FUJINON CCTV LENSES

FUJINON lenses have dominated the broadcasting lens market where excellent image quality is required. The technologies for those broadcasting lenses are now adopted in CCTV lens manufacturing. We offer various lenses for a wide range of purposes including large super zoom lenses suitable for long range surveillance, day and night lenses, and HD lenses. We always make great effort to produce reliable products for customers all over the world through our strictest quality control and streamlined production structure.

See what it is, not what it might be. FUJINON CCTV LENSES

Features

Fish-Eye Lenses

Fujinon's Fish-Eye lens, with an angle of 185 degrees, is the world's first to support 5 megapixel CCD cameras. High-quality image display in imaging software has been made simple with captured images that are sharp from edge to edge, and with the adoption of the F9 system suited for uniform displaying of images. Look no further for effective, blindspot-free wide-area surveillance, such as of subway entrances and shopping arcades.

HD Vari-Focal Lenses

High-resolution lenses for use in security systems for which demand has grown in recent years. These lenses boast super clear imaging from the center to the edges with superior face recognition capability. The lenses are suitable for any purpose and locale, in day and night use, from among focal lengths of 2.2 mm to 80 mm.

Zoom Lenses

With the adoption of high-precision TRI-CAM + INNERCAM technology, we offer an expanded lineup of products to meet ever more diversified needs. There are models with auto-focusing, optical anti-vibration, zoom and focus presetting, and also those which support the RS-232C standard that enable sophisticated zoom control by computer. We are expanding the lineup with lenses for night vision cameras and lenses with super zoom (eg: 60x), long focal length (eg: 3200 mm) or high resolution (eg: 2 megapixels) demanded for long range surveillance. Small and lightweight lenses enable compact long range surveillance systems to be built.

Vari-Focal Lenses

Lenses for use in security systems for which demand has grown in recent years. These lenses allow clear imaging from the center to the edges with superior face recognition capability. They are suitable for any purpose and locale. The lenses are featured by: an AT aspheric surface, large aperture of F0.95, day and night use, miniature design for dome application or coverage for 1/2-inch sensors superior in terms of optical performance.

Fixed Focal Length Lenses

High cost-performance fixed focal length lenses that are compact, lightweight and of course provide high quality images for security CCTV cameras. Great lineups including day-and-night use lenses supporting 5-megapixel cameras, which are optimum for ITS in growing demand. These lenses are highly effective wherever security monitoring is required, including bank ATMs, convenience stores, offices, condominiums and transportation facilities.

Day&Night Lenses

There is a growing need for compact, high quality lenses for 24/7 surveillance applications such as parking lots, factory premises, streets. Continuous surveillance is also required for public facilities such as airports, harbors, highways and border patrol, requiring more versatile focal lengths and higher zoom ratios. Fujinon has developed lenses that respond to infrared illumination to capture clear, corrected images, even at 0 lux. We offer a lineup of lenses from the standard focal length of 2.9-8 mm, to the diverse focal length of 12.5-2200 mm.

At night, day & night cameras operate in the near-infrared range. For this reason, use of regular lenses causes the image to be out of focus. Using special optical glass and advanced optical designing technology, Fujinon’s day&night lenses achieve minimal axial aberration. Sharp and high quality images can be captured around-the-clock, whether in the visible range (day / color) or in the near-infrared range (night / monochrome), and at every focal distance from the wide end to the tele end.
FUJINON HD Lenses

As modern industries and social infrastructures are growing rapidly, demands for surveillance systems incorporating high-definition cameras are increasing day by day. In order to fully utilize advanced complex security systems, superior lens performance for image capture is essential.

To respond to this market demand, Fujifilm offers a wide variety of high quality lenses for HD security cameras, achieving clear images for superior face recognition capability.

Suitable for any application and condition, our lineup contains Day and Night, and other lenses ranging from 2.2 mm to 3200 mm.

FUJINON HD Vari-Focal lenses can be incorporated with the P-iris control, a precise control of the iris (by using a stepping motor) according to the situation, to produce higher quality video images. (*1)*2

Lenses supporting 1.3- to 5-megapixel HD sensors provide 2 to 4 times greater resolution, compared to traditional lenses for SD sensors. Only when used in combination with these lenses, cameras with greater pixel sizes and image quality allowed to fully exercise their performance.

High-vision surveillance images!

* Over Cash Register

Details on banknotes or cash display are clearly seen.

* In Store

Facial expressions or details of clothing can be easily seen in images taken by HD lenses.

*1: The P-iris is an optional feature. Contact us separately to incorporate it.
*2: P-iris lenses are only available with the cameras supporting P-iris control.
FUJINON
Chart of Focus Range for HD Vari-Focal Lenses.

