



# Leica TCS SPE

Spectacular Imaging!  
Technical Documentation

Living up to Life

*Leica*  
MICROSYSTEMS

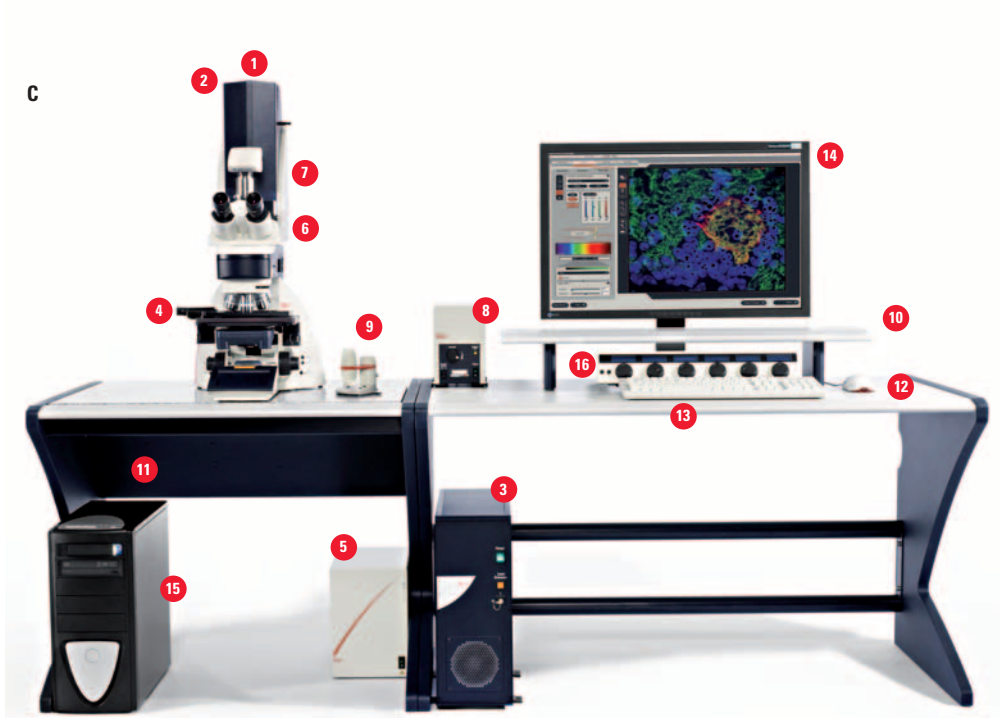
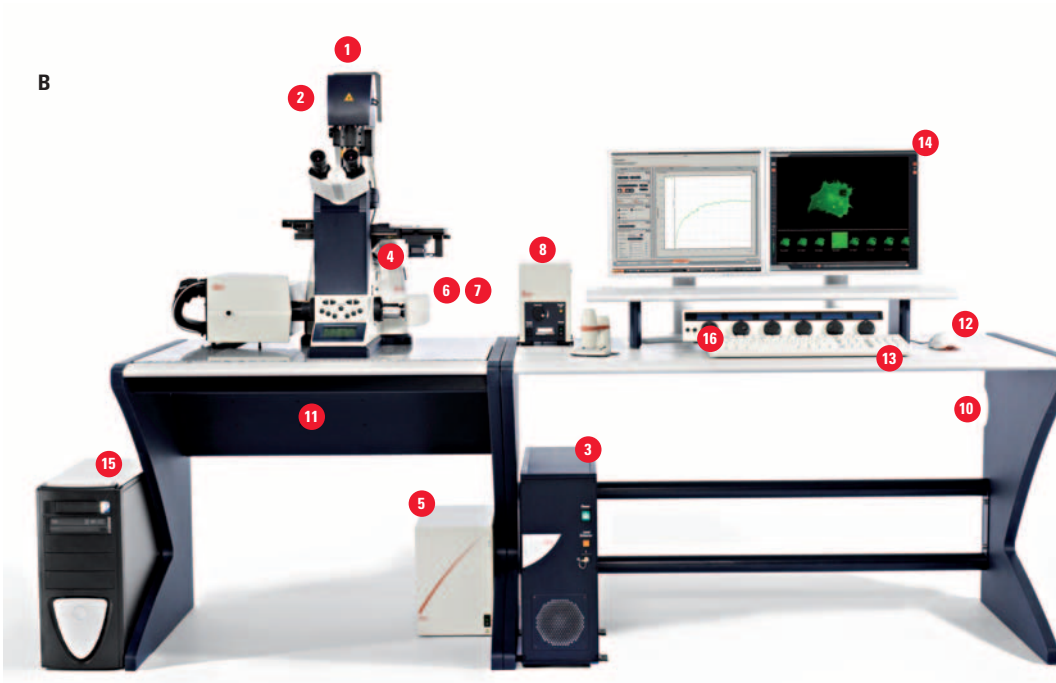
# Leica TCS SPE

