

## Luminex HTS System

### Hardware

- HTS instrument
- LH instrument
- PC, monitor, keyboard, mouse, and accessories
- Power cables
- LH instrument fluid reservoir (2 liters)
- Injection tubing compression fitting
- Sheath uptake tubing assembly
- Waste tubing assembly
- Communications: between LH instrument and PC, 1 RS-232, DB-25P to DB-9P
- Communications: between HTS instrument and PC, 1 custom USB communication cable (RS-232 USB to DB-9P)
- Support for the Zymark® Twister II™ robotic microplate handler (optional, purchased separately)

Note: Not supplied is the recommended 25 liter waste container. Waste containment can be directly run to a drain that complies with local biohazard restrictions.

### xMAP Technology Reagents

- Classification calibration microspheres (CAL1)
- Reporter calibration microspheres (CAL2)
- xMAP Sheath fluid

### Laboratory Reagents Required

These items are necessary for cleaning the LH instrument and HTS instrument, but are not provided with the system.

- Household bleach
- 70% isopropanol
- Mild detergent
- Distilled water for the LH instrument fluid reservoir

### HDM Software

HDM software provides complete control of the system.

The factory preloads the HDM software on the PC's hard drive. An HDM software installation CD is also provided.

### Performance specifications

- System calibration < 10 minutes
- System warm-up 30 minutes; if lasers are inactive for at least 4 hours, a warmup is required to restart. The system timer for inactivity begins after the last sample was analyzed.
- Store data for up to 240,000 test results
- Analyze at least four plates, in any combination, 96 well or 384 well microtiter plates per session

- Distinguish a minimum of 1 to a maximum of 8 unique xMAP Technology microsphere sets in a single sample well (up to 64 xMAP Technology microsphere sets per sample)
- Detect and distinguish surface reporter fluorescence emissions on the surface of 1 to 64 unique xMAP Technology microspheres sets in a single sample well
- Automatic sampling of one, two, four, or eight samples at a time from a microtiter plate
- Start sampling from any column position
- Sample volume 1 to 300  $\mu$ L.

### **Accuracy and Precision**

- Sample uptake volume  $\pm$  15%
- Classification of microspheres 80%
- Misclassification of microspheres < 0.5%
- Internal sample carry over < 5%
- Soluble background fluorescence emission at 575 nm is automatically subtracted from the median fluorescence intensity (MFI) value

### **Sensitivity**

- Detect less than 1000 fluorochromes phycoerythrin (PE) per microsphere
- Reporter channel dynamic range: 3.0 decades minimum

### **LH Instrument**

- Operating temperature: 15°C to 30°C (59°F to 86°F)
- Storage temperature: 0°C to 50°C (32°F to 122°F)
- Humidity: 20% to 80%, noncondensing
- Altitude: Operation up to 2400 m (7874 ft) above mean sea level
- Physical dimensions: 559 mm (22 inches) W x 457 mm (18 inches) D x 483 mm (19 inches) H
- Weight: 39.92 kg (88 lbs.)
- UL installation category: UL Installation Category II, as defined in Annex J of UL 3101-1
- Pollution degree: UL Pollution Degree 2, as defined in Section 3.7.3.2 of UL 3101-1
- LH instrument input voltage range: 110-230 VAC, 1.4 Amps, 47-63 Hz
- AC inlet fuse: 3.15 A, 250 V, time lag

### **HTS Instrument**

- Operating temperature: 15°C to 30°C (59°F to 86°F)
- Storage temperature: 0°C to 50°C (32°F to 122°F)
- Humidity: 20% to 80%, noncondensing
- Altitude: Operation up to 2400 m (7874 ft.) above mean sea level
- Physical dimensions: 438 mm (17.25 inches) W x 575 mm (22.64 inches) D x 346 mm (13.63 inches) H

- Weight: 35.2 kg (78 lbs.)
- UL installation category: UL Installation Category II, as defined in Annex J of UL 3101-1
- Pollution degree: UL Pollution Degree 2, as defined in Section 3.7.3.2 of UL 3101-1

### **Optics**

- Reporter laser: 532 nm, nominal output 15 mW, maximum 500 mW, mode of operation, continuous wave (CW)
- Classification laser: 635 nm, 9.1 mW  $\pm$  6% nominal, maximum output 25 mW, diode; mode of operation, continuous wave (CW)
- Reporter detector: Photomultiplier tube, detection bandwidth of 565 - 585 nm
- Classification detector: Avalanche photo diode with temperature compensation
- Doublet discrimination detector: Avalanche photo diode with temperature compensation

### **Fluidics**

- Sheath flow rate: 18-25 mL/minute
- Cuvette: 200 micron square flow channel
- Default sample injection rate 8  $\mu$ L/second

### **Power**

- HTS input voltage range: 100 – 120 V~ and 200 – 240 V~, 1.8 Amps, 47-63 Hz.
- AC inlet fuse: 3 A, 250 V, fast acting

### **PC Specifications**

- Computer: a Pentium 4 or equivalent class PC, minimum speed 933 MHz
- Cache memory: 256 KB minimum
- Main RAM memory: 512 MB minimum
- Video driver: 4 MB minimum video memory, capable of generating minimum 1024 x 768 pixels
- Hard disk drive: 10 GB minimum storage capacity, minimum transfer rate 10 MB/sec
- Communications, network card: 10/100 M bit per second network interface card minimum
- Communications, parallel pointing device and serial ports: Minimum of 1 parallel, 1 PS/2 compatible pointing device, and 2 RS-232 compatible serial ports
- Communications, USB port: Minimum of one USB Version 1.1 compatible port
- Read, write, removable media: CD R/W type drive or equivalent with a minimum 100 MB storage capacity, minimum of 32X read over speed,

minimum 4X write over speed and a minimum transfer rate of 0.45 MB per second

- 1.44 MB, 3.5 inch disk drive
- Operating system support: Microsoft Windows 2000 or subsequent versions
- CE marked and UL/CSA (1950) listed
- Two-button mouse or equivalent
- Monitor: A minimum of 17-inch diagonal monitor
- Keyboard: a 104-key keyboard or equivalent
- Power cords specific to the country of use are included in the system
- Power: 115-230 V~, 4.0 Amps, 50-60 Hz

### **Recommended Additional Equipment**

Luminex recommends that you consider the following power protection and ancillary equipment for your system.

#### **Uninterruptible Power Supply (UPS)**

We highly recommend that you use an uninterruptible power supply (UPS) to protect your system from power outages. Choose a supply that can provide 1050 watts for at least 45 minutes. The UPS should be UL listed, CSA certified, and CE marked when used internationally.

#### **Surge Protector**

If you do not use a UPS, as a minimum, use a surge protector. Choose a protector that meets your needs. Factors to consider include electrical environment, endurance, suppressed voltage rating, and method of protection. It should have six outlets, rated at least 1500 Watts, UL listed or CSA certified, and CE marked when used internationally.

#### **Vortex**

- Desktop: speed range 0 - 3200 rpm or equivalent

#### **Bath sonicator**

- Desktop minibath sonicator: operating frequency 55 KHz or equivalent