



GSE-FLD01-S

User Manual

1. Introduction

GSE-FLD01-S is one of the fluorescence detectors widely used around the world. It can be used on fast or slow conveyor lines with user-selectable REMOTE ENABLE, RS485 communications and other features. The detector can be operated with two buttons. GSE-FLD01-S is a self-contained electro-optical fluorescence detector, and is a measurement equipment capable of detecting ink that emits fluorescence in response to a specific light source.

The measurement results are converted into digital form and displayed in two segments. GSE-FLD01-S is a measuring instrument that measures fluorescence using LEDs of various wavelengths, and one device supports one wavelength.

2. Spec

2.1. Operating spec

2.1.1. Hardware

Dimension – 61mm X 68.6mm X 21.6mm

Display - 7-segment 2 digit and 1 LED

User Button – 2ea tactile push button

7 pin external connector

“NO/NC, DAC OUT, LOCK/UNLOCK Port is an unused port.



2.1.2. Software

normal display mode

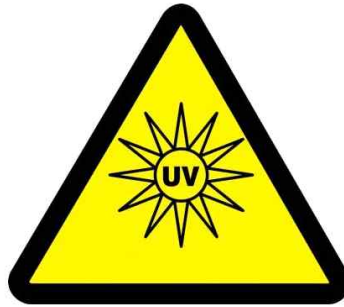
- Displays the number of fluorescence detected by the fluorescence detector.
- In response to RS-485 communication, the current detection number is transmitted.

Teaching mode

- Set the upper and lower limits of the fluorescence detector using the teaching function.

3. Process values(fluorescence amount)

The amount of light read by GSE-FLD01-S is the amount of fluorescence. The meter reads the fluorescence energy while the sensor is exposed. GSE-FLD01-S measures and displays the amount of fluorescence as a percentage compared to when there is fluorescence. Therefore, the comparison value must be learned when fluorescence is maximum for the measurement to function.



