

FuelDirect Sharp

Installation Guide





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Progressive International Electronics

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History of Documentation

Version 1.0 — 2022
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Notice

Progressive International Electronics reserves the right to revise and improve this document as required. This publication details our FuelDirect Sharp at this time, and may not accurately describe this product at all times in the future. Specifications are subject to change without notice.

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5,790,410	5,663,887	5,361,216
5,831,861	5,557,529	5,270,943
5,694,326	5,394,336	5,108,742

Introduction to FuelDirect Sharp

FuelDirect Sharp is a cross-platform Forecourt controller that can be used on Windows and Linux, and has the ability to connect to POS devices/applications and to dispensers and card readers. FuelDirect Sharp can also connect to price signs, car washes, and a tank gauge system, such as Veeder-Root, to do reconciliation.

For the POS connectivity, FuelDirect Sharp is designed to be flexible and accept connections using a variety of protocols. Available protocols are:

- PCC (Pump Control Center protocol. Developed by PIE)
- FuelDirect OLE2 (Developed by PIE. OLESocketTranslator.exe is required)
- PAM 5000
- Hyper PIB

FuelDirect Sharp is capable of controlling all major-brand dispensers and card readers and can be used to control up to 1 600 same-brand or mixed-brand dispensers and up to 1 600 same-brand or mixed-brand card readers at a time. It can also handle up to 10 price signs and 10 car washes at a time. FuelDirect utilizes ethernet to provide total connectivity and control in its communications with PI DBoxes. In addition to the FuelDirect software and PI DBoxes, only standard off-the-shelf ethernet components are required.

Dispenser Brands

Bennett Current Loop	Kraus
Bennett RS485	Mechanical
DART	PMC (Pump Measure Control
Deer	Tatsuno
Donghwa	Tokheim
Gilbarco	Wayne
Hongyang	

Reader Brands

Bennett	Tokheim
Conexus	Wayne Legacy
Gilbarco	

Price sign Brands

Bever	Numeritex
Daktronics	Skyline
Everbrite	

Car Wash Brands

Ryko	Unitec
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FuelDirect Sharp Installation

Windows

Download the Windows installer FDSharpSetup.msi from <http://www.pie-corp2.com/.builds/fdsharp/current/installers/>

Run FDSharpSetup.msi and follow the prompts to install the program.

Configuring FuelDirect Sharp:

- Navigate to the Fuel Direct Sharp directory: C:\Program Files (x86)\Progressive International Electronics\Fuel Direct Sharp\
 - Run FDSharp.exe (Program will run in the background)
 - Run FDSharpGUI.exe
 - See FuelDirect Sharp GUI section below for connection and configuration

Linux

Download the Linux installer from <http://www.pie-corp2.com/.builds/fdsharp/current/installers/>

To be completed at a later date

Configuring FuelDirect Sharp:

- Navigate to the Fuel Direct Sharp directory:
 - Run FDSharp.exe (Program will run in the background)
 - Run FDSharpGUI.exe
 - See FuelDirect Sharp GUI section below for connection and configuration

FuelDirect Sharp Licensing

Acquiring a Software License

FuelDirect Sharp requires a valid license to work properly. The first run of FDSharp.exe will generate a ProductID file in the same directory as FDSharp.exe. A fifteen (15) day temporary License will begin when this file is created.

To license the product, follow these steps.

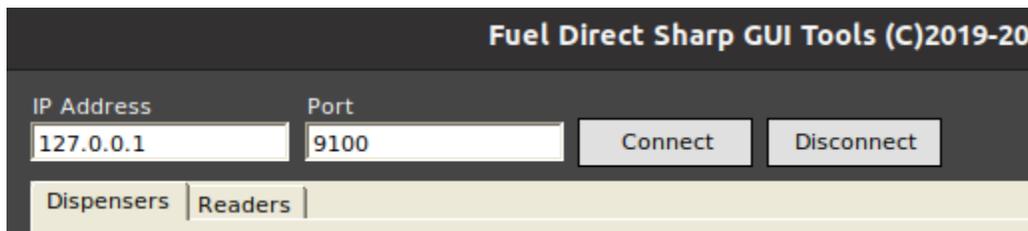
- Send an email to corp1@pie-corp.com and include the following:
 - Company Name (company that purchased the license from PIE)
 - ProductID file
 - Site Name (or other unique identifier for this installation)
- PIE will generate a License Key (FDLicense) for the system and email it back.
- Copy FDLicense into the FDSharp directory and restart FDSharp.exe.

