



## Surface Potential Sensors

# EFS series

---

---

# Surface Potential Sensors

Product compatible with RoHS directive

## Overview of the EFS series

### FEATURES

A new feedback surface voltage sensor that supports the improved image quality color copiers and next generation color printers with a reliability of  $\pm 0.05V$  or below. This voltage sensor is constructed using TDK's unique, high precision, highly stable detection circuit which feeds the detected photosensitive drum surface potential back to the electrical field line control chopper and probe shield cover. While completely eliminating the effects of the causes of disturbances in the electric field intervening between the photosensitive drum and the detection electrode, it shows extremely stable and precise output performance where the adverse effects of temperature fluctuations and detection distance (probe positioning) are greatly reduced.

- A unique optimized structure and circuit design have achieved the world's smallest class of miniaturization and weight reduction, as well as greater performance in response to market needs.
- Extremely stable output performance is maintained for long periods of time through accurate driving made possible with the unique structural design and superelastic alloy chopper consisting of the piezoelectric element with optimized conversion efficiency.
- Quick responsiveness to high-speed and high image quality needs.

### APPLICATION

Surface potential measurements in photosensitive drums for copiers and paper for PPCs as well as applications for laser beam printers and various equipment.

### PRODUCT LINEUP


#### ASSEMBLY

Type	Power supply voltage Vcc (V)	Power consumption current Idc (mA)	Detector voltage range Ve (V)	Detector voltage guaranteed accuracy range (V)	Output voltage Vo (V)	Response time (ms)	Detector distance (mm)
EFS-22DXX-XX	24 $\pm$ 10%	150max.	-1000 to 0	-900 to 0	0 to 4.5 $\pm$ 0.05*	20max.	1.5 to 3.5
EFS-31DXX-XX	24 $\pm$ 10%	150max.	0 to +1000	0 to +900	0 to 4.5 $\pm$ 0.05**	20max.	1.5 to 3.5

\* Outputs  $-1/200$  of Ve.

\*\* Outputs  $1/200$  of Ve.

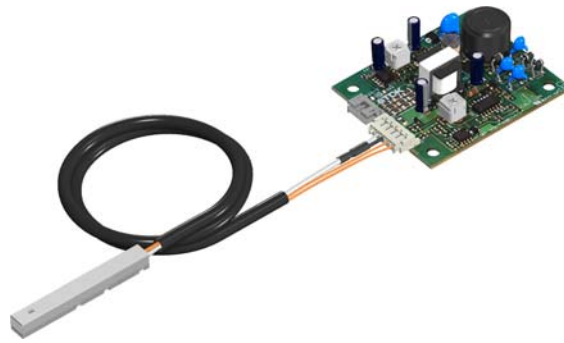
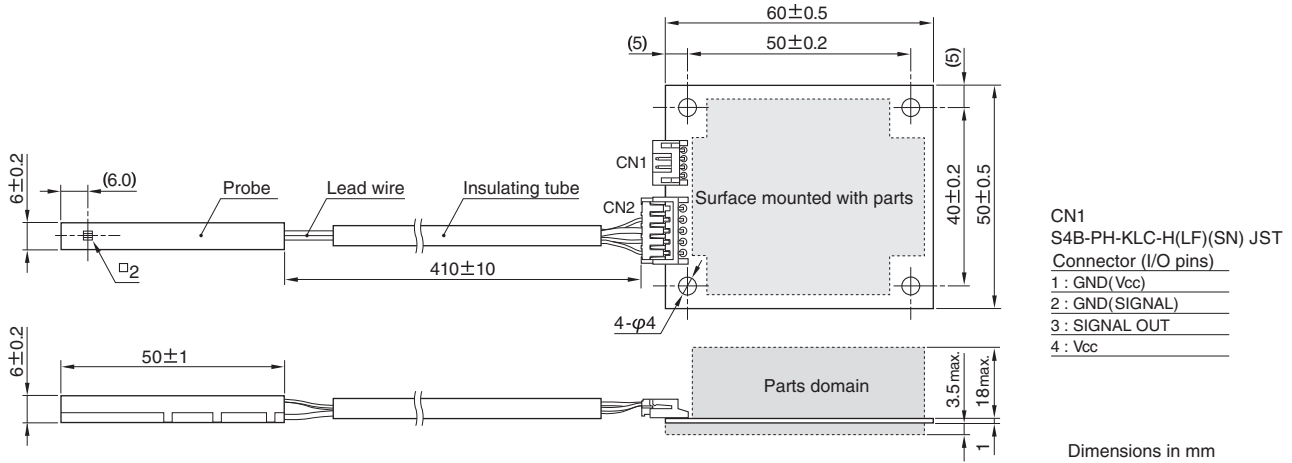
○ RoHS Directive Compliant Product: See the following for more details. <https://product.tdk.com/info/en/environment/rohs/index.html>

 Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

## Assembly • Minus Electric potential detection

## EFS-22D

## SHAPE &amp; DIMENSIONS

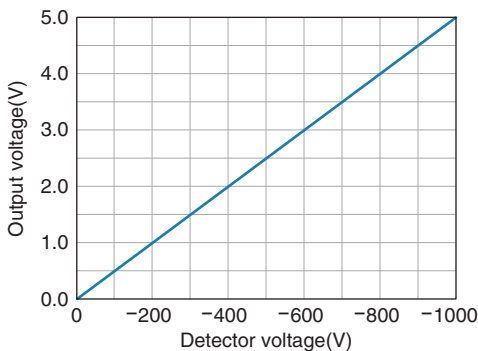


## ELECTRICAL CHARACTERISTICS

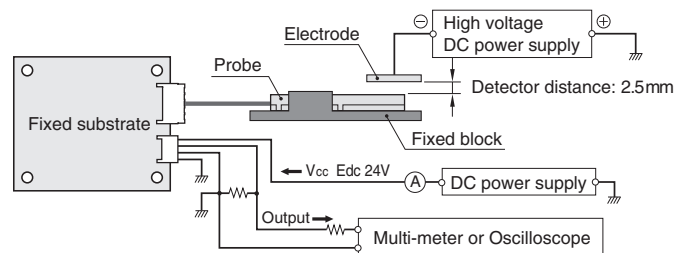
Type	Power supply voltage Vcc (V)	Power consumption current Idc (mA)	Detector voltage range Ve (V)	Detector voltage guaranteed accuracy range (V)	Output voltage Vo (V)	Response time (ms)	Detector distance (mm)
EFS-22DXX-XX	24±10%	150max.	-1000 to 0	-900 to 0	0 to 4.5±0.05*	20max.	1.5 to 3.5

\* Outputs -1/200 of Ve.

