



AJA FiDO 3G Series 1 Channel Single Mode SC Fiber with Loop Out Transmitter Instruction Manual

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FiDO 3G Series SDI/Optical Fiber Mini-Converters



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Installation and Operation Guide

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Notices

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Contacting AJA Support

When calling for support, have all information at hand prior to calling. To contact AJA for sales or support, use any of the following methods:

Telephone	+1.530.271.3190
FAX	+1.530.271.3140
Web	https://www.aja.com
Support Email	support@aja.com
Sales Email	sales@aja.com

Chapter 1 – Introduction

Overview

FiDO SDI/Optical Fiber Mini-Converters allow the transport of 3G-SDI over distances of up to 10km (Single-Mode), 700M (OM4) and 300M (OM3) for MultiMode fiber optic cable. The compact, low profile enclosure is perfect for use in tight spaces such as equipment racks, trucks and crowded facilities. Choose from LC, ST, or SC connectors, depending on the converter model, for unmatched flexibility and cost efficiency. FiDO Mini-Converters meet all relevant SMPTE specifications as well as offering electrical isolation to eliminate potential ground loop problems for a rugged, versatile solution that is suitable for a variety of applications.

Features

- Transport of 3G/HD/SD-SDI as well as DVB-ASI over optical fiber
- Autodetection of video format
- All SDI ancillary data including embedded audio is passed
- LC, ST or SC fiber connectors
- Simplex, duplex or quad models available
- All inputs, either SDI or fiber, are equalized and reclocked
- Useful for eliminating ground loop problems
- Multi-Mode fiber options (with LC connectors) are available for FiDO models with SFP cages
- DWP-U-R1 power supply included
- Five Year warranty

Single-Mode FiDO Models (1310 nm)

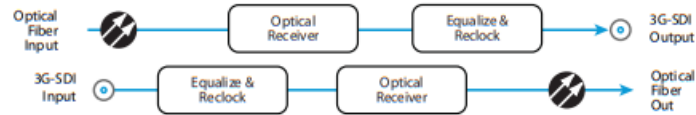
- FiDO-TR: Single channel SDI/LC fiber transceiver
- FiDO-T: Single channel SDI to LC fiber converter with looping SDI output
- FiDO-R: Single channel LC fiber to SDI converter with dual SDI outputs
- FiDO-2T: Dual channel SDI to LC fiber converter
- FiDO-2R: Dual channel LC fiber to SDI converter
- FiDO-4T: Quad channel SDI to LC fiber converter
- FiDO-4R: Quad channel LC fiber to SDI converter
- FiDO-T-SC: Single channel SDI to SC fiber converter with looping SDI output
- FiDO-R-SC: Single channel SC fiber to SDI converter with dual SDI outputs
- FiDO-T-ST: Single channel SDI to ST fiber converter with looping SDI output
- FiDO-R-ST: Single channel ST fiber to SDI converter with dual SDI outputs
- FiDO-4T-ST: Quad channel SDI to ST fiber converter
- FiDO-4R-ST: Quad channel ST fiber to SDI converter

Accessories

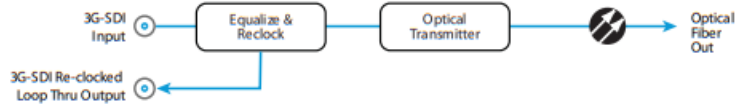
- DWP-U-R1: Power supply included
- Rackmount bracket
- 4 pin XLR power cable

FiDO Converter Simplified Block Diagrams

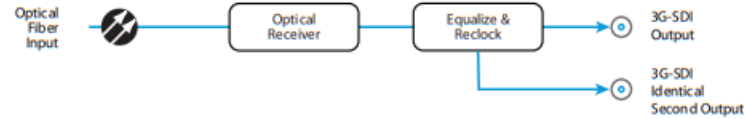
FiDO-TR and FiDO-TR-MM



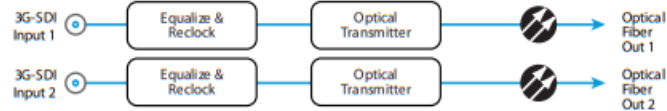
FiDO-T, FiDO-T-MM, FiDO-T-SC, and FiDO-T-ST



