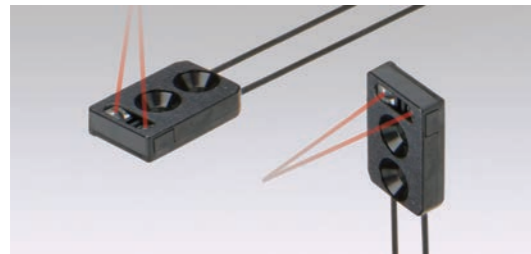


LIMITED DIFFUSE

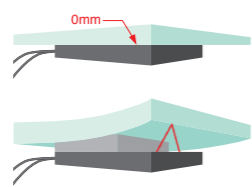


NF-DC38 / DC39 series

Despite the sensor's thin-flat mechanical design it is excellent in canceling optical influence from background material. Best-in-class Excess Gain is not easily affected by colors of objects.

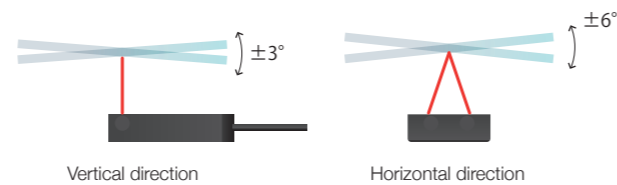
From "0mm" distance (NF-DC39)

NF-DC39 has no dead zone at all. Clear glass objects are possible to detect in 0-4 mm distance.

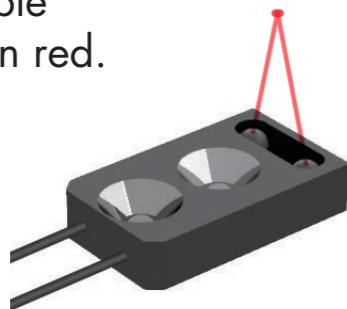


Not Affected by change in angle

Vibration of glass/silicon object in 3 – 6 degree does not matter. Fine optical system secures stable sensing.

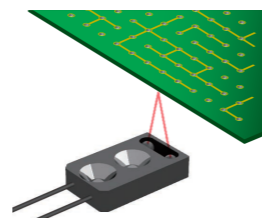


Clearly visible circle spot in red.

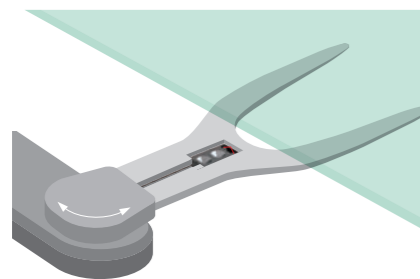


4mm wide spot (NF-DC39)

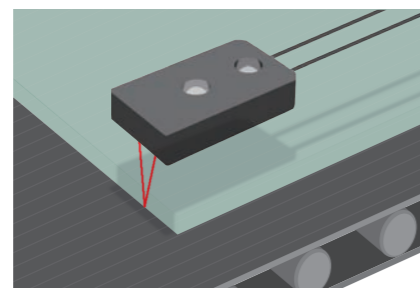
NF-DC39 has 4mm size spot that is applicable to PCB/PWB with holes.



