

Metlogix® DFG Series Digital Force Gage

Thank you for choosing the DFG Series force gage.

This Quick Reference Guide is an overview of the basic functions available with your instrument. For detailed instructions on instrument setup and operation, please refer to the electronic user manual. You may download a copy of the user manual at www.metlogix.de.

Introduction

The DFG Series is an easy-to-use, accurate and repeatable force gage for tensile and compression applications. The DFG Series may be used as a handheld instrument or it may be mounted to a Metlogix motorized or manual test frame.

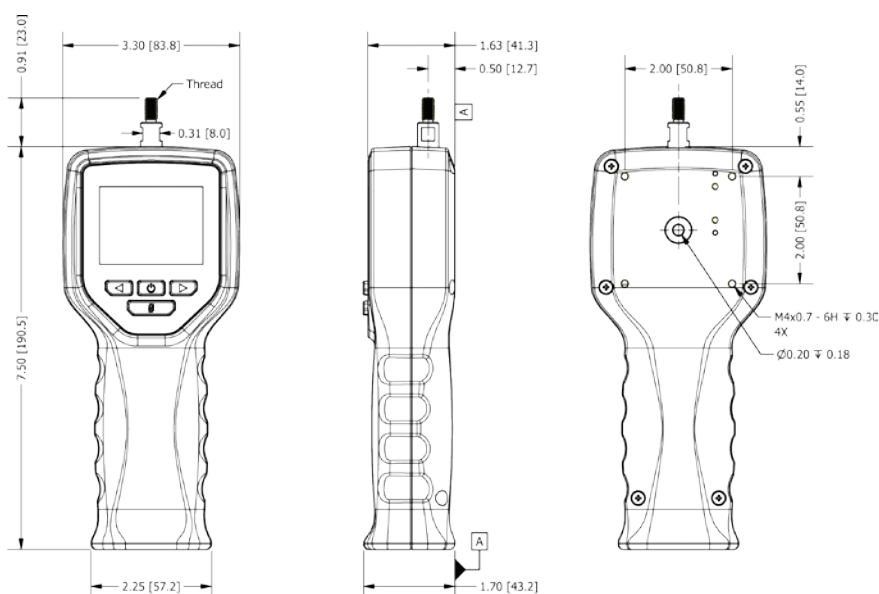


Metlogix DFG Series Force Gage	
Specification	DFG Series
Accuracy, Full Scale	0.2%
Data Sampling (Hz)	10,000
Display Resolution	5,000:1
Safe Overload, Full Scale	200%
Maximum Tare	10%
Communications	
USB 2.0	Yes
RS-232	Yes
Memory, saved results max.	50
Operating Mode	
Real Time	Yes
Peak Compression	Yes
Peak Tension	Yes
Power, Environmental	
Battery Type	Lithium Ion
Battery Life, @ 20% brightness	>30 hours
Charge Time, using 110/240V Mains	<3 hours
Display (OLED)	320 x 240
Operating Temperature	40°F to 110°F (4°C to 43°C)
Thread, for adapters (Metric)	M6, M10
Instrument Weight (approx.)	3 lbs (1.36 kgs)
CE Compliance	
EN61010-1 Safety for Electrical Equipment	Yes
EN61000-6-3 EMC Generic Emissions	Yes
EN61000-6-1 EMC Generic Immunity	Yes

DFG Series - Force Gage									
Model	Load Capacity					Full Scale Deflection		Thread	Accessory Kit
	N	KGF	LBF	OZF	GF	mm	inch	mm	
DFG-10	50	5	10	160	5000	0.15	0.006	M6 x 1-6H	SPK-FG-S
DFG-20	100	10	20	320	9000	0.20	0.008	M6 x 1-6H	SPK-FG-S
DFG-50	250	25	50	800	23,000	0.39	0.015	M6 x 1-6H	SPK-FG-S
DFG-100	500	50	110	1600	45,000	0.60	0.024	M6 x 1-6H	SPK-FG-S
DFG-200	1000	100	225	-	-	0.54	0.021	M6 x 1-6H	SPK-FG-M
DFG-500	2500	250	550	-	-	0.70	0.028	M10 x 1.5-5H	SPK-FG-L

NOTES

Load measurement accuracy is $\pm 0.2\%$ of load cell capacity. Display resolution is 5,000:1.



Keypad and Navigation

The DFG keypad is multi-functional. There are four keys.

