

GF603 Three-Axis Fluxgate Magnetometer



- Finest Resolution 0.1nT
- The First DC/AC Measurement Mode Switch
- Real-time Spectrum Analysis

Description:

Three-axis Fluxgate Magnetometer GF603, made by COLIY, has the excellent ergonomic design with the latest electronic technology, and it's one of best choices to measure low-intensity magnetic field. This handheld fluxgate magnetometer can be used in geomagnetism detection, wrapped detection, traffic monitoring, measuring residual magnetism, low-intensity magnetic field measurement, etc. GF603 boasts with an industrial class 3.2 inches touch panel display that enables customers' instantaneous and simultaneous measurement results [Max/ Min/ Peak/ Hold/ Alarm/ Polarity, XYZ components and vector of Magnetic Flux Density, Trend Graph and Real-time Spectrum Analysis (as an optional function) etc.].

Magnetometer GF603 can be used to detect DC magnetic field in DC measurement mode and AC magnetic field in AC measurement mode respectively: GF603 allows DC measurements with a basic accuracy of 0.5%, resolution of 0.1nT and AC measurement with a basic accuracy of 1%, resolution of 0.1 μ T, and frequency response range of DC~ 1KHz. In addition, Magnetometer GF603 could be equipped with 3-Axis Probes of different range: $\pm 100\mu$ T, $\pm 500\mu$ T and $\pm 1000\mu$ T.

Features

- | | |
|---|---|
| <ul style="list-style-type: none"> ● Ergonomically designed ● Colorful display style ● GUI Operation System ● 3.2 inches color touch LCD ● Full 5 display digits ● Max/Min/Hold Function ● Display trend graph & Alarm ● Display XYZ components and vector ● S or N Polar indication | <ul style="list-style-type: none"> ● Range: $\pm 100\mu\text{T}$, $\pm 500\mu\text{T}$ and $\pm 1000\mu\text{T}$ ● DC Basic Accuracy: 0.5% of reading ● AC Basic Accuracy: 1% of reading ● Finest resolution: 0.1nT ● DC/AC measurement mode switch ● Frequency response: DC- 1KHz ● Stability: $\pm 1\text{nT}/\text{Axis}$ (8 hours, 25 °C) ● Smart record and review ● [Option] Real-time spectrum analysis |
|---|---|

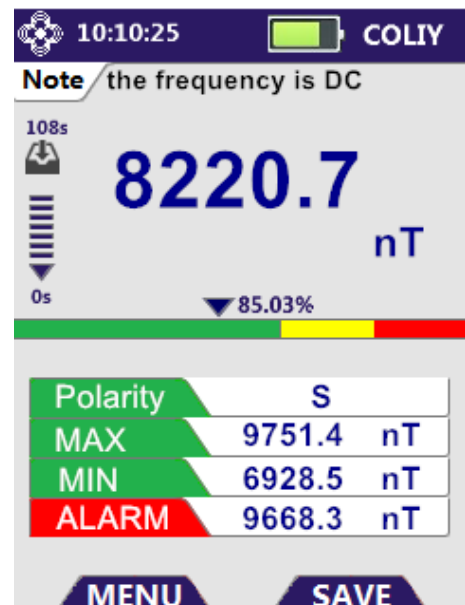


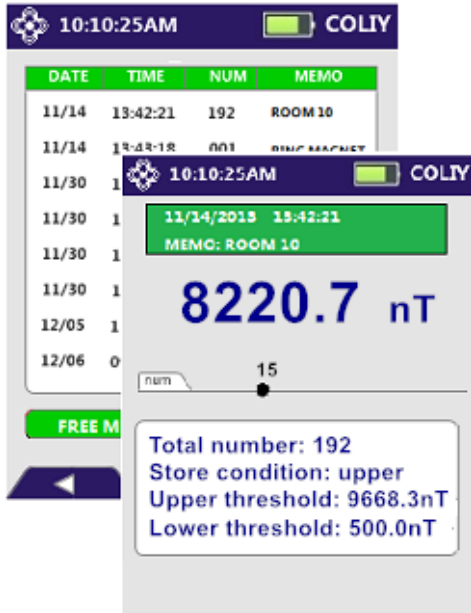
GUI Operation System

With the handheld instrument operating system (GUI Operation System) developed by COLIY, it's very efficient and convenient for operators to choose menu by touching, to operate gaussmeter.

Display Style

Color LCD shows magnificent data: time, value, polarity, Max, Min, note, Alarm, XYZ components and vector of Magnetic Flux Density, trend graph.





