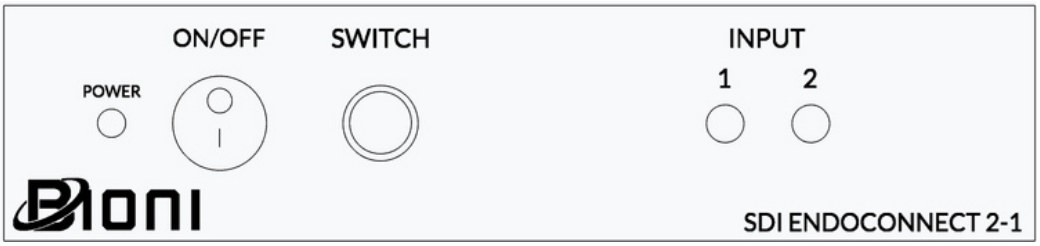
USER MANUAL
SDI ENDOCONNECT 2-1



Model Number: BSDITRI2-1
Version: 2.0

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Product Overview

The Bioni SDI EndoConnect is a medical-grade SDI video and trigger signal switcher, purpose-built for use in endoscopy suites and surgical environments. Designed to support seamless integration between two independent endoscopy systems, it eliminates the need for physically swapping cables, reducing wear on connectors and improving clinical workflow efficiency. Optimized for reliability in high-demand hospital and day surgery settings, the EndoConnect ensures consistent signal performance and minimal system downtime.

Product Description

The Bioni SDI EndoConnect is a professional-grade 2x1 12G SDI switch that allows users to select between two SDI video sources at the press of a button. It supports industry-standard SMPTE video formats including SD, HD, 3G-SDI, 6G-SDI, and 12G-SDI, with resolutions up to 4K at 60Hz and data rates up to 11.88 Gbps. The unit is equipped with jitter reduction circuitry to maintain signal clarity across longer cable runs, and its rugged design is ideal for mission-critical applications in medical imaging and video routing systems.

Key Features

- **Dual Video + Trigger Signal Switching** – Select between two independent endoscopy systems at the push of a button.
- **Medical-Grade Enclosure** – Sealed die-cast aluminium alloy (ADC-10, JIS compliant) offering IP65 (IEC 529) and NEMA 4 protection (dust and hoseproof).
- **Front Panel Controls**:
  - **Sealed On/Off Switch** – Ensures ingress protection in fluid-intensive environments.
  - **Stainless Steel Toggle Button** – Enables safe and tactile switching between input sources.
  - **Power Status LED** – Illuminates when the unit is powered ON.
  - **Input Status LEDs (1 & 2)** – Clearly indicate which input (1 or 2) is actively selected and transmitting.

Technical Specifications

Support for multiple standard and high definition video resolutions:

- SD: 525i (NTSC) and 625i (PAL) at 59.94/50 Hz
- HD: 720p at 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 Hz
- HD: 1080i at 50, 59.94, 60 Hz
- HD 1080p @ 24, 25, and 30 Hz
- 3G 1080p@ 50, 60 Hz
- 6G: 2160p (4K UHD) at 23.98, 24, 25, 29.97, 30 Hz
- 12G: 2160p (4K UHD) at 50, 59.94, 60 Hz

Support for multiple colour spaces:

- RGB or YCbCr 4:4:4 sampled
- YCbCr 4:2:2 sampled

Supports data rates:

- 270 Mbps (SD-SDI),
- 1.485 Gbps (HD-SDI)
- 2.97 Gbps (3G-SDI)
- 5.94 Gbps (6G-SDI)
- 11.88 Gbps (12G-SDI)

Supports 8-bit, 10-bit, and 12-bit Deep Colour

Compatible with:

- HDcctv 1.0 HD-SDI (SMPTE 292)
- 3G-SDI (SMPTE424)
- 6G-SDI (SMPTE ST 2081)
- 12G-SDI (SMPTE ST 2082)
- SD-SDI (SMPTE 259) standards

Technical Specifications

Physical

Dimensions (LxWxH)	6.4" x 3.3" x 1.0" (162 x 85 x 25mm)
Weight (Net)	13.4 oz. (380g)

Environmental

Operating Temperature	+32 to +158° F (O to + 70°C)
Operating Humidity	10% to 85 % RH (no condensation)
Storage Temperature	+14 to +176° F (-10 to +80°C)
Storage Humidity	5% to 90 % RH (no condensation)

