

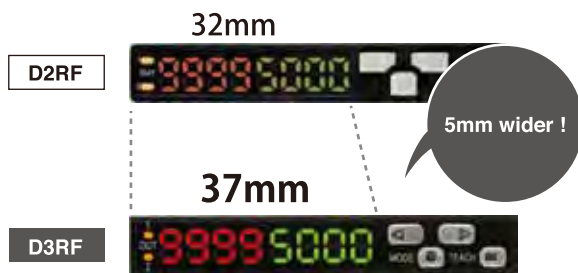
High speed digital fiber sensor D3RF series



16μsec response, long sensing distance,
finest in digital-class amplifiers.

Widest display in the class

5mm wider display than conventional D2RF.
7 segment with high brightness LED for better visibility.



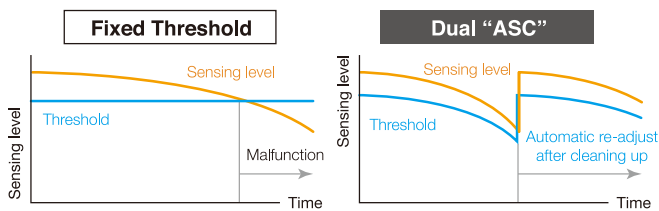
Easier operation

Basic setup is as easy as pressing the teach button for 2 seconds. More advanced functions are located in a deeper setup layer for solving more complex applications.



Dual "ASC" for easy maintenance

Detects light degradation due to dust or other debris and adjusts the brightness. It re-adjusts the threshold automatically after cleaning so there is no need for re-teaching.



The returned light level decreases as contamination builds up. Once this sensing level drops below the threshold level the sensor needs to be re-taught.

The sensor continuously monitors the received light level and automatically adjusts the threshold to the optimum level.

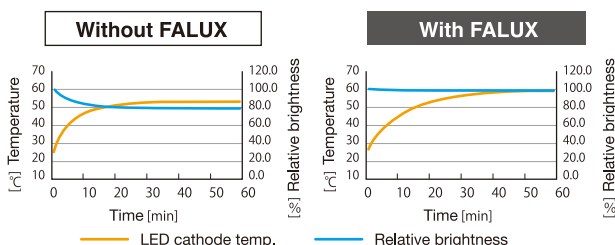
100% display for better recognition of change

Display can be changed to percentage (0~100) by simple single action with buttons. Easy to recognize when the level changes.



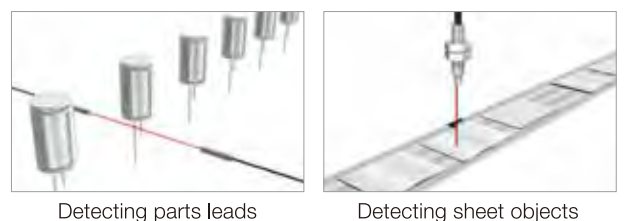
Brightness stabilizing function "FALUX"

Our original technology "FALUX" stabilizes LED brightness by adjusting LED current even under fluctuation of LED temperature after power up.



Adjustable hysteresis

Hysteresis can be adjusted from 1% to 40%. This enables the sensor to be optimized for detecting slight differences in parts or applications with a lot of vibration.



Amplifiers

Various Shapes for mounting

Tight Bend / High-Flex

Various Detecting Modes

Environment-resistant

Liquid

Extension lens

Notes



**High speed processor
"FAntron DUO"**

Increased sensitivity by original emitting method.

Highly efficient collective lens

High power efficient LED

Fastest in the class
16μs(1-HS mode)
22μs(inter-connection type)

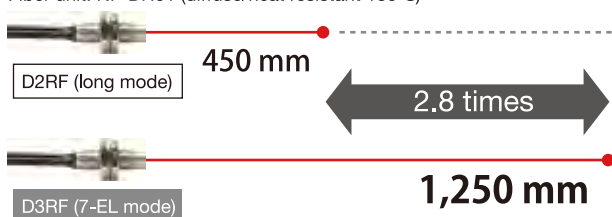
Digital fiber sensor
No.1

Originally developed super high speed processor "FAntron DUO" enables fastest speed in the class 16 μs (1-HS mode). It can detect over 30,000 pieces per second. Maximum speed of inter-connection type is 22us. It can prevent cross talk up to 2 units.

Super sensing distance

Utilizing our original pulse emitting method, High power LED and effective collective lens, the D3RF series has an increased sensing distance of up to 3 times longer for diffuse and 5 times longer for thru beam sensing.

Fiber unit: NF-DH01 (diffuse/heat resistant 180°C)



Sensing distance comparison

	Fiber unit	D2RF (mm)	D3RF (mm)	ratio (times)
Diffuse	NF-DB01 (M6 coaxial)	450	1200	2.7
	NF-DR01 (M6 R2mm)	350	1100	3.1
	NF-DH01 (180°C)	450	1250	2.8
Thru-beam	NF-TB01 (M4 coaxial)	1800	4000	2.2
	NF-TR01 (M4 R2mm)	800	4000	5
	NF-TH02 (180°C)	1000	4000	4

ECO mode

ECO mode enables power saving by turning off the sub-display (green) and by dimming the main display (red).



ex.) D3RF-TDN (single, 2 output)

Standard mode :
39mA max.