FuelDirect Sharp GUI

FDSHarpGUI.exe is a visual representation of FuelDirect Sharp that can connect to FuelDirect Sharp over a socket. This connection can be made from the same PC on which FuelDirect Sharp is installed, or from another PC that is on the same network. There can be multiple GUI connections made to the same instance of FuelDirect Sharp.

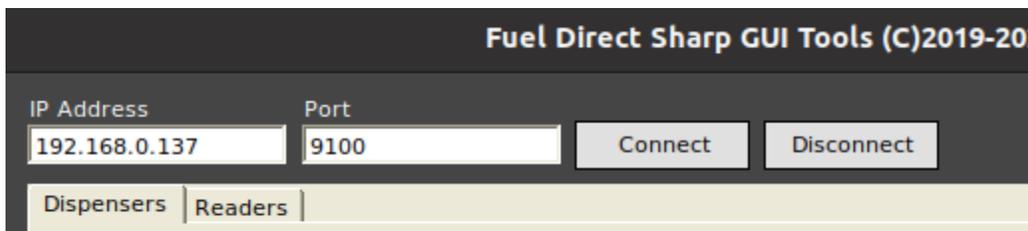
Connection on the same PC

Set the IP Address to the local host (127.0.0.1) or to the IP Address of the PC. The default Port number is 9100 and is defined in the GUI Section of the Show Configuration page.



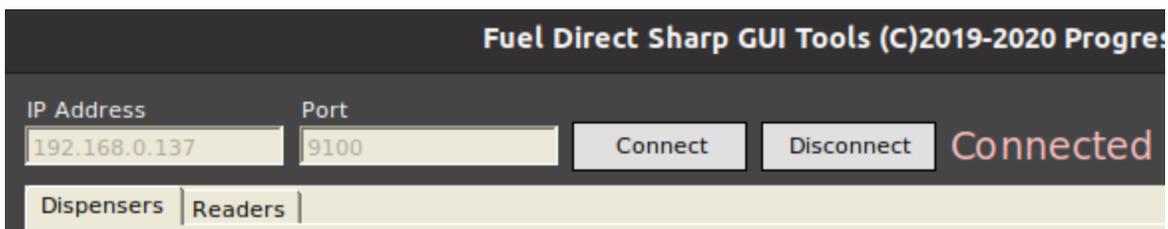
Connection from another PC on the same network

Set the IP Address to the IP Address of the PC on which FuelDirect Sharp is installed. The default Port number is 9100 and is defined in the GUI Section of the Show Configuration page.



