

# Product Catalogue 2008

Solutions for laboratory, pilot plant  
and cGMP production



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

The Product Catalogue shows the majority of products and accessories available from Aber Instruments in biotechnology applications. There is a detailed section on probe options including top-entry and side entry probes in a range of sizes with options for FDA certification and a comparison of the technical

specifications of the full range of Aber Biomass Monitor systems.

Part numbers, materials and specifications are subject to change and the product catalogue should be used as a guide. Users should obtain the latest product information from either Aber Instruments or the local distributor.

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In 2006 Aber Instruments introduced their latest innovation into the market with the Biomass Monitor 200.

This new version is in response to the demand in the industry for a lower cost unit that is simple to use, flexible with communications and that will meet the strict validation requirements of the manufacturing process including GAMP4 compliance.

In addition to the usual options for communications the instrument has a USB port for connection to a PC together with Aber data logging software (Aber workbench 200).

### System includes

- Biomass Monitor 200 Lab version :
- 2900-20 — Biomass Monitor 200, single channel, probes ordered separately
  - 2900-00 — Biomass Monitor 200
  - 2300-00 — Head Amplifier with 2 metre cable
  - 2350-00 — Probe Simulator
  - 124\*-06 — Mains lead (\*Country specific)
  - 2900-09 — Biomass Monitor 200 User Manual
  - 1015-02 — 25mm probe retaining ring (if 25mm probe supplied)
- Software, phoenix connector and USB lead

- Measures live biomass ON-LINE
- Dedicated to a single bioreactor
- Perfect for Cell Culture, microbial, bacteria and plant cells
- Compact and simple to evaluate and use
- Designed to GAMP4
- IQ/OQ documentation (optional)

### Options

For probe types	see pages 8-11
For Validation options	see page 14
Part number 2900-62	
For extension cables	see page 16
Profibus and devicenet, other options available on request	



Launched in 2007, the panel mount version of the Biomass Monitor 200 is dedicated to cGMP.

The Biomass Monitor Model 200 was produced in response to the demand in the industry for a lower cost unit that is simple to use, flexible with communications and that will also meet the strict validation requirements of the manufacturing process including GAMP 4 compliance. The unit is designed to be dedicated to single bioreactor (ideal for cGMP) and overcomes the inconvenience of running multiple cables to bioreactors. These new features combine to make the BM200 the most customer orientated device for live cell mass monitoring.

### System includes

- 2920-20 — Biomass Monitor 200 Panel mount, single channel, probes ordered separately
  - 2920-00 — Biomass Monitor 200
  - 2300-00 — Head Amplifier with 2 metre cable
  - 2350-00 — Probe Simulator
  - 124\*-06 — Mains lead (\*Country specific)
  - 2900-09 — Biomass Monitor 200 User Manual
  - 1015-02 — 25mm probe retaining ring (if 25mm probe supplied)
- Software, Phoenix connector and USB lead

- Measures live biomass ON-LINE
- Dedicated to a single bioreactor
- Perfect for Cell Culture, microbial, bacteria and plant cells
- Front protected to IP65
- Designed to GAMP4
- IQ/OQ documentation (optional)
- Ideal for cGMP production

### Options

For probe types	see pages 8-11
For Validation options	see page 14
Part number 2900-62	
For extension cables	see page 16
Profibus and devicenet, other options available on request	



The Biomass Monitor 220 combines the latest advances in radio-frequency dielectrics with an integrated software programme that allows both live cell mass monitoring (or control) as well as radio-frequency scanning.

The model 220 has an integral multiplexer allowing up to 4 fermentors to be monitored; to expand the system you simply add an extra Head Amplifier(s) and probe(s) as all the additional electronics are built in.

The frequency scanning option can provide additional information on the metabolic state of the culture, this makes the instrument ideal for operation in research or process control.

A single channel only version, the Biomass Monitor 210 is also available.

### Biomass Monitor 210 System includes

- 2400—20 — Biomass Monitor 210, single channel, probes ordered separately
- 2200-00 — Biomass Monitor 210
- 2300-00 — Head Amplifier with 2 metre cable
- 2350-00 — Probe Simulator
- 124\*-06 — Mains lead (\*Country specific)
- 2400-09 — Biomass Monitor 210 User Manual
- 1015-02 — 25mm probe retaining ring (if 25mm probe supplied)

### Biomass Monitor 220 System includes

- 2200-20/### — Biomass Monitor 220, 4 input, single channel, probes ordered separately
- 2200-00 — Biomass Monitor 220
- 2300-00 — Head Amplifier with 2 metre cable
- 2350-00 — Probe Simulator
- 124\*-06 — Mains lead (\*Country specific)
- 2200-09 — Biomass Monitor 220 User Manual
- 1015-02 — 25mm probe retaining ring (if 25mm probe supplied)

Where ## indicates the number of channels required, this is also the number of Head Amplifiers that will be provided with the system.

