

INFICON Zevision[®] IMC300

Thin Film Deposition Controller



 **INFICON**
Inspired by visions. Proven by success.

Precision Control for Maximum Repeatability and Unmatched Crystal Efficiency

The INFICON IMC300 is part of the next generation of INFICON Zevision deposition controllers which offer new patented technology needed for today's optical coaters.

MULTI-LAYER COMPENSATION SYSTEM

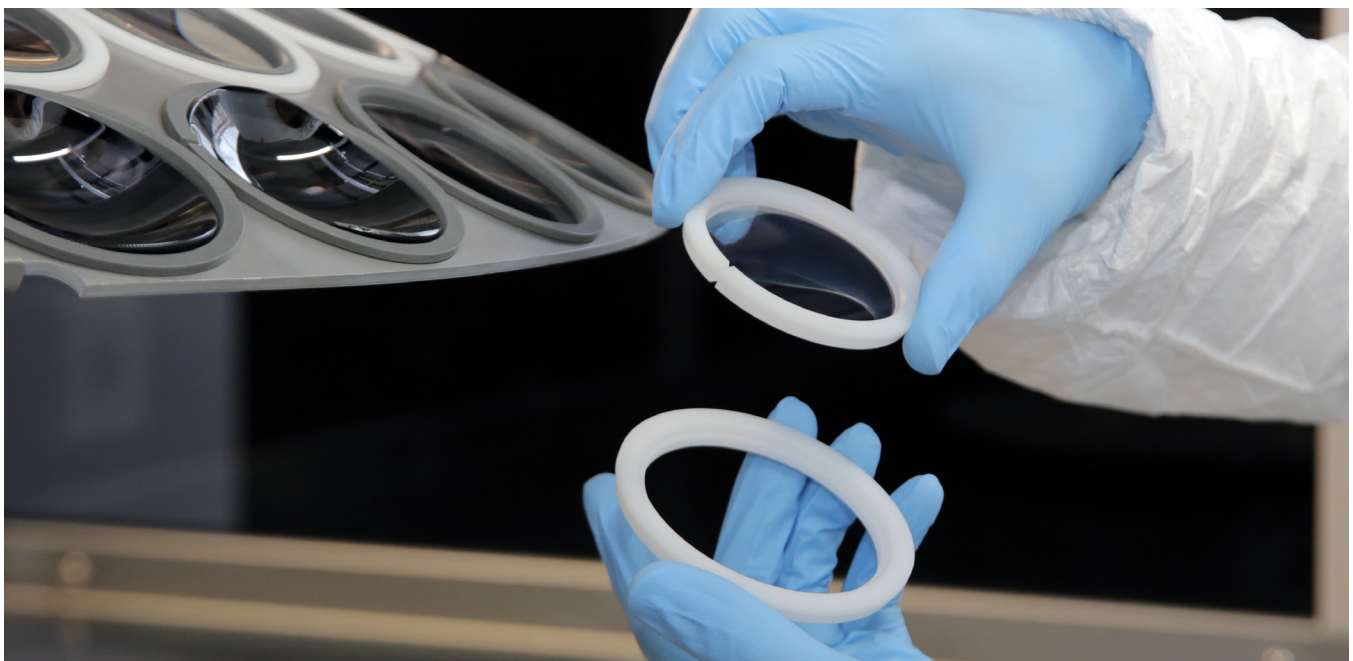
Traditionally, optical coaters required costly optical monitors to support high precision physical vapor deposition processes. The addition of an optical monitor on a tool is not always a standard option. Thus, sample testing substrates from the batch can become standard practice. This ex situ analysis does not provide real time opportunity to correct for undesirable layer thickness. If discovered, the risk is that the entire batch could be scrapped or reworked, wasting time and money. With our revolutionary multi-layer compensation system, INFICON delivers increased thickness accuracy of optical stacks. INFICON Zevision IMC300 provides an in situ solution that rivals costly optical monitors and could eliminate additional processing steps for ex situ analysis and

rework. The multi-layer compensation system corrects the thickness and rate calculation by normalizing the Z-ratio in the Z-match equation based on what coatings have already been deposited on the crystal. By using this compensation system, IMC300 removes the thickness calculation error that would normally increase over time as new layers are applied to the QCM crystal.

PREDICTIVE CRYSTAL HEALTH

Predictive crystal health ensures you will have thickness control for the entire deposition. This technology determines if the crystal will fail before starting the process by comparing the expected frequency shift for the deposition to the crystal starting frequency.

INFICON Zevision IMC300 also uses the INFICON proprietary ModeLock™ measurement system to maximize reproducibility and uniformity with the highest thickness accuracy, best measurement resolution, and lowest rate noise. The ModeLock measurement system will maximize uptime and



throughput by extending the usable crystal life - in some cases more than twice the expected life of a frequency counting controller.

TEMPERATURE COMPENSATION

INFICON Zevision IMC300 eliminates QCM thickness errors due to temperature effects. With temperature compensation, the effects of temperature are systematically removed from the thickness calculation. Temperature variation can cause errors in thickness and rate measurements resulting in poor reproducibility; INFICON IMC300 is able to remove the effects of temperature variation on the QCM without the need for additional hardware or custom and expensive sensors. The INFICON patented temperature compensation is instantaneous unlike competing methods that use a thermocouple embedded inside a QCM sensor. The delayed heating of the thermocouple relative to the QCM crystal makes competing methods inefficient by comparison.

