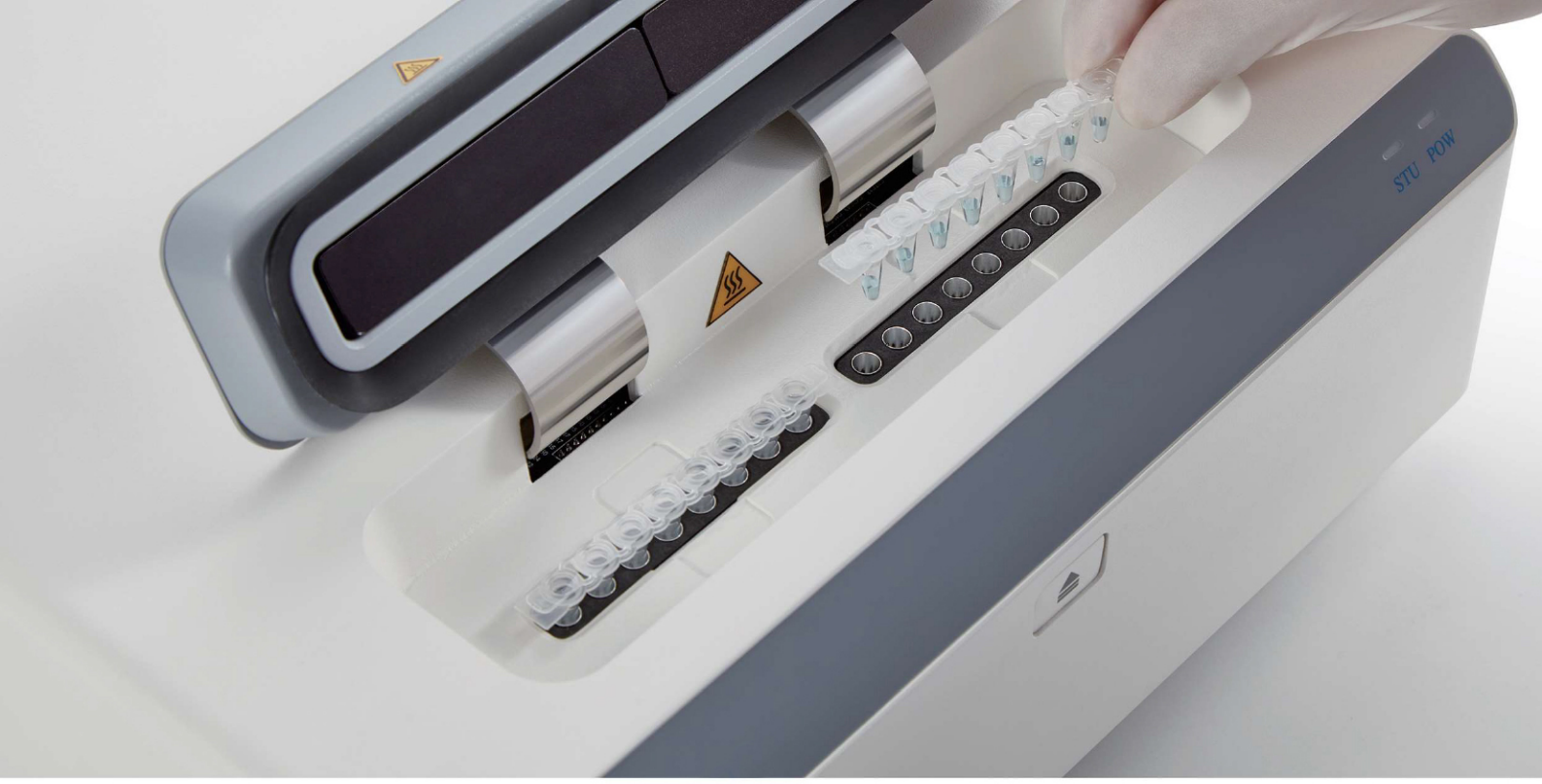
INNOVA
The passion for science

REAL-TIME QUANTITATIVE PCR SYSTEM

MINI QPCR
IRTP16

A compact and accurate device that's with unbeatable ultra-fast speed for qPCR assay



PRODUCT DESCRIPTION

IRTP16-X4/5 is an easy to use 16-wells Real-Time Quantitative PCR system.

