

SCS-4000 Fiber Tapering Working Station

Model No:SCS-4000-T

The thinkable tapering system



Overview for SCS-4000

SCS-4000 FBT System is a custom-made tapering station which integrates the technology of optics, electronics, mechanics and computer. Except for making standard singlemode and multimode fiber components on this station, it can be improved to be PM fiber coupler station, LMA fiber combiner station, SM/MM fiber tapering station.

This tapering system is widely used fiber laser developing, fiber sensor and biomedical and Micro-Laser Research and Telecommunication.

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Technical Specifications (For Standard Tapering System)

Main frame

Drawing precision: 0.2 μ m

Drawing speed: 0.2—10000 μ m/s

Drawing distance(max): 50mm

Holding fiber diameter ϕ 0.1—0.5mm (// o r X f i b e r p l a c e d)

Dimensions: 700mm \times 470mm \times 250mm

Heating Unit

Torch scanning range 0-20mm

Moving Speed 0-4 mm/s

Gas used Hydrogen (or Oxygen)

Hydrogen flowing 0-500SCCM

Oxygen flowing 0-200SCCM

Optics Unit

Detector : InGaAs: 1100- 1 700nm

Optional : Si : 400-1000nm, Ge:1000-1800nm

Laser Source (Optional) : 1310/1550nm benchtop laser source (1mW)

Or 633nm HE-NE laser source, 2mW

Software Features

- Parameters storage and printing in format
- Expand to torch head scanning range in order to satisfy this tapering length
- Drawing speed setting according to tapering length
- Control this flowing of oxygen and hydrogen according to tapering length
- Smaller Splitting ratio exactly collecting

Hardware Features

- Designing hybrid Torch head with inner oxygen input and outer hydrogen

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input, in order to assure heating stably and increase heating temperature

- Custom-made fiber holder for fiber tightly holding
- Flow meter chosen on fiber diameter used
- Detector chosen on working wavelength used
- Torch head size and fixture made on tapering requirements
- Platform Size designing on tapering length, in order to assure max heating

Length

- 2 kinds of Integrated functions Station available
 - Standard Fiber Coupler Station + PM fiber Coupler Station
 - Standard Fiber Coupler Station + LMA fiber Combiner Station
- Optional: CCD imaging collecting system integrated , which is for assisting in inspecting the fiber axis alignment or fiber tapering process

Below drawing is showing SCS4000 compared with other standard model.



Specification For Fused Components

(a) Standard Singlemode fiber coupler

Working wavelength: 1310nm, 1550nm, 1310/1550nm

Excess loss: <0.2dB

Insertion loss: <3.2dB

Bandwidth : +/-20nm, +/-40nm

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Coupling Ratio: 1—99% , Error: $\pm 2\%$

Packaging Size : 30-40mm

This kind of station is also for 50/125um, 62.5/125um MM fiber coupler and all kinds of WDM.

(b). PM fiber coupler

Working wavelength: 1310nm, 1550nm

E.R: $\geq 20\text{dB}$

Coupling Ratio: 1—99% , Error: $\pm 2\%$

Packaging Size : 30-40mm

Coupler configuration: 1x2, 2x2 and 1x3

Used PM fiber: 125/250um (standard), 80/165um (optional)

(C) NxM LMA MM fiber combiner

N=2,3,4.....16

Fiber core: 50um, 100um, 200um, 400um, 600um....

Fiber N.A: 0.11, 0.22, 0.37, 0.48

Handling power: W level

(D) Taper fiber

Single mode fiber: core: 9um to 1um, even less

Multi mode fiber: core 400um to 62.5um, core 600um to 200um, even less

Ordering information:

SCS-4000-XXX:

