FUTURA
BIOTECH RANGE

ABER
TRUSTED TECHNOLOGY

FUTURA
BIOTECH RANGE

CONTENTS

FUTURA introduction

Who Are We?

For 25 years we at Aber™ have pioneered the development and use of dielectric instrumentation for the measurement of cell membrane capacitance and media conductivity. For 22 of those years we supplied the Biotech industry with two generations of biomass monitors. Now the third generation, the Futura®, takes advantage of the recent miniaturization of electronics to help us provide a product that better meets the needs of the industry at an affordable price."

Distribution in the USA
Applikon Biotechnology Inc. is the exclusive distributor for Aber's re-useable sensors and instrument in Biotechnology applications in the USA, Canada and Mexico.

Technology

The Futura System measures an electrical property of cell suspensions called Capacitance. Academic and industrial research has demonstrated a correlation between this property and live biomass. Aber's patented technology converts capacitance into a live biomass reading, typically Cells/ml or g/l for Spun Solids dry weight. However, other units can be derived from the raw capacitance measurements; these may be more relevant to the chosen application. Futura also measures the Conductivity of the medium, in millisiemens per centimeter (mS/cm). Conductivity is not used to measure biomass but is indicative of the production or utilization of ions by the cell suspension, e.g. pH control and other fermentation processes.

Futura comprises 3 primary hardware components together with a variety of software products system configuration, data logging, data analysis and frequency scanning. The hardware components include:

1. A sensor or probe that is immersed in a culture of live cells.

2. A communications Hub or Connect module. The Futura Connect modules come in three variants, allowing connection of one, four or eight Futura-probe combinations. For each connected Futura the Futura Connect can simultaneously output Current Loop and Modbus RTU signals for use with PLCs and other control systems whilst optionally interfacing with a PC over a single USB cable, allowing independent control, calibration, monitoring and logging of all Futuras connected to the system using Aber software.

3. The Futura instrument itself which is the main processing engine of the system. Functions include….

Probe(s)

12 mm Probe
For small bioreactors
headplate mounting

25 mm Probe
For larger bioreactors
DN25 port

Futura(s)

Standard Remote
For restricted space

Standard Futura
For larger bioreactors

Transmitter(s)

Connect 1
Single channel, Current Loop, Modbus, USB

Connect 4
4 channel, Current Loop, Modbus, USB

Connect 8
8 channel, Current Loop, Modbus, USB

V350 Touch
1 Channel Current Loop Colour Touch screen

Software

Futura Tool

Used to
set up Futuras for connecting to the various transmitters

Futura Lite

Free basic logging also operates as an opc server making biomass and conductivity available as tags for a third party SCADA.

Futura SCADA

Multichannel central point of configuration, logging, frequency scanning derived function (Cell size etc) Calculation

FUTURA standard, standard remote & mini remote

FUTURA

STANDARD FUTURA

Lightweight housing suitable for most bioreactors and is ideal for 25mm diameter side mounted probes and 12mm probes on vessels where the centreline of the probe is greater than 15mm from the centreline of the vessel. (Supplied with a 2 metre cable).

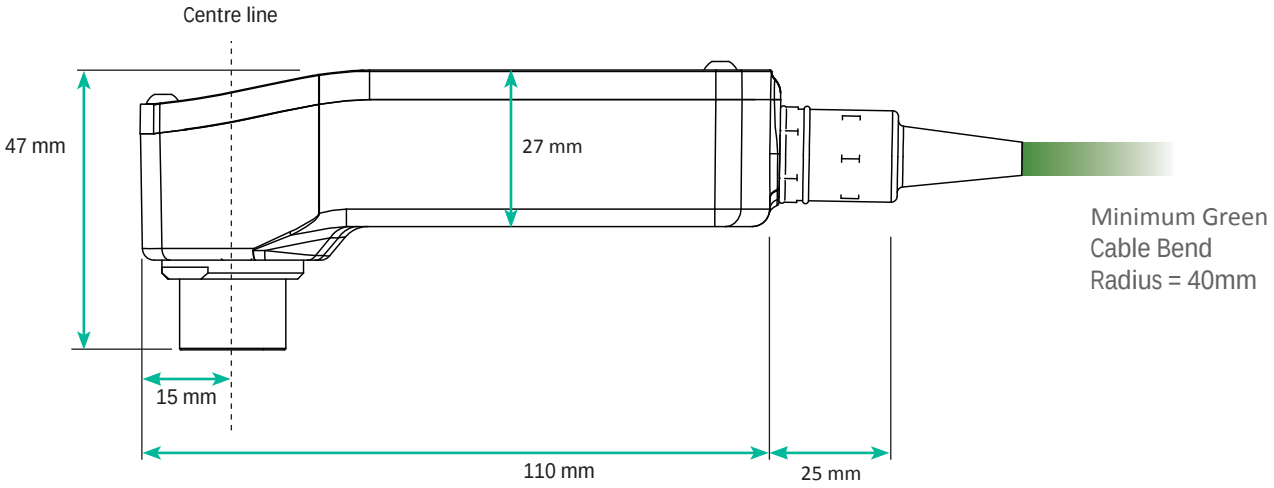
Description	Part Number
STANDARD FUTURA	2330-00

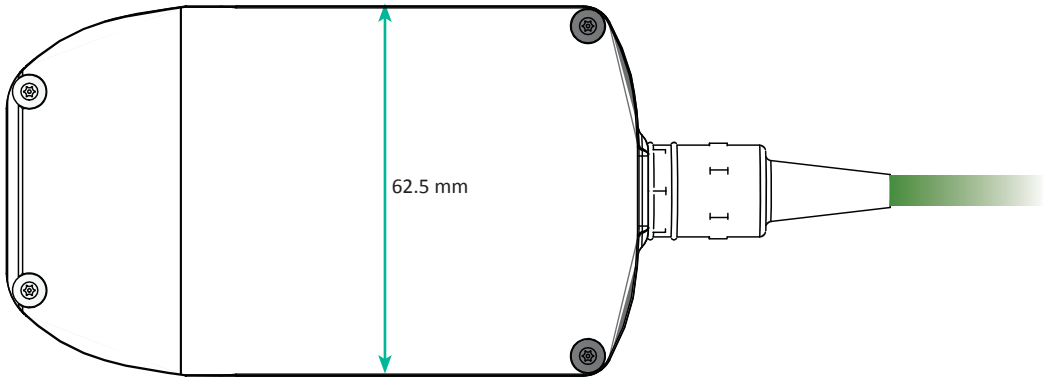
Technical Specifications

Frequency Range:	50KHz to 20MHz
Measuring Ranges:	Capacitance: 0.0 to 400pF/cm Conductivity: 1.0 to 40 mS/cm +/-0.1 mS/cm (Higher ranges available with compatible probes)
Cell Concentration Range:	Depends on cell sizes but typically: Yeast (6 µm): 10^6 cells/ml to 10^{10} Cells/ml Bacteria (1 µm): 10^9 cells/ml to 10^{13} Cells/ml Animal Cell (12 µm): 10^5 cells/ml to 10^9 Cells/ml Plant Cell (50 µm): 10^3 cells/ml to 10^7 Cells/ml
Resolution:	Resolution: 0.1 pF/cm. Bacteria typically 0.1 g/L dry weight or $2x10^9$ Cells/ml for *E. Coli.* Yeast or Animal Cells 0.05g/L or 1 $x10^5$ Cells/ml The relationship of these capacitance values to biomass levels depends upon the cell type and cell line.
Accuracy:	Typically better than ± 3% or ± 2% of the reading
Stability:	Better than ± 0.2 pF/cm at constant temperature with standard conductivity solution of ~12 mS/cm
Linearity:	Better than ± 1% over 100 pF/cm
Precision:	Typically <±0.5 pF/cm, no filter active.
Power Supply:	24V DC power is typically supplied by an Aber Hub running on 110V AC to 240V AC mains.
Environmental:	IP65 rated ; Reccommended ambient operating temperature range: 5°C to 40°C
Weight:	375g

STANDARD FUTURA

Dimensional Measurements





FUTURA

STANDARD REMOTE FUTURA

Standard Remote Futura (SRF)

The design of the Standard Remote Futura is best suited to small vessels where the available head space is often limited to a small footprint. It Incorporates a slim, light-weight pre-amplifier making it ideal for small bioreactors with as low as 100ml working volume. The main Futura housing can be mounted away from the bioreactor vessel. (Up to a maximum of 1 metre).

