GENERAL

The FC13 pan-tilt type explosion-proof or outdoor CCD color camera is compact and lightweight, making it suitable for installation in small spaces. The camera is an intelligent pan-tilt type, which has an embedded controller and can memorize preset point values. The camera, which also has excellent durability, can be used for a wide range of applications, such as monitoring and diagnosis of facilities. What’s more, the camera line-up includes the following types of FC13 cameras.

• High-sensitivity type that permits whole day continuous monitoring without special lighting
• RS-485 type which offers more PC-friendly camera control
• Variable-speed type that can pan and tilt at an optionally set speed
• Internet camera type that exceeds the realm of CCTV

Standard Specifications

Camera

Camera type: Color
Image Sensor: 1/4 interline CCD-Alley
Signal: NTSC, (PAL*)
Effective pixels: 380,000 pixels, 768 (H) x 494 (V)
(PAL*: 438,000 pixels, 752 (H) x 582 (V))
Horizontal resolution: 470 TV lines
Synchronous system: Internal synchronization
Video S/N: 50 dB
White balance: ATW
Electronic shutter: 1/10,000 to 1/60 to 1/4 second
Minimum illuminance of subject (typical)
Standard sensitivity: 0.7 lx/F1.4 at a shutter speed of 1/60 second
High sensitivity: 0.05 lx/F1.4 at a shutter speed of 1/4 second
Zoom magnification: (18x optical) x (12x digital)
Lens: f4.1 to 73.8 mm/F1.4 to 3.0 (focal length/F Number), auto focus
Horizontal field of vision: Approx. 48.0° (wide-angle) to approx. 2.8° (telephoto)

Preset

Number of preset points: 24
Preset items: Pan-tilt, zoom, and focus positions

Pan-tilt Specifications

<table>
<thead>
<tr>
<th>Rotation angle</th>
<th>Pan: approx. 360°</th>
<th>Tilt: approx. 180°</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rotational speed</td>
<td>Pan-tilt: 6°/second (fixed-speed model)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pan: 3 to 15°/second</td>
<td>Tilt: 3 to 15°/second (variable-speed model)</td>
</tr>
<tr>
<td>Rotational accuracy</td>
<td>±0.5°</td>
<td></td>
</tr>
</tbody>
</table>

Common to all models

Video output: VBS 1.0 Vp-p 75Ω
Video transmission distance:
Max. 300 m (when 5C-2V cable is used)
Distance can be extended using a cable compensator (up to 1,200 m) or an optical converter.

Ethernet control model

Network interface: Ethernet 10Base2 (built-in terminator)
Communication protocol: TCP/IP, HTTP and ARP
Video compression Method: Motion-JPEG
Video quality: 3 levels, Resolution: 640 x 320, 320 x 240
Transmission distance: Max. 185 m (depending on Ethernet specifications)
Remote area communication is possible using network devices.

Multiplex signal control model

Control signal input: Multiplexed video and control signals (multiplex signal on a single coaxial cable)
Control signal transmission distance: Max. 1,200 m (when 5C-2V cable is used)
RS-485 control model
Control signal input: Asynchronous communication of 8-bit data and 1 stop bit, at 9,600 bps via an RS-485 interface. Control signal transmission distance: 1,200 m (when 0.5 mm², dual twisted-pair shielded cable is used. Depends on the RS-485 specifications).

Main Body
Explosion protection: Flame-proof construction
Explosion-proof class: Ex d IIB+H2 T4
Waterproof construction: IEC IP66 equivalent
Material (case): Aluminum alloy
Coating: Polyurethane corrosion-resistant coating
Paint colors
Cover: Deep sea moss green (Munsell 0.6GY3.1/2.0 equivalent)
Case: Frosty white (Munsell 2.5Y8.4/1.2 equivalent)
Weight: 18.0 kg (main body)

System Configuration for Each Type of Control

1. Ethernet control model
   - Terminal box
   - 10Base2: Max. 185 m
   - Video monitoring and camera control through web browser
   - Personal computer
   - Video monitoring via monitor (if necessary)

2. Multiplex signal control model
   - Terminal box
   - Video, multiplex control signal 5C-2V: Max. 1,200 m
   - Multiplexed controller (Scene Manager (FHC13))
   - NTSC/PAL
   - Monitor
   - Monitoring video image via monitor

3. RS-485 control model
   - Terminal box
   - RS-485: Dual twisted-pair shielded cable (0.5-mm² thick wires) : Max. 1,200 m
   - Web Camera Server FHC25 Ethernet 100 BASE-TX
   - Personal computer
   - Video monitoring and camera control through web browser

Power Supply
Allowable power supply: 85 to 132 V AC at 50/60 Hz ±5%
Power consumption: 100 VA at 100 V AC (with Heater)
50 VA max. at 100 V AC (without Heater)

Installation Environment
Operating temperature
with Heater: -10 to +50°C (14 to 122°F)
without Heater: 0 to +50°C (32 to 122°F)
Tilted alignment: Within ±10° from horizontal in either a left or right side orientation
Others: Salt-tolerant coating is to be custom-ordered
■ External Dimensions

● Main body

Make sure there is enough space for movement when installing.

Weight: 18 kg (Including connected cable)

- RS-485 communication requires: a 4-m control cable and a dual twisted-pair (of 0.5-mm² thick wires) shielded cable that is 8.0 mm in diameter.
- Communication via Ethernet requires: a 4-m communication cable and a 3D-SV coaxial cable that is 9 mm in diameter.

*1: Provided when specified at time of order

- Power cable: 4 m 3-wire cable that is 10 mm in diameter, and where each wire is 1.25 mm²
- Video and control cables: 4 m 5C-2V coaxial cable that is 10.5 mm in diameter

- G1/2 adjustable-fit female bolt

- Tag nameplate provided when specified at time of order

- Mounting hole

- SHADER

- Hood

- Polyurethane seal

- Explosion-proof Terminal Box (/TB) and Metal Flame-proof Packing Fittings (/G54 or /G56)

(Provided when specified at time of order.)