FiDO-R, FiDO-R-MM, FiDO-R-SC, and FiDO-R-ST



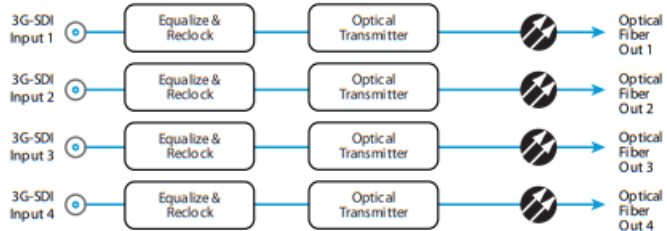
FiDO-2T and FiDO 2T-MM



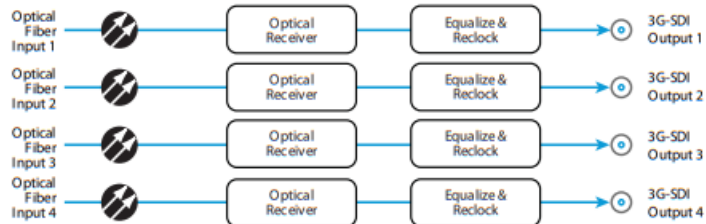
FiDO-2R and FiDO-2R-MM



FiDO-4T, FiDO 4T-MM and FiDO-4T-ST



FiDO-4R, FiDO-4R-MM, and FiDO-4R-ST



FiDO Converter I/O Connections








NOTE: Green illuminated LEDs labeled OPT, SDI, or LOCK indicate a signal has been detected and locked for that input.


NOTE: The OPT or LOCK indicator for optical receivers may flicker or glow dim with the optical input disconnected.

Installation

NOTE: AJA does not support use of any SFP modules other than our own; use of any nonAJA SFP module will void the warranty. Installation consists of the following steps:

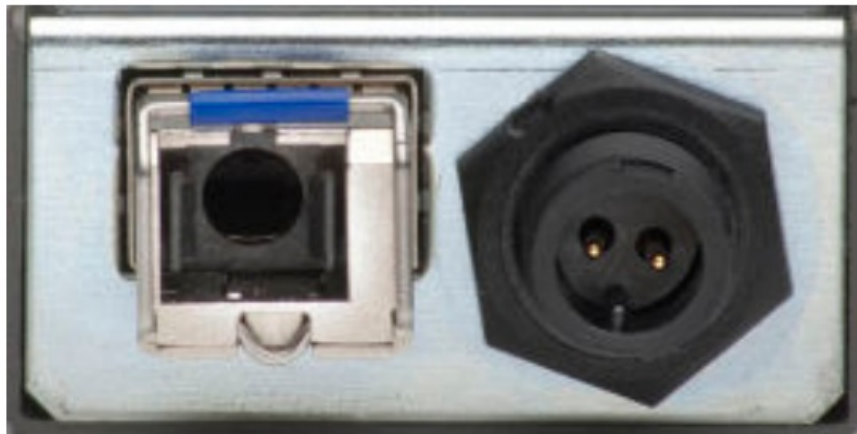
1. Connect video equipment to the FiDO converter BNCs.
2. Connect fiber to the FiDO Optical fiber connectors.

 **Caution!** Single-Mode (1310 nm) FiDO devices require the use of “single mode 1310nm compatible” fiber optic cable. Multi-Mode FiDO devices require the use of “multi-mode 850nm compatible” OM1-OM4 50/125 or 62.5/125 cable.

 **Warning!** Active fiber-optic cables emit radiation invisible to the human eye. Do not look directly at the end of an active fiber-optic cable or the fiber connector on a FiDO-TR, FiDO-T, FiDO-2T, FiDO-4T-ST, FiDO-T-SC, or FiDO-T-ST; these models are Class 1 Laser Products.



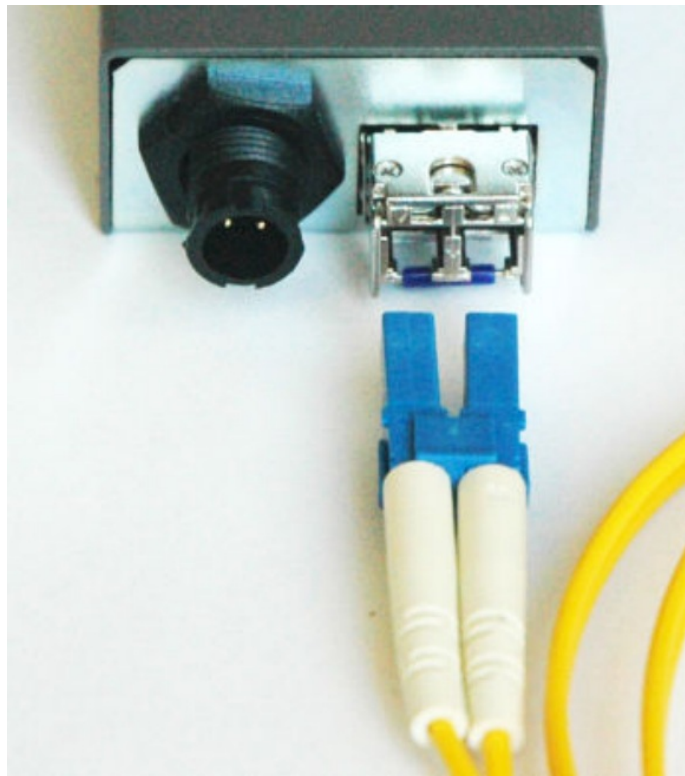
3. Connect single SC style Optical fiber connectors to the SC equipped FiDO converters (FiDO-T-SC, FiDO-R-SC). Figure 1. SC Style Optical Fiber Connector



