

## FD-A320 SERIES Fiber type / HMD



- Dual digital display for threshold and incident level
- Wide dynamic range -----From low to high temperature with a single sensor
- Equipment of simulation function by means of external input.
- Adoption of highly-reliable hermetically sealed contact Bestact relay (FD-A320H)  
(Bestact Relay is a registered trademark of the Yaskawa Controls Co., Ltd.)
- Equipment of 4-20mA current output

## Specifications

| Model          |                | FD-A320   |  | FD-A320H  |  |
|----------------|----------------|---|--|---|--|
| Type of output |                | Relay Output  | PhotoMOS Relay Output                      | Bestact Relay Output                            | PhotoMOS Relay Output                      |
| Operation      | Mode           | ON-OFF control<br>Light ON  |  |   |  |
|                | Rating         | Transfer contact 1c MAX 5A<br>250V AC (Resistive Load)                          | 1a MAX 0.1A 250V<br>AC/DC (Resistive Load) | 1a 0.5A 220V AC 0.3A<br>110VDC (Inductive load) | 1a MAX 0.1A 250V<br>AC/DC (Resistive Load) |
|                | Response time  | Relay Output :<br>17ms or less  | PhotoMOS Relay<br>Output :<br>4ms or less  | Bestact Relay Output :<br>6ms or less           | PhotoMOS Relay<br>Output :<br>4ms or less  |
| Stability      | Operation Mode | After seven consecutive runs with less margin for the threshold light intensity |  |   |  |

output

|                                     |        |   |
|-------------------------------------|--------|---|
|                                     | Rating | Relay Output : 1a MAX 5A 250V AC (Resistive Load)<br>PhotoMOS Relay Output : 1a MAX 0.1A 250V AC/DC (Resistive Load)  |
| Current                             |        | Operation Mode:4mA to 20mA analog signals (Allowable load resistance : 0 to 500Ω)<br>Response time 4ms or less F.S  |
| Valid Lens Aperture                 |        | 28mm DIA (OHA/OHAN/OHAN10)  |
| Power supply                        |        | AC100 to 240V +10% -15% 50/60Hz   |
| Power Consumption                   |        | 6W or less  |
| Connection Method                   |        | Connector type leaded 2m wire (VCTF 0.75sq x 16c)   |
| Ambient temperature                 |        | Optical head /Optical Fiber Unit: -25 to +200°C<br>Amplifier unit : -25 to +50°C (with no icing)  |
| Storage temperature                 |        | -40 to +70°C ( with no condensation and no icing)   |
| Ambient humidity                    |        | 35 to 85% RH (with no condensation)   |
| Bending limit of optical fiber unit |        | 50mm radius   |
| Insulation resistance               |        | Power supply to Case :20MΩ or more at 500VDC,<br>Control Output・Stabiliy Output to Case :20MΩ or more at 500VDC<br>Power supply to Control Output・Stabiliy Output :20MΩ or more at 500VDC<br>Case to 4mA－20mA Output :20MΩ or more at 500VDC,<br>Power supply to 4mA－20mA Output :20MΩ or more at 500VDC<br>Case to Simulation Input :20MΩ or more at 500VDC,<br>Power supply to Simulation Input :20MΩ or more at 500VDC |
| Dielectric strength                 |        | Power supply to Case :1500V AC 1 min (10mA)<br>Case to Control Output・Stabiliy Output :1500V AC 1 min (10mA)  |

