

# MediLED Symphony

The World-class LED Surgical Lighting Solution



reddot design award  
winner 2010



TAIWAN  
EXCELLENCE  
2010

# The Birth of MediLED

## Superior Optics and Green Energy LEDs

MediLED is a surgical lighting solution pioneering the latest LED based technology. Surgical lighting is crucial to providing an optimal visual environment, where rendering accurate colors and appropriate light intensity are absolutely necessary for delicate, meticulous surgical procedures.

The LED technology employed by MediLED is revolutionizing today's surgical lighting. They deliver exacting brilliance with several key advantages compared to traditional halogen solutions-LEDs are longer-lasting, more energy efficient and cooler.

MediLED is launched after years of intensive optics research, clinical experience and an intimate understanding of surgical lighting requirements. Furthermore, Taiwan is renowned for its LED research and production capabilities, which allows Mediland (Taiwan) to manufacture MediLED close to LED technology resources, providing customers with the most cost-effective solutions.

MediLED is definitively, the world-class provider in LED surgical lighting solutions, delivering the precision lighting, functionality and versatility for today's surgical environments.



# Powerful Optics Performance

## Perfection of the Light Field

MediLED produces an abundant, clear and even light field. The light pattern can be easily adjusted using a motorized control to every kind of surgical procedure and operating room environment. MediLED is able to maintain a consistent light intensity at distances of 70 cm to 150 cm. MediLED creates a uniform light cylinder that can reach and illuminate various depths in any wound area. This deep cavity light illumination and light homogeneity features are MediLED's superior advantages to compete at the world-class level.

## The Brilliant Spot with True Colors

MediLED provides 160,000 lux of natural white light which can spot-light and render a most vivid and brilliant surgical area for the surgeon. MediLED maintains color temperatures of 4,300K under any light intensity mode, simulating natural light and portraying colors in their most true and natural form. MediLED's performance of Color Rendering Index (CRI) is 95, which allows the surgeon to easily perceive the subtle, unadulterated detail and contrast between adjoining tissues.

## R9 Index - Portraying Red

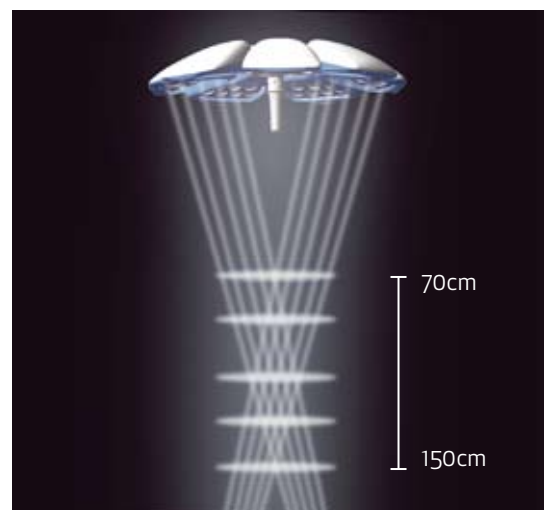
MediLED's R9 Index (red color index) is reached to 95, indicating MediLED's superb ability to render an accurate color of red, which is invaluable when distinguishing subtle shades of red color in a wound area that is diffused with red tissue and tinted in blood.

## Wound Care

MediLED heat dissipation is exceptionally low (3.3 radiant power/intensity, mW/m<sup>2</sup> lux), an important factor in preventing desiccation of exposed tissue, which is consequently very beneficial for post-surgery wound recovery.

## Better Shadow Control

MediLED employs the special lens design method. With precise lens distribution on the light head, the shadow free performance is largely improved than traditional lights whenever there are surgeons, devices and instruments working beneath the MediLED.



An innovative focus adjustment system can focus light from the 7 petals onto one spot to form a clear, abundant, even field of brilliance on the surgical area.

## Medical Elegance with Perfect Functionality

MediLED's designers aim to create a nice medical lighting form without compromising functionality. MediLED's superior lighting performance, heat dispersion and shadow control are all embedded into this beautifully symmetrical, space-friendly 7-petal ring design. Each petal is angled with calibrated precision and contains arrays of meticulously positioned LEDs which focus each column of light on specific targets to achieve the perfect light field.

- Beautiful 7-petal formation around the central ring
- Easy to operate lightheads
- Laminar air flow compliant
- Compact lighthead contains no moving petals, preventing dust/dirt/particles from falling into the surgical field and for better infection control
- Easy to clean the sleek lighthead surface



## Green Energy and Cost Savings

### High Performance Light Source, Low Energy Consumption

MediLED LEDs can deliver high efficiency, high performance lighting at over 100 lumen per watt, which comes to the energy savings of 33% compared to traditional surgical lighting system. Furthermore, LEDs are extremely durable, enduring over 50,000 hours of usage.