The small footprint of platform and ultra-fast ramping speed make it ideal for point-of-care and on-site testing applications.

The instrument can be configured to 2-channels, 4-channels, and 5-channels for broad applications in bio-research, rapid diagnostic of human pathogens,food safety tests, veterinary& agriculture pathogens, etc detections.

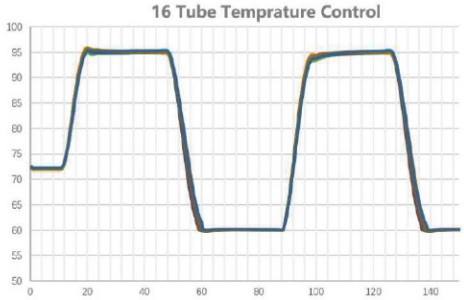
PRODUCT FEATURE

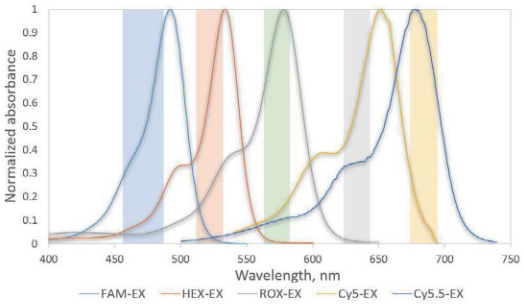
Ultra-Fast and Precise Thermal Cycling

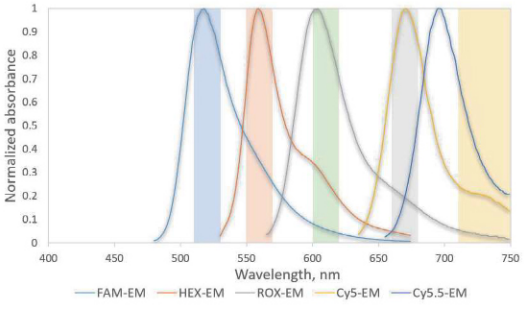
High-efficiency gold-plated Peltier provides heating and cooling rate up to 10℃/s, completing 45 cycle amplification within 25 min.

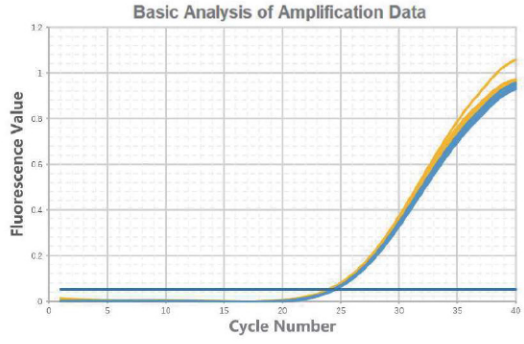
Innovative alloy block design provides high temperature uniformity of ±0.15℃.

With the specially designed cooling system, it can maintain high-speed heating and cooling with an average operating noise of 50 dB.









Innovative Optic Design

Based on confocal scanning fluorescence detection technology, it can effectively remove the interference of background light and excitation light,obtain fluorescent signals with a high signal-to-noise ratio, and save the use of fluorescent probes and dyes.

High-performance, long-life single-color LEDs are used as excitation light sources, without thermal attenuation, and maintenance-free for life.