Wide | Middle | Tele
--- | --- | ---

**Wide**

- **YV2.7x2.2SR4A**
  - **f=2.2-6.0mm**
  - **Sensor size 1/2.7**

- **YV2.1x2.8SR4A**
  - **f=2.8-6.0mm**
  - **Sensor size 1/3**

- **YV2.8x2.8SR4A**
  - **f=2.8-8.0mm**
  - **Sensor size 1/2.7**

- **DV3.8x4SR4A**
  - **f=4-15.2mm**
  - **Sensor size 1/1.8**

- **YV10x5HR4A**
  - **f=5.0-50mm**
  - **Sensor size 1/3**

- **YV3x6SR4A**
  - **f=6.0-18mm**
  - **Sensor size 1/2.7**

- **DV10x8SR4A**
  - **f=8.0-80mm**
  - **Sensor size 1/2**

- **DV4x12.5SR4A**
  - **f=12.5-50mm**
  - **Sensor size 1/1.8**

- **YV3.3x15HR4A**
  - **f=15-50mm**
  - **Sensor size 1/3**

- **YV3.3x15SR4A**
  - **f=15-50mm**
  - **Sensor size 1/2.7**

**Middle**

- **YV2.7x2.2SA**
  - **f=2.2-6.0mm**
  - **Sensor size 1/3**

- **YV2.8x2.8SA**
  - **f=2.8-8.0mm**
  - **Sensor size 1/3**

- **YV4.3x2.8SA**
  - **f=2.8-12mm**
  - **Sensor size 1/3**

- **DV3.4x3.8SA**
  - **f=3.8-13mm**
  - **Sensor size 1/2**

- **DV10x8SA**
  - **f=8.0-80mm**
  - **Sensor size 1/2**

- **YV3.3x15SA**
  - **f=15-50mm**
  - **Sensor size 1/3**

**Tele**

- **YV2.7x2.2SR4A**
  - **f=2.2-6.0mm**
  - **Sensor size 1/2.7**

- **YV2.1x2.8SR4A**
  - **f=2.8-6.0mm**
  - **Sensor size 1/3**

- **YV2.8x2.8SR4A**
  - **f=2.8-8.0mm**
  - **Sensor size 1/2.7**

- **DV3.8x4SR4A**
  - **f=4-15.2mm**
  - **Sensor size 1/1.8**

- **YV10x5HR4A**
  - **f=5.0-50mm**
  - **Sensor size 1/3**

- **YV3x6SR4A**
  - **f=6.0-18mm**
  - **Sensor size 1/2.7**

- **DV10x8SR4A**
  - **f=8.0-80mm**
  - **Sensor size 1/2**

- **DV4x12.5SR4A**
  - **f=12.5-50mm**
  - **Sensor size 1/1.8**

- **YV3.3x15HR4A**
  - **f=15-50mm**
  - **Sensor size 1/3**

- **YV3.3x15SR4A**
  - **f=15-50mm**
  - **Sensor size 1/2.7**

- **YV2.7x2.2SA**
  - **f=2.2-6.0mm**
  - **Sensor size 1/3**

- **YV2.8x2.8SA**
  - **f=2.8-8.0mm**
  - **Sensor size 1/3**

- **YV4.3x2.8SA**
  - **f=2.8-12mm**
  - **Sensor size 1/3**

- **DV3.4x3.8SA**
  - **f=3.8-13mm**
  - **Sensor size 1/2**

- **DV10x8SA**
  - **f=8.0-80mm**
  - **Sensor size 1/2**

- **YV3.3x15SA**
  - **f=15-50mm**
  - **Sensor size 1/3**

*Shots taken by DV10x8SR4A*
### Vari-Focal Day & Night Lens

**Vari-Focal Wide Angle DC Auto Iris CS Mount Metal Mount ND Filter Long Cable**

<table>
<thead>
<tr>
<th>Lens Type</th>
<th>Focal Length (mm)</th>
<th>Iris Range</th>
<th>Operation</th>
<th>Angle of View (H × V)</th>
<th>Focus Range (From Lens Front) (m)</th>
<th>Mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>YV2.1x2.8SR4A-SA2</td>
<td>2.1 ×</td>
<td>2.8 - 6 (2.7x)</td>
<td>Zoom Manual</td>
<td>1/2.7</td>
<td>132° 47′ × 100° 19′</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/3</td>
<td>50° 26′ × 37° 54′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/4</td>
<td>46° 58′ × 35° 09′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>74° 10′ × 54° 58′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>35° 09′ × 26° 19′</td>
<td>75</td>
</tr>
<tr>
<td>YV2.7x2.2SR4A-SA2</td>
<td>2.7 ×</td>
<td>2.2 - 6 (2.7x)</td>
<td>Zoom Manual</td>
<td>1/2.7</td>
<td>101° 11′ × 74° 10′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/3</td>
<td>121° 4′ × 91° 20′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/4</td>
<td>45° 51′ × 34° 28′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>91° 20′ × 68° 43′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34° 28′ × 25° 53′</td>
<td>75</td>
</tr>
<tr>
<td>YV2.8x2.8SR4A-SA2</td>
<td>2.8 ×</td>
<td>2.8 - 6 (2.8x)</td>
<td>Zoom Manual</td>
<td>1/2.7</td>
<td>101° 11′ × 74° 10′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/3</td>
<td>121° 4′ × 91° 20′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/4</td>
<td>45° 51′ × 34° 28′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>91° 20′ × 68° 43′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34° 28′ × 25° 53′</td>
<td>75</td>
</tr>
<tr>
<td>YV3x6SR4A-SA2</td>
<td>3 ×</td>
<td>3.0 - 6 (2.5x)</td>
<td>Zoom Manual</td>
<td>1/2.7</td>
<td>101° 11′ × 74° 10′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/3</td>
<td>121° 4′ × 91° 20′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1/4</td>
<td>45° 51′ × 34° 28′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>91° 20′ × 68° 43′</td>
<td>75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34° 28′ × 25° 53′</td>
<td>75</td>
</tr>
</tbody>
</table>

* 1: The iris automatically closes when the camera is turned off.
* Each of the above products is also available in a manual type.
* Each of the above products is also available in a long cable type (230 mm).
### HD Lens

#### Day&Night Lens

<table>
<thead>
<tr>
<th>Model</th>
<th>Zoom Ratio</th>
<th>Applicable to</th>
<th>Iris</th>
<th>Operation</th>
<th>Focus</th>
<th>Angle of View (H x V)</th>
<th>Aspect Ratio</th>
<th>Focus Range (m)</th>
<th>Dimensions (Unit: mm)</th>
<th>Unit</th>
<th>Technical Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>YV3.3x15SR4A-SA2</td>
<td>3.3x</td>
<td>1/2.7</td>
<td>3.3</td>
<td>WIDE</td>
<td>13'</td>
<td>103' x 77'</td>
<td>16:9</td>
<td>1.0</td>
<td>21' x 15' x 5.5'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DV3.8x4SR4A-SA1</td>
<td>3.8x</td>
<td>1/1.8</td>
<td>3.8</td>
<td>WIDE</td>
<td>18'</td>
<td>24' x 18'</td>
<td>16:9</td>
<td>1.0</td>
<td>29' x 22' x 7'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DV4x12.5SR4A-SA1</td>
<td>4.0x</td>
<td>1/1.8</td>
<td>4.0</td>
<td>WIDE</td>
<td>20'</td>
<td>10' x 13'</td>
<td>16:9</td>
<td>1.0</td>
<td>5' x 4'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DV10x8SR4A-SA1</td>
<td>10x</td>
<td>1/2</td>
<td>10</td>
<td>WIDE</td>
<td>24'</td>
<td>24' x 18'</td>
<td>16:9</td>
<td>1.0</td>
<td>45' x 34' x 9'</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

For detailed specifications, see the following website: [http://www.fujifilm.com/products/optical_devices/cctv/security/](http://www.fujifilm.com/products/optical_devices/cctv/security/)
<table>
<thead>
<tr>
<th>Focal Length (mm)</th>
<th>YV2.7x2.2SA-SA2</th>
<th>YV2.8x2.8SA-SA2</th>
<th>YV4.3x2.8SA-SA2</th>
<th>YV3.3x15SA-SA2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iris Range</td>
<td>F1.3 – T360°(Equivalent to F360°)</td>
<td>F1.2 – T360°(Equivalent to F360°)</td>
<td>F1.4 – T360°(Equivalent to F360°)</td>
<td>F1.5 – T360°(Equivalent to F360°)</td>
</tr>
<tr>
<td>Iris</td>
<td>AUTO (DC type)*</td>
<td>AUTO (DC type)*</td>
<td>AUTO (DC type)*</td>
<td>AUTO (DC type)*</td>
</tr>
<tr>
<td>Angle of View (H x V)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/3</td>
<td>WIDE: 120° 00’ × 91° 36’</td>
<td>100° 00’ × 73° 45’</td>
<td>100° 02’ × 74° 03’</td>
<td>18° 08’ × 13° 34’</td>
</tr>
<tr>
<td></td>
<td>TELE: 46° 26’ × 34° 59’</td>
<td>35° 03’ × 26° 18’</td>
<td>23° 26’ × 17° 36’</td>
<td>5° 35’ × 4° 12’</td>
</tr>
<tr>
<td>1/4</td>
<td>WIDE: 91° 36’ × 65° 21’</td>
<td>73° 45’ × 54° 49’</td>
<td>74° 03’ × 55° 06’</td>
<td>13° 34’ × 10° 10’</td>
</tr>
<tr>
<td></td>
<td>TELE: 34° 59’ × 26° 18’</td>
<td>26° 18’ × 19° 44’</td>
<td>17° 36’ × 13° 13’</td>
<td>4° 12’ × 3° 10’</td>
</tr>
<tr>
<td>Angle of View (H x V)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/3</td>
<td>WIDE: 129° 43’ × 75° 23’</td>
<td>109° 50’ × 59° 51’</td>
<td>109° 33’ × 60° 08’</td>
<td>19° 46’ × 11° 04’</td>
</tr>
<tr>
<td></td>
<td>TELE: 99° 23’ × 56° 53’</td>
<td>80° 39’ × 44° 38’</td>
<td>80° 56’ × 44° 51’</td>
<td>14° 47’ × 8° 18’</td>
</tr>
<tr>
<td></td>
<td>38° 04’ × 21° 31’</td>
<td>28° 39’ × 16° 07’</td>
<td>19° 10’ × 10° 48’</td>
<td>4° 34’ × 2° 35’</td>
</tr>
<tr>
<td>Focus Range (From the Lens Front) (m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1/3</td>
<td>≈ 0.3</td>
<td>≈ 0.3</td>
<td>≈ 0.3</td>
<td>≈ 0.3</td>
</tr>
<tr>
<td>Mass (g)</td>
<td>55</td>
<td>50</td>
<td>80</td>
<td>60</td>
</tr>
</tbody>
</table>

*1: The iris automatically closes when the camera is turned off.

* Each of the above products is also available in manual type.

