

ZOGLAB

SG6

SIGNAL GENERATOR & CALIBRATOR

Digital multimeters + Signal generator
Calibrator + Data logger
Field communicator + File manager



CE FC





SG6

Digital multimeters + Signal generator + Calibrator + Data logger + Field communicator + File manager

SG6 is an intelligent signal calibrator with high-precision measurement calibration and signal generator in one . It can simultaneously output / measure multiple electrical signals, and supports a variety of communication modes, such as RS485 bus, HART, Wi-Fi, BT, GPRS, GPS, Compass, etc., with functionality, practicality, convenience.

SG6 has a 7 inch TFT touch screen, multi-language user UI; a portable, lightweight, waterproof and dustproof, hot-swappable with dual batteries, with ergonomic design; can be widely used in various industrial fields, such as meteorology, power, petrochemical, pharmaceutical , food and other industries.

With six working modes of measuring, generation, calibration, logging, communication, file, it means SG6 is not only a calibrator, but also a perfect combination of digital multimeter, signal generator, data logger, field communicator and file manager. With such a multifunctional machine for easy operation, paperless calibration and file management,SG6 makes your work more efficient and accurate.

Unmatched Accuracy

High accuracy of SG6 is the non-negotiable standard at the very beginning. It can fit various changes form environmental factors, and avoid the accuracy effect from low and high temperature, humidity and dust. Each SG6 is equipped with a calibration certificate which is issued by the accredited ZOGLAB laboratory; data is traceable, and ensure the accuracy and stability of the device.

Convenient Application Design

SG6 is portable and operates flexibly. Large screen, press key; the size, weight and shape designed for hand-held ; dual battery support hot-swappable to ensure long-term working time; universal and extended in two modes, supporting multiple signals to simultaneously generate and measure.

Friendly Human-machine Interactive Interface

The interactive interface of SG6 is simple and beautiful, and each part of the design is to meet users' demand. Six flexible switchable modules, equipped with shortcut keys of holding value, locking screen, day and night mode switch. Wiring instructions can avoid misuse; support online upgrade and customization services.

Advanced Communications and Storage

SG6 supports Ethernet, Wi-Fi, Bluetooth, serial port, HART, USB and other communication modes; supports GPS, and Compass positioning system. Equipment internal storage space is 1G, and extended storage supports SD / SDHC card with the maximum storage capacity up to 32G.



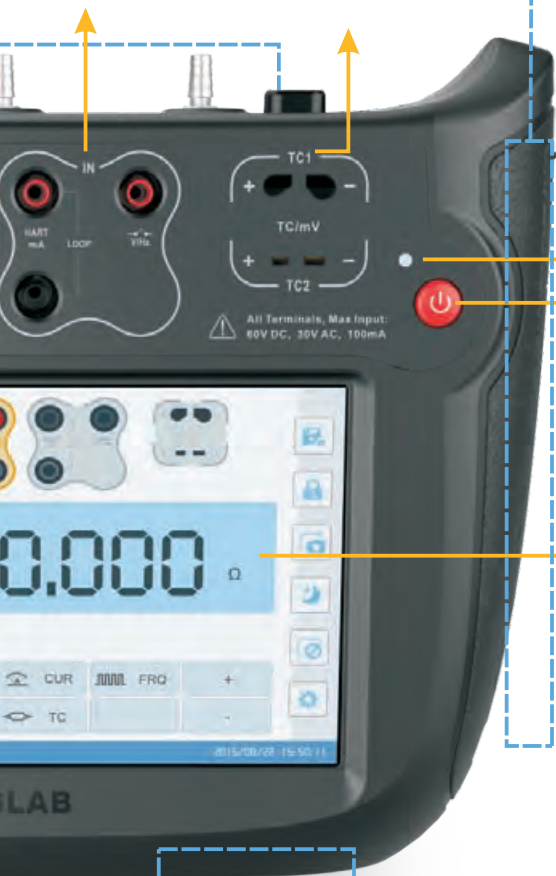
SG6 • Host Machine





Voltage / Current / Frequency measurement

Thermocouple measurement / Analog, mV voltage measurement / Voltage



Interface area



Indicator light

Power key

Power on/off

User interface

Function module selection, Instrument operation and Status display, etc.