|                         |                                |  |
|-------------------------|--------------------------------|--|
|                         |                                | <p>Power supply to Control Outputstrength ·Stabiliy Output :1500V AC 1 min (10mA)</p> <p>Case to 4mA—20mA Output :500V AC 1 min (20mA) ,</p> <p>Power supply to 4mA—20mA Output :500V AC 1 min (20mA)</p> <p>Case to Simulation Input :500V AC 1 min (20mA),</p> <p>Power supply to Simulation Input :500V AC 1 min (20mA)</p> |
| Vibration resistance    |                                | <p>10 - 55Hz Single amplitude 1.5mm 2hours</p> <p>each in X.Y.Z. directions</p>  |
| Shock resistance        |                                | <p>500 m/s<sup>2</sup> (Approx.50G) Three times each in X.Y.Z. directions</p>  |
| Protective Construction |                                | <p>IP64</p>  |
| Mass                    | Optical head                   | <p>Standard type (OHA):Approx. 680g</p> <p>Narrow type (OHAN) :Approx. 840g Narrow type (OHAN10):Approx. 860g</p> <p>Wide type (OHW1/OHW2): Approx.1300g</p>   |
|                         | Airless Hood                   | <p>F38A : Approx. 240g                      F38A-03: Approx. 430g</p> <p>F38A -04 : Approx. 550                  F38A-05: Approx. 650g</p> <p>F38W : Approx. 600g</p>  |
|                         | Air Purge Hood                 | <p>F38PC-02 : Approx. 240g F38PC-05: Approx. 440g</p> <p>F38PC-03 : Approx. 300g 302W : Approx. 600g</p> <p>F38PC-04 : Approx. 370g</p>  |
|                         | Optical Fiber Unit (FG series) | <p>FG2 :Approx. 0.7 kg FG3 :Approx. 0.9 kg FG4 :Approx. 1.1 kg</p> <p>FG5 :Approx. 1.3 kg FG7 :Approx. 1.6 kg FG10 :Approx. 2.1 kg</p> <p>FG15 :Approx. 3.1 kg FG20 :Approx. 4.1 kg FG30 :Approx. 6.1 kg</p>   |
|                         | Amplifier Unit                 | <p>Amplifier Unit : Approx.1100g Attached cable : Approx.620g</p>  |

## ENVIRONMENTAL CHARACTERISTICS

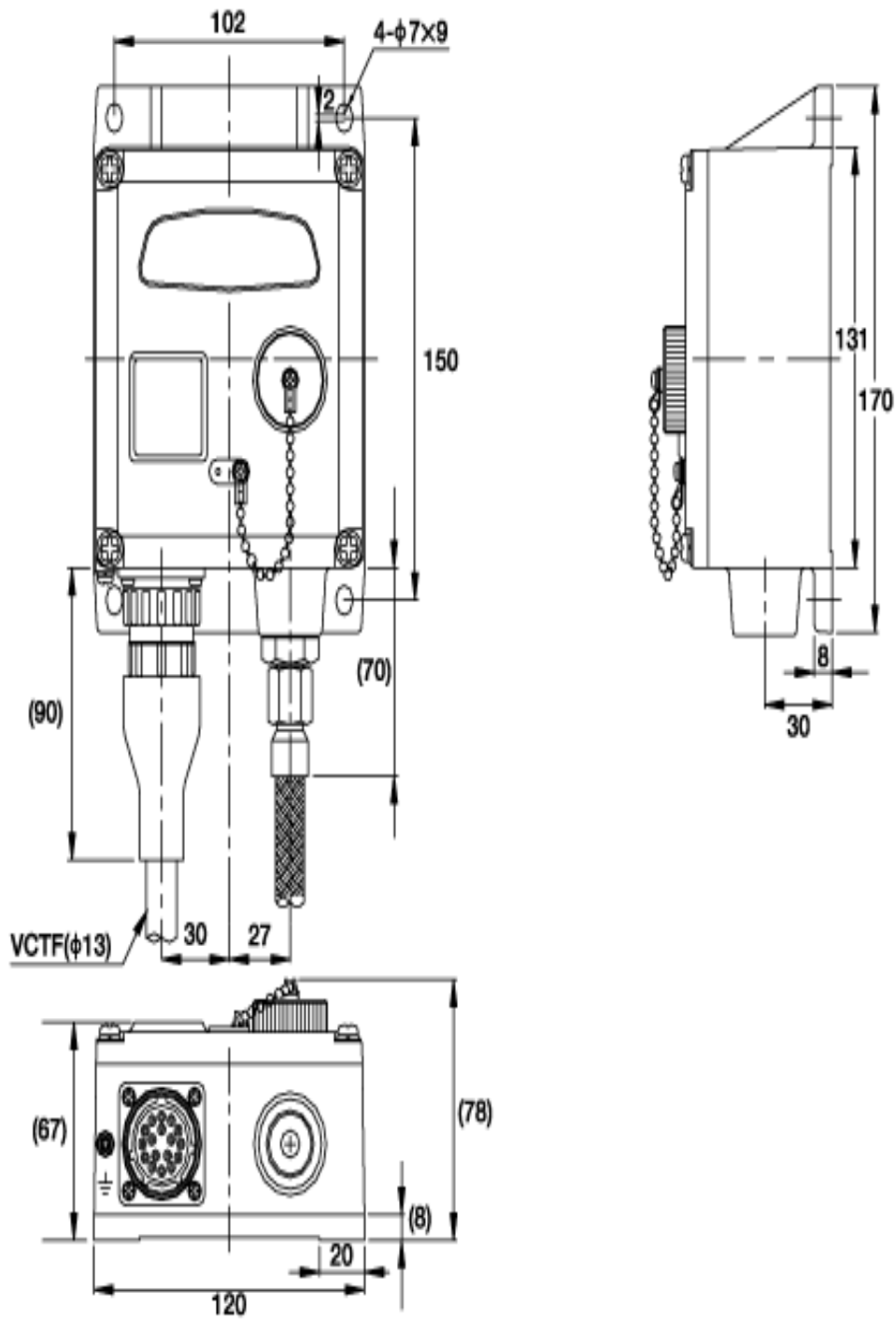
|                                    |  |   |   |
|------------------------------------|--|---|---|
| Sensing Cell                       | Ge Photodiode  |   |   |
| Sensitivity Wave Length            | 0.8 to 1.8 $\mu$ m   |   |   |
| Detection Temperature Range        | Low Temp. Range / High Temp. Range<br>Switch with operation panel  |   |   |
| STB Function                       | Built-in   |   |   |
| Display                            | Figure display   | Received light level : 3 digit display Red LED<br>Threshold value : 2 digit display Green LED     |   |
|                                    | Operation display light  | Output [OP.L] : Orange LED<br>Stability [STB] : Green LED<br>Simulation input [SIMU] : Orange LED |   |
|                                    |  | Temperature range display   | High temperature range (Ht) : Orange LED<br>Low temperature range (Lt) : Orange LED |
| Received light level display range | 0.0 to 12.0 (0.1 step)   |   |   |
| Operation Light Level Set-up Range | 1.0 to 9.0 (0.1 step)  |   |   |
| Simulation Input                   | ON : Short-circuit (Outflow current 5mA max)<br>OFF : Open-circuit |   |   |

