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859A-1

Moving Particulate Filter Sampler with Controller

The 859A-1 Moving Particulate Filter Sampler with Controller consists of a 859A-1-72 Moving Particulate Filter Controller and a 859-1-50 Moving Particulate Filter Sampler. The controller contains a filter speed circuit, motor drive circuit, fast advance circuit, and power supply.

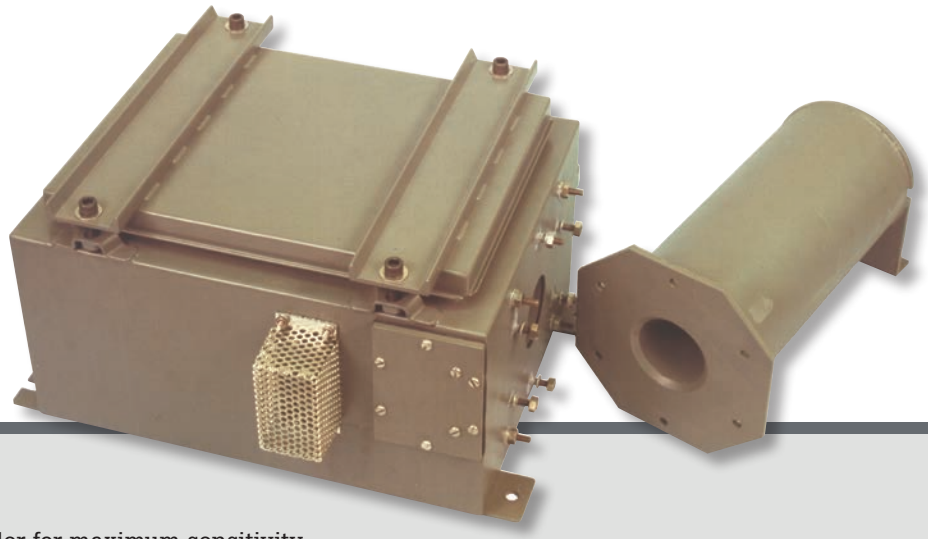
The 859A-1-72 controller is used to drive the stepping motor located inside the 859-1-50 sampler. The motor control circuit receives a -12 V dc unregulated power supply and converts it into pulses for the necessary stepping sequence for the stepper motor located inside the 859-1-50 sampler. Output pulses are supplied to the stepper motor in one of two ways. The internal timing circuit or an external timing circuit can be utilized.

The controller enables the operator to establish the speed of the moving filter. There are two methods used to set the speed in which the motor can be driven. One method is a rotary switch used to select a resistor-capacitor network. This network is used in conjunction with a 555 timer. The selectable speeds via the switch are: 0.5, 1, 2, or 10 inches per hour. The second method involves removing a jumper wire in the controller and allowing an external pulse to determine the filter speed. The jumper wire comes connected to S and V inside the controller. By removing this wire, the 555 timer is disabled.

The filter advance circuit is operated per a momentary pushbutton switch. When depressing the momentary pushbutton switch, the filter will advance for a pre-determined time period.

The 859-1-50 sampler is designed so that when a radioactive effluent is being sampled, the effluent is directed against the slow moving filter. When the effluent is directed through the slow moving filter, the particulates are trapped and their emissions monitored by the beta detector, 943-25T.

The moving filter is wound on a take-up wheel for disposal purposes. Feelers and microswitches are positioned to detect torn or low filter tape.



Key features

- Moving filter particulate sampler for maximum sensitivity
- For use with the 943 Series detectors and the 942A Series or the 960 Series electronics
- Jam free tape drive mechanism
- Non-smearing tape drive
- Flat view area
- Variable speed
- Fast advance
- Torn paper tape alarm
- Low paper tape alarm

Applications

The 859A-1 Moving Particulate Filter Sampler with Controller is designed for use in radiation monitoring channels of air bearing radioactive particles. A continuous sample stream of the gas to be monitored is directed against a slowly moving strip of filter tape where the particles are trapped and their emissions monitored by an alpha, beta, or gamma detector. The filter tape is contained on a reel and is moved past the gas stream and detector. Finally, the spent filter tape is wound on another reel for disposal. Feelers and microswitches are positioned to detect torn filter tape, and a low or empty supply reel.

Technical specifications

Sampler (Model 859A-1-50)

Filter tape
3 (w) x 720 in (l), Hollingsworth & Voss LB-5211-A-0 fibreglass backed, 97 % collection efficiency for particles 0.3 micron or larger

Filter movement
Continuous at .5, 1, 2, and 10 inches per hour with fast advance to clear filter in less than 30 seconds

Drive mechanism
Stepping motor with non-smearing tape drive

Shielding
2 in, 4 pi lead around detector

Sampling Area
3 in^2 (19.4 cm^2)

Inlet Connection
1 in OD tubing

Outlet Connection
.75 in OD tubing

Dimensions *(w x d h)*
20.25 in x 26 in x 11 in
(51.44 cm x 66.04 cm x 27.94 cm)

Weight
180 lb (81.6 kg)

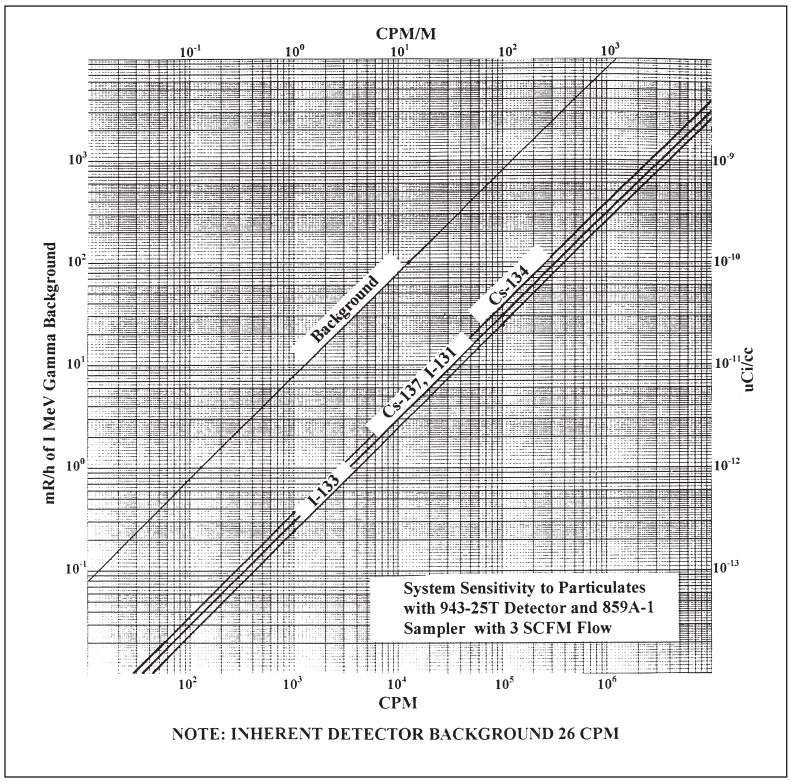
Controller (Model 859A-1-72)

Controls
Tape speed .5, 1, 2, and 10 inches per hour, fast advance

Outputs
Torn paper, low paper supply

Dimensions *(w x d x h)*
5.25 in x 8.50 in x 13 in
(13.33 cm x 21.59 cm x 33.02 cm)

Weight
25 lb (11.3 kg)



NOTE: INHERENT DETECTOR BACKGROUND 26 CPM

Ordering information

Model

859A-1: Moving Particulate Filter Sampler with Controller

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