- Spectacular Imaging
- Easy to Achieve
- Built-in Reliability
- Affordable Excellence

The new high resolution spectral confocal Leica TCS SPE is an integrated system for life science research. A reliable partner, providing spectacular results easily.

A





- 1** Research microscope  
A DM2500 CSQ  
B DM14000 CSQ  
C DM5500 CSQ
- 2** Confocal scan head
- 3** Supply unit, including 3 or 4 lasers and power supply
- 4** SuperZ Galvo 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** Anti-vibration microscope table
- 12** Computer mouse
- 13** Keyboard
- 14** Monitor
- 15** Workstation
- 16** Control panel

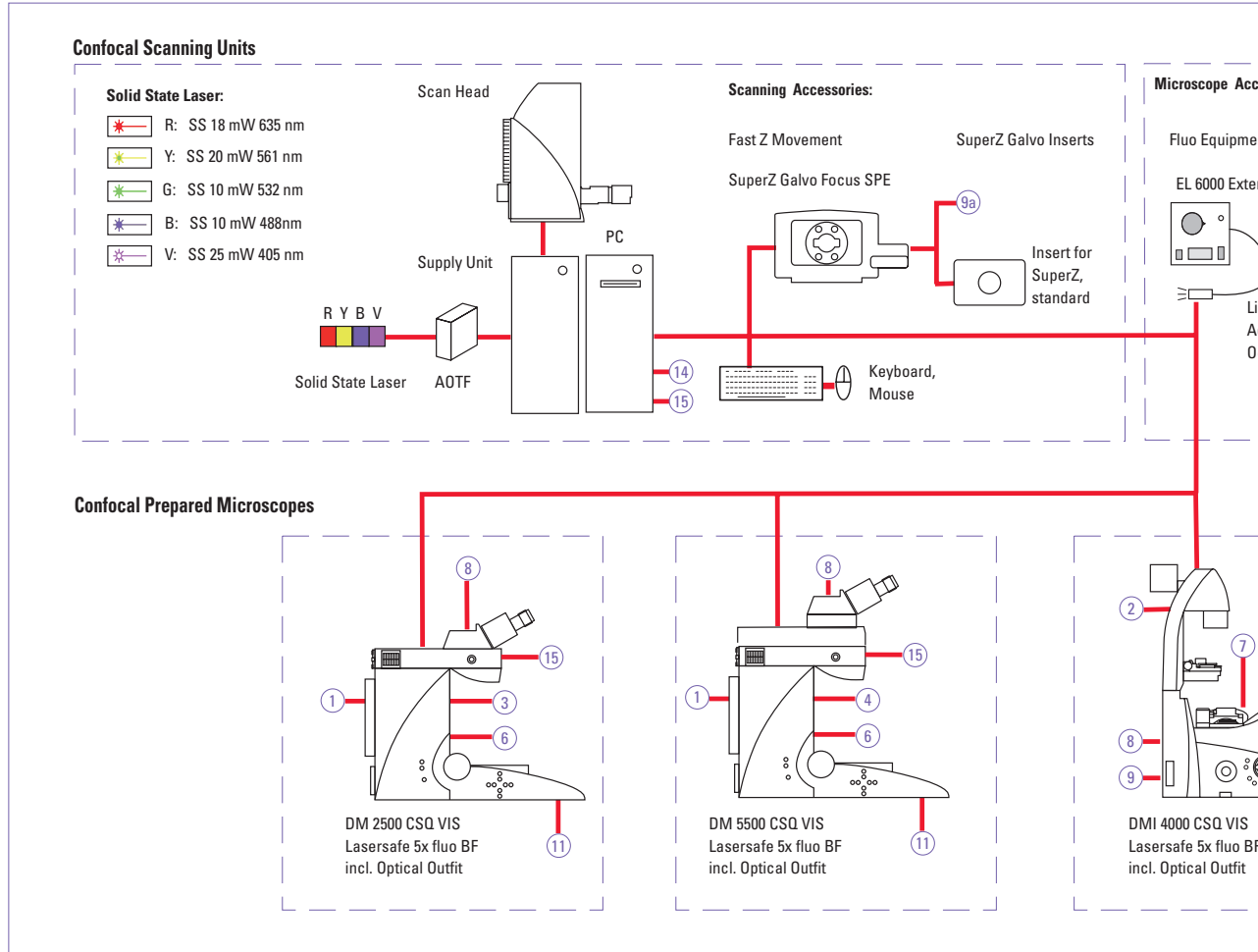
# Specifications Leica TCS SPE

Scan Head	Scanner	Method	True Confocal Point Scanner
		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	high performance dichroics
		Beam splitter wavelength	[nm] 405/488/633
		(532nm laser systems)	405/532
		Beam splitter wavelength	[nm] 405/488/561/635
		(561nm laser systems)	488/561
		ND-splitter for TLD/λ	[%] 30/70
		Beam splitter exchange	automated
	<b>Zoom</b>	Zoom type	continuously variable
		Zoom range	1x – 58x
		Zoom increment	0.1
	<b>Scan Modes</b>	2D	xt
		3D	xyz; xyz
		Time	xyt; xzt
		Lambda	xyλ; xzλ
		Time	xyzt; xzyt
		Time & lambda	xyλt; xzλt
		Lambda	xyλz
		Time & lambda	xyzλt
	<b>FOV</b>	Field of view (diagonal)	[mm] 15.5
	<b>Speed</b>	Speed mode	uni-, bi-directional
		Line speed range	[Hz] 400, 600, 800, bi: 1200, 1600
		max @ 128 <sup>2</sup> bi-directional	[f/s] 6.1
		standard @ 512 <sup>2</sup>	[f/s] 2.2
		min @ 2048 <sup>2</sup>	[f/s] 0.8

