High speed fiber sensor

D3RF Series

■ Standalone type

D3RF-TN 1 output type
D3RF-TDN 2 output type

■ Interconnection type

D3RF-TMN master, 1 output type
D3RF-TDMN master, 2 output type
D3RF-TSN slave, 1 output type
D3RF-TDSN slave, 2 output type

Higher performance and higher cost efficiency !!

3rd generation fiber amplifier !!

No.1
37mm
wide display

No.1
16 μs
high speed

CE

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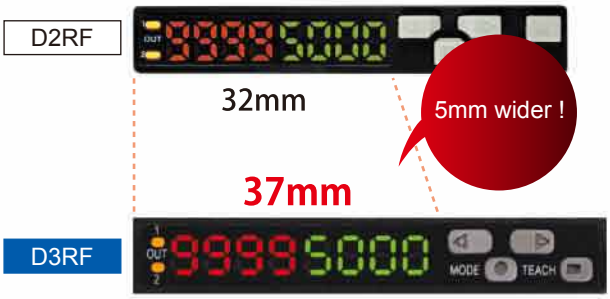
Better visibility and easier operation !

Widest display in the class

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

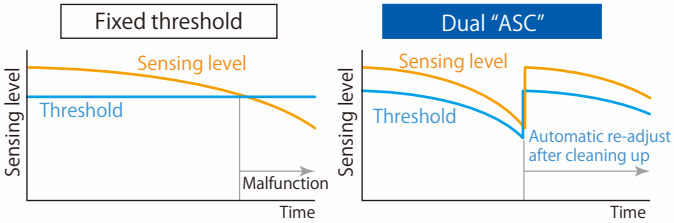


Easier operation

More than 2 sec. pressing the button for teaching.
Higher functionality is in deeper setup layer.
These prevent miss-operations.

Dual "ASC" for easy maintenance

Detects light degradation made by some dust and adjusts the brightness. It re-adjusts threshold automatically after cleaning up so no need re-teaching.



Sensing level changes when light path got some contamination and then it works wrongly. It needs re-teaching.

Threshold level is adjusted optimized level automatically according to sensing level continuously.

% display for better recognition of change

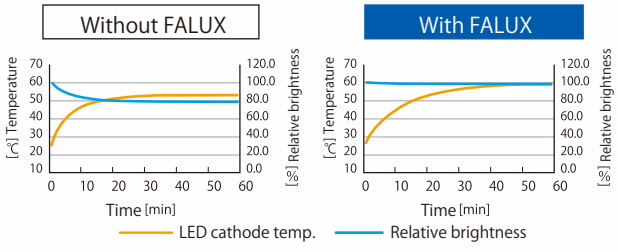
Display can be changed to percentage (0~100) by simple single action with buttons. Easy to recognize when the level changes.

From 4 digit to %

(Inter-connection)
Easy to recognize when it 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.



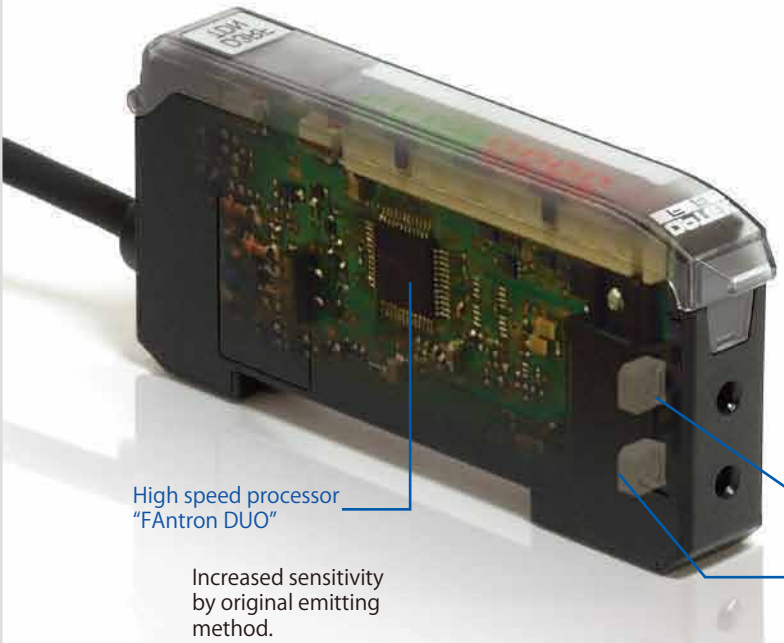
Adjustable hysteresis

Hysteresis can be adjusted from 1% to 40% as you like.
This enables flexible setup of sensitivity according to various object condition.

Detecting parts leads

Detecting sheet objects

No.1 Speed and Power in the class !



