JL-IVSG Voltage / Current Signal Generator

English User Manual - translated and reformatted from the supplied Chinese instruction leaflet

0 to +/-10 V | 0 to 22 mA | Version V2.6

1. Product Overview

The JL-IVSG is a portable DC voltage and current signal generator intended for industrial commissioning, PLC analog-input testing, instrument calibration and maintenance. It can generate adjustable voltage or current signals and includes a 24 V loop-power function.

Terminal identification: -IN, +IN, 24V LOOP, IO, GND, Vo.

2. Main Features

• Portable instrument with built-in rechargeable battery and USB Type-C charging.

• Voltage and current signal output with fine adjustment.

• Current output range: approximately 0-22 mA.

• Voltage output modes include 0-10 V and +/-10 V ranges.

• 24 V loop-power output for transmitter/loop testing.

• Four-digit LED display.

• Preset / quick output points and adjustable output step functions.

• Output calibration and parameter-setting functions.

• Designed for PLC, DCS, instrumentation and industrial control troubleshooting.

3. Technical Specifications

Item	Specification
Power supply	Internal rechargeable battery; USB Type-C 5 V charging
Current output	0-22 mA
Voltage output	0-10 V and +/-10 V operating modes
24 V loop supply	Approx. DC 24 V for loop/transmitter testing
Display	4-digit LED
Current resolution	0.01 mA
Voltage resolution	0.01 V
Operating temperature	0 to 50 deg C
Storage temperature	-40 to 85 deg C
Approx. dimensions	100 x 70 x 31 mm

4. Controls and Terminals

Marking	Function
-IN / +IN	Signal input / measurement terminals used in supported input modes.
24V LOOP	24 V loop-power terminal for loop-powered transmitter / instrument testing.

Marking	Function
IO	Current signal terminal used for mA output / loop functions.
GND	Signal common / ground.
Vo	Voltage signal output.
MODE button	Selects operating/output mode and is used during parameter setup.
Large rotary control	Adjusts the selected output value. Press/rotate functions are also used in setup.
Battery switch	Turns the instrument battery supply ON/OFF.

5. Basic Operation

Power on: Move the battery switch to ON. The display will illuminate and show the present operating value.

Select voltage/current mode: Use the MODE button to switch between the available signal-generation modes. The front-panel V or mA indicator identifies the active output type.

Adjust output: Rotate the large adjustment knob to increase or decrease the output. The instrument supports fine adjustment and configurable step/preset behavior.

Power off: Move the battery switch to OFF when finished.

6. Using the JL-IVSG as a 4-20 mA PLC Test Source

For a conventional PLC current input where the calibrator itself is used as the signal source, select current-output mode and connect the current output to the PLC analog input.

JL-IVSG	PLC analog input
IO	AI+ / I+
GND	AI- / COM

Procedure: Select mA output mode. Set the output initially to 4.00 mA, then increase it as required. Typical PLC scaling is shown below.

Output	Typical scaled value
4.00 mA	0%
8.00 mA	25%
12.00 mA	50%
16.00 mA	75%
20.00 mA	100%

Important: PLC analog-input wiring differs between passive current inputs, active/loop-powered inputs and isolated modules. Do not connect the 24V LOOP terminal until the PLC input circuit and module documentation have been checked.

7. 24 V Loop Function

The instrument provides a DC 24 V loop supply for applications such as powering and testing a two-wire transmitter or completing a current loop. The manual's connection diagram indicates use of the 24V LOOP, IO and GND terminals depending on the test configuration.

Before connecting the loop supply, verify the polarity and whether the external PLC/input device already provides loop power. Two power sources must not be connected against each other.

8. Parameter / Setup Menu

The JL-IVSG contains configurable F001-F109 parameters. The leaflet indicates parameters for output mode/range, display format, adjustment step, calibration and quick/preset output functions. Setup is entered by a long press of the rotary control while the unit is powered, then parameters are selected and edited with the control.

Parameter	Function shown in leaflet
F001	Knob / adjustment behavior
F002	Output range / output mode selection
F003	Display format

Parameter	Function shown in leaflet
F004	Adjustment step
F005	Fine-adjustment / step behavior
F006-F008	Voltage/current calibration parameters
F100	Quick/preset output function
F101	mA quick-output / preset selection
F109	Preset-point selection / related quick-output setting

Calibration parameters should only be changed when a suitable reference meter is connected. Incorrect calibration values can introduce output error.

9. Charging and Battery Indication

Charge the instrument through the USB Type-C connector using a 5 V supply. The front-panel battery indicator shows charging / battery status. Allow the battery to charge fully before extended field use.

10. Precautions

• Confirm the selected operating mode before connecting the device to external equipment.

• Observe terminal polarity.

• Do not apply external voltage to an output terminal.

• Check whether the PLC or transmitter circuit already supplies 24 V before using the 24V LOOP output.

• Start testing at the lowest appropriate signal value and increase gradually.

• Do not modify calibration parameters unless a known reference instrument is available.

• Keep the instrument dry and avoid operation outside the specified temperature range.

11. Package Contents

According to the supplied leaflet: JL-IVSG signal generator, USB charging cable, instruction leaflet and supplied accessories as packaged by the manufacturer.

Translation note: This English document is a clean translation/reformatted reference based on the photographed Chinese V2.6 leaflet supplied with the device. Where the photographed print was too small or ambiguous, wording has been kept conservative rather than inventing undocumented specifications. For safety-critical wiring, verify the terminal function against the device markings and the equipment being tested.