- Measures live biomass ON-LINE and can be expanded for up to 4 bioreactors
- Perfect for Cell Culture, microbial, bacteria and plant cells
- Frequency Scanning
- Ideal for research and process development

### Options

For probe types	see pages 8-11
For Validation options	see page 14
BM 210 Part number:	2400-62
BM 220 Part number:	2200-62
For AberScan software	see page 15
For AberLog Gold software	see page 15
For extension cables	see page 16



The Biomass Monitor 230 has been designed for use in a production environment. To ensure simplicity of use there are minimum set-up options with password protection for cGMP.

The instrument is enclosed within an IP65 stainless steel cabinet so there are no additional enclosure costs. It has an integral multiplexor and like the model BM220 can be used with up to 4 probes. The model 230 has been widely used in cGMP by the major Biopharma companies.

The system can also be supplied with a profibus module.

### System includes

- 2700-20/## — Biomass Monitor 230, 1 input, 4 channel, probes ordered separately
- 2700-00 — Biomass Monitor 230
- 2300-00 — Head Amplifier with 2 metre cable
- 2350-00 — Probe Simulator
- 2700-09 — Biomass Monitor 230 User Manual
- 1015-02 — 25mm probe retaining ring (if 25mm probe supplied)

Where ## indicates the number of channels required, this is also the number of Head Amplifiers that will be provided with the system.

Profibus option please order with system part number 2700-30

- Measures live biomass ON-LINE and can be expanded for up to 4 bioreactors
- Suitable for animal, yeast, filamentous fungi, bacteria and plant cells
- Robust within an IP65 enclosure, ideal for pilot plant or production
- Ideal for cGMP and can be provided with full IQ/OQ documentation (optional)

### Options

For probe types	see pages 8-11
For Validation options	see page 14
Part number 2700-62	
For extension cables	see page 16
For AberLog Gold software	see page 15
Profibus and devicenet, other options available on request	



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The Live Cell Analyser 920 is quite unique in allowing the live cell concentration to be measured on-line, and at the same time it can be used to measure off-line samples. The sample chamber is 10ml with a stirrer and temperature control to provide optimum conditions for the culture. Ideal for busy laboratories and for measuring highly clumped cells or for cells attached to carriers.

## The Live Cell Analyser 920 on-line and off-line system includes

- 9200-20 — Live Cell Analyser 920, off-line and on-line, probes ordered separately
- 9200-09 — Live Cell Analyser 920 User Manual
- 2300-00 — Head Amplifier with 2 metre cable
- 2350-00 — Probe Simulator
- 124\*-06 — Mains lead (\*Country specific)
- 8091-06 — Wash Bottle
- 1901-06 — 1-10ml Pipette
- 8039-15 — Drain tube assembly

## The Live Cell Analyser Off-line only System includes

- 9200-00 — Live Cell Analyser 920, off-line only
- 9200-09 — Live Cell Analyser 920 User Manual
- 124\*-06 — Mains lead (\*Country specific)
- 8091-06 — Wash Bottle
- 1901-06 — 1-10ml Pipette
- 8039-15 — Drain tube assembly

- Measures live biomass in samples and ON-LINE
- Suitable for animal, yeast, filamentous fungi, bacteria and plant cells
- Simple to use and no need to add dyes or dilute samples
- Saves valuable laboratory time for counting cells

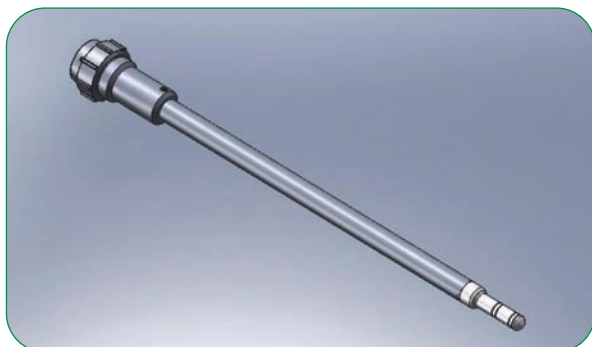
## Options

For probe types	see pages 8-11
For Validation options	see page 14
Part number 2900-62	
For extension cables	see page 16
For AberScan software	see page 15
For AberLog Gold software	see page 15

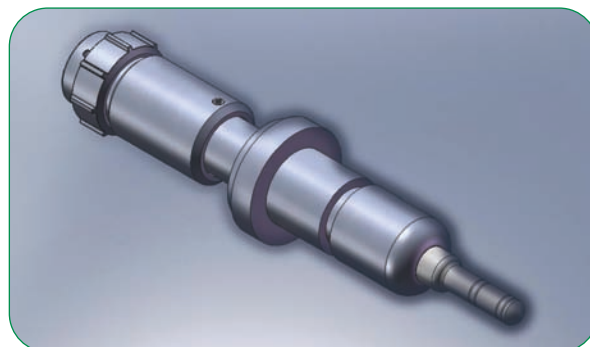
Aber Instruments has a wide range of probes to suit all applications, they are available in 12mm diameter ideal for small bio-reactors and 25mm diameter for larger vessels.

All probes are Electropolished and Passivated. Options for USP class VI and FDA CFR21 177 certificates.

