



mikura

PROTOCOL 1-251 2
VOLUME 20.1

STOP

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The philosophy behind Mikura

Continuous innovation in the diagnostics market creates a demand for flexible and innovative solutions. Mikura was founded in 1997 with the objective of filling the widening gap between demand and supply in the European diagnostics instrumentation manufacturing industry.

We at Mikura believe that our strength lies in the ability to respond quickly to this fast moving market. In so doing, we rely on our substantial technical know-how, accumulated over many years of experience within the industry. Our design and development team is behind some of the best known instrumentation made in this sector over the past 25 years.

Being a small, independent company, means flexibility is one of our strengths.

Our products are designed with their technology exposed. On the one hand this guarantees that the user can access all serviceable parts quicker and more easily than in most other instruments in this field. It also enables the user to visually control the instrument's process at all times. On the other hand it also means that we can easily customise our instrumentation to many various potential applications as they emerge in this innovative sector.

Take for example our microplate processors. The manipulation of the plate is virtually limitless. We can make our machines as long and as tall as we need them to be while still using our standard stock of components. We can fit as many pump heads as you require, add filling or wash heads, magnetic separation for magnetic beads, orbital or linear shaking and plate incubation – all within our basic instrument construction, using the same mouldings and our stock of machined components.

We tend to limit our dependency on outside suppliers. This is because we want to stay quick and flexible without compromising on quality. We manufacture our own pumps, our own bottle tops, our own electronic control boards, liquid level detectors and many other tiny components which we require for our instruments.

Our growing range of semi standard equipment and our versatile customer base gives us the complete confidence in our philosophy.



Autura 1000 Microplate Washer

Autura 1000 is a unique processor for the fully automated washing and filling of both, 96 and 384 well microplates, including deep well and filter bottom formats.

It is designed to achieve a fast and reliable microplate processing with high precision and repeatability, whilst allowing the user a multitude of individual adjustment possibilities.

- Accurate dispensing precision and low residual volumes.
- Optional aerosol protection cover.
- Unique open construction for easy integration with robotic systems.
- Plate sweep for the lowest residual volumes.
- Up to 25 user programmable wash protocols.
- Liquid level sensing in all reservoirs with audible and visual warning system.
- Extremely easy to clean and maintain.
- Autura accommodates all variants of 96 and 384 well microplates.
- Optional automatic rinse through wash head at set intervals.
- RS232 port ensures Autura's robotic integration.
- Remote control software available.

Additional features

- Easy exchange of wash heads.
- Heads availability in 8, 12, 16, 24 and 48 concentric tip configurations.
- Easy to read back illuminated full alpha numeric display.
- Autura operates on 12V DC, supplied via an external switch mode power supply, thus enhancing operational safety.
- Separate dispense and aspirate channels reduce the possibility of cross contamination.
- Compact design.
- CE marked.

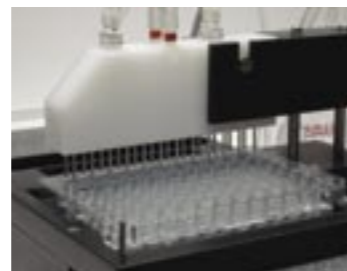


Technical specification	
Operating voltage/Hz	100-240V AC 50/60Hz
Max Current requirement	52VA
Dispense reservoir	Up to 3 x 2 litres
Waste reservoir	2 litres
Residual volume	3µl per well typical action or 1µl per well with sweep
Precision	CV = +/- 3%@300µl
Dispensing volume	25-1500µl in 25µl increments
Speed	2.5 mins*
Weight of complete system	9.2kg
Dimensions of complete system	350(w) x 650(d) x 350(h)mm

* to complete a 3 wash cycle using a double row 12 way head, 350µl/well, 96 well plate

Ordering information

8 channel washer	(96 well plates)	8.1000
12 channel washer	(96 well plates)	12.1000
16 channel washer	(96 well plates)	16.1000
24 channel washer	(96 well plates)	24.1000
48 channel washer	(384 well plates)	48.1000



2 X 12 Wash head



Wash head for 384 well plate



Aerosol cover



RS232 remote interface software
Also available for the Autura 500

Autura 500 Microplate Filler

Autura 500 is the new unique processor for the filling of 96 and 384 well microplates.

It is designed to achieve fast and reliable microplate filling with high precision and repeatability, whilst allowing flexibility to accommodate various custom requirements.