Description	Part Number
STANDARD REMOTE FUTURA	2343-00

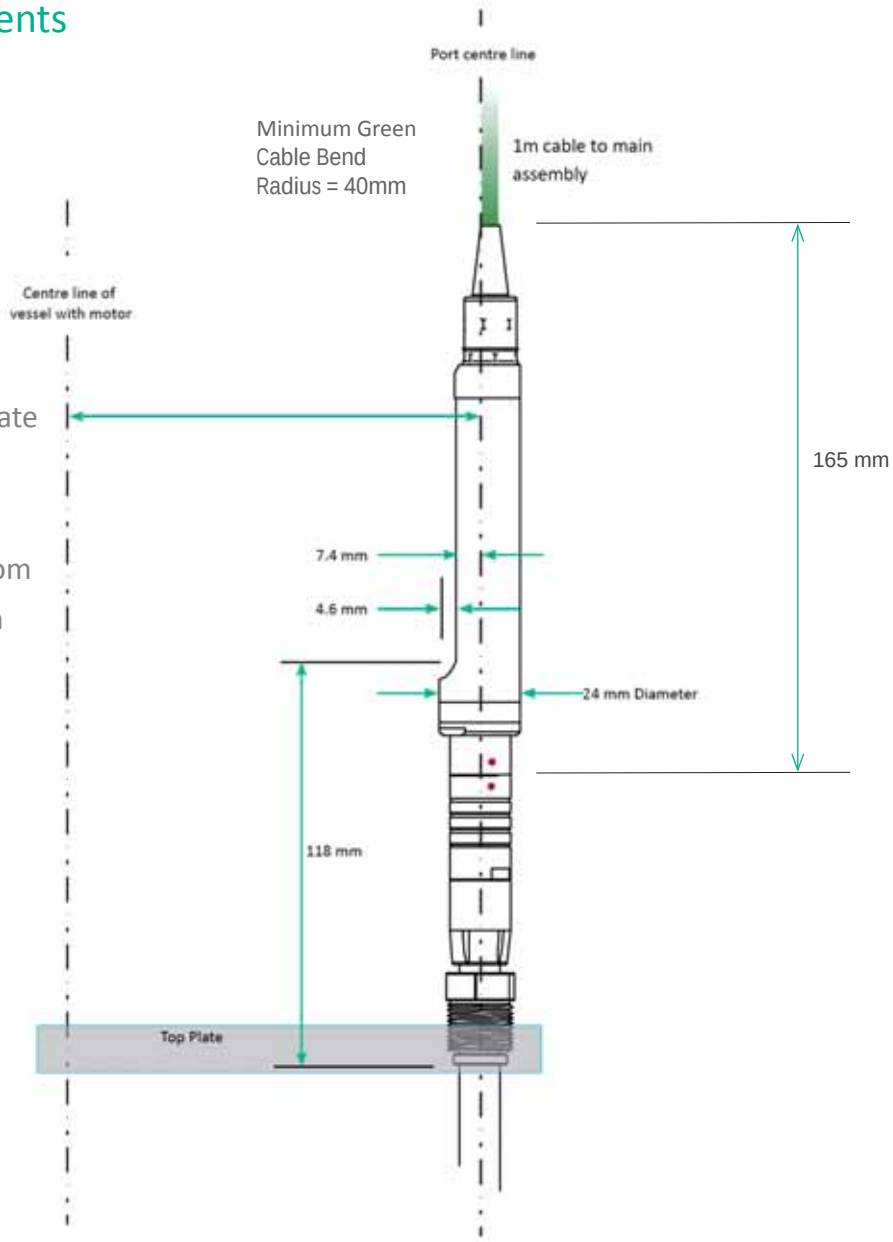
Technical Specifications

Frequency Range:	50KHz to 20MHz
Measuring Ranges:	Capacitance: 0.0 to 400pF/cm Conductivity: 1.0 to 40 mS/cm +/-0.1 mS/cm (Higher ranges available with compatible probes)
Cell Concentration Range:	Depends on cell sizes but typically: Yeast (6 µm): 10^6 cells/ml to 10^{10} Cells/ml Bacteria (1 µm): 10^9 cells/ml to 10^{13} Cells/ml Animal Cell (12 µm): 10^5 cells/ml to 10^9 Cells/ml Plant Cell (50 µm): 10^3 cells/ml to 10^7 Cells/ml
Resolution:	Resolution: 0.1 pF/cm. Bacteria typically 0.1 g/L dry weight or $2x10^9$ Cells/ml for *E. Coli.* Yeast or Animal Cells 0.05g/L or 1 $x10^5$ Cells/ml The relationship of these capacitance values to biomass levels depends upon the cell type and cell line.
Accuracy:	Typically better than ± 3% or ± 2% of the reading
Stability:	Better than ± 0.2 pF/cm at constant temperature with standard conductivity solution of ~12 mS/cm
Linearity:	Better than ± 1% over 100 pF/cm
Precision:	Typically <±0.5 pF/cm, no filter active.
Power Supply:	24V DC typically supplied by an Aber Hub running on 110V AC to 240V AC mains.
Environmental:	IP65 rated ; Reccommended ambient operating temperature range: 5°C to 40°C
Weight:	Main enclosure: 211g ; Remote enclosure: 203g

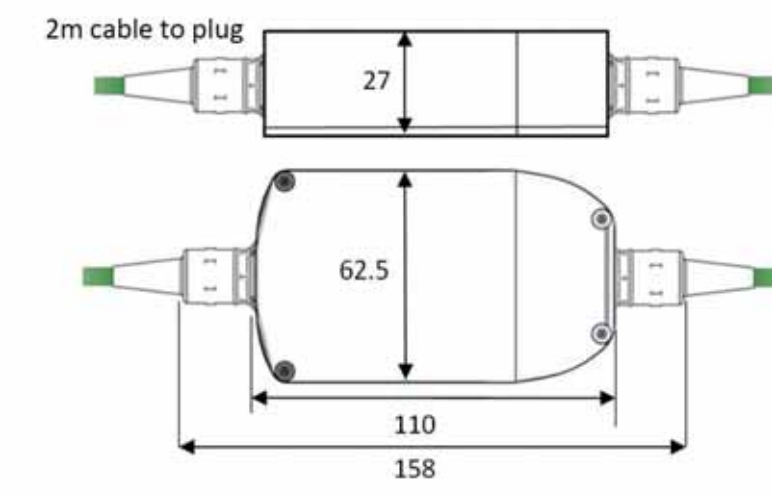
STANDARD REMOTE FUTURA

Dimensional Measurements

The dimensions from the top plate of a vessel and a (top mounted) motor should be such that the motor is higher than 118mm from the plate and more than 7.4mm from the centre line of the port holding the ABER probe.