Smart Record and Review

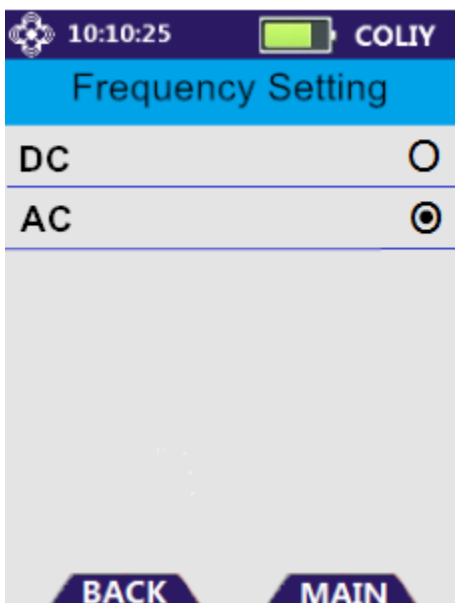
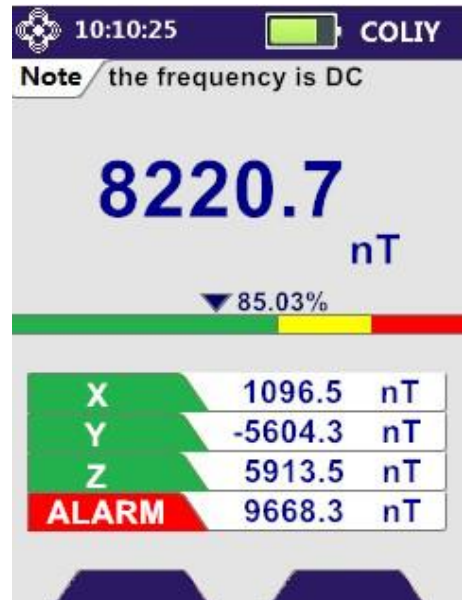
Detailed record list, operators can use MEMO to memorize any specification of every measurement.

Click any record list, operators can review all the information recorded as screen shots and add note to every item.

XYZ Display Mode

GF603 has many display modes to be chosen: Standard Mode, XYZ Mode, Graph Mode, Polarity Mode and Simple Mode.

And XYZ Mode shows vector value, XYZ component values and alarm value in the same time.

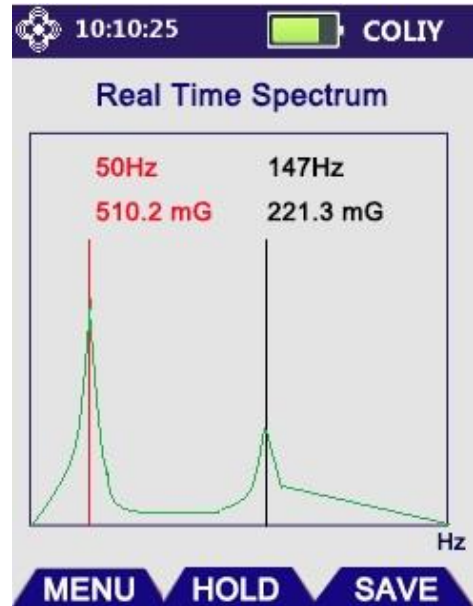


AC Measurement Mode

GF603 can be used to detect DC magnetic field in DC measurement mode and AC magnetic field in AC measurement mode respectively, and the frequency response range is DC~1KHz.

Real-time Spectrum Analysis

GF603S has the function of real-time spectrum analysis within the frequency range DC- 1 KHz.

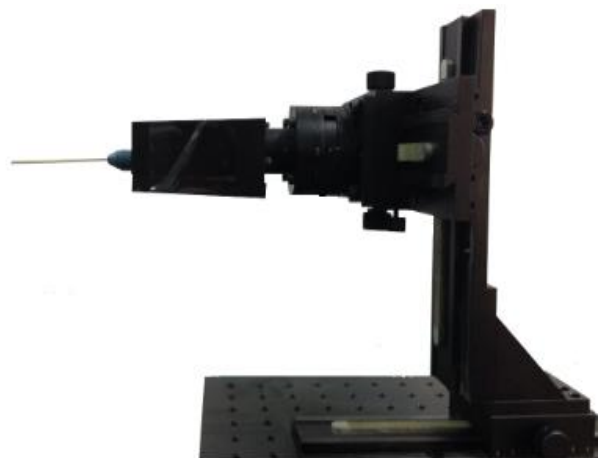


Magnetic Pole Direction

GF603 could show the clear polar indication by a colorful and dynamic cartoon picture. Picture in the left is adopted from Polar Mode displayed in the LCD screen during operation.