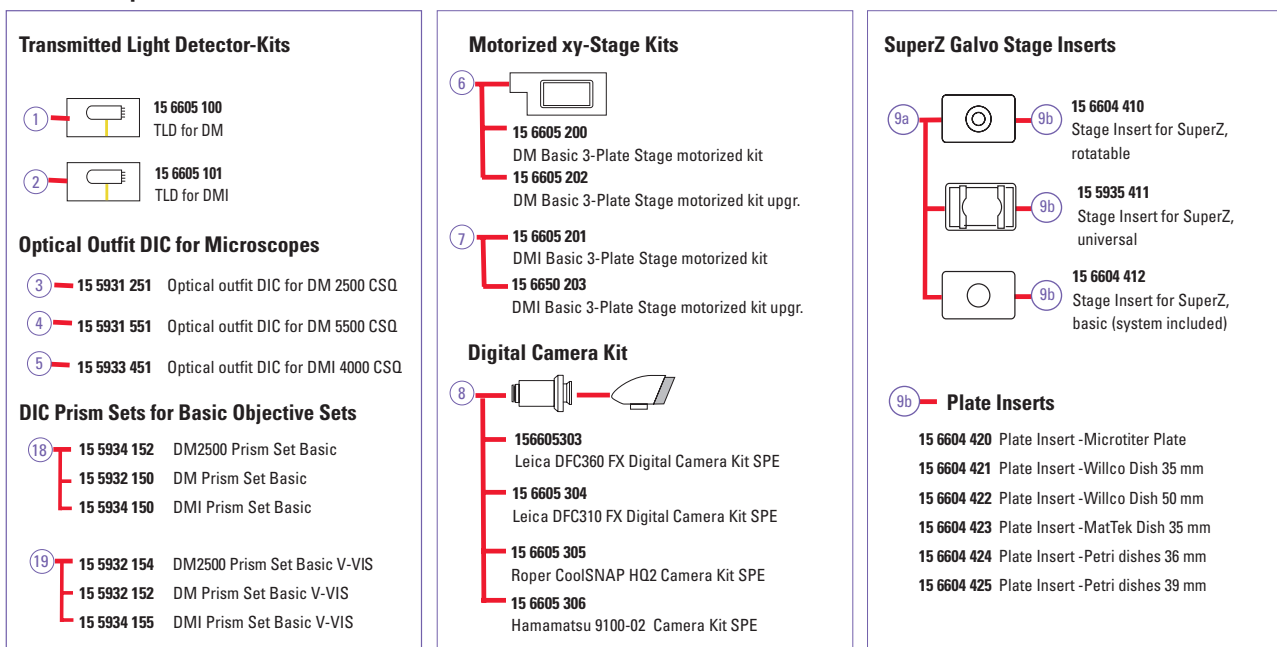
<b>Supply Unit</b>	<b>Laser</b>	Laser type	solid state	
		Laser	max 4	
		Laser excitation wavelength	[nm] 405, 488, 532, 561, 635	
		Excitation attenuation	AOTF, direct modulation	
		Excitation attenuation control	automated	
		Range	[%] 0 – 100	
<b>Computer</b>	External PC		yes	
	Processor		Intel Core i7	
	Memory	[GB]	4	
	HD-Size	[GB]	500	
	Operating system		Windows 7	
<b>Interfaces</b>	USB		8	
	FireWire		4(2x 1394a, 3x 1394b)	
	Ethernet		1	
	Serial		0	
	Mouse		optical	
	Keyboard		yes	
<b>Monitor</b>	Graphics resolution	[Pixel]	1280 x 1024, 2560 x 1600 (optional)	
	Monitor		1x 19", 2x 19" (optional), 30" (optional)	
<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		microscope drive DM5500	
<b>Digital Cameras Support</b>	Leica DFC360 FX Digital Camera		yes	
	Leica DFC310 FX Digital Camera		yes	
	Leica Roper CoolSNAP HQ2 Camera		yes	
	Leica Hamamatsu 9100-02 Camera		yes	
<b>Microscope Types</b>	upright		DM2500 CSQ DM5500 CSQ	
	inverted		DMI4000 CSQ	
<b>Software</b>	<b>Export</b>	Formats	LIF, TIFF, AVI, JPEG, MOV	
		<b>Modules</b>		
		LAS AF SPE Live Data Mode		yes
		LAS AF SPE Colocalization		yes
		LAS AF SPE Deconvolution		yes
		LAS AF SPE 3D Visualization		yes
		LAS AF SPE Dye Finder		yes
		LAS AF SPE Core Review Software		yes
		LAS AF SPE Camera Advanced		yes
		LAS AF SPE FRAP		yes
		LAS AF High Cont. Screening Autom.		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

## Confocal Systems



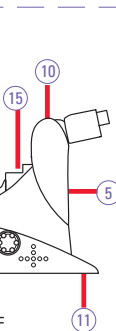
## Additional Options:



Accessories:

Internal light source  
HXP120 burner

Liquid light guide  
Adapter, Filter,  
Optical Cylinders



### Confocal Systems RGB/RVB 16

- 15 66 01 202 Leica TCS SPE w. DM2500 RGB
- 15 66 01 502 Leica TCS SPE w. DM5500 RGB
- 15 66 01 402 Leica TCS SPE w. DMI4000 RGB