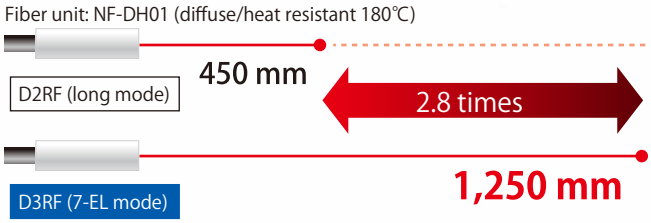
Fastest in the class
16us(1-HS mode)
22us(inter-connection type)

Digital fiber sensor No.1

Originally developed super high speed processor "FAntron DUO" enables fastest speed in the class 16us (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 efficient collective lens, it can receive enough light to realize around 3 times longer sensing distance for diffuse and 5 times longer sensing distance for thru-beam sensing.



Sensing distance comparison

	Fiber unit	D2RF	D3RF	ratio
Diffuse	NF-DB01 (M6 coaxial)	450	**1200**	2.7 times
	NF-DR01 (M6 R2mm)	350	**1100**	3.1 times
	NF-DH01 (180℃)	450	**1250**	2.8 times
Thru-beam	NF-TB01 (M6 coaxial)	1800	**4000**	2.2 times
	NF-TR01 (M6 R2mm)	800	**4000**	5 times
	NF-TH01 (180℃)	1000	**4000**	4 times

ECO mode

It has ECO mode that enable power saving by making sub-display (green) OFF and darken main-display (red).

Standard mode : 864mW max.

example of 1 output type -31%

ECO mode : 600mW max.

Inter-connection for easy setup and operation !

Easy installation

You can connect up to 16 units without any wiring.

Maximum inter-connect units

D2RF 8 units

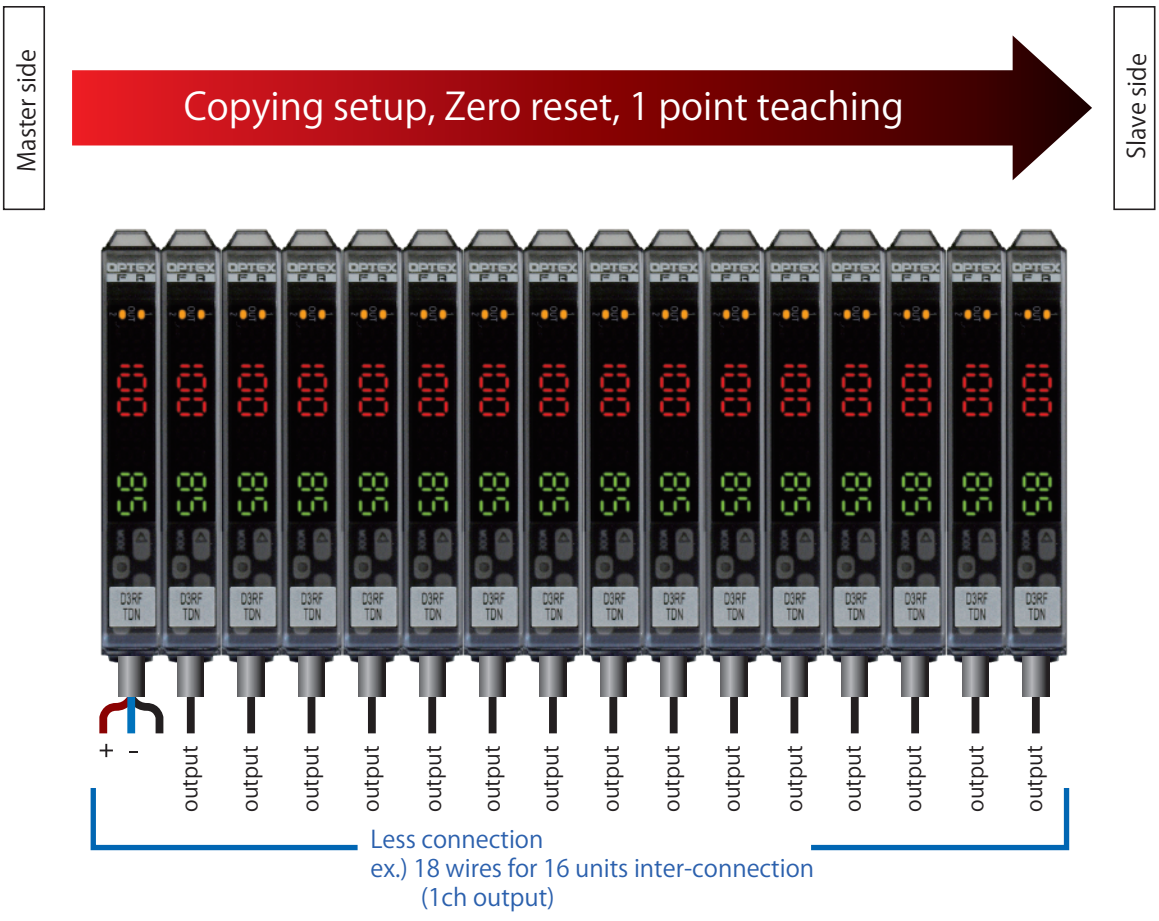
D3RF 16 units (cross talk prevention: OFF or ECO mode)

Easy setup

You can copy setup from master side to slave side. Zero reset and 1 point teaching is available all together.

