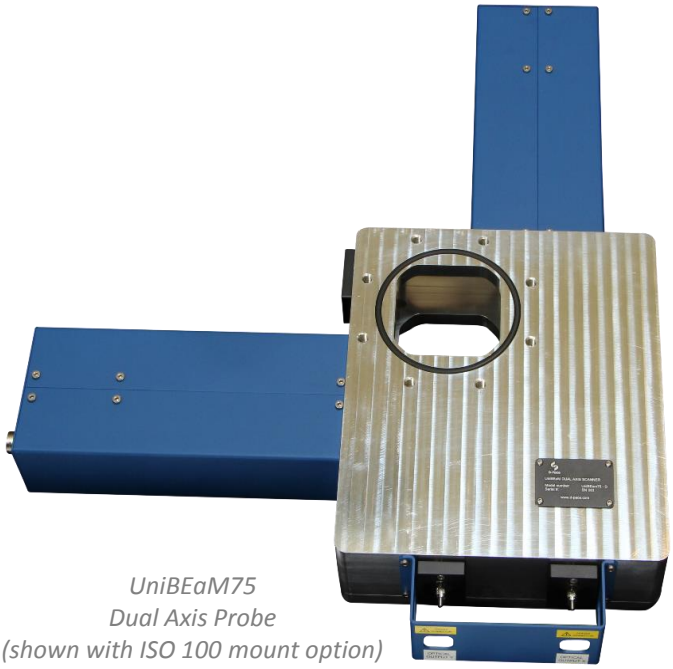
# DUAL-AXIS BEAM PROFILER

## UniBEaM75

## Beam Profiler System Using Scintillating Fiber Sensor



*UniBEaM75*
*Dual Axis Probe*
*(shown with ISO 100 mount option)*

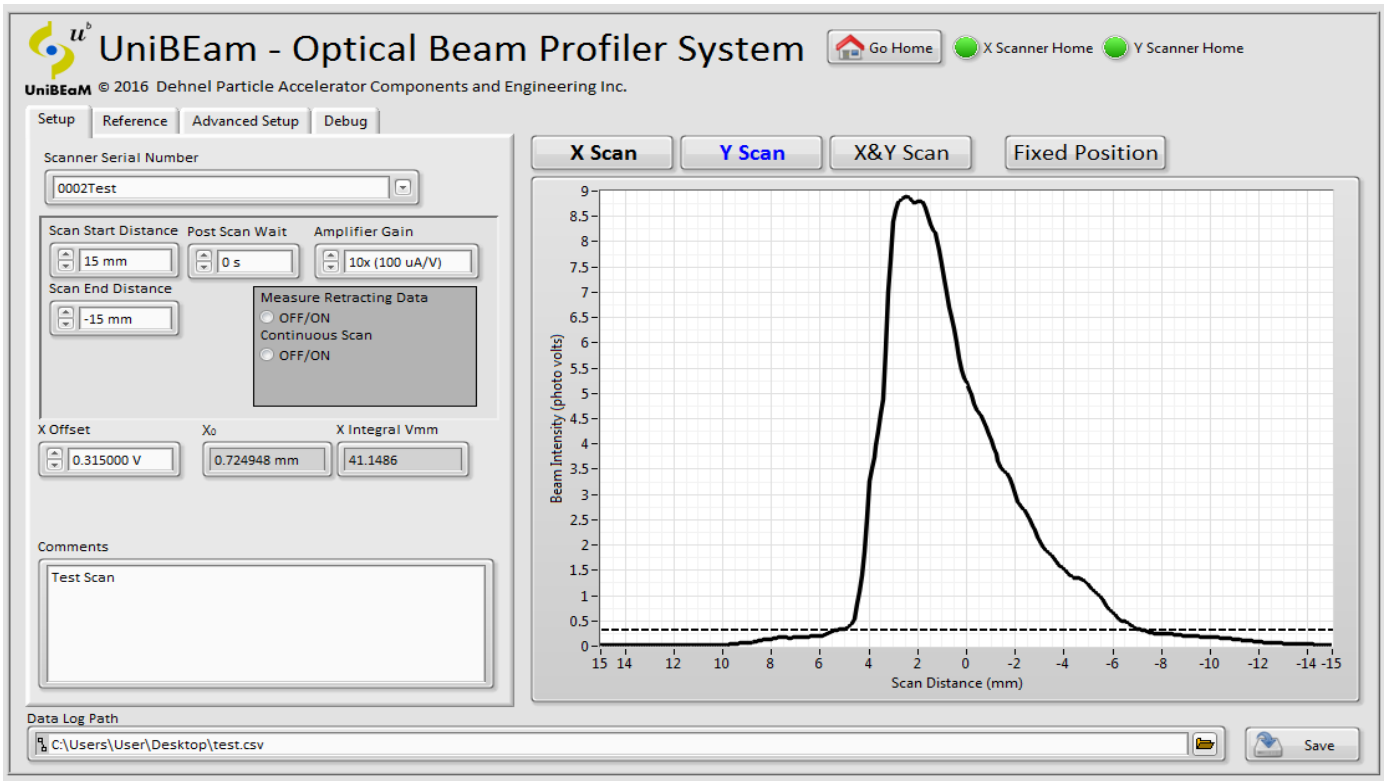
- **Measures beams from keV to GeV and pA to mA depending on the power density deposited**
- **Maximum beam diameter 75 mm**
- **Beam energy density[2] 10 W/cm²**
- **No vacuum box required**
- **Insertion length[3] of just 82 mm**
- **Scintillating sensor fibers**
- **Dual X & Y axis profiles**
- **In-plane scanning**
- **Radiation resistant – no electronics in the probe**
- **Low electromagnetic susceptibility**
- **Complete turnkey system**

