

## Specifications (Diffuse Type : Standard)

| Sensing head                                                 | Sensing distance (unit:mm)<br>Value in parenthesis is the Minimum detectable object size, (copper wire) |                                          |     | Operation temperature<br>(°C ~ °C) | Radius<br>(mm) | Part Number |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|------------------------------------------|-----|------------------------------------|----------------|-------------|
|                                                              | D3RF                                                                                                    | D2RF                                     | BRF |                                    |                |             |
| <b>Flexible Flat ON Free cut</b><br>                         | 7-EL<br>140<br>6-UL<br>135<br>5-PL<br>110<br>4-LG<br>99<br>3-ST<br>70<br>2-FS<br>34<br>1-HS<br>10       | Long<br>60<br>Std<br>30<br>Fast<br>10~16 | 30  | -40~60                             | R=1            | NF-DE01     |
| <b>Flexible Flat ON Free cut</b><br>                         | 7-EL<br>490<br>6-UL<br>450<br>5-PL<br>400<br>4-LG<br>350<br>3-ST<br>225<br>2-FS<br>117<br>1-HS<br>41    | Long<br>250<br>Std<br>100<br>Fast<br>60  | 100 | -40~60                             | R=1            | NF-DE03     |
| <b>Flexible Head ON/Side ON switchable type Free cut</b><br> | 7-EL<br>160<br>6-UL<br>150<br>5-PL<br>130<br>4-LG<br>117<br>3-ST<br>77<br>2-FS<br>43<br>1-HS<br>12      | Long<br>65<br>Std<br>35<br>Fast<br>20    | 30  | -40~60                             | R=1            | NF-DE02     |
| <b>Flexible Head ON/Side ON switchable type Free cut</b><br> | 7-EL<br>480<br>6-UL<br>450<br>5-PL<br>390<br>4-LG<br>340<br>3-ST<br>225<br>2-FS<br>117<br>1-HS<br>45    | Long<br>250<br>Std<br>120<br>Fast<br>80  | 100 | -40~60                             | R=1            | NF-DE04     |

## THREAD TYPE

M3, M4, and M6 threaded versions with lock nut for easy mounting. Optional lenses provide longer sensing distances of smaller objects.



## Space saving

The NF25-T and NF25-D have right angled heads to save space when installed. Heat resistant and R2 mm flexible types are available.



Straight type

Nut type

## Metal Sheath type

Stainless steel braid protects the fiber cable and prevents fiber cable breakage due to snagging. The R10mm allows the cable to bend in tight areas without breaking.



Metal sheath type

## Specifications (Thru-beam Type : Standard)

| Sensing head                                                | Sensing distance (unit:mm)<br>Value in parenthesis is the Minimum detectable object size, (copper wire)       |                                             |                                            | Operation temperature<br>(°C ~ °C) | Radius<br>(mm) | Part Number |
|-------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------|------------------------------------|----------------|-------------|
|                                                             | D3RF                                                                                                          | D2RF                                        | BRF                                        |                                    |                |             |
| <b>M3</b><br><b>Free cut</b><br>                            | 7-EL<br>3,500<br>6-UL<br>2,100<br>5-PL<br>1,600<br>4-LG<br>1,400                                              | 3-ST<br>1,000<br>2-FS<br>550<br>1-HS<br>175 | Long<br>1,000<br>Std<br>500<br>Fast<br>250 | -40~70                             | R=25           | NF-TM01     |
| <b>Free cut</b><br>                                         | 7-EL<br>900<br>6-UL<br>550<br>5-PL<br>400<br>4-LG<br>350                                                      | 3-ST<br>250<br>2-FS<br>140<br>1-HS<br>45    | Long<br>350<br>Std<br>200<br>Fast<br>90    | -40~70                             | R=15           | NF-TM02     |
| <b>Free cut lens attachable (P.82)</b><br>                  | 7-EL<br>4,000<br>6-UL<br>3,000<br>5-PL<br>2,200<br>4-LG<br>1,900                                              | 3-ST<br>1,400<br>2-FS<br>750<br>1-HS<br>45  | Long<br>1,800<br>Std<br>800<br>Fast<br>450 | -40~70                             | R=30           | NF-TB01     |
| <b>Free cut lens attachable (P.82)</b><br>                  | 7-EL<br>4,000<br>6-UL<br>2,000<br>5-PL<br>1,600<br>4-LG<br>1,400                                              | 3-ST<br>1,000<br>2-FS<br>550<br>1-HS<br>175 | Long<br>1,000<br>Std<br>500<br>Fast<br>250 | -40~70                             | R=25           | NF-TB02     |
| <b>M4</b><br><b>Metal sheath lens attachable (P.82)</b><br> | 7-EL<br>1,590<br>6-UL<br>1,440<br>5-PL<br>1,260<br>4-LG<br>1,140<br>3-ST<br>740<br>2-FS<br>410<br>1-HS<br>130 | Long<br>350<br>Std<br>220<br>Fast<br>110    | 300                                        | -40~60                             | R=10           | NF-TJ01     |

