

**INNOVA**

*The passion for science*



# ***Colonometer***

Automatic colony counter

Semi-automatic colony counter



[www.innovabiomed.com](http://www.innovabiomed.com)

# About us



**Innova Bio-Meditech** is one of the professional solution provider of laboratory and medical devices. Firmly committed to our mission of “sharing innovative bio-meditech solutions with the world”, we are dedicated to innovation in the fields of Biology Project, Life Science, Pharmacy Industry and Medical Treatment.

**Innova Bio-Meditech** possesses a sound distribution and service network with business partners in North and Latin America, Europe, Africa and Asia-Pacific etc. We have built up a well established R&D, manufacture network with 3 centers in Qingdao, Shanghai and Suzhou. Inspired by the needs of our customers, we adopt advanced technologies and transform them into accessible innovation. This means constant effort and research, in order to more fully understand the developments of the market, INNOVA produce constantly upgraded product ranges by adding new products year after year.

*The passion for science*

# Semi-automatic colony counter

## Touch probe——INJ-2/INJ-3

### Features

- Compact structural design, save space and wide range of applications.
- LED white light with adjustable brightness and energy-saving lighting can provide the operator with an optimal colony counting field of view.
- When counting, the sound prompts to avoid missing or over-counting.
- The unique upper light source compensates for illumination, making it easier to count colonies that are difficult to observe.
- Special light-touch counting pen ensures no omissions in counting.
- The wide voltage design effectively avoids interference to the instrument due to unstable network power supply.



INJ-2



INJ-3

### Technical parameters

Model	INJ-2	INJ-3
Illumination	White LED Array	
Digital display	3-bit LED display	
Counting range	0-999	0-999/0-9999
Counting method	Switch type,touch probe	
Suitable petri dish	50-90mm	50-150mm
Input voltage	AC 100-240V (50/60Hz)	
Input power	20W	40W
Enclosure rating	IP21	
Magnification	3 times (9 times)	
Allowed relative humidity	80%	
Allowable ambient temperature	5-50 C	
Dimensions	255x210x160mm	360x300x180mm
Net weight	2.2Kg	4.0Kg

# Semi-automatic colony counter

## Sensing Pressure——INJ-3S/INJ-5S

### Features

- Pressure sensitive counting system,suitable for any marker.
- Compact structural design,save space and wide range of applications.
- LED white light with adjustable brightness and energy-saving lighting provides the operator with an optimal colony counting field of view.
- When counting, the sound prompts to confirm each count.
- The unique upper light source compensates for lighting, and it is easy to count the colonies that are difficult to observe.
- Wide voltage design, effectively avoid the interference of the unstable network power supply to the instrument.



INJ-3S



INJ-5S



Light source brightness and pressure sense adjustment knob left front



Intuitive counting through pressure sensing, suitable for any felt-tip marker

### Technical parameters

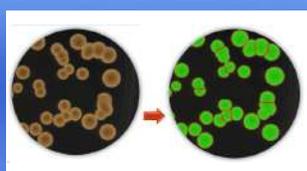
Model	INJ-3S	INJ-5S
illumination	White LED Array	Side lighting of energy-saving circular fluorescent lamp
Digital display	3-bit LED display	
Counting range	0-999	
Counting method	Pressure sensitive	
Suitable petri dish	50-90mm	50-155mm
Input voltage	AC 100-240V (50/60Hz)	220V, 50Hz
Magnification	3 times (9 times)	5 times (10 times)
Dimensions	255x210x160mm	350*295*175mm

# Automatic colony counter

## INC-34

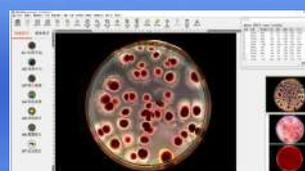


INC-34 is an economical and practical fully automatic colony counter. The metal chassis isolates the interference of ambient light; the crystal sharp suspended dark field of view highlights the colony image deep in the culture medium; adjustable color temperature fog diffuse lighting shows the natural color of the colony surface.



