

# Pulsar<sup>2</sup>ESP

*Minimal Stress*



**OPTIKON**<sup>TM</sup>  
Men and Technology

REF 111007

Modular workstation for anterior and posterior segment surgery

Vit Module  
REF 121010



- Double Pump Venturi-Peristaltic.
- Double Infusion: I.V. Pole/Forced *Minimal IOP* (patented).
- Continuous micrometrical stroke length control & adjustment by *Minimal Stress System* (patented).
- Programmable Emission Mode
- Co-M.I.C.S.; M.I.C.S. (incision size range 3.2 mm - 1.0 mm).
- High Speed Vitrectomy: up to 2500 cuts/min.
- 20/23/25G Vitrectomy.
- HID Xenon Light.
- Programmable Double Linear Footpedal.
- LCD Touch Screen.
- User Friendly Control Software.



PULSAR 2 ESP

# TECHNICAL FEATURES

## Pulsar<sup>2</sup> ESP *Minimal Stress* - Base Module

### PROGRAMMABILITY

#### PROGRAMS

Over 1000 user programs, each including  
3 U/S, 2 DIATH, 2 I/A, 2 VIT modes.

### EQUIPMENT CONTROL

#### USER INTERFACE

Graphic User Interface, 12.1" LCD with touch screen

#### REMOTE CONTROL

Cable wired, controls all functions

#### FOOTPEDAL

Dual linear programmable footpedal controls  
all the equipment functions

#### AUTOMATIC CART FOR BOTTLE

Programmable and controlled by pedal and console

### IRRIGATION

#### FLUID DELIVERY

Gravity fed. Eye pressure determined  
by the height of IV pole

Patented forced irrigation. Eye pressure determined by  
programmable air pressure (range 14-80 mmHg)

#### VALVING ELEMENT

Solenoid driven pinch valve

#### CONTROL

System footpedal/console

### ASPIRATION

#### ASPIRATION PUMP TYPES

Venturi and Peristaltic

#### ACTUATING MEDIUM

Pressurized air from external source

Pressure: from 500 to 800 KPa (72 to 116 PSI)

Flow: at least 30 Normal litre/minute @500mmHg

#### DEFAULT VACUUM LEVEL

User programmable

#### AVAILABLE VACUUM RANGE

5 to 500mmHg

#### DEFAULT FLOW RATE

User programmable

#### FLOW RATE RANGE

2 to 50cc/min (peristaltic only)

#### ASPIRATION RISE TIME

Three levels, SLOW, MEDIUM, FAST

#### SURGEON MODE

(Linear Aspiration): Linear aspiration

(Vacuum and/or flow rate) from zero to preset

linearly controlled via system footpedal

#### SAFETY SYSTEM

ACS3 (Anterior Chamber Surge Suppression System)

#### CONTROL

System footpedal

### VITRECTOMY

#### HANDPIECE TYPE

20/23/25G pneumatically powered guillotine cutter (VIT)

#### CUTTING MODE

Reciprocating motion

#### DEFAULT CUT RATE

User programmable

#### CUTTING RATE

From 60 up to 2500 cuts per minute (VIT)

#### PORT SIZE

Adjustable from 0.2 to 0.7 mm (reusable cutters only)

#### ACTUATING MEDIUM

Pressurized air from external source

#### OPERATING PRESSURE

230 KPa (33,4 PSI)

#### SURGEON MODE

(Linear cut): Linear cut rate from 0 to preset controlled

via system footpedal

#### CONTROL

System footpedal

### DIATHERMY

#### TYPE

Bipolar generator. Generator stops when RF  
power is not needed

#### OPERATING FREQUENCY

2 MHz

#### NOMINAL POWER

7W (450 Ohm)

#### NO LOAD MAX. VOLTAGE

100V

#### DEFAULT BIPOLAR POWER

User programmable

#### BIPOLAR POWER

5 to 100%

#### SURGEON MODE

Allows linear control of the diathermy power via system  
footpedal depression

#### HANDPIECE TYPE

(Linear power): Bipolar microforceps, slim stat pencil  
eraser, intraocular diathermy pencils