Main Enclosure



FUTURA connect options

The Futura Connect is a multifunctional hub that interfaces the Futura to the outside world. They provide USB, Modbus and Current Loop connections which allow you to connect the Futura's signals to any bioreactor control system so that the Futura is fully integrated with your process system.

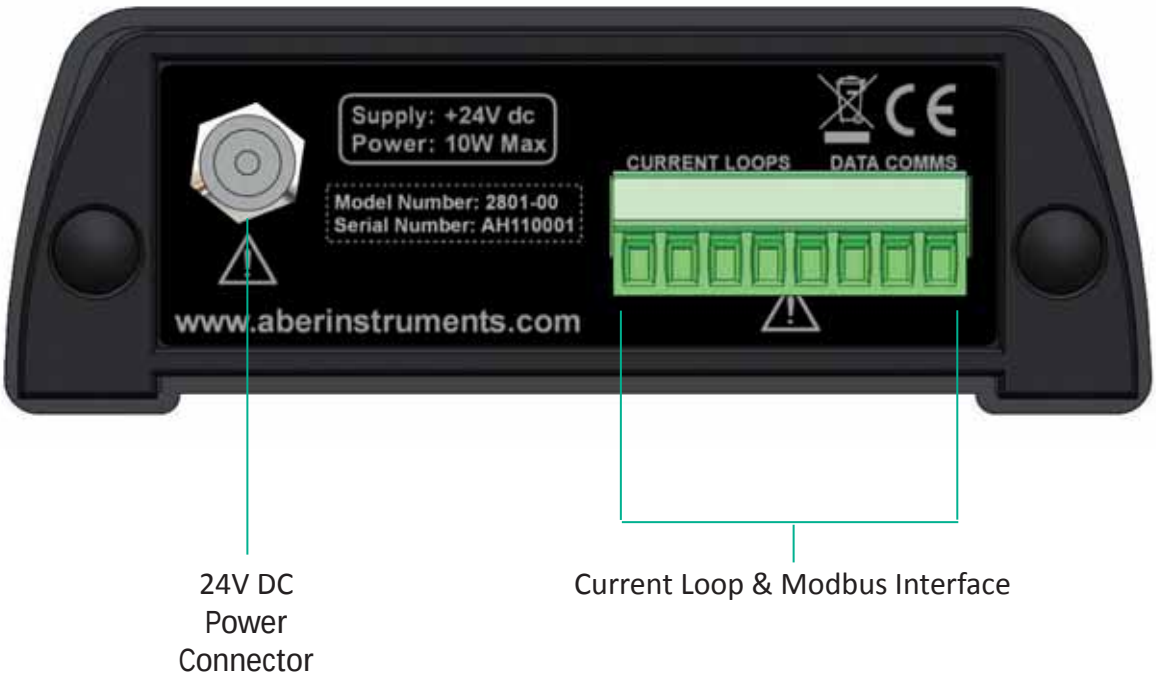
The Futura Connect hubs are available in one, four and eight channel models, which gives you greater flexibility in how you configure your system.

connect details (1 channel shown)

The Front panel provides the FUTURA sockets, with the rear providing both the current loop outputs and the modbus connection point. The 4 and 8 channel connects offer the same connection types but less in number.

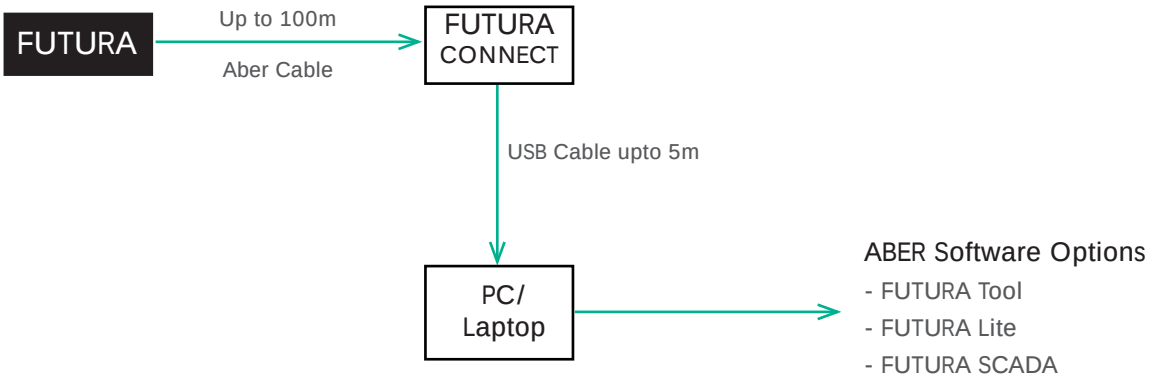
FRONT

REAR



connect - connection features

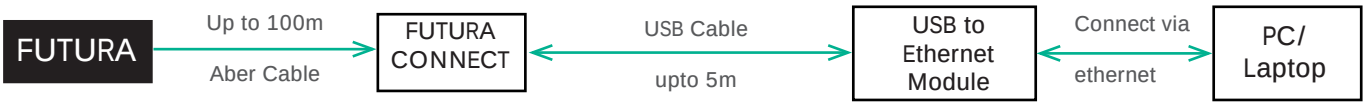
A) FUTURA CONNECT USB



B) FUTURA CONNECT - Modbus (Modbus options are on every 1, 4 and 8 way CONNECT)

C) FUTURA CONNECT - 4-20mA Loop (4-20mA Current Loop options are on every 1, 4 and 8 way CONNECT)

D) FUTURA CONNECT - USB to Ethernet



USB to Ethernet Module

Use an Ethernet module to add connectivity to your FUTURA CONNECT

Description	Part Number
USB to Ethernet Adaptor Module - Belkin FSL009uk or Similar	2801-00

FUTURA

CONNECT 1

FUTURA CONNECT 1

For use with one FUTURA and one bioreactor.

The Futura Connect provides power from a mains electricity supply to the FUTURA

Communication:

- Connects Aber's FUTURA equipment to a PC via a USB port.
- Provides FUTURA equipment with 2 x 4-20mA Current loop outputs.
- Provides FUTURA equipment with a Modbus Interface to SCADA or a controller

Description	Part Number
FUTURA CONNECT 1	2801-00
FUTURA CONNECT 1 - Din Rail Mountable	2820-00

Technical Specifications

Dimensions	Height:	38 mm	Width:	105 mm
	Depth:	145 mm	Weight:	0.7 kg
Power Supply:	Desktop mains power supply. Aber part number: 2880-35 Nominally 110 to 240 volts AC 50/60Hz. Installation Category II			
Power Consumption:	10W Maximum			
Electrical Saftey:	Must use Aber branded external power supply, part number: 2880-35. Safety Standard Applied EN61010. MUST BE EARTHED. Class I - Indoor Use Only.			
Environmental:	Safe ambient operating temperature range: 5°C to 40°C Recommended ambient operating temperature range: 15°C to 30°C Relative Humidity: < 85%. Pollution: Deg 2. (EN61010) Not Waterproof. Recommended operating altitude: < 2000m			

