## 022 LW series Switches \& Pilot Lights

## Light touch mechanism designed to reduce strain injuries Endures repetitive operation suitable for food processing and packaging industries

- Light touch
- Collective mounting is possible.
- Locking lever removable contact blocks enables easy installation even when mounted collectively.
- Gold plated silver or silver contacts.
- Degree of protection: IP65 (IEC 60529) (except buzzer)
- UL recognized and CSA certified. EN compliant. (except buzzers)


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## Specifications and Ratings

## Contact Ratings

Gold Contact

| Rated Insulation Voltage | 250 V |  |
| :--- | :--- | :--- |
| Thermal Current | 3 A | 30 V DC |
| Operating Voltage | 125 V AC | 0.1 A |
| Operating Current <br> (resistive load) | 0.1 A |  |
| Contact Material | Gold plated silver |  |

Minimum applicable load (reference value): 5V AC/DC, 1 mA (Applicable range is subject to the operating condition and load.)
Silver Contact

| Rated Insulation Voltage |  |  | 250 V |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Rated Operating Voltage |  |  | 30 V | 125 V | 250 V |
| Rated Operating Current | AC $50 / 60 \mathrm{~Hz}$ | Resistive load | - | 3A | 2A |
|  |  | Inductive load | - | 2A | 1.5A |
|  | DC | Resistive load | 2A | 0.4A | - |
|  |  | Inductive load | 1 A | 0.2A | - |
| Rated Thermal Current |  |  | 5A |  |  |
| Contact Material |  |  | Silver |  |  |

- $A C$ inductive load: $P F=0.6$ to $0.7 \quad D C$ inductive load: $L / R=7 \mathrm{~ms}$ max.


## Specifications

| Operating Temperature |  | -25 to $+60^{\circ} \mathrm{C}$ (no freezing) Illuminated units: -25 to $+50^{\circ} \mathrm{C}$ |
| :---: | :---: | :---: |
| Storage Temperature |  | -40 to $+80^{\circ} \mathrm{C}$ (no freezing) |
| Operating Humidity |  | 45 to 85\% RH (no condensation) |
| Contact Resistance |  | $50 \mathrm{~m} \Omega$ maximum (initial value) |
| Insulation Resistance |  | $100 \mathrm{M} \Omega$ minimum (500V DC megger) |
| Dielectric Strength | Switch Unit | Between live part and ground: <br> $2,500 \mathrm{~V}$ AC, 1 minute <br> Between terminals of different poles: <br> 2,500V AC, 1 minute <br> Between terminals of the same pole: <br> 1,000V AC, 1 minute |
|  | Illumination Unit | Between live part and ground: 2,500V AC, 1 minute |
| Vibration Resistance |  | Damage Limits, Operating extremes: 5 to 55 Hz , amplitude 0.5 mm |
| Shock Resistance |  | Damage limits: $\quad 1,000 \mathrm{~m} / \mathrm{s}^{2}$ Operating extremes: $100 \mathrm{~m} / \mathrm{s}^{2}$ |
| Mechanical Life (minimum operations) |  | Momentary: $1,000,000$ <br> Maintained: 500,000 <br> Selector switches: 250,000 <br> Key selector switches: 250,000 <br> Illuminated selector switches: 250,000 |
| Electrical Life (minimum operations) |  | Momentary: 100,000 <br> (switching frequency 1800 operations/h) <br> Maintained: 100,000 <br> (switching frequency 900 operations $/ \mathrm{h}$ ) <br> Selector switches: 100,000 <br> (switching frequency 900 operations $/ \mathrm{h}$ ) |
| Degree of Protection |  | IP65 (IEC 60529) (except buzzer) |
| Terminal Style |  | Solder/tab terminal no. 110 PC board terminal Screw terminal |
| Weight (approx.) |  | 10g (LW1B-M1C3) <br> 15 g (LW1P-14) <br> 24g (LW1L-M1C34) <br> 24g (LW1S-2C3) <br> 39g (LW1K-2C3A) <br> 27g (LW1F-2C34) |

