



■ **NanoFocus  $\mu$ Scan (激光扫描轮廓仪)**

$\mu$ Scan 采用模块化设计，特点是快速测量、不接触、不破坏、自动化

$\mu$ Scan 的中心部件扫描模块(x/y 方向样品扫描)可以和不同的传感器 (Z 方向测量)连用，如 Confocal point sensor、Autofocus sensor、Chromatic white light sensor、Holographic sensor 等。

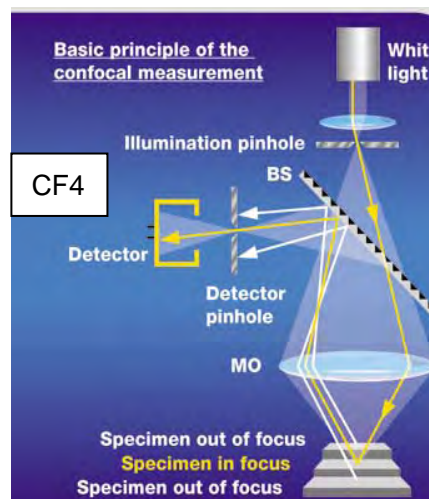
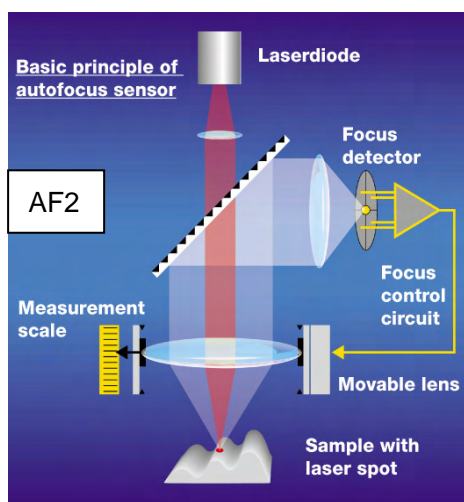


**AF2 自动对焦 (Autofocus)**

借由探测器的回馈讯号调整物镜位置，得到待测物焦点，而获得待测物的确实高度（如下左图）。

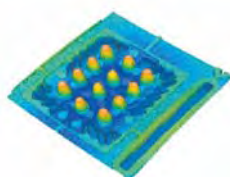
**CF4 共轭焦 (Confocal, Laser)**

激光光束经由物镜迅速上下移动聚焦于待测物上，此时侦测器能经由孔洞得到最大光的强度，如此侦测器根据此讯号确定其位置（如下右图）。

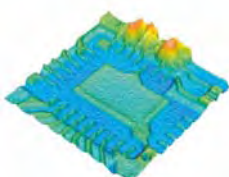


■ **应用**

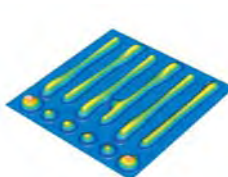
- ✓ 集成电路封装和表面贴片技术
- ✓ 厚膜混合电路:膜厚度的自动化测量
- ✓ 精密部件



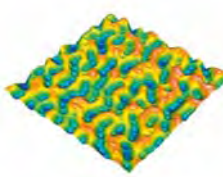
[1] BGA



[2] thick film



[3] dispenser dots



[4] laminate



## ■ 技术参数

Scan modules	Measuring range in x,y-direction [mm]	Resolution in x,y-direction [mm]	Positioning range in z-direction [mm]	Max. measuring speed [mm/s]
SC 50	50X50	0.5	100	50
SC 100	100x100	0.5	100	50
SC 150	150x150	0.5	100	50
SC 200	200x200	0.5	100	50
other dimensions on request				

Sensors		Resolution z [μm]	Resolution x,y [μm]	Working distance [mm]	Measuring range in z-direction [mm]	Camera (optional)
Confocal point sensor	CF 4	0.02	1	4	1.0	off-axis
	CF 13	0.02	1	13	1.0	(BMT5)
Autofocus sensor	AF 2	0.025/0.011 <sup>1)</sup>	1	2	1.5/0.65 <sup>1)</sup>	integrated
	AF 5	0.025/0.011 <sup>1)</sup>	1	5	1.5/0.65 <sup>1)</sup>	(BMT3)
Chromatic white light sensor	CRT 5 <sup>2)</sup>	0.010	4	5	0.3	off-axis (BMT5)
	CRT 12 <sup>2)</sup>	0.025	4	12	1.0	
	CRT 16 <sup>2)</sup>	0.075	8	16	3.0	
Holographic sensor	CP 15	3.0	12	12	1.8	integrated (BMT 4)
	CP 42	6.0	15	42	8.0	
	CP 65	10.0	25	65	18.0	
1) with restricted measuring range 2) with 1, 4 or 30 kHz measuring frequency available						

Modules	
System controller	High performance industrial PC, DVD-Writer, network card, Windows XP Professional
Cabinet and work table MT 70	Stable container for electronic modules with work table 1550x800x750 (lxwxh in mm)
Granite measuring stand MP 100	Portal construction, 660x450x497 (lxwxh in mm) for SC 50 to SC 150
Granite measuring stand MP 200	Portal construction, 680x480x385 (lxwxh in mm) from SC 200
NF μsoft standard software	NanoFocus control and evaluation software, profile and topography representation, roughness calculation compliant with DIN EN ISO



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Options	
NF 3D-Plus	Photo-realistic 3D presentation of topographical data (OpenGL)
NF Active X	Interface modules to program individual measurement processes and calculations (Excel/VBA)
NF Hybridmaster	Automation tool for the use of $\mu$ scan® in thick film production incl. SPC and teach in module
NF Flatmaster	Automated measurement of straightness, flatness and warpage
NF Solder	Automated off-line measurement of fine pitch solderpaste print in SMT production
NF AutoScan	Automated measurement of profiles and surfaces at arbitrary measurement points