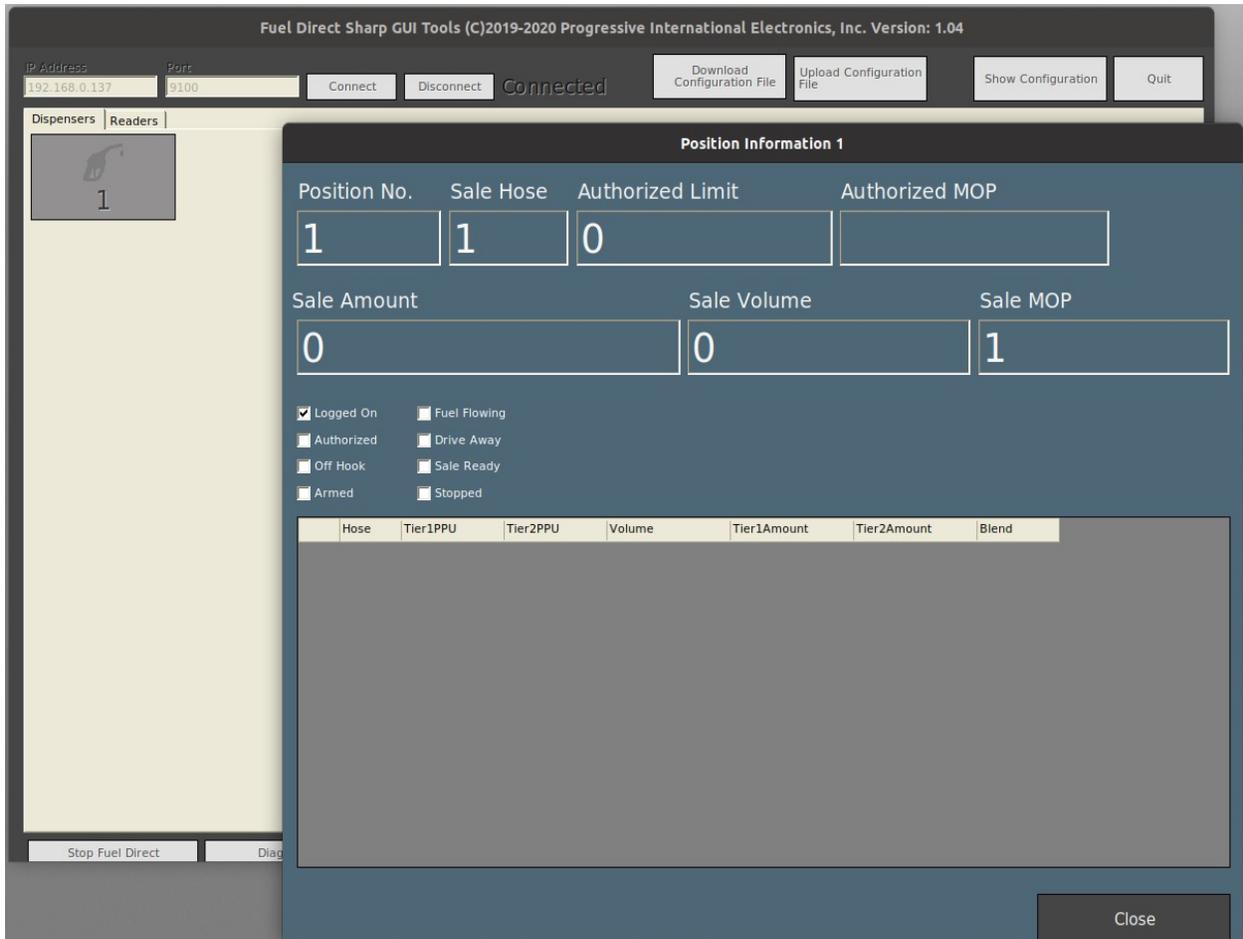
Connecting

Once the IP Address and Port numbers are entered, press Connect. If the information is correct, the GUI will indicate that it is connected. To disconnect, press Disconnect or close the GUI program by pressing Quit.



Position Information

The face of the GUI will show all dispensers that exist to FuelDirect Sharp. This means all dispensers that have had a price sent to Hose #1. The dispenser number icons will change color depending on their state. Click on the icon for each dispenser to see additional information and status.