LED Lamp Ratings (LSTD)

| Part No. |  | LSTD-6² | LSTD-1② | LSTD-2 |
| :---: | :---: | :---: | :---: | :---: |
| Lamp Base |  | BA9S/13 |  |  |
| Rated Voltage |  | 6V AC/DC | 12V AC/DC | 24V AC/DC |
| Voltage Range |  | 6 V AC/DC $\pm 10 \%$ | 12 V AC/DC $\pm 10 \%$ | 24 V AC/DC $\pm 10 \%$ |
| Current Draw | AC | $8 \mathrm{~mA}(\mathrm{~A}, \mathrm{G}, \mathrm{PW}, \mathrm{R}), 7 \mathrm{~mA}$ (S) | $11 \mathrm{~mA} \mathrm{(A}, \mathrm{G}, \mathrm{PW}, \mathrm{R)} ,9 \mathrm{~mA} \mathrm{(S)}$ | $11 \mathrm{~mA}(\mathrm{~A}, \mathrm{G}, \mathrm{PW}, \mathrm{R}), 9 \mathrm{~mA}(\mathrm{~S})$ |
|  | DC | $7 \mathrm{~mA}(\mathrm{~A}, \mathrm{R}), 5.5 \mathrm{~mA}$ (G, PW), 4.5 mA (S) | $10 \mathrm{~mA} \mathrm{(A}, \mathrm{G}, \mathrm{PW}, \mathrm{R)}$,8 mA (S) | 10 mA (A, G, PW, R), 8 mA (S) |
| Color Code (2) |  | A (amber), G (green), PW (pure white), R (red), S (blue) |  |  |
| Lamp Base Color |  | Same as illumination color |  |  |
| Voltage Marking |  | Die stamped on the base |  |  |
| Life (reference value) |  | Approx. 50,000 hours (The luminance is reduced to 50\% the initial intensity when used on complete DC.) |  |  |
| Internal Circuit |  |  |  |  |

## Mounting Hole Layout



Note: Determine the mounting centers to ensure easy operation.

- ø30mm Mushroom: Vertical: 32 mm minimum Horizontal: 32 mm minimum
- Solder/Tab Terminal Without terminal cover: Vertical: 26 mm minimum Horizontal: 26 mm minimum
With terminal cover: Vertical: 26 mm minimum Horizontal: 27 mm minimum
- Screw terminal:
- PC board terminal: Horizontal:

Vertical: 40 mm minimum Horizontal: 26 mm minimum Vertical: 26 mm minimum 26 mm minimum

## Ordering Information

## Standard Units

- Specify a button or lens color code in the Part No.
- All illuminated units are supplied with an LED lamp.
- All standard units are UL recognized, CSA certified, and EN compliant (TÜV Rheinland).


## Pilot Lights

| Package Quantity: 1 |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Shape | Operating Voltage | Part No |  |  | (2) Color Code |
|  |  | Solder/Tab Terminal (Unibody) | PC Board Terminal (Removable Contact Block) | Screw Terminal (Unibody) |  |
| Round Flush LW1P | 6 V AC/DC $\pm 10 \%$ | LW1P-12 | LW1P-1C02V(2) | LW1P-12M ${ }^{\text {(2) }}$ | Specify a color code in place of (2) in the Part No. <br> A: amber <br> G: green <br> PW: pure white <br> R: red <br> S: blue <br> Y: yellow |
|  | 12 V AC/DC $\pm 10 \%$ | LW1P-13② | LW1P-1C03V(2) | LW1P-13M ${ }^{\text {(2) }}$ |  |
|  | 24 V AC/DC $\pm 10 \%$ | LW1P-14② | LW1P-1C04V② | LW1P-14M(2) |  |
| Square Flush LW2P | 6 V AC/DC $\pm 10 \%$ | LW2P-12 | LW2P-1C02V(2) | LW2P-12M(2) |  |
|  | 12V AC/DC $\pm 10 \%$ | LW2P-13② | LW2P-1C03V(2) | LW2P-13M ${ }^{\text {(2) }}$ |  |
|  | 24 V AC/DC $\pm 10 \%$ | LW2P-14② | LW2P-1C04V② | LW2P-14M ${ }^{\text {2 }}$ |  |
| Round Flush with Square Bezel LW3P | 6 V AC/DC $\pm 10 \%$ | LW3P-12 | LW3P-1C02V(2) | LW3P-12M ${ }^{(2)}$ |  |
|  | 12 V AC/DC $\pm 10 \%$ | LW3P-13(2) | LW3P-1C03V(2) | LW3P-13M(2) |  |
|  | 24 V AC/DC $\pm 10 \%$ | LW3P-14② | LW3P-1C04V(2) | LW3P-14M ${ }^{\text {2 }}$ |  |

[^0]Dimensions

Unibody


## Removable Contact Block



Round with Square Bezel


## Terminal Arrangement

Unibody


- Lamp terminals do not have any polarity.