EASY SYSTEM INTEGRATION

System integration with INFICON Zevision IMC300 is fast and easy with backwards compatibility, logic, and the optional ability to run multiple sources at the same time using a single controller. INFICON Zevision IMC300 features a touchscreen front panel with easy to navigate menus and intuitive recipe building. Writing software is greatly simplified by only

using ASCII printable characters with clear start and stop characters in all commands and responses. The new serial communication protocol also has help commands to learn what commands are available without referencing the operating manual.

UPGRADES & AFTER-CARE PLAN

All firmware updates and hardware upgrades can now be performed on-site with easy to install option cards and firmware updates via the front panel USB port. Optional I/O and 2-sensor-2-source measurement boards are available for field installation with no additional tools.

Although INFICON Zevision IMC300 is built to last for decades, you can rest assured that repairs are free within the optional after-care plan period. Optional 2-year or 4-year after-care plans are available to extend beyond the standard 2-year warranty in the event your INFICON Zevision IMC300 needs repair. If the IMC300 has an after-care plan, a loaner unit can be provided if service is needed throughout the life of the instrument.



ADVANTAGES AT A GLANCE:

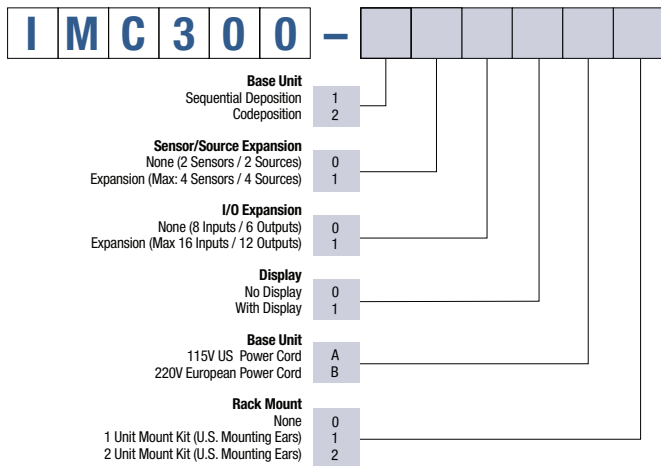
- Streamline process steps by eliminating the need for optical monitoring with increased thickness accuracy of optical stacks provided by the revolutionary multi-layer compensation system
- Eliminate the thickness errors that occur by temperature changes using built-in temperature compensation
- Maximize reproducibility and uniformity with the highest thickness accuracy, best measurement resolution, and lowest rate noise using both the ModeLock measurement system and Predictive Crystal Health
- Maximize number of runs possible while lowering crystal consumable cost with ModeLock (longest usable crystal life)
- Minimize integration cost and maximize integration speed with backwards compatibility, logic, and the optional ability to run multiple sources during a single process at the same time with a single controller
- Minimize development risk and optimize system performance through worldwide expert applications support

SPECIFICATIONS

MEASUREMENT	
Crystal Frequency Range	6.0 to 4.5 MHz
Frequency Resolution	±0.00656 Hz @ 6 MHz
Frequency Accuracy	±2.5 ppm 0 to 50°C
Measurement Rate	10 Hz
Thickness and Rate Resolution	±0.008 Å and ±0.08 Å/s
Thickness Accuracy	0.5%
Rate Accuracy	0.1%
DESIGN FEATURES	
Multi-layer Compensation System	Yes
Temperature Compensation	Yes
Predictive Crystal Health	Yes
Codeposition	Yes for IMC300-2XXXXX
ModeLock	Yes
PROCESS PARAMETERS	
Processes	200
Layers	200 per Process
Films	4 per Layer (With Co-Dep)
OPERATION	
Operating Temperatures	0 to 50°C (32 to 122°F)
Weight	4.1 kg (9 lb.)
Main Power Supply	125/250 V(ac), 50/60 Hz
Rack Dimensions H x W x D	132.5 x 213.1 x 314.3 mm
SOURCE	
Number of Sources	2 BNC, Female (Without Option Card) (4 total sources with option card)
Control Voltage	-10 V to +10 V, user configurable
Resolution	15 bits over full range (10 V)
SENSOR	
Number of Sensors	2 Sensors (Without Option Card) (4 total sensors with option card)
Compatible Sensors	All

SPECIFICATIONS

DIGITAL I/O		
Digital Inputs	Functions	8, event assignable
		8, option card event assignable
	Input Rating	24 V(dc) Max 30 V(ac) Max
Relay Outputs	Functions	6, event assignable
		6, option card event assignable
	Relay Rating	30 V(dc) or 30 V(ac) RMS or 42 V peak at 2.5 Amps
DISPLAY		
Type	TFT LCD Display with PCAP Touchscreen	
Format	WVGA	
Resolution	800 x 480	
Backlighting	LED	
Thickness Display Resolution	display thickness resolution = 1 Å	
Rate Display Resolution	0.1 Å/s for 0.0 to 99.9 Å/s, 1 Å/s for 100 to 999 Å/s	
Power Display Resolution	0.01%	
Data Display Rate	1 Hz	
Graphic Display Functions	Rate Deviation ±5, 10, 20, or 40 Å/s or Power at 0.0 to 100%	
COMMUNICATIONS		
Type	RS-232/Ethernet	



Due to our continuing program of product improvements, specifications are subject to change without notice.
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