### Heat Management

The lighthead is supported by a sleek aluminum alloy structure which promotes efficient heat dispersion. A heat dispersion board was also designed into the lighthead, for better heat management.

### Reducing Costs

Cost savings are achieved from lower energy bills and less bulb replacements.

# High Definition Multimedia Solution

The MediLED's in-Light HD camera, with 1080 lines horizontal resolution and 2 million pixels and 120x zoom ratio provides high quality image which is ideal for recording surgical process, video broadcasting, medical education and conferencing application.

The MediLED lighting solution provides supports for 19" suspension TFT HD LCD displays and 42" wall mounted TFT Full HD LCD displays, used for displaying medical images from various sources.

A high definition medical display and a high definition camera can be provided upon requests.

In-Light HD Camera Technical Specifications	
Image Sensor	1/3 Cmos
Video Signal	1080i
Number of Pixels	2,000,000
Lens	Optical 10x zoom (F1.8 to F2.1) f=5.1 (WIDE) to 51mm (TELE)
Digital Zoom	12x
Min. Object Distance	10mm(WIDE end), 800mm(TELE end)
Video Signal Output	HD: Component Y, Pb, Pr HDMI (Optional) DVI-I (Optional) HD-SDI (Optional) SD: Y/C (Optional) Composite (Optional)
Communication Port	RS485





# Maneuverability

## Sterile Handle

The motorized sterile handle is designed to position the lighthead and used to adjust the pattern size. This handle allows the surgeon to conveniently reach up and make quick adjustments.

## Non Sterile Handle

Non-sterile handles are integrated onto the outer edges of each petal, which allow the OR staff to grasp them and manually reposition the lighthead.

## Touch Screen Controller - User Friendly Digital Panel

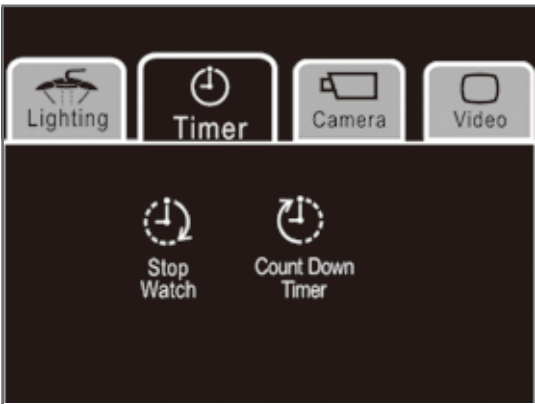
The MediLED touch screen controller is a digital panel designed for easier medical cleaning. The panel is also designed with graphical icons to allow users to quickly learn and easily operate. The touch screen controller could be also considered as a non-sterile handle.

### Panel features include:

- Light Intensity Adjustment
- Light Pattern Adjustment
- On/Off Switch
- MIS (Designed for Minimally Invasive Surgery) Mode Option
- Camera
- Video Dispatch
- Timer



MediLED also allows for light adjustment of up to three lightheads from a single control panel. This feature minimizes walking movements by the OR staff, thus reducing infection possibilities.



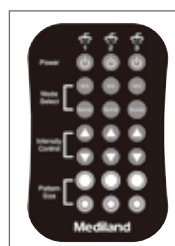
A timer function can be used to notify the surgical team of the elapsed time and a count-down alert is particularly useful for time management.



### Minimally Invasive Surgery (MIS) Lighting Mode

Seven LEDs bulbs are placed on the central ring for MIS lighting mode. When surgeons are performing MIS surgeries, this mode can be used as an ambient lighting.

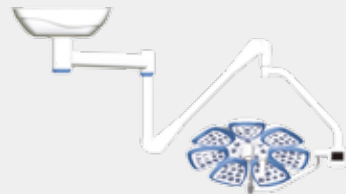
Standard touch screen controller, infrared remote control and optional 3.5" wall control unit (LA001.10). MediLED's digital system can be integrated with Mediland's Operating Room Integration System.



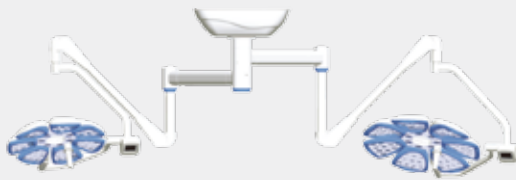
## MediLED Supports a Variety of Configurations to Adapt to Almost Any OR.