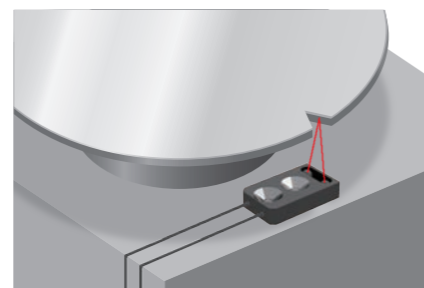
Applications



Edge Detection of Quartz Sheet



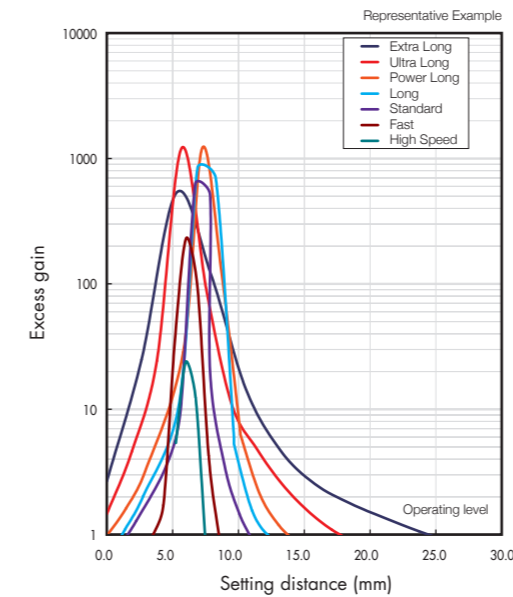
Edge Alignment on conveyor



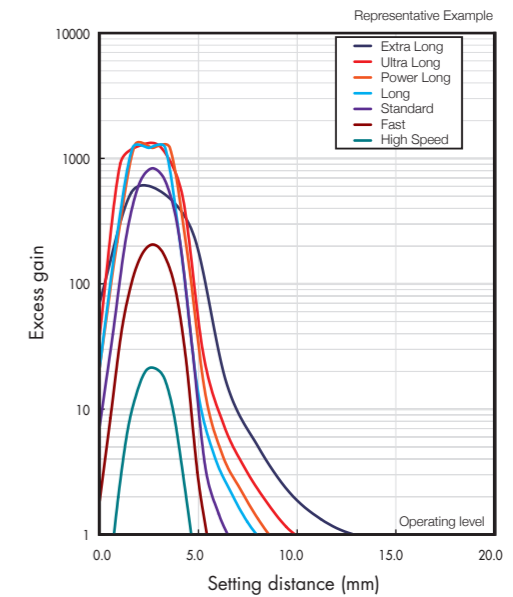
Notch Detection

Excess Gain Curves (Typical Value)

NF-DC38

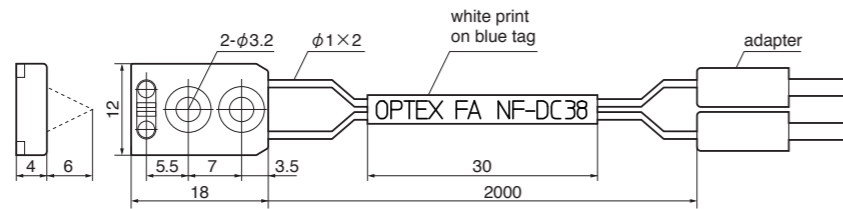


NF-DC39

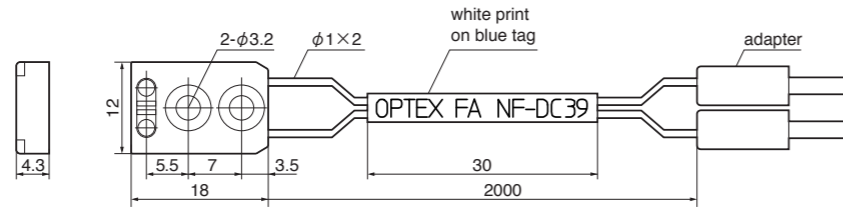


Dimensions (mm)

NF-DC38



NF-DC39



Specifications

Model	NF-DC38	NF-DC39
Sensing Range (D3RF amplifier)	6mm around	0 - 4mm
Spot Size	φ1.5mm @ 6mm	φ4mm @ 4mm
Bending Radius	R10	
Fiber Length	2000mm Free cut	
Ambient Temp	-40~+60°C	
Storage Temp	-40~+70°C	
Dimensions (W x D x H)	12 x 18 x 4 mm	12 x 18 x 4.3 mm
Material	Base, Cover: PC Fiber: PMMA	
Torque	3kgfcm max.	
Weight	7g	