Up to two reagent pumps can be used to fill the plates simultaneously or subsequently. Incubation period between the filling is adjustable by the user.

The unit can be configured to fill deep well and filter bottom plates.

- Accurate dispensing using a precision peristaltic pump.
- Optional aerosol protection cover.
- Unique open construction for easy integration with robotic systems.
- Up to 25 user programmable protocols.
- Optional liquid level sensing in reservoirs with audible and visual warning system.
- Extremely easy to clean and maintain – reagent tubing replacement in seconds.
- Quiet in operation.
- RS232 port ensures Autura's robotic integration.
- 8 and 16 individual reagent channels.
- CE marked.



Up to 25 user programmable protocols



2 X 8 Fill head for multiple reagents

Additional features

- Head and entire liquid path is easy to disassemble for cleaning.
- Reagent recovery feature eliminates any wastage of reagents.
- Works directly with any reagent reservoir supplied by the user.
- Easy to read, back illuminated full alpha numeric display.
- Autura operates on 12V DC, supplied via an external switch mode power supply, thus enhancing operational safety.
- Moving dispense head allows accurate filling from any height.
- Can be configured for deep well microplates.
- Compact design.

Technical specification

Operating voltage/Hz	100-240V AC 50/60Hz
Max current requirement	52VA
Dispense reservoir	User specified
Precision	CV= +/- 3%@300µl
Dispensing volume	10-400µl
Weight of complete system	6.0kg
Dimensions of complete system	320(w) x 520(d) x 280(h)mm
Speed	22 seconds to fill a plate

* 200µl per well/96 well plate double row head

Ordering information

8 channel fill	(96 well plates)	8. 500
16 channel fill	(96 & 384 well plates)	16. 500



Ventura 2000 Shaker/Incubator

Ventura 2000 is a unique micro processor controlled shaker incubator that accommodates up to four microtitre plates of any format.

Three parameters, speed, temperature and time, are programmed via the control panel. Count down remaining time as well as the other two parameters are displayed on the back lit LCD.

Each of the four plates can be timed individually. An alarm sounds to notify the user when the time has elapsed for the particular plate.

The plates remain visible to the user at all times under the clear protection cover.

- Easy access to all four plates at all times for loading and unloading under hinged lid.
- Uniform heating via air circulation.
- Unique open construction for easy integration with robotic systems.
- Remote low voltage supply for your safety.
- Automatically adjusts to all voltage supplies from 100V to 240V, 50/60Hz.
- Minimum bench space requirement.
- Easy to clean and maintain.
- Available for deep well plates.
- CE marked.

Technical specification	
Operating voltage/Hz	100-240V AC 50/60Hz
Remote power supply	24V/5.4A
Max current requirement	130W
Heater power	100W
Adjustable temperature range	5°C above ambient to 50°C
Temperature uniformity	±1°C
Readout precision	±1°C
Operational conditions	12°C to 30°C
Adjustable timer	1-999 minutes in 1 minute steps
Shaking orbit	1.5mm inclusive
Adjustable speed	600 to 1300 in 10rpm steps
Weight of complete system	3.5 kg
Dimensions of complete system	200(w) x 520(d) x 220(h)mm
Ordering information	
4 Plate shaker incubator for standard plates	4.300
4 Plate shaker incubator for deep well plates	4.350



Optica Microplate Photometer

8 channel ELISA photometer for 96 well microplates.

- Two optical filters built-in as standard
- Optional addition of two more filters
- Full on board controls or control via PC
- Accommodates all 96 well plate types
- 8 independent channels
- Quiet and reliable
- Minimal footprint
- CE Marked

The Optica Plate Reader can be operated using either the on board software via its membrane key panel or through a PC. Results can be printed utilising a dot-matrix printer connected directly to Optica's printer port or to any printer which is connected to the PC.

The Optica software lets you run up to 10 different assays per session with plates containing up to 12 standards and 12 controls. Assays can be configured and saved on the hard disc – ready for future use.

The software enables the processing of a qualitative – or a quantitative assay with qualitative interpretation which is visualised in a graph.

Individual data cards can be generated for each patient and all test results can be saved or printed out.

