

IPL Laser & NIR Cell Light – 4K Screen Multi-Filter Beauty Device

H1: Clinical-Grade IPL Laser & NIR Cell Light System for Aesthetic Practices

H2: Product Overview

This professional workstation combines high-intensity pulsed light with near-infrared therapy in a single 500W platform. Designed for medical spas, dermatology clinics, and aesthetic centres, the system delivers targeted treatments for vascular lesions, acne, pigmentation, and skin rejuvenation.

Core capabilities:

11 interchangeable optical filters for condition-specific wavelengths

15-inch 4K touchscreen for precise parameter control

Dual working modes (FPL + NIR) for synergistic effects

Maximum energy output of 50J/cm²

Pulse duration up to 10ms for optimal thermal relaxation

H2: Complete Technical Specifications

H3: Optical and Energy Parameters

Parameter	Specification
Energy Fluence	50J/cm ² (adjustable 10–50J/cm ²)
Pulse Duration	Max 10ms (1–10ms digitally controlled)
Maximum Power	500W
Working Modes	FPL (Fluorescent Pulsed Light) + NIR (Near-Infrared)
Light Source	High-intensity flashlamp with integrated NIR emitter
Beam Uniformity	±5% energy homogeneity

H3: Display and User Interface

Screen size: 15 inch diagonal

Resolution: 4K (3840 × 2160 pixels)

Technology: Capacitive touchscreen with anti-glare coating

Interface features:

Pre-set protocol library for each filter type

Real-time energy monitoring and adjustment

Patient history storage and recall

Firmware upgradeable via USB-C port

H3: Physical Dimensions and Power

Specification	Detail
Gross Weight	67kg
Package Size	54 × 54 × 115 cm
Power Supply	220V, 50Hz or 110V, 60Hz (selectable at order)
Cooling System	Integrated air + contact cooling
Handpiece	Ergonomic design with swivel cable

H2: The 11 Filters – Clinical Applications by Wavelength

H3: Filter Selection Guide

Filter Name	Wavelength	Primary Indication	Target Depth
VASCULAR	530–580nm	Spider veins, telangiectasia, port-wine stains	Superficial (0.5–1mm)
ACNE	400–450nm	Propionibacterium acnes, active inflammatory acne	Superficial
515nm	515nm	Freckles, solar lentigines, epidermal pigmentation	Superficial
560nm	560nm	Diffuse redness, general photorejuvenation	Mid-dermal

Filter Name	Wavelength	Primary Indication	Target Depth
585nm	585nm	Rosacea, erythema, cherry angiomas	Mid-dermal
615nm	615nm	Leg veins, deeper vascular lesions	Deep dermal (2–3mm)
640nm	640nm	Hair reduction (Fitzpatrick IV–V)	Deep dermal
690nm	690nm	Permanent hair reduction (all skin types)	Deep dermal
755nm	755nm	Melanin-rich targets, alexandrite-equivalent	Deep dermal
Round spot	10mm diameter	Precision areas (nose, periorbital, chin)	Variable
Square spot	12 × 12mm	Large flat surfaces (cheeks, back, thighs)	Variable

H3: How to Select the Right Filter

Vascular conditions → VASCULAR, 585nm, or 615nm (based on vessel depth)

Pigmentation → 515nm or 560nm for epidermal spots

Active acne → ACNE filter (blue light spectrum)

Hair removal → 640nm, 690nm, or 755nm (skin-type dependent)

Precision work → Round spot adaptor

Large area coverage → Square spot adaptor

H2: Working Modes – FPL and NIR Explained

H3: FPL Mode (Fluorescent Pulsed Light)

Delivers high-energy broad-spectrum pulses

Optimal for photothermolysis of vascular and pigment targets

Pulse stacking capability for resistant lesions

Best used with shorter wavelength filters (515–640nm)

H3: NIR Mode (Near-Infrared)

