

# Leica TCS SPE

Spectacular Imaging!

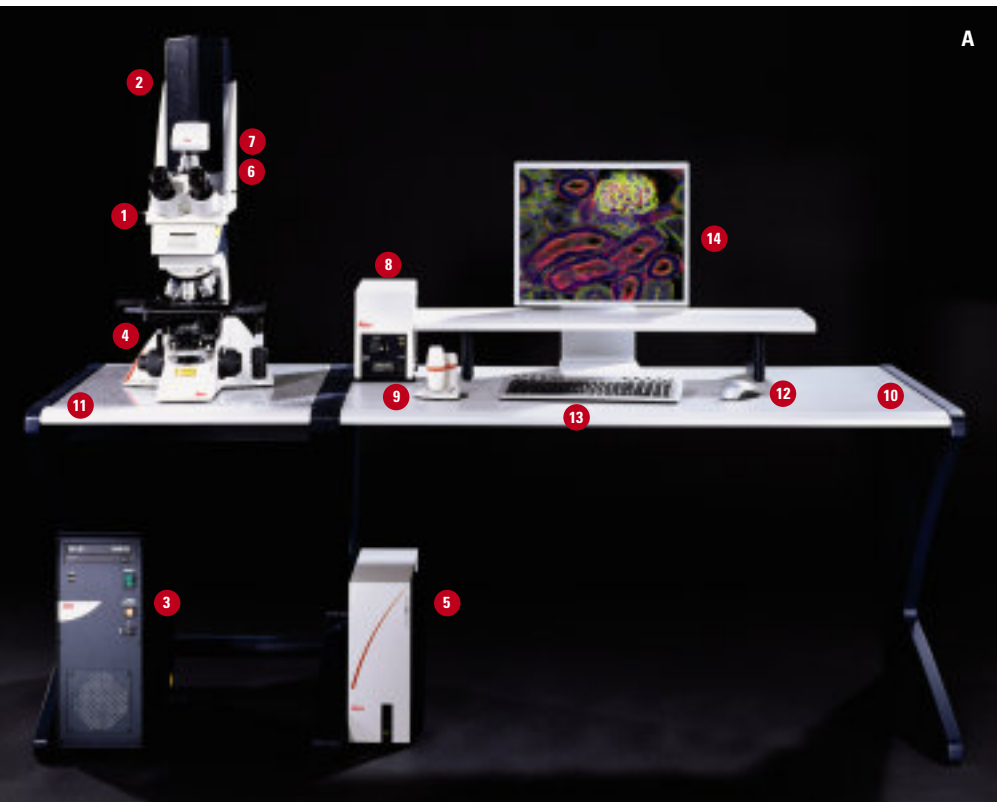
Technical Documentation

*Leica*  
MICROSYSTEMS

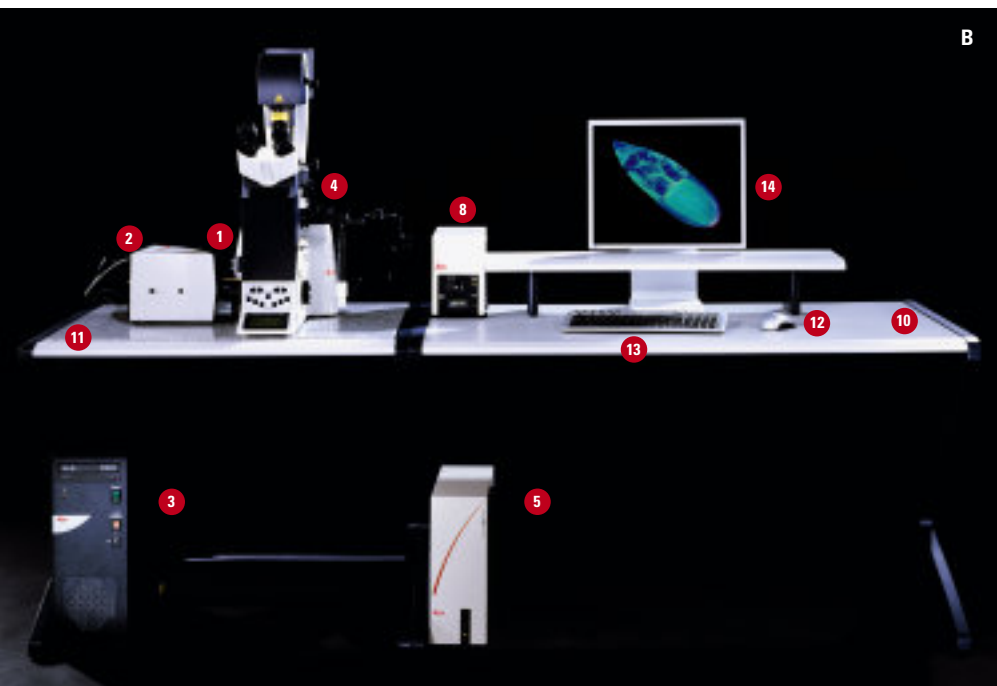
# Leica TCS SPE

- Spectacular Imaging
- Easy to Achieve
- A Reliable System
- Affordable Excellence

The high resolution spectral confocal Leica TCS SPE is an integrated system, optimized for target applications in small research groups and multi-user environments. A reliable partner providing spectacular results – easily and yet affordably.



- 1 Research microscope
- A Inverted
- B Upright
- 2 Confocal scan head
- 3 Supply unit, including three or four lasers and power supply, PC
- 4 Galvometer stage
- 5 Microscope control unit
- 6 Camera port
- 7 Digital camera
- 8 EL6000 fluorescence illumination control
- 9 Smart move microscope control
- 10 Computer table
- 11 Microscope table
- 12 Computer mouse
- 13 Keyboard
- 14 Control monitor



# Specifications





<b>Scan Head</b>	<b>Scanner</b>	Method	true confocal
		Confocal channels	1
		Scanner	Galvo, [x,y]
		Sequential scan	yes
		Channels	1-8, sequential multiplexing
<b>Resolution</b>	Range (min - max)	[pixel]	128 <sup>2</sup> - 2048 <sup>2</sup>