* Each of the above products is also available in long cable type (230 mm).
**HD Lens**

**DV3.4x3.8SA-SA1**
3.4 x

**DV10x8SA-SA1**
10 x

**Vari-Focal Day&Night Lens**

<table>
<thead>
<tr>
<th>Model</th>
<th>Focal Length (mm)</th>
<th>Iris Range</th>
<th>Zoom</th>
<th>Operation</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>DV3.4x3.8SA-SA1</td>
<td>3.8 - 13 (3.4x)</td>
<td>8 – 80 (10x)</td>
<td>Manual</td>
<td>Zoom</td>
<td></td>
</tr>
<tr>
<td>DV10x8SA-SA1</td>
<td>10 - 80 (10x)</td>
<td>15 – 50 (3.3x)</td>
<td>Manual</td>
<td>Zoom</td>
<td></td>
</tr>
</tbody>
</table>

**Vari-Focal**

**DV3.4x3.8SA-SA1**

**DV10x8SA-SA1**

**YV3.3x15HR4A-SA2**
3.3 x

**YV10x5HR4A-SA2**
10 x

**Vari-Focal Day&Night Lens**

<table>
<thead>
<tr>
<th>Model</th>
<th>Focal Length (mm)</th>
<th>Iris Range</th>
<th>Zoom</th>
<th>Operation</th>
<th>Focus</th>
</tr>
</thead>
<tbody>
<tr>
<td>YV3.3x15HR4A-SA2</td>
<td>3.3 x</td>
<td>5 – 50 (10x)</td>
<td>Manual</td>
<td>Zoom</td>
<td></td>
</tr>
<tr>
<td>YV10x5HR4A-SA2</td>
<td>10 x</td>
<td>5 – 50 (10x)</td>
<td>Manual</td>
<td>Zoom</td>
<td></td>
</tr>
</tbody>
</table>

For detailed specifications, see the following website: http://www.fujifilm.com/products/optical_devices/cctv/security/
**HF35SR4A-SA1L**

- **Focal Length (mm)**: 35
- **Iris Range**: F2.0 - T360
- **Operation**: Focus Manual
- **Angle of View (° x °)**
  - 2/3′: 14° 20′ x 10° 46′
  - 1/2′: 10° 27′ x 7° 51′
  - 1/3′: 7° 51′ x 5° 53′
- **Aspect Ratio**: 16:9
  - 2/3′: 13° 36′ x 8° 48′
  - 1/2′: 11° 22′ x 6° 25′
  - 1/3′: 8° 33′ x 4° 49′
- **Focus Range (From the Lens Front) (m)**
  - ∞ - 0.75
  - ∞ - 1.0
- **Mass (g)**: 270

**HF50SR4A-SA1L**

- **Focal Length (mm)**: 50
- **Iris Range**: F2.8 - T360
- **Operation**: Auto/DC Type
- **Angle of View (° x °)**
  - 2/3′: 10° 03′ x 7° 33′
  - 1/2′: 7° 19′ x 5° 30′
  - 1/3′: 5° 30′ x 4° 07′
- **Aspect Ratio**: 16:9
  - 2/3′: 10° 37′ x 6° 10′
  - 1/2′: 7° 58′ x 4° 29′
  - 1/3′: 5° 59′ x 3° 22′
- **Focus Range (From the Lens Front) (m)**
  - ∞ - 0.75
  - ∞ - 1.0
- **Mass (g)**: 260

---

*1: The iris automatically closes when the camera is turned off.

Each of the above products is also available in manual type.

For detailed specifications, see the following website: [http://www.fujifilm.com/products/optical_devices/cctv/security/]
For detailed specifications, see the following website: http://www.fujifilm.com/products/optical_devices/cctv/security/
**Vari-Focal Day&Night Lens**

### YV2.7x2.9LR4D-SA2
- **Focal Length**: 2.7 x
- **Iris Range**: F0.95 - T360 (Equivalent to F360)
- **Operation**: Manual
- **Angle of View (H x V)**:
  - 1/2” WIDE: 94° 37’ x 69° 30’
  - 1/3” WIDE: 35° 18’ x 26° 26’
  - 1/4” WIDE: 20° 37’ x 15° 30’
- **Focus Range (From the Lens Front) (m)**: 0.3
- **Mass (g)**: 45

### YV5x2.7R4B-SA2
- **Focal Length**: 5 x
- **Iris Range**: F1.9 - T360 (Equivalent to F360)
- **Operation**: Manual
- **Angle of View (H x V)**:
  - 1/3” TELE: 99° 42’ x 74° 17’
  - 1/6” TELE: 30° 17’ x 25° 55’
  - 1/12” TELE: 15° 30’ x 11° 38’
- **Focus Range (From the Lens Front) (m)**: 0.3
- **Mass (g)**: 70

### DV5x3.6R4B-SA2
- **Focal Length**: 5 x
- **Iris Range**: F1.8 - T360 (Equivalent to F360)
- **Operation**: Manual
- **Angle of View (H x V)**:
  - 1/3” TELE: 15° 09’ x 11° 26’
  - 1/6” TELE: 54° 25’ x 40° 50’
  - 1/12” TELE: 11° 26’ x 8° 37’
- **Focus Range (From the Lens Front) (m)**: 0.3
- **Mass (g)**: 75

---

*1: The iris automatically closes when the camera is turned off.

*Each of the above products is also available in long cable type (230 mm).

*Each of the above products is also available in manual type.
**Vari-Focal**

---

**YV2.8x2.8LA-SA2**

- **Zoom:** 2.8 x
- **Applicable camera:** 1/3
- **Focal Length (mm):** 3.8
- **Iris Range:** F0.95 - T360 (Equivalent to F360)
- **Operation:** Manual
- **Angle of View (H x V):**
  - **1/2:** 105° x 73° 17’
  - **1/3:** 99° 52’ x 73° 17’
  - **1/4:** 73° 17’ x 54° 19’
- **Focus Range (From the Lens Front):** 4.00’ x 3.00’
- **Mass (g):** 45

---

**YV10x5B-SA2**

- **Zoom:** 10 x
- **Applicable camera:** 1/3
- **Focal Length (mm):** 38
- **Iris Range:** F1.3 - T360 (Equivalent to F360)
- **Operation:** Manual
- **Angle of View (H x V):**
  - **1/2:** 50° 01’ x 38° 12’
  - **1/3:** 51° 59’ x 39° 12’
  - **1/4:** 39° 12’ x 4° 05’
- **Focus Range (From the Lens Front):** 4.00’ x 3.00’
- **Mass (g):** 100

---

**DV10x7B-SA2**

- **Zoom:** 10 x
- **Applicable camera:** 1/3
- **Focal Length (mm):** 67.7
- **Iris Range:** F1.8 - T360 (Equivalent to F360)
- **Operation:** Manual
- **Angle of View (H x V):**
  - **1/2:** 40° 00’ x 30° 19’
  - **1/3:** 38° 12’ x 28° 56’
  - **1/4:** 39° 12’ x 4° 05’
- **Focus Range (From the Lens Front):** 4.00’ x 3.00’
- **Mass (g):** 20

---

*To be discontinued when stock runs out.*

---

### Specifications

- **Vari-Focal**: DC Auto Iris, CS Mount, Metal Mount, ND Filter, Long Cable, Aspherical Lens, Large Aperture Ratio, RoHS Compliant, Wide Angle, Telephoto, Long Focal

---

For detailed specifications, see the following website: [http://www.fujifilm.com/products/optical_devices/cctv/security/](http://www.fujifilm.com/products/optical_devices/cctv/security/)
### D60x16.7SR4DE Series / D60x16.7SR4FE