On/Off/Menu Key

This key is used to power the gage on/off. Press to power the gage on. Press and hold for 3 seconds to power the gage off.

This key is also used to access the Setup Menu. When the gage is powered ON, press to access the Setup Menu.

This key is also used to navigate UP when in the Setup Menu.



Zero Key

This key is used to zero the displayed values. Press to zero load.

This key is also used to navigate DOWN when in the Setup Menu.



Softkey 1

This is the left arrow key. It is used to move out of a setup when in the Setup Menu.



This key may also be mapped to a specific function.

The Setup Menu has a Key setup function where you may assign how Softkey 1 performs. For example, you can assign a SAVE function to the key. When pressed, the measured values are "saved" to memory.

Softkey 2

This is the right arrow key. It is used to move in to a setup when in the Setup Menu.



Like the Softkey 1, it also may be mapped to a specific function. For example, you can assign a MODE function to the key. Pressing the key can change the operating modes of the gage. You can switch from Real Time to Peak Tension by pressing Softkey 2.

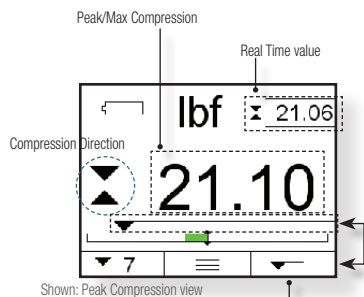
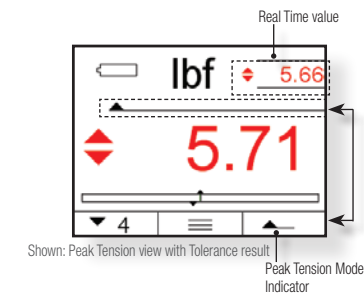
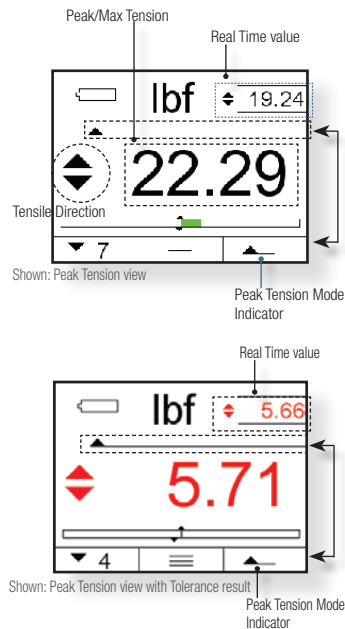
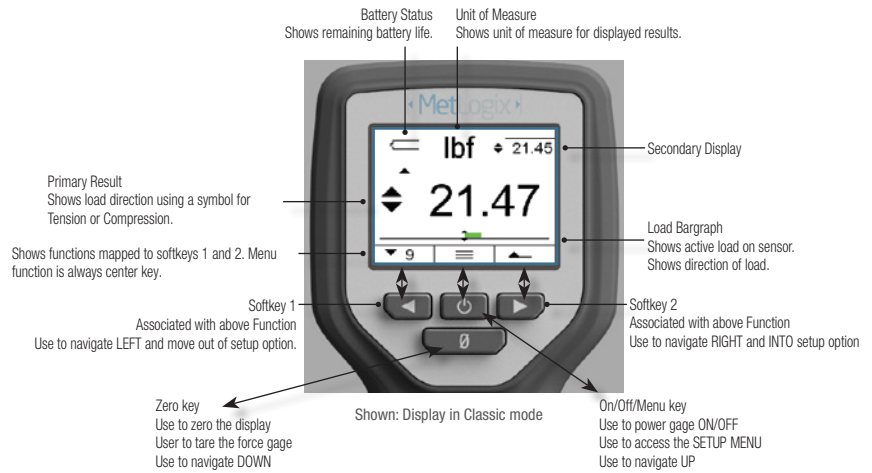
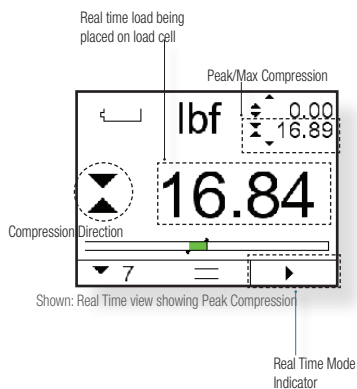
Display Layout

The force gage features a high-resolution OLED color display with adjustable backlight. The backlight may be adjusted from a setting in the Main Menu.

