat icon to download or read the DoC.

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