**DESCRIPTION**

The IF-D95T and IF-D95OC are photologic detectors in Industrial Fiber Optics’ family of low-cost, medium-frequency, short-distance fiber optic LEDs and detectors. Each LED and detector consists of a polycarbonate (PC) housing, an internal active element such as an LED or photodetector subcomponent, and a cinch nut to hold the fiber in place. The PC housing optimizes coupling between the active element and the jacketed 1000 μm plastic fiber.

The IF-D95T contains a photologic detector with a totem-pole output and the IF-D95OC is a similar detector with an open-collector option. Both versions contain an IC with a photodiode, linear amplifier, voltage regulator, and Schmitt trigger. The devices feature TTL/CMOS-compatible logic level output which can drive up to 5 TTL over supply voltages ranging from 4.5 to 16 volts.

Working with this family of fiber optics is simple: No special tools or training required. Only a sharp knife or razor blade is needed to terminate the plastic fiber. When the fiber is inserted into the LED or detector housing, tighten the cinch nut. Thereafter, the fiber can be removed simply by loosening the nut.

**APPLICATIONS**

- Household Appliances
- Motor Controller Triggering
- PC-to-Peripheral Links
- Medical Instruments
- Automotive Electronics
- Audio Systems
- Electronic Games
- Robotics Communications
- Reduction of Lightning and Voltage Transient Susceptibility

**FEATURES**

- No Optical Design Required
- Mates with Standard 1000 μm Core Jacketed Plastic Fiber Cable
- Internal Micro-Lens for Efficient Coupling
- Inexpensive Plastic Connector Housing
- Connector-Less Fiber Termination and Connection
- Interference-Free Transmission from Light-Tight Housing
- Totem-Pole and Open Collector Output Options
- Inverting Output Option Available on Special Order

**MAXIMUM RATINGS**

(TA=25°C)

- Operating and Storage Temperature Range (TO, TSTG)...........-40° to 85°C
- Soldering Temperature (2 mm from case bottom) (TS) ≤5 s........240°C
- Supply Voltage, (Vg)..................18 V
- Voltage at Output lead (IF-95OC only)..............35 V
- Sinking Current, DC (IC)..................50 mA
- Source Current (IO) (IF-95T only)...........10 mA
- Power Dissipation (P_TOT) TA=25°C........100 mW
- Derate Above 25°C........1.33 mW/°C

**CHARACTERISTICS** (TA=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Value</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak Sensitivity</td>
<td>λ_PEAK</td>
<td>800 nm</td>
<td></td>
</tr>
<tr>
<td>Spectral Sensitivity (S=10% of S_MAX)</td>
<td>Δλ</td>
<td>400-1100 nm</td>
<td></td>
</tr>
<tr>
<td>Operating Voltage (max)</td>
<td>V_CC</td>
<td>16 V</td>
<td></td>
</tr>
<tr>
<td>Supply Current (max)</td>
<td>I_CC</td>
<td>12 mA</td>
<td></td>
</tr>
<tr>
<td>Light Required to Trigger</td>
<td>V_CC=5 V, R_L=1k, λ=660 nm</td>
<td>E'r (+)</td>
<td>1.0 (-30) μW(dBm)</td>
</tr>
<tr>
<td>IF-D95T - High Level Output Voltage (I_OH=-1.0 μA)</td>
<td>V_OH</td>
<td>V_CC-2.1 V</td>
<td></td>
</tr>
<tr>
<td>Low Level Output Voltage (I_OH=16 mA)</td>
<td>V_OL</td>
<td>0.34 V</td>
<td></td>
</tr>
<tr>
<td>Output Rise and Fall Times (f=10.0 kHz, R_L=10 TTL Loads) (max)</td>
<td>t_r, t_f</td>
<td>70 ns</td>
<td></td>
</tr>
<tr>
<td>Propagation Delay, Low-High, High-Low (f=10.0 kHz, R_L=10 TTL Loads)</td>
<td>t_PHL, t_PLH</td>
<td>8.0 μs</td>
<td></td>
</tr>
<tr>
<td>IF-D95OC - High Level Output Current (V_OH=30 V)</td>
<td>I_OH</td>
<td>100 μA</td>
<td></td>
</tr>
<tr>
<td>Low Level Output Voltage (I_OH=16 mA)</td>
<td>V_OL</td>
<td>0.4 V</td>
<td></td>
</tr>
<tr>
<td>Output Rise and Fall Times (f=10.0 kHz, R_L=300Ω) (max)</td>
<td>t_r, t_f</td>
<td>100 ns</td>
<td></td>
</tr>
<tr>
<td>Propagation Delay, Low-High, High-Low (f=10.0 kHz, R_L=300Ω)</td>
<td>t_PHL, t_PLH</td>
<td>8.0 μs</td>
<td></td>
</tr>
</tbody>
</table>

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**Fiber Termination Instructions**

1. Cut off the ends of the optical fiber with a single-edge razor blade or sharp knife. Try to obtain a precise 90-degree angle (square).

2. Insert the fiber through the locking nut and into the connector until the core tip seats against the internal micro-lens.

3. Screw the connector locking nut down to a snug fit, locking the fiber in place.

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**Package Identification:**

- **D95T** – Black housing w/Yellow dot
- **D95OC** – Black housing w/Brown dot

- PIN 1. Ground
- PIN 2. Output
- PIN 3. Vcc

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*Industrial Fiber Optics, Inc.*