**60x** Applicable to 1/1.8

---

**Focal Length (mm)**
- 1 x: 16.7 - 5000 (60x)
- 2 x: 33.4 - 2000

**Iris Range**
- 1 x: F3.5 - F16
- 2 x: F7.0 - F32

**Filter**
- ND (1/8, 1/16, 1/32), Visible Light Cut

**Operation**
- Zoom: Motor Drive
- Focus: Motor Drive
- Iris: Servo Control

**AF**
- Auto(DC type) or Remote**1**

### Optical Anti-Vibration

<table>
<thead>
<tr>
<th>Angle of View (K x V)</th>
<th>1/1.8</th>
<th>1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wide</strong></td>
<td>23' 5&quot; x 17' 41&quot;</td>
<td>11' 46&quot; x 8&quot; 54&quot;</td>
</tr>
<tr>
<td><strong>Tele</strong></td>
<td>0' 25&quot; x 0' 19&quot;</td>
<td>0' 12&quot; x 0' 9&quot;</td>
</tr>
<tr>
<td><strong>1/2</strong></td>
<td>20' 53&quot; x 15' 55&quot;</td>
<td>10' 35&quot; x 7' 59&quot;</td>
</tr>
<tr>
<td><strong>Wide</strong></td>
<td>0' 22&quot; x 0' 17&quot;</td>
<td>0' 11&quot; x 0' 8&quot;</td>
</tr>
<tr>
<td><strong>Tele</strong></td>
<td>2&quot; 35&quot; x 13&quot; 6&quot;</td>
<td>0' 24&quot; x 0' 14&quot;</td>
</tr>
<tr>
<td><strong>1/2</strong></td>
<td>11' 30&quot; x 6' 32&quot;</td>
<td>0' 12&quot; x 0' 7&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle of View (K x V)</th>
<th>1/1.8</th>
<th>1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wide</strong></td>
<td>24' 56&quot; x 14' 34&quot;</td>
<td>12' 47&quot; x 7' 18&quot;</td>
</tr>
<tr>
<td><strong>Tele</strong></td>
<td>0' 27&quot; x 0' 15&quot;</td>
<td>0' 14&quot; x 0' 8&quot;</td>
</tr>
<tr>
<td><strong>1/2</strong></td>
<td>22' 35&quot; x 13&quot; 6&quot;</td>
<td>0' 24&quot; x 0' 14&quot;</td>
</tr>
<tr>
<td><strong>Wide</strong></td>
<td>11' 30&quot; x 6' 32&quot;</td>
<td>0' 12&quot; x 0' 7&quot;</td>
</tr>
</tbody>
</table>

**Focus Range (From the Lens Front) (mm)**
- 1/1.8: 1975 x 1504
- 1/2: 35 x 27
- 2 x: 998 x 753
- 2 x: 18 x 13

**Object Dimensions at M.O.D. (4 x 3) (mm)**
- 1/1.8: 1782 x 1353
- 1/2: 32 x 24
- 2 x: 896 x 676
- 2 x: 16 x 12

**Object Dimensions at M.O.D. (16 x 9) (mm)**
- 1/1.8: 2137 x 1237
- 1/2: 38 x 22
- 2 x: 1084 x 617
- 2 x: 19 x 11

**Back Focal Distance (In air) (mm)**
- 24.85

**Exit Pupil Position From Image Plane (In mm)**
- (1x): -448.80
- (2x): -85.23

**Filter Thread (mm)**
- M112 x 0.75

**Mount**
- C

**Exender**
- 2x

**Mass (kg)**
- 6.5

**Standard Accessories**
- Iris CONTROL CABLE

**Wiring Diagram**
- P22

---

* **1**: For details on the Iris-Remote connection, see the relevant Technical Reference (Page 28).
**D32x10HR4D Series / D32x15.6HR4D Series**

*Photograph of the D32x10HR4D series model*

<table>
<thead>
<tr>
<th>Operation</th>
<th>Zoom</th>
<th>Focus</th>
<th>Motor Drive</th>
<th>Motor Drive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iris</td>
<td>Wide</td>
<td>35° 29′ × 26′ 59″</td>
<td>Auto (Video Type) or Remote**</td>
<td>Auto (DC Type)***</td>
</tr>
<tr>
<td>Iris</td>
<td>Tele</td>
<td>0′ 44″ × 0′ 32″</td>
<td>0′ 33′ × 0′ 25″</td>
<td>0′ 17′ × 0′ 10″</td>
</tr>
</tbody>
</table>

**Specifications**

- **D32x10HR4D-V41**: 10.4: 320(32x)
- **D32x10HR4D-YE1**: 15.6: 500(32x)

**Iris Range**

- F2.5 - T1500 (Equivalent to F1500)

**Zoom Lens Wiring**

- For detailed specifications, see the following website: [http://www.fujifilm.com/products/optical_devices/cctv/security/](http://www.fujifilm.com/products/optical_devices/cctv/security/)
**D60x12.5BE-V41 / D60x12.5R3DE Series**

**Day & Night**

D60x12.5BE-V41
D60x12.5R3DE-ZP1

*Zoom*

---

### Focal Length (mm)

- **D60x12.5BE-V41**: 13.5 - 135 (60x)  
- **D60x12.5R3DE-V41**: 26 - 1500 (60x)  
- **D60x12.5R3DE-ZP1**: 26 - 1500 (60x)

### Iris Range

- **D60x12.5BE-V41**: 1 x  
- **D60x12.5R3DE-V41**: 2 x  
- **D60x12.5R3DE-ZP1**: 2 x

### Operation

- **Zoom**: Motor Drive  
- **Focus**: Motor Drive  
- **Iris**: Servo Control

#### Angle Of View (H x V)

<table>
<thead>
<tr>
<th>1/2</th>
<th>1 x</th>
<th>WIDE</th>
<th>20.43 x 21.44</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2 x</td>
<td>WIDE</td>
<td>14.35 x 10.58</td>
</tr>
<tr>
<td></td>
<td>1 x</td>
<td>WIDE</td>
<td>21.44 x 16.23</td>
</tr>
<tr>
<td></td>
<td>2 x</td>
<td>WIDE</td>
<td>10.58 x 8.14</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TELE</td>
<td>0.11 x 0.08</td>
</tr>
</tbody>
</table>

#### Focus Range (mm)

- **D60x12.5BE-V41**: 5
- **D60x12.5R3DE-V41**: 5
- **D60x12.5R3DE-ZP1**: 5

#### Object Dimensions at M.O.D. (H x V) (mm)

- **D60x12.5BE-V41**: 246.5 x 1849
- **D60x12.5R3DE-V41**: 41 x 31
- **D60x12.5R3DE-ZP1**: 1233 x 924

#### Back Focal Distance (mm)

- **D60x12.5BE-V41**: 1.4
- **D60x12.5R3DE-V41**: 2
- **D60x12.5R3DE-ZP1**: 31.10

#### Exit Pupil Position (mm)

- **D60x12.5BE-V41**: 1.4
- **D60x12.5R3DE-V41**: 2
- **D60x12.5R3DE-ZP1**: 7.7

#### Filter Thread (mm)

- **D60x12.5BE-V41**: \( M107 \times 1 \)
- **D60x12.5R3DE-V41**: \( M107 \times 1 \)

#### Mass (g)

- **D60x12.5BE-V41**: 5100
- **D60x12.5R3DE-V41**: 5200

---

*1*: When power is turned off, iris will automatically close.

*2*: For details on the Iris-Remote connection, see the relevant Technical Reference (Page 28).