**UniBEaM** was conceived by the **AEC-LHEP** of the **University of Bern**[1] and commercialized by **D-Pace.** UniBEaM is a charged-particle beam profiling system - similar to a wire scanner except an optical sensor fiber is used instead of a metal wire. Ø50µm to 600µm sensing fibers scintillate in the visible spectrum as they pass through the beam. The scintillation light is transmitted through the short sensor fiber into a standard multimode optical fiber, which transmits the light long distances with minimal attenuation and no electromagnetic susceptibility. The light is converted by a high-sensitivity photo sensor located in the UniBEaM controller, amplified, digitized, and displayed on a monitor.

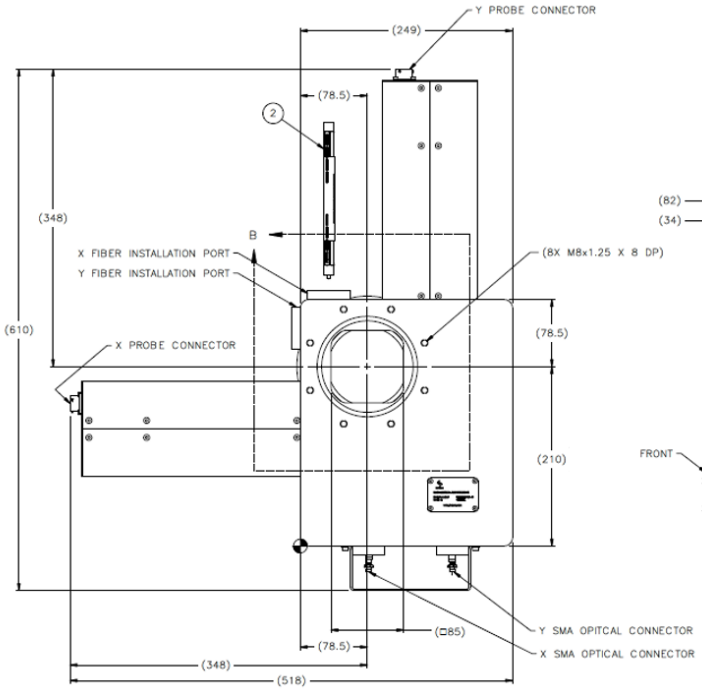
The system is a standalone device, requiring only the addition of a monitor and keyboard. A TCP/IP text-based command set is in development. This will allow UniBEaM to be used as a slave device to a higher-level controller or to interface with EPICS over Ethernet.

The probes are very compact, and require only 82mm along the beam axis[3]. X and Y scans can be conducted individually or concurrently.

| SPECIFICATION: UniBEaM75 | |
|---|---|
| Max Beam Diameter[2] | 75 mm |
| Particle Kinetic Energy | > keV |
| Sensitivity (Standard)[4] | 12pA @ 18 MeV ($H^+$) |
| Max Power Density[2] | 10 W/cm² |
| Sensor Fibers | Doped Silica Ø600 µm |
| Position Resolution | 200 µm |
| Scan Speed | 26 mm/s @ step size 2.0 mm<br>20 mm/s @ step size 1.0 mm<br>15 mm/s @ step size 0.6 mm |
| Probe Insertion Length[3] | 82 mm |
| Flange Options | ISO 100-F<br>CF 100 Conflat |
| Probe Mass | 13 kg |
| Data File Format | CSV |
| Controller | 19" Rack Mount, 2U |
| Input Power | 100-240VAC 50/60Hz |
| Cable & Fiber Length | 15 m (custom available) |




*Control & Analysis Software*





*Front*

*Back*

*UniBEaM Controller*

*Replaceable Sensor Fiber*

1. UniBEaM is licensed from AEC-LHEP University of Bern to D-Pace Inc. for exclusive worldwide manufacturing, sales, and distribution.
2. Higher beam power densities possible for > 5MeV for $H^-$. Contact D-Pace for other particles.
3. With ISO100-F (122 mm with CF100) -see D-Pace drawing 1800736.
4. For signal-to-noise of 2 for standard system at 18MeV $H^+$. Contact D-Pace for higher sensitivity systems.
5. D-Pace reserves the right to update specifications as part of its ongoing product improvement program.