

Technical Specifications

TITAN Bioprocess Monitor System

Document Revision v1.02

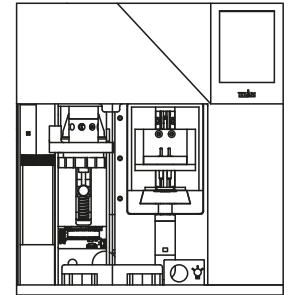
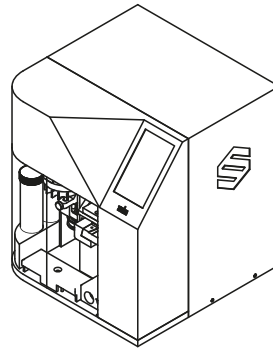


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TITAN Technology Overview:

Detection technology:	Localised surface plasmon resonance (LSPR)
Intended application:	Titre monitoring in bioprocess samples
Analyte types:	Monoclonal and polyclonal antibody products
Compatible sample environments:	Crude or treated mammalian cell culture (e.g. CHO) Downstream purification eluents
Information provided:	Total antibody product concentration determination
Data presentation:	Sensorgrams displaying concentration binding rates and regeneration efficiency Isolated sample binding curves Standard curve and fit metrics Tabulated concentration results
Manual sample preparation required:	None - for high concentration and/or samples at extremes of pH, dilution may be automated using the TITAN Loki software
Automation:	Fully automated microfluidic assay procedure with programmable sample dilution

TITAN Protein G Chip:

Form factor:	Multi-channel, disposable or multi-use microfluidic biosensor chip
Channel volume:	9 μ L
Assay surface:	Nanostructured gold biosensor substrate Low-fouling polymer transducer layer for capture protein attachment
Wetted materials:	Thermoplastic polyolefin resin, UV curable glue
Multi-use biosensor lifetime (samples):	30+ samples
Multi-use biosensor lifetime (storage):	6+ months

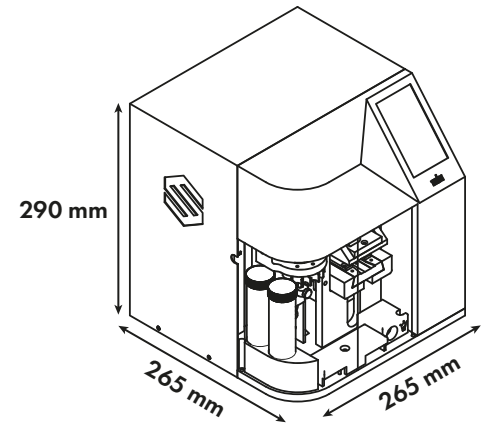
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TITAN Instrument:

Dimensions (h x w x d):	290 mm x 265 mm x 265 mm (11.42" x 10.43" x 10.43") (Excluding EPDM feet)
Weight:	10 kg
Power:	110v -240 V single-phase AC compatible, <5.0A Provided with external power brick, cable and region-appropriate plug
Software:	LOKI software provided for hardware control automation and monitoring
User interface:	System monitoring via 4" touchscreen (~235 PPI); Automation control via laptop
Syringe pump:	High accuracy, micro-stepping syringe driver
Microfluidic port fittings:	Standard 1/4-28 UNF, flat-bottom
Wetted materials:	PTFE, UHMW-PE, PCTFE, borosilicate glass



Quantitation:

Sample measurement workflow:	One regenerable assay surface per chip channel Concurrent sample measurement of a single sample across multiple channels in serial, parallel or isolated parallel fluidic configurations or independent measurements of different samples per channel in an isolated parallel fluidic configuration
Min. sample volume per singlet measurement:	190 μ L
Min. sample volume per technical duplicate measurement:	350 μ L
Assay time per singlet sample measurement:	90 - 180 seconds
Regeneration time between successive sample measurements:	90 seconds
Full reporting period per technical duplicate:	<10 minutes
Reagent volume usage per technical duplicate:	4 mL running buffer (HBS-EP+) 2 mL regeneration buffer (glycine hydrochloride 0.1 M pH 2.2)
Quantitation range:	15 - 200 μ g/mL hlgG
Precision range:	CV <10%

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Calibration:

Calibration method:	Assay-specific standard curve generation
Dilutant volume per calibration*:	4 mL
Calibrant quantity per calibration:	1.2 mg
Reagent volume usage per calibration:	31 mL running buffer (HBS-EP+) 16 mL regeneration buffer (glycine hydrochloride 0.1 M pH 2.2)
Full calibration duration:	100 minutes
Full calibration frequency:	Once per chip installation

*Optimal measurement accuracy is achieved when the calibrant and sample dilutants are (1) compositionally identical to each other and (2) compositionally identical to the sample environment, except where large sample dilutions (>50x) are to be performed.

Speak to an engineer or scientist from our applications team today if you have any queries - email us at contact@causewaysensors.com or visit causewaysensors.com/contact for more ways of chatting to us.