	Scan formats	[pixel]	128, 256, 512, 1024, 2048
	Image depth	[bit]	8 or 12, switchable
<b>Spectral Detection</b>	Spectral detection		yes
	Type		continuously variable
	Spectral resolution	[nm]	5 nm
	Bandwidth	[nm]	430 - 750
<b>Detector</b>	Detector		1
	Detector type		ultra high dynamic PMT
	Detector connection		direct
	Illumination		laser
<b>Pinhole</b>	Pinhole type		motorized, variable
	Range (min - max)	[µm]	35 - 600
	Pinhole adjustment	[%]	0 - 100
	Control		automated via GUI
<b>Beam Splitter</b>	Type		new high performance dichroics
	Beam splitter wavelength	[nm]	405/532, 488/633
	ND-splitter for TLD	[%]	30/70
	Beam splitter exchange		automated
<b>Zoom</b>	Zoom type		continuously variable
	Zoom range		1x - 16x
	Zoom increment		0.1
<b>Scan Modes</b>	2D: x-y		yes
	x-z		yes
	x-t		yes
	3D: x-y-z		yes
	x-y-t		yes
	x-y-λ		yes
	Band		yes
4D: x-y-z-t		yes	
<b>FOV</b>	Field of view (diagonal)	[mm]	15.5
<b>Speed</b>	Speed mode		uni-directional
	Line speed	[Hz]	800
	Line speed range	[Hz]	400, 600, 800
	max @ 128 <sup>2</sup>	[f/s]	3.0
	standard @ 512 <sup>2</sup>	[f/s]	1.0
min @ 2048 <sup>2</sup>	[f/s]	0.36	