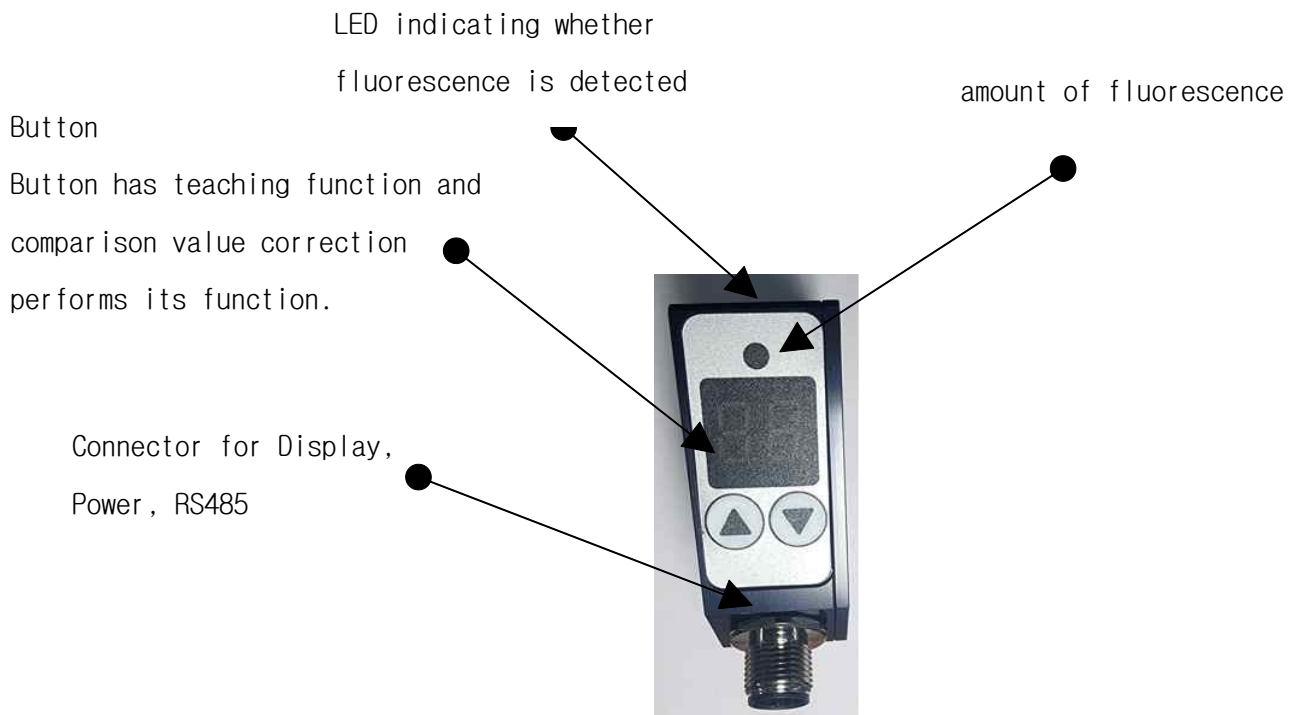
UV irradiation

Although this product is not a UV light source, it is used in a UV environment.

See the UV light documentation.

It recommends protection methods for UV irradiation in a UV environment

4. The operation of Fluorescence detector



4.1. Setting Description:

Fluorescence detector ON: Operates immediately when power is turned on.

“RUN” mode: A “When the power is turned on, it operates in RUN mode. The detection status of fluorescent ink is updated in 1KHz units (1000 times per second). The update status can be checked by LED.

“REMOTE” mode: While operating in “RUN” mode, the detection status of fluorescent ink is updated by measuring the value at the moment the REMOTE signal changes from logic 1 to 0.

4.2. Teaching function

The teach function allows users to set a threshold by placing a representative target at a desired distance, letting the sensor determine the optimal LED intensity, and setting the

threshold level.

1. Press and hold the T/+ key for a few seconds until the yellow LED flashes.
2. Place the target at an appropriate distance from the sensor and press the P/- key. The display will blink three times and the sensor will adjust the LED intensity level to obtain the appropriate signal level.

The green LED blinks.

3. Remove the target and press the P/- key. The display blinks 3 times.
4. Press the T/+ key for a few seconds to exit the teach function and return to normal operating mode.

When in teach mode, the LED will flash yellow, green, or red continuously.

Yellow indicates that the sensor is ready to teach detection levels.

Green indicates the sensor is ready to learn undetected levels.

Red indicates that an error occurred on the last teach attempt. If an error occurred during teaching of the detection level, the signal strength was below 01.

If an error occurs during teaching of the undetect level, the signal strength will be greater than or equal to the threshold level.

In either case, repeat the teach function to set the level appropriately.

5. Change LED intensity

During normal operation, pressing the +/- button changes the LED intensity.

6. RS485 Port

1) ModBus 485 Communication protocol:

All data are expressed in hexadecimal. Uses CRC16.

2) Read command

01 03 00 00 00 06 [Upper CRC] [Lower CRC]

(01: Device address, 03: Command code, 00 00:start address, 00 06: data length, CRC checksum)

Ex)

TX data: 01 03 00 00 00 04 44 09

RX data: 01 03 08 00 00 03 84 01 2C 00 01 64 0F

Description: device address (01), Command code (03), Data length (08), Operation time (00 00), Detection strength (03 84), non detection strength(01 2C), Device address(00 01), Upper CRC (64), Lower CRC(0F)

3)Write command

01 06 00 00 00 06 CRCL CRCH (Device address, Command code , write address, value, CRC checksum)

E.g:

TX data: 01 06 00 01 00 00 CRCH CRCL

NOTE: Device address (01), Command code(06), write address(00 01), operation (00 01), Upper CRC High, Lower CRC

7. Battery diagnosis and operating temperature

7.1. Power check

Without DC power, the segment LED will not light.

7.2. exposure to overheating

Use so that the internal temperature does not exceed 75°C. If the internal temperature exceeds 80° C, the photometer's warranty is void.

8. Cleaning and Calibration

8.1. Cleaning

Use a soft cloth to clean the display window and lens.

Warning

Never use acetone to clean the display unit and lens. It destroys the device.

To clean the optical window, please refer to the optics cleaning tool provided below. Cleaning windows too often can cause calibration problems. Be careful not to get fingerprints on the window surface. Fingerprints can affect measurements.

Usable gas

Nitrogen gas, tetrafluoroethane-based products

A rubber air bulb (available at camera dealers)

Compressed air without oil or moisture

Solution that can be used

isopropyl alcohol, acetone

A cleaner surface can be obtained by washing with isopropyl alcohol and then again with acetone.

Available tools

Cotton swab, Lint-free wipe

Calibration

It is recommended that the MG-10 UV DISK be calibrated every year.