SD card interface



* Pressure measurement as an optional function

Interface Overview

SG6 intelligent signal calibrator supports six modes of measurement, generation, calibration, logging, communication, file.

The main interface is divided into seven function areas: operating mode switching area, wiring instructions area, number display area, shortcut keys area, status display area, signal selection area, time display area.

Under measurement and generation mode, the top middle of the screen is the wiring instruction area designed to avoid user operation errors; the middle of the screen is the data display area, with high-definition display various types of data for user's check; below of the screen is the signal selection area, including all types of measurement switch and easy operation.

Right of the screen is the shortcut key area, including six shortcut keys of storage, hold, screenshots, day and night mode, lock screen, setting. The bottom left of the screen is the device communication, positioning, battery state display, and the real time display area on the right.



Working Mode

Measurement The measurement mode can conduct simple and fast signal measurement.

Under measurement mode, SG6, as an equivalent of a multimeter, can be used to measure various types of signals.

Top of screen is the wiring instruction area to avoid misuse of the measurement wiring; the large central area is the measured value reading area for user's check; the bottom signal selection area can quickly select various types of measuring signals. After confirming the signal type, the screen will appear some relevant measuring ranges for users to be chosen from.

During the measurement, the user can also conduct shortcuts of value holding, screenshots, screen locking, etc., in order to cope with various complex field measuring environment.



Generation Under generation mode, it can output a variety of signals.

Under generation mode, top of the display area is wiring instruction area. When you select a different signal output, it will give you the right wiring way to avoid misuse; the central area is setting area, click and pop up a numeric keyboard for entering the set point; the bottom is the selection for output signal type.



SG6 • Human-machine Interactive Interface

Calibration Inspection and calibration of various types of process instruments

SG6 has the ability to simultaneously output and input, and calibrate various types of instruments or transmitters. Two channels in the screen can input and output various signal types respectively. The user can choose the calibration signal and easily compare the measured value and calibrate.

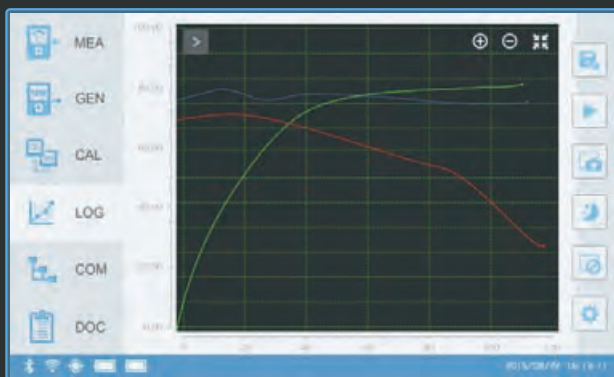
Two-channel signal selection bar can switch input/output, signal type and range selection. Under calibration mode, it supports signal switch functions.



Logging A long time observation and logging for the signal input.

Logging interface has two modes of curves and datalist which can be switched randomly. This function module can measure and log the input signal for a long time.

Under curve mode, the central area is the curve window, so the user can set the input signal type. With the enlarging and narrowing key in the toolbar, you can conduct coordinate scaling for the selected window. With the full-screen key, you can enlarge the selected window to full-screen display for better observation.



Curve mode

The screenshot shows the logging interface in Datalist mode. The central area is a table with the following data:

Input (°C)	Output (mA)	Error (% of Span)	Significance (%)
0.00	4.0049	0.031	6.2
10.00	5.6079	0.049	9.8
20.00	7.2097	0.061	12.2
30.00	8.8125	0.078	15.6
40.00	10.4135	0.096	17.2
50.00	12.0158	0.099	19.8
60.00	13.6182	0.114	22.8
70.00	15.2199	0.124	24.8
80.00	16.8220	0.138	27.6
90.00	17.2139	0.156	36.8
100.00	19.2049	0.178	39.6

The interface includes a sidebar with icons for MEA, GEN, CAL, LOG, COM, and DOC, and a bottom status bar showing the date and time '2015/08/22 16:00:11'.