## OUTPUT VOLTAGE VS. DETECTOR VOLTAGE CHARACTERISTICS (TYPICAL)



## MEASURING CIRCUIT

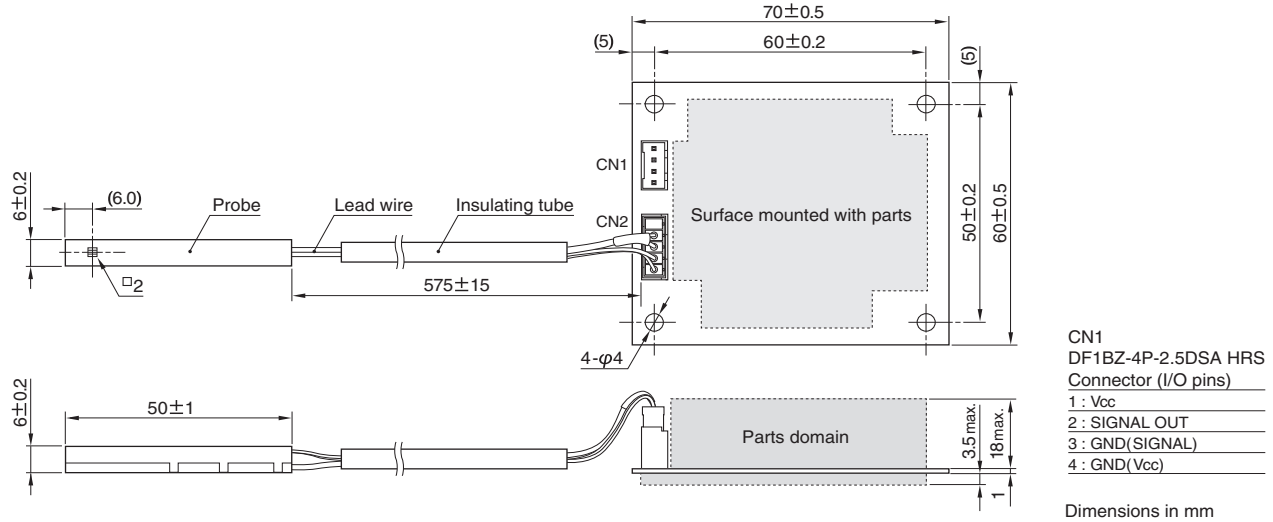


⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use.  
Please note that the contents may change without any prior notice due to reasons such as upgrading.

Assembly • Plus Electric potential detection

# EFS-31D

## SHAPE & DIMENSIONS

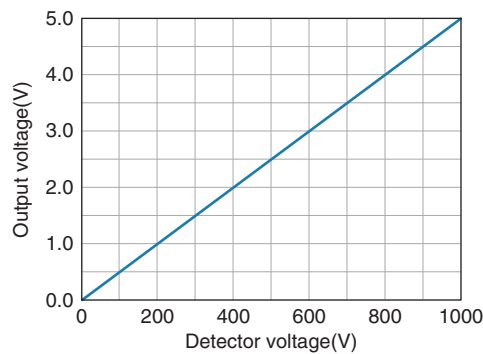


## ELECTRICAL CHARACTERISTICS

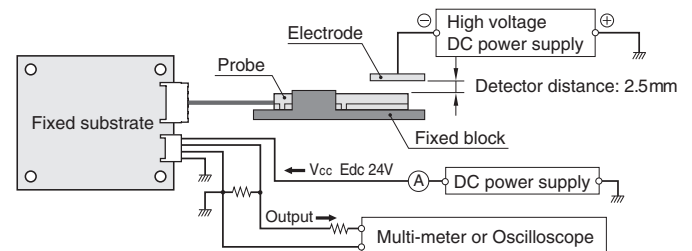
Type	Power supply voltage Vcc (V)	Power consumption current Idc (mA)	Detector voltage range Ve (V)	Detector voltage guaranteed accuracy range (V)	Output voltage Vo (V)	Response time (ms)	Detector distance (mm)
EFS-31DXX-XX	24±10%	150max.	0 to +1000	0 to +900	0 to 4.5±0.05*	20max.	1.5 to 3.5

\* Outputs 1/200 of Ve.

## OUTPUT VOLTAGE VS. DETECTOR VOLTAGE CHARACTERISTICS (TYPICAL)



## MEASURING CIRCUIT



⚠ Please be sure to request delivery specifications that provide further details on the features and specifications of the products for proper and safe use. Please note that the contents may change without any prior notice due to reasons such as upgrading.

# EFS series

## ■ Handling Precautions

- Please request a delivery specification form containing more detailed information on characteristics and specifications so as to ensure correct and safe use of the products.

### [Storage Environment]

- Check the standards concerning the storage conditions described in the delivery specifications of the products, and store them in accordance with the standards.

### [Usage Environment/Operating Conditions]

- As for usage environment conditions and operating conditions of the products, check the standards concerning the usage environment conditions and operating conditions described in the delivery specifications, and use the products in accordance with the standards.

### [Handling]

- The voltage in the circuit board and probe is high during operation. Take sufficient care to avoid electrical shock.
- Do not change the settings of the variable resistance mounted on the circuit board.
- Do not apply excessive mechanical shock such as dropping to the products.
- The circuit board and probe are adjusted at a 1:1 ratio. Do not change the configuration that it comes in.

## ■ Other Requests/Notices

- We do not assume any responsibility for any damage caused by the use of our products exceeding the scope or conditions defined in the delivery specifications.
- Specifications of the products in this catalog are subject to change without notice due to improvements or other reasons. In addition, supply of the products may be cancelled without notice.