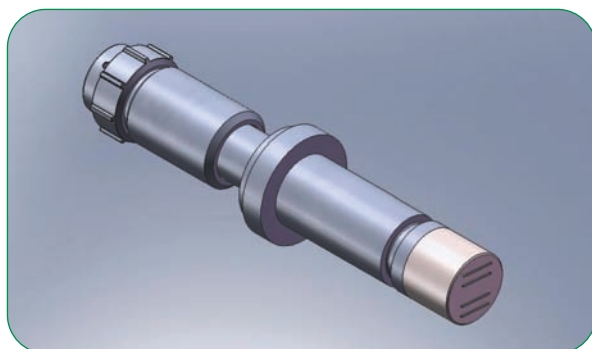
All probes are available fully certified.



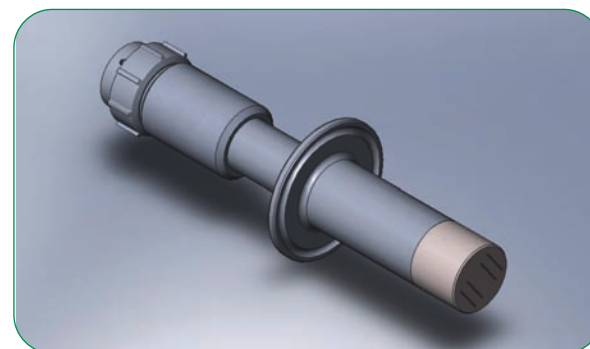
**12mm Annular Probe**



**25mm Annular Probe**



**25mm Flush Probe**



**Tri-clamp**

All probes supplied by Aber Instruments will work in all situations, however the annular probe performs best in highly aerated systems. In cell culture in large vessels the flush probe is more robust and there is little or no advantage using the annular probe.

## 25mm - Large vessels

	Cell Culture	Microbial	Bacterial
25mm Annular	Alternative	Recommended	Recommended
25mm Flush	Recommended	Alternative	Alternative

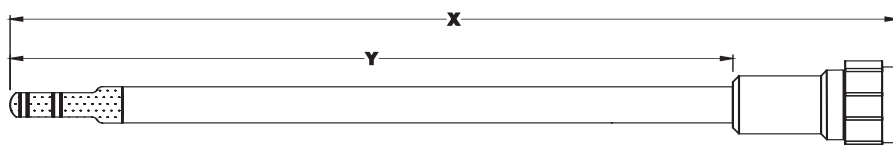
## 12mm - Small vessels, top mounted

	Cell Culture	Microbial	Bacterial
12mm Annular	Recommended	Recommended	Recommended

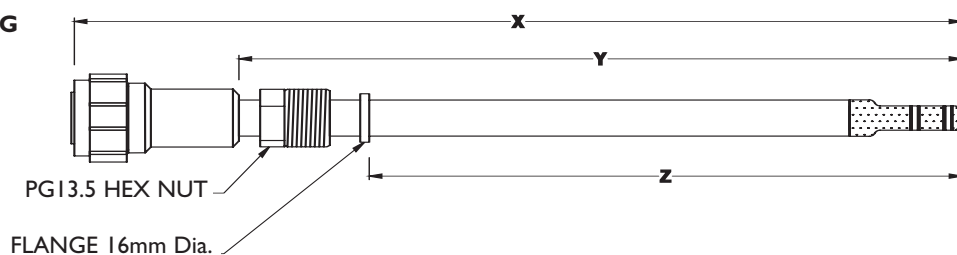


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## STRAIGHT



## PG13-5 FITTING



## STRAIGHT PROBES

Part Number with certificate	Part number without certificate	Description	Serial number prefix	Overall Dimensions		
				X	Y	Z
1922-52	1861-52	Probe Annular Electrodes 12 x 100mm Stainless Steel / *Fortron	TBRA	193	143	-
1923-52	1856-52	Probe Annular Electrodes 12 x 200mm Stainless Steel / *Fortron	TBMA	293	243	-
1925-52	1855-52	Probe Annular Electrodes 12 x 300mm Stainless Steel / *Fortron	TBLA	393	343	-
1927-52	1851-52	Probe Annular Electrodes 12 x 450mm Stainless Steel / *Fortron	TBXA	543	493	-

## PG13-5 PROBES

Part Number with certificate	Part number without certificate	Description	Serial number prefix	X	Y	Z
				1924-52	1859-52	Probe Annular Electrodes 12 x 200mm Stainless Steel / *Fortron
1926-52	1869-52	Probe Annular Electrodes 12 x 300mm Stainless Steel / *Fortron	TBLAX	393	343	300
1928-52	1862-52	Probe Annular Electrodes 12 x 450mm Stainless Steel / *Fortron	TBRAX	543	493	400

\* Fortron PPS (polyphenylene sulphide). This material has excellent strength and resistance to repeated steam sterilisations and has USP class VI and FDA 21 CFR177.2415 accreditation for repeated food contact.