FUTURA
CONNECT 4

FUTURA CONNECT 4

For use with upto four FUTURA and multiple bioreactors

The Futura Connect provides power from a mains electricity supply to the FUTURA

Communication:

- Connects Aber's FUTURA equipment to a PC via a USB port.
- Provides FUTURA equipment with 8 x 4-20mA Current loop outputs.
- Provides FUTURA equipment with a Modbus Interface to SCADA or a controller

Description	Part Number
FUTURA CONNECT 4	2814-00

Technical Specifications

Dimensions	Height:	88 mm	Width:	175 mm
	Depth:	132 mm	Weight:	1.35 kg

Power Supply:	Desktop mains power supply. Aber part number: 2880-35 Nominally 110 to 240 volts AC 50/60Hz. Installation Category II
Power Consumption:	60W Maximum
Electrical Saftey:	Must use Aber branded external power supply, part number: 2880-35. Safety Standard Applied EN61010. MUST BE EARTHED. Class I - Indoor Use Only.
Environmental:	Safe ambient operating temperature range: 5°C to 40°C Recommended ambient operating temperature range: 15°C to 30°C Relative Humidity: < 85%. Pollution: Deg 2. (EN61010) Not Waterproof. Recommended operating altitude: < 2000m

CONNECT 8

FUTURA CONNECT 8

For use with upto eight FUTURA and multiple bioreactors

The Futura Connect provides power from a mains electricity supply to the FUTURA

Communication:

- Connects Aber's FUTURA equipment to a PC via a USB port.
- Provides FUTURA equipment with 16 x 4-20mA Current loop outputs.
- Provides FUTURA equipment with a Modbus Interface to SCADA or a controller

Description	Part Number
FUTURA CONNECT 8	2880-00

Technical Specifications

Dimensions	Height:	88 mm	Width:	175 mm
	Depth:	132 mm	Weight:	1.5 kg
Power Supply:	Desktop mains power supply. Aber part number: 2880-35 Nominally 110 to 240 volts AC 50/60Hz. Installation Category II			
Power Consumption:	60W Maximum			
Electrical Saftey:	Must use Aber branded external power supply, part number: 2880-35. Safety Standard Applied EN61010. MUST BE EARTHED. Class I - Indoor Use Only.			
Environmental:	Safe ambient operating temperature range: 5°C to 40°C Recommended ambient operating temperature range: 15°C to 30°C Relative Humidity: < 85%. Pollution: Deg 2. (EN61010) Not Waterproof. Recommended operating altitude: < 2000m			

FUTURA v350 touch screens

The V350 modules are ideal when you want a local biomass control screen near your bioreactor. It allows you to fully control your Futura using its touch screen. You can easily monitor the Futura's signals at a glance, and feed them directly into your bioreactor control system.

FUTURA
V350 Panel Mount

V350 Touch Panel Mount PLC with 3.5” TFT touch screen

- Connects to any single Futura option and is programmable for different applications.
- Provides power to a single Futura.
- Provides 2 x 4-20mA current loops for capacitance and conductivity.
- Displays graphs of recorded data.
- 1 Futura pass through USB connection
- 1 x Alarm Relay

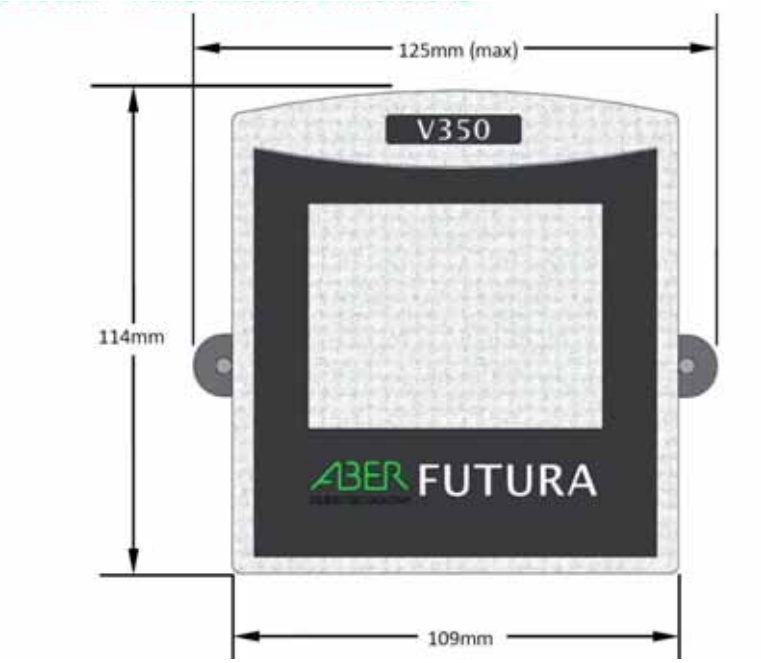
Description	Part Number
V350 Panel Mount	3501-00
V350 DC/DC Supply Isolating Converter - Din RailMountable - Optional	3525-30
V350 AC/DC Supply Isolating Converter - Din Rail Mountable - Optional	3531-30

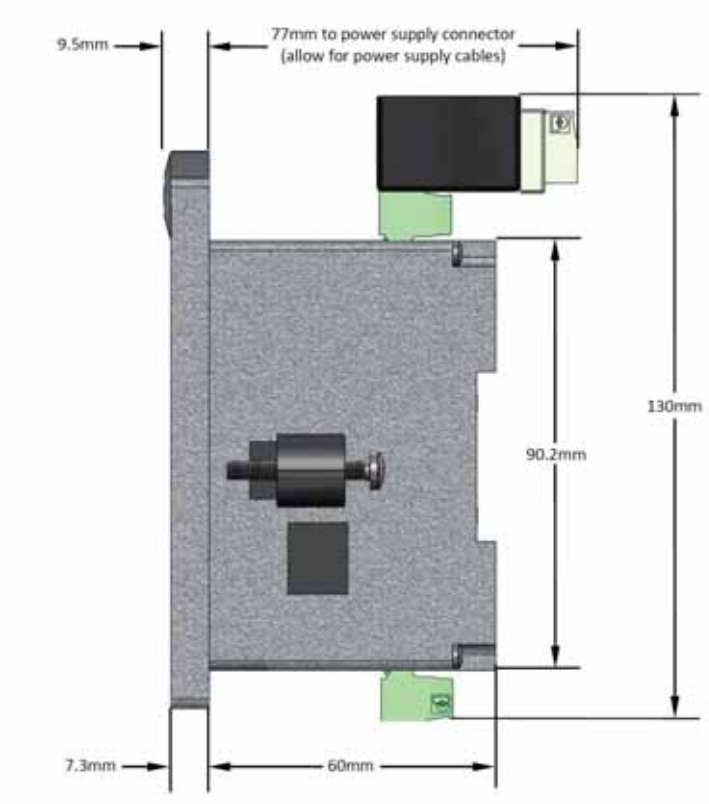
Technical Specifications

Dimensions	Height:	114 mm	Width:	125 mm
	Depth:	87 mm (allow for power supply cables)	Weight:	0.5 kg
Measuring Ranges	Capacitance: 0 to 400pF/cm, equivalent Cells/ml Conductivity: 1 to 40mS/cm.			
Power Supply:	+24V DC			
Power Consumption:	15W Maximum			
Battery Backup:	7 years typical, at 25°C (Clock and Data Only)			
Electrical Saftey:	Must be mounted in a suitable EMC shielded enclosure & grounded. Refer to installation instructions.			
Environmental:	IP65 for fascia, when mounted in suitable panel. Safe ambient operating temperature range: 5°C to 40°C Recommended ambient operating temperature range: 15°C to 30°C Relative Humidity: < 85%. Pollution: Deg 2. (EN61010) Recommended operating altitude: < 2000m			

V350 Panel Mount

Dimensions





FUTURA
V350 Wall Mount

V350 update text here

Connects to any single Futura option and is programmable for different applications.