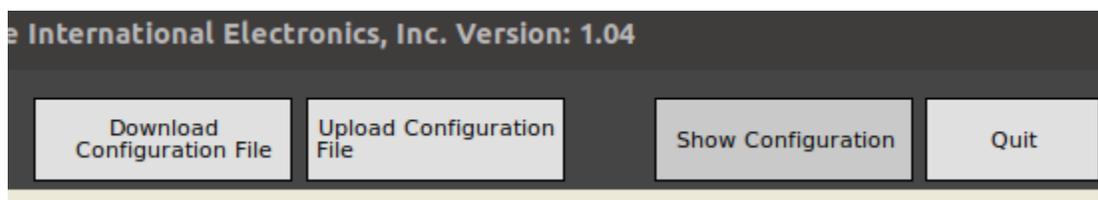


FuelDirect Sharp Configuration

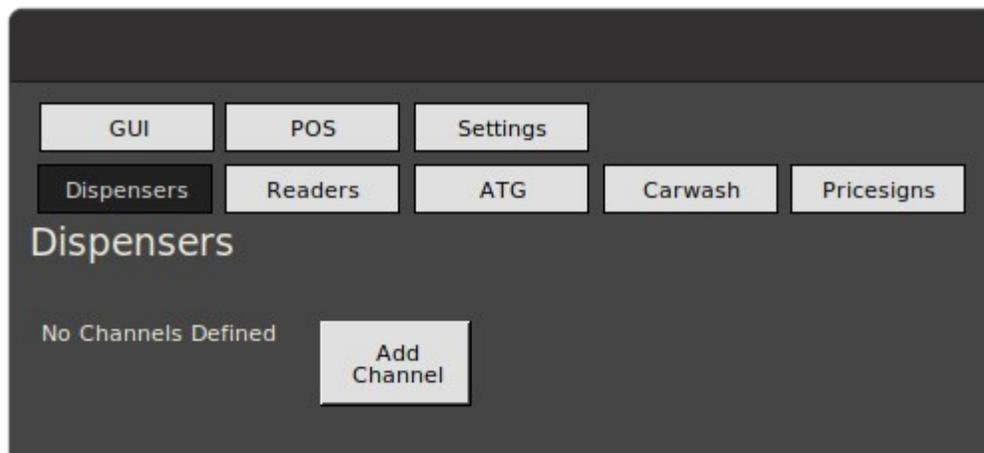
The following settings are set up through the Show Configuration section:

- FuelDirect Sharp GUI
 - Ethernet port number
- POS
 - Brand (Communication protocol)
 - Com Type
 - Com port number or Ethernet port number
- Dispensers
 - Brand
 - COM type
 - Com port number or Ethernet Address of the PIE DBox
 - Brand-specific settings
- Readers
 - Brand
 - COM type
 - Com port number or Ethernet Address of the PIE DBox
 - Brand-specific settings
- ATG
 - Brand
 - Port number
 - Baud Rate
- Carwash
 - Brand
 - Model
 - Port number
- Price Signs
 - Brand
 - Port number

Select the Show Configuration button from the top of the GUI to configure FuelDirect Sharp.



The configuration page will open. For a new installation, no information will be displayed. If previous configuration has been saved, the stored information will be displayed and can be edited. Select the section to be configured to make the changes. For Dispensers, Readers, ATG, Carwash, and Pricesigns, begin by pressing Add Channel. FuelDirect Sharp allows multiple channels to be configured for each section.



Dispenser Configuration

Each channel requires a Brand selection to set the protocol for that channel. A COM Type is necessary to define the type of communication. If Serial, select the correct Port number from the dropdown list under Port. For Ethernet, type in the IP Address of the DBox. (DBox default IP Address is 192.168.0.200)

If all dispensers on the same channel will have the same configuration, select Channel Defaults in the Dispenser ID dropdown, then make the changes to the settings below. This will set all 16 fueling positions on this channel to those settings. If there is a fueling position (or multiple positions) that is different from the rest, select that ID from the dropdown list to change just that position. Save changes when complete.

To add another dispenser channel, select Add Channel and follow the same steps to configure that channel. If using Ethernet, the IP Address of the DBox must be different from other DBoxes or other devices on the network.

To remove a channel from the configuration, select Remove Channel.

The screenshot shows the 'Dispersers' configuration window in the FuelDirect Sharp GUI. At the top, there are navigation buttons for 'GUI', 'POS', 'Settings', 'Dispersers', 'Readers', 'ATG', 'Carwash', and 'Pricesigns'. The 'Dispersers' section is active and contains the following configuration options:

- Channel ID:** A dropdown menu set to '1'. To its right are 'Add Channel' and 'Remove Channel' buttons.
- Brand:** A dropdown menu set to 'Gilbarco'.
- COM Type:** A dropdown menu set to 'Ethernet'. To its right are 'Port:' and 'IP Address:' labels, followed by a dropdown menu and a text input field respectively.
- Dispenser ID:** A dropdown menu set to 'Channel Defaults'.
- Dollar Decimal Points:** A dropdown menu set to '2'.
- Volume Decimal Points:** A dropdown menu set to '3'.
- PPU Decimal Points:** A dropdown menu set to '3'.
- Channel Speed:** A dropdown menu set to 'Modular'.
- Special Function Commands (SFC):** A dropdown menu set to 'ON'.
- Hose Test:** A dropdown menu set to 'OFF'.
- Digit Mode:** A dropdown menu set to '6'.
- No handle to Authorize:** A dropdown menu set to 'Disabled'.

At the bottom right of the configuration area, there are 'Save' and 'Close' buttons.