#### CONTROL

System footpedal

### PHACOEMULSIFIER

#### HANDPIECE TYPE

Piezoelectric

#### FREQUENCY

Approx. 40KHz

#### TIP STROKE

From 0 to 100µm

#### POWER

Panel or linear control of the U/S power via system  
footpedal depression

#### U/S MODE

Linear or panel; Continuous, Short Pulse,  
Single Burst, Multi-Burst, Continuous Burst and  
Programmable Emission Mode

#### U/S TIMER

From 0.00 minutes to 9.5 minutes - Equivalent Phaco  
Time display

#### CONTROL

System footpedal

### TECHNICAL SPECIFICATIONS

#### DIMENSIONS

330 x 410 x 450 mm

#### WEIGHT

15 Kg

#### INPUT VOLTAGE

100/120/220/230-240 V A.C. SELECT.

#### FREQUENCY

50/60Hz

#### POWER CONSUMPTION

145W

#### INPUT AIR PRESSURE

From 500 to 800 KPa (72 to 116 PSI)

### REGULATORY

#### CE MARKING

European directive 93/42/EEC

#### SAFETY

Conforms to IEC 60601-1

IEC 60601-1-2

IEC 60601-2-2

## Vit Module

### ILLUMINATION

#### SOURCE

5100°K HID Xenon lamp

#### LIGHT INTENSITY

Adjustable in 4 steps by motorized diaphragm

#### FILTERS

Green filter

### STERILE AIR INFUSION

#### PRESSURE RANGE

From 5 to 80mmHg (steps of 5mmHg)

#### STERILITY

Achieved by 0.22 microns sterile single use filter

#### SAFETY SYSTEMS

Activation warning tone

### SILICONE INFUSION

#### PRESSURE RANGE

From 40 KPa (5,8 PSI) to 500 Kpa (72,5 PSI)

Step of 20 KPa (29 PSI)

#### CONTROL

Linear injection control

#### SAFETY SYSTEMS

Activation warning tone

### SCISSORS

#### MICROSCISSORS TYPE

Semi-disposable pneumatically  
powered - progressive cut

#### CUTTING RANGE

From 60 to 320 cuts/min ~ single cut

#### ACTUATING SYSTEM

Pressurized air

### ELECTRICAL SPECS

#### MAINS VOLTS

100/120V 50-60Hz - 220/240V 50Hz

#### POWER CONSUMPTION

75 W

FORCEPS PROBES HANDPIECES TIPS SLEEVES ACCESSORIES

FORCEPS



116006 Capsulorhexis forceps

PROBES



114303 Irrigating nucleous manipulator



114304 Irrigating chopper

HANDPIECES



113101 Phaco handpiece "Slim 4"



Phaco handpiece single-use (2 crystals, single-use, sterile, 5pcs, requires adaptor REF 116005)

INC*	5°	30°	45°	Diaphragm tip	Progressive tip
3.2	191311	191313	191314	191315	191316

116005 Adapter for single-use handpiece



TIPS



INC*	5°	15°	30°	45°	Sleeve
3.0-3.2	113201	113202	113203	113204	113301-113303



INC*	15°	30°	Hybrid	Sleeve
3.0-3.2	113212	113213	113214	113301-113303



INC*	30°	Sleeve
3.0-3.2	113218	113301-113303



INC*	15°	30°	45°	Sleeve
2.6-2.9	113205	113206	113207	113308-113304



INC*	5°	15°	30°	Angled	Sleeve
2.6-2.9	113219	113220	113221	113222	113308-113304
1.5	113219	113220	113221	113222	No sleeve: bimanual phaco



INC*	15°	Sleeve
3.0-3.2	113228	113301



INC*	15°	Sleeve
2.6-2.9	113230	113308



INC*	15°	Sleeve
2.2-2.5	113233	113307



INC*	Sleeve
3.0-3.2	113232
	113301



INC*	Sleeve
2.6-2.9	113229
	113308



INC*	5°	30°	45°	Progressive	Sleeve
1.0	113208	113209	113210	113211	No sleeve: bimanual phaco