- Provides power to a single Futura.
- Provides 2 x 4-20mA current loops for capacitance and conductivity.
- Displays graphs of recorded data.
- 1 Futura pass through USB connection
- 1 x Alarm Relay

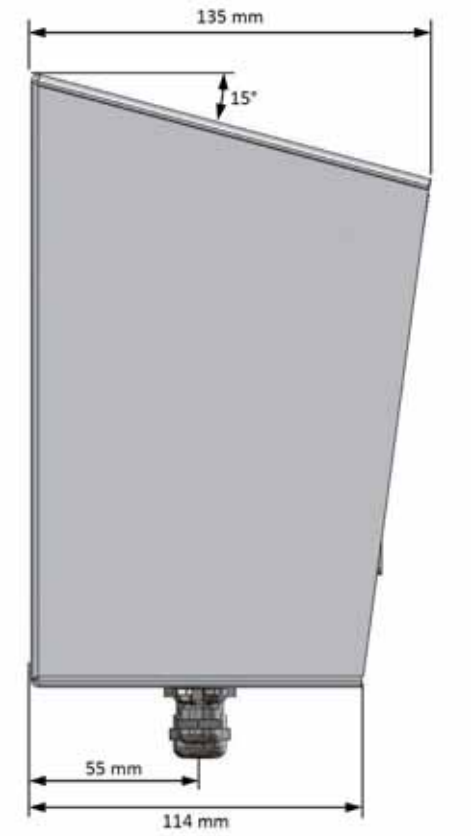
Description	Part Number
V350 Wall Mount	3550-00

Technical Specifications

Dimensions	Height:	200 mm (Allow for Cable Entry)	Width:	165 mm
	Depth:	(Max) 135 mm	Weight:	2.8 kg
Measuring Ranges	Capacitance: 0 to 400pF/cm, equivalent Cells/ml Conductivity: 1 to 40mS/cm.			
Power Supply:	+24V DC			
Power Consumption:	15W Maximum			
Battery Backup:	7 years typical, at 25°C (Clock and Data Only)			
Electrical Saftey:	Must be mounted in a suitable grounding system. Refer to installation instructions.			
Environmental:	IP65 for fascia, when mounted in suitable panel. Safe ambient operating temperature range: 5°C to 40°C Recommended ambient operating temperature range: 15°C to 30°C Relative Humidity: < 85%. Pollution: Deg 2. (EN61010) Recommended operating altitude: < 2000m			

V350 Wall Mount

Dimensions



FUTURA test equipment

Signal Simulator Set - 2 values: Zero and High

0 mS/cm and 0pF/cm - Zero Test
40 mS/cm and 100pF/cm - Conductivity and capacitance test

Description	Part Number
Signal Simulator Set - 2 Values: Zero and High	9050-00
Calibration Certificates for 2 Value Signal Simulator set	9050-60

Signal Simulator Set - 4 values: Zero , Mid, High and Clean Pulse Indicator

0 mS/cm and 0pF/cm - Zero Test
40 mS/cm and 100pF/cm - Conductivity and capacitance test
20 mS/cm and 50pF/cm - Conductivity and capacitance test
Clean pulse indicator

Description	Part Number
Signal Simulator Set - 4 Values: Zero, Mid, High and Clean Pulse Indicator	9070-00
Calibration Certificates for 4 Value Signal Simulator set	9070-60

Description	Part Number
Signal Simulator - Zero Value Only	9051-00
Signal Simulator - Mid Value Only	9071-00
Signal Simulator - High Value Only	9052-00
Signal Simulator - Clean Pulse Indicator Only	9053-00

MRF Signal Simulator Set - 2 values: Zero and High

0 mS/cm and 0pF/cm - Zero Test
40 mS/cm and 100pF/cm - Conductivity and capacitance test

Description	Part Number
MRF Signal Simulator Set - 2 Values: Zero and High	7925-00
Calibration Certificates for 2 Value MRF Signal Simulator set	7925-60

Probe Tester - FUTURA and BM220

The Aber Instruments Probe Tester has been specially designed to carry out checks on the integrity of any type of pinned or annular probe used with the 200/210/220/230 (2nd Generation) range of Biomass Monitor or Futura (3rd Generation).

The Probe 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.
The Probe Tester has an LCD display that allows the user to quantify and track the changes of a probe condition

Description	Part Number
FUTURA / BM220 Probe Tester	1480-00

FUTURA software

FUTURA
Software

The capabilities of the FUTURA Biomass monitoring system is further enhanced when combined with the FUTURA Software developed by ABER. FUTURA Tool, FUTURA Lite and FUTURA SCADA deliver greater online connectivity, data analysis & mining capabilities, providing better insights throughout your Online Biomass Process. Futura Tool and Futura Lite are provided free of charge with the purchase of a Futura system.

FUTURA TOOL Setup Software

FUTURA TOOL enables the end user to:

- Configure FUTURAs for use with all Hub and Connect options, the V-350 PLC or the Biomass Monitor Model 220
- View diagnostic information and set-up appropriate controls Eg current loop scaling or Modbus baud rate
- Carry out custom probe calibrations, upgrade FUTURA firmware and collect diagnostic information about their process

Description	Part Number
FUTURA TOOL	2860-35

FUTURA Lite - Free introduction level package

FUTURA Lite is a simple, quick PC program:

- Fast trials of the FUTURA System
- Optimize and set up the mode for a single FUTURA
- Log capacitance and conductivity over defined intervals
- Export data into Excel format
- Connect software to local or remote standard OPC clients

For advanced functionality, muliple channel features and GAMP 5 compliance, see FUTURA SCADA software options.

Description	Part Number
FUTURA Lite	2870-35

FUTURA
SCADA Software

FUTURA SCADA is a GAMP 5 compliant software package that allows the end user on one screen to:

- Set up and then optimise each individual FUTURA system
- Provide continuous data collection for any number of FUTURA systems with an events time line.
- Provide frequency scanning to calculate some additional parameters (including delta C, critical frequency, Cole-Cole alpha) and derive information on the cells including cell bio-volume and diameter.
- Carry out retrospective analysis of seperate data sets from different experiments - data is easily exported to excel via simple csv files.
- Monitor probe life parameters

Description	Part Number
Scanning - Adds Live Scanning Analysis and Post Processing Analysis	2893-35
Annual Support Fee - (20% of SCADA Cost) Contract Includes All Upgrades and Full Phone/Email Support	2893-68

Minimum System requirements

Microsoft Windows XP Service Pack 3, Microsoft Windows Vista, or Microsoft Windows 7
2GB RAM or higher
1.6GHz Intel Atom or higher
At least 20% free hard drive space, 5GB minimum
At least one free USB 2.0 port
Administration privileges in order to install all the programs parts
A screen resolution of at least 1336 x 768 pixels

FUTURA validation & calibration

IOQ validation package

Full System validation documentation

Description	Part Number
IOQ Validation Package, Includes Certificates - One Futura with Connect 1 or V350	2330-60
IOQ Validation Package, Includes Certificates - Connect 4 with One Futura	2814-60/01
IOQ Validation Package, Includes Certificates - Connect 4 with Two Futuras	2814-60/02
IOQ Validation Package, Includes Certificates - Connect 4 with Three Futuras	2814-60/03
IOQ Validation Package, Includes Certificates - Connect 4 with Four Futuras	2814-60/04
IOQ Validation Package, Includes Certificates - Connect 8 with One Futura	2880-60/01
IOQ Validation Package, Includes Certificates - Connect 8 with Two to Eight Futuras (Refer to Price list for breakdown)	2880-60/08

Probe Certificate of Conformance

By default a probe is shipped with a simple standard certificate of traceability. If you wish to have a full breakdown of all the materials used in the production of a probe then please order the 'Probe Certificate of Conformance' package for each probe. Contact Aber if you wish to see an example of the documentation you will receive.

