



## 3G-SDI Extender Kit

# Quick Installation Guide

### 1. Overview

The 3G-SDI Extender Kit enables 3G-SDI to be transmitted up to 330 feet (100 m) in a point-to-point configuration at all specified bit rates. The 3G-SDI Extender Kit supports transmission of up to 2.97/3.0 Gbps uncompressed, un-encrypted digital video (optionally including embedded Audio and/or Time Code) within television facilities and between professional video equipment.

Applications include broadcast, commercial and residential AV systems, classroom projector systems, digital signage, boardroom systems, and medical information systems.

### 2. Installation

1. Verify that the distance between the HDMI Transmitter and Receiver is within Black Box specifications (see Specifications table).
2. To install the Transmitter:
  - 2a. Connect the Transmitter to the SDI video source with a BNC 75-ohm coaxial cable.
  - 2b. Connect one length of CAT5e/6 (or higher) grade UTP cables to the RJ-45 LINK connectors on the Transmitter. Use a straight-through cable only.
  - 2c. Install the unit in a location with adequate ventilation.
3. To install the Receiver:
  - 3a. Connect the Receiver to the SDI display equipment with a BNC 75 ohm compliant cable.

**Customer  
Support  
Information**

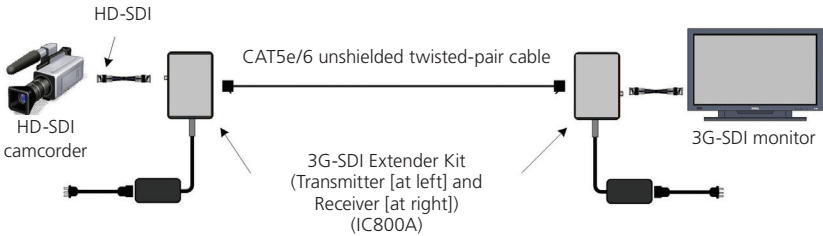
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- 4b. Connect the CAT5e/6 cable to the RJ-45 LINK connector on the Receiver.
- 4c. Install the unit in a location with adequate ventilation.

*NOTE: The receiver will get hot (111° F or 44° C at room temperature).*

- 5. Connect a 12-VDC power supply to each unit, and then plug the power supply into an AC power outlet. If power is present, the green Power LED will be ON and the SDI Sync LED will flash. If the cable is correctly connected, the RJ-45 Sync LED will be ON.
- 6. Power the equipment and verify the image quality. If signal is valid, the RJ-45 Sync LED will be ON and the SDI Sync LED will stop flashing.
- 7. The following diagram shows the final configuration.



## 3. Troubleshooting

The following table describes some of the symptoms, probable causes and possible solutions in respect to the installation of the 3G-SDI Extender Kit.

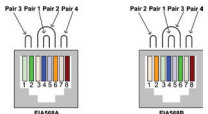
Table 3-1. Troubleshooting tips.

LED	Status	Possible Cause	Action
Power	OFF	No AC power or defective power supply	Try swapping the two power supplies
RJ-45 Sync	OFF	<ul style="list-style-type: none"> <li>• No functional link between the two units.</li> <li>• Remote unit is off or defective.</li> <li>• UTP cable not connected.</li> <li>• Bad UTP cable.</li> <li>• Cable too long.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn on on the remote unit.</li> <li>• Cable must be pinned straight-through and not crossed.</li> <li>• Cable must be CAT53/6 or better.</li> <li>• Length must be 330 feet (100 m) or less.</li> </ul>
SDI Sync	OFF	<ul style="list-style-type: none"> <li>• No valid SDI signal, unsupported format or coax too long,</li> <li>• No SDI signal or invalid signal.</li> </ul>	<ul style="list-style-type: none"> <li>• Turn on SDI equipment.</li> <li>• Try using a good short 75-ohm coax cable.</li> </ul>

*NOTE: If you still cannot diagnose the problem, contact Black Box Technical Support at 724-746-5500 or info@blackbox.com.*

## 4. Specifications

Table 4-1. Specifications.