Reader Configuration

Each channel requires a Brand selection to set the protocol for that channel. A COM Type is necessary to define the type of communication. If Serial, select the correct Port number from the dropdown list under Port. For Ethernet, type in the IP Address of the DBox. (DBox default IP Address is 192.168.0.200)

If all readers on the same channel will have the same configuration, select Channel Defaults in the Reader ID dropdown, then make the changes to the settings below. This will set all 16 readers on this channel to those settings. If there is a reader (or multiple readers) that is different from the rest, select that ID from the dropdown list to change just that position. Save changes when complete.

To add another reader channel, select Add Channel and follow the same steps to configure that channel. If using Ethernet, the IP Address of the DBox must be different from other DBoxes or other devices on the network.

To remove a channel from the configuration, select Remove Channel.

GUI POS Settings

Dispersers **Readers** ATG Carwash Pricesigns

Readers

Channel ID: 1

Brand: Gilbarco

COM Type: Ethernet Port: IP Address:

Dispenser ID: Channel Defaults

Baud Rate: 4800

Display Type: Single

RFID Installed: NO

EMV Enabled: NO

Barcode Enabled: NO

FuelDirect Sharp Test Utility

FDSharpTest.exe is a test utility to send commands to FDSharp that can connect to FDSharp over a socket. This connection can be made from the same PC on which FDSharp is installed, or from another PC that is on the same network. There can be multiple FDSharpTest connections made to the same instance of FDSharp.

Connection on the same PC

Set the IP Address to the local host (127.0.0.1) or to the IP Address of the PC. The default Port number is 9200 and is defined in the POS Section of the Show Configuration page of the FuelDirect Sharp GUI.

The screenshot shows the 'FD Sharp Test (C) 2019 Progressive International Electronics, Inc.' window. On the left, under 'Connection Type', three radio buttons are visible: 'PCC' (selected), 'PAM 5000', and 'Hyper PIB'. To the right, there are four input fields: 'IP Address' containing '127.0.0.1', 'TCP Port' containing '9200', 'Price Decimals' containing '3', and 'Amount Decimals' containing '2'. At the bottom, there are two buttons: 'Connect' and 'Disconnect'.

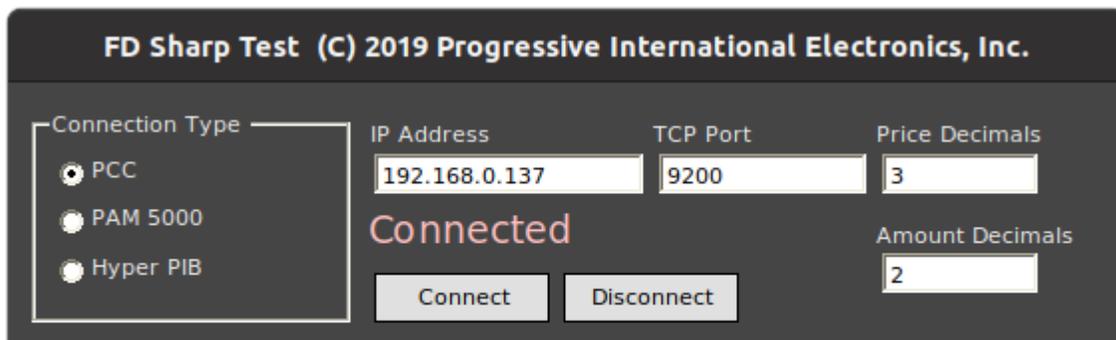
Connection from another PC on the same network

Set the IP Address to the IP Address of the PC on which FuelDirect Sharp is installed. The default Port number is 9200 and is defined in the POS Section of the Show Configuration page of the FuelDirect Sharp GUI.

The screenshot shows the 'FD Sharp Test (C) 2019 Progressive International Electronics, Inc.' window. On the left, under 'Connection Type', three radio buttons are visible: 'PCC' (selected), 'PAM 5000', and 'Hyper PIB'. To the right, there are four input fields: 'IP Address' containing '192.168.0.137', 'TCP Port' containing '9200', 'Price Decimals' containing '3', and 'Amount Decimals' containing '2'. At the bottom, there are two buttons: 'Connect' and 'Disconnect'.