Description	Part Number
Probe Certificate of Conformance - For One Probe, Probe Not Included	6520-64

Signal Simulator Certificate

Signal Simulator certificates show that the units are working as intended and are linked to international standards.

Description	Part Number
Signal Simulator Recalibration, 2 Values Set, Includes Certificates	9050-62
Signal Simulator Recalibration, 4 Values Set, Includes Certificates	9070-62
MRF Signal Simulator Recalibration, 2 Values Set, Includes Certificates	7925-62
Probe Tester Recalibration, Includes Certificate	1480-62

FUTURA probes

FUTURA
Probes

Aber Instruments has a wide range of probes to suit all applications, they are available in 12mm diameter ideal for small bioreactors and 25mm diameter for larger vessels. All probes are Electro-polished and passivated. Options for USP class VI and FDA CFR21 177 certificates.

By default a probe is shipped with a simple standard certificate of traceability. If you wish to have a full breakdown of all the materials used in the production of a probe then please order the 'Probe Certificate of Conformance' package for each probe. Contact Aber if you wish to see an example of the documentation you will receive.

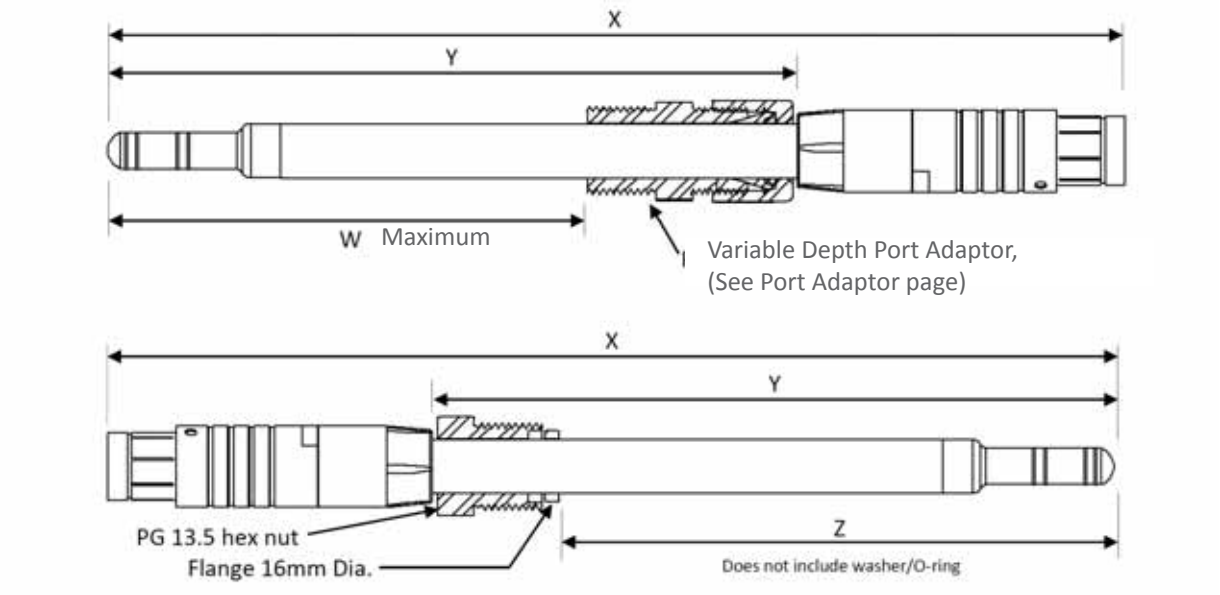
All probes supplied by Aber Instruments will work in all situations, however the annular probe performs best in highly aerated systems. In cell culture in large vessels the flush probe is more robust.

25mm - Large Vessels

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

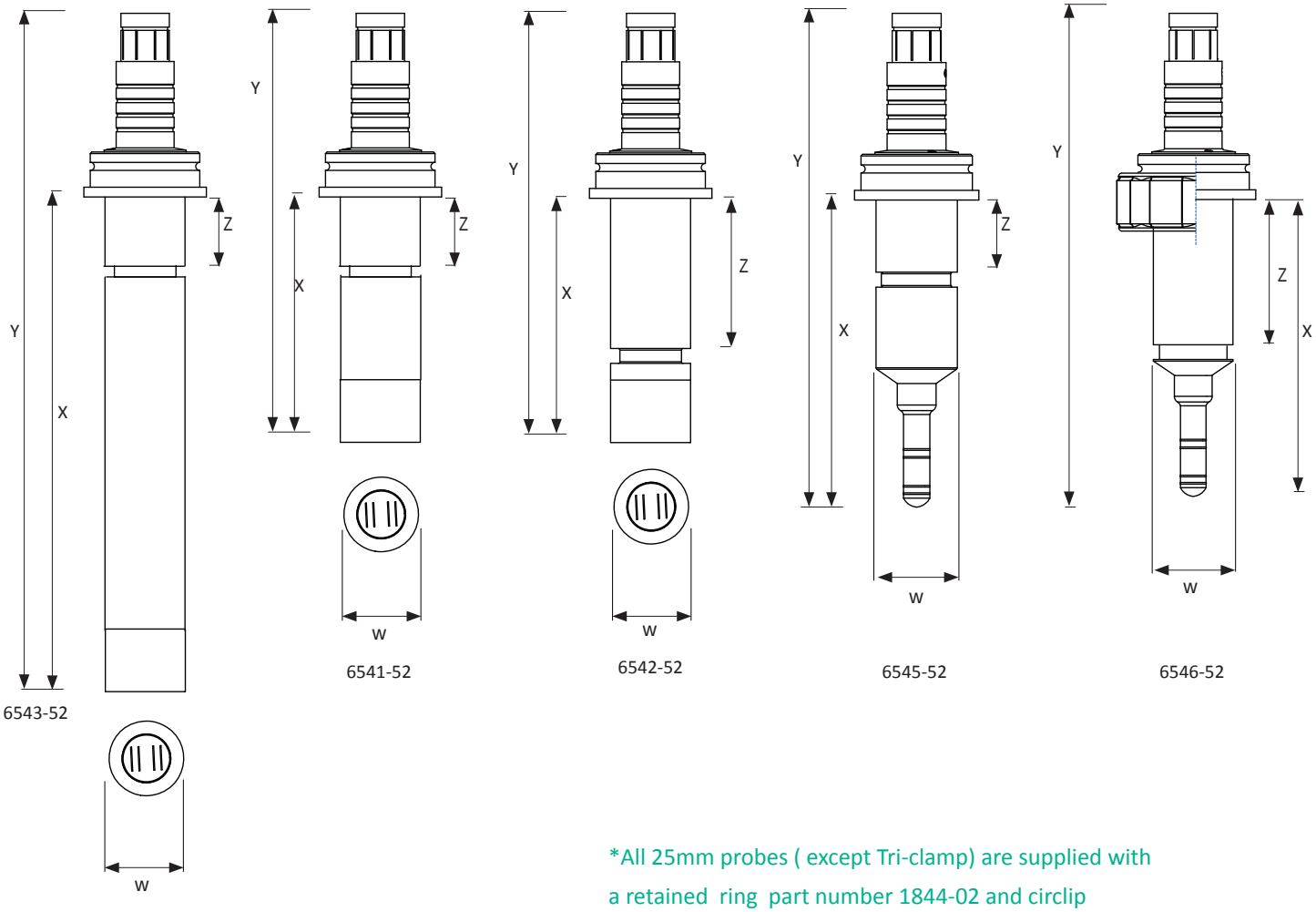
12mm - Small vessels, top mounted

	Cell Culture	Microbial	Bacterial
12 mm Annular	Recommended	Recommended	Recommended