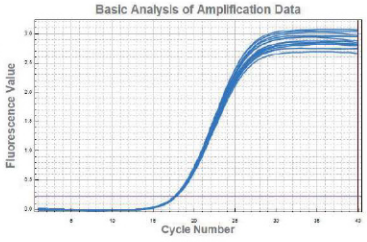
High-performance silicon PMT can obtain high fluorescence signals under weak excitation light and reduce photobleaching.
The instrument uses linear fluorescence time-sharing scanning technology to ensure the uniformity of all fluorescence acquisitions, improving the accuracy and uniformity of CT.Thereby, the edge effects is effectively reduced and ROX calibration is not required.

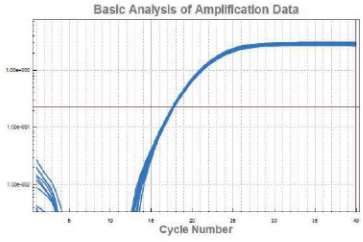
Ultra-Fast Mode

Benefiting from the innovative data gathering design and high-speed temperature control system, the detection time of the 5-colors and 16-wells can be shortened to 2seconds, which can minimize the difference in PCR extension time of different wells caused by the detection time.
The experiment with 40 cycles can be completed within 20 minutes. The yellow curve was Standard speed (60minutes for 40Cycles) and the blue curve was Fast mode (25minutes for 40Cycles)

Excellent Reproducibility

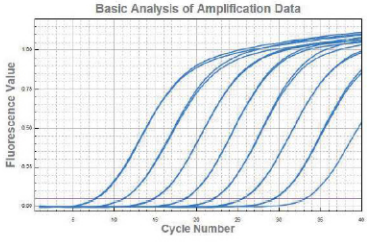
Robust design ensures superior uniformity from run to run 。Amplification curves for 16 replicates shown on a linear plot a logarithmic plot.Average quantification cycle(Cq)=17.8±0.10.

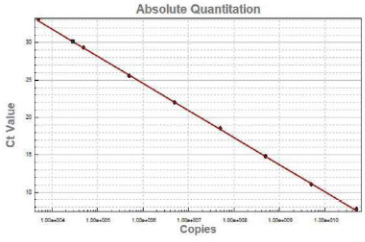




Up to 10-log dynamic range

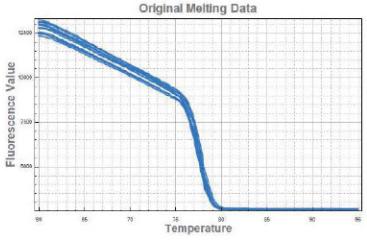
Results on the IRTP16 -X4/5 System show excellent reproducibility and resolution down to very low copy numbers.

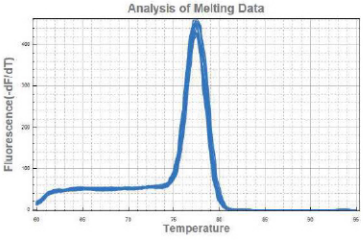




Melting Curve Analysis

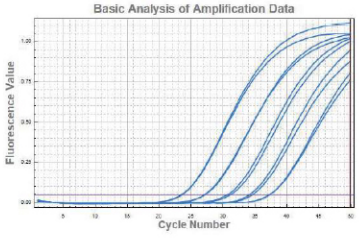
16 replicates of human genomic DNA were amplified using SYBR reagent. The reactions were run under fast run mode, showing thermal uniformity as measured by the derivative peak with a melting temperature (Tm) of 77.5℃ (standard deviation 0.05℃).

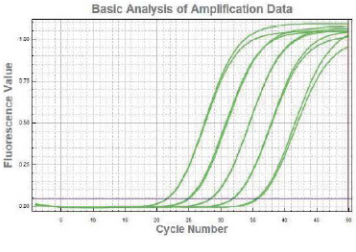




High Efficiency in Multiplex

The system enables the analysis of target genes using a standard curve.It provides 10-fold dynamic range and gives excellent linearity and efficiency of 100%.