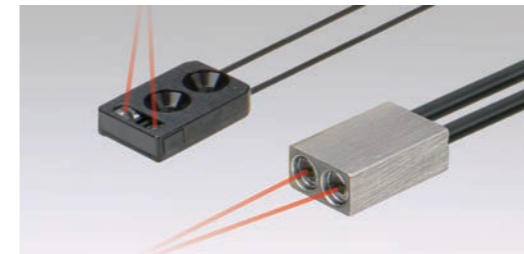
Sensing distance

NF-DC38

Value in parenthesis is the Minimum detectable object size. (copper wire)			Operation temperature (°C~°C)	Radius (mm)
D3RF	D2RF	BRF		
7-EL 0~12 6-UL 0.5~11 5-PL 1.5~10 4-LG 1.5~10	3-ST 2.5~8 2-FS 3.5~7.5 1-HS 4.5~6 Long 2~9 Std 4~8 Fast 5~6	3.5~7	-40~60	R=10

NF-DC39

Value in parenthesis is the Minimum detectable object size. (copper wire)			Operation temperature (°C~°C)	Radius (mm)
D3RF	D2RF	BRF		
7-EL 1.5~4 6-UL 0~4 5-PL 0~4 4-LG 0~4	3-ST 0~4 2-FS 0~4 1-HS 0~4 Long 0~4 Std 0~4 Fast 0~4	0~4	-40~60	R=10



Convergent Beam enables detection of an object at a well defined sensing area.

Detects glass surface

We have 5 types for detecting existence, 5 types for alignment and one for mapping. You can choose Bend-tolerance type, Heat resistance type and vacuum resistance type.

Presence	NF-DC38 Low cost	NF-DC39	NF-DC07 Standard	NF-DH08 Heat resistant 180°C	NF-DH06 Heat resistant 300°C	NF-DN02 vacuum resistant • Heat resistant 300°C
Alignment	NF-DC05 Standard for warp / slant of glass	NF-DC06 Flexible for warp / slant of glass	NF-DC04 Flexible longer distance	NF-DH10 Heat resistant 250°C for warp / slant of glass	NF-DH11 Heat resistant 300°C for warp / slant of glass	
Mapping	NF-DC03 Standard glass plate of 0.5mm					

For General purpose

NF-DC09 (head ON)



NF-DC08 (flat ON)



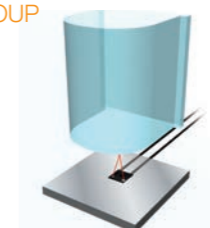
NF-DC39 (flat ON)



Detecting Cap side



Detecting FOUP



Detecting wafer notch



Specifications (Detect Glass)

	Sensing head	Sensing distance (unit:mm) Value in parenthesis is the Minimum detectable object size. (copper wire)			Operation temperature (°C~°C)	Radius (mm)	Part Number	
		D3RF	D2RF	BRF				
Detect glass	alignment Free cut 	7-EL 3~44 6-UL 4~39 5-PL 4~38 4-LG 4~37 3-ST 4~35 2-FS 6~29 1-HS 9~18	Long 7~32 Std 10~25 Fast 10~18	15	0~70	R=25	NF-DC05	
	alignment Flexible Free cut 	7-EL 0~23 6-UL 0~23 5-PL 0~22 4-LG 0~22 3-ST 0~21 2-FS 0~20 1-HS 5~13	Long 0~23 Std 0~17 Fast 0~12	15	0~70	R=4	NF-DC06	
	alignment Flexible Free cut 	7-EL 0~38 6-UL 0~38 5-PL 0~38 4-LG 0~38 3-ST 0~34 2-FS 0~31 1-HS 4~22	Long 0~36 Std 0~30 Fast 0~15	N.A.	0~70	R=4	NF-DC04	
	alignment Heat resistant 250°C 	7-EL 2~28 6-UL 2~24 5-PL 2~23 4-LG 3~23 3-ST 3~20 2-FS 3~18 1-HS 4~11	Long 4~20 Std 4~20 Fast 4~15	4~17	-20~250 (normal temperature side: -20~70)	R=25	NF-DH10	
	alignment Heat resistant 250°C 	7-EL 2~45 6-UL 3~40 5-PL 3~39 4-LG 3~38 3-ST 4~35 2-FS 6~28 1-HS 8~19	Long 6~38 Std 7~30 Fast 8~25	8~25	-20~250 (normal temperature side: -20~70)	R=25	NF-DH11	
	Detecting existence Free cut 	7-EL 0~12 6-UL 0.5~12 5-PL 1.5~10 4-LG 1.5~10	3-ST 2.5~8 2-FS 3.5~7.5 1-HS 4.5~6	Long 2~9 Std 4~8 Fast 5~6	3.5~7	-40~60	R=10	NF-DC38
	Detecting existence Free cut 	7-EL 3~16 6-UL 3~14 5-PL 4~14 4-LG 5~14 3-ST 5~13 2-FS 5~11 1-HS 7~8	Long 4~15 Std 5~12 Fast 7~10	7	-40~60	R=10	NF-DC07	
	Flat on							
	Head ON							