12mm Annular Probes

Part Number	Description	Overall Dimensions			
		W	X	Y	Z
6531-52	Annular Electrodes 12 x 120mm Stainless Steel / Fortron	105	223	152	-
6531-52/PG	Pre fitted PG13.5 nut. Annular Electrodes 12 x 120mm Stainless Steel / Fortron	-	223	152	128
6532-52	Annular Electrodes 12 x 220mm Stainless Steel / Fortron	205	323	252	-
6532-52/PG	Pre fitted PG13.5 nut. Annular Electrodes 12 x 220mm Stainless Steel / Fortron	-	323	252	-
6530-52	Annular Electrodes 12 x 320mm Stainless Steel / Fortron	305	423	352	-
6530-52/PG	Pre fitted PG13.5 nut. Annular Electrodes 12 x 320mm Stainless Steel / Fortron	-	423	352	-
6535-52/PG	Pre fitted PG13.5 nut. Annular Electrodes 12 x 425mm Stainless Steel / Fortron	-	555	482	425
6534-52	Annular Electrodes 12 x 450mm Stainless Steel / Fortron	435	555	482	-
6534-52/PG	Pre fitted PG13.5 nut. Annular Electrodes 12 x 450mm Stainless Steel / Fortron	-	555	482	458



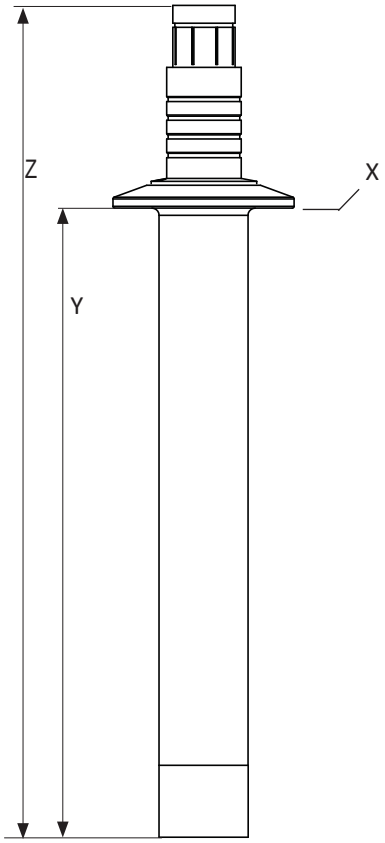
*All 25mm probes (except Tri-clamp) are supplied with a retained ring part number 1844-02 and circlip

25mm Flush Probes

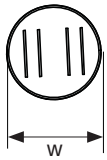
Part Number	Description	Approx Dimensions			
		W	X	Y	Z
6543-52	Probe Flush Electrodes 25 x 175mm Stainless Steel / Fortron	25	175	239	22
6541-52	Probe Flush Electrodes 25 x 75mm Stainless Steel / Fortron standard o-ring position	25	75	132	22
6542-52	Probe Flush Electrodes 25 x 75mm Stainless Steel / Fortron for use with some Braun saftey ports	25	75	132	46
6545-52	Probe Annular Electrodes 25 x 96mm Stainless Steel / Fortron standard o-ring position	25	96	154	22
6546-52	Probe Annular Electrodes 25 x 96mm Stainless Steel / Fortron for use with some Braun saftey ports	25	96	154	47

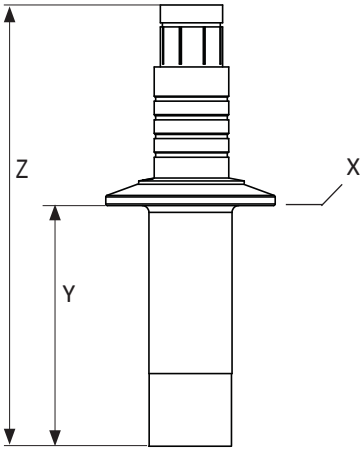
Futura Probes with certificates

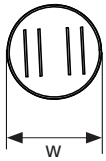
Futura Probes with certificates - Add certificate Package Pt. No. 6520-64 for each probe purchased



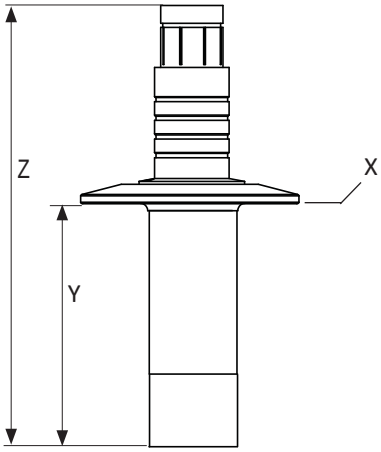
6551-52







6552-52



6553-52

Tri clamp probes

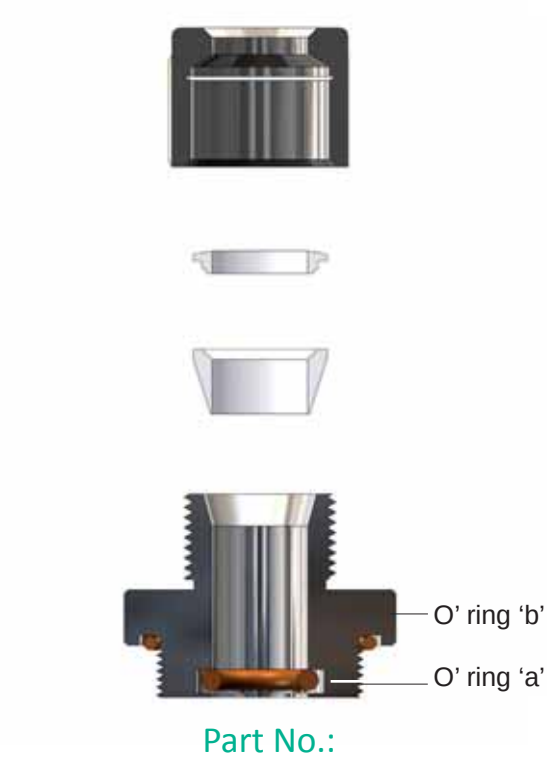
Part Number	Description	Overall Dimensions			
		W	X	Y	Z
6551-52	Probe Flush Electrodes 25 x 175mm Stainless Steel / Fortron with size 1 - 1.5” Tri-clamp flange, can be used with NovAseptic ports.	25	50.4 (1.984”)	175	225
6552-52	Probe Flush Electrodes 25 x 70 mm Stainless Steel / Fortron with size 1 - 1.5” Tri-clamp flange, can be used with NovAseptic ports.	25	50.4 (1.984”)	70	120
6553-52	Probe Flush Electrodes 25 x 70 mm Stainless Steel / Fortron with size 2” Tri-clamp flange, can be used with NovAseptic ports.	25	63.9 (2.516”)	70	120

