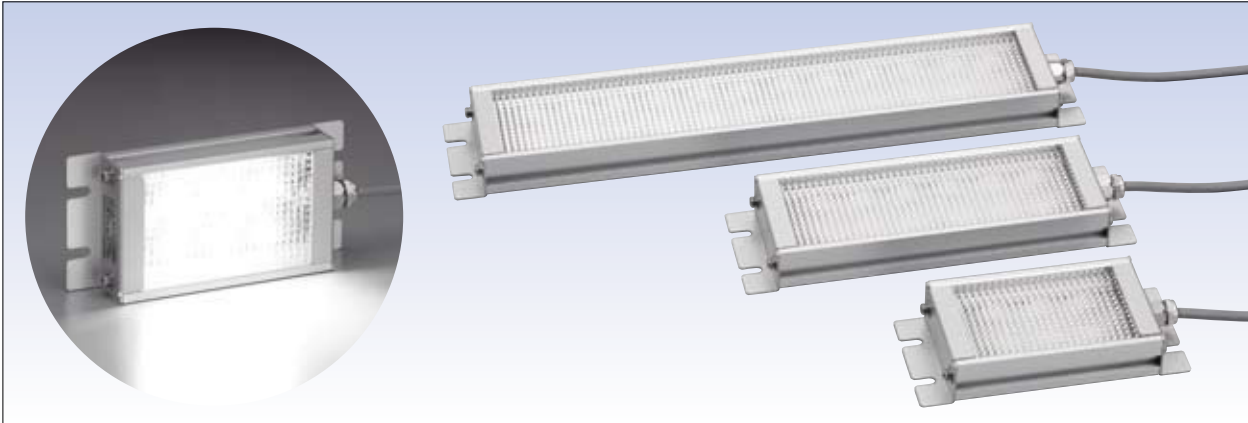


# LF1A Series LED Illumination Units

## Standard Types

LED module and high heat-radiation technology allow for thin LED housing



### Features and Applications by Illumination Color

| Illumination Color   | White   | Incandescent Light Color   | Yellow  | Red   |
|----------------------|---|--|---|---|
| Type No.             | LF1A-*-2THWW6   | LF1A-*-2TLWW6  | LF1A-*-2SHY8  | LF1A-*-2SHR8  |
| Appearance           |   |  |   |   |
| Spectrum             |   |  |   |   |
| Features             | Suppressing glare, the bright, clear white illumination color lights up a target object clearly.  | Warm color similar to that of an incandescent light bulb. This illumination color gives off a color temperature of 2800K.          | Yellow illumination color gives off an emission spectrum with a dominant wavelength of 590 nm. It does not include 500 nm or shorter wavelengths. | Red illumination color gives off an emission spectrum with a long wavelength (dominant wavelength of 625 nm).   |
| Application Examples | <ul style="list-style-type: none"> <li>• Machine Tools</li> <li>• Control Panel/Plant Equipment</li> <li>• Inspection/Test Equipment</li> </ul> | <ul style="list-style-type: none"> <li>• Food Processing Machines</li> <li>• Cosmetic Plants</li> <li>• Chemical Plants</li> </ul> | <ul style="list-style-type: none"> <li>• Semiconductor Manufacturing Equipment</li> <li>• IC Plants</li> </ul>                                    | <ul style="list-style-type: none"> <li>• Application Equipment for Photosensitive Materials</li> <li>• Semiconductor Manufacturing Equipment</li> <li>• Night-time Experiments</li> </ul> |

### Types

| Illumination Color / LED Arrangement | White          | Incandescent Light Color | Yellow        | Red           |
|--------------------------------------|----------------|--------------------------|---------------|---------------|
| 3 LEDs x 2 rows                      | LF1A-A1-2THWW6 | LF1A-A1-2TLWW6           | LF1A-A1-2SHY8 | LF1A-A1-2SHR8 |
| 6 LEDs x 2 rows                      | LF1A-B1-2THWW6 | LF1A-B1-2TLWW6           | LF1A-B1-2SHY8 | LF1A-B1-2SHR8 |
| 12 LEDs x 2 rows                     | LF1A-D1-2THWW6 | LF1A-D1-2TLWW6           | LF1A-D1-2SHY8 | LF1A-D1-2SHR8 |