---

### Wiring Diagram

- **D60x12.5BE-V41**: P24
- **D60x12.5R3DE-ZP1**: P24

---

For details on the Iris-Remote connection, see the relevant Technical Reference (Page 28).
**HC16x100R2CE-F11**

**Day & Night**

16 ×

Manufacture on demand

**C55x20P-EP1B / C55x20R2Q-EP1B**

**Day & Night**

55 ×

Manufacture on demand

<table>
<thead>
<tr>
<th>Focal Length (mm)</th>
<th><strong>HC16x100R2CE-F11</strong></th>
<th><strong>C55x20P-EP1B</strong></th>
<th><strong>C55x20R2Q-EP1B</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ×</td>
<td>100 - 1600 (16x)</td>
<td>20 - 1100 (56x)</td>
<td>20 - 2200 (56x)</td>
</tr>
<tr>
<td>2 ×</td>
<td>200 - 3200 (16x)</td>
<td>40 - 2200 (56x)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Iris Range</th>
<th><strong>HC16x100R2CE-F11</strong></th>
<th><strong>C55x20P-EP1B</strong></th>
<th><strong>C55x20R2Q-EP1B</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ×</td>
<td>F3.4 - F16</td>
<td>F3.0 - T15000 (equivalent to F15000)</td>
<td></td>
</tr>
<tr>
<td>2 ×</td>
<td>F6.8 - F32</td>
<td>F6.0 - T30000 (equivalent to F30000)</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operation</th>
<th>Zoom</th>
<th>Servo Control</th>
<th>Servo Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus</td>
<td>Servo Control</td>
<td>Servo Control</td>
<td>Servo Control</td>
</tr>
<tr>
<td>Iris</td>
<td>Auto (Video Type) or Remote</td>
<td>Auto (Video Type) or Servo Control</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Angle Of View (H/V)</th>
<th><strong>HC16x100R2CE-F11</strong></th>
<th><strong>C55x20P-EP1B</strong></th>
<th><strong>C55x20R2Q-EP1B</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1 ×</td>
<td>WIDE</td>
<td>7’ 19” x 5’ 30”</td>
<td>35° 29” x 26° 59”</td>
</tr>
<tr>
<td></td>
<td>TELE</td>
<td>0’ 28” x 0’ 21”</td>
<td>0’ 40” x 0’ 30”</td>
</tr>
<tr>
<td>2 ×</td>
<td>WIDE</td>
<td>3’ 40” x 2’ 45”</td>
<td>18° 10” x 13° 41”</td>
</tr>
<tr>
<td></td>
<td>TELE</td>
<td>0’ 14” x 0’ 10”</td>
<td>0’ 20” x 0’ 15”</td>
</tr>
</tbody>
</table>

For detailed specifications, see the following website: [http://www.fujifilm.com/products/optical_devices/cctv/security/](http://www.fujifilm.com/products/optical_devices/cctv/security/)
**C22x23 Series**

**Day Night**

**C22x23B-V41**

- **Zoom Motor Drive**
- **Telephoto**
- **Remote**
- **Video**
- **C-Mount**
- **Metal Mount**
- **Fisheye**
- **M-D Filter**
- **Auto Compartment**

**C22x23R2D-V41**

- **Zoom Motor Drive**
- **Telephoto**
- **Remote**
- **Video**
- **C-Mount**
- **Metal Mount**
- **Fisheye**
- **M-D Filter**
- **Auto Compartment**

**C22x23R2D-ZP1**

- **Zoom Motor Drive**
- **Telephoto**
- **Remote**
- **Video**
- **C-Mount**
- **Metal Mount**
- **Fisheye**
- **M-D Filter**
- **RoHS**

**Focal Length (mm)**

- **C22x23B-V41**: 23 - 506 (22x)
- **C22x23R2D-V41**: 30.7 - 720 (22x)
- **C22x23R2D-ZP1**: 30.7 - 720 (22x)

**Iris Range**

- **C22x23B-V41**: F3.1 - T30000 (Equivalent to F3000)
- **C22x23R2D-V41**: F3.1 - T30000 (Equivalent to F3000)
- **C22x23R2D-ZP1**: F3.1 - T30000 (Equivalent to F3000)

**Operation**

- **Zoom Motor Drive**
- **Focus Motor Drive**
- **Iris Auto/Video Type/or Remote**

**Angle Of View**

- **WIDE**: 31° 06’ x 23° 35’
- **TELE**: 1° 27’ x 1° 05’

**Focusing Range (From Focus Of The Lens)**

- **WIDE**: 3 - 3
- **TELE**: 3 - 3

**Object Dimensions at M.O.D.H/V (mm)**

- **WIDE**: 1611 x 1208
- **TELE**: 73 x 55

**Back Focal Distance (In Air) (mm)**

- **C22x23B-V41**: 241.8
- **C22x23R2D-V41**: 241.8
- **C22x23R2D-ZP1**: 241.8

**Filter Thread (mm)**

- **C22x23B-V41**: M82 x 0.75
- **C22x23R2D-V41**: M82 x 0.75
- **C22x23R2D-ZP1**: M82 x 0.75

**Mass (kg)**

- **C22x23B-V41**: 2.4
- **C22x23R2D-V41**: 2.4
- **C22x23R2D-ZP1**: 2.4

**Wiring Diagram**

- **C22x23B-V41**: P25
- **C22x23R2D-V41**: P25
- **C22x23R2D-ZP1**: P25

*1: For details on the Iris-Remote connection, see the relevant Technical Reference (Page 28).

---

**C22x17 Series**

**Day Night**

**C22x17B-S41**

- **Zoom Motor Drive**
- **Wide Angle**
- **Remote**
- **Video**
- **C-Mount**
- **Metal Mount**
- **Fisheye**
- **M-D Filter**
- **Auto Compartment**

**C22x17R2D-S41**

- **Zoom Motor Drive**
- **Wide Angle**
- **Remote**
- **Video**
- **C-Mount**
- **Metal Mount**
- **Fisheye**
- **M-D Filter**
- **Auto Compartment**

**C22x17R2D-ZP1**

- **Zoom Motor Drive**
- **Wide Angle**
- **Remote**
- **Video**
- **C-Mount**
- **Metal Mount**
- **Fisheye**
- **M-D Filter**
- **RoHS**

**Focal Length (mm)**

- **C22x17A-M41**: 17 - 374 (22x)
- **C22x17B-S41**: 17 - 374 (22x)
- **C22x17B-Y41**: 17 - 374 (22x)
- **C22x17R2D-V41**: 17 - 374 (22x)
- **C22x17R2D-ZP1**: 17 - 374 (22x)

**Iris Range**

- **C22x17A-M41**: F2.3 - F22 (Close)
- **C22x17B-S41**: F2.3 - F22 (Close)
- **C22x17B-Y41**: F2.3 - F22 (Close)
- **C22x17R2D-V41**: F2.3 - T30000 (Equivalent to F3000)
- **C22x17R2D-ZP1**: F2.3 - T30000 (Equivalent to F3000)

**Operation**

- **Zoom Motor Drive**
- **Focus Motor Drive**
- **Iris Auto/Video Type/or Remote**

**Angle Of View**

- **WIDE**: 41° 16’ x 31° 32’
- **TELE**: 1° 58’ x 1° 28’

**Focusing Range (From Focus Of The Lens)**

- **WIDE**: 3 - 3
- **TELE**: 3 - 3

**Object Dimensions at M.O.D.H/V (mm)**

- **WIDE**: 2178 x 1633
- **TELE**: 95 x 74

**Back Focal Distance (In Air) (mm)**

- **C22x17A-M41**: 66.93
- **C22x17B-S41**: 66.93
- **C22x17B-Y41**: 66.93
- **C22x17R2D-V41**: 66.93
- **C22x17R2D-ZP1**: 66.93

**Filter Thread (mm)**

- **C22x17A-M41**: -127
- **C22x17B-S41**: -127
- **C22x17B-Y41**: -127
- **C22x17R2D-V41**: -127
- **C22x17R2D-ZP1**: -127

**Mass (kg)**

- **C22x17A-M41**: 2.3
- **C22x17B-S41**: 2.5
- **C22x17B-Y41**: 2.3
- **C22x17R2D-V41**: 2.3
- **C22x17R2D-ZP1**: 2.3

**Wiring Diagram**

- **C22x17A-M41**: P25
- **C22x17B-S41**: P26
- **C22x17B-Y41**: P25
- **C22x17R2D-V41**: P25
- **C22x17R2D-ZP1**: P25

*1: For details on the Iris-Remote connection, see the relevant Technical Reference (Page 28).
**H22x11.5 Series**