■ DIMENSIONS (in mm)

AMPLIFIER UNIT

FD-A320

FD-A320H





■ OUTPUT CIRCUIT

**FD - A 3 2 0**

|                  |  |  |
|------------------|--|--|
| CONTROL OUTPUT   | Relay Output   | PhotoMOS Relay Output  |
|                  | <p>Wire Color</p> <ul style="list-style-type: none"> <li>Yellow</li> <li>Grey</li> <li>Black</li> </ul>              | <p>Wire Color</p> <ul style="list-style-type: none"> <li>Bitter orange</li> <li>Red-dot mark</li> </ul> <p>ON resistance 50 Ω (Max)</p>                  |
| STABILITY OUTPUT | Relay Output   | PhotoMOS Relay Output  |
|                  | <p>Normally; off</p> <p>Wire Color</p> <ul style="list-style-type: none"> <li>Red</li> <li>Green-dot mark</li> </ul> | <p>Normally; off</p> <p>Wire Color</p> <ul style="list-style-type: none"> <li>Light Blue</li> <li>Light Green</li> </ul> <p>ON resistance 50 Ω (Max)</p> |

**FD - A 3 2 0 H**

|                  |  |  |
|------------------|--|--|
| CONTROL OUTPUT   | Bestact Relay Output   | PhotoMOS Relay Output  |
|                  | <p>Wire Color</p> <ul style="list-style-type: none"> <li>Grey</li> <li>Black</li> </ul>                              | <p>Wire Color</p> <ul style="list-style-type: none"> <li>Bitter orange</li> <li>Red-dot mark</li> </ul> <p>ON resistance 50 Ω (Max)</p>                  |
| STABILITY OUTPUT | Relay Output   | PhotoMOS Relay Output  |
|                  | <p>Normally; off</p> <p>Wire Color</p> <ul style="list-style-type: none"> <li>Red</li> <li>Green-dot mark</li> </ul> | <p>Normally; off</p> <p>Wire Color</p> <ul style="list-style-type: none"> <li>Light Blue</li> <li>Light Green</li> </ul> <p>ON resistance 50 Ω (Max)</p> |