## Removable Contact Block

> PC Board Terminal TOP


- Lamp terminals do not have any polarity.


## PC Board Drilling Layout (Bottom View)

Pay attention to the pattern of the PC board as the terminals on the mounting surface are 2.8 mm wide.


## Applicable Crimping Terminal



## Accessories

\begin{tabular}{|c|c|c|c|c|c|}
\hline Shap \& \& Material \& Part No. \& Package Quantity \& Dimensions (mm) \\
\hline Locking Ring Wrenc \& \& Nickel-plated brass \& LW9Z-T1 \& 1 \& \begin{tabular}{l}
- Used to tighten the locking ring when installing the LW switch onto a panel. \\
- Tightening torque: 1.2 N.m
\end{tabular} \\
\hline Lamp Holder Tool \& \& Rubber \& OR-55 \& 1 \& - Used to install and remove LED lamps. \\
\hline Switch Guard \& Spring Return \& Guard (polyarylate) Base (polyacetal) \& \begin{tabular}{l} 
LW9Z-K1 \\
\hline \\
\hline LW9Z-K11
\end{tabular} \& 1

1 \& | - Used to protect flush pushbuttons and illuminated pushbuttons from inadvertent operation. |
| :--- |
| - Degree of protection: IP65. |
| Note: Determine mounting centers to ensure easy operation. | <br>

\hline \multicolumn{2}{|l|}{Terminal Cover For solder/tab terminal} \& Plastic (translucent) \& LW-VL2 \& 1 \&  <br>
\hline Terminal Cover For screw terminal \& \& Plastic (black) \& LW-VL2M \& 1 \& - For units with removable contacts only. <br>
\hline Terminal Cover For solder/tab term \& \& Plastic (translucent) \& LW-PVL \& 1 \& - For unibody pilot lights only. <br>
\hline Terminal Cover For screw terminal \& \& Plastic (translucent) \& LW-PVLM \& 1 \& - For unibody pilot lights only. <br>
\hline Rubber Mounting H \& \& Nitryl rubber (black) \& OB-31PN05 \& 5 \& - Degree of protection: IP65 <br>

\hline Metal Mounting Hol \& \& Metal (diecast) Locking nut (plastic) \& LW9Z-BM \& 1 \& | - Degree of protection: IP66 |
| :--- |
| - Panel thickness: 0.8 to 6 mm | <br>

\hline
\end{tabular}

## Maintenance Parts

| Shape | For Use On | Material | Part No. | Ordering No. | Package Quantity | Color Code |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Lens | Round Flush | Polyarylate | LW9Z-L1 ${ }^{2}$ | LW9Z-L1 (2)PN05 | 5 | Specify a lens color code in place of (2) in the Ordering No. |
|  | Round Flush with Square Bezel |  |  |  |  |  |
| Lens | Round Extended | Polyarylate | LW9Z-L12② | LW9Z-L12②PN05 | 5 | A: amber C: clear G: green |
| Lens | Square Flush | Polyarylate | LW9Z-L2② | LW9Z-L2 2PN05 | 5 | R: red <br> S: blue <br> Y: yellow |
| Lens | ø30mm Mushroom | AS | LW9Z-L13 ${ }^{(2)}$ | LW9Z-L13 [2 | 1 | - Use a clear (C) lens for pure white and white illumination. |

