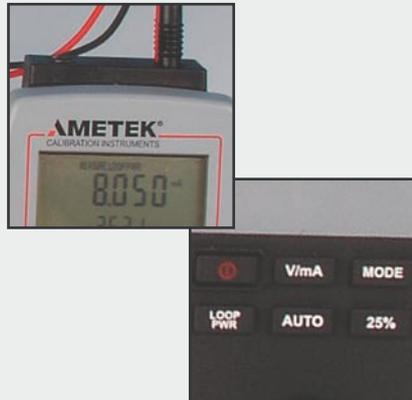


## signal



### Input and Output

Current: 0 to 24 mA  
 Voltage: 0 to 200 mVDC  
 0 to 20 VDC (source)  
 0 to 28 VDC (read)

### High level of protection

Fuse-less protection for internal circuitry  
 - a common cause of failure in other units  
 without this protection

### Auto-stepping

Auto-step feature for simulation or  
 sourcing for easy performance of  
 repeated test or validation steps

### Easy to use

User-friendly controls with knob and  
 keypad allow for function specific  
 operations and adjustable values

### High accuracy

Accuracy up to  $\pm 0.015\%$  of reading  $\pm 2$   
 units - with ranges including mA, mV, and  
 VDC

### Large display

Including large numbers for unit reading,  
 a percentage display, and dedicated  
 icons for calibrator status

### HART resistor

Built-in 250  $\Omega$  resistor for HART device  
 communications - place for resistor in  
 circuit as needed

### Complete marine program

Part of a complete program of marine  
 approved temperature, pressure and  
 signal calibrators; including temperature  
 sensors

See more at [www.jofra.com](http://www.jofra.com)

ISO 9001 Manufacturer

# JOFRA™ CSC100

## Compact Signal Calibrator

Your solution to easy loop calibration

The JOFRA CSC100 is your solution to loop calibration. This handheld calibrator offers you an easy to operate interface including a knob for precise and rapid adjustment. With features including a large display and an auto stepping signal, the CSC100 makes troubleshooting and calibration of your process equipment a snap.



## PRODUCT DESCRIPTION

The CSC line of signal calibrators are dedicated units designed to make your calibration and maintenance tasks easier to perform. The JOFRA CSC100 is engineered for instrument loop calibrations and is specifically manufactured for 4 to 20 mA loops; however this versatile instrument offers much more than that.

This calibrator can source and read current and voltage; including millivolts. It can also be used as a signal simulator to test your transmitters without the need for actual operation.

The CSC100 also offers features such as an auto-stepping function and fuse-less protection. These handy time savers are combined in a package offering an easy-to-read, two line display, and an intuitive keypad with a knob for fine adjustments.

This calibrator is more than a simple tool but it is as straightforward as any device that you have in your toolbox. The CSC100 signal calibrator offers you the accuracy and features that you need in a convenient, compact, and easy-to-use package.

**AMETEK®**  
CALIBRATION INSTRUMENTS

## JOFRA CSC100 LAYOUT

### Clear dual line display

Large digits display the current or voltage, icons show the current status and mode, and the smaller digits show the percentage.

### V/mA

Selects between the voltage and current functions.

### ON / OFF

Auto shut-off to extend battery life (user programmable).

### LOOP PWR

Turns on 24 VDC loop power when the calibrator is in the mA measure mode. Icon on the display indicates when this mode is active.

### Left / Right arrows

Move the cursor left or right to allow for adjustment of the desired decade.

### Electrical connections

Inputs for current and voltage measurement and sourcing.



### Mode

Select the input or output mode.

### 25%

Steps the output in mA source or simulate mode in increments of 25% (4 mA).

### AUTO

Enables automatic step functions. Perform tests using stored test points. Icon on display indicates when this mode is active. User can select between fast or slow ramping.

### Adjustment knob

Allows for easy adjustment of values. Combined with the Arrow Keys, reaching the desired value is easy.

## JOFRA CSC100

### Overview

The CSC100 is a signal loop calibrator; it is designed to source and read voltage and current for loop signal calibration. This unit is a handy calibrator that can meet applications such as simulating a transmitter in a loop, measuring voltage, and checking output mA or mV levels.

The CSC100 is not simply a calibrator but an effective troubleshooting and test device. This versatile instrument is dedicated to loop calibration but that does not mean that this instrument is made to do only one thing. You will find that the features make this a piece of equipment that will make you look for applications for your CSC100.

### Voltage modes

The CSC100 offers the ability to source and read voltage. There is a VDC and mVDC scale to meet multiple applications. This allows the unit to function as a source to indicators and to other functions that are driven by voltage signals. You can use the CSC100 to drive a meter to specific setpoints for validation of operation without the need for other equipment. The CSC100 is also ready in case you need to take a quick voltage measurement.

### Current modes

The CSC100 offers four different functions in the current mode. You can source current to inject a signal into a loop or simulate current and use the CSC100 to act as the transmitter in the loop to drive other functions or remote indications. The unit can simply be used to measure current. Additionally the CSC100 can power and read the instrument at the same time; providing that the unit under test is removed from the loop while under test or is removed from the system.