Adhesion colony  
(original picture)

Automatic image  
segmentation



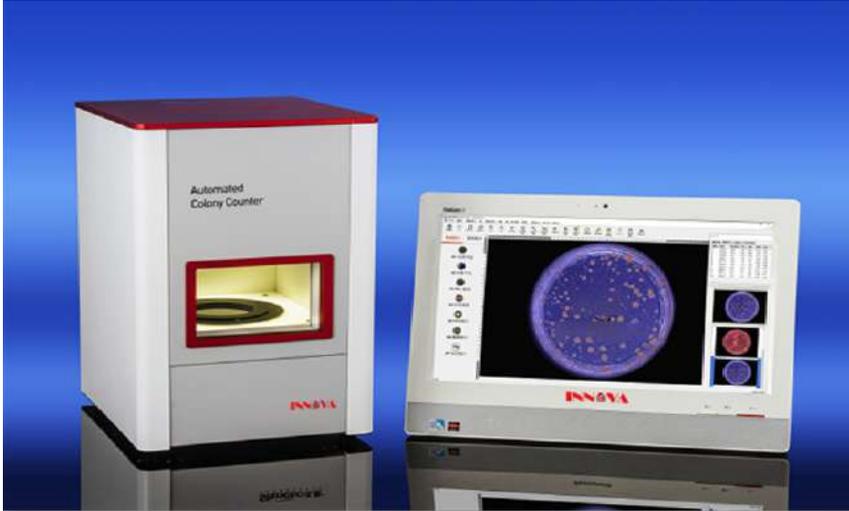
Data management

## Technical parameters

<b>Model</b>	INC-34
<b>Main unit</b>	Fully sealed metal chamber
<b>Dimensions</b>	W335xH475 xD340mm
<b>Weight</b>	25kg
<b>Power source</b>	100-240 V,50-60Hz
<b>Operating environment</b>	10-35°C, 20-80 % humidity
<b>Color CMOS camera</b>	8.5MP, Single pixel size 1.67x1.67µm
<b>Fixed focus lens</b>	Resolution 150lp/mm, Focal Length 8mm, F1.4~F16, C-Mount
<b>Resolution</b>	smallest detectable colony is 0.05 mm
<b>Lighting</b>	upper reflective lighting, Lower lighting (dark field or white background)
<b>Automatic colony counting</b>	Pour and spread plates; filters & 3M Petrifilm
<b>Counting on petri dishes</b>	Ø 55 mm - Ø 90 mm
<b>Measurement time</b>	1 to 3 seconds per petri dish. Depends on PC performance and measurement conditions
<b>Counting</b>	Automatic with manual control Automatic with manual control
<b>Separate touching colonies</b>	Automatic or manual mode
<b>Colony selection</b>	Counting according to color, size, shape
<b>"Add"/"Delete"</b>	Counting result be corrected manually by using the mouse.
<b>Automatic rejection of impurities</b>	According to the difference between colonies and impurities in shape, size and color.
<b>Measurement</b>	Automatic measuring area, perimeter, diameter, roundness etc.; manual measuring Line, Angle, Rectangle, Circular, Arc, Curve
<b>Image Processing</b>	Image adaptive enhancement, RGB Component Adjust, Sharpen, Smooth, Filter, Edge Filters, Morphological Filters, Segmentation
<b>Data Handling</b>	Database for storage of images and results with data query, reporting; data transfer capabilities
<b>User security</b>	Password protection of configuration
<b>System configuration</b>	Main Unit only. (PC and Monitor are sold separately, Windows 11 compatible)
<b>Software</b>	Software for colony count

# Automatic colony counter

**INC-33**



No ambient light interference of the all-metal chassis, multi-mode lighting system combines fog diffuse lighting, white transparent bottom lighting, duplex suspended dark field lighting, suitable for various types of plate imaging. The software is equipped with a wealth of image recognition algorithms, which is suitable for complex colony image processing. Equipped with a fast statistics module, just scroll the mouse wheel to easily obtain the best statistical results without manual parameter settings.

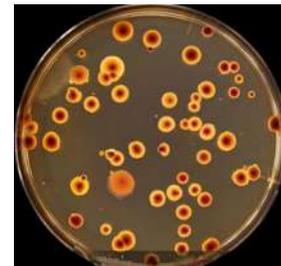
## ***Fog diffuse lighting***

The fog light system composed of 96 LED arrays and nano-light reflective materials adopts an embedded design. High-bright, foggy diffuse reflected light fills the photography cabin, forming uniform upper illumination. The colonies and culture medium have natural color, and the glass petri dishes will not form common refraction phenomena such as light spots and halos.