113217 Pars plana phaco tip

SLEEVES



113301 Silicone sleeve for 19G U/S tips (3pcs) incision range 3.0 mm - 3.2 mm



113308 Silicone sleeve for 20G U/S tips (3pcs) incision range 2.6 mm - 2.9 mm



113307 Silicone sleeve for 21G U/S tips (3pcs) incision range 2.2 mm - 2.5 mm



113303 PTFE sleeve for 19G U/S tips, incision 3.2 mm



113304 PTFE sleeve for 20G U/S tips, incision 2.8 mm

ACCESSORIES



116001 Test chamber (2pcs)



113401 Phaco tip wrench



191004 Kiss (Kawano Irrigation Surge Suppressor) single-use (20 pcs)



\* Recommended Incision Size: mm

\* Recommended Incision Size: mm

PROBES CANNULAS HANDPIECES TUBING

PROBES



114301 Irrigation probe for bimanual technique



114302 Aspiration probe for bimanual technique

CANNULAS



19G I/A Cannula with silicone sleeve

	INC*	
Straight	3.0-3.2	114201
Angled		114203



20G I/A Cannula with silicone sleeve

	INC*	
Straight	2.6-2.9	114216
Angled		114217



21G I/A Cannula with silicone sleeve

	INC*	
Straight	2.2-2.5	114218
Angled		114219



I/A Cannula with metal sleeve

	0.3 mm	0.4 mm	0.5 mm
Straight	114205	-	114206
Angled	114207	114215	114208



114211 12 o'clock I/A cannula, metal sleeve, 0.3 mm



114212 90° I/A cannula, metal sleeve, 0.3 mm

HANDPIECES



114101 I/A handpiece, long barrel



114102 I/A handpiece, short barrel

TUBING



191001 Minimal IOP forced irrigation kit single-use (10pcs)



192703 Cassette I/A Tubing set Easysys single-use (10pcs)

1991xx On demand phaco packs for Pulsar2 (10pcs) Including I/A tubing set for Pulsar2, screen cover, Mayo drape, test chamber, sleeve (to customer choice)

\* Recommended Incision Size: mm

VITREOUS CUTTERS/MICROSCISSORS FIBER OPTICS IRRIGATION SYSTEMS MISCELLANEOUS

RETINAL SURGERY 20G



114401 Sleeve for I/A cannula&ant.vitr. (3 PCS)



123002 Anterior vitrectomy probe, w/silicone sleeve



123001 20G high speed posterior vitrectomy probe



123005 20G microscissors, 45°



192301 20G high speed vitrectomy probe single-use (5pcs)

FIBER OPTICS

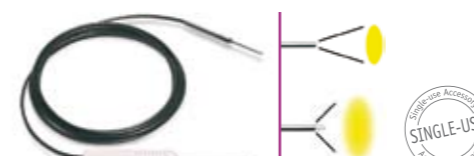


128101 20G endoillumination probe



192801 20G endoillumination probe single-use (5pcs)

192802 20G wide angle endoillumination probe single-use (5pcs)



192803 20G endoillumination probe multi-port for adapter single-use (5pcs)

192806 20G wide angle endoillumination probe multi-port for adapter single-use ((5pcs)

IRRIGATION SYSTEMS



124001 20G scleral infusion cannula, angled, 3 mm

124002 20G scleral infusion cannula, angled, 4 mm

124003 20G scleral infusion cannula, 6 mm, beveled tip



129008 Aspiration handpiece



129009 20G cannula for retinal manipulation



192521 20G scleral infusion cannula/silicone tube/stopcock single-use (10pcs)

MISCELLANEOUS



128904 Three-way adapter (halogen light source)



128905 Two-way adapter (xenon light source)



124006 20G scleral plug (4pcs) with holder

18 G – 20 G

MISCELLANEOUS



192804 18G trocar w/endoillumination irrigation multi-port for adapter single-use (5pcs)



192805 20G trocar w/endoillumination irrigation multi-port for adapter single-use (5pcs)

23 G

VITREOUS CUTTERS/MICROSCISSORS



123007 23G microscissors, 45°



123010 23G high speed posterior vitrectomy probe

IRRIGATION SYSTEMS



129014 23G vitrectomy kit (Including 3 blunt insertors, 3 scleral guides, 3 plugs, 1 infusion cannula with silicone tube, 1 sterilization tray)

124013 Reusable infusion tube for 23G Vitrectomy Kit (3pcs)

TRANS-CONJUNCTIVAL INSTR.



