

F&J SPECIALTY PRODUCTS, INC.

The Nucleus of Quality Air Monitoring Programs

C-14 COLLECTION SYSTEMS

220 — 240 VAC



MRB200C14E



C14CS-3000E

Rev: 17 July 2019

Carbon 14 Collection System Model MRB200C14E

NOTABLE FEATURES:

- Inorganic CO₂ in Water Vapor Collection System
- Automatic Flow Control
- Digital Flowmeter displaying flow, elapsed time and accumulated volume
- Large, bright LED Display
- Correction of flow rate and volume to a reference temperature and pressure (4 options)
- Tri-20ml bubbler system
- 220VAC; 50/60Hz; single phase



GENERAL DESCRIPTION:

The Model MRB200C14 C-14 collection system consists of a three 20 ml vial bubbler train for collection of inorganic carbon species in air. A diaphragm pump with an automatic flow control mechanism utilizing the F&J digital flowmeter system is provided.

Typical flow range is 75 to 200 scfm.

Real-time data download is available through the RS232 port. An optional flash card data storage device is available.

The unit is designed for periodic indoor use. Please consult the product specifications for the design temperature range and the installation category.

Collection efficiency for inorganic C-14 in air is greater than 99% utilizing ethanalamine.

Carbon 14 Collection Systems

SPECIFICATIONS:

PUMP TYPE:	Diaphragm
MOTOR:	Brush Type
MAXIMUM CAPACITY:	Typical 75 cc/min to 200 cc/min. control range Other flow ranges available upon request.
POWER REQUIREMENTS:	220 VAC; 50 Hz; 1 ampere; single phase
CIRCUIT BREAKER PROTECTION:	5 amperes
ELECTRICAL CORD:	All temperature, 3-wire, 16 gauge
DIMENSIONS:	15.5”L×10”H×11”W (39,4 cm L×25,4 cm H×28 cm W)
WEIGHT:	17.5 lbs. (8 kg)
INSTALLATION CATEGORY:	Pollution Degree 2

C-14 COLLECTION SYSTEM:

- Removable 20 ml scintillation vials; One three vial train
- Detection Limit: 1E-10 μ Ci/cc
- Efficiency: > 99% with ethanolamine

AIR FLOW MEASUREMENT SYSTEM

- Air flow: \pm 4% of full scale
- Temperature: \pm 0.9°F (0.5°C) (Not displayed)
- Absolute Pressure: \pm 0.6 inches Hg (15,24 mm Hg) (Not displayed)

ON-BOARD CALCULATIONS

- Flow calculation from differential pressure value corrected to a reference T and P
- Elapsed Time
- Cumulative Volume corrected to a reference T and P

OPERATING TEMPERATURE: (0°-40°C) (32°F-104°F)

STORAGE TEMPERATURE: (-10°C-50°C) (14°F-122°F)

OPERATING HUMIDITY: 0-95% RH non-condensing

COMMUNICATIONS INTERFACES: RS-232 available for real-time data download of airflow data

OPTIONS:

- Flash Card Data Storage Device 232FCDS
- Flash Card 372239
- PC Flash Card Reader SDDR-199-A20

Carbon 14 Collection System Model C14CS-3000E

NOTABLE FEATURES:

- RS-232 Port for real-time data
- Large, bright LED Display
- Microprocessor controlled electronics
- Flowrate measurements and volume totalizations are corrected to a factory settable reference Temperature and Pressure
- Classical STP 0°C, 1 Atm
- Normal T and P 20°C, 1 Atm
- Modified Normal T and P 70°F, 1 Atm
- Standard Ambient T and P 25°C, 1 Atm
- Precision machined DP sensor
- Flowrate accuracy within $\pm 4\%$ F.S.
- Flowrate / Volume Options:
 - sccm / scc
 - SLPM / SL
- LED dimming feature
- 220-240VAC, 50/60Hz, single phase



GENERAL DESCRIPTION:

The Model C14CS-3000E Collection System is a carbon 14 collection system consisting of a diaphragm pump, 12VDC brushless motor, two 500ml NaOH sampling vials with stainless steel caps and an overflow trap. The flow and volume of air passing through the system is adjusted and measured by a microprocessor controlled Digital Flow Meter (DFM). The DFM utilizes a precision-machined orifice to measure flowrate. The DFM displays on-board calculations on a bright large character LED display. Flowrate and totalized volume both corrected to a reference Temperature and Pressure and elapsed time are displayed.