# LF1A Series LED Illumination Units (Standard Types)

## Specifications

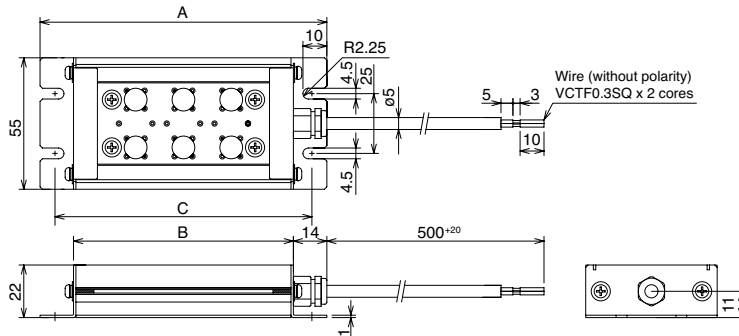
### • General Specifications

| Type No.                                | LF1A--2THWW6   | LF1A--2TLWW6 | LF1A--2SHY8 | LF1A--2SHR8 |
|---|--|--------------|-------------|-------------|
| Rated Voltage                           | 24V DC (without polarity)                            |              |             |             |
| Input Current (typ.) (at rated voltage) | 3 LEDs x 2 rows                                      | 75 mA        | 90 mA       |             |
|   | 6 LEDs x 2 rows                                      | 150 mA       | 180 mA      |             |
|   | 12 LEDs x 2 rows                                     | 300 mA       | 360 mA      |             |
| Rated Power (typ.) (at rated voltage)   | 3 LEDs x 2 rows                                      | 1.8W         | 2.2W        |             |
|   | 6 LEDs x 2 rows                                      | 3.6W         | 4.4W        |             |
|   | 12 LEDs x 2 rows                                     | 7.2W         | 8.7W        |             |
| Dielectric Strength                     | Between live and dead parts: 1000V AC, 1 minute      |              |             |             |
| Insulation Resistance                   | Between live and dead parts: 100 MΩ (500V DC megger) |              |             |             |
| Operating Temperature                   | -20 to +50°C   |              |             |             |
| Storage Temperature                     | -25 to +70°C   |              |             |             |
| Operating/Storage Humidity              | 45 to 85% RH (no condensation)                       |              |             |             |
| Life (half luminance)                   | 40,000 hours   |              |             |             |
| Weight (approx.)                        | LF1A-A1: 190g, LF1A-B1: 270g, LF1A-D1: 470g          |              |             |             |
| Degree of Protection                    | IP40   |              |             |             |

### • LED Optical Specifications

| Type No.  | LF1A--2THWW6     | LF1A--2TLWW6             | LF1A--2SHY8 | LF1A--2SHR8 |
|---|------------------|--------------------------|-------------|-------------|
| Illumination Color                                    | White            | Incandescent Light Color | Yellow      | Red         |
| Luminous Intensity (typ.) (Single LED module)         | 6000 mcd         | 4000 mcd                 | 4000 mcd    | 2500 mcd    |
| Color Temperature (typ.) / Dominant Wavelength (typ.) | 5500K            | 2800K                    | 590 nm      | 625 nm      |
| Reference Illuminance (typ.) at 500 mm                | 3 LEDs x 2 rows  | 190 lx                   | 130 lx      | 85 lx       |
|   | 6 LEDs x 2 rows  | 380 lx                   | 260 lx      | 170 lx      |
|   | 12 LEDs x 2 rows | 760 lx                   | 520 lx      | 340 lx      |

## Dimensions

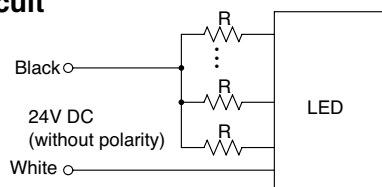


### • Dimension List

| Type No.  | A   | B   | C   |
|-----------|-----|-----|-----|
| LF1A-A1-* | 120 | 92  | 108 |
| LF1A-B1-* | 180 | 152 | 168 |
| LF1A-D1-* | 300 | 272 | 288 |

All dimensions in mm.

## Internal Circuit



# Water-, Dust-, and Oil-Proof Types

Environmental-proof LED illumination units can be used in environments where water/oil spattering may occur.



**Degree of protection (IP67f)**  
Water-proof, dust-proof, oil-proof type that uses special rubber (fluorinated elastomer) for internal waterproof gasket.  
The LF1A series can be used on a food processing line to be washed as a whole, or in a machine tool where the unit may be splashed with oil.

**Easy installation**  
Equipped with a standard accessory 5-m cable (metal protection tube can be mounted)

**Compact body**  
Low-profile design unique to LED illumination  
Allows for installation in a machine where space is limited.

**Safe**  
The front transparent panel uses reinforced glass with a thickness of 4 mm, ensuring safety against any spray of shavings or filings.

**Environmental-proof housing**  
The front housing panel is made of SUS304, ensuring high strength and corrosion resistance.

**Bright**  
With the highly bright multi-chip LED modules, the LF1A series provides illumination equivalent to a 20W fluorescent lamp.

**Easy to see**  
The white LED has a clear color that gives off a color temperature of 5500K, allowing for clear lighting conditions in the workplace.

**Other features**

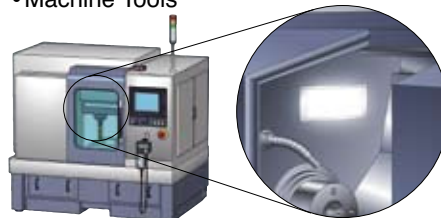
- Energy-saving: Power consumption is approx. one third that of fluorescent lamps.
- Long life: Maintenance unneeded for approx. 40000 hours.
- Clean: Compliant with RoHS directive, mercury-free.
- Vibration/Impact resistance: Unlike fluorescent lamps, an LED unit with no electric contact is resistant to vibration.
- Low heat value: The LED unit gives off a lower heat value than that of a fluorescent lamp.
- Noiseless: The LED unit can be used in a location near electronic equipment.