## Maintenance Parts

| Shape | For Use On | Material | Part No. | Ordering No. | Package Quantity | Color Code |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Button | Round Flush | Polyacetal | LW1A-B1 ${ }^{1}$ | LW1A-B111PN05 | 5 | Specify a button color code in place of $(1)$ in the Ordering No. |
|  | Round Flush with Square Bezel |  |  |  |  |  |
| Button | Extended | Polyacetal | LW1A-B2① | LW1A-B2(1)PN05 | 5 |  |
|  | Round Extended with Square Bezel |  |  |  |  |  |
| Button | Square Flush | Polyacetal | LW2A-B1 ${ }^{1}$ | LW2A-B1①PN05 | 5 | B: black <br> G: green <br> R: red <br> S: blue <br> W: white <br> Y: yellow |
|  | Square Extended | Polyacetal | LW2A-B2① | LW2A-B2ⓅN05 | 5 |  |
|  | ø30mm Mushroom | AS | LW1A-B3(1) | LW1A-B3(1) | 1 |  |
| Marking Plate | Round | Acryl | LW9Z-P1W | LW9Z-P1WPN05 | 5 | - White |
|  | Round with Square Bezel |  |  |  |  |  |
| Marking Plate | Square | Acryl | LW9Z-P2W | LW9Z-P2WPN05 | 5 |  |
| Marking Plate | Round Extended | Acryl | LW9Z-P12W | LW9Z-P12WPN05 | 5 |  |
| Marking Plate | Mushroom | Acryl | ALW3B | ALW3BPN05 | 5 |  |
| Knob | Illuminated Selector | Plastic | LW1A-F(2) | LW1A-F²) | 1 | A (amber), G (green), R (red), S (blue), <br> W (white), Y (yellow) |
| Locking Ring | All LW units | Plastic | LW9Z-LN | LW9Z-LNPN05 | 5 | - Black |
| Anti-rotation Ring | Selector Switch | Stainless Steel | LW9Z-L | LW9Z-LPN10 | 10 |  |
| Spare Key | Key Selector Switch | Metal | KG9Z-SK-231 | KG9Z-SK-231PN02 | 2 |  |

## LED Lamps

| Dimensions | Operating Voltage | Current Draw |  | Part No. | Ordering No. | Illumination Color Code | Package Quantity | Base |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | AC | DC |  |  |  |  |  |
|  | $\begin{aligned} & 6 \mathrm{~V} \mathrm{AC/DC} \\ & \pm 10 \% \end{aligned}$ | $\begin{aligned} & 8 \mathrm{~mA} \text { (except S) } \\ & 7 \mathrm{~mA}(\mathrm{~S}) \end{aligned}$ | $\begin{aligned} & 7 \mathrm{~mA}(\mathrm{~A}, \mathrm{R}, \mathrm{~W}) \\ & 5.5 \mathrm{~mA}(\mathrm{G}, \mathrm{PW}) \\ & 4.5 \mathrm{~mA}(\mathrm{~S}) \end{aligned}$ | LSTD-6 | LSTD-6② | Specify a color code in place of (2) in the Ordering No. <br> A: amber <br> G: green <br> PW: pure white <br> R: red <br> S : blue <br> Use a pure white (PW) LED lamp with (Y) lens. | 1 | BA9S/13 |
|  |  |  |  |  | LSTD-6(2)PN10 |  | 10 |  |
|  | $\begin{aligned} & 12 \mathrm{~V} \text { AC/DC } \\ & \pm 10 \% \end{aligned}$ | $\begin{aligned} & 11 \mathrm{~mA} \text { (except S) } \\ & 9 \mathrm{~mA}(\mathrm{~S}) \end{aligned}$ | 10 mA (except S)$8 \text { mA (S) }$ | LSTD-1² | LSTD-1® |  | 1 |  |
|  |  |  |  |  | LSTD-1(2)PN10 |  | 10 |  |
|  | $\begin{aligned} & 24 \mathrm{~V} \text { AC/DC } \\ & \pm 10 \% \end{aligned}$ | $\begin{aligned} & 11 \mathrm{~mA} \text { (except S) } \\ & 9 \mathrm{~mA}(\mathrm{~S}) \end{aligned}$ | 10 mA (except S) 8 mA (S) | LSTD-2 | LSTD-2 |  | 1 |  |
|  |  |  |  |  | LSTD-2(2)PN10 |  | 10 |  |

## Transformer

| Shape | Primary Voltage | Secondary Voltage | Part No. | Applicable Load |
| :---: | :---: | :---: | :---: | :---: |
| Din Rail Mount Transformer For 6V | 100/110V AC | 5.5V AC, 1W | TWR516 | LSTD-6 LED lamp (6V AC/DC) or LS-6 incandescent lamp (6V AC/DC, 1W) |
|  | 115/120V AC |  | TWR5126 |  |
|  | 200/220V AC |  | TWR526 |  |
|  | 230/240V AC |  | TWR5246 |  |
|  | 380 V AC |  | TWR5386 |  |
|  | 400/440V AC |  | TWR546 |  |
|  | 480 V AC |  | TWR5486 |  |