Multiple operator selectable data download frequencies are available through the RS232 port for collection and/or storage of real-time data.

The unit is designed for continuous indoor or outdoor use. Please consult the product specifications for the design temperature range and the installation category.

The typical operating flow range can vary from 100 - 500 sccm or 500 - 1000 sccm

The typical operating flow range is 100 - 250 sccm (0,10 - 0,25 LPM). Other flow ranges available upon request.

SPECIFICATIONS:

PUMP TYPE:	Diaphragm
MOTOR:	Brushless type; 12VDC PWM
CAPACITY:	Maximum 500 cc/min or 1000 cc/min
POWER REQUIREMENTS:	220 – 240VAC; 50/60 Hz; 1 ampere; single phase
CIRCUIT BREAKER PROTECTION:	5 amperes
ELECTRICAL CORD:	All temperature, 3-wire, 16 gauge
DIMENSIONS:	23 cm × 61 cm × 51 cm
WEIGHT:	30,3 kgs
INSTALLATION CATEGORY:	Pollution Degree 3

ELECTRONIC SPECIFICATIONS

MEASUREMENT ACCURACY

Air flow:	± 4% of full scale
Temperature:	± 0.9°F (0.5°C) (Not displayed)
Barometric Pressure:	± 0.6 inches Hg (Not displayed)

OPERATING TEMPERATURES: 32° - 122°F (-17° - 50°C)

STORAGE TEMPERATURE: 0° - 122°F (-28° - 50°C)

CALIBRATION: Calibration verification once per year

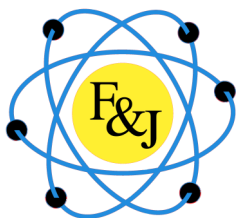
COMMUNICATIONS INTERFACES: RS-232

ON-BOARD CALCULATIONS

- Flow calculation from differential pressure value corrected to a reference T and P
- Elapsed Time
- Cumulative Volume corrected to a reference T and P

NOTE:

Other CO₂ absorbing media may be utilized, such as ethanolamine.



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PRODUCT PROFILE

Air Sampling Systems

- High Volume Air Samplers
 - Portable Grab Samplers
 - Environmental Systems
 - Enzyme Dust Samplers
 - PM10 Systems
- Continuous Air Samplers
 - Environmental Systems
 - Portable
 - Fixed Station
- Personal Air Samplers
- Emergency Response DC Powered Air Sampling Systems

Filter Paper

- Glass Fiber
- Cellulose
- Membrane
- Quartz

Filter Holders

- Open face
- In-Line
- PAS Filter Holders
- Materials
 - Plastic
 - Aluminum
 - Stainless Steel

Radon Detection Devices

- 2-Day Passive Charcoal Canisters
- 7-Day Passive Charcoal Canisters
- Continuous Radon Monitors

Tritium Detection Systems

- Portable and Fixed Station Collection Systems utilizing Silica Gel or Molecular Sieve Absorbents
- Continuous Tritium Monitors

New Products

- Global Air Sampling Systems
- Digital Flowmeter Air Samplers
- C-14 Collection Systems
- ELITE DIGITAL LIGHT (EDL) Air Samplers
- Isokinetic Air Sampling Systems
- MEGA High Volume Air Samplers
- ULTRA High Volume (CTBTO) Air Samplers

Radioiodine Collection Cartridges

- TEDA Impregnated Charcoal
- Silver Zeolite
- Custom Cartridges
- Bulk Silver Zeolite

Air Flow Calibrators

- World Calibrator Series
- Compact Digital V.2 Series
- Mini-Calibrator