**Focal Length (mm)**
- H22x11.5A-M41: 11.5 - 253 (22x)

**Iris Range**
- F1.6 - F22 • Close

**Operation**
- Zoom: Motor Drive
- Focus: Motor Drive
- Iris: Auto (Video Type)

**Angle Of View (H×V)**
- 2/3: WIDE
- 2/3: TELE

**Focusing Range (From Front Of The Lens) (m)**
- 114

**Object/Dimensions at M.O.D. (H×V) (mm)**
- 2/3: WIDE
- 2/3: TELE

**Back Focus Distance (in air) (mm)**
- 35.95

**Exit Pupil Position (From Image Plane) (mm)**
- -103

**Filter Thread (mm)**
- M82 x 0.75

**Mass (g)**
- 2.3

**Wiring Diagram**
- P25

---

**H22x11.5R2D Series**

**Focal Length (mm)**
- H22x11.5R2D-V41: 11.5 - 253 (22x)

**Iris Range**
- F1.6 - F22 • Close

**Operation**
- Zoom: Motor Drive
- Focus: Motor Drive
- Iris: Auto (Video Type), Remote*1

**Angle Of View (H×V)**
- 2/3: WIDE
- 2/3: TELE

**Focusing Range (From Front Of The Lens) (m)**
- 114

**Object/Dimensions at M.O.D. (H×V) (mm)**
- 2/3: WIDE
- 2/3: TELE

**Back Focus Distance (in air) (mm)**
- 36.16

**Exit Pupil Position (From Image Plane) (mm)**
- -103

**Filter Thread (mm)**
- M82 x 0.75

**Mass (g)**
- 2.5

**Wiring Diagram**
- P25

*1: For details on the Iris-Remote connection, see the relevant Technical Reference (Page 28).

For detailed specifications, see the following website: http://www.fujifilm.com/products/optical_devices/cctv/security/
### D22x9.1 Series

#### Focal Length (mm)
- **D22x9.1B-S41**: 9.1 - 200.22x
- **D22x9.1B-Y41**: F1.2 - T1.5
- **D22x9.1R2D-V41**: Equivalent to F1500

#### Operation
- **Zoom**: Motor Drive
- **Focus**: Auto (Video Type)

#### Angle Of View (H × V)
- **WIDE**: 38° 45' × 29° 33'
- **TELE**: 1° 50' × 1° 23'

#### Focusing Range (from Front Or The Lens) (m)
- **D22x9.1B-S41**: 1
- **D22x9.1B-Y41**: 1.3
- **D22x9.1R2D-V41**: 1.3

#### ObjectDimensions at MOD (H × V) (mm)
- **WIDE**: 1003 × 753
- **TELE**: 84 × 63

#### Back Focal Distance (in air) (mm)
- **D22x9.1B-S41**: 23.93
- **D22x9.1B-Y41**: 24.05
- **D22x9.1R2D-V41**: 4028

#### Filter Thread (mm)
- **D22x9.1B-S41**: M8 × 0.75
- **D22x9.1B-Y41**: 4.27
- **D22x9.1R2D-V41**: 2.5

#### Mass (g)
- **D22x9.1B-S41**: 23
- **D22x9.1B-Y41**: 25
- **D22x9.1R2D-V41**: 26

#### Wiring Diagram

---

### Y12x6A Series

#### Focal Length (mm)
- **Y12x6A-SE2**: 6 - 72 (12x)
- **Y12x6A-YE2**: F1.5 - F400 (Equivalent to F400)

#### Operation
- **Zoom**: Motor Drive
- **Focus**: Motor Drive

#### Angle Of View (H × V)
- **WIDE**: 43° 36' × 33° 24'
- **TELE**: 3° 49' × 2° 52'

#### Focusing Range (from Front Or The Lens) (m)
- **Y12x6A-SE2**: 1
- **Y12x6A-YE2**: 1.3

#### ObjectDimensions at MOD (H × V) (mm)
- **WIDE**: 1003 × 753
- **TELE**: 84 × 63

#### Back Focal Distance (in air) (mm)
- **Y12x6A-SE2**: 11.69
- **Y12x6A-YE2**: 4028

#### Filter Thread (mm)
- **Y12x6A-SE2**: M55 × 0.75
- **Y12x6A-YE2**: 4.27

#### Mass (g)
- **Y12x6A-SE2**: 330
- **Y12x6A-YE2**: 350

#### Wiring Diagram

---

---

**Notes:**
- 1: For details on the iris-remote connection, see the relevant Technical Reference (Page 28).
**D12x8A Series**

12 ×

### Applicable to 1/2

#### D12x8-A(SE2)

- **Focal Length (mm):** 8 - 96(12x)
- **Iris Range:** F2.0 - T400(F409 = Equivalent to F400)
- **Operation:**
  - **Zoom:** Motor Drive
  - **Focus:** Motor Drive
  - **Iris:**
    - Auto/DC Type**1**
    - Auto/Video Type or Remote**2**
- **Angle Of View (H x V):**
  - 1/2 ×
    - Wide
    - Tele
  - 1/3 ×
    - Wide
    - Tele
- **Focusing Range:** (From Front Of The Lens) (m) = 1.3
- **Object/Dimensional:** at A.O.D. (H × V) (mm)
  - 1/2 ×
    - Wide
    - Tele
  - 1/3 ×
    - Wide
    - Tele
- **Back Focal Distance (in air) (mm):** 16.22
- **Exit Fup/Position (From Image Plane) (mm):** -51
- **Filter Thread (mm):** M55 × 0.75
- **Mass (g):**
  - D12x8-A(SE2): 330
  - D12x8-A(YE2): 350

#### Wiring Diagram

*1: When power is turned off, iris will automatically close.

**D8x7.8HA Series**

8 ×

### Applicable to 1/2

#### D8x7.8HA-YE2

- **Focal Length (mm):** 7.8 - 63(8x)
- **Iris Range:** F1.2 - T400(Equivalent to F400)
- **Operation:**
  - **Zoom:** Motor Drive
  - **Focus:** Motor Drive
  - **Iris:**
    - Auto/DC Type**1**
    - Auto/Video Type or Remote**2**
- **Angle Of View (H × V):**
  - 1/2 ×
    - Wide
    - Tele
  - 1/3 ×
    - Wide
    - Tele
- **Focusing Range:** (From Front Of The Lens) (m) = 1.2
- **Object/Dimensional:** at A.O.D. (H × V) (mm)
  - 1/2 ×
    - Wide
    - Tele
  - 1/3 ×
    - Wide
    - Tele
- **Back Focal Distance (in air) (mm):**
  - 14.00
  - -55
- **Filter Thread (mm):** M55 × 0.75
- **Extender**
  - 400
  - **Wiring Diagram:** P23

*1: When power is turned off, iris will automatically close.

*2: For details on the iris-remote connection, see the relevant technical reference (Page 28).

**For detailed specifications, see the following website:** [http://www.fujifilm.com/products/optical_devices/cctv/security/](http://www.fujifilm.com/products/optical_devices/cctv/security/)
**Zoom Lens Wiring**

**H16x10A-X41**

<table>
<thead>
<tr>
<th>Focal Length (mm)</th>
<th>10 - 160(16x)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iris Range</td>
<td>F2.5 - F22 (close)</td>
</tr>
<tr>
<td>Operation</td>
<td>Motor Drive</td>
</tr>
<tr>
<td>Angle Of View</td>
<td>2/3</td>
</tr>
<tr>
<td>Wiring Diagram</td>
<td>TELE</td>
</tr>
</tbody>
</table>

**D60x16.7SR4DE-V21**

- Connector: 4-PIN PLUG
- Connections:
  - CONTROL, WIDE, TELE, DF, etc.

**D60x16.7SR4DE-ZP1A**

- Connector: 4-PIN PLUG
- Connections:
  - DF, etc.

**D60x16.7SR4FE-ZP1C**

- Connector: 4-PIN PLUG
- Connections:
  - DF, etc.
Zoom Lens Wiring

**D8x7.8HA-V42**

- **Controller Output:**
  - 6V
  - ±6V
  - 12V
  - ±12V

- **Select Switch Position:**
  - 6V / IND.
  - 12V / IND.
  - 6V / COM.
  - 12V / COM.