Technical specification	
Reading principle	8 independent channels mono or biochromatic reading
Light source	8 independent tungsten bulbs
Detectors	8 silicon photodiodes
Optical Filters	2 filters supplied as standard (450nm & 630nm) 2 additional filters upon request
Reading range	405nm to 700nm
Reading time	16 seconds – full plate monochromatic reading 32 seconds – full plate biochromatic reading
Accuracy	± 1% from 0.000 to 1.500OD ± 2% from 1.500 to 3.000OD
Result curves	Direct plotting point to point, linear regression and 4 parameters (log-logit)
Results calculation modes	OD, direct or calculated cut-off, single calibrator, programmable curves from 2 to 12 points
On-board display	2 X 20 character
Printer interface	Printer port for a dot-matrix printer
PC Interface	RS232 to PC running Windows 98/NT/2K/XP
Plate shaking	Timed linear shaking
Dimensions – main unit	200(w) X 577(d) X 240(h)mm
Weight complete system	8.2Kg
Power requirement	230/110V AC, 50-60Hz, 110W

Ordering information	
Automatic microplate reader	8.600



Optica software



The 200 Series Washer

The 200 Series Washer – the most user friendly manual washer on the market.

The user can choose to process the plate either in its storage position – on top of the pump unit or, down on the labtop surface.

- Quiet and reliable operation in a compact modular format.
- Accurate dispensing and low residual volumes.
- Adjustable dispense pressure.
- Adjustable aspirate force (optional).
- Filtered pump inlet and silenced outlet.
- Fully autoclavable, metal free fluid path.
- Colour coding for easy maintenance and system modularity.
- Extremely easy to clean.
- Small footprint, compact in storage.
- 8 or 12-way wash heads, optional aspirate probes and fill manifolds.
- Optional wash head with angled tips for washing Allergen discs.
- 12V DC remote power supply for piece of mind and added safety.
- CE Marked.

Technical specification

Operating voltage/Hz	100-240V AC 50/60Hz
Max current requirement	12VA
Dispense reservoir	2 litres bottle
Waste reservoir	2 litres bottle
Weight of pump unit	3.0kg
Weight of complete system	4,8kg
Dimensions mm (with reservoirs)	250 width x 300 depth x 250 high

Ordering information

8 Channel Washer complete	8.200
12 Channel Washer complete	12.200
8-Way Manifold + Carrier and Tubing	200.108
12-Way Manifold + Carrier and Tubing	200.112
8-Way Manifold + Carrier and Reservoir Kit	200.208
12-Way Manifold + Carrier and Reservoir Kit	200.212
8-Way Manifold	200.008
12-Way Manifold	200.012



Microplate at bench top level stays on holder for ease of use



Biological filter on wash reagent bottle



Inca Microplate Incubator

The personal microplate incubator for reliable, accurate and long-life operation.

- Variable temperature control as standard.
- Temperature or elapsed time display.
- Built-in timer with buzzer.
- Minimum evaporative losses with uncovered plates.
- Accommodates all plate types.
- Easy microplate location.
- Quiet and reliable.
- Minimal footprint
- No maintenance required.
- Available in various colour combinations.*
- Low voltage for added safety.
- Ideal for field applications.
- CE Marked.

Whether a laboratory technician or a diagnostic kit manufacturer the Inca is the natural choice for single microplate incubation.

Laboratory bench space is costly. However, with a footprint of just 120mm x 180mm, Inca offers the most economical and advanced technical solution.

The use of unique design and advanced electronic temperature control circuitry guarantees an outstanding stable and accurate performance combined with quiet and long operating life.

Technical specification

Temperature range	5°C above ambient to 45°C
Accuracy	>+/- 0.5°C of set temperature
Dimensions – main unit	120(w) X 180(d) X 100mm(h)
Weight complete system	920g
Heater power	15 watts
Operating voltage	100-230Vac 50/60Hz
Power consumption	1.25A
Power supply	12V 2A DC, centre +
Environmental operating temperature	10° C 40°C
Environmental storage temperature	4° C 40° C
Fuse rating	1.25A T
3 Digit LCD temperature display	
Case material	ABS

Ordering information

Inca Personal Incubator for standard plates	1.090
Inca Personal Incubator for deep well plates	1.095

* Customised logo and colour combinations are available at extra cost for minimum order quantities



Inca for deep well plate

Orbis
Personal Plate and Tube Shaker

The personal microplate shaker designed for reliable, efficient and long-life operation.