## Types

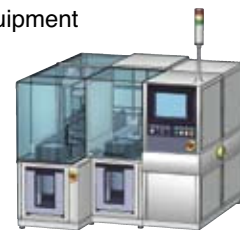
|  |                 |                 |                    |       |                 |
|--|-----------------|-----------------|--------------------|-------|-----------------|
| <table border="1"> <tr> <td>LED Arrangement</td> <td>8 LEDs x 3 rows</td> </tr> <tr> <td>Illumination Color</td> <td>White</td> </tr> </table> | LED Arrangement | 8 LEDs x 3 rows | Illumination Color | White | LF1A-D2F-2THWW6 |
| LED Arrangement  | 8 LEDs x 3 rows |                 |                    |       |                 |
| Illumination Color   | White           |                 |                    |       |                 |

## Application Examples

- Machine Tools



- Semiconductor Manufacturing Equipment



- Food Processing Lines
- Automotive/Outdoor Equipment, etc.

# LF1A Series LED Illumination Units (Water-, Dust-, and Oil-proof)

## Specifications

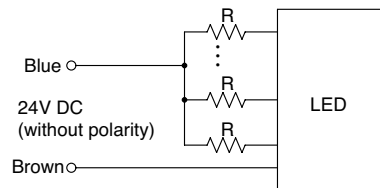
### • General Specifications

|                                      |   |
|--------------------------------------|---|
| Rated Voltage                        | 24V DC (without polarity)   |
| Input Current (typ.)                 | 300 mA (at rated voltage)   |
| Rated Power (typ.)                   | 7.2W (at rated voltage)   |
| Operating Temperature                | -20 to +50°C  |
| Storage Temperature                  | -25 to +70°C  |
| Operating/Storage Humidity           | 45 to 85% RH (no condensation)  |
| Life (half luminance)                | 40,000 hours  |
| Insulation Resistance                | 100 MΩ minimum (500V DC megger)   |
| Dielectric Strength                  | 1000V AC, 1 minute (between live and dead parts)  |
| Vibration Resistance (damage limits) | 5 to 55 Hz, amplitude 0.5 mm, 20 m/s <sup>2</sup>   |
| Shock Resistance (damage limits)     | 980 m/s <sup>2</sup>  |
| Material                             | Housing: SUS<br>Glass: Reinforced glass<br>Rear panel: Aluminum<br>Electric wire: US20276T 0.2 mm <sup>2</sup> x 2c |
| Weight (approx.)                     | 850g  |
| Degree of Protection                 | IP67f   |

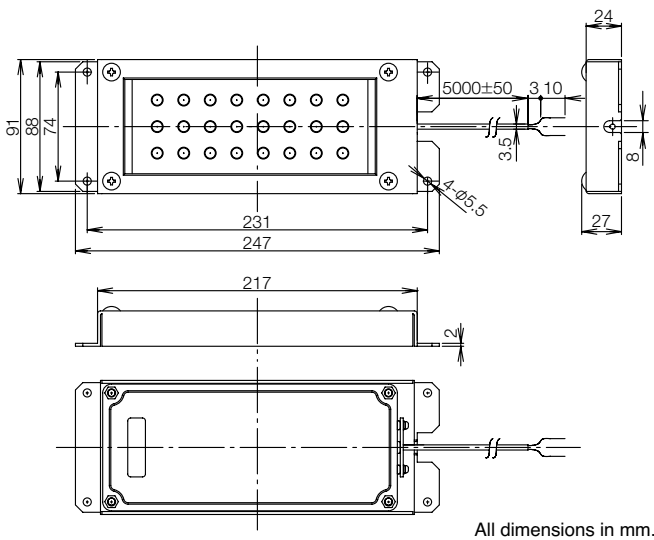
### • LED Optical Specifications

|   |                  |
|---|------------------|
| Illumination Color                            | White            |
| Chromaticity Coordinate Value (typ.)          | X: 0.33, Y: 0.33 |
| Luminous Intensity (typ.) (Single LED module) | 6000 mcd         |
| Color Temperature (typ.)                      | 5500K            |
| Reference Illuminance (typ.) at 500 mm        | 600 lx           |

### Internal Circuit



## Dimensions



## PS5R-S Switching Power Supplies

### Slim size DIN rail mount switching power supplies with finger-safe terminals

- Compact and light-weight  
Width: 22.5 mm (10W/15W), 36 mm (30W/60W), 46 mm (90W), 50 mm (120W), 80 mm (240W)
- DIN rail mounting. Optional mounting bracket is available for panel mounting.
- CE marked (LVD and EMC)
- UL508, UL1604, UL1310 Class 2\*, CSA C22.2 No. 14, No. 213, No.223\*, EN 60950-1, EN50178 compliant. \*(PS5R-SB/SC/SD only)
- EN61204-3 (DC power supply EMC Directive Class B) VCCI Class B compliant
- Meets SEMI F47 Sag Immunity (PS5R-SF/SG)
- RoHS compliant
- Three-year Warranty



Specifications and other descriptions in this catalog are subject to change without notice.



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