- 15 66 01 203 Leica TCS SPE w. DM2500 RYB
- 15 66 01 503 Leica TCS SPE w. DM5500 RYB
- 15 66 01 403 Leica TCS SPE w. DMI4000 RYB

### Confocal Systems RGBV/RVBV 17

- 15 66 01 220 Leica TCS SPE w. DM2500 RGBV
- 15 66 01 520 Leica TCS SPE w. DM5500 RGBV
- 15 66 01 420 Leica TCS SPE w. DMI4000 RGBV

- 15 66 01 221 Leica TCS SPE w. DM2500 RYBV
- 15 66 01 521 Leica TCS SPE w. DM5500 RYBV
- 15 66 01 421 Leica TCS SPE w. DMI4000 RYBV

### Confocal Prepared Microscope for all types including Microscope Accessories

- 15 66 01 230 Leica TCS SPE DM2500 Confocal Prep.
- 15 66 01 530 Leica TCS SPE DM5500 Confocal Prep.
- 15 66 01 430 Leica TCS SPE DMI4000 Confocal Prep.

### Confocal Scanning Units

- 15 66 01 702 Leica TCS SPE Scanning Unit RGB 16
- 15 66 01 703 Leica TCS SPE Scanning Unit RYB 17
- 15 66 01 720 Leica TCS SPE Scanning Unit RGBV 17
- 15 66 01 721 Leica TCS SPE Scanning Unit RYBV 17

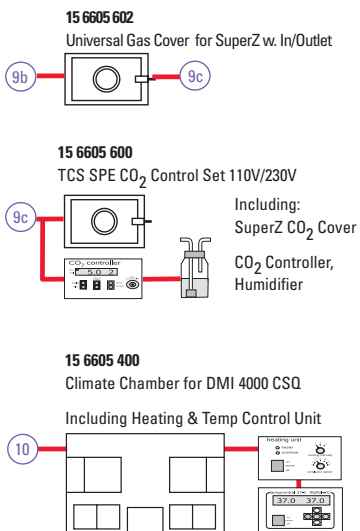
### HC-Objectives for RGB/RVB Systems

- 16 155935200 18  
Basic Objective Set HC 10x,40x,63
- 15506285  
HC PL APO 10x/0.40 CS
- 15506326  
HC PL APO 20x/0.70 Imm/Corr CS
- 15506251  
HCX PL APO 40x/1.25 Oil CS
- 15506188  
HCX PL APO 63x/1.40 Oil CS
- 15506279  
HCX PL APO 63x/1.20 W Corr CS
- 15506194  
HCX PL APO 63x/1.30 Glyc Corr CS 21

### ACS Objectives for RGBV/RVBV Systems

- 17 155935210 19  
Basic ACS Objective Set 10x,40x,63x
- 15507902  
ACS APO 10x/0.30 Dry CS
- 15507904  
ACS APO 20x/0,60 Imm CS
- 15507901  
ACS APO 40x/1.15 Oil CS
- 15507900  
ACS APO 63x/1.30 Oil CS

### Climate Control



### Hardware-Options

- 13 15 6605 711  
Control Panel for TCS SPE
- 15 6605 702  
Second 19"-TFT Monitor for TCS SPE
- 15 6605 703  
Eizo 30" high brilliance monitor TCS SPE

### Tables

- 11 15 5934 190  
Microscope Table for Upright and Inverted Systems, passive
- 12 15 6606 190  
Computer Table

### Software LAS AF - Screening TCS SPE HCS A High Content Screening Automation

- 14 LEICA HCS A for TCS SPE-II  
see LAS AF Matrix Products

### Software LAS AF - Imaging TCS SPE

- 14 15 6602 202  
LAS AF SPE Live Data Mode
- 16 6022 203  
LAS AF SPE Co-Localisation
- 15 6602 204  
LAS AF SPE Deconvolution
- 15 6602 205  
LAS AF SPE 3D Visualisation
- 15 6602 208  
LAS AF SPE Dye Finder
- 15 6602 211  
LAS AF SPE Camera Advanced
- 15 6602 215  
LAS AF SPE FRAP

# 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

