

## Online Raman PAT

## ATR7010

### Features:

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- High sensitivity: Using a high-sensitivity cooling CCD, it can realize quantitative detection of low concentration and residual, and the detectable concentration is as low as 0.1%
- High applicability:The design of the instrument takes into account the size and performance and the long rod Raman probe that is resistant to high temperature and acid and alkali is used to meet the needs of scientific research laboratories,enterprise production and other complex environments;
- One-click analysis: Equipped with powerful and user-friendly spectral analysis software, one-click operation means that both experts and first-time users of Raman spectrometers can quickly and accurately collect and analyze data

### Application:

- Bio catalysis and enzymatic catalysis
- Poly morph identification
- Flow chemistry
- Polymerization reaction
- Biological process monitoring
- Hydrogenation reaction
- Synthesis reaction
- Chemical synthesis
- Crystallization process

### Description:

ATR7010 in-situ reaction process Raman spectrum analyzer is a probe-based Raman spectrum quantitative analyzer,which can monitor the content and changes of each component in the reaction process system anytime,as well as the crystal from transformation during the crystallization process,that is,process analysis Technology(PAT,process analytical technology).In scientific research institutes,chemical and pharmaceutical enterprises,it can be used in the research and development design,process development and production of chemical reactions.By detecting the Raman spectrum of the components in the reaction system and performing quantitative analysis anytime,it can track the change process of key materials and can help users understand the reaction process accurately,determine and optimize key parameters process,improve product quality and achieve efficient,safe and stable scale-up production.

ATR7010 is an in-situ Raman spectrometer with breakthrough features newly developed by Optosky in response to market demand.It adopts a cooled high-sensitivity CCD,which makes the instrument has good environmental adaptability.It adopts an optimized design of high temperature resistance the long rod Raman probe that makes it deal for corporate production and laboratory research.

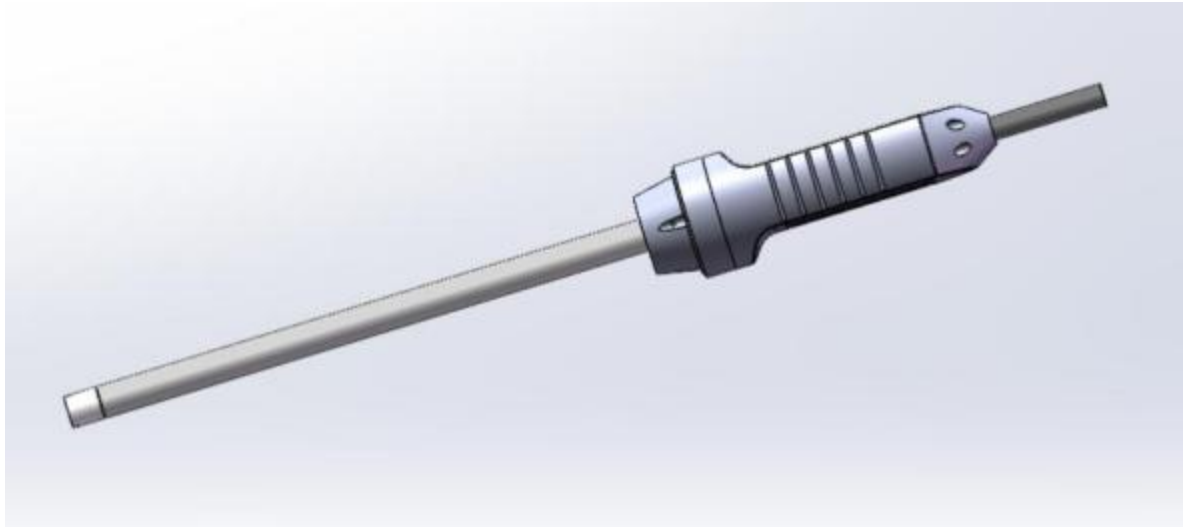
Model	Features
ATR7010-785	785nm, $\geq 50$ mW
ATR7010-532	532nm, $\geq 10$ mW
ATR7010-638	638nm, $\geq 10$ mW
ATR7010-1064	1064nm, $\geq 50$ mW