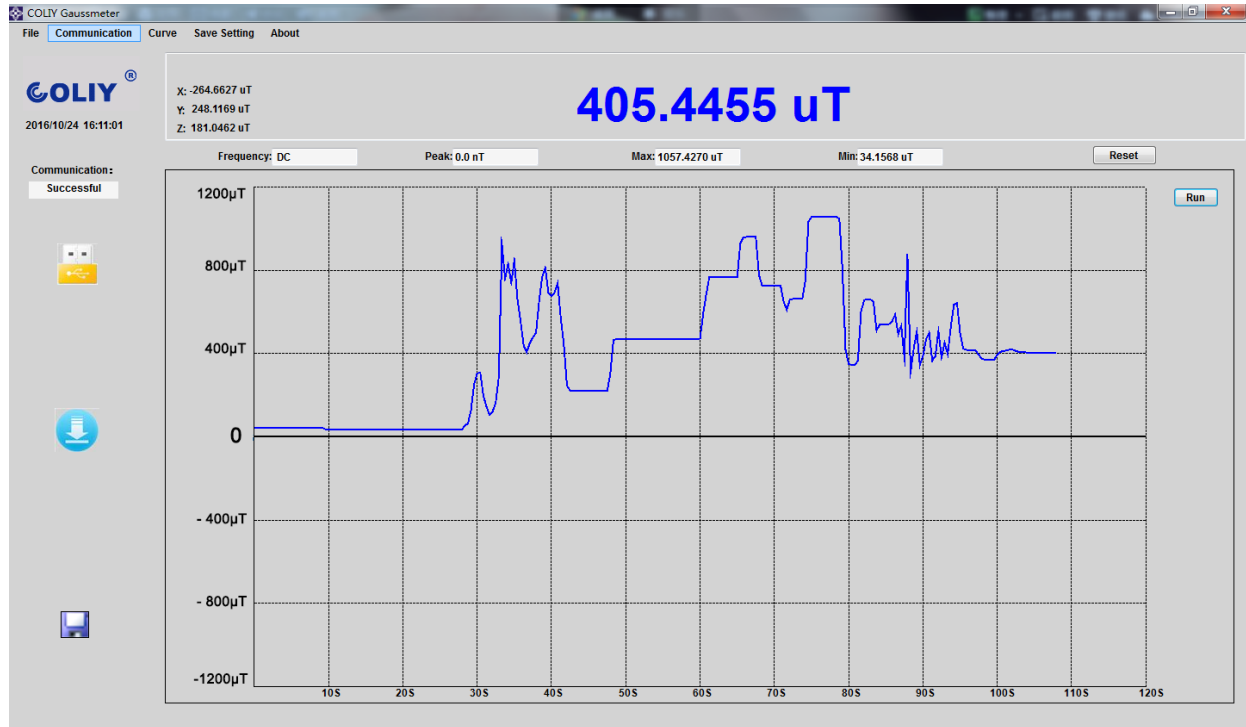
3D Movement Platform

3-Direction Precision Movement Platform, is made of non-magnetic material. Users fixed the probe on the bracket front-end, and then manually rotate the knob so that the probe moves stably along the X, Y, Z-axis to a certain position and lock fixed. Maximum stroke of each axis is 150mm, and positioning accuracy is 0.1mm.



SMART PC Software

SMART computer software has up to 7 digital readouts, and it has rich features: Automatically record and display trend graph; Display XYZ components and vector of magnetic flux density, maximum and minimum in real time; Export saved data from the gaussmeter host; Record and save measurement data in real time.