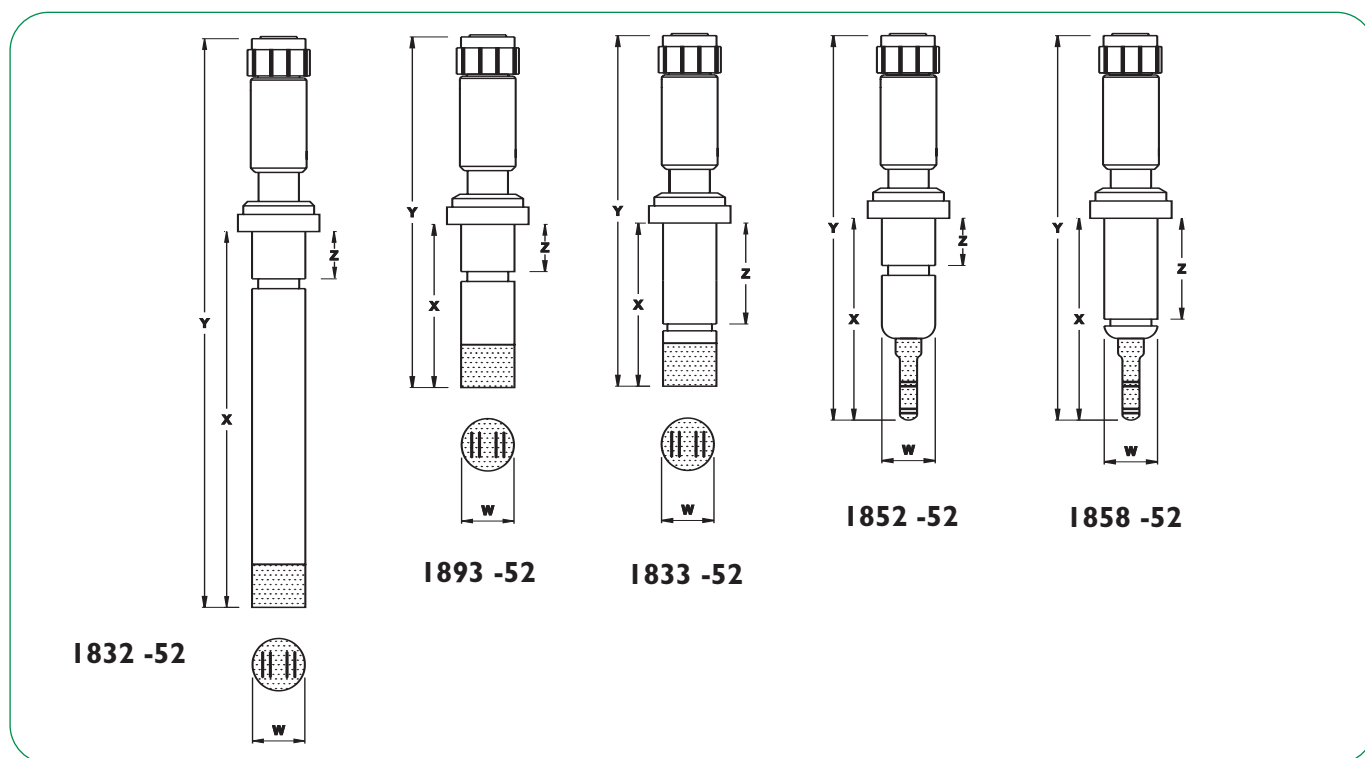


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## Probes

Part Number with certificate	Part number without certificate	Description	Serial number prefix	Approx Dimensions			
				W	X	Y	Z
1934-52	1832-52	Probe Flush Electrodes 25 x 175mm Stainless Steel / Fortron	SBKFS	25	175	265	22
1932-52	1893-52	Probe Flush Electrodes 25 x 75mm Stainless Steel / Fortron	SBSFS	25	75	165	22
1933-52	1833-52	Probe Flush Electrodes 25 x 75mm Stainless Steel / Fortron for use with some Braun safety ports	SBSFB	25	75	165	47
1920-52	1852-52	Probe Annular Electrodes 25 x 96mm Stainless Steel / Fortron	SBRAS	25	96	180	22
1921-52	1858-52	Probe Annular Electrodes 25 x 96mm Stainless Steel / Fortron for use with some Braun Safety ports	SBRAB	25	96	180	47

\* Fortron PPS (polyphenylene sulphide). This material has excellent strength and resistance to repeated steam sterilisations and has USP class VI and FDA 21 CFR177.2415 accreditation for repeated food contact.



