

# Resolia™, a Pre-packaged LED Display for Indoor Use

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## 1. Introduction

Resolia™ is a pre-packaged LED display system for indoor use, with a pixel pitch of 4 mm and standardized screen size of 140 inches. This product is designed and developed to take advantage of the LED system as well as offer versatile installation due to the thin structure, reduced labor by an integrated structure, and offer flexible styles of installation.

As high-definition television (HDTV) spreads, large LED video displays are being used for high-resolution high-definition screens. Even for a relatively small indoor screen of less than 150 inches, high-density arrangement of LED elements will soon result in high-resolution screens.

With this background, Mitsubishi Electric has developed a new large LED-type video display, the Resolia™ series, which has a narrow LED pixel pitch of 4 mm and fixed screen size of 140 inches (Figure 1).



Fig. 1 Resolia™ screen outline

The key specifications of Resolia™ are listed in Table 1. Although the resolution is less than that of "true high vision," the LED elements are more densely packed than Mitsubishi Electric's conventional LED displays. As a result, even though the 140-inch screen is relatively small for an LED-type display, it appears to have a high-definition quality level. In addition, the appearance is excellent even when viewed from approx. 3 m, for the same reason. These features expand the potential applications and markets to include shopping malls, presentation rooms in company buildings, and information display panels for stockbrokers, where conventional LED displays were not competitive due to their size, resolution, or viewing distance.

Compared to other display systems (projection

type multi-vision and large LCD/PDP systems), the advantages of the LED system include: (1) brightness with a high luminance, (2) high reliability and long service life, and (3) clear video images without reflection or burning, etc. In addition, the following three features were considered when designing the Resolia™ to make it competitive with other systems.

Table 1 Resolia™ specifications

Method	3 in 1 LED
Pixel configuration	
Pixel pitch	4.0 mm
Density	62,500 pixels/m <sup>2</sup>
Maximum brightness	1,500 cd/m <sup>2</sup>
Gray scale	4096 steps for each color
Brightness setting	64 levels
Maintenance	Front service
Viewing angle	H: 150 V: 120
Input power	200–240 VAC, 2 wire single phase +G, 50/60 Hz, 8.0 kVA
Life time	50,000 hrs (brightness reduced by half)
Screen size	W 3072 × H 1792 pixels
Resolution	W 768 × H 448 pixels
Outline	W 3550 × H 1872 × D 150 mm
Average power consumption	4.8 kW (when showing a video at 50% brightness)
Mass	380 kg (main body only)

## 2. Versatile Installation by Thin 150-mm Structure

By reviewing the layout of the internal components and optimizing their arrangement, the depth is reduced while maintaining the cooling efficiency (150 mm: half of the conventional Mitsubishi Electric product). In addition, all maintenance can be performed from the front. As a result, the display unit can now be installed within ex-

isting structures where there is little rear space, in shallow show windows, and other places where installation was difficult.

### 3. Labor-saving by Integrated Structure

The display screen is integrated, making installation work much simpler: total setup time can be reduced by maximum of up to 50% from that of conventional products. For cases where an integrated unit cannot be installed such as due to narrow passageways, an option is available to deliver a display unit in two parts, divided into the left and right halves.

### 4. Flexible Installation Styles

The display can be inclined when installed at a high position, and can be installed in the following 3 styles depending on the place and application: (1) hung freely, (2) hung on a wall, or (3) self-standing. Mitsubishi Electric's Industrial Design Center created a cabinet design that is ideal anywhere and for any application (Figure 2). Moreover, optional brackets are available to assist each installation method, making the work a simple device.

Mitsubishi Electric has long been developing, designing, and producing large-screen video systems under the brand name of Diamond Vision™. Through this experience, the company has developed proprietary control and signal processing technologies including element-by-element brightness adjustment/color conversion, and display control. These technologies are also implemented in Resolia™ to deliver high-quality video images.

As high-quality video sources are increasing with the spread of digital broadcasting, it is anticipated that the public display market will require large-screen display systems that are easy to operate like a PC monitor and high-video quality. We intend to expand our business by penetrating markets where other display systems have dominated because of bright ambient light, long time operation, etc.



Fig. 2 Resolia™ outline design