The DFG Series features a primary and secondary display window.

Display Types

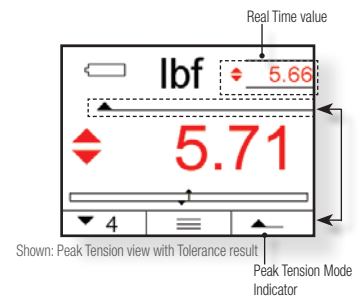
Primary Display	Secondary Display
Real Time	Peak Measurement
Peak Tension	Real Time Measurement
Peak Compression	Real Time Measurement



Using Tolerance Limits

Use tolerances to setup "pass" and "fail" measurements. You may specify a Limit 1 and a Limit 2 to create a tolerance band. Measured results that equal or fall within the range created by the two limits are considered "pass" results. If the measured result falls outside the band created by the two Limits, the result is considered a "fail" result. A "fail" results displays in RED.

- Press ▼ Move to TOLERANCE
- Press ► Select ENABLE
- Press ▼ Move down to LIMITS
- Press ▼ Move down to LIMIT 1
- Press ► Select Limit 1 value using ▼▲
- Press ◀ Move out of LIMIT 1
- Press ▼ Move down to LIMIT 1
- Press ► Select Limit 2 value using ▼▲
- Press ◀ Move out of LIMIT 2
- Press ► Move out of TOLERANCE



Saving Results

The DFG Series feature an internal memory for saving results for the purpose of calculating and displaying statistics. You may save up to 55 individual results in memory.

To save results to memory, you must configure a softkey with the SAVE function. Press the SAVE softkey to save the displayed results to memory.

Results saved to memory MUST be of the same type. You cannot have mixed type results. For example, you cannot save tension results with compression results. Results MUST be of the same type.

Management of the DFG Series memory is important to ensure correct statistical analysis. Always clear old results that are from a different test method.

Clear Results from Memory

Results in memory may be cleared individually or collectively. To clear an individual result from memory, go to the STATS view. Select the results you want to clear. Select the "X" (delete) key.

To clear all results from memory, go to the Memory setup and select CLEAR. This will erase all results for the gage's memory.

View Statistics

You must configure a softkey with STATS to view statistics. When results are saved to memory, you press the STATS softkey to view results in memory and the statistics for those results.

Export Results

you must configure a softkey with SEND to export to an external device via RS232 or USB. Press the SEND softkey to export the displayed result.

Gage Setup

Modes

Press ▲ for Menu
Press ▼ for Modes
Select your Mode, press ◀ to exit setup

Units

Press ▲ for Menu
Press ▼ for Units
Select your Units, press ◀ to exit setup

Memory

Press ▲ for Menu
Press ▼ for Memory
Press ► to Display results from memory
Press ► to Clear results from memory
Press ► to Export results from memory
Select your Units, press ◀ to exit setup
* You must configure a softkey to display memory and statistics.

Tolerance

Press ▲ for Menu
Press ▼ for Tolerance
Press ► to Enable Tolerance
Press ► to setup Limit 1, select Limit 1 value ▲▼
Press ► to setup Limit 2, select Limit 2 value ▲▼
Press ◀ to exit setup

Keys

Press ▲ for Menu
Press ▼ for Keys
Press ► to specify a Sound for key presses
Press ► to specify Softkey 1 function
Press ► to specify Softkey 2 function
Press ◀ to exit setup

* Certain gage functions require a softkey to be setup in order to use the function- Memory, Statistics, Export (Send)

Settings

Press ▲ for Menu
Press ▼ for Settings, select Settings Type

Communications

Press ▼ for Communications (Comms)
Press ► to specify the Data Channel method for exporting results: USB, RS-232, or BT (Bluetooth)
Press ▼ to select RS-232
Press ▼ to select RS-232 Baud Rate
Press ▼ to setup direction sign (- default for Compression)
Press ▼ to transmit Units
Press ▼ to transmit Tolerance Limits
Press ◀ to exit Comms setup

Display

Press ▼ for Display
Press ► to setup Auto Off
Press ► to setup Backlight Brightness
Press ► to setup Flip orientation (required for TESTS feature)
Press ► to setup Radix
Press ◀ to exit Display setup

Filters

Press ▼ for Filters
Press ► to specify filter rate
Press ◀ to exit Filter setup

About

Press ▼ for About
Press ► to view the gage's characteristics, serial number, overload history and more.
Press ◀ to exit setup
* The About setup is read-only.