ECO mode :
28mA max.

Easy installation

You can connect up to 16 units without any wiring.

Maximum inter-connect units

D2RF	D3RF
8 units	16 units (cross talk prevention: OFF or ECO mode)

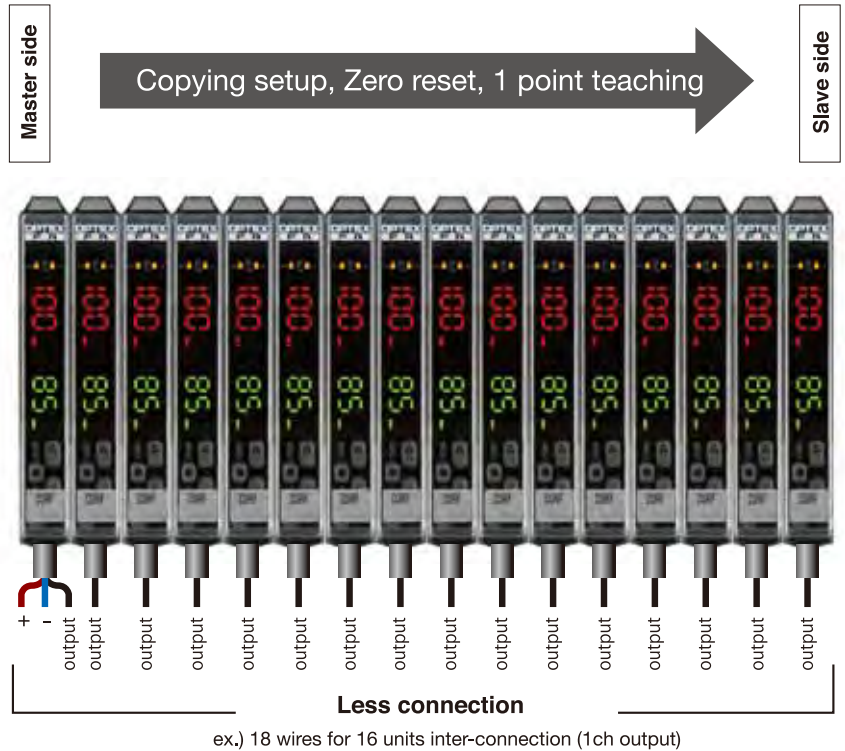
Cross talk prevention

The D3RF can prevent cross talk by shifting the timing of the emitting element. You can connect up to 12 units in standard mode and up to 16 units in ECO mode.



Easy setup

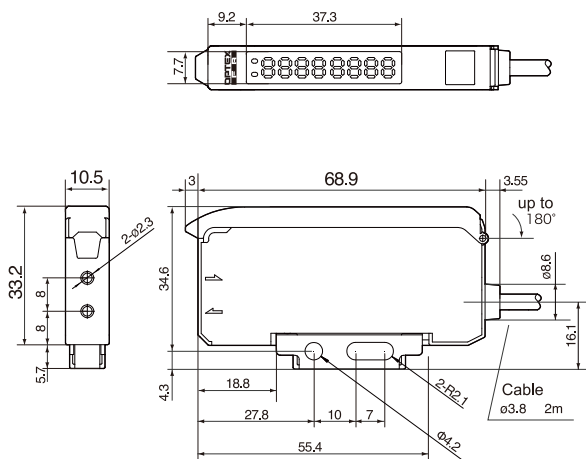
The interconnect version of the D3RF can copy the setup parameters from the master side to the slave side. Zero reset and 1 pt teaching can also be performed simultaneously to each unit.



Dimensions

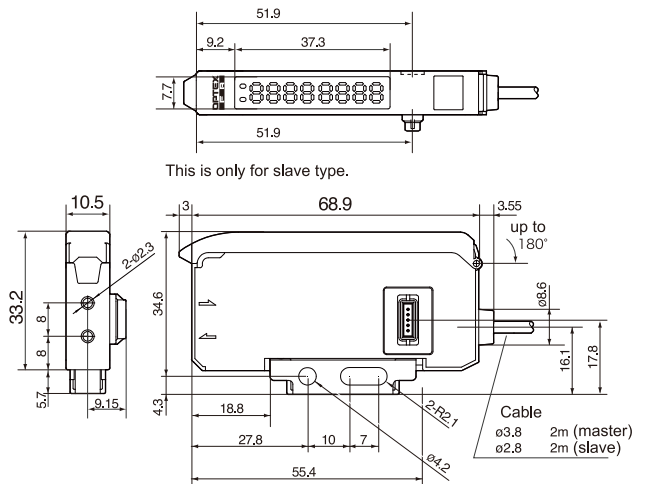
Single type

D3RF-TN/TDN or TP/TDP
D3IF-TN or TP



Interconnection type

D3RF-TMN/TDMN or TMP/TDMP (master)
D3RF-TSN/TDSN or TSP/TDSP (slave)



