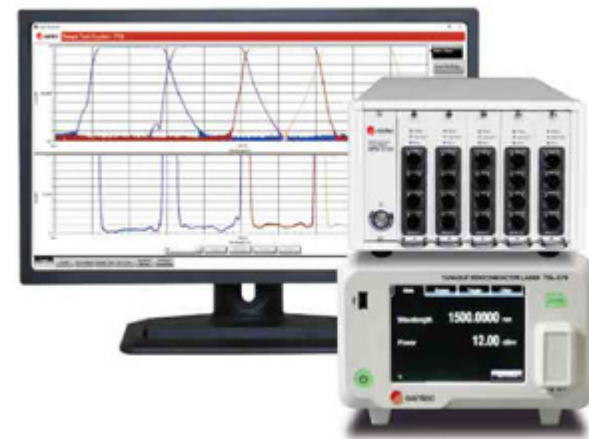


# Swept Test System

## High-Speed Swept Test System



### Product Overview

Santec's Swept Test System has been developed to streamline photonic testing, providing a complete solution where high-speed analysis, high resolution and accuracy are key. Combining one of Santec's tunable lasers (TSL-770 or TSL-570) with an optical power meter (MPM-210H), a polarization control unit (PCU-110) and custom software, the complete Swept Test System optimizes WDL and PDL measurement for use in both R&D and production environments. Using real-time referencing, while simultaneously acquiring output power from the tunable laser and the transmitted optical power through the DUT, the system provides high accuracy in WDL and PDL analysis using the Mueller Matrix Method. Over-sampling and rescaling algorithms are used to maximize testing throughput while maintaining measurement integrity. Santec's MPM-210H power meter mainframe can be used in conjunction with the 4-channel current meter module, the MPM-213. The Swept Test System combined with the MPM-210H and MPM-213 is suitable for measuring the performance of fiber optics components using transceiver-like photodiodes (ROSA/Coherent receiver, etc.) or optical channel monitors.

### Features

- Real-time power referencing
  1. Accurate WDL / PDL characteristics measurement
    - High power repeatability <math>< \pm 0.02 \text{ dB}</math>
    - High PDL repeatability  $\pm 0.01 \text{ dB}</math>$
  2. Automatic normalization of laser source power
- Rescaling algorithm utilizing the Swept Processing Unit (data acquisition unit)
  1. High wavelength resolution and accuracy
  2. Reduced measurement time
- Multichannel measurement is available
- Supporting Dynamic Link Library (DLLs) to develop software (VB.net, C#, C++ or LabVIEW)
  1. Convenient set up of measurement parameters
  2. Data analysis

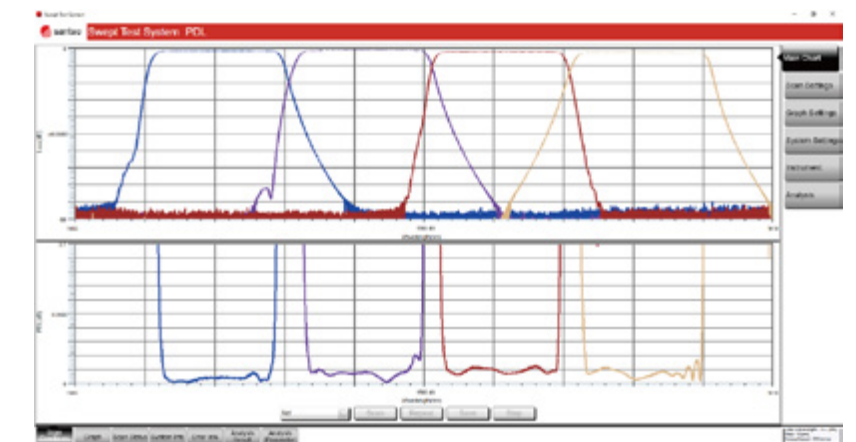
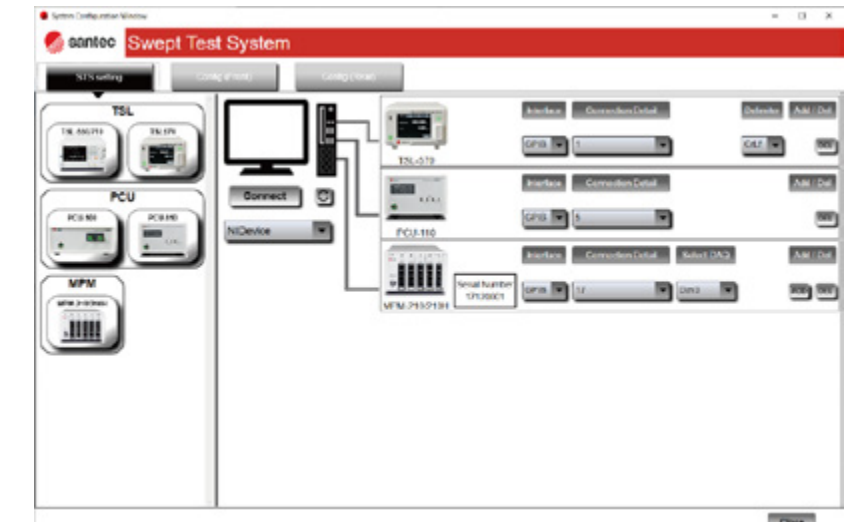