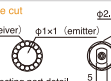
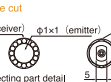
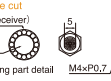
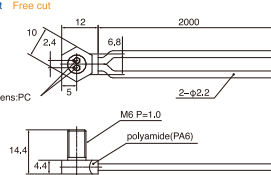
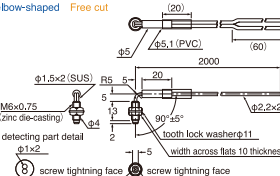
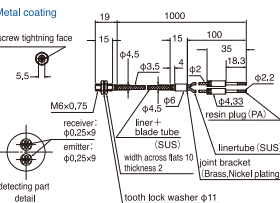
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|           |      | Sensing head | Sensing distance (unit:mm)<br>Value in parenthesis is the Minimum detectable object size, (copper wire)                    |                                                   |        | Operation temperature<br>(℃~℃) | Radius<br>(mm) | Part Number |
|-----------|------|--------------|----------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------|--------|--------------------------------|----------------|-------------|
|           |      |              | D3RF                                                                                                                       | D2RF                                              | BRF    |                                |                |             |
| Thru-beam | M4   |              | 7-EL<br>2,500<br>6-UL<br>1,400<br>5-PL<br>1,300<br>4-LG<br>1,000<br>3-ST<br>750<br>2-FS<br>350<br>1-HS<br>100              | Long<br>800<br>Std<br>600<br>Fast<br>200          | 350    | -40~70                         | R=25           | NF25-T      |
|           | M4   |              | 7-EL<br>1,440<br>6-UL<br>1,350<br>5-PL<br>1,170<br>4-LG<br>1,060<br>3-ST<br>690<br>2-FS<br>430<br>1-HS<br>130              | Long<br>750<br>Std<br>450<br>Fast<br>200          | 350    | -40~70                         | R=25           | NF-TB06     |
|           | M1.4 |              | 7-EL<br>19,500<br>6-UL<br>19,500<br>5-PL<br>19,500<br>4-LG<br>19,500<br>3-ST<br>19,500<br>2-FS<br>19,500<br>1-HS<br>19,500 | Long<br>19,500<br>Std<br>19,500<br>Fast<br>19,500 | 19,500 | -40~70                         | R=25           | NF-TB08     |
| Diffuse   | M3   |              | 7-EL<br>300<br>6-UL<br>160<br>5-PL<br>150<br>4-LG<br>120<br>3-ST<br>80<br>2-FS<br>40<br>1-HS<br>10                         | Long<br>100<br>Std<br>50<br>Fast<br>25            | 35     | -40~70                         | R=15           | FD-TT2      |
|           | M3   |              | 7-EL<br>400<br>6-UL<br>200<br>5-PL<br>190<br>4-LG<br>160<br>3-ST<br>100<br>2-FS<br>50<br>1-HS<br>10                        | Long<br>100<br>Std<br>60<br>Fast<br>30            | 45     | -40~70                         | R=15           | NF-D506     |
|           | M3   |              | 7-EL<br>500<br>6-UL<br>300<br>5-PL<br>250<br>4-LG<br>225<br>3-ST<br>150<br>2-FS<br>100<br>1-HS<br>30                       | Long<br>250<br>Std<br>120<br>Fast<br>50           | 70     | -40~70                         | R=15           | NF-DT01     |
|           | M3   |              | 7-EL<br>310<br>6-UL<br>290<br>5-PL<br>260<br>4-LG<br>220<br>3-ST<br>140<br>2-FS<br>70<br>1-HS<br>20                        | Long<br>170<br>Std<br>80<br>Fast<br>45            | 55     | -40~60                         | R=25           | NF-DB07     |
|           | M3   |              | 7-EL<br>180<br>6-UL<br>110<br>5-PL<br>100<br>4-LG<br>85<br>3-ST<br>60<br>2-FS<br>40<br>1-HS<br>12                          | Long<br>70<br>Std<br>40<br>Fast<br>15             | 20     | -40~70                         | R=15           | NF-DK21     |
|           | M3   |              | 7-EL<br>180<br>6-UL<br>170<br>5-PL<br>150<br>4-LG<br>130<br>3-ST<br>80<br>2-FS<br>40<br>1-HS<br>10                         | Long<br>120<br>Std<br>50<br>Fast<br>30            | 50     | -40~60                         | R=10           | NF-DJ01     |

