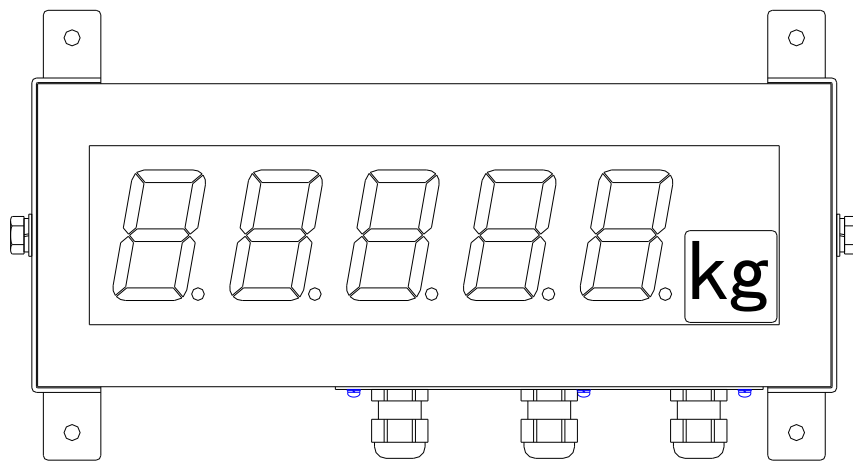




EXTERNAL LED INDICATOR

MODEL ED-3021

OPERATION MANUAL



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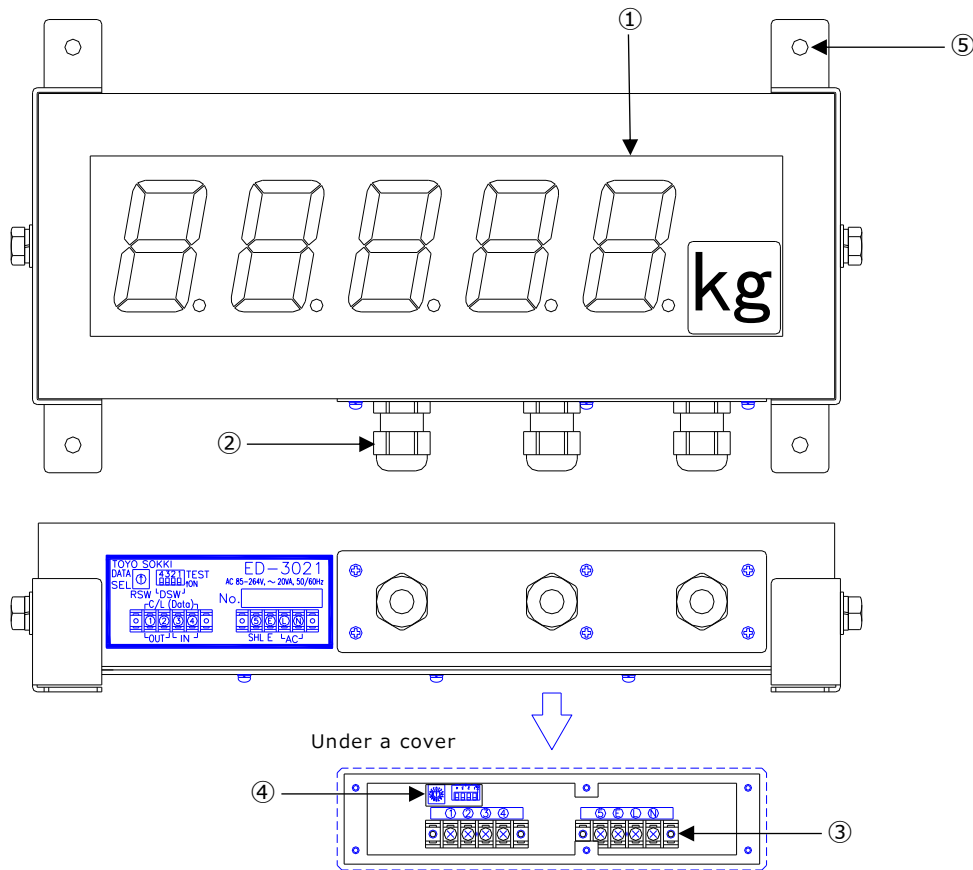
This document is translated from MA4-00188-R1 (Japanese)

§ 1. Summary

This unit is an external LED indicator which receive the TOYO dedicated serial signal transmitted from TOYO digital indicator. It has visual distance 30m or more due to its LED character height 57mm and high intensity of LED.
The power supplied voltage is the wide range of AC85 to 264V.