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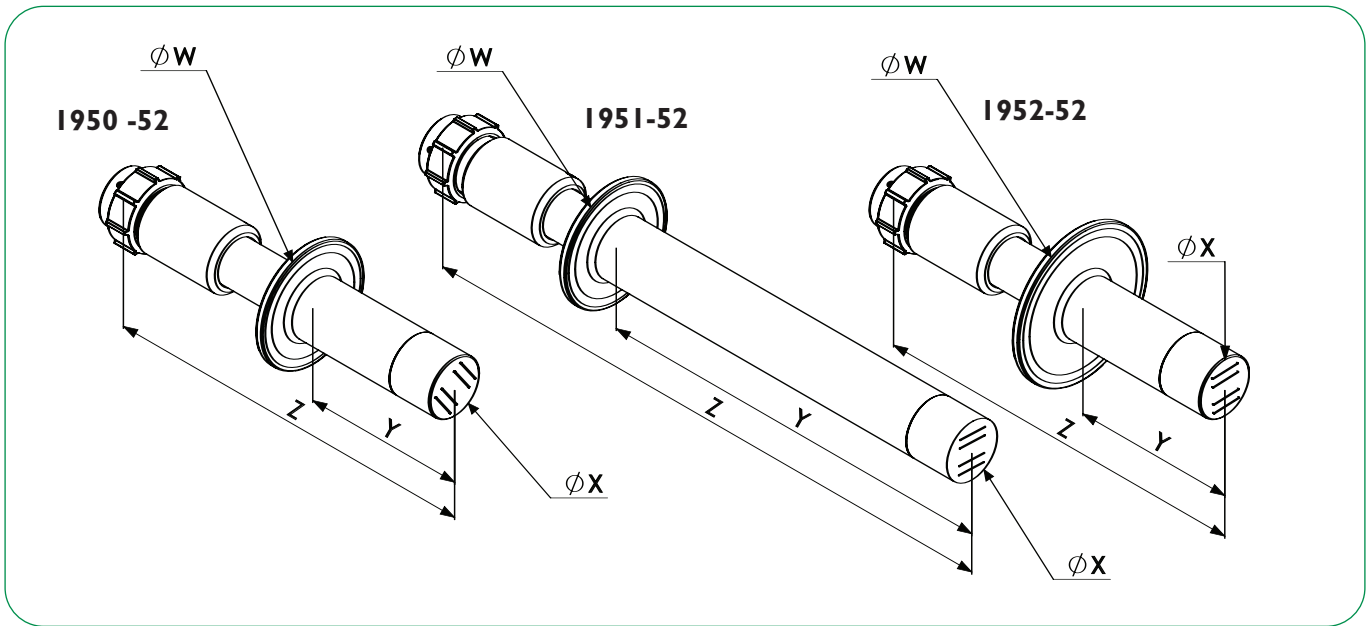
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# Tri-clamp Probes

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## Probes

Part Number with certificate	Part number without certificate	Description	Serial number prefix	Approx Dimensions			
				W	X	Y	Z
1929-52	1951-52	Probe Flush Electrodes 25 x 175mm Stainless Steel / *Fortron with 1-1.5 inch Tri-clamp flange with certificate	SBKFA	50.4	25	175	260
1930-52	1950 -52	Probe Flush Electrodes 25 x 70mm Stainless Steel / *Fortron with 1-1.5 inch Tri-clamp flange with certificate	SBJFA	50.4	25	70	163
1931-52	1952 -52	Probe Flush Electrodes 25 x 70mm Stainless Steel / *Fortron with 2 inch Tri-clamp flange with certificate	SBJFF	63.9	25	70	163

\* Fortron PPS (polyphenylene sulphide). This material has excellent strength and resistance to repeated steam sterilisations and has USP class VI and FDA 21 CFR 177.2415 accreditation for repeated food contact.



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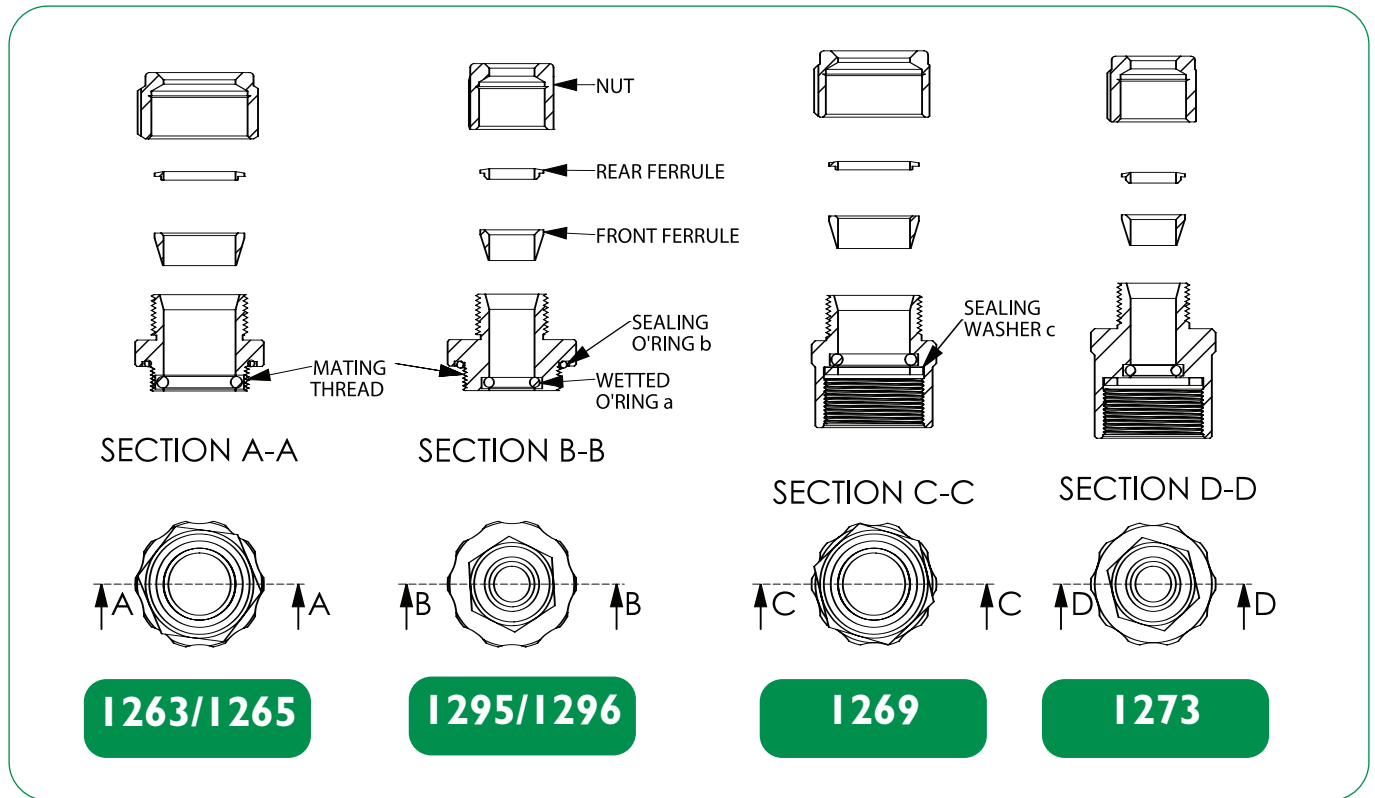
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The port adaptors are designed to allow the 12mm straight Aber probes to be fitted into either Braun or Applikon 19mm (3/4") top plate, female port fitting.

