



Good Thinking, Good Future

Fiber-sensors

*FASTUS is a product brand of Optex FA.

D1RF Series / V2RF Series



Teach-In + Display type
and Potentiometer type

Degree of protection **IP66**

Mounting holes for
M3 screws



OPTEX FA CO., LTD.

www.Optex-Ramco.com

Ramco National - Optex FA Sensors

Got Questions? 1-800-280-6933

Which will you choose?

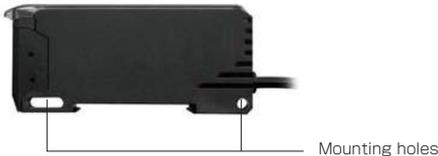


Select between the intelligent D1RF series equipped with a digital display and featuring "Teach-in" or the V2RF series that pushes the limits in simple operation. The series of fiber-sensor stands for innovative technologies for solving multifaceted tasks.

Common features

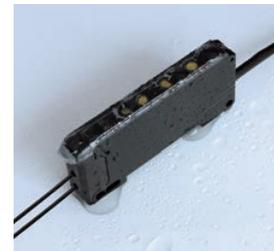
Mounting holes

Features mounting holes for M3 screws. This enables the amplifier to be mounted without use of a DIN rail or mounting bracket.



Degree of protection: IP66

Featuring an IP66 structure uncommon for fiber-amplifiers. Can be used without worry in factories or with devices in which contact with water occurs.



Cable and connector type

Both a cost-effective cable type, as well as a connector type that does not require wiring when replacing sensors, are available.

Cable type



Connector type



Connector cable
(straight or L-shaped)

Lineup

| Type | Shape | I / O | Response Time | Model | |
|--------------------|-------|--|-----------------|---|-----------------------------------|
| | | | | Models in parentheses are connector types | |
| | | | | NPN | PNP |
| Teach-In + Display | | Control Output External teach input | 250µs / 50µs | D1RF-T (D1RF-TC) | |
| Potentiometer | | Control Output | 250µs | V2RF-N (V2RF-CN) | V2RF-P (V2RF-CP) |

* For the connector types, please order an optional JCN series connector cable.

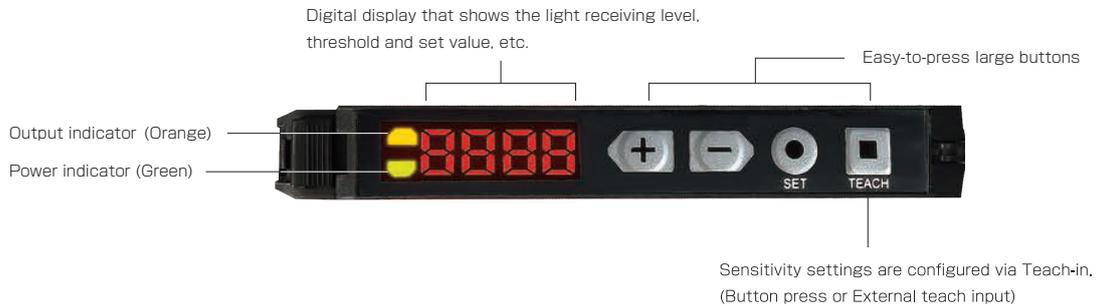
Intelligent & flexible

Teach-In + Display Type D1RF Series



■ Features

User-friendly control panel

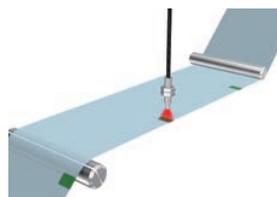


Response time switching is possible

It is possible to switch the response time between the standard 250 μ s and the high-speed response of 50 μ s. This is effective in detecting small workpieces travelling at high speeds.



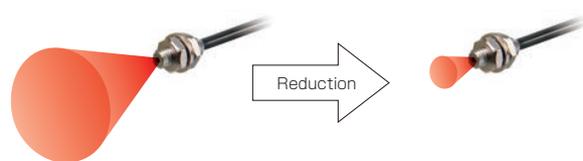
Presence of capacitor leads



Detection of registration marks

Emitted light power reducing function

Switching between three levels of emitted light power is possible. Because saturation of received light can be prevented by reducing emitted light power, it is useful when detecting at short distances or when detecting transparent objects or small objects.



NPN/PNP switchable

The control output can be used by switching between either NPN or PNP. Thanks to this, stock can be reduced and order errors eliminated.

Timer function

Equipped with timer function in which ON delay, OFF delay and One-shot can be selected. The delay time can also be set in 1 ms increments within a range of 1 to 9999 ms.