4. Connect ST style Optical fiber connectors to the ST equipped FiDO converters (FiDO-T-ST, FiDO-R-ST, FiDO-4T-ST, FiDO-4R-ST. Figure 2. ST Style Optical Fiber Connector

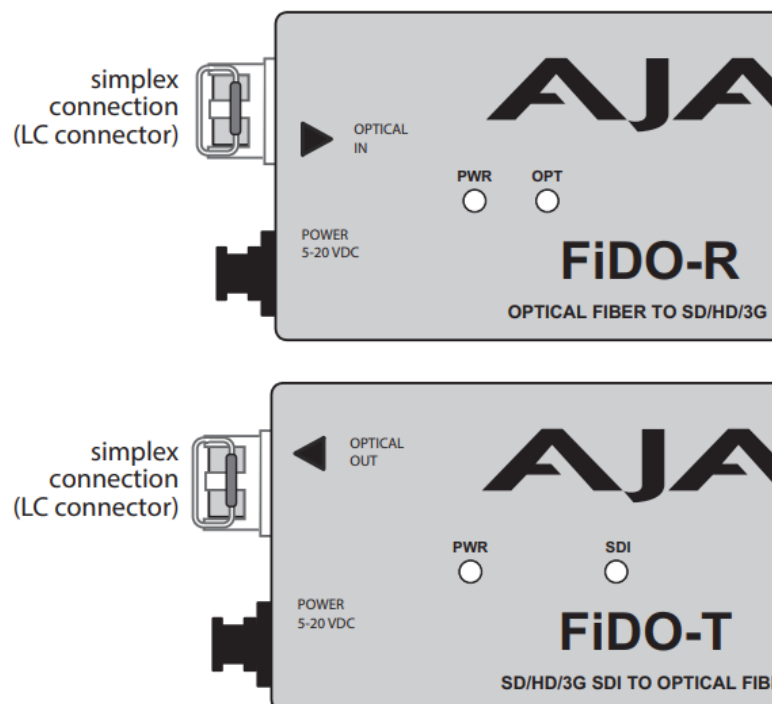


5. FiDO-TR, FiDO-2T, and FiDO-2R all require either a duplex LC cable or two simplex LC cables. Insert each connector until it latches. Figure 3. FiDO to Duplex LC Example



6. FiDO-T and FiDO-R require a single simplex LC cable connected to the optical port on the converter pointed to by the arrow (lower Optical In on FiDO-R, or higher Optical Out on FiDO-T).

NOTE: Fiber optic interconnections can be severely compromised by dirt, oils, or other contaminants. All dust caps should be replaced on cables and equipment whenever FiDO converters are disconnected from fiber optic cables.



7. Apply +5VDC power to the converter (AJA power supply included).

Operation

FiDO series converters have no user controls. No configuration or settings are required. Once powered, the FiDO converters will begin converting applied fiber/ SDI signals.

Appendix A – Specifications

Video Input and Output

Formats

- 3Gb, 1.5Gb, 270Mb, Auto Select, SDI (SMPTE 424/292/259)

Connectors

FiDO-T, FiDO-R:

- 2x BNC, 1x Single mode optical Fiber, LC connector
FiDO-T-SC, FiDO-R-SC:
- 2x BNC, 1x Single mode optical Fiber, SC connector
FiDO-T-ST, FiDO-R-ST:
- 2x BNC, 1x Single mode optical Fiber, ST connector
FiDO-TR, FiDO-2T, FiDO-2TR:
- 2x BNC, 2x Single mode optical Fiber, LC connectors
FiDO-4T-ST, FiDO-4R-ST:
- 4x BNC, 4x Single mode optical Fiber, ST connectors
FiDO-4T, FiDO-4R:
- 4x BNC, 4x Single mode optical Fiber, LC connectors

BNC

Cable Equalization (1694 coax):

- 270Mb/s, 400m
 - 1.5Gb/s, 200m
 - 3Gb/s, 140m
- Input/Output Return Loss:
- >15dB, 5MHz to 1.5GHz
 - >10dB, 1.5GHz to 3GHz
- Fiber Optical Output
- Output Power
- -2dBm typical
- Wavelength (Single-Mode)
- 1310 nm
- Wavelength (Multi-Mode)
- 850 nm