### Setpoint operation

The CSC100 offers you a one button feature that is missing on many other loop calibrators. When you are sourcing or simulating current, the 25% key can be used to step in increments through a test or calibration. When you press the key, the calibrator will output mA values corresponding to 25% steps for a 4 to 20 mA transmitter. Just connect the unit and set it for current simulation or sourcing and press the key, the value will be 8 mA or 25%. Then, continue to use the function to step up through to 100% of the reading. You have the manual control of the test, but the calibrator takes care of the calculation for your test points.

### Automatic operation

In addition to the manual stepping with the 25% key, the CSC100 takes functionality one step further and offers you an automatic option. This is again a one button solution utilizing the AUTO key. Set the unit up to simulate or source current and then press the AUTO key. This will activate the auto stepping feature and the calibrator will step through 25, 50, 75, and 100% values for a 4 to 20 mA device. These steps occur once every 5 seconds. If you need to test more quickly, you can press the AUTO key again and activate fast ramping.

### Auto shutdown

The CSC100 offers an automatic shutdown feature. This power saving feature turns the calibrator off after it has been idle for a specified period of time. The time delay is factory set to 30 minutes, however you can adjust the time to meet your needs.

### Large display

The CSC100 features a large two-line display. The upper line shows the measured or sourced voltage or current value. The second line is available in the mA modes to show the percentage of 4 to 20 mA. The display also features several icons to allow for quick recognition of the status of the unit.

### Voltage modes

The CSC100 offers the ability to source and read voltage. There is a VDC and mVDC scale to meet multiple applications. This allows the unit to function as a source to indicators and to other functions that are driven by voltage signals. You can use the CSC100 to drive a meter to specific setpoints for validation of operation without the need for other equipment. The CSC100 is also ready in case you need to take a quick voltage measurement.

### CSC100 in soft case

All JOFRA handheld calibrators are supplied in a handy soft case that allows for operation while in the case. The convenient internal storage pocket offers the space for test leads and accessories.

## CSC100 SPECIFICATIONS

### Ranges

mA input/output.....	0 to 24 mA / -25 to 125 %
mV input/output.....	0 to 200 mV
Volts input.....	0 to 28 V
Volts output .....	0 to 20 V
Max load.....	1000 $\Omega$
Max load w/HART resistor:.....	750 $\Omega$

### Accuracy<sup>1</sup>

mA .....	$\pm 0.015\%$ of reading $\pm 2 \mu\text{A}$
mV .....	$\pm 0.02\%$ of reading $\pm 20 \mu\text{V}$
Volts.....	$\pm 0.015\%$ of reading $\pm 2 \text{ mV}$

<sup>1</sup> Specification at 23°C  $\pm 5^\circ\text{C}$  / 73.4°F  $\pm 9^\circ\text{F}$  including non-linearity, hysteresis, and repeatability.

### Display

LCD .....	Dual line plus icons
Display resolution.....	5 digits
Display update .....	4 times per second

### Temperature range

Operating .....	-10 to 50°C / 14 to 122°F
Storage.....	-20 to 60°C / -4 to 140°F

### Power supply

Battery.....	1 x 9 V Alkaline
Battery life .....	Minimum 20 hours
Low battery indicator.....	at 7 V

### Instrument dimensions

Indicator L x W x H.....	188 x 84 x 52 mm / 7.4 x 3.3 x 2.1 in
Indicator weight (including battery).....	400 g / 14.1 oz
Indicator L x W x H, shipping .....	203 x 101 x 64 mm / 8.0 x 4.0 x 2.5 in
Indicator weight (including battery).....	567 g / 20 oz

## ORDERING INFORMATION

Order no.	Description
CSC100	Handheld loop signal calibrator
	<b>Certification (7<sup>th</sup> character)</b>
G	NIST traceable (standard)
H	Accredited certificate
CSC100G	
	<b>Sample order number</b>
	<b>CSC100 calibrator with standard NIST traceable certificate</b>

### Standard delivery

- JOFRA CSC100 loop calibrator
- Traceable calibration certificate
- Reference manual
- Test leads
- Soft carrying case
- Shoulder strap

## JOFRA CSC100 ACCESSORIES

Part no.	Description
124717	1 x 9 Volt rechargeable battery
124718	Charger for 124717 battery - 115/330 VAC



### AMETEK

#### Calibration Instruments

offers a complete range of calibration equipment for pressure, temperature, and signal - including software.

#### JOFRA Temperature standards

Portable precision thermometer. Dry-block calibrators: 4 series, more than 20 models - featuring speed, portability, accuracy, and advanced documenting functions.

#### JOFRA Pressure standards

Convenient electronic systems ranging from -1 to 700 bar (25 inHg to 10,000 psi) - multiple choices of pressure ranges, pumps, and accuracies, fully temperature-compensated for problem-free and accurate field use.

#### JOFRA Signal calibration

Process signal measurement and simulation for easy control loop calibration and measurement tasks - from handheld field instruments for multi or single signals to laboratory reference level bench top instruments.

#### Frode Pedersen sensors

AMETEK are producing and selling temperature sensors for industrial and marine use under the brand name Frode Pedersen.

#### JOFRA & JF Marine Instruments

AMETEK offers a complete range of calibration equipment for temperature, pressure, and signal approved for marine use.

*...because calibration is  
a matter of confidence*

**AMETEK**<sup>®</sup>  
CALIBRATION INSTRUMENTS

AMETEK Calibration Instruments is one of the world's leading manufacturers and developers of calibration instruments for temperature, pressure and process signals as well as for temperature sensors both from a commercial and a technological point of view.

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