

Isco 3710 RLS Sampler



The 3710 RLS is an Isco Model 3710 Sampler, specially modified to collect radionuclide samples using 3M Empore™ Rad Disks. The Empore disks selectively trap radionuclides, which are then analyzed to find concentration levels. In addition, the amount of sample flowing through the disk is known, allowing the specific loading effects of the pollutant to be determined.

Radionuclide concentration data made easy

Previously, when water pollutants were present in very small amounts, a technician would have to expose the Empore disks to large quantities of sample in the lab to obtain the necessary concentrations. The 3710 RLS eliminates this cumbersome procedure, by placing the Empore disk in the collected sample path on-site. This method has been shown to dramatically reduce turnaround time and overall cost (see box below).

Easy programming

The 3710 RLS offers basic and extended programming modes. You can program for:

- Sampling at uniform time intervals
- Non-uniform time intervals
- Flow-paced sampling with or without delay

Simply choose the options you desire from the backlit LCD panel.



With the Empore™ Disk in the collected sample path, radionuclide counting takes hours, not days!

Accurate sample volumes

The 3710 RLS features all the proven advantages of Isco's popular 3710 sampler, including accurate, repeatable sample delivery using the LD90 Liquid Presence Detector and pump revolution counting system. The system automatically compensates for changes in head height, and the non-contacting LD90 is unaffected by conductivity, viscosity, temperature, or effluent composition. The system also provides a preconditioning rinse of the suction line to eliminate sample contamination.

Simple radionuclide monitoring

The 3710 RLS changes a lengthy, difficult task to a simple, economical procedure.

A study*, using Isco 3710 RLS samplers, showed that: *"Data collected over a four-month field test period compares very favorably with concurrent laboratory-based analyses and historical data, at a reduction in cost and significant time savings."*

The same study concluded: *"Radionuclide concentration data were available based on the field sampler method within one week of sample collection as opposed to the typical 45 day turnaround for routine monitoring programs. One technician was able to prepare samples for counting for three different analyses within a few hours as opposed to multiple technicians being required to perform separate lengthy chemical separations for each analyte. Also, the new method resulted in a lower detection limit as larger samples can be processed in the field, eliminating the need for multiple technicians performing lengthy laboratory methods. Overall, this new method results in the desired "faster, better, cheaper" analysis protocols."*

* **"Automated Field Sampler Extraction Disks for the Quantification of Radionuclide Concentrations in Surface Streams"** by Donna M. Beals, et al, Measurement Technology Department, Savannah River Technology Center, Aiken, SC.

Note: Isco thanks the Westinghouse Savannah River Company and its staff for their work on this study. Copies of the complete report are available on request.

Isco 3710 RLS Sampler Specifications

Contact the factory or your Isco representative for additional specifications.

Sampler		Controller	
Height	29 in.	74 cm	
Diameter	20 in.	51 cm	
Weight (dry)	32 lbs.	14.5 kg	
Sampler Base Capacity	2½ or 4 gallon polyethylene or 2½ gallon glass container.		
Cooling Capacity <i>(with 20 lbs. of ice and 4 gal. container full of 65°F water)</i>	After 24 hours: 32°F (18°C) below ambient After 48 hours: 25°F (14°C) below ambient <i>(Standard thermal resistance factor of R-11)</i>		
Power Requirements	12 volts DC. <i>(Supplied by battery or AC power converter.)</i>		
Pump		Software	
Intake Purge	Adjustable air purge before and after each sample.		
Tubing Life Indicator	Provides a warning to change pump tubing.		
Intake Suction Tubing			
Length	3 to 99 ft.	1 to 30 m	
Material	Vinyl or Teflon® lined		
Inside Dimension	¾ in. or ¼ in.	1 cm or 0.6 cm	
Pump Tubing Life	Typically 500,000 pump counts		
Maximum Suction Lift	26 ft.	7.9 m	
Typical Repeatability	±10 ml		
Typical Line Transport Velocity at head heights of:			
3 ft. (0.9 m)	2.9 ft./s	0.88 m/s	
10 ft. (3.1 m)	2.5 ft./s	0.76 m/s	
15 ft. (4.6 m)	1.9 ft./s	0.58 m/s	
Liquid Presence Detector	Non-wetted, nonconductive sensor detects when liquid sample reaches the pump to automatically compensate for changes in head heights.		
Weight	11 lbs.	5.9 kg	
Dimensions	10 x 12.5 x 10 in.	26 x 32 x 25 cm	
Operational Temperature	32° to 120°F	0° to 49°C	
Enclosure Rating	NEMA 4X, 6	IP67	
Program Memory	Non-volatile ROM		
Flow Meter	5 to 15 volt DC pulse or 25 millisecond isolated contact closure.		
Signal Requirements			
Number of Composite Samples to Shutoff	Up to 200 samples. <i>(Fail-safe float shutoff.)</i>		
Real Time Clock Accuracy	1 minute per month, typical		
Sample Frequency Selection	1 minute to 99 hours 59 minutes, in 1 minute increments Non-uniform times in minutes or clock times 1 to 9,999 flow pulses		
Sampling Modes	Uniform time, non-uniform time, flow. (Flow mode is controlled by external flow meter pulses.)		
Programmable Sample Volumes	10 to 9,990 ml in 1 ml increments		
Sample Retries	If no sample is detected, up to 3 attempts; user selectable		
Rinse Cycles	Automatic rinsing of suction line up to 3 rinses for each sample collection		
Program Storage	3 sampling programs		
Sampling Stop/Resume	Up to 24 real time/date sample stop/resume commands		
Controller Diagnostics	Tests for RAM, ROM, pump display, and distributor		

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Empore™ is a trademark of 3M

Ordering Information

Suction line and strainer not included; order separately.
Contact the factory or your Isco representative for complete accessory list and ordering information.

Description	Part Number
3710 RLS Sampler	68-3710-RLS

Note: For more information about 3M Empore™ products, please contact 3M toll-free at 1-888-297-5537



3M Empore™ Rad Disks



Isco, Inc.
4700 Superior St.
Lincoln, NE 68504 USA
Phone: (402) 464-0231
USA & Canada: (800) 228-4373
Fax: (402) 465-3022
E-Mail: info.ed@isco.com