§ 2. Appearance and Each part name

Appearance of the unit



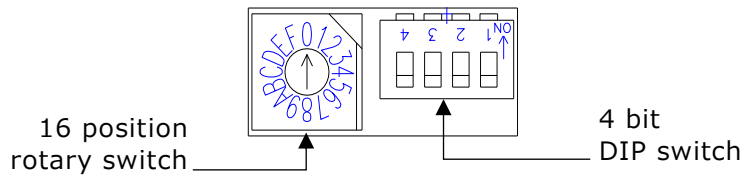
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|-------------------------|--|
| ① LED INDICATOR | 5 digit LEDs, red, character height 57mm |
| ② CABLE CRAMP x3 | Dustproof, Drip-proof cover of cable |
| ③ TERMINAL | Input / Output of serial signal and Power line |
| ④ DIP and ROTARY SWITCH | Select a channel and Check operation |
| ⑤ FIXING HOLE x4 | Use 4-M6 bolt screw to fix this unit |

Attached accessories

- | | |
|---|--------|
| 1). Operation Manual | 1 copy |
| 2). Bracket (Mounted at the time of shipment) | 1 set |
| 3). Unit seal (kg, t) | 2 pcs |
| 4). Seal Pin (Inserted in one of cable cramp) | 1 pc |

§ 3. FUNCTION

This unit is to indicate the serial data transmitted from TOYO digital indicator. Serial data is delivered by current loop signal and its format conforms to TOYO dedicated one.



3 – 1) 16 position rotary switch to select a channel of data

- [0] : Corresponds to data of TOYO dedicated standard format.
Indicate the same measured value of connected digital indicator.
- [1~9] : Corresponds to the header attached data of TOYO dedicated format.
Indicate the same measured value of each channel of connected digital indicator.

Switch position and indicate channel

Rotary switch position	Indicate channel
0	TOTAL
1	CH-A
2	CH-B
3	CH-C
4	CH-D

TOYO digital indicator which has multiple channel, as below, can be connected.
DLS-5026B, DLS-5031A

- [A~F] : Prohibit to set [A~F] position to prevent malfunction.

3 – 2) 4 bit DIP switch to check operation

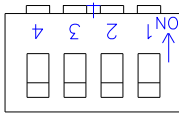
This switch is to check whether this unit works correctly. Test items are as follows. Details of each test item are described in the section 4.

- ① Display a model name and software version
- ② Check LEDs
- ③ Check a serial signal of current loop
- ④ Check a rotary switch

※ All the bit of DIP switch should be OFF when indicating data.

§ 4. Test Mode

4 – 1) Select test item



DIP switch bit#	4	3	2	1
Display model name and software version	ON	OFF	OFF	OFF
Check LEDs	ON	OFF	OFF	ON
Check current loop signal	ON	OFF	ON	ON
Check rotary switch	ON	ON	ON	ON

Turn ON bit#4 of DIP switch to enter Test Mode.

Turn OFF bit#4 of DIP switch to light up all LEDs for a moment and return to indicate data.

