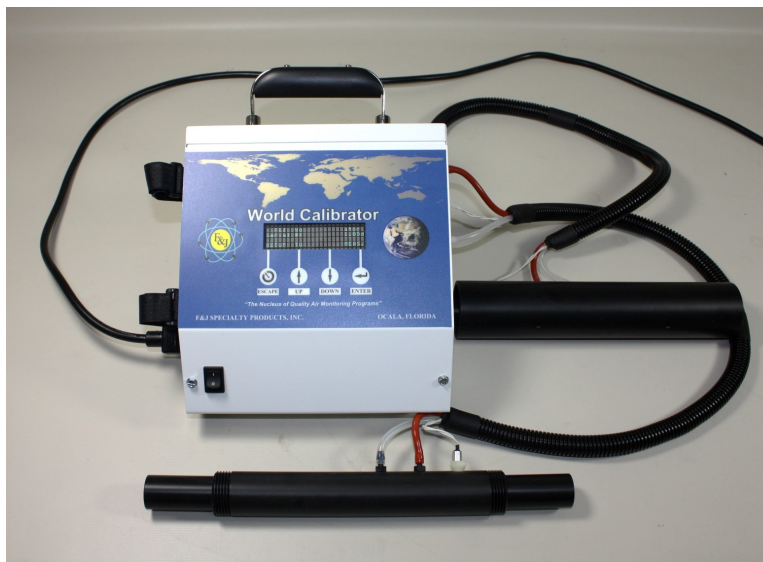


F&J SPECIALTY PRODUCTS, INC.

The Nucleus of Quality Air Monitoring Programs

WORLD CALIBRATOR PC INTERFACEABLE MULTI-SENSOR SERIES VFD VERSION

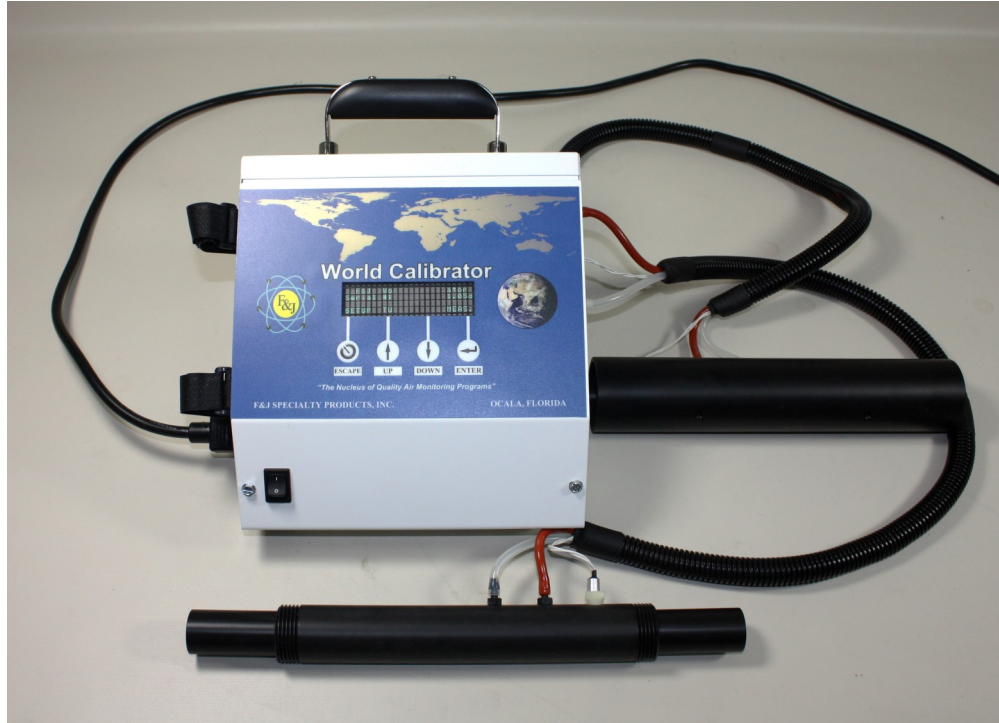


2 Year Warranty ✓

Rev: 18 October 2023

1

**WORLD CALIBRATOR
Vacuum Fluorescent Display (VFD) Version
Multitube**



Notable Features:

