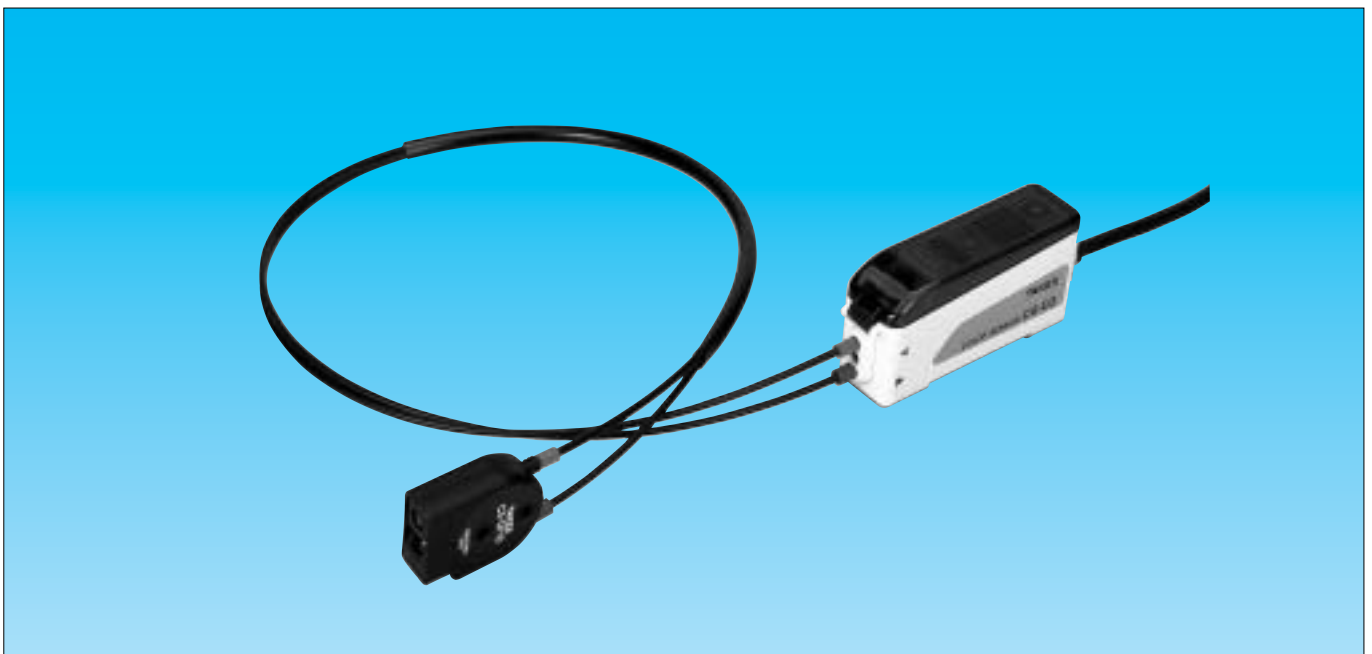


CS-D3 series

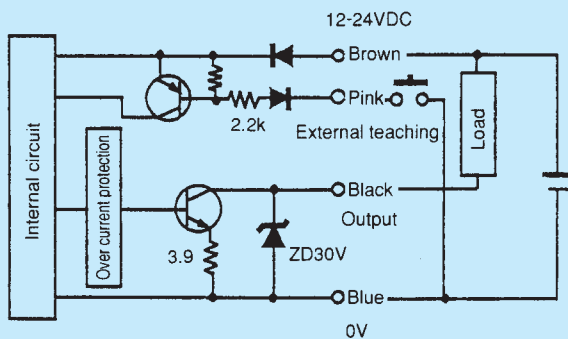
COLOR SENSORS

- The CS-D3 series color sensor is designed to detect the colors only which were recognized by an initial setting (teaching)
- 3-colors selection by Bank changeover switch.
- Mix teaching enables to combine some max./min.values which were obtained by separate sample color teaching.

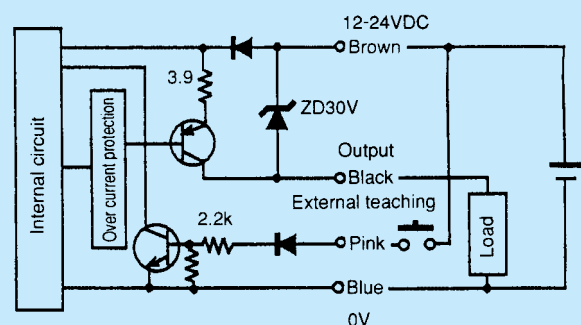


OUTPUT CIRCUIT

Model • CS-D3



Model • CS-D3PN



- Use open collector (non-contact) or contact input for external teaching input. The external teaching input can be used on similar procedure the Set switch inside of the sensor case.
- Short circuit protection is built in the output circuit.
If the short circuit protection is activated, turn the output Off (turn the power Off or change Bank changeover switch etc.) after removing the cause, and it will reset.