Datalist mode

Communication

Achieve all kinds of field instruments communication

With the current rapid development of communication technology, more intelligent devices to be used in the field, and engineers need field devices interconnection or fast acquisition backup for all types of measuring data. SG6 is equipped with a variety of quick communication modes. In addition to the traditional USB, RS232 / RS485 and LAN, SG6 could connect via bluetooth wireless communications, or randomly connect under Wi-Fi signal coverage area. Furthermore, it supports GPRS remote communication mode for data transmission.

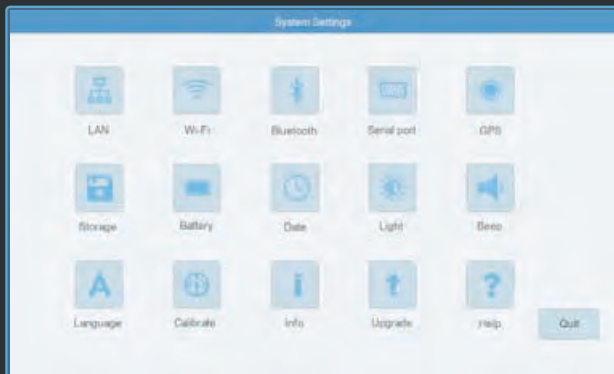
File

File management verification tasks

It is required to do documentation during calibration in all types of field operations. Manual operation document process will cost a lot of time and efforts, even cause some human error. Under SG6 file mode, it can easily get the accurate calibration process documentation and save time and efforts.

System Settings

By clicking the setting icon, SG6 enters the setting mode. The user could randomly set various parameters of SG6 during operation according to personal requirement, including various types of communication settings and communication mode status check; device status setting and check; basic device information browsing, version upgrade, etc.



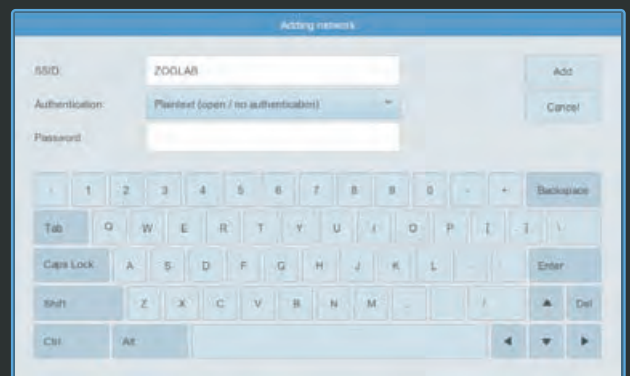
The main interface setting



Device information



Battery status



Full keyboard input

Measurement Technical Specification

Voltage measurement

Measuring range 1	-1~1V
Resolution	1 μ V
Accuracy	$\pm 3\mu$ V
Measuring range 2	-10~10V
Resolution	0.01mV
Accuracy	± 0.2 mV
Input impedance	>2M Ω
Support units	V, mV, μ V

Resistor measurement

Measuring range	0~2000 Ω
Resolution	0.001 Ω
Accuracy	$\pm 0.005\Omega$
Measuring current	0.5mA, 1mA
Support units	Ω , K Ω
4 Wires	The same to measuring specification
3 Wires	Add 10m Ω

Digital decoding

Type	7/8 bit Gray Code
Electrical level	5V, 12V
Trigger	Effective for high or low electrical level

Current measurement

Measuring range	4~20mA
Resolution	1 μ A
Accuracy	$\pm 5\mu$ A
Input impedance	<10 Ω
Support units	mA, μ A
Loop supply	Internal supply 24V $\pm 10\%$ (max 55mA)
	External, 60VDC(max)

Frequency measurement

Measuring Range	0~100KHz
Resolution	0.001Hz
Accuracy	± 0.01 Hz
Input impedance	>1M Ω
Support units	Hz, KHz

Pulse measurement

Measuring range	0~99999
Resolution	1 pulse
Accuracy	1 pulse
Input impedance	>1M Ω
Trigger level	Dry contact, wet contact(Trigger level 2.0V)



Generation Technical Specification

Voltage generation

Measuring range 1	-20~90mV
Resolution	2 μ V
Accuracy	\pm 5 μ V
Measuring range 2	-1~10V
Resolution	0.2mV
Accuracy	\pm 0.5mV
Maximum load current	5mA
Short circuit current	>100mA
Load effect	<50 μ V/ mA
Support units	V, mV, μ V

