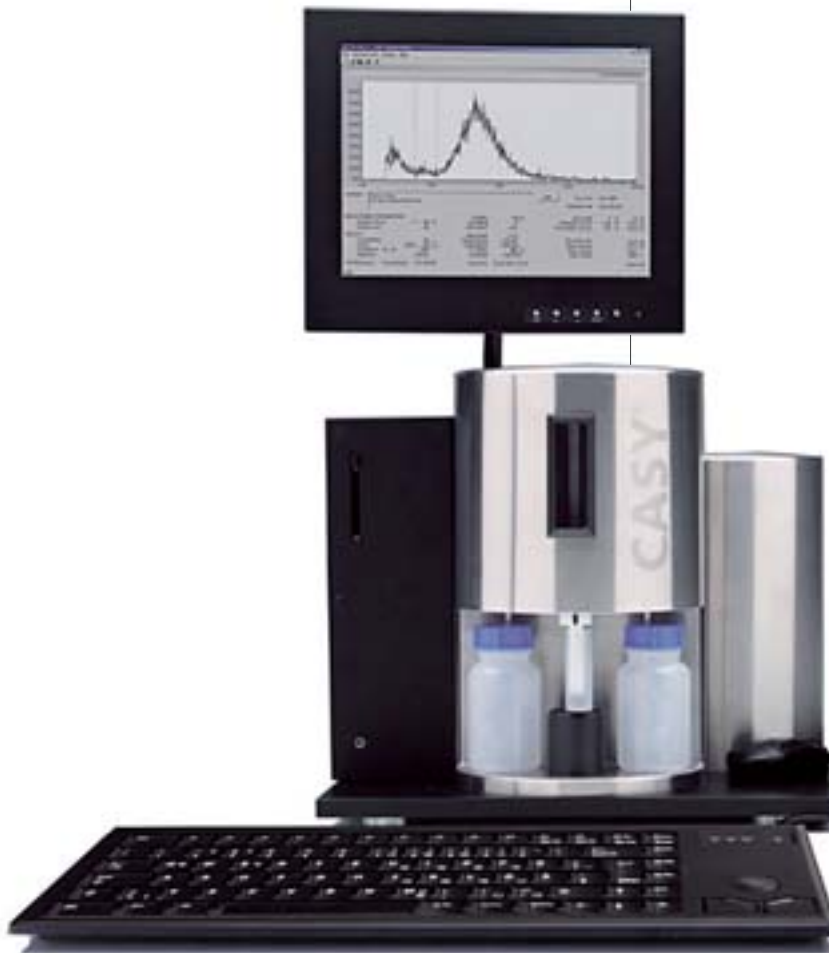


# CASY<sup>®</sup> Model TTC

The “Total Quality Control”  
standard for quality control  
of cell cultures.



**INNOVATIS**  
QUALITY THAT COUNTS

## CASY® Cell Counter + Analyzer System Model TTC

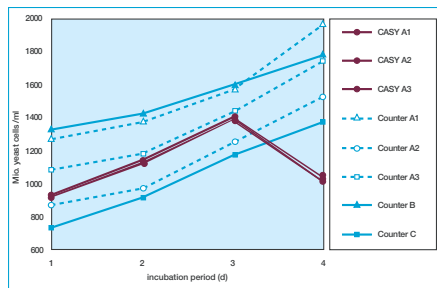
### The ideal device for control of your cell cultures with full GLP/GMP conformity

Cell counting is a must for every lab working with cells. Across the world, CASY®-Technology analyzers from innovatis AG are increasingly becoming the devices of choice.

The CASY® Cell Counter + Analyzer System Model TTC is an indispensable instrument for quality control, long-term monitoring of biological processes and optimization of methods. The high-resolution size distribution provides all parameters required for effective control of cell cultures. Automated quality assurance functions, an embedded control unit and the embedded Windows™ CE operating system guarantee absolute conformity with all GLP/ GMP and 21 CFR part 11 regulations – one of the few products on the market to offer this. This means that validation of cell culture procedures is extremely fast and easy.

### Factory-certified calibration

All CASY®-Technology analyzers are equipped with a permanent calibration that is stable long-term for biological media – certified by innovatis AG. No modifications or interventions are possible. The calibration is the same for all devices and is stable for the entire service life. This guarantees that the measurement results are reproducible as well as comparable across all systems. All data acquired on a CASY® Model TTC is directly comparable with data from all other models and can be easily further analyzed. Thus, CASY®-Technology not only secures the measurement results, it also provides stable and dependable data.



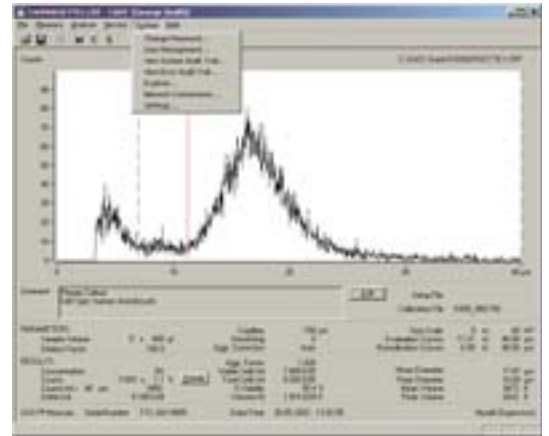
Parallel tests with Cell Counters of different producers

### Electronic pulse area analysis

The CASY® Model TTC works via electronic pulse area analysis. Measurements of 512,000 size channels guarantee a virtually unlimited dynamic range. The size distribution found in the sample is displayed graphically using 1024 size channels. Changes in the evaluation parameters can be made at any time as all raw data is available for further analysis.