- Minimal footprint.
- Open construction for easy integration with robotic systems.
- Easy microplate location with robot arm pick-up recess.
- Accommodate all styles of microplate.
- Momentary shaking action.
- No maintenance required.
- Brush less DC motor for a quiet and reliable long life.
- Variable speed control.
- Timer – from 1 minute to 180 minutes (Orbis Plus only).
- Counter balanced orbital shaking for stable and efficient operation.
- Available in various colour combinations.*
- Clear Lid (standard on Orbis Plus).
- Low operating voltage for added safety.
- Ideal for field applications.
- Washable, anti-slip mat.
- CE Marked.

Whether a laboratory technician or a diagnostic kit manufacturer – the Orbis shaker is your natural choice.

Laboratory bench space is costly. However, with a small footprint that is just marginally larger than that of the microplate it shakes, Orbis offers the most economical and advanced solution for your shaking applications as well as being competitively priced.

The counter balanced orbital movement, guarantees a stable, quiet and long operating life.

The Orbis shaker normally operated as a stand-alone unit can alternatively be easily integrated into a robotic system, with a remote on/off control.



Orbis for Eppendorf tubes



Orbis Plus with lid and timer for microplates

Technical specification	
Shaking orbit	1mm radius
Shaking speed range	950rpm–1300rpm
Timer function†	1-180 minutes and continuous
Dimensions – main unit mm	93(W) X 133mm(D) X 87(H)
Weight – complete system	715g
Operating voltage	110 -230Vac 50/60Hz
Power consumption	65mA
Power Supply	15V 100mA DC
Environmental operating temp	10 ° C – 40 °C
Environmental storage temp	4° C – 40° C
Case Material	ABS
Lid Material	Crystal Styrene

† Timer function available with Orbis Plus only

* Customised logo and colour combinations are available at extra cost for minimum order quantities

Ordering information

Orbis Personal Single Plate Shaker	1.075
Orbis Plus as above with timer and lid	1.175
Orbis Lid	075.001
Orbis Personal Eppendorf Tube Shaker	1.080
Orbis Plus Eppendorf Tube Shaker with timer	1.180

B-pette
Manual Pipette Controller

B-pette pipette filler is a simple yet highly controllable pipette filler.

- Comfortable and simple to use
- Precise pipetting control
- Robust yet light weight
- Large capacity bulb – 65ml
- Compatible with blow out pipettes
- Simple thumb operation
- Uses standard replaceable filter
- Autoclavable silicone pipette holder
- Supplied with integral 0.45µm filter
- Easily maintained and cleaned

A simple yet powerful pipette controller, the B-pette is uniquely designed to give superior pipetting control to left or right-handed users.

The lightweight B-pette locates comfortably into the hand enabling smooth control in both aspirate or dispense of 1ml to 100ml pipettes.

Simply squeeze the silicone bulb, move the lever up to aspirate and down to dispense, and press the mini-squeeze bulb for blow-out action.

Technical specification	
Case material	ABS
Nose cone material	Polypropylene
Bulb material	Silicone

Ordering information	
B-pette complete	1.052
Replacement pipette holder	051.3002
Replacement 0.45µm filter	3901
Replacement 0.20µm filter	3905
Replacement sterile 0.45µm filter	3904



B-pette

Orbis

**P-pette
Motorised Pipette Controller**

Being one of the most powerful pipette controller on the market, the P-pette is also one of the lightest. Its perfectly shaped grip combined with low pressure finger control allows for an ultra sensitive dispense and aspirate when used with any pipette from 1-100ml. Its low profile pistol grip is designed for optimal ergonomic performance in confined spaces such as laminar flow cabinets.

A three position switch controls the general operation of the pump between fast, slow and gravity mode which is used for to deliver pipettes. An interchangeable 0.45µm hydrophobic filter on the air intake path, forms an integral part of the device. It protects the unit from ingress of liquids and the user from biological hazards.

The P-pette is charged via its AC adaptor. The overnight charge will enable a constant trouble free two day operation.

The P-pette comes with a clever stand which allows it to be parked with a pipette fitted either horizontally on the bench or hung vertically on the wall – always ready for instant use.

- Low pressure triggers for sensitive dispense operation.
- Suitable for all types of pipettes from 1-100ml.
- Fill 25ml pipette in under 3 seconds.
- Rechargeable during use.
- Bench and wall stands included as standard.
- Low battery indication.
- Autoclavable pipette cone.
- Environmentally friendly Nickel Metal Hydride batteries.

