

### Features

- SCARA\* robotic sample changer for gamma spectrometry
- 20 samples capacity, 40-60 optional
- User-defined sample geometry (Marinelli, bottle, flat etc.)
- Integrated 10 cm thickness cylindrical lead shield (15 cm ULB optional)
- Compatible with both vertical and U-style HPGe cryostats
- Touch screen GUI
- Fully computer controlled via Apex-Gamma™ or similar application
- Lighted safety enclosure
- Bar code or QR code reader (optional)

\* Selective Compliance Assembly Robot Arm

### Description

RoboCount™ LAB/20 is an industrial automatic sample changer for high-throughput gamma spectrometry systems. The unit is purpose-designed, not assembled from off-the-shelf mechanical components. This results in high reliability and reduced maintenance. The unit consists of a heavy-duty frame, lead shield with cover, third party HPGe detector and MCA, sample tray, robot manipulator, control cabinet with PLC touch screen panel, and a safety enclosure.

The sample tray has 20 openings for sample containers. Samples are inserted into the sample tray in the order in which they need to be measured. Different sample geometries are accommodated using custom inserts, custom grippers, or both.

The use of an industrial SCARA robot to manipulate the samples is the distinguishing feature of the RoboCount™ LAB/20 unit. Comparable sample changers are using either simple XYZ manipulators or unnecessarily complex 6-axis robots. The SCARA robot is ideally suited for the task of inserting the samples into the lead shield. The lead three-finger sample gripper as well as the lead shield cover are operated pneumatically. Compressed air is provided by an integrated silent compressor.

The lead shield opens in a swivel motion. The sample manipulator leaves its home position, grabs the correct sample securely and moves it

over the shield opening, lowers it into the shield, and gently releases it onto a sample support 1-2 mm above the fragile HPGe detector end cap. The empty manipulator moves to its home position and the shield cover closes. The measurement process is initiated. Once the measurement is completed the sample container is retrieved from the shield and returned to the tray. The next sample cycle can now begin. If no more samples are in the queue, the shield closes.

The system is operated from a PC running a sample changer capable gamma spectrometry software package, e.g., Apex-Gamma™, Genie™ 2000 or similar. This user application communicates with a multi-channel analyzer (MCA), integrated into the system cabinet, and connected to both the HPGe detector and the robot controller.



RoboCount™ LAB/20 can be operated in a manual mode. This mode is useful for measuring urgent samples, those with non-conforming geometry, calibration standards, or in the unlikely case of a software or hardware failure.

## RoboCount™ LAB/20 Automatic Sample Changer



- Stäubli TS2-40 SCARA robot



- TechMart lead shield



### Main System Components

- Stäubli CS9 controller and teach pendant



### Mechanical

- Dimensions 1200 mm (l) x 1800 mm (w) x 2500 mm (h)
- Weight 1200 kg including 10 cm lead shielding
- Liquid-nitrogen or electrically cooled HPGe detector
- Segmented cylindrical shield, steel jacket
- 10 cm lead, 15 cm optional (ULB)
- 1.0 mm Sn / 1.5 mm Cu liner
- Cavity diameter 150 mm
- Cavity height 250 mm
- Light grey (RAL 7035) polyurethane paint finish

### Electrical

- Power requirements 3L+N+PEAC 400/230 V, 50 Hz, 10 A
- Environmental conditions 0 – 50 °C, max. 80% rel. humidity
- CE Declaration of Conformity