P: PM fiber coupler station

B: larger core size fiber coupler station

T: SM/MM fiber tapering station

Main Software Interface

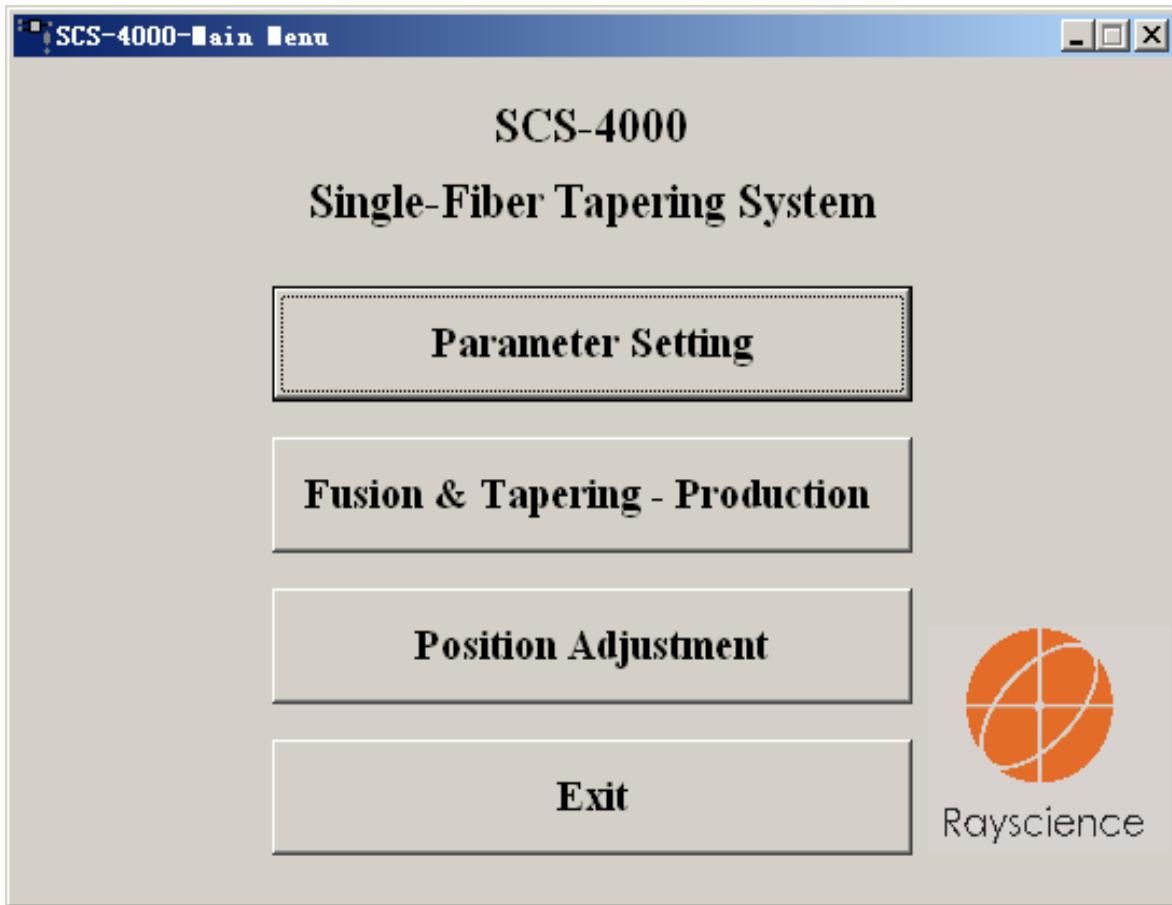


Figure 1-1 "Main Menu" window

The screenshot shows a software window titled "SCS-4000-Parameter Setting". At the top, there is a "Product Type" dropdown menu set to "STANDARD". Below this, the window is divided into five tabs: "Basic Parameter", "Flow Change", "Pull Speed Change", "LCC Parameter", and "Compensation Parameter". The "Basic Parameter" tab is active and contains two main sections of input fields.

	Width/Length /Position(mm)	Velocity (mm/s)		Width/Length /Position(mm)	Velocity (mm/s)
Torch	31.9	6	Package Y	49.8	10
Swing	4	5	Package Z	2	10
Pull	100	.08	Pre Lengthen	2	1

Source I (nm)	1310	Keep Lengthen (mm)	0	Target Ratio (%)	50
Source II (nm)	1550	Original Width (mm)	25	Oxygen Range	100
Torch Delay (ms)	5000	Working Width (mm)	35	Fuel Range	300
Pre Heating (ms)	0	Rack Width (mm)	50		

At the bottom of the window, there are four buttons: "Back Menu", "Add File", "Delete File", and "Production".