123011 23G serrated jaw microforceps



123012 23G end gripping microforceps



124014 23G angled pic for scleral guides



129006 Charles handpiece



129011 23G aspiration cannula



129016 Forceps for 23G scleral guides/plugs



129017 Pressure plate for conjunctiva



129019 Luer adapter for single-use cannula



192303 23G high speed vitrectomy probe single-use (5pcs)

FIBER OPTICS



192807 23G standard illumination probe M/port single-use (5pcs)



192809 23G wide angle illumination probe M/port single-use (5pcs)

TRANS-SCLERAL INSTR.



124008 23G Trans-Scleral angled pic



124009 23G Trans-Scleral angled pic, long



124010 23G Trans-Scleral angled pic, pointed



124011 23G Trans-Scleral round incision sclerotome



124012 23G Trans-scleral infusion cannula, 4 mm

25 G

TRANS-CONJUNCTIVAL INSTR.



192302 25G high speed vitrectomy probe single-use (5pcs)



192201 25G trocar kit single-use (5pcs)



123013 25G end gripping microforceps

COAXIALLY ILLUMINATED



123006 High speed vitrectomy probe for coaxial illumination



123007 Microscissors, 45°, for coaxial illumination



128102 20G illuminator for vitrectomy probe/microscissor



123008 Serrated jaw microforceps for coax illumination



123009 End gripping microforceps for coax illumination



128103 20G illuminator for microforceps



123014 25G serrated jaw microforceps



124015 Angled pic for 25G scleral guides

FIBER OPTICS



192808 25G endoillumination probe multi-port for adapter single-use (5pcs)



128104 Illumination probe for pics, 20G



128201 20G tapered spatula for illumination probe



128202 20G bent pic for illumination probe



128203 20G hooked pic for illumination probe



128204 20G peeling spatula for illumination probe

ACCESSORIES FOR VITREO-RETINAL SURGERY .....

■ SILICONE OIL INJECTION/REMOVAL



■ 125201 Syringes holder for silicone oil injection



■ 192526 1000 cSt silicone oil injection kit, 10 ml single-use



■ 125202 Tube for silicone oil injection control



■ 192527 5000 cSt silicone oil injection kit, 10 ml single-use



■ 192522 30cc syringe for silicone oil (10pcs)



■ 192525 19G viscous fluid removal kit single-use (10pcs)

■ STERILE AIR INJECTION



■ 125101 Air injection tube



■ 129010 Tube for Charles handpiece (2pcs)



■ 192511 Air injection filter single-use (10pcs)



■ 192512 Air injection tube single-use (5pcs)



■ 192513 Air injection tube with filter single-use (5pcs)



■ 192514 2-way stopcock single-use (10pcs)



■ 192516 Adapter for simultaneous connection Air/Minimal IOP single-use (10pcs)

## ACCESSORIES FOR VITREO-RETINAL SURGERY

### ■ DIATHERMY



■ 115101 Diathermy bipolar cable



■ 115301 Diathermy forceps



■ 115302 Diathermy pencil eraser

### ■ ENDODIATHERMY



■ 115303 Endodiathermy probe, 20G



■ 115305 Endodiathermy probe with reflux, 19G



■ 129007 Tube for endodiathermy probe (2pcs)



■ 115103 Diathermy handle for subretinal drainage



■ 115210 3 mm diathermy electrode for subretinal drainage, dark grey



■ 192620 Endodiathermic probe 20G single-use (5pcs)



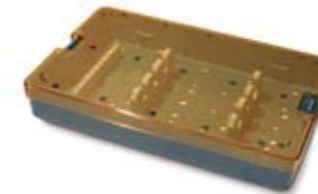
■ 192623 Endodiathermic probe 23G single-use (5pcs)



■ 192625 Endodiathermic probe 25G single-use (5pcs)



### ■ MISCELLANEOUS



■ 116003 Sterilization tray 25x15x38



■ 129018 Sterilization tray for 23G pressure plate/forceps



■ 181003 I.V. pole extension including blocking screw



■ 191602 Screen & Mayo drape single-use (5pcs)



■ 181004 Equipped motorized cart



■ 111006 Eclipse, Video Overlay System



■ 112103 Dual linear footpedal



■ 122006 Remote Control

### ■ LENSES FOR VITRECTOMY



■ 129003 Fundus lens for vitrectomy



■ 129004 Periphery lens for vitrectomy



■ 129005 Biconcave lens for fluid/gas exchange



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