**D60x12.5BE-V41**

- **Controller Output:**
  - 6V
  - ±6V
  - 12V
  - ±12V

- **Select Switch Position:**
  - 6V / IND.
  - 12V / IND.
  - 6V / COM.
  - 12V / COM.

- **Control Mode (Side View):**
  - Factory Setting: 12V / IND.

- **Connector:**
  - HEAD TP5 (HRDGE)
  - CONTROLLER MODE (COM)
  - Focus
  - Zoom
  - Extender
  - Ph. Supply
  - Focus Wiper
  - Ph. Return
  - Remote
  - Manual Remote
  - Auto Remote
  - DV

- **Select Switch:**
  - 6V / COM.
  - 12V / IND.
  - 6V / IND.
  - 12V / COM.

- **Power OUT (+12V) / DV**

**D60x12.5R3DE-V41**

- **Controller Output:**
  - 6V
  - ±6V
  - 12V
  - ±12V

- **Select Switch Position:**
  - 6V / IND.
  - 12V / IND.
  - 6V / COM.
  - 12V / COM.

- **Control Mode (Side View):**
  - Factory Setting: 12V / IND.

- **Connector:**
  - USB TP5 (HRDGE)
  - CONTROL SG.
  - VREF
  - COM
  - LOM
  - OUT
  - POWER IN / OUT
  - POWER OUT (+12V)

- **Select Switch:**
  - 6V / IND.
  - 12V / IND.
  - 12V / COM.

**D60x12.5R3DE-ZP1**

- **Controller Output:**
  - 6V
  - ±6V
  - 12V
  - ±12V

- **Select Switch Position:**
  - 6V / IND.
  - 12V / IND.
  - 6V / COM.
  - 12V / COM.

- **Control Mode (Side View):**
  - Factory Setting: 12V / IND.

- **Connector:**
  - USB TP5 (HRDGE)
  - CONTROL SG.
  - VREF
  - COM
  - LOM
  - OUT
  - POWER IN / OUT
  - POWER OUT (+12V)

- **Select Switch:**
  - 6V / IND.
  - 12V / IND.
  - 12V / COM.
**Zoom Lens Wiring**

### D22x9.1B-S41

- **Connector**: Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6 Pin 7 Pin 8
- **Video Signal**: Red Green Blue
- **Power**: ±6V ±12V

### H22x11.5B-S41

- **Connector**: Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6 Pin 7 Pin 8
- **Video Signal**: Red Green Blue
- **Power**: ±6V ±12V

### C22x17B-S41

- **Connector**: Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6 Pin 7 Pin 8
- **Video Signal**: Red Green Blue
- **Power**: ±6V ±12V

### D22x9.1B-Y41

- **Connector**: Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6 Pin 7 Pin 8
- **Video Signal**: Red Green Blue
- **Power**: ±6V ±12V

### H22x11.5B-Y41

- **Connector**: Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6 Pin 7 Pin 8
- **Video Signal**: Red Green Blue
- **Power**: ±6V ±12V

### C22x17B-Y41

- **Connector**: Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6 Pin 7 Pin 8
- **Video Signal**: Red Green Blue
- **Power**: ±6V ±12V

### H16x10A-X41

- **Connector**: Pin 1 Pin 2 Pin 3 Pin 4 Pin 5 Pin 6 Pin 7 Pin 8
- **Video Signal**: Red Green Blue
- **Power**: ±6V ±12V

---

**Wiring Diagram**

- **Controller**: 6V ±6V ±12V ±12V
- **Select Switch Position**: Not necessary, Necessary, Necessary, Necessary

---

**Control Mode**

- **Factory Setting**: 12V IND.

---

**Select Switch**

- **Factory Setting**: 12V IND.
### Feature Indications

#### Lens Type
- **Fixed Focal**: High performance single focal lens for the best image quality.
- **Vari-Focal**: Variable magnification lens with manually controllable angle. It functions as if you have multiple fixed focal lenses.
- **Zoom**: Zoom lens with the high performance cam adopted, which offers high quality smooth movements.

#### Feature/Function
- **5 Megapixel HD Vari-Focal Zoom Lenses**
  - High performance to fully exploit 5 megapixel HD camera's high resolution.
  - Supports HD broadcasting.
  - Adopts the aspheric lens technologies developed in the most advanced lenses for broadcasting.
  - With the built-in ND filter, enables to optimize the brightness of the bright object in direct sunlight.
  - Cast-in lens resulted from abolition of the standard mounting method, realizing the downsizing of your system.
  - Enables to preset the zoom, focus and iris positions of the zoom lens.
  - Enables the lens control from remote positions.
  - Enables precise focusing even in low-light conditions.
  - Provides twice the magnification.

- **3 Megapixel HD Fixed Focal Lenses**
  - High performance to fully exploit 3 megapixel HD camera's high resolution.
  - Supports HD cameras.
  - Enables to realize high-resolution images with 3MP sensors.
  - Enables to optimize the brightness of the bright object in direct sunlight.
  - Provides smooth movements.

- **2 Megapixel HD Vari-Focal Lenses**
  - High performance to fully exploit 2 megapixel HD camera's high resolution.
  - Supports HD cameras.
  - Enables to realize high-resolution images with 2MP sensors.
  - Enables to optimize the brightness of the bright object in direct sunlight.
  - Provides smooth movements.

- **1.3 Megapixel HD Fixed Focal Lenses**
  - High performance to fully exploit 1.3 megapixel HD camera's high resolution.
  - Supports HD cameras.
  - Enables to realize high-resolution images with 1.3MP sensors.
  - Enables to optimize the brightness of the bright object in direct sunlight.
  - Provides smooth movements.

#### Iris Type
- **Manual Iris**
  - Manually-operated iris.

- **Remote Iris**
  - Motor-driven iris.

- **Auto Iris**
  - Easy and sharp auto-focusing even in low-light conditions.
  - Supports HD cameras.
  - Enables to optimize the brightness of the bright object in direct sunlight.
  - Provides smooth movements.

- **Iris-Remote**
  - Enables switching between auto iris and remote iris.

#### Mounting Type
- **C Mount**
  - Screw-in mounting commonly used in FA lenses.
  - Screw-in mounting with high accuracy and durability.
  - Metal mounting with high accuracy and durability.

- **CS Mount**
  - Screw-in mounting commonly used in security lenses.
  - Screw-in mounting with HD cameras.
  - Metal mounting with high accuracy and durability.

- **Metal Mount**
  - Metal mounting with high accuracy and durability.

#### Large Aperture Ratio
- Bright lenses with large aperture ratio, fully exploiting camera sensitivity.

#### Model Explanation

- **Fixed Focal Length Lenses**
  - Focal Length
  - Day & Night
  - Supports HD

- **HD Vari-Focal Lenses**
  - Zoom Ratio
  - Day & Night
  - Supports HD

- **Vari-Focal Lenses**
  - Zoom Ratio
  - Day & Night
  - Vari-Focal

- **Zoom Lenses**
  - Zoom Ratio
  - Focal Length (focal length at the wide end)
  - Supports HD

#### Note
Note: The above model explanation may not apply to some products.
**Technical Information**

**Recommended Lens Control Circuit**

**Operation System - M Type Zoom Lens**

**[Independent Mode]**

Center off type reverse switch

![Diagram of Independent Mode](diagram)

Spark-prevention capacitor 0.047µF - 0.47µF is recommended.

**Operation System - M Type Zoom Lens**

**[Common Mode]**

Center off type switch

![Diagram of Common Mode](diagram)

Spark-prevention capacitor 0.047µF - 0.47µF is recommended.

**Operation System - R Type Zoom Lens**

* In case of long distance (5 m or more), use a buffer amp if necessary.

