

**Ultra High Performance Alpha/Beta Counting Systems  
for Maximum Laboratory Productivity**



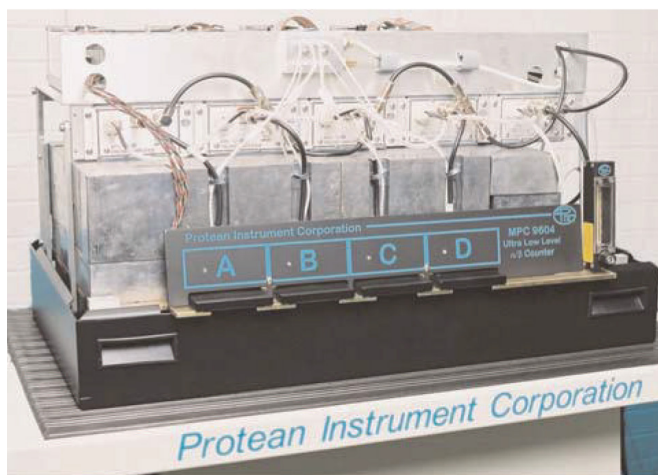
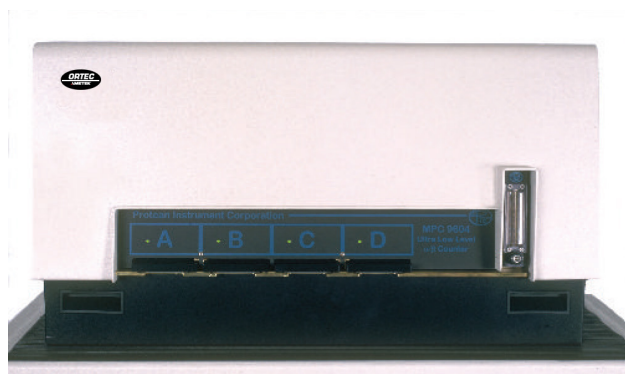
# Alpha/Beta Counting Multi-Detector System

The ORT-MPC-9604 is a premium, multi-detector, alpha/beta counter designed for applications that require high sample throughput and low detection limits.

- Manual, Four-Detector Sample Counter
- Cosmic Guard Detector
- Field Replaceable Detector Windows
- 4" (10.16 cm) thick low background lead shielding
- 2 in. (5.1 cm) Standard Planchet Diameter
- Low Background Counter
- No Lead Brick Lifting for Detector and Window Access
- Radon Progeny Compensation for Air Filters
- GasPro Failsafe Gas Conservation and Gas Loss Detection
- Four 2.25 in. (5.7 cm) Pancake Style Gas Flow Proportional Detectors
- Independent sample start and stop

The ORT-MPC-9604 is designed for simplified setup, operation, and maintenance with optimal performance characteristics.

- The only connections are AC power, USB computer control, and P-10 gas supply which is monitored by Gas-Pro™ to halt counting when a gas fault is detected.
- Intuitive control software with simple data accessibility and reporting minimizes training and setup time. Each detector has its own sample drawer for independent sample loading and control with true "Count to MDA" to optimize throughput.
- Maintenance requires no rear access with the detectors and electronic modules accessible from the front. Detector windows can easily be changed in less than 10 minutes without interrupting the operation of other detectors.



# Alpha/Beta Counting Multi-Detector System

## Specifications

Efficiency Top (~1 mm from Window); Others: Bottom of Planchet <sup>1</sup>				
Source	Top	1/8"	1/4"	5/16"
Pu-239	35%	31%	25%	24%
Sr/Y-90	55%	47%	40%	39%
Tc-99	24%	33%	28%	26%
Ni-63	15%	11%	7%	5%

Typical Efficiencies (Distributed/Point Source) <sup>1</sup>			
Source	Efficiency	Source	Efficiency
Po-210	31% / 42%	Am-241	31% / 42%
Sr/Y-90	47% / 55%	Th-230	31% / 42%
Tc-99	35% / 43%	Cs-137	32% / 40%

Background <sup>2</sup>				
Configuration	Warranted (cpm)		Typical (cpm)	
	Alpha	Beta	Alpha	Beta
Shielded and Guarded	<0.1	<0.1	<0.05	<0.7

Instrument Specifications	
Category	Specification
Sample Size	2 inch diameter (5.1 cm)
Detector Uniformity	95% over active area
Capacity	4 samples
Instrument Induced CrossTalk	Alpha to Beta <0.1% Beta to Alpha <0.1%
Depth	1/8, 1/4, or 5/16 inch
Data Export	VISTA 2000 software
Interface	Computer
Count Modes	Alpha only, Alpha then Beta, Alpha/Beta simultaneously
Plateau	<1.5% / 100 V Alpha Length >1000 V <2.5% / 100 V Beta Length >200 V
Power	110–240 V AC, 50–60 Hz Input <2 A @ 110 V AC, <1.0 A @ 240 V AC
Gas Flow Rate and Pressure	Nominally set to 60 cc/min with a critical flow orifice. Nominal inlet pressure 10 psi (±2 psi)
Window	Aluminized, 80 µg/cm <sup>2</sup>
Operating Temperature Range	10°C to 40°C (50°F to 104°F)
Humidity	20–90% Non-condensing
Shielding	4" (10.16 cm) Low Background Lead
CPM / Dead Time	300,000 / <1.5%
Dimensions	16" H x 32" W x 22" D (47 H x 95.3 W x 55.9 D cm)
Weight	1200 lbs (544 kg), shipping 1400 lbs (635 kg)
ROHS and CE	Certificates of Compliance available

### Factory Measurement Conditions

<sup>1</sup> 4π efficiencies for distributed area sources determined using a NIST traceable area source. "Typical" 4π efficiencies are for comparison with other vendors using point sources vs area sources at close window geometries.

<sup>2</sup> Background measurements in a natural background of 8 µR/hr. Warranted values are taken under controlled conditions and vary with altitude/background.

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## Ordering Information

**Customer must supply** AC power, P-10 gas supply, calibration sources, and a suitable surface to place each MPC-9604. The support surface must safely bear 1200 pounds per MPC-9604.

Model	Description
ORT-MPC 9604	Includes PIC Link Cable, Two Stage Regulator and Tubing, and 4 each of one size Insert (specify 1/8", 1/4", or 5/16" inserts at time of order)
ORT-MDS-CTRL	MDS Control Pack. Includes Vista 2000 software, RS232/485 interface, null modem cable, and gas regulator.
ORT-MDS-RACK	Heavy duty rack assembly to hold 2 MPC-9604 systems
ORT-VISTA 2000	Software Package
PIC-700-0007	1/8 inch Planchet (set of 100)
PIC-700-0008	1/4 inch Planchet (set of 100)
PIC-700-0009	5/16 inch Planchet (set of 100)
PIC-120-0008	Ultra-Thin (80 $\mu\text{g}/\text{cm}^2$ ) Detector Window