



*See What's Really There™*

**CS1200E Passive  
Canister Sampler**



**CS1200E  
PASSIVE**  
**Canister Sampler**

***Solutions for Time Integrated Canister Sampling.***



**CS1200ES Silonite™ Coated Passive Canister Sampler**

## Features

- Superior Time Integrated Sampling**  
*Accurately fill 6L Silonite™ Canisters with integration times from 15 minutes to 1 month at more stable and reliable flow rates than any other flow controller, with verified recovery of TO-15A compounds. The inlet and outlet of the CS1200E can be easily capped off during shipping using reliable tool free caps.*
- Flow Professor Automated Calibration**  
*Calibration of the CS1200E is fully automated using the Flow Professor calibration system*
  - Calibrates flow automatically based on requested canister size and fill times.
  - Verifies the flow vs pressure profile to ensure a proper sampling event (required by TO-15A).
  - Verifies leak tight operation.*No other calibration system comes close to providing a better solution for ensuring proper time integrated sampling.*
- Fast Restrictor Changes**  
*Forget the pipe threads and Teflon tape found on other flow controllers, the CS1200E uses simple compression fittings with removable Nickel ferrules to make changing of flow restrictors not only fast and reliable, but also simple!!!*
- Easy TO-15A Required Recovery Testing**  
*Check out the latest CS1200E advancement called EZ-RecoveryCHK that allows the CS1200E to sample out of a pressurized calibration canister using a patent pending pressure balancing mode that allows easy target compound recovery testing, now required by US EPA Method TO-15A.*

## CS1200E Passive Canister Sampler

**The best solution for low level EPA TO-15A monitoring.**

The CS1200E is a high-purity flow regulation system designed to reliably fill canisters at a constant rate from vacuum to within 1 psi of atmospheric pressure without requiring any power. Unsurpassed flow path inertness and a newly revised flow design enhances TO-15A compound recovery while improving flow stability at a wide range of ambient temperatures. No other sampler has scientific data supporting the recovery of sub-PPB level TO-15A compounds. The CS1200E has been verified to fill 6L canisters at a constant rate for up to 1 full month!

### Did you know?

304 and 316 stainless steel contain 67–70% iron, which is very reactive toward many TO-15A compounds.

### Why Silonite?

Untreated 300 series stainless steel is 67–70% iron, which is very reactive toward many TO-15A compounds. In addition, untreated stainless tubing has an internal oxide layer that readily adsorbs polar and heavier VOCs. The standard CS1200E inlet now comes internally polished, passivated, and Silonite™ coated to insure maximum recovery of all target compounds – virtually eliminating losses and carryover. The Silonite™ coated filter is placed on the inlet to completely eliminate dust and particulate intrusion during sampling. No need to worry about debris or anything including “insects” in the inlet tubing, a concern specifically mentioned in TO-15A when filters are not placed at the very inlet to the sample train. The inlet is capped off to avoid any contamination risk during shipping.



**Silonite™ Filter Inlet Kit w/ Rain Guard – PN: 39-92204S**



**Replacement Silonite Filter and O-Ring – PN: 39-92150**



**Table 1 – CS1200E | Restrictors and Canister Fill Duration Range**

CS1200E   Restrictors				
Part #	Flow Range	Code	Replacement Restrictor Part #	
Silonite™ Coated	Uncoated		Silonite™ Coated	
39-CS1200E50	39-CS1200E0	150 – 450 cc/min.	0	39-23000S
39-CS1200E51	39-CS1200E1	50 – 150 cc/min.	1	39-23010S
39-CS1200E52	39-CS1200E2	25 – 75 cc/min.	2	39-23030S
39-CS1200E52+	39-CS1200E2+	12 – 36 cc/min	2+	39-23060S
39-CS1200E53	39-CS1200E3	6 – 18 cc/min.	3	39-23080S
39-CS1200E53+	39-CS1200E3+	4 – 12 cc/min.	3+	39-23160S
39-CS1200E54	39-CS1200E4	2 – 6 cc/min.	4	39-23240S
39-CS1200E54+	39-CS1200E4+	1 – 3 cc/min.	4+	39-23480S
39-CS1200E55	39-CS1200E5	0.5 – 1.5 cc/min.	5	39-24010S
39-CS1200E56	n/a	0.2 – 0.6 cc/min.	6	39-24020S
39-CS1200E57	n/a	0.1 – 0.3 cc/min.	7	39-24040S



Fill Duration	Recommended Restrictor for Volumes and Fill Times								
	450mL	600mL	1L	1.4L	2.5L	2.7L	3.2L	6L	15L
15 min.	2+	2	1	1	1	0	0	0	—
1 hr.	3+	3+	3	2+	2	2	2	1	0
3 hrs.	4+	4	4	3+	3	3	3	2+	1
8 hrs.	5	5	4+	4+	4	4	3+	3	2+
12 hrs.	6	5	5	4+	4	4	4	3+	2+
1 day	6	6	5	5	4+	4+	4+	4	3+
2 days	7	7	6	6	5	5	5	4+	4
7 days	—	—	—	7	7	7	7	6	5
14 days	—	—	—	—	7	7	7	7	5
30 days	—	—	—	—	—	—	—	7	6

Assuming canisters are filled to 4" Hg below atmosphere

**Important!** Calibrate your CS1200E using the latest flow table online. Visit [www.entechinst.com/CS1200E/](http://www.entechinst.com/CS1200E/)

Or, let the Entech Flow Professor™ handle all the calibrations automatically! Visit [www.entechinst.com/FlowProfessor](http://www.entechinst.com/FlowProfessor)

## Time Integrated Sampling

Time integrated VOC concentrations can easily be determined by sampling into canisters at a constant flow rate. Precise and inert restrictors, combined with the inert pressure regulation offer by the CS1200E provides superior flow stability when compared to other regulated controllers. Different restrictors are available to fill a 6L canister over 0.25, 1, 3, 8, 24 hours, or 1, 2, or 4 weeks (1 month). Part numbers for CS1200E flow controllers are separated by flow range. Flow ranges can be easily changed by swapping out the flow restrictor (see previous page) and the performing an automated precise calibration using the Flow Professor (shown on next page).