Weight: 5 kg (terminal box without packing fittings), 0.33 kg (each packing fitting)

- Metal frame-proof packing fittings

- Mounting hole: 10-mm diameter

- Mate cable: 7.4 to 12 mm in diameter

- Mate crimp terminal:

- Adjustable-fit female bolt G1/2

- Tag nameplate provided when specified at time of order

- Hole: G1/2 adjustable-fit female bolt

- Power cable: 4 m 3-wire cable that is 10 mm in diameter, and where each wire is 1.25 mm²

- Video and control cables: 4 m 5C-2V coaxial cable that is 10.5 mm in diameter

- G1/2 adjustable-fit female bolt

- Tag nameplate provided when specified at time of order
## Connecting Cables (for connection to the 4m main-body cable)

<table>
<thead>
<tr>
<th>Cable from the pan-tilt camera</th>
<th>Device to be connected</th>
<th>Model</th>
<th>Ethernet</th>
<th>Multiplex signal</th>
<th>RS-485</th>
</tr>
</thead>
<tbody>
<tr>
<td>power cable 3-wire cable with 1.25-mm² wires and 10.0 mm in diameter</td>
<td>Red L</td>
<td>AC power source</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>White N</td>
<td>GND Grounding line</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coaxial cable for Ethernet 3D-SV coaxial cable that is 9.0 mm in diameter</td>
<td>Internal conductor Communication signal</td>
<td>Repeater Hub</td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>External conductor Signal GND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Video signal cable</td>
<td>Internal conductor Video, control signal</td>
<td>Multiplexed controller (FHC13)</td>
<td>x</td>
<td>x (*1)</td>
<td>x</td>
</tr>
<tr>
<td>External conductor Signal GND</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>RS-485 cable Dual twisted-pair (of 0.5-mm² wires) shielded cable that is 8.0 mm in diameter</td>
<td>Black TXD +</td>
<td>Web camera server (FHC25) RS-485/RS-232C converter or the like</td>
<td></td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Black / White TXD –</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red RXD +</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Red / White RXD –</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shield FG</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

x : connected

(*1) for multiplex signal models, which share control signals.

### Model and Suffix Codes

<table>
<thead>
<tr>
<th>Model</th>
<th>Suffix Code</th>
<th>Option Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FC13E</td>
<td>-</td>
<td>/T</td>
<td>Explosion-proof pan-tilt type CCD color camera</td>
</tr>
<tr>
<td>FC13U</td>
<td>-</td>
<td>/H</td>
<td>Outdoor pan-tilt type CCD color camera</td>
</tr>
<tr>
<td>Camera type</td>
<td>-B</td>
<td>/T</td>
<td>Standard sensitivity, 1/4 inch, 380,000 pixels</td>
</tr>
<tr>
<td></td>
<td>-C</td>
<td>/T</td>
<td>High sensitivity, 1/4 inch, 380,000 pixels</td>
</tr>
<tr>
<td>Wiper</td>
<td>W</td>
<td>/T</td>
<td>With wiper</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>/T</td>
<td>Without wiper</td>
</tr>
<tr>
<td>Defroster and heater</td>
<td>0</td>
<td>/T</td>
<td>Without defroster, without heater</td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>/T</td>
<td>With defroster, without heater</td>
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<tr>
<td></td>
<td>2</td>
<td>/T</td>
<td>Without defroster, with heater</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>/T</td>
<td>With defroster and heater</td>
</tr>
<tr>
<td>Control type and pan-tilt speed</td>
<td>E (Note 1)</td>
<td>/T</td>
<td>Ethernet, fixed speed (6°/second)</td>
</tr>
<tr>
<td></td>
<td>F (Note 1)</td>
<td>/T</td>
<td>Ethernet, variable speed (3 to 15°/second)</td>
</tr>
<tr>
<td></td>
<td>M (Note 2)</td>
<td>/T</td>
<td>Multiplex signal, fixed speed (6°/second)</td>
</tr>
<tr>
<td></td>
<td>N (Note 2)</td>
<td>/T</td>
<td>Multiplex signal, variable speed (3 to 15°/second)</td>
</tr>
<tr>
<td></td>
<td>R</td>
<td>/T</td>
<td>RS-485, fixed speed (6°/second)</td>
</tr>
<tr>
<td></td>
<td>S</td>
<td>/T</td>
<td>RS-485, variable speed (3 to 15°/second)</td>
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<tr>
<td>Option</td>
<td>/T</td>
<td>/SD</td>
<td>Stainless tag plate attached (Note 3)</td>
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<td>/T</td>
<td>/LA</td>
<td>With Shade</td>
</tr>
<tr>
<td></td>
<td>/T</td>
<td>/TB</td>
<td>Built-in arrester</td>
</tr>
<tr>
<td></td>
<td>/T</td>
<td>/G54</td>
<td>Explosion-proof terminal box</td>
</tr>
<tr>
<td></td>
<td>/T</td>
<td>/G56</td>
<td>Metal flame-proof packing fittings (4 pieces) for multiplex signal control model</td>
</tr>
</tbody>
</table>

Note 1: The Ethernet control model is only for outdoor use. Use the RS-485 control model in combination with the FHC25 for use in an explosion-proof area.

Note 2: For multiplex signal control model, always order the multiplexed controller, FHC13 Scene Manager.

Note 3: Specify the tag number using up to 15 alphanumeric and/or “-”, “/” characters.

### Associated Equipment

For information about the multiplex controller, FHC13 scene manager, see GS 85A7C01-07E.

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