- One Calibrator: Multiple Flow Sensors
- Vacuum Fluorescent Display (4 lines×24 characters)
- 4 button key pad for stand alone operation
- Mass flow or Volumetric flow
- Volume Totalization Feature
- Operator selectable Reference T and P
- Operator selectable engineering units
- Multi gas option
- ± 1.0% Full Scale (F.S.) Accuracy
- User customizable calibration report
- Semi-Automatic calibration-verification when used with F&J digital air samplers
- PC Interface program: Western or Asian languages
- Two Year Warranty
- Complimentary Storage Case

Common Features and Specifications

MEASUREMENT PRINCIPLE

Flow Sensor: Differential Pressure Sensor
 Standardization: Operator selectable values for reference temperature and pressure
 Flow Curve linearization: Individually calibrated and software corrected

MEASUREMENT RANGES

Air flow: Various flow ranges available
 Temperature: -40° - 122° F (-40° - 50° C)
 Barometric pressure: 30 - 22 In-Hg (760 - 559 mm-Hg); (101.325-74.5 kPa)
 approx. Sea level to 5900 ft. (1800 m) elevation above sea level
 Optional low range to 10 In-Hg (254 mg) (33.86 kPa)

MEASUREMENT ACCURACY

Air flow: ± 1.0% of full scale
 Temperature (Typical): ± 1°C over range -20°C to 50°C
 Barometric pressure: ± 1% of reading over measurement range of 22.00-30.00 "Hg

STANDARD TEMPERATURE and PRESSURE CHOICES:

Temperature 32°F (0°C) 59°F (15.0°C) 68°F (20.0°C) 70°F (21.1°C) 77°F (25.0°C)
 Pressure 29.92"Hg (1 atm, 760mm Hg, 1.013 bar, 101.325 kPa)
 1 bar, (100kPa, 750mm Hg, 0.987 atm 29.53"Hg)

PARAMETERS and RESOLUTIONS DISPLAYED on the PC SCREEN

	Parameter	Engineering Unit	Resolution	
Flow Options:	CFM	Cubic feet per minute	0.01	CFM
	LPM	Liter per minute	.1	LPM
	m ³ /min	Cubic meter per minute	0.0001	m ³ /min
	m ³ /hr	Cubic meters per hour	0.001	m ³ /hr
	cc/min	Cubic centimeter per minute	1	cc/min
Temperature:	F	Degree Fahrenheit	0.1	Degree F
	C	Degree Celsius	0.1	Degree C
	In-Hg	Inches of Mercury	0.01	In-Hg
Pressure:	mm-Hg	Millimeters of Mercury	0.1	mm-Hg
	kPa	Kilo pascals	0.1	kPa
	atm	atmospheres	0.001	atm
	bar	bar	0.001	bar

GENERAL SPECIFICATIONS

Power requirements:	Max 0.6A; 100–120 VAC;50/60Hz	Max 0.3A; 220–240 VAC;50/60Hz
Operating temperature:	-4°F to 122°F	-20°C to 50° C
Storage temperature:	-20°F to 158°F	-29°C to 70° C
Dimension (L×W×H)	8.625"×3.75"×8.375"	219×95.25×213mm
Weight:	8 lbs. 6 oz.	3.8 Kgs.
Installation Category:	Pollution Degree 2	
Enclosure Rating:	IPXO	
Communications Ports:	Dual RS232, one Mini-USB Connector, two DB-9	
PO OS:	Windows 98, Windows XP, Vista, Windows 7 and Windows 10 operating systems	

**WORLD CALIBRATOR
VFD Version
Multi Flow Sensor Models**

100-120 VAC

Model

WCMT-VFD-2

WCMT-VFD-3

WCMT-VFD-4

220-240 VAC

Model

WCMT-VFD-2E

WCMT-VFD-3E

WCMT-VFD-4E

**Standard Flow Sensor
Configuration Available**

CFM (SLPM)

.1 to 1 (3 - 30)