Figure 1-2 "Parameter Setting" Window

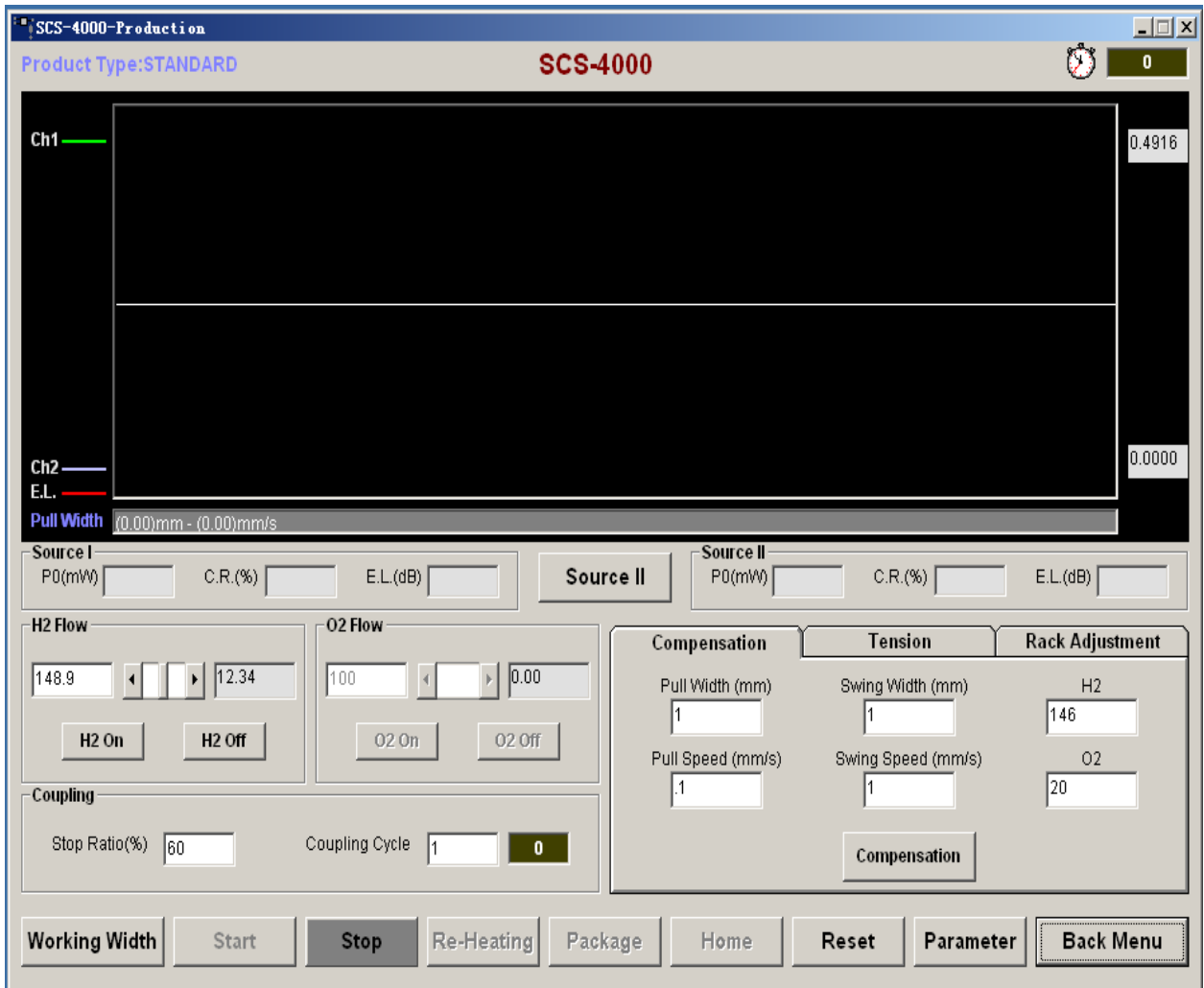


Figure 1-3 “Fusion and Tapering Production” window

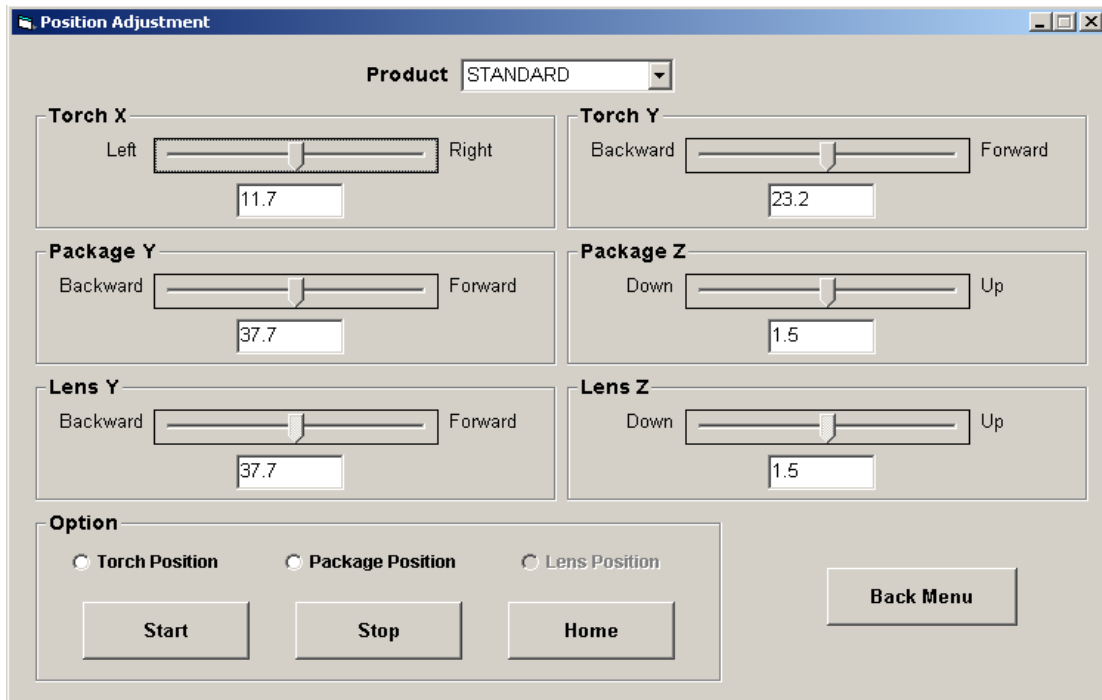


Figure 1-4 “ Position Adjustment” Window