Continuous or pulsed output at 810–950nm

Penetrates up to 5mm into dermal layers

Stimulates fibroblast activity and collagen remodelling

Reduces post-treatment inflammation

Ideal as a soothing finish after FPL treatments

H3: Combination Mode (FPL + NIR Simultaneously)

Sequential firing: FPL pulse followed immediately by NIR burst

Synergistic effect – photothermolysis plus biostimulation

Reduces total treatment time by 30–40%

Enhances patient comfort with built-in cooling between pulses

H2: Key Benefits for Clinical Practice

H3: Treatment Versatility

Single device replaces multiple standalone systems

Covers vascular, pigment, acne, hair, and rejuvenation indications

Suitable for Fitzpatrick skin types I–V

H3: Precision and Safety

4K display enables fine adjustments in 1J/cm² increments

Real-time skin impedance monitoring

Automatic shut-off if handpiece overheats or loses contact

Built-in test spot protocol for individualized dosing

H3: Operational Efficiency

500W power output reduces session time significantly

Pre-set protocols minimise operator error

Large touchscreen simplifies training for new staff

67kg robust construction ensures stability during high-volume use

H3: Long-Term Value

Flashlamp lifespan: 100,000 pulses

NIR LED array rated for 50,000 hours

User-replaceable filters and consumables

Dual voltage compatibility for international use

H2: Step-by-Step Treatment Workflow

H3: Pre-Treatment

Conduct patient consultation and skin type assessment

Select appropriate filter based on condition and Fitzpatrick type

Perform test spot at 10J/cm² on a discrete area

Wait 10–15 minutes to observe any adverse reaction

H3: During Treatment

Set energy (10–50J/cm²), pulse width (1–10ms), and working mode

Choose Round or Square spot adaptor based on treatment area

Glide handpiece with 10–15% overlap between pulses

Monitor real-time energy readout on 4K display

H3: Post-Treatment

Apply cooling gel or soothing cream

Document settings and patient response

Schedule follow-up session (typically 3–6 weeks apart)

Clean handpiece window with isopropyl alcohol

H2: Safety and Compliance Features

Skin impedance sensor – dynamically adjusts fluence to tissue resistance

Contact detection – prevents firing when handpiece is not fully seated on skin

Over-temperature protection – automatic cooling pause if tip exceeds 42°C

Emergency stop – physical button plus on-screen kill switch

CE marked – complies with IEC 60601-2-57 for laser/light therapy devices

Protective eyewear – included for operator and patient

Remote interlock port – for integration with treatment room safety systems

H2: Frequently Asked Questions (FAQ)

H3: FAQ 1 – What is the difference between FPL and NIR modes, and when should I use each?

Q: What is the difference between FPL and NIR modes, and when should I use each?

A: FPL (Fluorescent Pulsed Light) emits high-peak-power broad-spectrum light in the 400–750nm range. It targets superficial and mid-dermal chromophores – melanin for pigmentation and oxyhemoglobin for vascular lesions. The pulse duration (up to 10ms) matches the thermal relaxation time of small blood vessels and hair follicles, making FPL the primary mode for hair reduction, freckle removal, and treating spider veins. NIR (Near-Infrared) operates at 810–950nm, penetrating 3–5mm into the dermis with minimal epidermal absorption. NIR does not cause photothermolysis; instead, it stimulates mitochondrial activity in fibroblasts, increasing ATP production and collagen synthesis. Use NIR for skin tightening, reducing post-inflammatory erythema, and accelerating wound healing. In clinical practice, apply FPL first for the target lesion, then switch to NIR as a soothing, regenerative finish. The combination mode fires FPL and NIR sequentially in a single pass – this is particularly effective for acne scars and photoaged skin, as it addresses both pigment/discoloration (FPL) and structural damage (NIR) without doubling treatment time.

H3: FAQ 2 – How do I choose the correct filter for different skin types and conditions?

Q: How do I choose the correct filter for different skin types and conditions?