0.2 to 2.1 (6 - 60)

.5 to 4.0 (15 - 115)

1 to 10.6 (30 - 300)

1.4 to 14 (40 - 420)

5.3 to 30 (150 - 850)

4 to 35 (115 - 1000)

5.3 to 50 (150 - 1400)

8.5 to 70 (240 - 2000)

**High Flow Sensor
Configuration Available**

CFM (m³/hr)

15 to 90 (26 - 153)

30 to 125 (51 - 212)

40 to 150 (68 - 255)

50 to 200 (85 - 340)

60 to 300 (102 - 510)

60 to 400 (102 - 680)

100 to 600 (170 - 1020)

All multi flow sensor World Calibrators are custom products. Submit the flow sensor ranges required for the world calibrator to the F&J sales department for proper pricing.

USER SETTINGS SCREEN

English
 Nederlands
 Français
 Deutsch
 Español
 Italiano
 Русский
 Български

Volumetric
 Mass

Full Scale
 At Reading

Temperature
 °C
 °F

Pressure
 atm
 inHg
 mmHg
 bar
 kPa
 mbar
 hPa

Flow
 CFM
 LPM
 cc/min
 m³/hr
 m³/min

Mass Flow
 g/min
 lbs/hr
 kg/hr

Tube
 Tube #1
 Tube #2
 Tube #3

Reference Temp.
 32°F, 0°C
 59°F, 15°C
 68°F, 20°C
 70°F, 21°C
 77°F, 25°C

Reference Press.
 1 atm, 29.92 inHg, 760 mmHg, 1.013 bar, 101.3 kPa
 0.987 atm, 29.53 inHg, 750 mmHg, 1 bar, 100 kPa

Gas
 Air
 Hydrogen
 Nitrogen
 Oxygen
 CO₂
 CO
 Helium
 Ammonia
 Propane
 Argon

Utilize ENTER and ESC keys

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 404 Cypress Road, Ocala, FL 34472, USA Tel: +1 352 680-1177 Fax: +1 352 680-1454 www.fjspecialty.com

DATA INTERFACE SCREEN

F&J Data Interface **Air Calibrator Data Interface V1.07.02**

Temperature 25.0°C **Sensor Pressure** 30.01 InHg **Barometric Pressure** 29.87 InHg **Ambient Flow** 1.96 CFM **Standard Flow** 1.92 SCFM

World Calibrator: Model #: Serial #: Last Calibrated: 21 FEB 2015

Device Under Test (DUT): Model #: Serial #: Full Scale (DUT): Accuracy [%]:

Enable Serial Connection to DUT (F&J Air Sampler) Technician:

Air Sampler port is not selected, use Setup Communication

DUT [SCFM]	Calibrator [SCFM]	Deviation [SCFM]	Accuracy [% of Full Scale]	Pass / Fail	Date	
					30 MAR 2015	Record Data
						Clear Last Data
						Save Data File
						Load Data File
						Print Certificate
						New Calibration

Average Deviation Across the Range at Full Scale [%]:

User Settings: Volumetric, Accuracy Type: Full Scale, Ref. Temp.: 20°C, Ref. Press.: 29.92 InHg, Tube #3 (828)

Status: Data from Calibrator is OK (Battery option, Charge: 32%, Estim. run time: 2hr 45min)

Hint: Click User Settings to change language, engineering units and reference temperature and pressure. Enter instrument identification, Full Scale flow value and Accuracy. Use TAB to terminate entries. Click Record Data to save current flow value in the data table.