The New Brunswick version is similar but fits a male threaded port on either the top plate or side entry port.



Part No.	Description	Wetted O'ring 'a'	Sealing O'ring 'b'	Sealing washer 'c'	Mating thread
1265-12	19mm Braun Sartorius Adaptor	Silicone FDA 18 x 30	EPDM 26.7 x 1.78		26 x 1mm PITCH
1295-12	12mm Braun Sartorius Adaptor	Silicone FDA 10.78 x 2.62	EPDM 26.7 x 1.78		26 x 1mm PITCH
1263-12	19mm Applikon Adaptor	Silicone FDA 18 x 3.0	EPDM 26.7 x 1.78		3/4" BSP
1296-12	12mm Applikon Adaptor	Silicone FDA 10.78 x 2.62	EPDM 26.7 x 1.78		3/4" BSP
1269-12	19mm Brunswick Adaptor	Silicone FDA 18 x 3.0		Silicone FDA 19 x 3.5 x 2	26 x 1mm PITCH
1273-12	12mm Brunswick Adaptor	Silicone FDA 10.78 x 2.62		Silicone FDA 19 x 3.5 x 2	26 x 1mm PITCH



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- I476-00** LCD version
- I476-60** LCD version renewal certificate
- I475-00** Non LCD version
- I475-60** Non LCD version renewal certificate
- I476-09** Probe tester manual  
(for LCD version and non LCD version)

The Aber Instruments Probe Tester has been specially designed to carry out checks on the integrity of any type of probe used with the full range of Biomass Monitors 200, 210, 220, 230 & 920. Both testers are supplied new with a calibration certificate.

The tester will automatically run through a sequence of tests checking a probe for internal corrosion and leakage between the electrodes. An additional test cable allows the user to

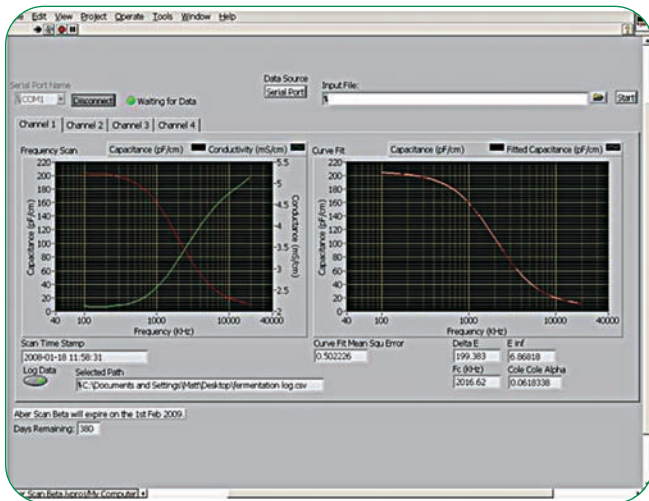
check the continuity between each electrode and the Head Amplifier socket. The complete test procedure checks the health of a probe and its ability to perform correctly.

There are two versions of the Probe Tester; I475-00 is a simple pass or fail device intended for production environments, I476-00 also has a LCD display that allows the user to quantify and track the changes of probe condition.

All these validation packages include Aber Instruments generated release, calibration, IOQ documentation and the probe certificate of conformance suitable for compliance in pharmaceutical production environments.

The Instruments are shipped with appropriate calibration certificates and factory completed IOQ acceptance documents along with a blank set of IQ and OQ documents to be used to replicate these tests at the client site.