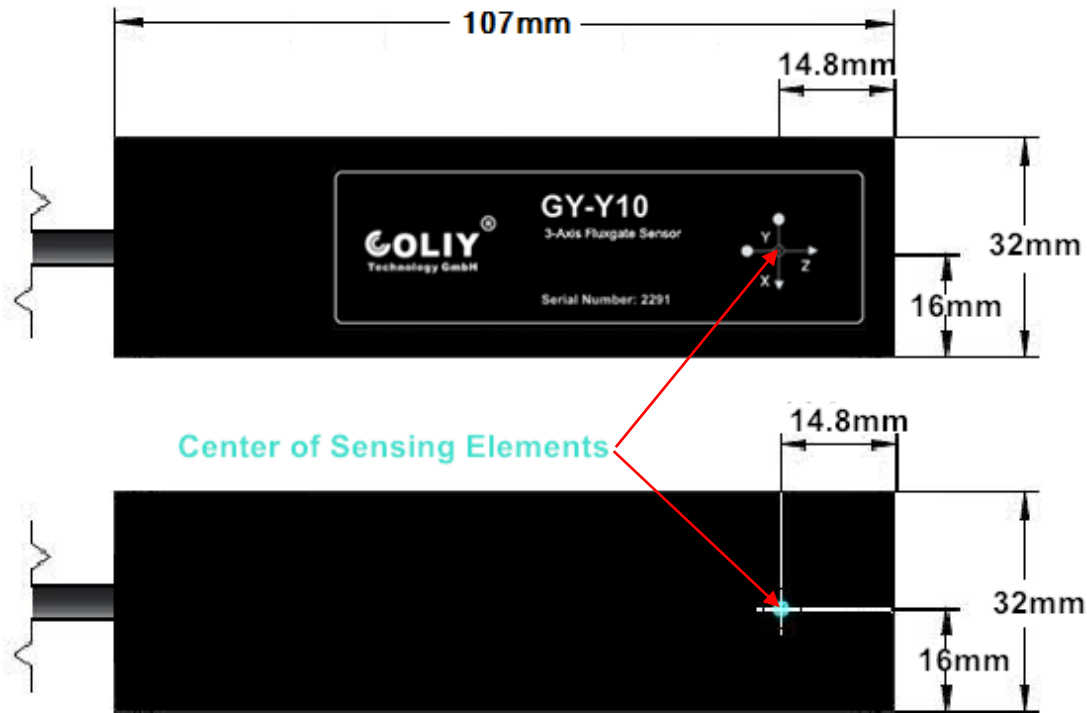
GF603 Magnetometer Specification:

Model		GF603			
Measurement Specification					
Accuracy		DC	±0.5% of reading ± 0.05% of Full Scale(FS)		
		AC	±1% of reading ± 0.05% FS, when $f_T \leq 300\text{Hz}$; ±2% of reading ± 0.05% FS, when $300\text{Hz} < f_T \leq 500\text{Hz}$; ±10% of reading ± 0.05% FS, when $500\text{Hz} < f_T \leq 1000\text{Hz}$		
MAX Range	X, Y, Z	DC	±1G (±100,000.0nT)	±5G (±500,000.0nT)	±10G (±1,000,000nT)
		AC *	±0.7G (±70.0μT)	±3.5G (±350.0μT)	±7G (±700.0μT)
	R	DC	1.732050G (173,205.0nT)	8.660250G (866,025.0nT)	17.3205G (1,732,050nT)
		AC *	1.212G (121.2μT)	6.062G (606.2μT)	12.124G (1,212.4μT)
Finest resolution	X, Y, Z, R	DC	1μG(0.1nT)	5μG(0.5nT)	10μG(1nT)
		AC	1mG(0.1μT)	5mG(0.5μT)	10mG(1μT)

Minimum Magnitudes for Rated AC Accuracy	1mG(0.1μT)	5mG(0.5μT)	10mG(1μT)
Display Digits	5 digits (More display digits will be shown in supporting PC software)		
Frequency Response [f _r]	DC - 1KHz		
Typical Temperature Coefficient	<±100ppm/°C		
Hysteresis	<2nT for exposure to up to 2 x full scale		
Zero Drift	±1nT/Axis (8 hours, 25 °C)		
Long-term Instability	±1nT/Axis (8 hours, 25 °C)		
MAX/ MIN Acquisition Time (DC)	1ms		
Front Panel			
Screen	3.2 inches colorful tough LCD,320x240 Pixel		
Units	Gauss(G), Tesla(T), Amperes per meter (A/m)		
Display Update Rate	3 readings/second		
Display Mode	DC, AC, Vector, XYZ Components, MAX, MIN, Trend Graph, Alarm, Polarity Indication, Real-time Spectrum [Option] etc.		
Panel Feature	Color resistive touch screen		
Probe			
Probes	Model GF-Y01, GF-Y05 and GF-Y10 (Probes Specification will be shown in the following table)		
USB Interface			
Function	To connect PC with magnetometer host for monitoring the measurement		
Data Update Rate	MAX. 30 Sample/s		
Software/ Driver	SMART PC Software without any driver		
Host Specifications			
Operating Temperature	+15°C to +35°C (Rated Accuracy) -10°C to +60°C (Reduced accuracy)		
Storage Temperature	- 20°C to +75°C		
Ambient Magnetic Field	<10KG (1T)		
Start-up Time	150 ms		
Warm-up Time	15 min		
Battery	Rechargeable 4500mAH Li-ion		
Operating Battery Life	5 hours; Can be charged by AC power or portable battery		
Dimension	238 mm W x 95 mm H x 42 mm D		
Weight	350g		
Certification	CE Certification, EMC Certification		