At Reading Accuracy Calibration Certificate

<p>CERTIFICATE OF CALIBRATION</p>	<p>F&J SPECIALTY PRODUCTS, INC. 404 Cypress Road Ocala, FL 34472 USA Tel: +1 352 680-1177 Fax: +1 352 680-1454 Email: fandj@fjspecialty.com www.fjspecialty.com THE NUCLEUS OF QUALITY AIR MONITORING PROGRAMS</p>
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MODEL #:	DF-1	SERIAL #:	10222	
REFERENCE INSTRUMENT:	WC-812-PC	CALIBRATION DATE:	23 MAY 2011	
REFERENCE SERIAL #:	20033	RECALIBRATION DATE:	23 MAY 2012	
REFERENCE CALIBRATED:	18 APR 2011			
FLOW TYPE:	Volumetric	ACCURACY TYPE:	At Reading	
REFERENCE TEMPERATURE:	77°F	REFERENCE PRESSURE:	29.92 InHg	
INSTRUMENT FULL SCALE:			115.0 [SLPM]	
INSTRUMENT ACCURACY AT READING:			± 4.00 [%]	
DEVICE UNDER TEST	REFERENCE INSTRUMENT	DEVIATION AT READING	ACCURACY AS % At Reading [%]	PASS OR FAIL
FLOW [SLPM]	FLOW [SLPM]	[SLPM]		
1. 107.1	107.4	-0.3	-0.28	Pass
2. 82.8	83.4	-0.6	-0.72	Pass
3. 66.6	65.9	0.7	1.06	Pass
4. 42.1	42.5	-0.4	-0.94	Pass
AVERAGE DEVIATION ACROSS THE RANGE AT READING [%]:			0.75	
<p>This is to certify that the instrument identified on this certificate has on this date certified to be within the instrument accuracy specified above. The Reference Flow Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).</p>				
<p>CALIBRATED BY: _____ /KRK/</p>				

Calibration Software and Equipment provided by F&J SPECIALTY PRODUCTS, INC. (V1.06.03)
 404 Cypress Road, Ocala, FL 34472, USA Tel: +1 352 680-1177 Fax: +1 352 680-1454 www.fjspecialty.com

Full Scale Accuracy Calibration Certificate

<p>CERTIFICATE OF CALIBRATION</p>	<p>F&J SPECIALTY PRODUCTS, INC. 404 Cypress Road Ocala, FL 34472 USA Tel: +1 352 680-1177 Fax: +1 352 680-1454 Email: fandj@fjspecialty.com www.fjspecialty.com THE NUCLEUS OF QUALITY AIR MONITORING PROGRAMS</p>
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MODEL #:	DF-1	SERIAL #:	10222		
REFERENCE INSTRUMENT:	WG-812-PC	CALIBRATION DATE:	23 MAY 2011		
REFERENCE SERIAL #:	20033	RECALIBRATION DATE:	09 AUG 2012		
REFERENCE CALIBRATED:	18 APR 2011				
FLOW TYPE:	Volumetric	ACCURACY TYPE:	Full Scale		
REFERENCE TEMPERATURE:	77°F	REFERENCE PRESSURE:	29.92 InHg		
INSTRUMENT FULL SCALE:		115.0 [SLPM]			
INSTRUMENT ACCURACY AT FULL SCALE:		± 4.00 [%]			
	DEVICE UNDER TEST	REFERENCE INSTRUMENT	DEVIATION AT READING	ACCURACY AS % Of F.S. [%]	PASS OR FAIL
	FLOW [SLPM]	FLOW [SLPM]	[SLPM]		
1.	107.1	107.4	-0.3	-0.26	Pass
2.	82.8	83.4	-0.6	-0.52	Pass
3.	66.6	65.9	0.7	0.61	Pass
4.	42.1	42.5	-0.4	-0.35	Pass
AVERAGE DEVIATION ACROSS THE RANGE AT FULL SCALE [%]:		0.43			
<p>This is to certify that the instrument identified on this certificate has on this date certified to be within the instrument accuracy specified above. The Reference Flow Device bears letters of certification traceable to the National Institute of Standards and Technology (NIST).</p>					
<p>CALIBRATED BY: _____ /KRK/</p>					

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CERTIFICATE

Management system as per

ISO 9001:2015

The Certification Body TUV USA, Inc. hereby confirms as a result of the audit, assessment and certification decision according to ISOMET 17021-1:2015, that the organization

F&J Specialty Products, Inc.
404 Cypress Road
Ocala, FL 34472
United States



Operates a management system in accordance with the requirements of ISO 9001:2015 and will be assessed for conformity within the 3 year term of validity of the certificate

Scope

Design and Manufacture of Portable and fixed station environmental air sampling instruments, airflow calibrators and supplies for radiological and non-radiological airborne pollutant monitoring applications. Product lines also include filter paper, filter holders, radioiodine collection cartridges and radon detection products.