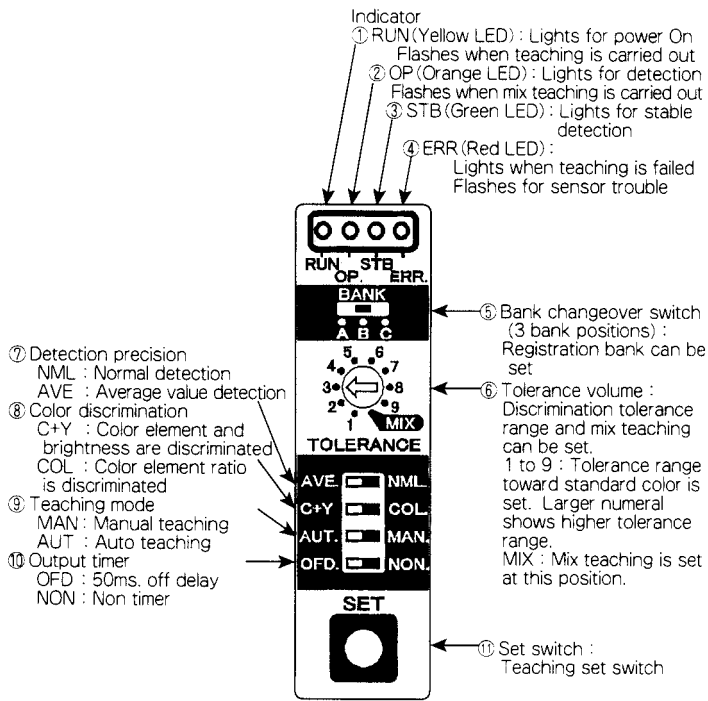
SPECIFICATIONS

| | | LED Color sensor-Amplifier unit | |
|-----------------------|--|--|------------------------------------|
| Model | | CS-D3 | CS-D3PN |
| Detection method | | Time sharing spectrum measurement by red/green/blue LED | |
| Detection range | | Depending on fiber unit | |
| Detection spot | | Depending on fiber unit | |
| Power supply | | 12 - 24VDC ± 10% Ripple 10% or less | |
| Power consumption | | 1.6W or less | |
| Response time | | Normal mode(NML)1msec or less Average value mode(AVE)5msec or less | |
| Output | | NPN open collector | PNP open collector |
| Rating | | Sink current 100mA(30VDC)Max. | Source current 100mA(30VDC) Max. |
| External input | | Non voltage input Input time:60msec or more | |
| Standard color | | 3 colors(selected by Bank changeover switch) | |
| Tolerance range | | 9 degrees | |
| Discrimination | | COL(Color element)/C + Y(Color element + Brightness) | |
| Teaching | | Auto(AUT)/Manual(MAN)/Mix(MiX) | |
| Timer | | Non(NON)/Off-delay(OFD)Approx. 50msec | |
| Light source | | Red/Green/Blue LED | |
| Receiving element | | Photodiode | |
| Indicator | | Power indicator(RUN)Yellow LED-Lights when power is supplied Flashes under teaching Operation indicator(OP.)Orange LED-Lights when output is issued Flashes under mix teaching Stability indicator(STB)Green LED-Lights for stable detection Flashes under auto teaching Error indicator(ERR)Red LED-Lights for teaching error Flashes for sensor trouble | |
| Circuit protection | | Short circuit/Reverse connection of power supply protection built-in | |
| Case protection | | IP65(with fiber unit attached) | |
| Materials | | Case:Heat-proof ABS Cover:Polycarbonate | |
| Connection | | Lead wire(Outer dia. 4.5)0.2sq × 4core 2m length | |
| Weight | | 100g or less | |
| Operating temperature | | - 10 ~ + 55 (without condensation) | |
| Operating humidity | | 35 to 85%RH | |
| Vibration protection | | 10 to 55Hz Multiple amplitude 1.5mm XYZ directions/each 2 hours | |
| Shock protection | | 500m/S ² (approx.50G)XYZ directions/each 3 times | |
| Voltage protection | | AC1000V for 1 minute | |
| Insulation resistance | | 500VDC mega 20 or more | |

SPECIFICATIONS (FIBER UNIT)

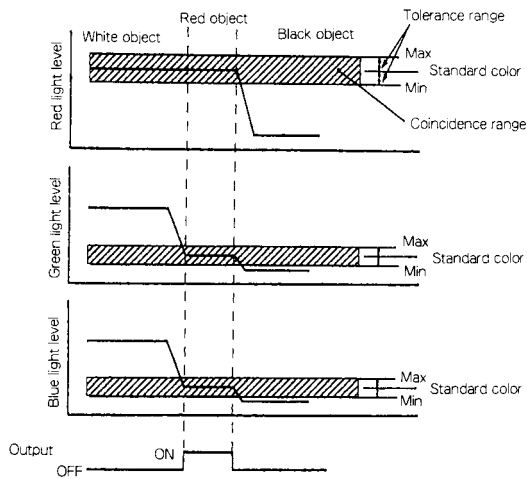
| | Short range | Long range |
|----------------------------------|---|-------------------|
| Model | CS-DF10 | CS-DF30 |
| Detection range | 13mm(10 - 16mm) | 33mm(28 - 38mm) |
| Fiber length | 2m cutting permitted at any portion | |
| Spot range(at detection range) | 3mm dia. or less | 5mm dia. or less |
| Bending radius | R25mm or more | |
| Fiber | Naked dia. Receiver: 1.5 Transmitter: 1.5 Polyethylene Outer dia.: 2.2 | |
| Case protection | IP54(Water-proof optical) | |
| Weight | 40g or less | 50g or less |
| Operating illumination | Receiver, Incandescent light : 5,000lux or less Sun light : 10,000lux or less | |
| Operating temperature | - 25 - + 55 (without condensation) | |
| Operating humidity | 35 to 85%RH | |
| Vibration protection | 10 to 55Hz Multiple amplitude 1.5mm XYZ directions/each 2 hours | |
| Shock protection | 500m/S ² (approx.50G)XYZ directions/each 3 times | |