## Specifications

| Operating Voltage | $100 / 110 \mathrm{~V} \mathrm{AC}, \mathrm{115/120V} \mathrm{AC}, \mathrm{200/220V} \mathrm{AC}$, <br> $230 / 240 \mathrm{~V} \mathrm{AC}, \mathrm{380V} \mathrm{AC}, \mathrm{400/440V} \mathrm{AC}, \mathrm{480V} \mathrm{AC}$ <br> $(50 / 60 \mathrm{~Hz})$ |
| :--- | :--- |
| Current Draw | 2.4 VA |
| Rated Insulation <br> Voltage | 600 V |
| Insulation Resistance | $100 \mathrm{M} \Omega$ minimum (500V DC megger) |
| Operating Temperature | -30 to $+60^{\circ} \mathrm{C}$ (no freezing) |
| Storage Temperature | -40 to $+80^{\circ} \mathrm{C}$ (no freezing) |
| Operating Humidity | 35 to $85 \%$ RH (no condensation) |
| Vibration Resistance | Damage Limits: 30 Hz, amplitude 1.5 mm <br> Operating extremes: 5 to 55 Hz, amplitude 0.5 mm |
| Shock Resistance | Damage limits, Operating Extremes: $1,000 \mathrm{~m} / \mathrm{s}^{2}$ |
| Dielectric Strength | $2,500 \mathrm{~V}$ AC, 1 minute |
| Terminal Screw | M 3.5 |
| Applicable Wire | $2 \mathrm{~mm}{ }^{2}$ maximum, 2 wires maximum |
| Weight (approx.) | 87 g |

## Dimensions



## Accessories

DIN Rail

| Part No. | Ordering No. | Length | Weight (approx.) | Material | Package Quantity |
| :--- | :--- | :--- | :--- | :--- | :---: |
| BAA1000 | BAA1000PN10 | 1000 mm | 200 g | Aluminum | 10 |

End Clip

| Part No. | Ordering <br> No. | Applicable DIN Rail | Weight (approx.) | Material | Package Quantity | Dimensions |
| :--- | :---: | :--- | :--- | :--- | :--- | :--- |
| BNL6 | BNL6PN10 | BAA1000 <br> BAP1000 | 15 g | Steel <br> (Zinc-plated) | 10 |  |

## Safety Precautions

- Turn off the power to the LW series before starting installation, removal, wiring, maintenance, and inspection of the products. Failure to turn power off may cause electrical shocks or fire hazard.
- To avoid burning your hand, use the lamp holder tool when replacing lamps.
- For wiring, use wires of a proper size to meet the voltage and current requirements. Solder correctly according to the instructions on "Wiring" and "Notes on Terminal Cover" on page 28. Tighten the M3 terminal screws to a torque of 0.6 to $1.0 \mathrm{~N} \cdot \mathrm{~m}$. Failure to tighten terminal screws may cause overheating and fire.


## Instructions

## Panel Mounting

Remove the contact block from the operator. Insert the operator into the panel cut-out from the front, then install the contact block.

## Removing the Contact Block

Turn the locking lever on the contact block in the direction opposite to the arrow on the housing. Then the contact can be removed.
Installing the Contact Block Insert the contact block, with the TOP markings on the contact block and the operator placed in the same direction. Then lock the units, turning the locking lever in the direction of the arrow.


## Notes on Mounting

Use the optional ring wrench (LW9Z-T1) to mount the operator onto the panel. Tightening torque should not exceed $1.2 \mathrm{~N} \cdot \mathrm{~m}$. Do not use pliers. Excessive tightening will damage the locking ring.

## Collective Mounting

As the locking lever can be turned easily from the rear of the units using a screwdriver, the contact blocks can be removed even when mounted collectively.


## Replacement of Lens and Marking Plate

## Removing

1. Remove the operator (lens, marking plate, and lens holder) by inserting a screwdriver into the recess of the lens through the bezel.
[Removing the Operator]

2. Remove the marking plate by pushing the lens from the rear to disengage the latches between the lens and the lens holder, using the screwdriver as shown below.
[Removing the lens]


Note: The translucent filter in the lens holder cannot be removed because the filter is sealed to make the unit waterproof.