“*”: **AC Range** mentioned above refers to AC magnetic field measurement range after DC magnetic field is shielded, so if DC magnetic field is not shielded, and users want to measure magnetic field in AC measurement mode, **AC Range** is equivalent to the value that 0.7 times of **DC Range** minus DC magnetic field intensity. [$\sqrt{2}/2 \approx 0.7$]

Probes Specification



Model GF603 Magnetometer Probes

Probe Model	MAX Range ¹		Finest Resolution (X, Y, Z, R)	Frequency Response	Temperature Coefficient	Offset Error in Zero Field	DC Accuracy ² (Based on reading at 25°C)	Stem material
	X, Y, Z Axis	Vector R						
GF-Y01	±100,000.0nT (±1G)	173,205.0nT	0.1nT (1μG)	DC-1KHz	<±0.01%/°C	±5nT	0.5%	Plastic
GF-Y05	±500,000.0nT (±5G)	866,025.0nT	0.5nT (5μG)	DC-1KHz	<±0.01%/°C	±5nT	0.5%	Plastic
GF-Y10	±1,000,000nT (±10G)	1,732,050nT	1nT (10μG)	DC-1KHz	<±0.02%/°C	±10nT	0.5%	Plastic

Note:

1, Three-axis fluxgate probe can be customized within ±10G; Unit Conversion: 1G=100,000nT;

2, DC Accuracy mentioned above refers to DC accuracy based on reading, not the DC accuracy based on measurement range;

3, Fluxgate probe's dimension: 107 x 32 x 32mm, and its operating temperature: -20°C to +60°C;

4, Fluxgate probe's environmental protection / sealing is IP66 by default;

5, Please contact Coliy for probes with higher environmental protection, like supporting the fluxgate probe in the long-term work of 2000 meters underwater.

Optional Accessories

Model	Descriptions
SAMRT PC Software	PC SOFTWARE for Magnetometer
GHOLD100	3-Direction Precision Movement Platform, is made of non-magnetic material. Users fixed the probe on the bracket front-end, and then manually rotate the knob so that the probe moves stably along the X, Y, Z-axis to a certain position and lock fixed. Maximum stroke of each axis is 150mm, positioning accuracy of 0.1mm; center load: 10kg; weight: 3.5kg
Probe Extension Cable	MAX length is 500m
DC Test Report	[Free of charge] DC accuracy test report; [Optional extra] DC accuracy, resolution, and zero drift test report
AC Test Report	[Optional extra] AC accuracy and frequency response test report

The most popular configuration
Package Product No. GF60301: Magnetometer GF603 + Probe GF-Y01
Package Product No. GF60305: Magnetometer GF603 + Probe GF-Y05
Package Product No. GF60310: Magnetometer GF603 + Probe GF-Y10
Package Product No. GF603S01: Magnetometer GF603S + Probe GF-Y01
Package Product No. GF603S05: Magnetometer GF603S + Probe GF-Y05
Package Product No. GF603S10: Magnetometer GF603S + Probe GF-Y10

Description Of Magnetometer Host Type Selection

Magnetometer	Description
GF603	Magnetometer <i>WITHOUT</i> the function of real-time spectrum analysis
GF603S	Magnetometer <i>WITH</i> the function of real-time spectrum analysis

Description Of Probe Type Selection

GF	Y	01
PROBE PRINCIPLE	PROBE TYPE	MEASUREMENT RANGE
GF- Fluxgate Probe	Y- Three-axis Probe T- Transverse Probe A- Axial Probe ...	01- Range of 1G/Axis 05- Range of 5G/Axis 10- Range of 10G/Axis

Compare With Competitors

COLIY has an advantage	COLIY GF603	MEDA FVM400
MAX Range	10G (1000 μ T)	1G (100 μ T)
DC/AC Measurement Mode	DC Mode & AC Mode	DC Mode
Finest Resolution	1 μ G (0.1nT)	10 μ G (1nT)
Frequency Response	DC- 1KHz	DC- 100Hz
Operation System	GUI	Button Control
Polar indication	YES	NO
Smart record and review	YES	NO
Alarm Function	YES	NO
Real-time Spectrum Function	Option	NO

Due to continuous process improvement, specifications subject to change without notice.

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