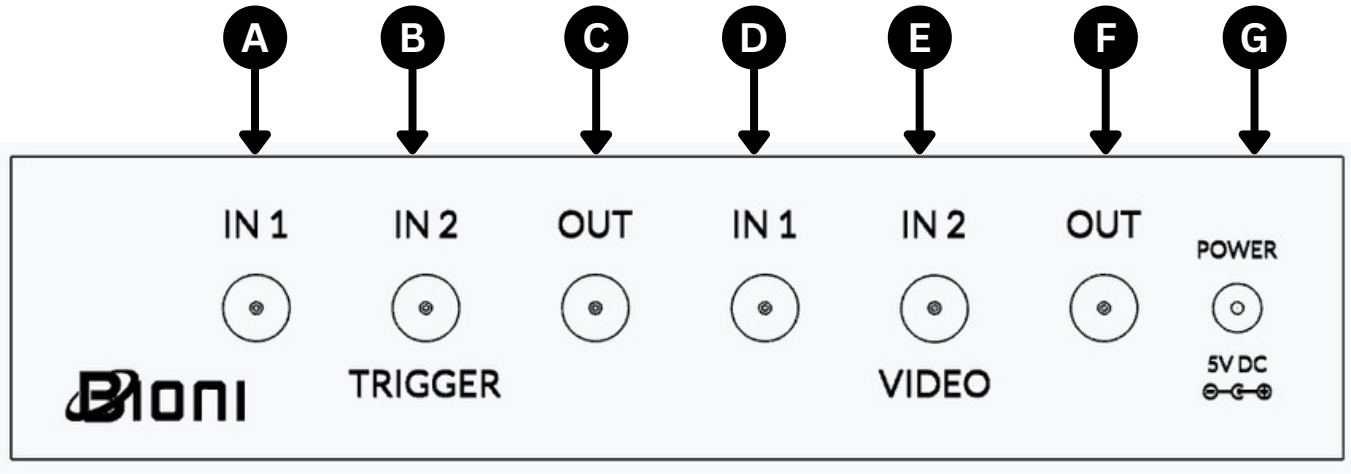
Power

AC Adapter Input	240 VAC, 50/60 Hz
AC Adapter Output Power	5 VDC, 2A
Power Consumption	3W

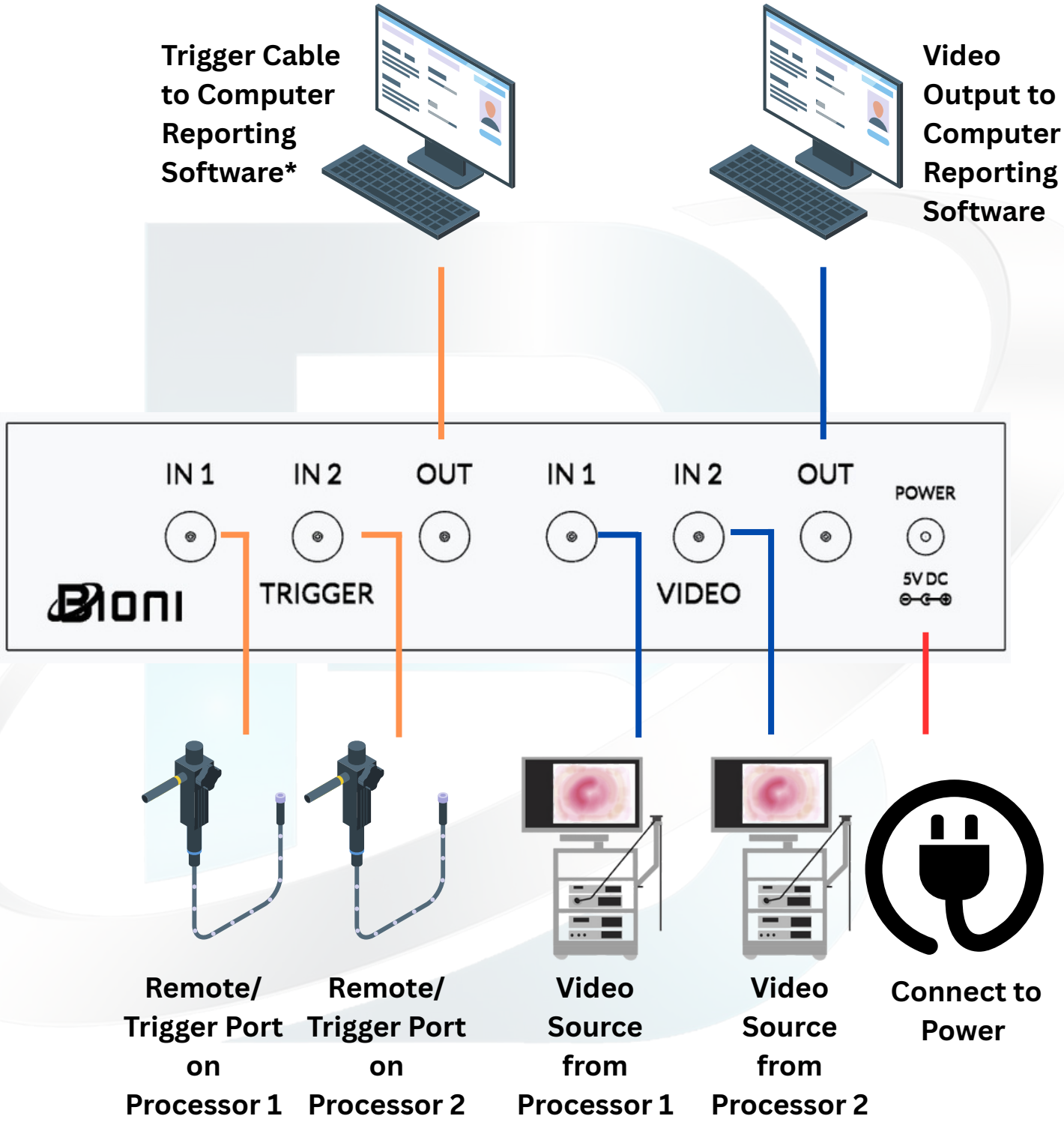
Note: Specifications are subject to change without notice.