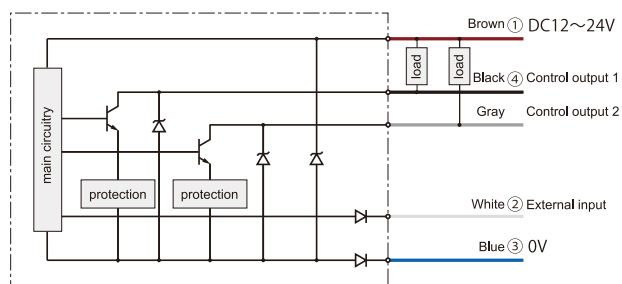
Specifications

Model	Single type	Inter-connection type - master	Inter-connection type - slave	IR type	
Cable type	1 output type (NPN/PNP)	D3RF-TN / TP	D3RF-TMN / TMP	D3RF-TSN / TSP	D3IF-TN / TP
	2 output type (NPN/PNP)	D3RF-TDN / TDP	D3RF-TDMN / TDMP	D3RF-TDSN / TDSP	-
M8 QD type	1 output type (NPN/PNP)	D3RF-TCN / TCP	D3RF-TCMN / TCMP	D3RF-TCSN / TCSP	D3IF-TCN / TCP
Light source	Red LED			IR LED (1,450nm)	
Response type (mode)	16µs/22µs*1 (1-HS), 70µs (2-FS), 250µs (3-ST), 500µs (4-LG), 1ms (5-PL), 2ms (6-UL), 8ms (7-EL)				
Sensitivity adjust	Teaching, Manually adjusting				
Indicator	1 output type	1 Output indicator (Orange)			
	2 output type	2 Output indicator (Orange)			
Digital display	7 segment 8 digit display (red: 4 digit, green: 4 digit)				
Control output *2	NPN or PNP open collector 100mA/DC30V max. Load: 100mA max. Residual voltage: 1.8V max.				
Input	Teach-in *3, Emitter stop input, Synchronous input, Counter reset input (only for 2 output type)				
Timer	ON delay, OFF delay, One shot, ON+OFF delay, ON delay + One shot 0.1~9.999ms				
Output mode	Light ON / Dark ON switching is available in setup				
Cable / Connector	2m (single type and interconnection master type : ø3.8mm , slave type : ø2.8mm), or M8 connector				
Insulation impedance	20MΩmax. (DC500V)				
Ratings	Power supply	DC12~24V±10%including ripple			
	Power consumption (normal mode)	36mA max. (1 output type), 39mA max. (2 output type) / DC24V			
	Power consumption (saving mode)	25mA max. (1 output type), 28mA max. (2 output type) / DC24V (Eco All mode)			
Conformity	CE, IEC				
Operating temp./humid.	-25~+55°C*4 / 35~85%RH without condensation				
Environmental illuminance	Sunlight: 10000 lux max., Incandescent lamp: 3,000 lux max				
Vibration resistance	10~55Hz 1.5mm swing X,Y,Z 2hours				
Shock resistance	50G (500m/s²) X,Y,Z 3times				
Protection category / Material	IP50 / Case: PPE, Cover: PC				
Weight	Approx. 71g including cable				
Bracket	BEF-WLL170				

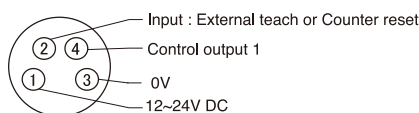
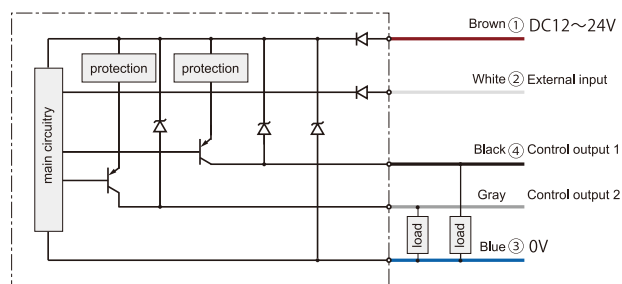
*1 Single type: 16µs. When cross talk prevention mode is activated on interconnection type, it's 22µs.
 *2 Threshold, Timer and Light ON/Dark ON of control output for 2 output type can be setup individually.
 *3 External teaching mode is done based on the mode that is set on sensor (default is 1 point teach).
 *4 When you use 1~3 pieces interconnected including master.
 Please use output less than 50mA each and in -25~+50°C when you use 4~8 pieces interconnected including master.

Interconnection type Circuit diagram

NPN output



PNP output



Options



JCN-S : 2 meter
 JCN-5S : 5 meter
 JCN-10S : 10 meter

JCN-S: M8 Straight type



JCN-L : 2 meter
 JCN-5L : 5 meter
 JCN-10L : 10 meter

JCN-L: M8 L-shape type