## ***Duplex suspended dark field lighting***

It is composed of double layers of dark area contour light and black background, and the light intensity can be adjusted freely. Uniform and parallel mixed light penetrates the culture medium, and the colonies are covered with a beautiful outline, forming bright colonies on a dark background.

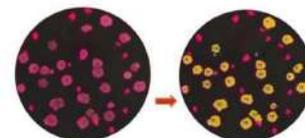


## ***White semi-transparent lighting***

It is composed of white LED backlight module light source, reflective plate and light guide plate, which can control the intensity and direction of transmitted light. Instead of conventional backlighting that can only form silhouettes, it has a more three-dimensional expression for light colors and tiny colonies.



Conventional backlighting - Semi-transparent lighting (more three-dimensional)



Original image: the color of the mixed colony is similar Automatically identify one type of colony through subtle differences in color and outline

## Efficient digital imaging

Industrial grade high-fidelity fixed focus lens, 8.5 million pixel USB3.0 high-speed CMOS industrial camera, fast display colony shape without color.



## Technical parameters

Model	INC-33	
Digital imaging	Standard definition industrial fixed focus lens	8mm,5 megapixel,2/3inch,Distortion<1%,F1.4~F16,C-Mount
	Professional CMOS camera	Chip size 1/2.4";Physical pixel 8.5 megapixel;Single pixel size .67×1.67μm
Colony analysis module	Rapid colony statistics.	Roller parameter adjustment statistics: homog-eneous plate, uneven background, tiny colony,color background
		One-click response statistics: monochromatic statistics, mold statistics, trans statistics
	Advanced colony statistics.	Dynamic adjustment statistics; deviation prediction statistics; level set multi-model algorithm; specific colony statistics; trans statistics;removal of bacteria and impurities
	Basic colony counting function	Whole dish colony statistics; regional selection statistics; multi-regional parallel statistics; diameter classification statistics; mouse click statistics; colony adhesion segmentation
	Grid filter membrane and 3M test piece	Black solid line grid one-click statistics
	Advanced tools	Grid removal; manual counting correction; removal of contaminated areas; background text elimination; manual adhesion segmentation; automatic conversion of parameters; text and graphic labeling
	Data security and management	Instrument calibration; one-button fast measurement; whole dish automatic measurement; multi-directional scale measurement, manual accurate measurement
Data security and management	Automatically save or print output in PDF or Excel format; "Manage, operate, review" multiple architecture, separate functions and permissions to ensure data security, integrity and authenticity	
Standard configuration	Mainframe	
	Free analysis software	
	Business desktop computer: dual-core CPU/4G memory / 1T hard disk / 21.5 HD screen, Windows10 system	

# Software for colony count

## INR-1101 series

**New algorithm upgrade**

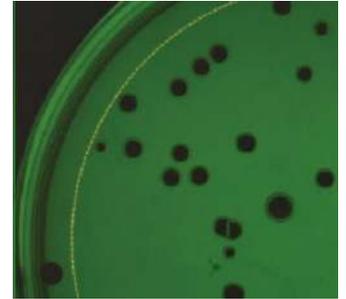
**High counting efficiency and cutting effect**

**Best partner for microbiology experiments**



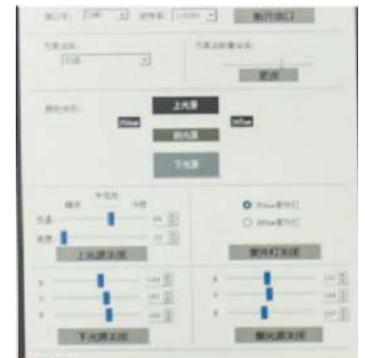
## **Excellent human-computer interaction experience**

Scan code function to quickly enter petri dish information to facilitate data tracing, and supports barcode entry. (optional)  
Datalogging: Save the query and print it or export it in EXCEL, PDF and other formats. Standard high-performance image processing computer.



