

JOFRA SIGNAL CALIBRATORS

Product Selection Guide

J O F R A

s i g n a l

c a l i b r a t i o n

i n s t r u m e n t s



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

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JOFRA AMC900 Advanced Multi-purpose Calibrator

This is one of the finest benchtop precision calibrators offering temperature, signal, and pressure features, which includes sourcing of current and voltage and measurement of millivolts, and resistance. This flexibility means that you need only one unit for calibration or verification. This standard gives you the confidence you need for your test instruments as well as in your field calibrations.

- Output: 0-100 mA, 0-100 VDC, -10-100 mV, TCs (13 types), RTDs (14 types), 5-4000 Ω
- Input: 0-100 mV, TCs (13 types), RTDs (14 types), 5-4000 Ω
- External APM pressure module capability
- STS temperature reference sensor capability
- Accuracy to $\pm 0.016^{\circ}\text{C}$ / 0.029°F
- IEEE-488 and RS232 interface



Publication No. SS-CP-2380, which is to be found at www.jofra.com

JOFRA CSC200 Compact Signal Calibrator

The CSC line of signal calibrators is dedicated units designed to make your calibration and maintenance tasks easier to perform. The JOFRA CSC200 is engineered for the calibration of temperature instruments offering the ability to measure and simulate several different types of RTDs and TCs. This instrument makes the job easy by utilizing a thermocouple plug for easy connection and it can work with 2, 3, or 4-wire RTDs.



- TC and RTD input/output
- Reads and simulates temperature
- Fuseless protection on all inputs
- Accuracy to $\pm 0.2^{\circ}\text{C}$ / 0.36°F
- Part of a complete marine program
- Use the CSC200 in conjunction with your JOFRA dry-block calibrators
- Use the CSC200 to read a JOFRA reference probe to ensure that you have the proper temperature for your test point

Publication No. SS-CP-2332, which is to be found at www.jofra.com

JOFRA CSC100 Compact Signal Calibrator

This dedicated function signal calibrator offers the features that you need for specific calibration, testing, and troubleshooting tasks. The JOFRA CSC100 is engineered for instrument loop calibrations and is specifically manufactured for 4 to 20 mA loops. 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.

- mA and voltage input/output
- Sources and reads loop voltage and current
- Fuseless protection on all inputs
- Accuracy to $\pm 0.015\%$ of reading
- Easy-to-read, two line display, and an intuitive keypad with a knob for fine adjustments
- Part of a complete marine program

Publication No. SS-CP-2330, which is to be found at www.jofra.com



JOFRA mAcal Calibrator

This is the economical answer to easy and accurate loop calibration. Test all 4-20 mA loops in your process with this handy calibrator that sources, reads, steps through test points, converts readings to percentages, and more.

- Accuracy to $\pm 0.05\%$ F.S.
- Auto-stepping and ramping
- 24 VDC loop power
- Measures to ± 45 VDC and 24 mA
- Flow reading function
- Reads in mA, %, VDC, or sec
- Part of a complete marine program

Publication No. SS-CP-2320, which is to be found at www.jofra.com





JOFRA ASM Advanced Signal Multi-scanner



The ASM signal multi-scanner adds further flexibility and time-saving features to your calibration routines, as the ASM multi-scanner is delivered in 3 versions, enabling you to calibrate different kinds of sensors and to calibrate up to 8 temperature sensors with one multi-scanner.

ASM-801 has 8 universal plugs. This is a fixed screw terminal solution for measuring RTD's, TC's, power, voltage, ohm, and transmitters.

ASM-802 has 8 small TC plugs for measurement of TC sensors.

ASM-803 has 8 LEMO plugs, which are primarily for measurement of RTD sensors. This solution of plugs also enables you to measure current, voltage and ohm.

The ASM is delivered in two different models: The ASM A model uses the measuring circuit of a connected measuring instrument such as an ASC300 or an ATC temperature dry-block B model. The ASM B model does not have to use the measuring instrument in the set-up, as the multi-scanner is able to perform the measurements itself. The most important advantage of the B model is its ability to perform several measurements each second.

Connecting three ASM multi-scanners even makes it possible to perform automatic calibrations of up to 24 sensors at the same time using JOFRACAL calibration software.

- 6 different models
- Input: TCs (12 types), RTDs (13 types), 0-12 VDC, 0-24 mA, 0-4000 Ω
- 24 V supply for transmitters
- Accuracy to $\pm 0.026^{\circ}\text{C}$ / 0.047°F
- RS232 interface and JOFRACAL calibration software
- 100% automatic calibration of up to 24 sensors
- STS temperature reference sensor capability

Publication No. SS-CP-2360, which is to be found at www.jofra.com

JOFRA ASC300 Advanced Signal Calibrator

Substantial enough to cover all your needs for a process signal calibrator with superior accuracy and compact enough to fit into your tool box. The JOFRA ASC300 measures and sources: TCs, RTDs, current, voltage, frequency, and pulse trains. This instrument is also designed to be compatible with the JOFRA APM pressure modules, thus offering true multi-function operability.