Rear Panel Interfaces

	Name	Connector Type	Quantity	Function
A	VIDEO IN 1	BNC Female	1	Video Input 1
B	VIDEO IN 2	BNC Female	1	Video Input 2
C	VIDEO OUT	BNC Female	1	Video Output
D	TRIGGER IN 1	BNC Female	1	Trigger signal from processor 1
E	TRIGGER IN 2	BNC Female	1	Trigger signal from processor 2
F	TRIGGER OUTPUT	BNC Female	1	Trigger Output
G	POWER	DC Power Jack	1	5V DC Power Input



Connection Diagram



*Note: From the SDI EndoConnect's trigger output connector, you can connect your trigger cable to either a RS232 DB9-to-USB adapter or another compatible serial interface device, depending on your computer's available ports, reporting software, and the endoscopic processor manufacturer's guidelines for trigger cable integration.

Installation & Setup Instructions

⚠ **Important: Ensure the unit is powered off before making any connections.**

Step 1: Mounting and Environmental Considerations

Place the unit on a clean, stable surface near the endoscopy stack or integration hub.

- Ensure adequate ventilation around the unit.
- Avoid exposure to excessive fluid ingress or direct spraying during operation despite IP65 rating.

Step 2: Connecting Video Signals

Input Video:

- Connect the video output of Endoscopy Processor 1 to VIDEO INPUT 1 (BNC).
- Connect the video output of Endoscopy Processor 2 to VIDEO INPUT 2 (BNC).

Output Video:

- Connect a 75Ω SDI cable from the VIDEO OUTPUT (BNC) to your SDI-to-USB converter or video capture interface on the reporting computer.

Step 3: Connecting Trigger (Remote) Signals

Input Trigger:

- Connect the remote/trigger output of Endoscopy Processor 1 to TRIGGER INPUT 1 (BNC).
- Connect the remote/trigger output of Endoscopy Processor 2 to TRIGGER INPUT 2 (BNC).

Output Trigger:

- Connect the TRIGGER OUTPUT (BNC) to the DB9 input on the reporting software computer using a BNC-to-DB9 interface cable.

Step 4: Powering the Unit

1. Insert the 5V DC screw-lock power plug into the rear power input jack.
2. Tighten the screw-lock to prevent accidental disconnection.
3. Press the sealed power switch on the front panel to turn the unit ON.
4. Verify the Power LED illuminates blue to confirm successful power-up.

Operating Instructions

To power on the Bioni SDI EndoConnect, press the power button located on the front of the unit. When powered on, the Power LED will illuminate to indicate the device is active.

To select between the two video/trigger sources:

1. Press the stainless steel selector button on the front panel.
2. The corresponding Input LED (1 or 2) will illuminate, indicating the active input.