## **Diversified standards and measurements, fast and accurate counting**

Automatic adhesion segmentation, manual segmentation, automatic processing and statistics of spreading colonies, counting rollback function, accurate and fast counting; Powerful image processing software includes a variety of graphic annotation and measurement functions;  
Selected area statistics are efficient and fast, and data such as colony diameter, roundness, circumference, area, and number are instantly output.



## **Multifunctional module**

Built-in 254nm (used for disinfection and sterilization) and 365nm UV lamps (used for colony fluorescence excitation and statistical experiments), which can be used for cavity sterilization, UV mutagenesis, and excitation of Escherichia coli, coliform fluorescent green fluorescent protein, etc. experiment. With audit trail function, digital and security management complies with the relevant requirements in FDA21CFRPart11. The operator's operations on the software are automatically recorded for subsequent traceability of result data.

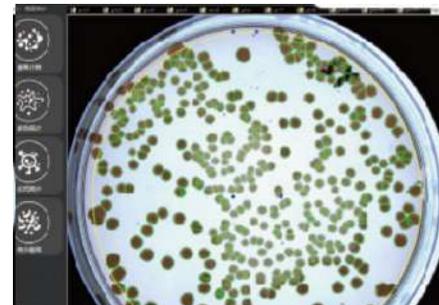


## Fast capture of high-definition colony image

High-resolution color industrial camera, calibration function, calibrate the colony diameter size, eliminate the size error between shooting and real objects. Monochromatic and polychromatic colonies are automatically identified and detected at the same time.

Upper light source has a 360-degree shadowless illumination function, providing all-round, three-dimensional and clear imaging effects for colony imaging.

Lower light source adopts the transmission dark room shooting system, and the side light source adopts the circular matrix system.



## Technical parameters

<b>Model</b>	INR-1101 (A/B)	
<b>CMOS</b>	12 million pixel, true color, resolution ratio: 4024*3036	
<b>Counting speed</b>	1000 colonies < 1s	
<b>Colour temperature</b>	2880K-4170K	
<b>Upper light source</b>	Illumination:51.7-985.1 Lux	
<b>Lower light source</b>	360°shadowless illumination, Multi-directional transmitted light, adjustable light source brightness.	
<b>Sideview</b>	Illumination:1-4497 Lux Bottom transmitted light darkroom shooting system Circular matrix	
<b>Image capture</b>	Auto focus, auto white balance, auto color temperature control.Front open, automatic elimination of external interference, automatic centering, black box shooting.	
<b>Petri dish type</b>	various 90mm,100mm petri dishes (Pour, spreading, membrane filtration)	
<b>Automatic impurity removal</b>	Automatically remove impurity according to the difference of shape, size,color, etc.	
<b>Colony Morphology Analysis</b>	Automatic analysis the area, girth, roundness, maximum diameter,minimum diameter.	
<b>Select counting area</b>	Basic circle, semicircle, circle, rectangle, sector, and random area.	
<b>Image processing</b>	<b>Image enhancement</b>	Image adaptive enhancement, color component enhancement, colony edge sharpening, image flattening, operation.RGB segmentation、 Gray scale segmentation.
	<b>Image filtering</b>	Low filter, high filter, Gaussian filter, Gaussian high-throughput, mean filter, Gaussian filter, Order filter.
	<b>Edge detection</b>	Sobel detection、 Roberts detection、 Laplace detection vertical detection、 horizontal detection.
	<b>Image adjustment</b>	Gray scale conversion、 negative phase conversion RGB three channel brightness、 Contrast、 Gamma adjustment
	<b>Morphological operation</b>	Erosion, dilation, opening operation, close operation.
<b>Note measurement</b>	<b>Image segmentation</b>	RGB segmentation、 Gray scale segmentation.
	<b>Instrument calibration</b>	The system has its own calibration function
	<b>Colony labeling</b>	Label with Line, angle, rectangle, broken line, circle, character, curve and so on.
	<b>Colony measurement</b>	Measure line, angle, rectangle, circular arc, circle, section, curve and so on.
<b>Work temperature</b>	(0~50) °C	
<b>Host size</b>	(L390×W390×H535)mm	
<b>Host weight</b>	about 13.4kg	
<b>Power consumption</b>	≤72W	
<b>Power adaptor</b>	Input AC100~240V 50/60Hz	
<b>Output</b>	DC24V 1A	



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