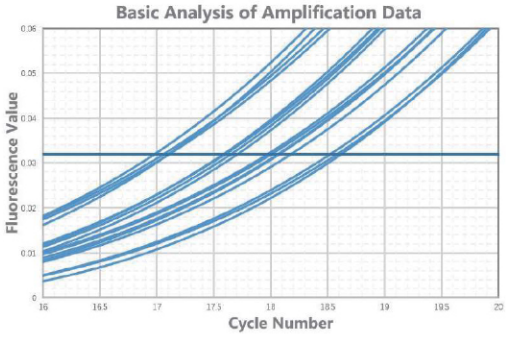




High Resolution to Detect 1.33-Fold

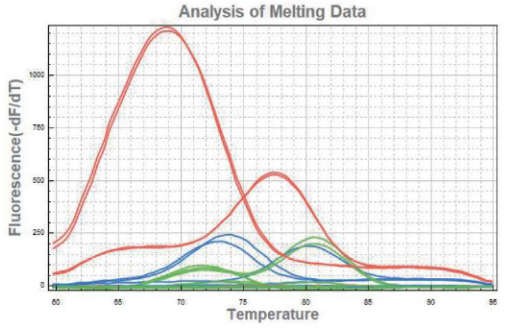
The excellent uniformity of temperature together with quick detection of data guarantee the reaction temperature and time to be identical between different tubes, so it can reliably detect 1.33-fold differences in target amount.

The figure shows the curve of 4 gradient dilutions: 2.25C, 1.5C,1.33C,1C, each concentration has 4 replicates.



Multi-Melting Curve Analysis

The system enables the analysis of up to 5 target genes in one reaction with Multi-Melting Curve Analysis. The melting temperature range from 40℃-95℃, with 0.5℃ resolution in all fluorescence channels, and provide over 4x5 target in a single tube reaction.



APPLICATIONS

Food Testing	Veterinary and Agriculture
With ever increasing demands for clarity on the source and type of products we are consuming, speciation and pathogen detection allow users to do exactly that.	A wide range of veterinary and agricultural pathog detection
Mycotoxins	Avian,Porcine
Speciation.	Bovine,Canine
Allergens.	Ovine - Caprine.
Pathogen Contamination.	Equine.
SARS-CoV-2 on environmental surfaces	Feline.
Human Pathogens	
Respiratory Infections.	Hepatitis Infections.
Sexually Transmitted Diseases.	Human Papillomavirus.
Herpes Viral Infections.	Gastrointestinal Infections.

SPECIFICATION OF THE INSTRUMENT

Thermal Control System	
Sample capacity	8*0.1mL clear PCR strip*2 16*0.1mL clear tube
Sample volume	10-50 µL
Heating and Cooling method	Peltier
Maximum ramping rate	10.0° C/s
Temperature range	4-100 °C
Temperature accuracy	± 0.1°C
Temperature uniformity	±0.15°C
Optical Detecting System	
Excitation light	4/5pcs high-efficiency single color LED
Detector	SiPMT
Detection method	Time-resolved real-time scanning
Excitation/Emission wavelengths	455-650nm/510-750nm
Detection Channels	2/4 (optional 5 channels)
Supported dyes	FAM/SYBR Green, VIC/JOE/HEX/TET, ROX/Texas Red, Cy5/LIZ, (Optional- Cy5.5 for 5-channel model)
Multiplexing	Up to 4 targets (optional 5 targets for 5-channel model)
Sensitivity	1 copy gene
Resolution	1.33-fold copies difference in single-plex reaction
Dynamic range	10 orders of magnitude
Analysis Mode	
absolute quantification and melting curve analysis	
Data Export	
the original result, data and result in excel, program setting, amplification curve image	

STANDARD COMPLIANCE

The structure of the instrument complies with the following safety standards:
EN 61010-1 / E N 61010-2-010 / E N 61010-2-101
The structure of the instrument complies with the following electromagnetic compatibility standards:
EN 61326-1:2012 / E N 61326-2-6:2012
The instrument complied with the following EU standards:
EMC guidelines:2004/108/EC
LVD guidelines: 2006/95/EC

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