MediLED 7



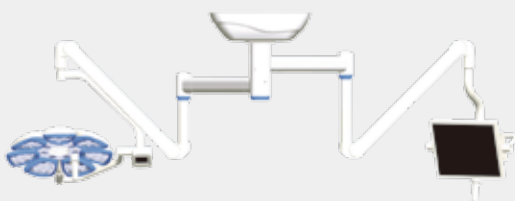
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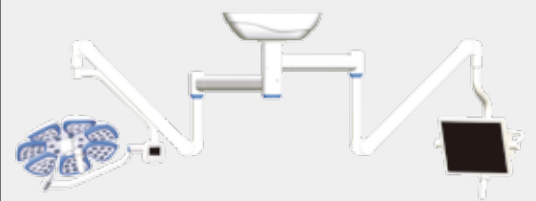
MediLED 76



MediLED 76C

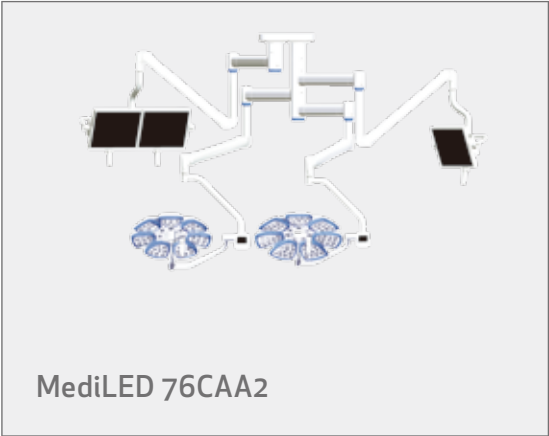
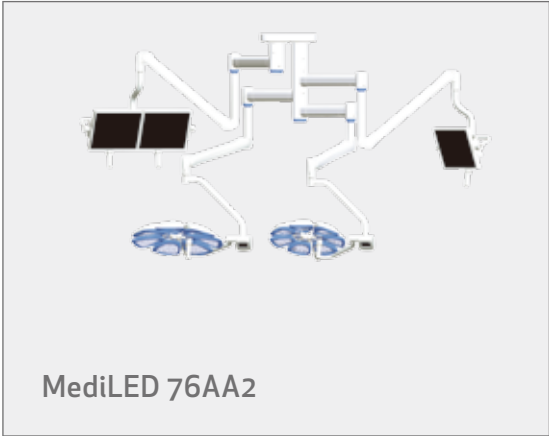
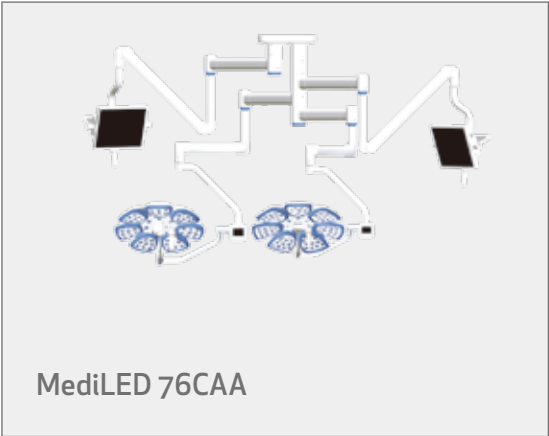
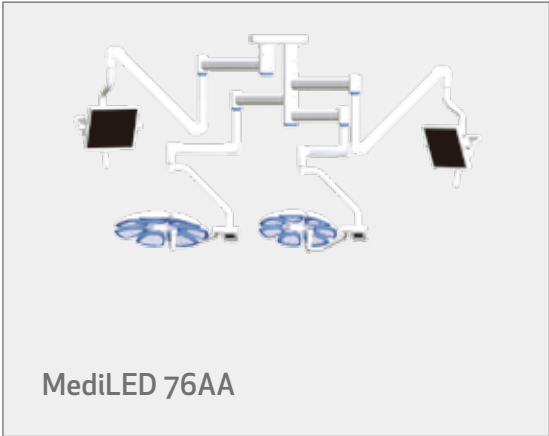
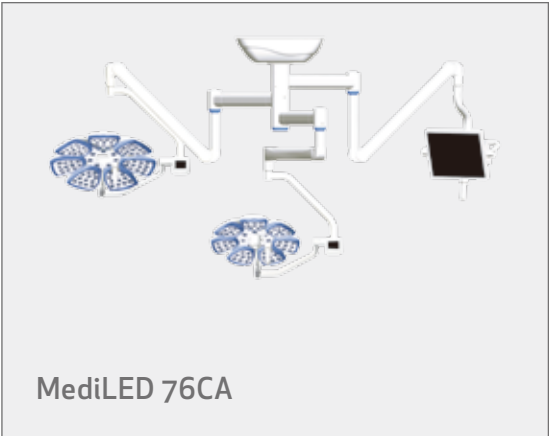
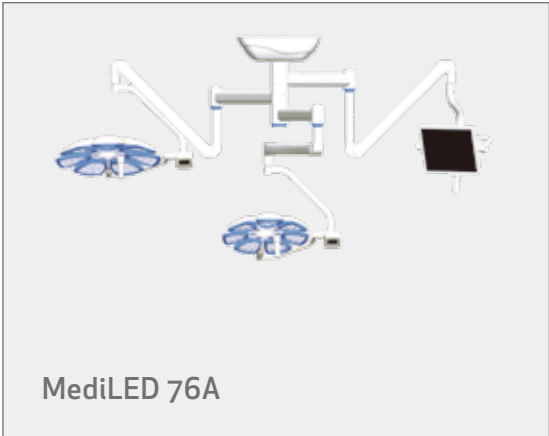