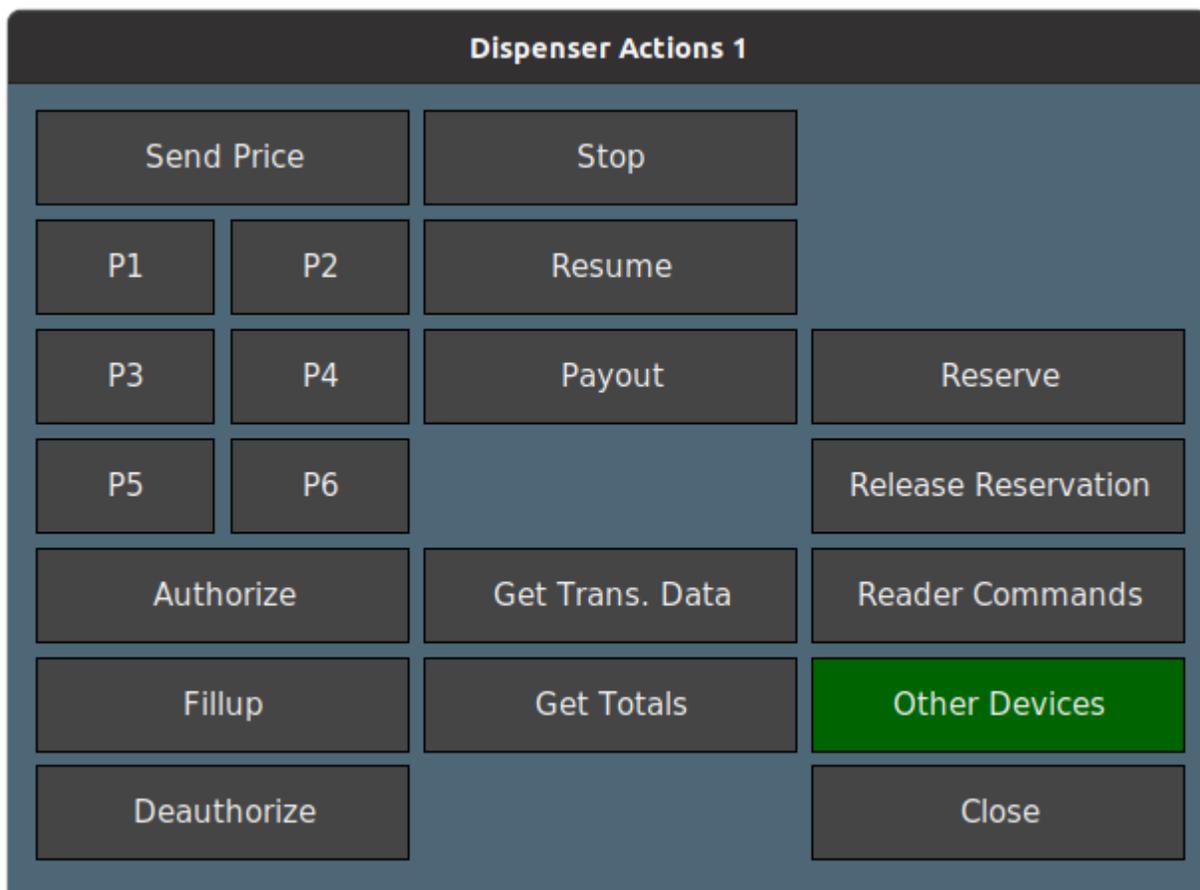
Connecting

Once the IP Address and Port numbers are entered, select the Connection Type and adjust the Decimal Point settings if necessary. Press Connect. If the information is correct, the GUI will indicate that it is connected. To disconnect, press Disconnect or close the program by pressing Exit.



Each button from 1 to 64 on the Test utility face represents a Fueling Position. Click on the button for the fueling position to be controlled. This brings up a Dispenser Actions window that contains all of the available commands for that fueling position number.

Commands



Button	Description
Send Price	Manually send prices to a hose or multiple hoses
P1	Sends a default price to Hose 1
P2	Sends a default price to Hoses 1-2
P3	Sends a default price to Hoses 1-3
P4	Sends a default price to Hoses 1-4
P5	Sends a default price to Hoses 1-5
P6	Sends a default price to Hoses 1-6
Authorize	Manually send a preset authorization
Fillup	Send a fillup authorization with no limit
Deauthorize	Deauthorize an authorized pump with the handle down
Stop	Stop a dispenser during a sale
Resume	Resume a stopped sale
Payout	Clear a completed sale
Get Trans. Data	Read the sale data (during a transaction for real-time data, or at the end of the transaction)
Get Totals	Read the Polled Totals of the dispenser
Reader Commands	Commands for a Reader with the same ID as the Dispenser selected
Other Devices	Commands for ATG, Carwash, and Price Signs

FuelDirect Sharp Diagnostics

FuelDirect Sharp Diagnostics can be accessed using a socket connection. This connection can be made from the same PC on which FuelDirect Sharp is installed, or from another PC that is on the same network. There can be multiple Diagnostics connections made to the same instance of FuelDirect Sharp.