Resistor generation

Measuring range 1	0~200 Ω
Resolution	0.005 Ω
Accuracy	\pm 0.01 Ω
Measuring range 2	0~2000 Ω
Resolution	0.05 Ω
Accuracy	\pm 0.1 Ω
Stable time	<1ms
Support units	Ω , K Ω

Digital encoding

Type	7/8 bit Gray Code
Electrical level	5V, 12V
Trigger	Effective for high or low electrical level

Current generation

Measuring Range	4~20mA
Resolution	1 μ A
Accuracy	\pm 5 μ A
Internal loop supply	24V \pm 5%, Max 55mA
Internal power supply maximum load	24V/(Current generation)20mA when 1140 Ω 50mA when 430 Ω
External loop	The maximum voltage supply 60VDC
Support units	mA, μ A

Frequency generation

Measuring range	0~100KHz
Resolution	0.001Hz
Accuracy	\pm 0.01Hz
Maximum load current	10mA
Waveform	The positive direction of wave
Amplitude accuracy	<5% Waveform
Support units	Hz, KHz

Pulse generation

Measuring range	0~9999999
Resolution	1 pulse
Accuracy	1 pulse
Maximum load current	10mA



Communication Interface



Specification

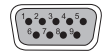
Wi-Fi	802.11 a/b/g/n, 2.4GHz
Bluetooth	BT2.0/BT4.0
GPS	L1 band, C/A code
USB	double USB port, type A, type B
LAN	IEEE802.3 standard, 10Mbit/s, 100Mbit/s
RS232/485	The highest transmission rate is 115200bps, which supports Modbus
HART	Data transmission rate 1.2Kbps
CAN	The highest rate of transmission 1Mbps

LAN communication interface



Pin	Signal	Pin	Signal
1	TX+	5	NC(EPWR+)
2	TX-	6	RX-
3	RX+	7	NC(EPWR-)
4	N/C(EPWR+)	8	NC(EPWR-)

RS232/485 communication interface



Pin	Signal	Pin	Signal
1	NC	6	CAN+
2	RXD	7	485-
3	TXD	8	485+
4	CAN-	9	NC
5	GND		

USB-A communication interface



Pin	Signal	Pin	Signal
1	VBUS	3	D+
2	D-	4	GND

USB-B communication interface



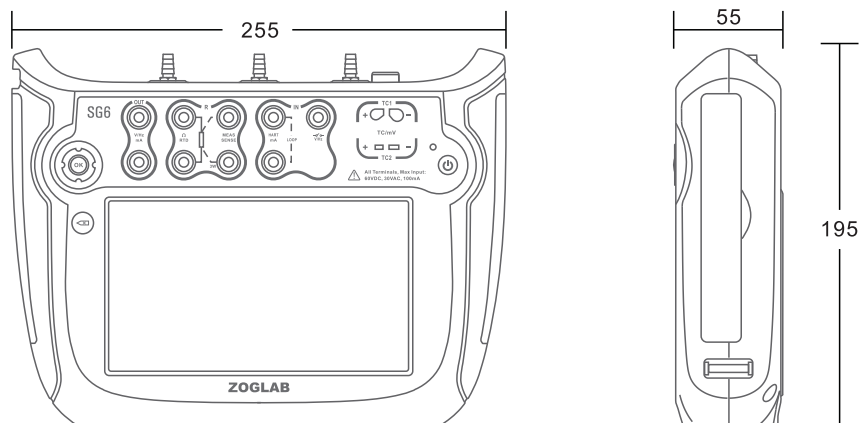
Pin	Signal	Pin	Signal
1	VBUS	3	D+
2	D-	4	GND