PANEL DESCRIPTION



- The learned 3 standard colors can be stored in the bank A, B or C separately.
- The stored 3 colors can be selected by Bank changeover switch when object color is changed in several times. Use Bank A when object color is fixed at single color only.

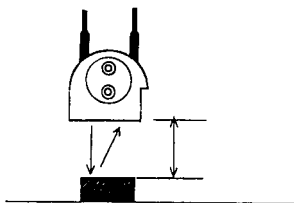
BASIC OPERATION



- When an initial setting teaching for a basic color is carried out, the Max/Min tolerance value (allowance) toward the standard color is set according to Tolerance volume position. The sensor recognizes it as a coincidence that the incoming light level comes in this range (Max-Min).
- The sensor calculates the basic operation to issue an output according to the programmed mode for 3 colors (red, green and blue).

FIBER UNIT INSTALLATION

Stable detection is obtained when the fiber unit is installed at the standard distance, on the other hand, the installation is allowed even at the following distance.



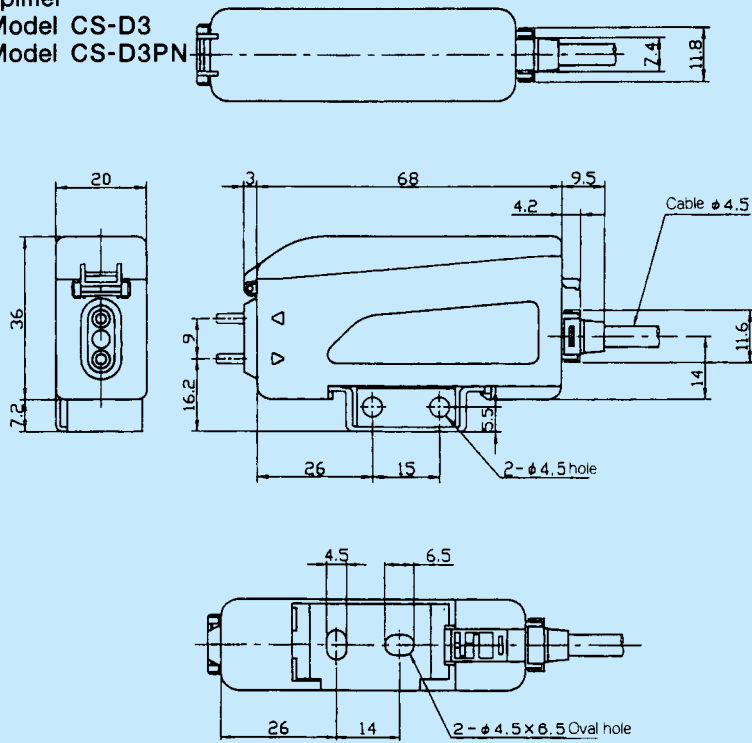
Tightening torque for fixing CS-DF10/CS-DF30 should be 0.6Nm or less.

Installation distance reference

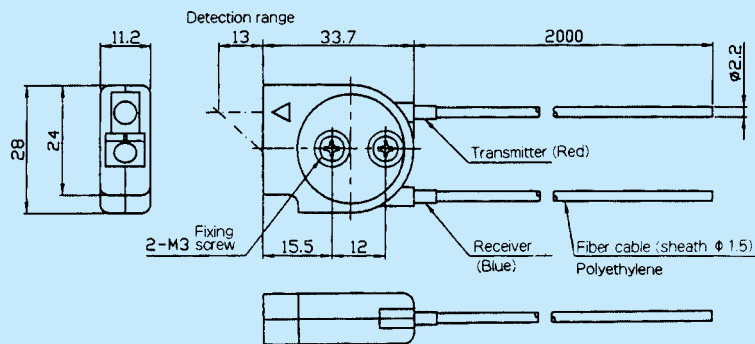
| | |
|---------|---|
| CS-DF30 | Standard distance 33mm Allowable distance 28 to 38mm |
| CS-DF10 | Standard distance 13mm Allowable distance 10 to 16mm |

DIMENSIONS

Amplifier
Model CS-D3
Model CS-D3PN



Fiber unit
Model CS-DF10



Fiber unit
Model CS-DF30

