



tornado

spectral systems

Tornado Spectral Systems Inc., a leading manufacturer of Raman analyzers for real-time process monitoring. **Fast data collection with superior sensitivity. Innovative High Throughput Virtual Slit (HTVS)**



What does the HTVS advantage mean for the user?

- Faster measurements for better process responsivity
- Better sensitivity for lower detection limits
- Permits accomplishing measurement even with reduction of the laser power (e.g., ATEX)
- Or a combination of two or more of the above – mix and match - to address specific application needs

Bioreactor Ballprobe

- Sanitary finished 316L SS
- 12mm diameter X 120mm or 220mm immersion lengths
- Pg 13.5 fitting
- Autoclavable
- Protective cap for sterilization
- Can be fit to single-use liners



Flow Cell

Solution for Downstream Processing
Unique sensitivity for a difficult application



Multiplexer Options

- Amortize cost of multiple measurement points
- 4-channel or 8-channel
- Allows sequential measurements among selected channels
- Accommodates all probe types



SpectralSoft™ - Simple Streamlined Operation



HYPERFLUX™ PRO Plus SOFTWARE – SPECTRALSOFT™

- Main operating software
- **Easy to use**
- Provides means for instrument control and calibration
- Manual data collection or unattended operation
- Some spectral manipulation
- Spectra saved in *.spc or *.csv file format to allow compatibility with multivariate analysis software of choice
- Multiplex control up to 8 channels
- ModBus protocol for process communication
- Embedded prediction engine to allow direct output of results with SIMCA models – can also used other software packages for predictions with a watched folder approach