<b>Application</b>	SDI single link: SD, HD, and 3G
<b>Approvals</b>	Standards supported: SMPTE 259M (270 Mbps), SMPTE 292 M and SMPTE 424M; Compliance: FCC, CE, RoHS; Flammability: 94V0
<b>Bit Rates</b>	270 Mbps, 1.485 Gbps, and 2.97 Gbps (automatic selection)
<b>Cable Required (CABLE NOT INCLUDED)</b>	(1) straight-through CAT5e/6 twisted-pair cable; (2) 75-ohm coaxial cables with 75-ohm BNC connectors
<b>Devices</b>	Monitors or any equipment that supports SDI single link
<b>Distance (Maximum)</b>	UTP CAT5e: 330 ft. (100 m); UTP CAT6: 400 ft. (122 m)  <i>NOTE: Maximum distance applies for all format and speed between boxes. On the SDI side, using an equalizer at input and a clock regenerator at output enable maximum distance on coax.</i>
<b>Enclosure</b>	6061 Aluminum alloy
<b>Environment</b>	Temperature Tolerance: Operating: 32° to 131° F (0° to 55° C); Storage: -4° to +185° F (-20° to +85° C); Humidity: Up to 95%, noncondensing
<b>Format Tested</b>	SD: 525i, 59.94 Hz & 625i, 50 Hz HD: 1035i, 60 Hz & 1080i, 50 Hz & 1080p, 30 Hz & 1080i, 60 Hz & 1080p, 25 Hz & 1080i, 50 Hz & 1080p, 24 Hz & 720p, 60 Hz 3G: 1080p, 4:2:2, 10b, 60Hz & 1080p, 4:2:2, 10b, 50Hz & 720p, 4:4:4:4, 10b, 60Hz & 720p, 4:4:4:4, 10b, 50Hz & 1080p, 4:4:4:4, 10b, 30Hz & 720p, 4:4:4:4, 10b, 30Hz & 1080p, 4:4:4:4, 10b, 25Hz & 720p, 4:4:4:4, 10b, 25Hz & 1080p, 4:4:4:4, 10b, 24Hz & 720p, 4:4:4:4, 10b, 24Hz & 1080i, 4:4:4:4, 10b, 30Hz & 1080i, 4:4:4:4, 10b, 25Hz & 1080p, 4:4:4, 12b, 30Hz & 1080p, 4:4:4, 12b, 25Hz & 1080p, 4:4:4, 12b, 24Hz & 1080i, 4:4:4, 12b, 30Hz & 1080i, 4:4:4, 12b, 25Hz & 1080p, 4:2:2, 12b, 30Hz & 1080p, 4:2:2, 12b, 25Hz & 1080i, 4:2:2, 12b, 30Hz & 1080i, 4:2:2, 12b, 25Hz
<b>Pin Configuration (RJ-45)</b>  (reverse polarity sensitive, use EIA/TIA 568A or 568B straight-through wiring)	RJ-45 Link Pin 1 (R)                      Pin 2 (T) Pin 3 (R)                      Pin 6 (T) Pin 4 (R)                      Pin 5 (T) Pin 7 (R)                      Pin 8 (T)  
<b>Connectors (on each unit)</b>	(1) 75-ohm BNC female, (1) RJ-45S for CAT5e/6 unshielded twisted-pair; (1) 2-mm power connector

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Table 4-1 (continued). Specifications.

Indicators	(3) LEDs: (1) Power, (1) SDI Sync, (1) RJ-45 Link
Power	(2) 100–240-VAC/5–12 VDC, 15 W power supplies with interchangeable blades for US, EU, and UK; Consumption: Transmitter: 4 watts; Receiver: 8 watts
Dimensions	1.25"H x 4.5"W x 3"D (3.2 x 4.5 x 3 cm)
Weight	2.5 lb. (1.1 kg)



### About Black Box

Black Box provides an extensive range of networking and infrastructure products. You'll find everything from cabinets and racks and power and surge protection products to media converters and Ethernet switches all supported by free, live 24/7 Tech support available in 60 seconds or less.

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