Lift
Press the SET key in the sensing object present condition.

7 TEACHING MODE
Press the SET key down in the sensing object present condition.
Run the sensing object on the line and hold down the SET key.

18 PRO MODE OPERATION DESCRIPTION
The threshold value (1_SL) that is 10% lower from the incident light intensity is set.
Pressing SET key down.

19 PRO MODE OPERATION DESCRIPTION
Sensing output indicator (Yellow)
Sensing output 2 selection indicator (Orange)
Sensing output selection indicator (Yellow)

4 OPERATION PROCEDURE
The sensing output can be switched to sensing output 1 or sensing output 2 by bending down the mode key.
The changed settings are not stored if turning the power OFF while setting.
Therefore, confirm the settings by pressing the SET key before turning the power OFF.

When turning ON the power, RUN mode is displayed and the digital display shows the threshold value (green) and the incident light intensity (red).

● The sensing output mode can be switched to sensing output 1 or sensing output 2 by pressing the SET key.

The default setting is "FUNCTION THRESHOLD VALUE FINE ADJUSTMENT FUNCTION"
For setting method of each function, refer to "FUNCTION THRESHOLD VALUE FINE ADJUSTMENT FUNCTION"

Advanced setting can be done.

1. Press the SET key in the sensing object present condition.

2-point teaching
This is basic teaching method.

1. Pressing SET key down.
2. Pressing SET key down.

Useful when sensing object can be set

2-point teaching
This is basic teaching method.

1. Press the SET key in the sensing object present condition.

3-point teaching
This is the method to conduct the teaching setting using the sensing object (A, B and C) whose incident light intensities are different.

(1) In Set screen, move to the rising differential mode, or the trailing differential mode in the "PRO6 window comparator mode." Pressing SET key down.
(2) Set to "Hysteresis mode" setting. For setting, refer to "Hysteresis mode setting.

2-point teaching
This is the method to set the threshold range by selecting the 2-point teaching (P-1, P-2).
When conducting teaching, use sensing objects (P-1 and P-2) whose incident light intensities are different from each other.

Useful when sensing object cannot be set

Limi-technique
This is the method to conduct the 3-point teaching (P-1, P-2, P-3) and to set the threshold range by setting the threshold value (1_SL) of the mid-point between "A" and "B" and the threshold value (2_SL) of the mid-point between "B" and "C.

When teaching, use sensing objects (A and B) whose incident light intensities are different.

After teaching, P-1, P-2 and P-3 will be automatically released in ascending order i.e. the lowest value is placed in "A," the second lowest in "B" and the highest in "C.

Useful when want to stop production line and to keep the sensing object mov

Full-auto teaching
This is method to conduct teaching doing sensing object is moving.

1. Pressing SET key down.
2. Run the sensing object on the line and hold down the SET key.

Threshold condition
The threshold condition can be set to the desired value when the threshold value is set.

The threshold value setting method can be set to the "PRO6 window comparator mode."
18 PRO MODE OPERATING DESCRIPTION

- Set the fine adjustment of threshold value in RUG mode.
- For setting the sensing output function can be used in forward ON output mode.
- For setting of the sensing output item to "PRO4" in PRO MODE OPERATING DESCRIPTION.

- Normal mode, Rising differential mode or Trailing differential mode

Procedure

Data bank loading setting
Emission halt setting

9 KEY LOCK FUNCTION

- The key lock function prevents key operations so that the conditions set in each setting mode are not inadvertently changed.
- Operating key switch after key lock is set, is indicated on the digital display.

- Set key lock

- Release key lock

10 SENSING OUTPUT OPERATION MODE

- When MODE indicator: PRO (yellow) lights up, sensing output operation can be set.

11 CUSTOM MODE

- When MODE indicator: CUST (yellow) lights up, Response time setting, Emission power setting or Hysteresis setting can be displayed.

- By pressing UP key or DOWN key, the setting in each item will be changed.
- Press SET key to confirm the setting.
- For setting of each item, refer to the following table.