![Diagram of R Type Zoom Lens](diagram)

**Operation System - Iris Remote**

**Manual Remote**

<table>
<thead>
<tr>
<th>CONTROLLER</th>
<th>LENS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5(V)</td>
<td>1.5(V)</td>
</tr>
<tr>
<td>R1 OPEN</td>
<td>R2 CLOSE</td>
</tr>
<tr>
<td>Manual Remote</td>
<td>GND</td>
</tr>
</tbody>
</table>

**Level Remote**

<table>
<thead>
<tr>
<th>CONTROLLER</th>
<th>LENS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.5(V)</td>
<td>2.5(V)</td>
</tr>
<tr>
<td>R1 H</td>
<td>R2 Av</td>
</tr>
<tr>
<td>Level Remote</td>
<td>GND</td>
</tr>
</tbody>
</table>

**ALC Remote**

<table>
<thead>
<tr>
<th>CONTROLLER</th>
<th>LENS</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5(V)</td>
<td>1.5(V)</td>
</tr>
<tr>
<td>R1 Pk</td>
<td>R2 GND</td>
</tr>
<tr>
<td>ALC Remote</td>
<td>GND</td>
</tr>
</tbody>
</table>

● "Independent mode" and "Common mode" can be selected with the control switch on the lenses.
Image Sizes

There are several types of imaging sensors for CCTV cameras, with different image sizes. The aspect ratio of a CCTV camera is normally 4:3 (H:V).

<table>
<thead>
<tr>
<th>Product symbol</th>
<th>Image sensor</th>
<th>Image size (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>1/3&quot;</td>
<td>12.8 9.6 16.0</td>
</tr>
<tr>
<td>H</td>
<td>2/3&quot;</td>
<td>8.8 6.6 11.0</td>
</tr>
<tr>
<td>D, S</td>
<td>1/2&quot;</td>
<td>6.4 4.8 8.0</td>
</tr>
<tr>
<td>Y, T</td>
<td>1/3&quot;</td>
<td>4.8 3.6 6.0</td>
</tr>
<tr>
<td>Q</td>
<td>1/4&quot;</td>
<td>3.6 2.7 4.5</td>
</tr>
<tr>
<td>35 mm camera lens (reference)</td>
<td>35 mm f/ (mm)</td>
<td>36.0 24.0 43.3</td>
</tr>
</tbody>
</table>

Focal Length

- The focal length will be the distance from the back principal point to the image plane. Lower the focal length wider the image.

Angle of View

- The angle of view is the object size that can be captured at a specified image size, which is represented by angular measure. Normally the angle of view is measured assuming a lens is focused at infinity. When using a lens of the same focal length with a different image size, the angle of view will differ.

Brightness of a Lens (F and T No.)

- The F No. is an indication of the brightness of lens. The smaller the value, the brighter the image produced by the lens. The F No. is inversely proportional to the effective diameter of the lens and directly proportional to the focal length. The scale on the iris ring of lens uses a ratio of 2, because the value of light incident on a lens is proportional to the cross section of luminous flux (square of diameter). In other words, the brightness decreases by half each time the F No. is increased by one F stop.

- The F No. is a value determined on the assumption that the transmittance of the lens is 100%. Virtually all lenses however, have different spectral transmittance, and thus, the same F No. can have different levels of brightness. To eliminate this inconvenience, a system has been developed to consider both F No. and spectral transmittance, the T No.

$$F\text{ No.} = \frac{f}{d}$$

$$T\text{ No.} = \frac{F\text{ No.}}{\sqrt{\text{Transmittance (\%) \times 10}}}$$

Exit Pupil Position

- The exit pupil is the image (virtual image) reflected by the lens located at the back of the lens diaphragm. The exit pupil position is generally represented with the distance between the image plane and the exit pupil. "-" (minus) indicates closer to the object, and "+" (plus) toward the camera.

M.O.D.

- The M.O.D. (minimum object distance) is the closest distance to the object at which an image can be taken. This is the distance from the vertex of the front lens.
Technical Information

Field of View and Focal Length

(1) How to calculate the field of view
If the distance to the object is finite, you can use the following formula to calculate the field of view.

\[ Y = \frac{Y'}{f} \]

Example
A 1/3" CCD camera with an 8 mm lens is used, and the distance to the object is 3 m. The maximum horizontal width as viewed on the monitor can be calculated as follows.

\[ Y = \frac{4.8 \times \frac{3000}{8}}{1800} = 1.8 \text{ m} \]

(2) How to calculate focal length
If the distance to the object is finite, you can use the following formula to calculate the focal length.

\[ f = \frac{Y'}{Y} \times L \]

Example
A 1/3" CCD camera is used, and the distance to the object is 3 m and the horizontal width of the object is 2 m. The focal length to capture the complete object size can be calculated as follows.

\[ f = \frac{4.8 \times \frac{3000}{2000}}{7.2} = 7.2 \text{ mm} \]

Depth of Field

- When focusing on a certain area in front of and behind the deep object appears in focus. This area is called the depth of field. This is because the focus appears sharp if the focus misalignment is under a certain volume. This certain volume is called the permissible circle of confusion.

The depth of field has following properties.
1) The larger the F No. is, the wider the depth of field becomes.
2) The shorter the focal length is, the wider the depth of field becomes.
3) The longer the distance to the object is, the wider the depth of field becomes.
4) The backward depth of field is wider than the forward depth of field.

<table>
<thead>
<tr>
<th>Image sensor</th>
<th>Permissible circle of confusion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1&quot;</td>
<td>0.03 mm</td>
</tr>
<tr>
<td>2/3&quot;</td>
<td>0.021 mm</td>
</tr>
<tr>
<td>1/2&quot;</td>
<td>0.015 mm</td>
</tr>
<tr>
<td>1/3&quot;</td>
<td>0.011 mm</td>
</tr>
<tr>
<td>1/4&quot;</td>
<td>0.008 mm</td>
</tr>
</tbody>
</table>

The depth of field can be calculated by the following formula.

\[ T_r = \frac{\delta \cdot F \cdot L^2}{f^2 - \delta \cdot F \cdot L} \]

\[ T_f = \frac{\delta \cdot F \cdot L^2}{f^2 + \delta \cdot F \cdot L} \]

\[ \text{Depth of field} = T_r + T_f \]

\[ \text{Focal depth} = 2\delta \cdot F \]

- F: Focal distance
- F No.
- \( \delta \): Permissible circle diameter of confusion
- L: Object distance

<table>
<thead>
<tr>
<th>Tr</th>
<th>Tf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth of field</td>
<td>Focal depth</td>
</tr>
</tbody>
</table>

Permissible circle of confusion
Distortion

- Distortion is an aberration where the geometric figure of the object is not reproduced faithfully at the image plane. It is normally represented by the level shift of an image point from its ideal position by a percentage of image height or width.

MTF (Modulation Transfer Function)

- MTF (Modulation Transfer Function) represents the declining contrast rate when shooting a chart consisted of black and white lines.

HD Lens

- Based on design techniques accumulated through our experience in production of broadcast lenses, high resolution, small and light-weight HD lenses with minimal aberrations have been realized.

The chart at the right shows the difference between an HD lens and a conventional CCTV lens. As the number of TV lines increases, the disparity in MTF becomes greater.

Three-CCD lenses

- Three-CCD cameras have thicker glass between the lens and the CCDs than that of single CCD cameras because they use three CCDs to correspond with the red, blue and green colors separated by a prism.

Fujifilm’s three-CCD lenses are designed to optimally match three-CCD cameras. The chart shown at the right explains the difference in MTF when a three-CCD lens or a single CCD lens is mounted on a three-CCD camera.

Day & Night Lens

- The day & night lens uses an advanced optical design, special optical glass, and other state-of-the-art technologies to focus light (visible to near-infrared 400-1000 nm) on the same plane to prevent the focus to become blurry enabling sharp images.

A standard lens (for visible light) is mounted on a day & night camera, and used under near-infrared light.

A day & night lens is mounted on a day & night camera, and used under near-infrared light.

Result: Blurry image

Result: Clear image without getting blurry
For your safety
Be certain to read the instructions for use before using any equipment.