- If Input 1 LED is illuminated: Both the video and trigger signals from Processor 1 are routed to the reporting software.
- If Input 2 LED is illuminated: Both the video and trigger signals from Processor 2 are routed to the reporting software.

The switching is instantaneous, allowing seamless source changes without disrupting signal integrity.

Maintenance Guidelines

To ensure optimal performance and longevity of the Bioni SDI EndoConnect, follow the maintenance and cleaning guidelines below. These procedures are designed for use in medical environments and comply with typical hospital infection control protocols.

Routine Maintenance

- **Visual Inspection:** Regularly inspect all SDI, trigger, and power connectors for signs of:
  - Wear
  - Oxidation
  - Corrosion
  - Physical damage or loose fittings
  - Dust or debris inside connectors that may affect signal quality
- **Cable Strain:** Ensure that connected cables are not under strain or bending stress at the connector. Use strain relief where applicable.
- **Ventilation:** Check that ventilation slots (if present) are unobstructed to maintain proper thermal performance.
- **Mounting Hardware:** Confirm that the unit remains securely mounted or positioned in its operating environment (rack, trolley, etc.).

Cleaning Guidelines

Frequency: Clean the device regularly, especially when used in sterile or procedural environments.

Cleaning Instructions:

- Power off and disconnect the unit before cleaning.
- Wipe external surfaces with a soft, lint-free cloth slightly dampened with water or an approved hospital-grade disinfectant (e.g., isopropyl alcohol ≤ 70%, Clinell Universal Wipes, etc.).
- Avoid excessive moisture near ports or connectors.

Important Warnings:

⚠️ Do **not** submerge the unit in any liquid.
⚠️ Do **not** spray cleaning agents directly onto the unit.
⚠️ Do **not** autoclave, gas sterilize, or expose the unit to high heat or humidity sterilization processes.
⚠️ Do **not** open the enclosure. There are no user-serviceable parts inside, and doing so may void the warranty.

Recommended Cleaning Products

Use only disinfectants that are:

- Non-corrosive
- Non-abrasive
- Approved for use on medical electronic equipment

If in doubt, consult your facility's infection control department for approved disinfectants compatible with medical electronics.

Troubleshooting

Symptom	Possible Cause	Action
Power LED not illuminating	No power or loose connection	Confirm the 5V DC power adapter is connected and that the wall outlet is active
No video output	Incorrect input selected	Check if the correct Input LED (1 or 2) is illuminated
	Faulty SDI cable or connector	Test with a known working SDI cable
	Processor not outputting signal	Confirm video output is active on endoscopy processor
No trigger signal	DB9 cable not connected or mapped correctly	Confirm cable is fully inserted and mapped correctly per software specs
	Incorrect trigger port selected in software	Check software settings and processor configuration
	Processor trigger output disabled	Verify output settings on endoscopy processor
Flickering or unstable video	Poor quality SDI cable	Use Bioni SDI Cable or high quality 75Ω SDI cable
No video signal	Loose connections or cable error	Check all video connections are secure and not damaged
Both Input LEDs are off	Device is on standby or malfunctioning	Power cycle the device and check front panel for function
	Internal switch not responding	Contact Bioni Support if issue persists

Troubleshooting

Symptom	Possible Cause	Action
Input LED does not switch	Button stuck or pressed incorrectly	Press selector button firmly once; do not hold
	Internal switching fault	Contact support if switching is unresponsive
Trigger signal delayed	Software delay or trigger mapping issue	Confirm reporting software trigger mapping and input buffer settings
Device overheating	Ventilation blocked or unit placed near heat source	Ensure clear airflow and avoid placing near warm equipment
No trigger signal	DB9 cable not connected or mapped correctly	Confirm cable is fully inserted and mapped correctly per software specs
Power LED on, but no response	Firmware or internal fault	Try power cycling the unit; if issue persists, contact support

Contact and Support

For any technical assistance, product inquiries, or support requests regarding your Bioni SDI EndoConnect, please contact the Bioni Medical support team.

Bioni Medical – Customer Support

📧 Email: support@bioni.com.au

🌐 Website: www.bioni.com.au

To help us assist you as efficiently as possible, please include the following information when contacting support:

- Product Name: Bioni SDI EndoConnect
- Serial Number (located on the rear or underside of the unit)
- Date of Purchase
- Description of the issue or inquiry
- Photos or videos, if relevant (e.g. for connector damage or LED behaviour)