Futura Probes with certificates

Futura Probes with certificates - Add certificate Package Pt. No. 6520-64 for each probe purchased

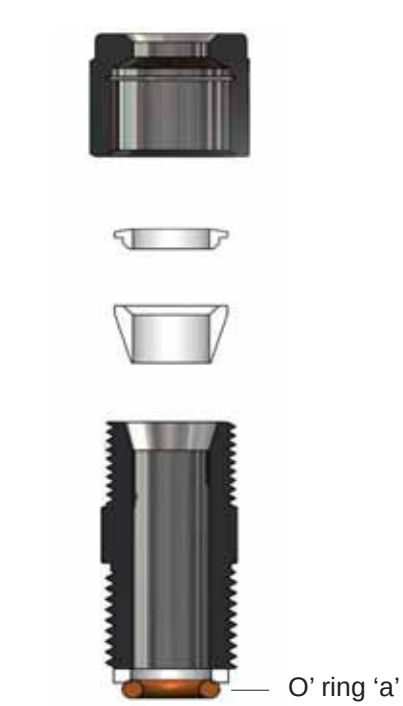
FUTURA
Port Adaptors

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. The o’rings provide a seal and the nut with nylon ferrules lock the probe in place.



Part No.:
1295-12 & 1296-12

Part No.:
1273-12



Part No.:
1430-22

Port Adaptors

Part No.	Description	Wetted O’ring ‘a’	Sealing O’ring ‘b’	Sealing Washer ‘c’	Mating thread
1295-12	12mm probe to 19mm Braun Sartorious metric port	Silicone FDA 10.78 x 2.62	EPDM 26.7 x 1.78	-	26 x 1 mm PITCH
1296-12	12mm probe to 19mm Appplikon imperial port	Silicone FDA 10.78 x 2.62	EPDM 26.7 x 1.78	-	3/4” BSP
1273-12	12mm probe to 19mm New Brunswick metric port	Silicone FDA 10.78 x 2.62	-	Silicone FDA 19 x 3.5 x 2	26 x 1 mm PITCH
1430-22	PG 13.5 Adaptor for 12 mm probes	Silicone FDA 10.78 x 2.62	-	-	PG 13.5

FUTURA extension cables

Extension cables

Inline Female Connector end

Inline Male Connector end

Inline Extensions	Part Number
5 metre extension cable	1630-24/5
10 metre extension cable	1630-24/10
15 metre extension cable	1630-24/15
20 metre extension cable	1630-24/20
25 metre extension cable	1630-24/25
30 metre extension cable	1630-24/30

Bulk Head Female Connector end

Bulk Head Male Connector end

Bulkhead Extensions	
1 Metre Bulkhead Extension Cable	1635-24/1
5 Metre Bulkhead Extension Cable	1635-24/5
10 Metre Bulkhead Extension Cable	1635-24/10
15 Metre Bulkhead Extension Cable	1635-24/15

Return to Manufacture

For any Return to Manufacture (RMA) return, please request an RMA form from your local Aber

distributor or directly from rma@aberinstruments.com . This will ensure that the items pass through customs without any uneccassry cost or delay.

Description	Part Number
Base charge part number for any system's repair assesment and full quote.	**9000-27**

- On receiving the equipment Aber will asses the unit/s and repair work needed and inform you of the options, including a full quote.
- Repair work will not commence until the quote has been formally accepted and a purchase order received.
- Individual parts repair work will be assessed and charged on a piece by piece basis.

FUTURA customer service & support

Sales Contact Details

Please direct your enquiries to the appropriate contacts below

Orders

Please send your purchase orders or delivery schedule enquiries to:

Sales Orders & Despatch	Despatch
Debbie Salvoni orders@aberinstruments.com +44 (0)1970 636 300	Gavin Richards gavin@aberinstruments.com +44 (0)1970 636 300

Sales

For any Sales enquiries please direct them to:

Director Of Sales & Marketing	European Sales Manager
Dr. John Carvell johnc@aberinstruments.com +44 (0)1970 636 300	Mr. David Anderson Dave@aberinstruments.com +44 (0)1970 636 300

Marketing & Sales Co-ordinator

For any Marketing resource needs or to resolve any ordering problems you may have please direct them to:

Marketing & Sales Co-ordinator
Mr. Eifion Loosley Eifion@aberinstruments.com +44 (0)1970 636 314

Customer Service & Support

www.aberportal.co.uk

Support Contact Details

Please direct your enquiries to the appropriate contacts below

Customer Technical Support

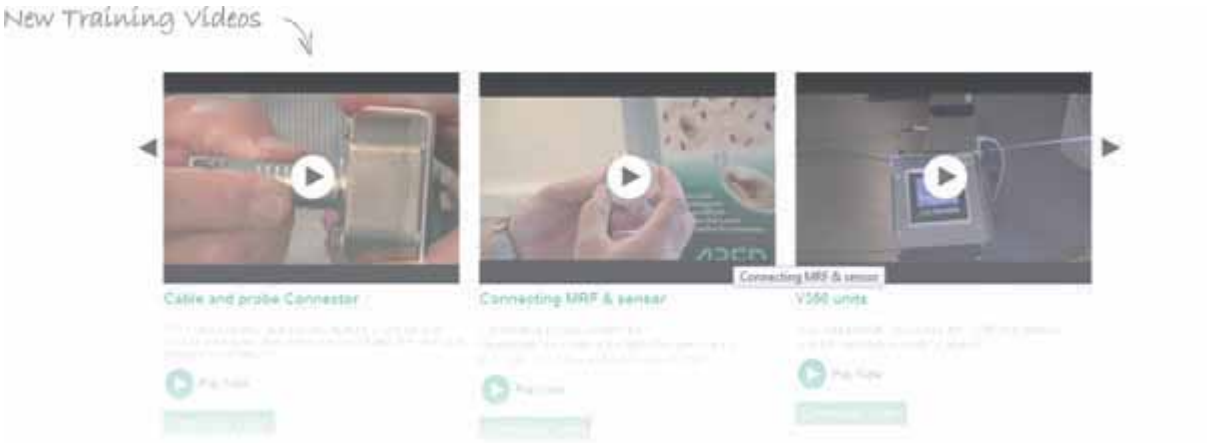
For any technical queries you may have prior or post purchase for any Aber system, please initially direct them to:

Technical Support	Technical Support
Mr. Matthew Lee matt@aberinstruments.com +44 (0)1970 636 300	Dr. Aditya Bhat aditya@aberinstruments.com +44 (0)1970 636 300

Distributor Network

Aber operates through a global network of Distritors, please find details of your local distributor at our website under the biotech distributor section or navigate via this link:

www.aberinstruments.com/biotech-distributors



Customer Resource Portal

The Aber Customer resource Portal for distributors and customers gives access to a range of product and training videos, Product and system manuals and demo Software, along with marketing support material for distributors. If you are a current distributor or Aber customer, please send your portal login request to: portal@aberinstruments.com

Software product key requests

Please direct your demo software key requests to:portal@aberinstruments.com

ISO 9001 REGISTERED FIRM
No. 35664

ABER
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