Certificate Registration No. 56 100 20560006
Audit report No. 22-5613

Initial Certification Date: October 17, 2008
Issue Date: October 17, 2023
Expiry Date: October 16, 2026

Deann Minamino

Accreditation Management
at TUV USA, Inc.

TUV USA, Inc.

215 Main Street, Salem, NH 03079 USA

www.tuv-nord.com/us





CERTIFICATE OF REGISTRATION



F&J SPECIALTY PRODUCTS, INC.

404 Cypress Road
Ocala, Florida 34472 USA

This laboratory is accredited in accordance with the recognized Standard ISO/IEC 17025:2017, "General Requirement for the Competence of Testing and Calibration Laboratories". This laboratory also meets the requirements of ANSI/NCSL Z540.3 2006 and any additional program requirements in the field of calibration. This accreditation demonstrates technical competence for a defined scope and the operation of laboratory quality management systems

ISO/IEC 17025:2017

NIST Traceable Calibration & Servicing of Portable & Fixed Station Environmental Air Sampling Instruments & Air Flow Calibrators for Radiological & Non-Radiological Airborne Pollutant Monitoring Applications.
Additional Scope Detailed in the Attached Supplement

This approval is subject to the firm maintaining its system to the required standards, which will be monitored by AGS. In the issuance of this certificate, AGS assumes no liability to any party other than the firm named above, and then only in accordance with the agreed upon laboratory quality management systems.

Certification Number: AGS-US051717-1/3
Original Approval: May 17, 2017
Date of Issue: May 17, 2023
Date of Expiration: May 16, 2026

For and On Behalf of American Global Standards, LLC
Stephen Keaneally, President



USA Office: 1187 Coast Village Road, Suite 495 Montecito, CA 93108 USA Tel: 617-838-4648
www.americanglobal.org info@americanglobal.org



Contract Number: 800157

Certificate: SGSNA/17/SUW/00304
Test Report Number: SUW-4169042

Certified Product: World Calibrator
Trademark (if any):



Model(s): WC-xxx-PC-z, WC-xxxE-PC-z, WC-xxx-VFD-z, WC-xxxE-VFD-z, WC-xxxB-VFD-z, WC-xxxBE-VFD-z, WC-xxxB-PC, WC-xxxBE-PC Where xxx can be 801, 802, 812, 828, 814, 530, 550, 870, 890, 125, 150, 200, 300, 400, 500, 600, 770 or 999, Where z can be O,C,* or Blank; WCMT-2, WCMT-2E, WCMT-3, WCMT-3E, WCMT-4, WCMT-4E, WCMT-VFD-2, WCMT-VFD-2E, WCMT-VFD-3, WCMT-VFD-3E, WCMT-VFD-4, WCMT-VFD-4E.

Technical Data: 1.0A; 100-240Vac; 50/60Hz

Name and Address of Applicant: F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road, 34472, Ocala, Florida, United States of America

Name and Address of Manufacturer: F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road, 34472, Ocala, Florida, United States of America

Name and Address of Factory: F&J SPECIALTY PRODUCTS, INC.
404 Cypress Road, 34472, Ocala, Florida, United States of America

This certificate supercedes previous certificates issued with the same certificate number. Certification is valid when products are indicated on the SGS directory of certified products at www.sgs.com. The product is certified according to ISO/IEC Guide 17067, *Conformity assessment - Fundamentals of product certification, System 3*, and in accordance with

UL 61010-1, 3rd Ed. May 11, 2012
CAN/CSA C22.2 No. 61010-1-12

Authorized by Effective date: 09 November 2017

Paul Krauss
Certifier

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Page 1 of 1



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THE WORLD CALIBRATOR

Improving the Efficiency and Quality of Air Flow Calibrations



VFD Version

Notable Features:

- Vacuum Fluorescent Display (4 lines×24 characters)
- 4 button key pad for stand alone operation
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USER SETTINGS SCREEN