<b>2900-62</b>	<b>Biomass Monitor 200 (Lab version and Panel mount)</b> Probe Certificate of Conformance IOQ Aber Instruments Factory Acceptance Certification Probe Simulator Certification
<b>2400-62</b>	<b>Biomass Monitor 210</b> Probe Certificate of Conformance IOQ Aber Instruments Factory Acceptance Certification Probe Simulator Certification
<b>2200-62</b>	<b>Biomass Monitor 220 (up to 4 channels)</b> Probe Certificate of Conformance IOQ Aber Instruments Factory Acceptance Certification Probe Simulator Certification
<b>2700-62</b>	<b>Biomass Monitor 230 (up to 4 channels)</b> Probe Certificate of Conformance IOQ Aber Instruments Factory Acceptance Certification Probe Simulator Certification
<b>9200-62</b>	<b>Live Cell Analyser 920, off-line only</b> IOQ Aber Instruments Factory Acceptance Certification
<b>9205-62</b>	<b>Live Cell Analyser 920, on-line and off-line</b> IOQ Aber Instruments Factory Acceptance Certification Probe Certificate of Conformance Probe Simulator Certification
<b>2350-60</b>	Biomass Monitor Probe Simulator Certification
<b>1000-61</b>	Probe Certificate of Conformance
<b>1000-62</b>	Probe OQ Documentation
<b>1476-60</b>	Probe Tester LCD version renewal certificate
<b>1475-60</b>	Probe Tester non-LCD version renewal certificate

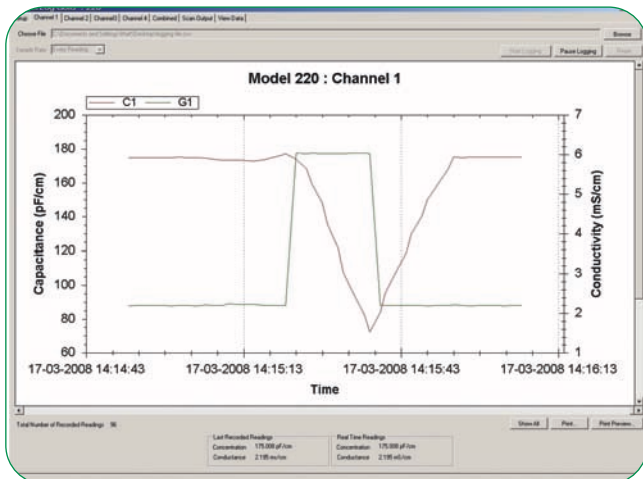


The AberScan Software is for use specifically with the Biomass Monitor Models 210 & 220 to record frequency scan data. The software records the capacitance and conductance values continuously. The spectra produced are analysed to derive additional process parameters including dielectric increment, cole-cole alpha and critical or characteristic frequency (fc) that can be used as sign posts, or for monitoring key events, during the fermentation process.

Designed to run with Windows XP or Vista.

- 4500-00** AberScan Software package
- 4500-07** AberScan Software
- 4500-09** AberScan Software Manual

# AberLog Gold Software



AberLog Gold is a data-logging software package that can be used with most Biomass Monitor systems including models 210, 220, 230, & 920.

It has a range of features including logging of capacitance and conductivity measurements over user defined logging intervals, multiple channel logging, data manipulation and exporting of data in .csv format for use with other graphical packages.

Designed to run with Windows XP or Vista.

- 4600-00** AberLog Gold Software package
- 4600-07** AberLog Gold Software
- 4600-09** AberLog Gold Software Manual



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- I601-24/05** 5 metre extension cable SHAX 5
- I601-24/10** 10 metre extension cable SHAX 10
- I601-24/15** 15 metre extension cable SHAX 15
- I601-24/20** 20 metre extension cable SHAX 20
- I601-24/25** 25 metre extension cable SHAX 25

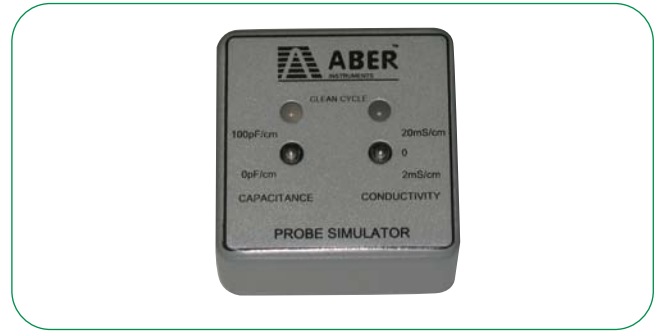
**Cables are available in lengths up to 100 metres, intermediate lengths can be made to order**

## Head Amplifier



**2300-00** Head Amplifier with 2 Metre Cable

## Probe Simulator



**2350-00** Probe Simulator

## Ground Straps



**2113-15** Ground strap for Head Amplifier  
12mm probes



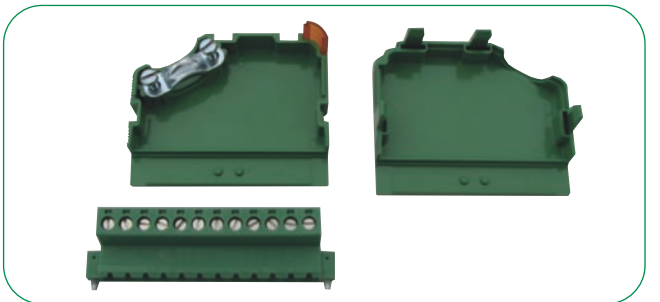
**1116-15** Ground strap for Head Amplifier  
25mm probes