A: Filter selection follows a dual-axis decision: target chromophore and Fitzpatrick skin type. For superficial vascular conditions (rosacea, telangiectasia, cherry angiomas) on Fitzpatrick I–III, use the VASCULAR (530–580nm) or 585nm filter – these shorter wavelengths are strongly absorbed by oxyhemoglobin but have limited

penetration, making them safe for lighter skin. For deeper leg veins or patients with Fitzpatrick IV, switch to 615nm or 640nm to reach the reticular dermis while reducing epidermal melanin competition. For pigmented lesions (solar lentigines, ephelides, melasma), choose 515nm for very superficial epidermal spots or 560nm for slightly deeper dermal pigment. Acne requires the ACNE filter (400–450nm) because it activates endogenous porphyrins in *Propionibacterium acnes*, producing singlet oxygen that kills the bacteria – this wavelength has no effect on vessels or melanin. For hair reduction, 690nm suits Fitzpatrick I–III with dark hair, while 755nm is preferred for Fitzpatrick IV–V due to its longer wavelength and lower melanin absorption coefficient, reducing the risk of burns. The Round spot (10mm) is reserved for curved or small areas – nose, periocular region, chin – where precise aiming is critical. The Square spot (12×12mm) covers flat, large surfaces like cheeks, back, and thighs, improving treatment speed. Always perform a test spot at 10J/cm² and observe for 10–15 minutes; if erythema persists beyond 30 minutes, reduce energy by 5J/cm² for the full treatment.

H3: FAQ 3 – What maintenance does this IPL laser & NIR Cell light device require?

Q: What maintenance does this IPL laser & NIR Cell light device require?

A: This system is engineered for low-maintenance operation in high-volume clinical settings. Daily tasks: wipe the handpiece optical window with 70% isopropyl alcohol after each patient; inspect the filter holder for dust or debris; verify that the contact cooling surface is clean and free of gel residue. Weekly: run the built-in self-diagnostic program (accessible from the 4K display's maintenance menu) – this checks energy output consistency across all 11 filters and alerts you if any filter's transmission drops below 90%. Monthly: clean the air intake filter (rear panel) with warm soapy water and allow it to dry completely before reinserting; check the handpiece cable for kinks or wear. Annual: factory calibration is recommended to maintain energy accuracy within ±5% – this can be performed by any authorised service centre. The flashlamp has a typical lifespan of 100,000 pulses; the device tracks cumulative pulse count and displays a replacement reminder at 95,000 pulses. Replacement is user-serviceable with a pre-calibrated cartridge – no special tools required. The NIR LED array is rated for 50,000 hours (approximately 5–7 years of full-time clinical use) and rarely needs replacement. If the device displays an error code (e.g., E-01 for temperature, E-03 for energy inconsistency), consult the on-screen troubleshooting guide – most issues are resolved by cleaning the optical path or allowing the unit to cool. For major repairs, contact your local distributor with the device serial number and error log (exportable via USB). Always store the handpiece on its cradle when not in use to prevent accidental firing and protect the optical window from impact or scratches.

H2: Packaging and Ordering Information

Item	Detail
Gross Weight	67kg
Package Dimensions	54 × 54 × 115 cm
Voltage Options	220V, 50Hz (EU/Asia) or 110V, 60Hz (North America)
Included Accessories	11 filters, Round spot adaptor, Square spot adaptor, power cord, user manual, calibration tool, protective eyewear, spare fuse kit, cleaning swabs, filter carrying case

H2: Conclusion

This IPL laser & NIR Cell light system integrates 11 filter-based therapies, dual working modes, and a 500W power engine into a single clinical workstation. The 15-inch 4K display simplifies protocol selection, while the 50J/cm² maximum energy and 10ms pulse width provide the flexibility to treat vascular, pigment, acne, and hair conditions across diverse skin types. With CE certification, commercial-grade construction, and a comprehensive safety architecture, this device delivers consistent, evidence-based outcomes for practices seeking to expand their light therapy portfolio.