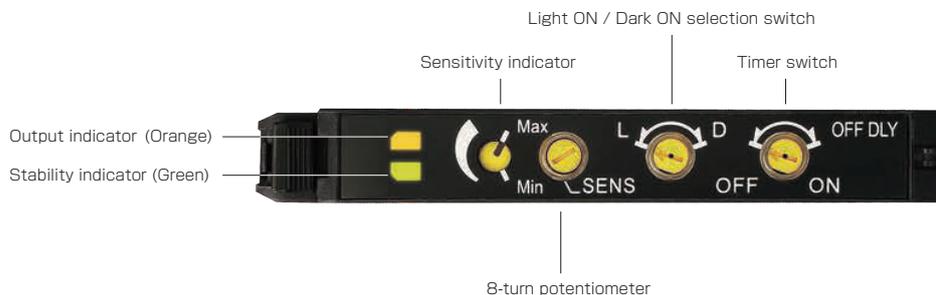
Simple & cost effective

Potentiometer Type V2RF Series



■ Features

Simple control panel



Potentiometer with indicator

Features an 8-turn potentiometer. Adjustment to the optimal sensitivity is possible even for applications that require fine adjustments.

Also, if the potentiometer is turned multiple times, the current sensitivity will be difficult to ascertain. However, because the V2RF is equipped with a sensitivity indicator, it's easy to see how much sensitivity is being adjusted.

OFF Delay Timer

Equipped with an OFF delay timer fixed at 40 ms. By extending the pulse width to 40 ms or more, input is possible even for input devices that cannot receive short ON/OFF signals.

Long range detection

With the V2RF series, long range detection is achieved even though it has the same 250 μ s response time as the conventional model.

Sensing distance comparison

| | Model of fiber-unit | Sensing distance of conventional model | Sensing distance of V2RF | Comparison to conventional model |
|-------------------------|-------------------------------|--|--------------------------|----------------------------------|
| Diffuse-reflective type | NF-DS06 (M3, Standard) | 45 mm | 60 mm | 30% UP |
| | NF-DB07 (M3, Coaxial) | 55 mm | 90 mm | 60% UP |
| | NF-DH07 (M4, Up to 200°C) | 200 mm | 300 mm | 50% UP |
| Through-beam type | NF-TB02 (M4, Standard) | 450 mm | 610 mm | 35% UP |
| | NF-TK05 (ϕ 3, Flexible) | 360 mm | 540 mm | 50% UP |
| | NF-TH12 (M4, Up to 200°C) | 220 mm | 410 mm | 85% UP |

* Please contact us for the sensing distances of fiber-units other than those shown above.

Specifications

| Model | Teach-in with digital display model | | Potentiometer model | |
|---------------------------------|---|---|--|---------|
| | Cable type | D1RF-T | NPN | PNP |
| | Connector type | D1RF-TC | V2RF-CN | V2RF-CP |
| Light source | Red LED | | | |
| Response time | 250 μs / 50 μs | | 250 μs | |
| Sensitivity adjustment | Teaching, fine tuning with +/- buttons | | 8-turn potentiometer with indicator | |
| Indicators | Output indicator: Orange, Power indicator: Green | | Output indicator: Orange, Stability indicator: Green | |
| Digital display | 7-segment, 4-digit display: Receiving light level / Threshold / Set value | | — | |
| Control output* | NPN/PNP switched by setting, Open collector, 30 V/100 mA, Residual voltage 1.8 V max. | | NPN/PNP (depends upon the model), Open collector, 30 V/100 mA, Residual voltage 1.8 V max. | |
| External input | External teaching | | | |
| Timer function | OFF / ON Delay / OFF Delay / One-shot, 1 to 9999 ms | | OFF Delay fixed at 40 ms, selectable by switch | |
| Output mode | Light ON / Dark ON selectable by setting | | Light ON / Dark ON selectable by switch | |
| Protection circuit | Reverse connection protection, Overcurrent protection, 30 V max. | | | |
| Connection type | Cable type: 4-wire 2 m cable, Connector type: M8, 4-pin | | Cable type: 3-wire 2 m cable, Connector type: M8, 4-pin | |
| Rating | Supply voltage* | 10 to 30 VDC (including 10% ripple) | | |
| | Current consumption | 40mA max. | 30mA max. | |
| Applicable regulations | EMC | EMC Directive (2014/30/EU) | | |
| | Environment | RoHS Directive (2011/65/EU), China RoHS (MIIT Order No.32) | | |
| Applicable standards | EN 60947-5-2 | | | |
| Company standards | Noise resistance: Feilen Level 3 cleared | | | |
| Environmental resistance | Ambient temp./Humidity* | -25 to +55°C / 35 to 85% (no freezing or condensation) | | |
| | Storage temp./Humidity | -40 to +70°C / 35 to 95% (no freezing or condensation) | | |
| | Ambient illuminance | Sunlight: 10,000 lx or less, Incandescent light: 3,000 lx or less | | |
| | Vibration resistance | 10 to 55 Hz; Double amplitude 1.5 mm; 2 hours in each of the X, Y, and Z directions | | |
| | Shock resistance | 50 G (500 m/s ²), 3 times in each of the X, Y, and Z directions | | |
| | Degree of protection | IP66 | | |
| Material | Housing, Cover: PC | | | |
| Weight | Cable type: Approx. 66g Connector type: Approx. 22g | | Cable type: Approx. 63g Connector type: Approx. 19g | |
| | Included accessories Instruction manual | | | |

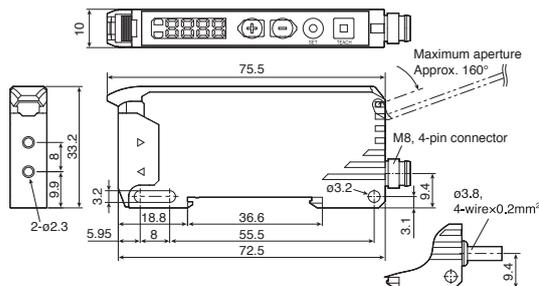
*Depends upon the number of closely mounted amplifiers.