Password

Press ▼ for Password
Press ► to Enable a Password
Press ▲▼ to select the Passcode
Press ◀ to exit setup

Language

Press ▼ for Language
Press ▼ to your preferred display language
Press ◀ to exit setup
Press ▼ to your preferred display language
Press ◀ to exit setup

Charging Battery

Connect the USB cable supplied with your DFG Series to the USB connector at the base of the gage. Connect the opposite end of the cable to the USB connector on a source device, i.e., personal computer, USB adapter.

If the DFG Series is connected to an FMM Series test frame and power to the frame is ON, the DFG Series battery is continuously charged.

Communicating with External Devices

The DFG Series can communicate using USB 2.0 and RS-232. Select the Data Channel type to be used.

Protocol	Where to Use
USB 2.0	Charge DFC Battery
	Upload firmware and new features to DFG from a PC
	Export data to a printer
	Export data to a PC
RS-232	Communicate with FMM Series digital force tester
	Charge DFG Battery when connected to the FMM digital force tester
	Communicate with a serial printer
	Communicate with a serial external computer or hard drive

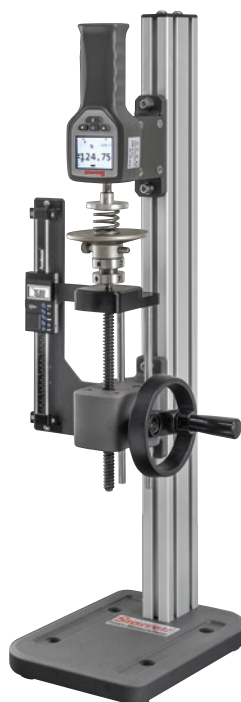


Gage Setup Menu Structure

Modes	Units	Memory	Tolerance	Keys	Settings
Real Time	ozf	Display	Enable	Enable	Comms
Peak Tension	lbf	Clear	Limit 1	Softkey 1	Data Channel
Peak Compression	gfi	Export	Limit 2	Send	RS-232
				Units	Xmit Comp -
	N			Save	Xmit Units
				Mode	Xmit TOL
				Stats	Display
				Start/Stop	Auto Off
				Return 0	Backlight
				Softkey 2	Flip
				Send	Radix
				Units	Filter
				Save	About
				Mode	Password
				Stats	Language
				Start/Stop	English
				Return 0	Deutsch
					Espanol
					Portugues
					Francais
					Italiano
					Chinese
					Russian
					Polski
					Czech



Shown: DFG Series mounted to FMM-110 digital test frame



Shown: DFG Series mounted to MTH-550 manual test frame



Shown: DFG Series mounted to MTL-110 manual test frame

Digital Force Gages		
Specification	DFC Series	DFG Series
Accuracy, Full Scale	0.1%	0.2%
Data Sampling (Hz)	25,000	10,000
Display Resolution	10,000:1	5,000:1
Safe Overload, Full Scale	200%	200%
Maximum Tare	10%	10%
Communications		
Bluetooth®	Yes	No
USB 2.0	Yes	Yes
RS-232	Yes	Yes
Digital I/O	2 channels	No
Memory, maximum results saved in gage	99	50
Operating Mode		
Machine Control¹	Yes	No
Real Time	Yes	Yes
Peak Compression	Yes	Yes
Peak Tension	Yes	Yes
Load Limit	Yes	Yes
Break Limit	Yes	No
Load Average	Yes	No
Load-Time Average	Yes	No
Cyclic Count (99,999 maximum)	Yes	No
Cyclic Duration (27 hours)	Yes	No
Hold Duration (27 hours)	Yes	No
Power, Environmental		
Battery Type	Lithium Ion	
Battery Life, typical @ 20% brightness	>30 hours	
Charge Time, using 110/240V Mains	<3 hours	
Display	OLED High Resolution	
Operating Temperature	40°F to 110°F (4°C to 43°C)	
Thread, for adapters	Metric M6, M10	
Instrument Weight (approx.)	3lbs (1.36kgs)	

NOTES

1. Machine control is exclusive to the DFC. When connected to the FMM Digital Force Tester, configuration of force gage and tester is performed through the gage.

Metlogix offers two models of digital force gages. The DFC Series is our most advanced gage. The DFC Series can be used as either a gage or a controller. As a controller, the gage can be used to measure load and control the Metlogix FMM Series test frame.



Shown: DFC Series displays both Load and Distance when connected to the FMM test frame.