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Sensing distance of diffuse type is for 500 x 500mm white paper.

|    |               | Sensing head                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Sensing distance (unit:mm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                  |                                          | Operation temperature (℃~℃)              | Radius (mm)                             | Part Number |         |         |
|----|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|------------------------------------------|-----------------------------------------|-------------|---------|---------|
|    |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Value in parenthesis is the Minimum detectable object size, (copper wire)                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                  |                                          |                                          |                                         |             |         |         |
|    |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | D3RF                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | D2RF                                                                                                                                                                                                                             | BRF                                      |                                          |                                         |             |         |         |
| M4 | Standard      | Free cut                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  <p>M4xP0.7 SUS</p> <p>φ1.2</p> <p>φ1.3</p> <p>3</p> <p>12</p> <p>2000</p>                                                                                                                                                                                                                                                                                                                                                            | 7-EL<br>1,100<br>650<br>550<br>450<br>4-UG                                                                                                                                                                                       | 3-ST<br>350<br>200<br>145<br>60<br>2-FS  | Long<br>400<br>Std<br>250<br>Fast<br>100 | 160                                     | -40~70      | R=25    | NF-DM01 |
|    | Coaxial       | lens attachable (P.50)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Free cut                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  <p>φ0.25x9 (receiver)</p> <p>φ0.5x1 (emitter)</p> <p>detecting part detail</p> <p>M4xP0.7 SUS</p> <p>φ1.3</p> <p>3</p> <p>12</p> <p>2000</p> | 7-EL<br>500<br>300<br>250<br>225<br>4-UG | 3-ST<br>150<br>100<br>30<br>1-HS         | Long<br>250<br>Std<br>120<br>Fast<br>50 | 70          | -40~70  | R=15    |
| M6 | Standard      | Free cut                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  <p>M6xP0.75</p> <p>φ1.0x2</p> <p>φ4</p> <p>3</p> <p>18</p> <p>2000</p>                                                                                                                                                                                                                                                                                                                                                               | 7-EL<br>1,200<br>750<br>650<br>550<br>4-UG                                                                                                                                                                                       | 3-ST<br>400<br>245<br>145<br>80<br>2-FS  | Long<br>400<br>Std<br>250<br>Fast<br>100 | 160                                     | -40~70      | R=25    | NF-DK06 |
|    | Coaxial       | Free cut                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  <p>φ0.25x16 (receiver)</p> <p>φ1x1 (emitter)</p> <p>detecting part detail</p> <p>φ2.5 SUS</p> <p>M6xP0.75 SUS</p> <p>φ2.2</p> <p>10</p> <p>5</p> <p>15</p> <p>2000</p>                                                                                                                                                                                                                                                               | 7-EL<br>1,200<br>750<br>650<br>550<br>4-UG                                                                                                                                                                                       | 3-ST<br>400<br>245<br>145<br>75<br>2-FS  | Long<br>450<br>Std<br>250<br>Fast<br>100 | 150                                     | -40~70      | R=25    | NF-DB01 |