Ordering information

P-pette pipette controller	1.051
Replacement pipette holder	051.3002
Replacement 0.45µm filter	3901
Replacement 0.20µm filter	3905
Replacement sterile 0.45µm filter	3904



P-pette

**Q-pette
Manual Pipette**

- The solution for all your economical precision dispensing requirements.
- Add precision to your test performance.
- Add value to your diagnostics kit.
- Eliminate those reagent addition volume uncertainties.
- Use it as a promotional item.
- Label it with your own company logo.
- Dispense accurately any fixed volume from 5µl to 200µl.
- Integrated tip ejector as standard.
- Accepts all standard yellow tips and many more.
- Smooth operation with a wide thumb rest.
- Economical.

Does your diagnostics kit work properly?

You are a diagnostics kit manufacturer. Although you specify in your test protocol the precise volume of reagent to be dispensed, the user does not achieve the results you would expect.

Why?

An important variant was left out of your control, namely, pipetting accuracy. By adding a Q-pette to your diagnostics kit you overcome this variable.

Each Q-pette dispensing volume is fixed by the size of its spacing ring. We accurately manufacture these rings to achieve the volume you specify. You may wish to add a separate Q-pette for each volume you require, or as an alternative you might choose to use one Q-pette with various spacing rings.

Whatever the solution, you can rest assured that your chosen reagent volume will be accurate.

Changing the Qpette's volume is as easy as 1, 2, 3...

- 1 Push down the tip ejector until it snaps under the pipette's body rim.
 - 2 Pull out the top actuator and replace the spacer ring.
 - 3 Refit the top actuator and pull up the tip ejector.
- You are now ready to dispense a new volume.

Performance specification (using yellow tip)

Volume µl	CV	Accuracy%
5 - 20	4	+/- 10
21 - 30	3	+/- 5
31 - 50	2	+/- 4
51 - 100	2	+/- 3
101 - 200	< 2	+/- 2

Options

- Any colour combinations available on request.
- Custom logo printing from your artwork.
- Any fixed volume from 5µl to 200µl.
- Custom tip packs supplied to your requirement.
- Stainless Steel stand for 6 Q-pettes.
- Wall mounted Q-pette holder.
- Standard Q-pette packaging is bulk.
- Individual packaging is available (price on application).
- Any sort of tips can be supplied and packaged to your order.
- Additional spacer rings for any pre-specified volume are available in bulk.
- Minimum order quantity is 500 Q-pettes.

Ordering information

Q-pette pipette	1.050
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Q-pette

OEM Custom Developments

Scientific innovation often leads to solutions that require a combination of particular technologies.

Our own products provide us access to the following technologies:

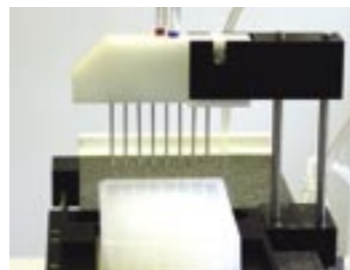
- Reagent dispensing and aspiration
- Well, filter and tube washing
- Incubation
- Orbital and linear agitation
- Magnetic particle separation
- Optical Density Reading

At Mikura we have the means to combine these various technologies enabling us to develop a customised processor that will satisfy your particular protocol.

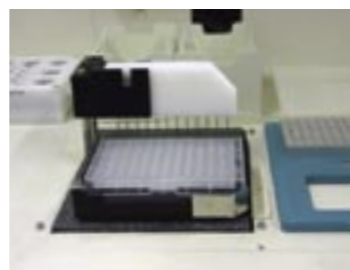
Our design and development team is experienced in providing economical solutions without compromising on product quality or time scale constraints.



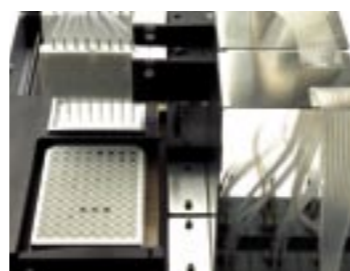
Example of a processor for plates with magnetic beads requiring reagent addition, separation, washing, resuspension and incubation



Deep well plate processing



Integration of a washer into a large processor



Magnetic separation

All information in this brochure correct at the time of going to print.

mikura
technology for science

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