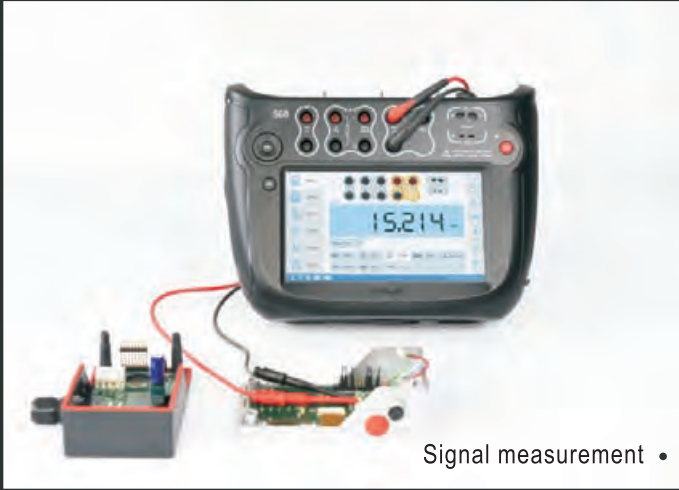
Communication Technology

Specification

Display	7 inch 800×480 TFT LCD display
Touch panel	Capacitive touch screen
Backlight	LED backlight, brightness adjustable
Key	Power key, Back key, OK key, Four direction key
Battery type	Rechargeable lithium-ion polymer, 2600 mAh, 7.4V×2, Support hot plug
Charging time	About 4 hours
Battery lifetime	8~12 hours
External Supply	12VDC, 4A
Working temperature	-10~40°C
Storage temperature	-20~70°C
Working humidity	10%~95%RH(No condensation)
Preheating time	5 minutes after power on, meet the technical specification requirements
Reading refresh frequency	0.5s
Logging interval	1 second~24 hours
Logging time	According to the storage capacity, data can be exported
Internal storage	1G
External storage	Support SD/SDHC card, max 32G
Alarm	High and low limit, calibration cycle overrun alarm
EMC	EN 50081-1 Class B EN 50082-1 Class B
ESD Protection	±25KV
IP Class	IP64
Weight	1.2kg
Dimensions	255×195×55mm
Certificate	CE, FCC, VCCI, C-TICK

Dimensions(mm)





Signal measurement •



• Signal generation



Signal calibration •



• Data logging

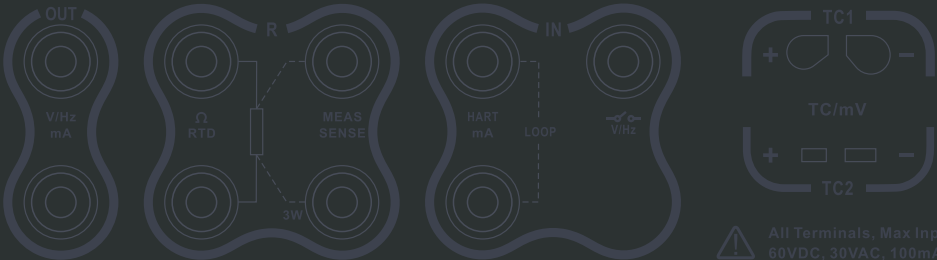


Field communication •



• File management

SG6



All Terminals, Max Input: 60VDC, 30VAC, 100mA

SG6 • Accessories

Standard Accessories

Serial communication cable



USB communication cable



LAN communication cable



Power adapter



Strap



Electroprobe



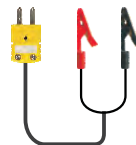
Test cable



Test fixture



Thermocouple cable



Battery (loaded machine)



User's manual



Warranty card



Qualification



WEEE card



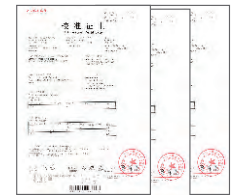
Maintenance manual



CD



Calibration Certificate



Optional Accessories



Portable bag



Anti-explosion transport case

Ordering Information

Ordering model	Features
SG6-DEF Defense version	Enhanced structure with Compass, enhanced battery, special display, special accessories
SG6-MTS Meteorology version	Additional support for GPS, GPRS, remote data access, customized user interface
SG6-IDS Industry version	Standard configuration
SG6-EDU Education version	Basic configuration

International Free Call
+86-400-8878-571

ZOGLAB Microsystem Co.,Ltd.

Tel: +86-571-87176990(16 lines) Fax: +86-571-87176992 E-mail: sales@zoglab.cn
Add: Floor 1-2, South Block,Building A, KUNLUN Science Park, No.61 BaiJiaYuan Road,
West Lake District, Hangzhou,CHINA P.C: 310023

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