## 1. Performance parameters:

ATR7010 Parameter					
System					
Interface		USB2.0 , SMA905			
Power		DC5V , 3.5A			
Weight		< 4.3 Kg			
Size		about 30cm×22.5cm×13.2 cm			
Optical System					
		ATR7010-785	ATR7010-532	ATR7010-638	ATR7010-1064
Laser(nm)	wavelength	785	532	638	1064
Maximum power		≥ 500 mW	≥ 100 mW	≥ 100 mW	≥ 500 mW
Spectral		200-2600@6 cm-1		200-2700 @ 9	200-2600@13cm-1
Range@Resolution(c m-1)		200-3500@9 cm-1	200-3700 @ 12	200-3800 @12	200-3400@18 cm-1
Detector		Ultra-sensitive cooling type ( - 10°C)back-illuminated 2048*64 area array detector			Cooling type 512 pixel InGaAs CCD
Spectral stability		$\sigma/\mu < 0.5\%$ (COT 8 hours)			
Temperature stability		Spectral shift $\leq 1 \text{ cm}^{-1}$ ( 10-40 °C)			
Spectral change	intensity	$\leq \pm 2\%$ (in 5 ~ 40 °C)			
SNR		>3000:1			
Laser					
Half-peak width		0.1 nm			
Power stability		$\sigma/\mu < \pm 0.2\%$			
Raman probe					
Optical and interface	fiber	Laser light interface : FC/PC , 105 $\mu\text{m}$ core diameter ; Raman signal fiber : SM905 , 200 $\mu\text{m}$			
Fiber length		1.5m , can be customized			
Diameter		Outer diameter 12.7mm , Aperture 8.5mm			
Working distance		6mm			
Probe length		250mm , can be customized			

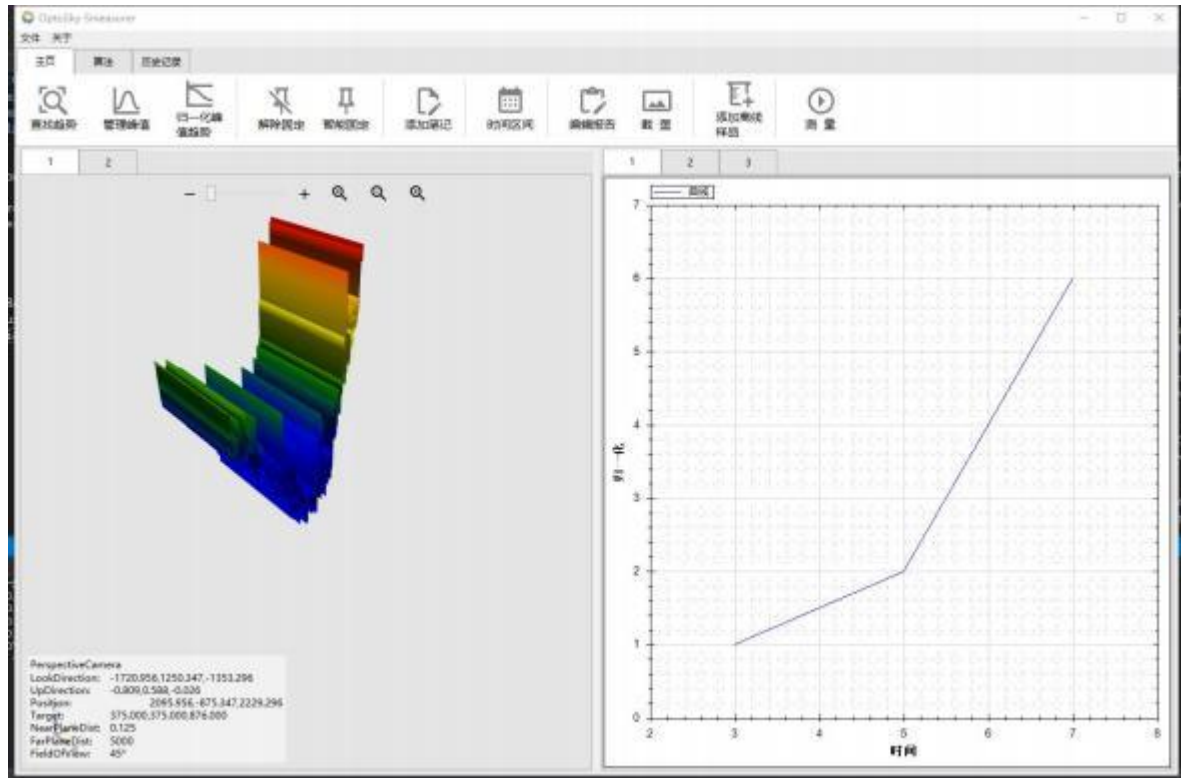
## 2. Probe features



### Feature:

1. Immersion Raman probe
2. 316L stainless steel, resistant to corrosive liquids, acid and alkali;
3. The front end of the probe can be customized as a Hastelloy probe, which is super corrosion-resistant;
4. The pigtail can withstand more than 50N pulling force and is not easy to be damaged;
5. The main body can withstand a high temperature of up to 80°C and the customized version can withstand a high temperature of up to 300°C;
6. Flanges of different specifications can be welded according to customer requirements, supporting DN15, dn25 and DN32;
7. Explosion-proof joints can be configured according to customer requirements.

## 3. Software schematic diagram



ATR7010 in-situ Raman Reaction Process Analyzer, the left side is the host, the right side is the probe (can be inserted into the reactor for measurement), and the middle is connected by an optical fiber (the length of the optical fiber can be customized, up to 100m)