### Applications

- Optical components and modules characterization
  - Tunable Filters, Interleavers, Fiber Bragg Gratings (FBGs), Couplers, Splitters, Isolators, Switches
  - WSS, Wavelength Blockers
  - DWDM Components
- Photonic material characterization
- Optical spectroscopy



### Graphical User Interface



## STS Specifications

Parameter	Unit	Specification			Notes
		Type A	Type C	Type P	
Wavelength Accuracy (typ.) (Absolute) <sup>1</sup>	pm	±12	±2.5	±1.0	at 50 nm/s
		±15	±3.5	±1.5	at 100 nm/s
		±17	±4.5	±2.1	at 200 nm/s
Wavelength Accuracy (typ.) (Relative)	pm	±9	±2.2	±0.8	at 50 nm/s
		±12	±3.0	±1.3	at 100 nm/s
		±14	±4.0	±1.9	at 200 nm/s
Wavelength Repeatability <sup>2</sup>	pm	±5	±1.2	±0.5	at 50 nm/s
		±6	±1.5	±0.8	at 100 nm/s
		±8	±2.0	±1.1	at 200 nm/s
Tunable Laser		Type A, Type C and Type P			
Power Meter Module		MPM-211, 212	MPM-215		
Scan Speed	nm/s	1 to 200			
Dynamic Range for Insertion Loss at one scan (typ.)	dB	40	60		
Dynamic Range for Insertion Loss at two scans (typ.)	dB	75	-		
Dynamic Range for PDL (typ.)	dB	0 to 5			
Measurement Time for IL (typ.) <sup>3</sup>	sec	3@100 nm/s, 1.5@200 nm/s			
Measurement Time for IL / PDL (typ.) <sup>3</sup>	sec	12@100 nm/s, 6@200 nm/s			
Wavelength Resolution	pm	0.1			
IL Accuracy (typ.)	dB	±0.02	±0.02	0 to 30 dB device IL	
		±0.1	±0.02	30 to 40 dB device IL	
		±0.1	±0.05	40 to 60 dB device IL	
IL Repeatability (typ.) <sup>2,4</sup>	dB	±0.02			
IL Resolution	dB	0.001			
PDL Accuracy (typ.)	dB	±(0.02 + 3% of PDL)	±(0.02 + 3% of PDL)	0 to 20 dB device IL	
		±(0.15 + 3% of PDL)		20 to 40 dB device IL	
PDL Repeatability (typ.) <sup>2,4</sup>	dB	±0.01			
PDL Resolution	dB	0.01			
Communication	-	USB (USB 2.0 High Speed)		MPM-210H	
		GP-IB (IEEE488.2), Ethernet		PCU-110 / MPM-210H	
Operating Temperature	°C	15 to 35			
Operating Humidity	%	< 80			

**Notes:**

All specifications are quoted after 1 hour warm-up period and executing a zero calibration.

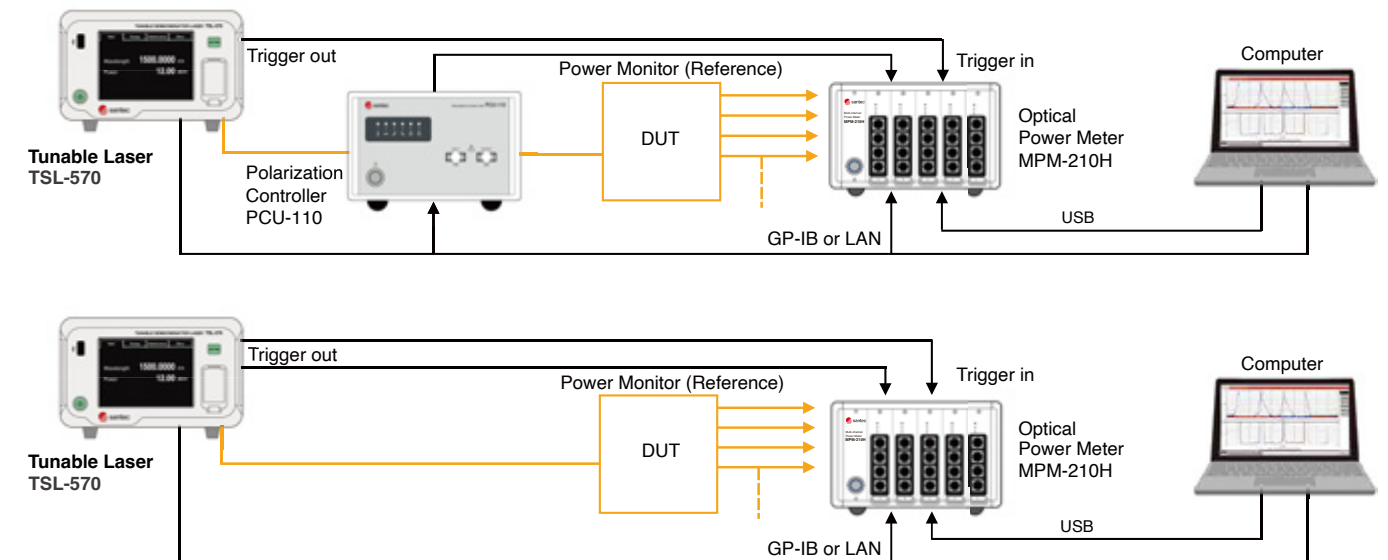
<sup>1</sup> Temperature within 25±5 °C.