## Retaining Ring



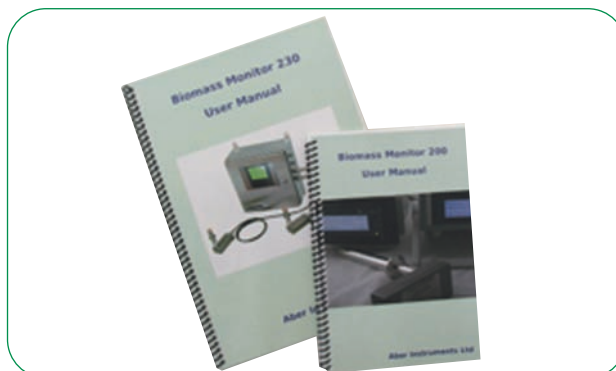
**1015-02** 25mm Probe retaining ring  
(for Stainless Steel probes)

## Phoenix Connectors



- 1660-06** 4W Phoenix connector & Backshell kit for BM200 (4-20 mA output)
- 1662-06** 12W Phoenix connector & Backshell kit for BM220 (4-20 mA output)
- 1663-06** 14W Phoenix connector & Backshell kit for BM220 (PLC connectors)

## Manuals



- 2900-09** Biomass Monitor 200 User Manual
- 2400-09** Biomass Monitor 210 User Manual
- 2200-09** Biomass Monitor 220 User Manual
- 2700-09** Biomass Monitor 230 User Manual
- 9200-09** Live Cell Analyser 920 User Manual
- 1476-09** Probe Tester Manual

## Misc spares

- 1901-06** Pipette 0 -10 ml
- 1902-06** 10ml Pipette Tips (Pack of 25)
- 1118-06** Probe O-ring, BS210 FDA approved silicone
- 1075-02** 25mm Blanking plug, stainless steel

# General Specifications all Biomass Instrumentation 19

Specification	Instrument Type					
	Lab 200	PM200	BM210	BM220	BM230	LCA920
<b>Capacitance range</b>			(note 1)			
0 to 200pF/cm	yes	yes	yes	yes	yes	yes
0 to 400pF	no	no	yes	yes	yes	yes
Resolution display	0.1pF/cm	0.1pF/cm	0.1pF/cm	0.1pF/cm	0.1pF/cm	0.1pF/cm
Detection level for typical applications						
Microbial (g/l)	0.02 - 0.5g/l	0.02 - 0.5g/l	0.02 - 0.5g/l	0.02 - 0.5g/l	0.02 - 0.5g/l	0.02 - 0.5g/l
Cell culture (cells/ml)	10 <sup>4</sup> - 10 <sup>5</sup>	10 <sup>4</sup> - 10 <sup>5</sup>	10 <sup>4</sup> - 10 <sup>5</sup>	10 <sup>4</sup> - 10 <sup>5</sup>	10 <sup>4</sup> - 10 <sup>5</sup>	10 <sup>4</sup> - 10 <sup>5</sup>
<b>Conductivity range</b>						
0 to 40mS/cm	yes	yes	yes	yes	yes	yes
<b>Optional</b>						
0 to 80mS/cm	yes	yes	yes	yes	yes	yes
<b>Number of channels</b>	1	1	1	1 to 4	1 to 4	2 (note 2)
<b>Communications</b>						
4 to 20mA	yes	yes	yes (note 3)	yes (note 3)	yes	yes
RS232	no	no	yes	yes	yes	yes
USB 2	yes	yes	no	no	no	no
Printer	no	no	yes	yes	no	yes
<b>Options</b>						
Profibus	yes	yes	no	no	yes	no
Devicenet	yes	yes	no	no	yes	no
Other options available						
<b>PC Software (optional)</b>	yes	yes	yes	yes	no	no
<b>Power Supply</b>	110-230V a.c.	110-230V a.c.	110-230V a.c.	110-230V a.c.	110-230V a.c.	110-230V a.c.
<b>Environmental</b>						
Size (mm)	270 W	270 W	310 W	310 W	400 H	370H
Height x Width x Depth	90 H	90 H	150 H	150 H	400 W	200 W
	200 D	200 D	310 D	310 D	200 D	500 D
IP rating	IP40	IP65 front panel	IP30	IP30	IP65	IP40
Weight (Kg)	1.65kg	1.65kg	6.0kg	6.0kg	12kg	7.85kg

## Notes

1. Microbial: 1pF/cm = 0.5 to 5g/l Cell culture: 1pF/cm = 10<sup>4</sup> to 10<sup>6</sup> cells/ml
2. 10ml sample cell and 1 on-line input.
3. Can be configured for 0 to 20mA

## Head Amplifier

(All instruments) Size in mm: 65W x 50H x 150D. Weight: 1.0kg



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