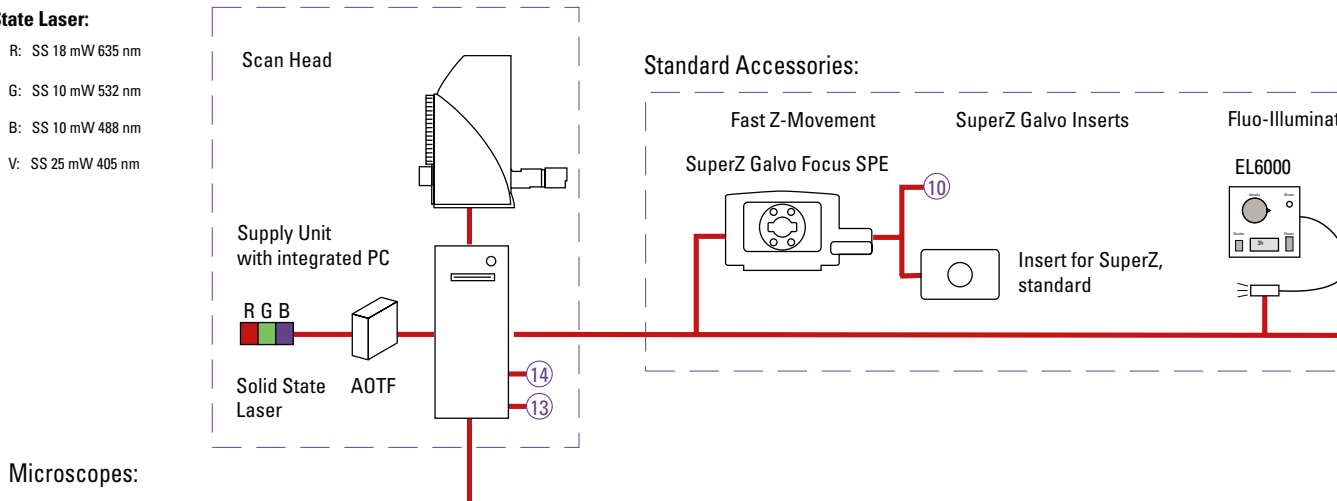
<b>Supply Unit</b>	<b>Laser</b>	Laser type	solid state
		Laser	max 4
		Laser excitation wavelength	[nm] 405, 488, 532, 635
		Excitation attenuation	AOTF
		Excitation attenuation control	automated
		Range	[%] 0 - 100
<b>Computer</b>		Integrated PC	yes
		Processor	Intel Pentium-M
		HD-Size	[GB] 120
		Operating system	XP-embedded
<b>Interfaces</b>		Ethernet	1
		USB	4
		FireWire	2
		Parallel	1
		Serial	1
<b>Mouse</b>		Type	optical
<b>Monitor</b>		Monitor resolution	[Pixel] 1280 x 1024
		Monitor size	19"
<b>Power Supply</b>		Power supply integration	yes
		Type	autoselect
		Voltage range	[V] 100 - 240
<b>Z-Drive</b>		Z-focus	galvanometer stage
		Z-resolution	10 nm
		Z-focus device, other	no
<b>Microscope</b>	<b>Types</b>	upright	DM2500 CSQ DM5500 CSQ
		inverted	DMI 4000 CSQ
<b>Software</b>	<b>Export</b>	Formats	LEI, LIF, TIFF, AVI, JPEG
<b>Modules</b>		Acquisition	yes
		3D-visualisation	yes
		Acquisition, time series	yes
		Averaging	yes
		Time lapse	yes
		Multi point time lapse	(yes)
	Colocalization	yes	
<b>Environment</b>	<b>Ratings</b>	Humidity	[%] 10 - 80
		Operating temperature	[°C] 18 - 30
		Guaranteed stability	23°C +/- 2°C