## A Compact and Clean Flow Path

The CS1200E includes a vacuum gauge with a 1/4" compression fitting. This design, exclusive to Entech, completely eliminates messy and absorptive Teflon® tape from the controller flow path. A threaded inlet cover prevents filter contamination and also acts as a rain guard when sampling to prevent moisture from clogging the inlet filter or restrictor. This feature is ideal for sampling in wet environments, or when performing trace-level measurements with required detection limits down to low part-per-trillion levels.

## TOOL FREE OPERATION!

Enjoy complete tool free operation in the field using Entech's exclusive technology:

- Hand-tightened valve cap
- Micro QT Valve Quick Connects
- FlowMate™ Adapters

## Time Integrated Sampling

Accurately fill 6L Silonite™ Canisters with integration times from 15 minutes to 1 month with demonstrated reliable recovery of EPA TO-15A compounds. No other flow controller has proven recovery of sub-PPB level TO-15A compounds.

## Amazing Low-Flow Stability

More stable and reliable flow rates than any other available flow controller.

## Silonite™ Coated Inlet Lines

The CS1200E features Inlet lines that are electropolished, then Silonite™ coated.

## Silonite™ Coated Filter

A large Silonite™ coated stainless steel filter is positioned at the inlet to maintain an inert and unobstructed flow path by eliminating particles.

## NIFTY Nickel Ferrules

Nickel ferrules have the strength and reliability of stainless steel ferrules, but are removeable/replaceable, so they protect your investment.



6L Can Secure Enclosure  
PN: 29-CANSTATION

## Two "Tool-Free" Ways to Connect



"Rotate to hand-tighten. No more tools!"

1/4" Face-Sealing FlowMate to 1/4" compression, Silonite coated  
PN: FM4-400S

Silonite™ Female Micro-QT™ Valve to 1/4" Compression Fitting  
PN: FQT-400S

Silonite™ Male Micro-QT™ Valve to 1/4" Compression Fitting  
PN: MQT-400S

CS1200E Passive Canister Sampler and 2.5L MiniCan™ shown.  
(Sampler and Canisters sold separately)

## Flow Professor™ Calibration System

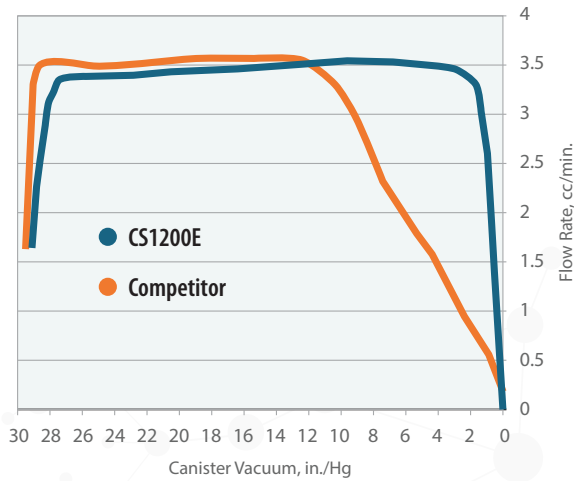
The best solution for low level EPA TO-15A monitoring.

The Flow Professor is the easiest and most accurate way to calibrate the CS1200E for TO-15 or TO-15A Time Integrated Sampling. Only the CS1200E can be calibrated using this unique system, handling canisters ranging from 0.45L to 15L. From within the easy to navigate Flow Professor™ software, simply set canister size, sampling duration, and the remaining canister vacuum desired at the conclusion of sampling (typically 2-4" Hg); then attach the Flow Professor™ to the front of the CS1200E and select Start Calibration from the software menu. The Flow Professor™ system proceeds to automatically adjust the flow setting of the CS1200E to obtain the ideal flow rate, every time. Attempting to achieve such precise calculations and flow controller adjustments manually would be difficult and time consuming at best. The Flow Professor™ makes it all easy!



**Flow Professor™ Calibration System (PN: 39-FP-02) shown with CS1200ES Sampler and 6L Silonite™ Canister.**

### PRESSURE vs. FLOW



*CS1200E Maintains constant flow rates closer to atmospheric pressure.*

## EZ-RecoveryCHK

The latest innovation exclusive to the CS1200E is an important one. Flow controllers used for sampling air at low flow rates as specified in US EPA Method TO-15A reference the local atmospheric pressure to allow them to sample at a constant flow rate while filling canisters. Unfortunately, this makes them very difficult to challenge them with a recovery standard out of a canister, as the flow out of a pressurized canister will substantially change the flow rate, making the recovery test invalid. The new, patent pending EZ-RecoveryCHK feature on the CS1200E allows both sides of the CS1200E diaphragm to reference the gas coming out of a regulated canister, so the flow rate is substantially the same as when collecting ambient air. This changes everything, as it is now easy to connect several CS1200E/canister combinations to a single pressurized canister while performing the required US EPA TO-15A recovery testing. Entech innovation is making it easy for air laboratories to comply with EPA requirements, even as QA requirements create new challenges. With the CS1200E and Entech, you'll be ready to accept the challenge!



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CS1200E Passive Sampler –211103-13.0