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Reference data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light sensitivity setting</td>
<td>Adjustable from 0 to 100</td>
<td>Adjustable from 0 to 100</td>
</tr>
<tr>
<td>Sensing output setting</td>
<td>0 (OFF)</td>
<td>0 (OFF)</td>
</tr>
<tr>
<td>Setting of threshold value fine adjustment</td>
<td>0 (OFF)</td>
<td>0 (OFF)</td>
</tr>
<tr>
<td>Setting of threshold value tracking</td>
<td>0 (OFF)</td>
<td>0 (OFF)</td>
</tr>
</tbody>
</table>

- With each group, identical models should be connected in a loop.
- In case conducting copy setting of the device and other LS-505 series together, functions which are incorporated in this device will be copied but functions which are not incorporated in this device will not be copied.

12 OPTICAL COMMUNICATION

- When the setting of data bank loading / saving, copy setting, or copy action setting is set to ON, the threshold value fine adjustment function can be used in forward ON output mode.
- For setting of the sensing output function can be used in forward ON output mode.

- With the setting of data bank loading / saving, copy setting, or copy action setting is set to ON, the threshold value fine adjustment function can be used in forward ON output mode.
- For setting of the sensing output function can be used in forward ON output mode.

13 OPTICAL COMMUNICATION

- In case conducting copy setting of the device and other LS-505 series together, functions which are incorporated in this device will be copied but functions which are not incorporated in this device will not be copied.

14 ERROR INDICATION

- In case of error, the following measures are taken.

15 SPECIFICATIONS

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power supply</td>
<td>12 to 24V DC +10</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>+10 to +55°C (If 4 to 7 units are mounted in cascade: +10 to +50°C or if 8 to 16 units are mounted in cascade: +10 to +40°C)</td>
</tr>
<tr>
<td>Humidity</td>
<td>35 to 85% RH</td>
</tr>
<tr>
<td>Resolution</td>
<td>10V: ±0.01V, 20V: ±0.02V</td>
</tr>
<tr>
<td>Accuracy</td>
<td>10V: ±0.05%, 20V: ±0.1%</td>
</tr>
<tr>
<td>Response time</td>
<td>10V: 10ms, 20V: 20ms</td>
</tr>
<tr>
<td>Sensing range</td>
<td>10V: 10V, 20V: 20V</td>
</tr>
</tbody>
</table>

16 CAUTIONS

- This product has been developed / produced for industrial use only.
- Make sure that the power supply is OFF while adding or removing the amplifiers.
- Keep the product from direct exposure to rain or moisture.
- This product is not suitable for indoor use.
- Avoid dust, dirt, and steam.
- Make sure that the product does not come in contact with oil, grease, organic solvents such as thinner, strong acid or alkaline.
- This product is not suitable for an environment containing inflammable or explosive gases.
- This product may not be modified or the like.
- This product adds EEPROM. Settings cannot be done 100 thousand times or more because of the EEPROM's lifetime.
In addition, present setting can be confirmed.

In case setting to 0-adjustment, set to 0.

Data bank loading from the main amplifier via optical communications, the optical setting is forcibly set. Only drastic drops in incident light intensity are detected.

Select external input.

If setting to "Answer back output mode" (Answer back output mode) (Except sensing output 1) is effective.

Displaying OFF/ON back-up setting (forbidden).

• Sets forcibly the output to ON.

• Sets forcibly the output to OFF.

Algorithm setting: Sensing output 1 Sensing output 2 Sensing output 1 Sensing output 2

Level 1

Level 2

Level 3

Level 4

Particularly important to note is the setup of the logical operation and set logical operation methods (and, or, exclusive or, exclusive not). Furthermore, when setting in the logical operation, both programming methods can be combined as the bases of shift amount. Furthermore, when setting to auto teaching, Teaching mode is invalid.

Teaching mode is valid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.

Only drastic drops in incident light intensity are detected. All other drops are ignored.

Teaching mode is invalid.