# System Overview Leica TCS SPE

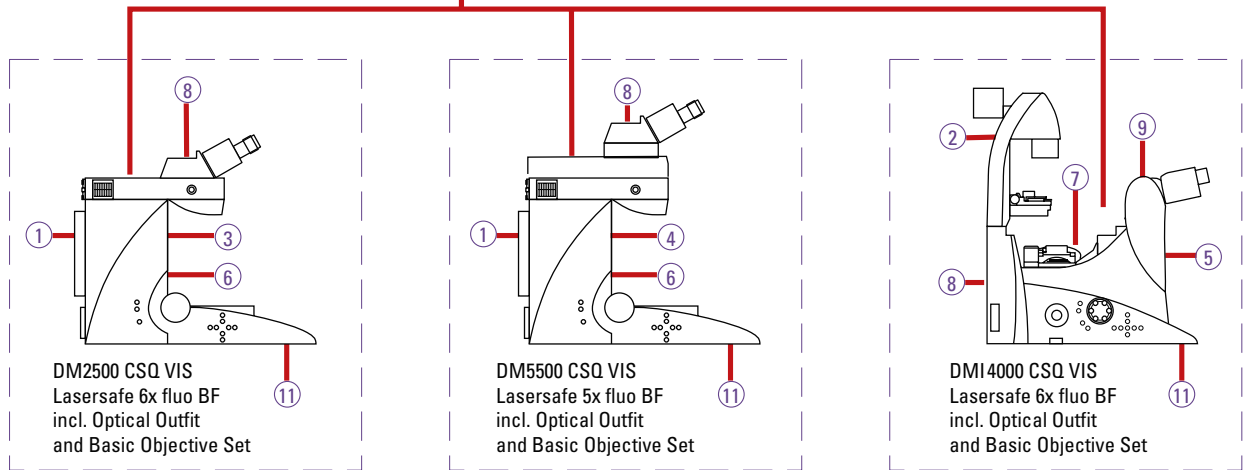
## TCS SPE VIS with HC-Optics

### Solid State Laser:

-  R: SS 18 mW 635 nm
-  G: SS 10 mW 532 nm
-  B: SS 10 mW 488 nm
-  V: SS 25 mW 405 nm



### Microscopes:

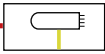



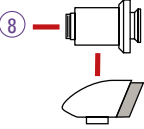
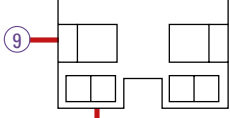





**15 6601 201**  
TCS SPE w. DM2500 CSQ VIS

**15 6601 401**  
TCS SPE w. DM5500 CSQ VIS

**15 6601 501**  
TCS SPE w. DMI4000 CSQ VIS

### Additional Options:

<p><b>Transmitted Light Detector-Kits</b></p> <p><b>1</b>  <b>15 6605 100</b> TLD for DM</p> <p><b>2</b>  <b>15 6605 101</b> TLD for DMI</p>	<p><b>Motorized xy-Stage Kits</b></p> <p><b>6</b>  <b>15 6650 200</b> DM Basic 3-Plate stage motorized kit</p> <p><b>7</b>  <b>15 6650 201</b> DMI Basic 3-Plate stage motorized kit</p>	<p><b>Digital Camera Kit</b></p> <p><b>8</b>  <b>15 5605 300</b> Leica DFC350 FX incl. C-Mount Adapter x 0,63 (1)</p>	<p><b>Climate Chamber Kit</b></p> <p><b>9</b>  <b>15 6605 400</b> Climate chamber for DMI4000 CSQ (1)</p> <p><b>Including Heating control unit</b></p> <p><b>Including Temp control unit</b></p>
<p><b>3</b>  <b>15 5931 251</b> Optical outfit DIC for DM2500 CSQ</p>			
<p><b>4</b>  <b>15 5931 551</b> Optical outfit DIC for DM5500 CSQ</p>			
<p><b>5</b>  <b>15 5933 451</b> Optical outfit DIC for DMI4000 CSQ</p>			

Note: (1) Available after May 2006



# Room Requirements



visible radiation:



<b>Power Supply</b>	Power supply integration		yes
	Type		autoselect
	Voltage range	[V]	100 - 240
	Power consumption	[VA]	800
	Independent circuits	[no.]	1
	Frequency	[Hz]	50/60
	Fuse: standard	[A]	10
<b>Environment</b>	Humidity (noncondensing)	[%]	10 - 80
	Operating temperature	[°C]	18 - 30
	Guaranteed stability		23°C +/- 2°C
<b>Load Capacity and Weight</b>	Confocal unit, max	[kg]	75
	Microscope, max	[kg]	45
	System	[kg]	120
	Static floor load	[kg/m <sup>2</sup> ]	150