- 1 to 2 units: -25 to +55°C, Supply voltage: 30V, Output current: 100mA
- 3 to 10 units: -25 to +50°C, Supply voltage: 24V, Output current: 100mA
- 11 to 16 units: -25 to +50°C, Supply voltage: 24V, Output current: 20mA

Dimensions

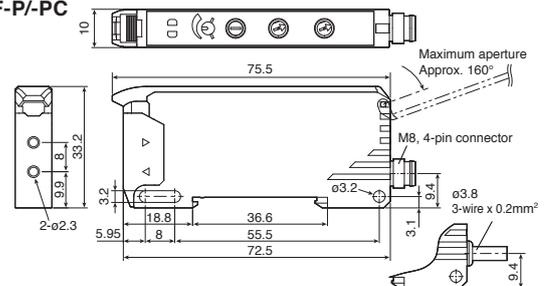
Teach-In + Display Type

D1RF-T/-TC



Potentiometer Type

V2RF-N/-NC V2RF-P/-PC

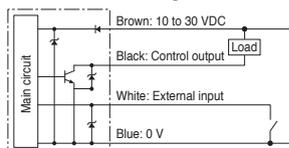


(unit : mm)

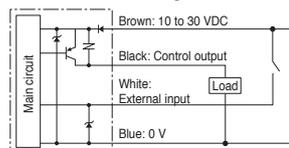
I / O circuit diagram

D1RF-T/-TC

With the NPN setting

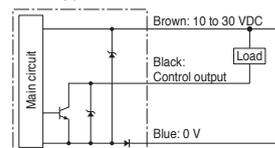


With the PNP setting



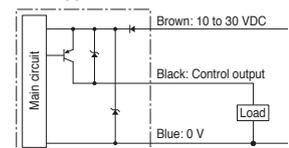
V2RF-N/-NC

NPN type



V2RF-P/-PC

PNP type



Options / Accessories

Mounting bracket

BEF-WLL180



Connector cable

Straight



- JCN-S
Cable length: 2 m
- JCN-5S
Cable length: 5 m
- JCN-10S
Cable length: 10 m

L-shaped



- JCN-L
Cable length: 2 m
- JCN-5L
Cable length: 5 m
- JCN-10L
Cable length: 10 m

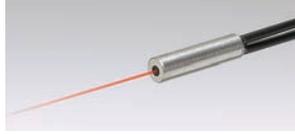
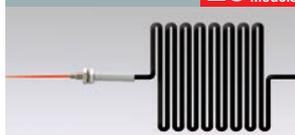
Fiber-units NF Series

More than 200 models of fiber-units with options such as lenses are available, with varying detection methods, mounting methods, environmental resistances and applications.

You can find the fiber you need for any application.

Select the appropriate unit from the industry's largest product lineup.

Industry's No. 1 product lineup More than 20 types More than 200 models

| | | | |
|---|--|--|---|
| <p>Easy mounting 14 models</p>  | <p>Thread type 25 models</p>  | <p>Cylindrical type 22 models</p>  | <p>Sleeve type (straight view) 20 models</p>  |
| <p>Sleeve type (side view) 12 models</p>  | <p>Flexible R4/R2 (R4 mm, R2 mm) 20 models</p>  | <p>Flexible R1 (R1 mm) 25 models</p>  | <p>Flexible R2 (R2 mm) 9 models</p>  |
| <p>Retro-reflective type 3 models</p>  | <p>Small object detection 13 models</p>  | <p>Screen/Array 15 models</p>  | <p>Limited diffuse reflective type 14 models</p>  |
| <p>Narrow view / wafer mapping 10 models</p>  | <p>Heat resistant (130°C or below) 8 models</p>  | <p>Heat resistant (180 to 200°C) 14 models</p>  | <p>Heat resistant (250 to 350°C) 8 models</p>  |
| <p>Chemical resistant 8 models</p>  | <p>Vacuum resistant 3 models</p>  | <p>Liquid level / leakage / water detection 9 models</p>  | <p>Lens for through-beam type 6 models</p>  |

- Specifications are subject to change without prior notice.
- Specifications and technical information not mentioned here are written in Instruction Manual. Or visit our website for details.
- All the warnings and cautions to know prior to use are given in Instruction Manual.

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