Specifications (Detect Glass/General Purpose)

	Sensing head	Sensing distance (unit:mm) Value in parenthesis is the Minimum detectable object size. (copper wire)			Operation temperature (°C~°C)	Radius (mm)	Part Number	
		D3RF	D2RF	BRF				
Detect glass	Detecting existence Heat resistant 180°C Free cut 	7-EL 0~35 6-UL 0~28 5-PL 0~25 4-LG 0~22 3-ST 0~20 2-FS 0~9 1-HS 3~4	Long 0~20 Std 0~10 Fast 0~8	10	-60~180	R=25	NF-DH08	
	Detecting existence Heat resistant 300°C 	7-EL 0~40 6-UL 0~34 5-PL 0~22 4-LG 0~18 3-ST 0~17 2-FS 0~9 1-HS 0~4	Long 0~15 Std 0~10 Fast 0~8	6	-30~300 または -60~200	R=25	NF-DH06	
	Detecting existence Heat resistant 300°C Vacuum resistant 	7-EL 0~22 6-UL 0~12 5-PL 0~11 4-LG 0~9 3-ST 0~7 2-FS 3~4 1-HS N.A.	Long 0~8 Std 2.5~5 Fast N.A.	3	-30~300	R=18	NF-DN02	
	Mpping Free cut 	7-EL 2~310 6-UL 3~160 5-PL 4~130 4-LG 5~120 3-ST 5~110 2-FS 10~95 1-HS 12~60	Long 10~55 Std 10~45 Fast 13~35	55	-40~60	R=25	NF-DC03	
	Free cut 	7-EL 1.5~4 6-UL 0~4 5-PL 0~4 4-LG 0~4	3-ST 0~4 2-FS 0~4 1-HS 0~4	Long 0~4 Std 0~4 Fast 0~4	0~4	-40~60	R=10	NF-DC39
	Free cut 	7-EL 0~15 6-UL 5~12 5-PL 5~11 4-LG 6~11 3-ST 6~10 2-FS 7~9 1-HS 6~7	Long 4.5~11 Std 4.5~10 Fast 4.5~10	6	-40~70	R=10	NF-DC09	
General purpose								
Flat ON								
Head ON								
Flat ON	Super-small Flexible Free cut 	7-EL 0~9 6-UL 0~8 5-PL 0~7 4-LG 0~6 3-ST 0~5 2-FS 0~3 1-HS 0~2	Long 1~7 Std 1~5.5 Fast 1~3	3	-20~60	R=1	NF-DC08	

Operating humidity is 35~85%RH. Please use in 0~40°C when it's 85%RH.
Sensing distance of diffuse type is for 500 x 500mm white paper.