Common Uses

Some common tasks in Diagnostics are:

- View FuelDirect Sharp version
- View Licensing information
- View/Capture communications to dispensers or readers
- View dispenser or reader information
- View Pump Block information

Accessing Diagnostics:

Open a terminal emulation program (PuTTY or HyperTerm)

- Connection Type: Raw [PuTTY] or TCP/IP (Winsock) [HyperTerm]
- Host name or address: 127.0.0.1 (for use on the same PC) or the IP address for the PC that has FuelDirect Sharp installed
- Port: 10005

Note: If using PuTTY, select Terminal from the Category section on the left of the PuTTY Configuration page. Change the "Local line editing" option to "Force off". This setting will prevent the need to press the Enter key after each selection.

Note: Configuration changes made in the brand-specific sections of the diagnostics will not be reflected in the program at this time.

Navigating Diagnostics:

Helpful hints to help navigate through FuelDirect Sharp Diagnostics

- Square brackets, [], surround instant "Push Button" actions.
- Angle brackets, < >, surround options that cycle through all possible values. For example, it might be used to cycle through a list of legal decimal point settings.
- As a special case, - and + are used to cycle through some common things, like pump or reader positions. These are not surrounded by angle brackets.
- Generally speaking, most menus will accept ESC as an exit.

FuelDirect Sharp as Omega JR Replacement

One of the POS protocols that FDSsharp uses is PCC. This is the same protocol used in our Omega JR external controller so FDSsharp could replace an Omega JR. This can be done in 2 ways. The first is to use the Black Box, and the second would be to install FDSsharp on the POS terminal.

FDSsharp has advantages over the Omega JR

- Significantly more logging options
- Does not require a physical connection with a laptop and USB cable to access Diagnostics.
- Diagnostics is a socket connection and can be made from any PC on the same network, so if any data captures need to occur for indefinite periods while trying to capture an intermittent issue, a laptop won't have to be left connected to the Omega JR only serving one purpose of capturing the data.
- Logs could be pulled remotely from FDSsharp at the same time that the POS manufacturer logs in and pulls logs from their terminal.

Black Box (Debian Linux)

FDSsharp can be installed on our Black Box and can be a drop-in replacement for the Omega JR. This option replaces one piece of hardware for another, but gives expanded functionality and access. If there is an internet connection, (which should be available because the POS terminals need it for processing credit card transactions) then PIE can have remote access to it.

Setup:

- Set the POS to use one of the com ports the same as when making a physical connection to the Omega JR
- Connect a Null Modem cable from the POS to COM1 of the Black Box
- In the POS section of the FDSsharp Configuration, set the POS port to use ttyS0
- Connect a straight-through serial cable from COM2 of the Black Box to the RS232 port of the DBox.
- In the Dispenser section of the FDSsharp Configuration, set the COM Type to Serial, and select ttyS1 for the Port.

FDSHarp installed on POS terminal

This option eliminates a piece of hardware that could potentially be a point of failure. FDSHarp can connect to the DBox using RS232, so the serial port that previously was going to the POS port of the Omega JR can now be used to connect to the RS232 port of the DBox.

Setup:

- The POS port of FDSHarp can be configured for a serial port, so a null-modem emulator can be used to connect the POS to FDSHarp without needing to occupy 2 physical com ports.
- Download and install Com0Com.
- When run, it should give a Paired set of Com ports (COM3 and COM6, for example.)
- Set the POS to use one of these com ports (COM3) as normal when making a physical connection to the Omega JR POS Port
- In the POS section of the FDSHarp Configuration, set the POS port to use COM6.
- Connect a straight-through serial cable from a serial port of the POS Terminal to the RS232 port of the DBox.
- In the Dispenser section of the FDSHarp Configuration, set the COM Type to Serial, and select the appropriate COM port for the Port.