MediLED 6A



MediLED 6CA





# Technical Specifications

Technical Data	Lighthead Types	Lighthead 6	Lighthead 7
Diameter of Lighthead (cm)		63	75
Maximum Light Output Measured in 1m (lux), Ec		140,000	160,000
MIS Light Output Measured in 1m (lux), Ec		8,500~17,000	8,500~17,000
Color Temperature (Kelvin)		4,300	4,300
Color Rendering Index (CRI)		95	95
Red Color Index (R9)		95	95
Applicable Working Distances from Lighthead to Surgical Area (cm)		70~150	70~150
Total Irradiance Ee (W/m²)		470	530
Radiant Power/Intensity Ee/Ec (mW/m²lux)		3.3	3.3
Light Field, d10 (cm)		18	18
Light Field, d50 (cm)		10	12
Pattern Size (cm)		18~32	18~32
Number of Bulbs		63	91
Bulb Type		LED	LED
Average Bulb Life (hours)		50,000	50,000
Minimum Requirement for Ceiling Height (cm)		270	270
Depth of Illumination- L1+L2 (cm)		130	140
Power Consumption of the Lighthead (W)		63	91
Power Input		100-240VAC, 50/60Hz	100-240VAC, 50/60Hz

NOTE: 1. All technical lighting data max. +/- 10% tolerance.  
2. All specifications and descriptions are subject to change without notice.

# Technical Specifications – LCD Display

Type	TFT HD LCD 19"	TFT Full HD LCD 42" (Wall Mounted Only)
Order Number	LA008.01	LA010.01
Model Name	MDF1900-1AC	MDF4200-2CC
Resolution (Pixels)	1280 x 1024	1920 x 1080
Dot Pitch (H x V)	0.294 x 0.294 (mm)	0.161 x 0.484 (mm)
Contrast Ratio	1300:1	4000:1
Brightness (Max.)	300 cd / m <sup>2</sup>	500 cd / m <sup>2</sup>
View Angle (H/V)	178° / 178°	176° / 176°
Response Time	< 20 ms	6.5 ms
Digital Input	DVI-A / DVI-D	DVI x 1 HD-SDI (BNC x 2)
Analog Input	VGA (D-sub 15 pin x 1)	Component RGB/Sync (BNC x 5) Component (8 pin Mini-Din x 1) VGA (D-sub 15 pin x 1)
Analog/Digital Output	N/A	Component/RGB (BNC x 3) HD-SDI (BNC x 1)
Video Input	CV (RCA Jack x 1) S-video (4 pin Mini-Din x 1)	CV (RCA Jack x 1) S-video (4 pin Mini-Din x 1)
Power Input	100-240VAC, 3-1.5A 50/60 Hz DC12V, 6A	100-240VAC 50/60 Hz
Dimension (W x H x D)	418 x 344 x 82.5 (mm)	1026 x 619 x 126.7 (mm)
Weight (Net)	5.4 kg	34.9 kg
Mounting	VESA 100 x 100 (mm)	VESA 200 x 200 (mm)

**NOTE:** All specifications and descriptions are subject to change without notice.



**Mediland Enterprise Corporation**

No.75, Wenhwa 1st Rd., Kueishan Township,  
Taoyuan County 33382, Taiwan, R.O.C.

Phone 886-3-328-9140  
Fax 886-3-328-8881

international@mediland.com.tw  
www.mediland.com.tw



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