### Measurement results

With the CASY® Model TTC the amount of cell debris, viable cells, dead cells and cell aggregates in a sample can be determined simultaneously with one measurement. In addition to the cell and particle concentration, all information about the diameter and volume of the fractions tested is provided. Evaluations in percent simplify the interpretation of the measurement results.



Since each measurement takes only 10 seconds, multiple measurements can be easily run in a short amount of time to ensure statistical reliability of results. Cell concentrations of less than 100 cells/ml are reliably detected. Cytotoxic effects, stimulation, aggregation, osmotic stress – all events relevant to the quality of a cell culture – can be reliably quantified and analyzed at a volume resolution of 0.02 femtolitres and 1024 size channels.

### Application-specific analytical setups

The CASY® Model TTC provides the optimum analysis option for every cell type and application. All device settings developed for a specific task can be saved in protocol files, including the measurement parameters and two freely adjustable cursor pairs. The display options can be saved. An access check with three security levels guarantees that setups are only created and changed by authorized users. Standardized result logs guarantee the long-term comparability of the data. After an application-specific setup has been created, it can be easily activated with a few simple mouse clicks.



## 21 CFR part 11 standards

All requirements for 21 CFR part 11 compatible systems are fully met, or exceeded, by the CASY® Model TTC. The access check with three defined security levels meets all demands for the security of the measurement data and application-specific setups. Electronic signatures of data records can be created both in the simplified “session mode” and – for maximum-security requirements – each time a file is saved. All system and user operations are automatically logged in the audit trail files. A distinction is made between “system audit trail”, “error audit trail” and “file audit trail”. The file audit trail is an integrated part of every measurement data record and logs all changes a user makes when evaluating data. The “secure property data format” guarantees that all data movements are automatically checked using checksums.

## Validation possibilities

The CASY® Model TTC meets all requirements for the validation of cell culture processes. Thanks to the documentation of all device settings and cell-specific evaluation parameters, the documentable system self-test, the automatic detection of operating and system errors etc., the device conforms to the full range of guidelines for GLP/GMP. In accordance with FDA 21 CFR Part 11 regulations for closed systems, the CASY® Model TTC also includes features such as differentiated access control, electronic signature and audit trails.

## Total Quality Control

The CASY® Cell Counter + Analyzer System Model TTC is the “Total Quality Control” standard for quality control of cell cultures. In addition to the high resolution, comparability and reproducibility of the acquired measurement data, it is exceptionally reliability and easy-to-use. The processing of the raw data meets the highest demands for data quality and data security. Embedded system technology based on a fast RISC controller and Windows™ CE avoid gaps in security and the high risk assessments associated with standard PCs. The validation of the system is very simple: data is saved on “flashcards” – currently the most stable and secure storage medium long-term – which guarantees maximum system and data security. Integrated test routines check that all the system parameters relevant to the measurements are observed.

## Menu-based operation – clear, simple and fast

The CASY® Model TTC is operated via a self-explanatory menu control system under the embedded Windows™ CE operating system. The clear user interface on a large color display allows all users to start using CASY® Model TTC quickly.

## User-friendly design

The CASY® Model TTC was designed to meet the highest demands for lab technology, user-friendliness and design: the compact design unites the different technical elements within the smallest possible space.

And many derived values, such as standard deviations etc.

Any queries? Talk to one of our expert advisors, or call to schedule a demo.

## Measurement results delivered

● Number of cells:	debris, living cells, dead cells, aggregates, total number of cells; absolute and as a percentage
● Cell viability:	absolute and as a percentage
● Cell aggregates:	aggregation factor, aggregation correction (number of cells in an aggregate)
● Cell volume:	Individual volume, average volume, total volume (biomass)

And many derived values, such as deviations from standard values, etc.

## CASY® Cell Counter + Analyzer System Model TTC

### Technical data

Measurement principle	electronic pulse area analysis
Dynamics of the measurement*	in volume > 1:70,000; in diameter > 1:40
Measured size channels	512,000
Display size channels	1,024
Measurement range	0.7 – 160 µm
Resolution	1 in 512,000
Typical analysis time	10 seconds
Typical sample volume	5 – 100 µl
Interfaces	RS 232 (DB9), TC/IP (RJ45), USB, PS/2, PCMCIA port for Flash memory card
Printer output	PCL (HP-compatible printer)
Data export	ASCII
Dimensions (H x W x D)	37 cm x 45 cm x 39 cm (excluding keyboard)
Weight	approx. 21 kg (incl. keyboard and mouse)

\* Ratio between the smallest and the largest particle analyzed simultaneously.

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Windows™ is a registered trademark of the Microsoft Corporation.

## Quality that counts

innovatis AG, headquartered in Bielefeld, Germany, specializes in integrating lab processes and automating cell culture analysis.

Based on proven technology, we offer the best range of product solutions for research, pharmaceutical and biotechnology industry – all over the world. Individual service packages complete the product portfolio dedicated to customers' needs.

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