## Installing

For round lens, place the marking plate on the lens holder with the anti-rotation projection engaged and press the lens onto the lens holder to engage the latches. For square lens, insert the marking plate into the lens, and press the lens onto the holder to engage the latches.
Note: Make sure of correct orientation of the marking plate.
[Round Lens]


Lens


Marking Plate


Lens Holder
[Square Lens]




## Marking Plate and Films

For LW series illuminated pushbuttons and pilot lights, legends and symbols can be engraved on the marking plates, or printed marking film can be inserted under the lens for labelling purposes.
Marking Plate and Marking Film Size

| Lens | Round Lens ${ }^{\text {R }}$ Square Lens |
| :---: | :---: |
|  | - Engraving must be made on the engraving area within 0.5 mm deep. <br> - The marking plate is made of white acrylic resin. |
|  | - Two 0.1 mm -thick films or one 0.2 mm -thick film can be installed in the lens. <br> - Marking film is not included. <br> - Recommended marking film: Polyester film |

## Instructions

Insertion Order of Marking Plate and Film
[Round Lens]


Note: Film is not included
[Square Lens]


Note: Film is not included Make sure of correct orientation of the marking plate.

## Replacement of Lamps

Lamps can be replaced using the lamp holder tool (OR-55) from the front of the panel, or by removing the contact block from the operator.

## How to Remove

To remove, slip the lamp holder tool onto the lamp head. Then push slightly, and turn the lamp holder tool counterclockwise.


Lamp Holder Tool
OR-55


## How to Install

1. To install, insert the lamp head into the lamp holder tool, and hold the lamp as shown in the figure below.

2. Insert the pins on the lamp base into the grooves in the lamp socket. Insert the lamp and turn it clockwise.


## Wiring

1. Solder the terminals within 20W/5 sec or $260^{\circ} \mathrm{C} / 3 \mathrm{sec}$ without exerting external force to the terminals. While soldering, do not touch the soldering iron to the housing. While wiring, prevent tension from being applied to the terminals. Do not bend or raise the terminals, nor exert excessive force to terminals.
2. Use non-corrosive liquid flux.
3. For tab terminals, Positive Lock Connectors and Easy Lock Connectors can be used.
4. Tighten the terminal screw of the screw terminal type to a torque of 0.6 to $1.0 \mathrm{~N} \cdot \mathrm{~m}$.

## Notes on Terminal Cover

[Solder/Tab Terminal]
Insert the terminal cover into the contact block with the TOP markings on the contact block and the terminal cover in the same direction.
Note: When wiring, insert the lead wires into the terminal cover holes before soldering.


## Notes on Wiring

When installing a terminal cover onto the solder/tab terminal contact block, solder the inside of lamp terminal (toward the switch terminals) and wire.


## [Screw Terminal]

Terminal cover must be installed on the LW series before wiring.
Note 1: After wiring, terminal covers cannot be installed.
Note 2: When terminal covers are installed, do not use round crimping terminals.
(Wire the terminal by using fork terminals or lead wires directly.

## Single Board Mounting



Mounting the LW series unit on a single PC board offers the following features.

1. Reduced installation labor, easy wiring, space saving, and standardiztion.
2. Since the contact blocks on the PC board can be removed easily using a locking lever, LW series is easy to maintain.
3. Because the LW series requires no studs for fastening the unit to a PC board, special preparation of operation panel is not needed.
4. For details on single board mounting, contact IDEC.

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i. The product was handled or used deviating from the conditions / environment listed in the Catalogs
ii. The failure was caused by reasons other than an IDEC product
iii. Modification or repair was performed by a party other than IDEC
iv. The failure was caused by a software program of a party other than IDEC
v. The product was used outside of its original purpose
vi. Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and Catalogs
vii. The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from IDEC
viii. The failure was due to other causes not attributable to IDEC (including cases of force majeure such as natural disasters and other disasters) Furthermore, the warranty described here refers to a warranty on the IDEC product as a unit, and damages induced by the failure of an IDEC product are excluded from this warranty.

## 5. Limitation of liability

The warranty listed in this Agreement is the full and complete warranty for IDEC products, and IDEC shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to an IDEC product.

## 6. Service scope

The prices of IDEC products do not include the cost of services, such as dispatching technicians. Therefore, separate fees are required in the following cases.
(1) Instructions for installation / adjustment and accompaniment at test operation (including creating application software and testing operation, etc.)
(2) Maintenance inspections, adjustments, and repairs
(3) Technical instructions and technical training
(4) Product tests or inspections specified by you

The above content assumes transactions and usage within your region. Please consult with an IDEC sales representative regarding transactions and usage outside of your region. Also, IDEC provides no guarantees whatsoever regarding IDEC products sold outside your region.

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[^0]:    - Every pilot light is supplied with an LED lamp (LSTD) of the specified color and voltage.
    - A pure white LED lamp is used for yellow illumination.
    - For marking plate and film, see page 27.