<sup>2</sup> Temperature within 25±1 °C.

<sup>3</sup> The measurement condition is within wavelength resolution 5 pm, wavelength range 100 nm, one scan for 1 channel.

<sup>4</sup> Does not include influence of connector.

## Typical Configuration



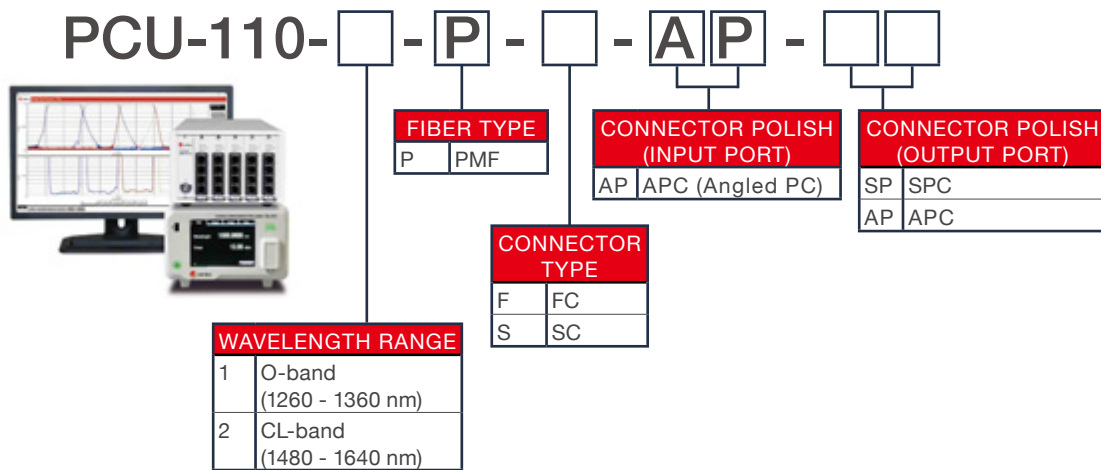
# Ordering Scheme & Instructions

## 1. Configure STS High Speed Swept Test System

**Mainframe**  
**MPM-210H**

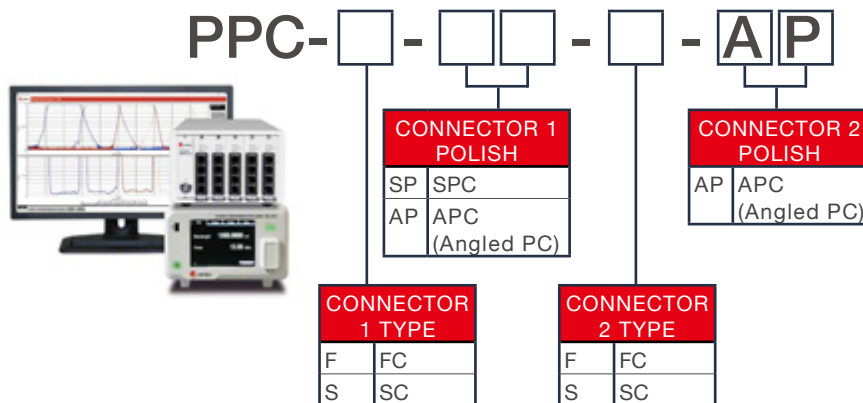
**Module**  
**MPM-211/212/213/215**

**Polarization Control Unit**



**PMF Patch cord** (Tunable Laser (TSL) <---> PCU-110)

Please select the ordering code for PMF patch cord if purchasing the PCU-110. Regarding the connector selection, select the same options for one port as the TSL code ("A" and "B") and the other port as the PCU-110 ("C" and "D"). Fiber length 1.0 m, Fiber jacket  $\phi$ 2.0 mm.



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