- Simultaneous input and output
- Input and output: TCs (13 types), RTDs (14 types), 0-20 VDC, 0-24 mA, 5-4000 Ω , 0-10 kHz, and pulse trains
- Isolated read-back circuit with 24 VDC loop power
- Accuracy to $\pm 0.2^{\circ}\text{C}$ / 0.36°F
- Fuseless protection on all inputs
- APM pressure module input for pressure applications
- Graphical user interface with function keys
- Part of a complete marine program



Publication No. SS-CP-2350, which is to be found at www.jofra.com

JOFRA APM Advanced Pressure Module

The APM series of pressure modules by JOFRA is compatible with your ASC300, AMC900 or APC calibrators. These units are available in a series of ranges, units, and pressure references. From vacuum to absolute pressure, AMETEK covers your application with the pressure modules to meet your calibration needs. There are different accuracies, ranges, and references designed to offer you the exact specifications needed for your pressure calibrations.

- Accuracy to $\pm 0.01\%$ F. S.
- Pressure range vacuum to 10,000 psi / 700 bar
- 62 different models
- Rugged and dependable for field or lab use
- Gauge, absolute, vacuum, differential, and combination modules
- Supplied with fittings for NPT and BSP threads

Publication No. SS-CP-2190, which is to be found at www.jofra.com



Selection Guide

AMC900
ASM800
ASC300
CSC200
CSC100
MACAL

	AMC900	ASM800	ASC300	CSC200	CSC100	MACAL
Accuracy						
±(0.002% of reading + 0.002% F.S.)		X				
±(0.015% of reading + 0.01% F.S.)					X	
±(0.016% of reading + 0.01% F.S.)	X					
±(0.02% of reading + 0.01% F.S.)			X	X		
±0.05% F.S.						X
Technology and features						
CE label	X	X	X	X	X	X
Switch test input		X				
Simultaneous input and output			X			
Transmitter supply, 24 VDC	X	X	X		X	X
RTD measurement	X	X	X	X		
Thermocouple measurement	X	X	X	X		
mA reading	X	X	X		X	X
VDC reading	X	X	X		X	X
Auto shutdown			X		X	X
Auto-stepping			X	X	X	X
Serial interface	X	X	X			
External power input	X	X				X
Low battery indicator			X	X	X	X
External APM pressure modules capability	X		X			
Cold junction compensation	X	X	X	X		
Fuse-less protection			X	X		
Documenting software JOFRACAL						
RS232 and JOFRACAL calibration software		X	X			
Certificate printout via JOFRACAL		X	X			
Complete database via JOFRACAL		X	X			
Design						
Multi-information display	X		X	X	X	X
One-key-one-function operation	X		X	X	X	X
Aluminum carrying case	O	O				
Protective softcase			X	X	X	X
Traceable certificate	X	X	X	X	X	X
Accredited certificate	O	O	O	O	O	O
Rechargeable batteries and charger			O	O	O	O
DNV Marine Approval Certificate			X	X	X	X

X = Delivered as standard
O = Optional accessories



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

JOFRA Temperature standards
Portable precision thermometer. Dry-block and liquid bath calibrators: 4 series, with more than 20 models - featuring speed, portability, accuracy and advanced documenting functions with JOFRACAL temperature calibration software.

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.

JOFRA / JF Marine Instruments
A complete range of calibration equipment for temperature, pressure and signal, approved for marine use under the brand name JOFRA and JF Instruments.

FP temperature sensors
A complete range of temperature sensors for industrial and marine use.

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AMETEK[®]
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.

Headquarter:

AMETEK Denmark A/S
(Sales, Europe and the Middle East)
Gydevang 32-34 • 3450 Allerød • Denmark
Tel: +45 4816 8000 • ametek@ametek.dk

www.ametekcalibration.com
www.jofra.com

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Sales offices:

AMETEK T&C1 - Americas (Sales, The Americas)
Tel: +1 518 689 0222 • jofra.info@ametek.com

AMETEK Singapore Pte. Ltd. (Sales, Asia)
Tel: +65 6 484 2388 • aspl@ametek.com.sg

AMETEK Inc. Beijing Rep. Office (Sales, China only)
Tel: +86 10 8526 2111 • jofra@ametek.com.cn

AMETEK GmbH (Sales, Germany only)
Tel: +49 2159 91360 • info@ametek.de

AMETEK Lloyd Instruments (Sales, UK only)
Tel: +44 (0) 1489 486 404 • jofra@ametek.co.uk