|    | Coaxial       | Free cut                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  <p>φ0.25x16 (receiver)</p> <p>φ1x1 (emitter)</p> <p>detecting part detail</p> <p>φ2.5</p> <p>M6xP0.75</p> <p>φ2.2</p> <p>10</p> <p>8</p> <p>20</p> <p>2000</p>                                                                                                                                                                                                                                                                       | 7-EL<br>1,200<br>750<br>650<br>575<br>4-UG                                                                                                                                                                                       | 3-ST<br>400<br>245<br>145<br>75<br>2-FS  | Long<br>450<br>Std<br>250<br>Fast<br>100 | 150                                     | -40~70      | R=25    | NF-DB03 |
|    | Coaxial       | Free cut                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  <p>φ0.25x16 (receiver)</p> <p>φ1x1 (emitter)</p> <p>detecting part detail</p> <p>φ1.1</p> <p>M4xP0.7</p> <p>M6xP0.75</p> <p>SUS303</p> <p>φ2.2</p> <p>5</p> <p>8</p> <p>20</p> <p>2000</p>                                                                                                                                                                                                                                           | 7-EL<br>1,200<br>650<br>550<br>500<br>4-UG                                                                                                                                                                                       | 3-ST<br>300<br>150<br>50<br>1-HS         | Long<br>450<br>Std<br>250<br>Fast<br>100 | 80                                      | -40~70      | R=25    | NF-DB04 |
| M6 | Nut           | Free cut                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  <p>10</p> <p>12</p> <p>2.4</p> <p>6.8</p> <p>2000</p> <p>lens:PC</p> <p>5</p> <p>1</p> <p>2-φ2.2</p> <p>M6 P=1.0</p> <p>polyamide(PA6)</p> <p>14.4</p> <p>4.4</p>                                                                                                                                                                                                                                                                    | 7-EL<br>550<br>330<br>240<br>200<br>150<br>90<br>23<br>4-UG                                                                                                                                                                      | 3-ST<br>120<br>80<br>25<br>1-HS          | Long<br>120<br>Std<br>80<br>Fast<br>25   | 45                                      | -40~70      | R=25    | NF25-D  |
|    | elbow-shaped  | Free cut                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  <p>(20)</p> <p>φ5</p> <p>φ5.1 (PVC)</p> <p>2000</p> <p>φ1.5x2 (SUS)</p> <p>RS</p> <p>5</p> <p>20</p> <p>φ2.2x2</p> <p>M6x0.75</p> <p>(zinc die-casting)</p> <p>detecting part detail</p> <p>φ1.2</p> <p>φ4</p> <p>13</p> <p>5</p> <p>2</p> <p>90°~5°</p> <p>tooth lock washer φ11</p> <p>width across flats 10 thickness 2</p> <p>φ1.2</p> <p>8</p> <p>screw tightening face</p> <p>φ1.2</p> <p>5</p> <p>screw tightening face</p> | 7-EL<br>540<br>510<br>390<br>250<br>140<br>40<br>4-UG                                                                                                                                                                            | 3-ST<br>300<br>150<br>60<br>2-FS         | Long<br>300<br>Std<br>150<br>Fast<br>60  | 100                                     | -40~70      | R=25    | NF-DB09 |
| M6 | Metal coating |  <p>screw tightening face</p> <p>5.5</p> <p>19</p> <p>15</p> <p>φ4.5</p> <p>φ3.5</p> <p>4</p> <p>φ2</p> <p>100</p> <p>35</p> <p>18.3</p> <p>φ2.2</p> <p>M6x0.75</p> <p>receiver: φ0.25x9</p> <p>emitter: φ0.25x9</p> <p>detecting part detail</p> <p>φ4.5</p> <p>φ2</p> <p>φ4.33</p> <p>resin plug (PA)</p> <p>linertube (SUS)</p> <p>width across flats 10 thickness 2</p> <p>tooth lock washer φ11</p> <p>point bracket (Brass/Nickel plating)</p> | 7-EL<br>440<br>410<br>360<br>310<br>200<br>100<br>30<br>4-UG                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 3-ST<br>280<br>150<br>70<br>2-FS                                                                                                                                                                                                 | Long<br>280<br>Std<br>150<br>Fast<br>70  | 100                                      | -40~70                                  | R=10        | NF-DJ02 |         |