Cross talk prevention

It can prevent cross talk by shifting emitting timing. You can connect up to 12 units when the setup is standard mode. You can connect up to 16 units when the setup is ECO mode.



Specifications

Type		Standalone type	Interconnection type - master	Interconnection type - slave
Part number	1 output type	D3RF-TN	D3RF-TMN	D3RF-TSN
	2 output type	D3RF-TDN	D3RF-TDMN	D3RF-TDSN
Light source		Red LED		
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 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		2m (single type and interconnection master type: ø3.8mm , slave type: ø2.8mm)		
Insulation impedance		20MΩ max. (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)		
Noise		CE		
Operating temp./humid.		-25~+55℃※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 * 3 times		
Protection category/Material		IP50 / Case: PPE, Cover: PC		
Weight		Approx. 71g including cable		
Bracket		BEF-WLL170		

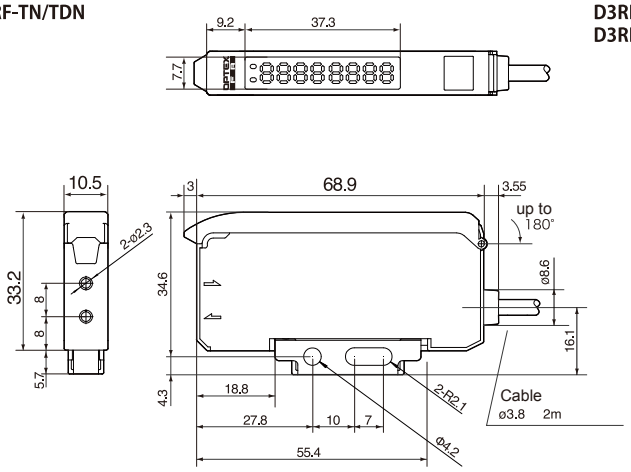
- Specification is subject to change without notice for improvement.
- Suffix of part number of PNP output type is P instead of N.
  ex.) D3RF-TN→D3RF-TP、D3RF-TDSN→D3RF-TDSP

※1 Single type: 16us. When cross talk prevention mode is activated on interconnection type, it's 22us.
※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℃ when you use 4~8 pieces interconnected including master.

Dimensions

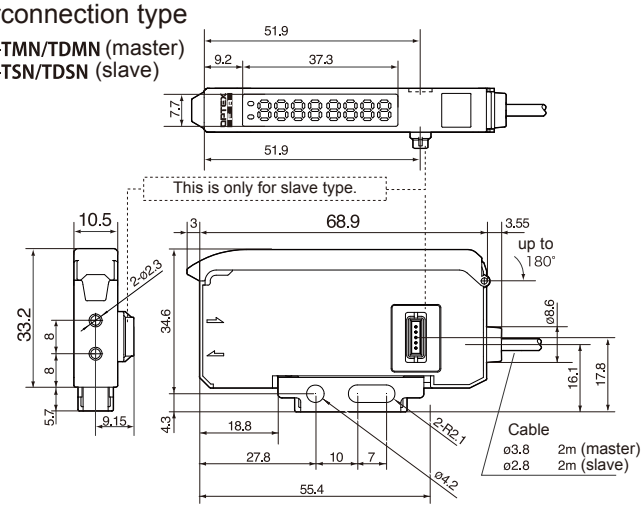
Standalone type

D3RF-TN/TDN

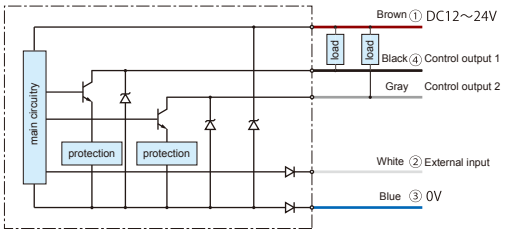


Interconnection type

D3RF-TMN/TDMN (master)
D3RF-TSN/TDSN (slave)

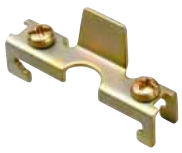


Circuit diagram



Options

End plate



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