

# FlexPort FP-USB Quick Start Guide

## *Congratulations on choosing the FlexPort FP-USB Gage Interface from Midwest FlexSystems, Inc..*

The FlexPort FP-USB units (FP-2USB/4USB/8USB) are designed for interfacing (connecting and converting) most measuring instruments to a computer via USB port. The FP-USB is a multi-function interface that includes RS232 Mode (serial output), HID Mode (keyboard wedge) and VCP Mode (Virtual Com Port driver).

**DB9: RS232 Mode – Standard RS232 output via DB9:** This is the standard output and connection that has been the industry standard for over 20 years. Standard serial cable is connected (supplied with interface) to serial port on computer. Output is in standard output format with count, reading, mode and channel numbers for port identification.

**USB: HID Mode – Keyboard Wedge:** No setup is required. The FP-USB works right out of the box. Connect the FP-USB directly to any USB port on a computer and collect data immediately. The computer will see the FP-USB as an additional keyboard and immediately allow readings to be entered into any program. Gage readings appear as if they were typed on the keyboard numeric pad. That means readings are entered just like displayed on gage...no data errors!

**Exclusive HID Functions:** In addition to sending readings, the FP-USB can send extra characters to enhance data collection. The FP-USB can automatically find row/column positions, add date/time stamps, move to different cells after data entry, and more.

**USB: VCP Mode – Virtual COM Port Driver (Will create next available COM Port: COM1, COM2, COM3, etc.):** Load the driver (included) for the FP-USB to access advanced features as well as create a Virtual COM Port (VCP). The computer will configure the FP-USB as the next available COM Port ; this will act just like previous DB9 or DB25 serial ports. The FP-USB will send data to the COM Port that can be captured by any software you choose.

**DEFAULT MODE:**

Gage Input:	Standard 10-pin, Mitutoyo Digimatic compatible device
Pass-Thru:	Default, connect together units for any number of inputs
Data Sending:	Data send input, 2.5mm jack Send button on gage or cable Flashing LED signals data send completed
Output:	Both DB9 and USB available DB9: Standard RS232 format USB: Virtual COM port mode default
Power:	Power supply included.

**OUTPUT FORMAT:** Full FP-USB Standard output format: 26 characters, comma delimited

Character position	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
Data String	#	#	#	#	,	#	#	#	#	#	#	#	#	#	#	,	-	-	-	-	-	,	#	#	CR	LF
Field name	Count					Reading											Mode						ID		Term	

Count: Number of reading

Reading: Actual reading on gage, with leading zeroes

Mode: Special mode of gage

ID: Channel number in interface of multiple ports

Term: Termination of gage reading; CR, LF

## ADVANCED FEATURES

The FP-USB units are advanced interfaces with many features not available in other standard interfaces. The FP-USB units do not require software to operate, but do allow access to advanced features through firmware built into the units. The firmware can be accessed via any terminal software program. FlexTerm Terminal Software is included on the driver disc.

- Open Terminal Software.** Select the serial port the FP-USB is attached and select "Open the Port" (Serial settings: 9600 baud, no parity, 8 data bits, 1 stop bit and flow control to NONE.)
- To access firmware type:** SPC
- Follow on-screen instructions to set up.**

FlexPort Interface Setup			
Port#	Gage Type(G)	Data Send(D)	Options(O)
01	Mitutoyo	Individual	5V
02	Mitutoyo	Individual	5V
03	Mitutoyo	Individual	5V
04	Mitutoyo	Individual	5V
Pass-Thru Port (No Connection)			
Special Options (None)			
Enter column and row to change: (e.g. To change Data Send on Port 2 = D02)			
Gage Type	= G##	About InfinityQS	= AB
Data Send	= D##	Exit and Save	= EX
Options	= O##	Exit Without Saving	= QU
Pass-Thru Port	= PASS	Default Configuration	= CFG
Enter Choice: __			

The optional setup routine allows advanced or custom features to be accessed. The standard FP-USB interface can be configured to create a custom data gathering system by simply customizing the many options available. For example: the firmware will allow configuration of the data send feature. The default setting for each port is individual port readings, but it can also be set to read all ports or any combination of ports.

**Host Commands:** Partial list of commands for interaction with the FP-USB Gage Interface

<b>Action</b>	<b>Command</b>	<b>Response</b>
Read an input (Ports 1–99)	R##<CR>	Will return gage reading on port ## (Replace ## with 2 digit port ID for desired port)
Read ALL inputs	RG<CR>	Will read all gages connected

#### Digimatic Code Connector Pin Assignments

<b>Pin</b>	<b>Name</b>	<b>Description</b>
1	GND	Reference ground
2	Data	Data
3	Clock	Clock
4	Ready	Data ready
5	Request	Request for data
9	Optional 5v output	Optional 5v output to gage/cable
0	GND	Reference ground
6, 7, 8	NC	No connection

#### RS-232 (DB9F) (EIA-232-D) Output Pin Assignments

<b>Pin Number</b>	<b>Signal Name</b>
2	RxD
3	TxD
5	Ground
<b>RS-232 Output format</b>	
9600 Baud	8 Data Bits
1 Stop bit	No Parity
Flow control: None	

**Open Configuration Menu:** Opens configuration menu in any terminal program to access advanced features

<b>Type</b>	<b>Description</b>	<b>Results/Options</b>
SPC	Send to FP-USB to enter configuration menu	Opens configuration menu...allows custom features

**Menu Selections:** Partial list – additional configuration options not listed

<b>Commands</b>	<b>Select the feature you want to modify</b>	<b>Allows customization of features</b>
D##	Controls what happens when footswitch is triggered	None - ignore the footswitch
		Individual - send the reading from individual port
		Global - send data from all gages connected
		Individual TIR - perform TIR on individual port
		Global TIR - perform TIR on all gages connected
		Selective - choose up to 10 ports to be sent when triggered
		Signal trigger - sends 'FOOTSWITCH' in reading field
O##	Select options, effects only port selected	Force output to IN or MM, regardless of gage output
		Supply gage with 5 volts DC on pin 9 of connector
		Change sign (+/-) of output data
		Timeout - reset gage request if no response from port (i.e. dead battery / gage unplugged)
SPL	Select special options, effects all inputs	Output baud rate - select from 2400 to 38400 (regardless of input or output formats – 9600 default)
		Output format - Full, ID & Reading, Reading Only, Mitutoyo MIG, or MUX10 output
PASS	Set up parameters for the Pass-Thru Port (DB9M)	Default - Pass reading & channel number to PC
		RS232 Input – Capture up to 10 readings from a single output string (i.e. X,Y and Z readouts)
SD	Serial Decode for direct connection of serial devices	Allows user to view serial data as received by MIG-USB. Enter the communication settings and then send a gage reading; all data received will be displayed.
F##	Program FlexConnect Cables on the selected port	Enters configuration menu of FlexConnect Cable -This allows full control over cable and response
USB	Configure the FlexUSB output. FlexUSB output is advanced feature with both USB serial and HID keyboard	Enters configuration menu for FlexUSB output. FlexUSB enables HID output, Excel table mapping, select termination characters for data string in HID for movement inside spreadsheets.
AB	Displays manufacturer information	Includes address and phone number of manufacturer
CFG	Resets unit to default configuration	Reset to factory defaults
EX	Exit and save configuration	Saves configuration and exits program