4 – 2) Each test item

Display model name and software version	<p>Display characters as the following order</p> <p><code>E d - . .</code> → <code>3 0 2 1 .</code> → <code>1.0 0 . .</code></p> <p><code>E d - 3 0 2 1</code> is model name of this unit. <code>1.0 0 . .</code> is software version 1.00. ※Version differs on the shipment date of the product.</p>
Check LEDs	<p>Each segment of LED is lighted up as the following order.</p> <p><code>1 1 1 1 1</code> → <code>2 2 2 2 2</code> → ... → <code>0 0 0 0 0</code> → <code>1 2 3 4 5</code> → Decimal point → All digit OFF</p>
Check current loop (C/L) signal	<p>Connect output of C/L signal to input of it. Before testing, connect terminal #1(OUT) to #3(IN) and terminal #2(OUT) to #4(IN). Display characters as follows when successful.</p> <p><code>c L o o P</code> → <code>- - - -</code> → <code>0 0 0 0</code></p>
Check rotary switch	<p>Display the status of rotary switch and DIP switch. If they are not correct as the setting position of the switch, there may be malfunction of this unit.</p> <div style="text-align: center;"> </div> <p>The left end of digit displays the rotary switch position [0] to [F].</p> <p>The other of 4digit displays DIP switch position. The right end digit shows bit#1. [_] = OFF, [^] = ON</p> <p>Turn OFF bit#4 to light up all LEDs for a moment and return to indicate data.</p>

※Caution

When there is something wrong at one of above checking, malfunction of this unit may be considered and please request TOYO to repair.

Don't check this unit by not according to this operation manual. It may cause malfunction.

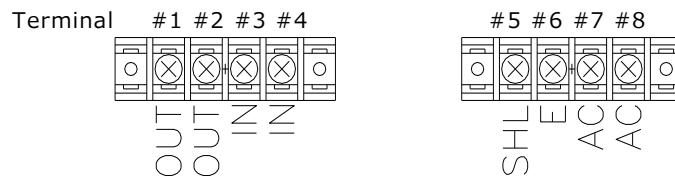
§ 5. Installation and Connection

5 – 1) Installation

- 1). Operation temperature range of this unit is -10 to $+40^{\circ}\text{C}$.
Please install this unit in a place not exposed to direct sunlight and condensation.
- 2). This unit has basic dustproof and drip-proof structure, but not waterproof.
Please install this unit in a place not exposed to direct water.
- 3). The power supplied voltage is AC85 to 264V.
Please make twist of AC wire.
- 4). This unit is designed to fix by wall mount.
Please make use of holes $4-\Phi 7.0$ of attached bracket and fix with M6 bolt screw.

5 – 2) Connection

First remove a drip-proof cover at underneath of this unit and wire on the terminal as below. Terminal is 7.62mm pitch crimped terminal.



- OUT : Output of current loop serial signal. No polarity.
For connecting TOYO external equipment as cascade
- IN : Input of current loop serial signal. No polarity.
- SHL : Shield line of current loop serial signal
- E : Earth (Grounding) of AC
- AC : Wide range of AC85 to 264V is supplied

Applicable crimp : Use a crimp terminal for M3 up to 6mm.

The shield line of each cable shall be grounded by either this unit or each connected instrument, so that there is no ground loop.

Terminal #5(SHL) and #6(E) are connected inside.

5 – 3) Cable cramp

- 1). Applicable outer diameter of a cable $\Phi 4$ to 10mm
- 2). Structure Basic dustproof and Basic drip-proof
- 3). Measure of no usage of output cable Fill attached seal pin into a cramp not to leak

§ 6. Troubleshooting

If this unit is malfunctioning, please contact us if the problem cannot be solved by the following measures. At this time, please inform us of the model name, product serial number, the malfunction symptoms and usage as much as possible.

6 – 1) Basic check point

- 1). Check whether the power supplied voltage (AC85 to 264V) is normal and stable.
- 2). Check whether the terminals are connected correctly and firmly.

6 – 2) Measures when indicating Error

[Err - 1] is indicated when current loop signal input is stopped for 1 second or more.
Check whether a current loop signal is disconnected.

[Err - 2] is indicated when receiving data is not correct.
Check whether other than TOYO digital indicator is connected.

6 – 3) Measures when not operated as expected

Check operation of this unit at Test Mode. Please refer to section 4, Test Mode.

§ 7. General Specifications

- | | |
|--|--|
| 1). Structure | Basic dustproof and Basic drip-proof. Not water proof. |
| 2). Supplied power voltage | AC85 to 264V |
| 3). Power consumption | approx. 20VA |
| 4). Operating temperature and humidity range | -10 to +40°C、 20 to 85%R.H. (no condensation) |
| 5). Mounting method | Wall mount |
| 6). Mass | approx. 5kg |

§ 8. Dimensional Drawing