Physical

Power

- AJA external power supply model DWP-U-R1 (included):
- 100-240V, 50/60Hz universal input
FiDO-T, FiDO-R (all models):
- +5 to 20V DC regulated, 2 watts max
FiDO-TR, FiDO-2T, FiDO-2R:

- +5 to 20V DC regulated, 3 watts max
FiDO-4T-ST, FiDO-4R-ST, FiDO-4T, FiDO-4R:
Size (w x d x h)
- +5 to 20V DC regulated, 4 watts max
FiDO-T, FiDO-R (all models), FiDO-TR, FiDO-2T, FiDO-2T-CWDM, FiDO-2R:
- 4.6" x 1.71" x 0.8" (117 x 43.5 x 20 mm)
FiDO-4T-ST, FiDO-4R-ST, FiDO-4T, FiDO-4R:
- 5.8" x 3.9" x 0.8" (147 mm x 99 mm x 20 mm) including connectors

Environment

Safe Operating Temperature:

- 0 to 40 degrees C (32 to 104 degrees F)
Operating Relative Humidity:
- 10-90% noncondensing
Operating Altitude:
- <3,000 meters (<10,000 feet)
Safe Storage Temperature (Power OFF):
- -40 to 60 degrees C (-40 to 140 degrees F)

Appendix B – Safety and Compliance

Federal Communications Commission (FCC) Compliance Notices

Class A Interference Statement

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15, Subpart B of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Canadian ICES Statement

Canadian Department of Communications Radio Interference Regulations This digital apparatus does not exceed the Class A limits for radio-noise emissions from a digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications. This Class A digital apparatus complies with Canadian ICES-003.

European Union and European Free Trade Association (EFTA)

Regulatory Compliance

This equipment may be operated in the countries that comprise the member countries of the European Union and

the European Free Trade Association. These countries, listed in the following paragraph, are referred to as The European Community throughout this document: AUSTRIA, BELGIUM, BULGARIA, CYPRUS, CZECH REPUBLIC, DENMARK, ESTONIA, FINLAND, FRANCE, GERMANY, GREECE, HUNGARY, IRELAND, ITALY, LATVIA, LITHUANIA, LUXEMBOURG, MALTA, NETHERLANDS, POLAND, PORTUGAL, ROMANIA, SLOVAKIA, SLOVENIA, SPAIN, SWEDEN, UNITED KINGDOM, ICELAND, LICHTEINSTEIN, NORWAY, SWITZERLAND

Declaration of Conformity

Marking by this symbol indicates compliance with the Essential Requirements of the EMC Directive of the European Union 2014/30/EU.

Safety



This equipment meets the following conformance standards:

EN 60065: 2002 + A1: 2006 + A11: 2008 + A2: 2010 + A12: 2011 (GS License)

IEC 60065: 2001 + A1: 2005 + A2: 2010 (CB Scheme Report/Certificate)

Additional licenses issued for specific countries available on request.

Emissions

EN 55032: 2012, EN 55022: 2010,

CISPR 22: 2008,

EN 61000-3-2: 2014, EN 61000-3-3: 2013

Immunity

EN 55103-2: 2009, EN 61000-4-2: 2009,

EN 61000-4-3: 2006 + A1: 2008 + A2: 2010,

EN 61000-4-4: 2004 + A1: 2010,

EN 61000-4-5: 2006, EN 61000-4-6: 2009, EN 61000-4-11: 2004

Environments: E2, E3 and E4

The product is also licensed for additional country specific standards as required for the International Marketplace

Recycling Notice



This symbol on the product or its packaging indicates that this product must not be disposed of with your other household waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to a designated collection point for the recycling of waste electrical and electronic equipment. The separate collection and recycling of your waste equipment at the time of disposal will help conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment. For more information about where you can drop or your waste for recycling, please contact your local authority, or where you purchased your product.

Korea KCC Compliance Statement

Taiwan Compliance Statement

This is a Class A product based on the standard of the Bureau of Standards, Metrology and Inspection (BSMI) CNS 13438, Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures. Japanese Compliance Statement

This is a Class A product based on the standard of the VCCI Council (VCCI

V-3/2015.04). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Translated Warning and Caution Messages

The following caution statements, warning conventions, and warning messages apply to this product and manual.



Warning Symbol



Caution Symbol



Before Operation Please Read These Instructions



Warning! Read and follow all warning notices and instructions marked on the product or included in the documentation.



Warning! Do not use this device near water and clean only with a dry cloth.



Warning! Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.





Warning! Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.





Warning! Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an


electrician for replacement of the obsolete outlet.


 **Warning!** Since the Mains plug is used as the disconnection for the device, it must remain readily accessible and operable.



 **Warning!** Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the device.

 **Warning!** Unplug this device during lightning storms or when unused for long periods of time.

 **Warning!** Refer all servicing to qualified service personnel. Servicing is required when the device has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the device, the device has been exposed to rain or moisture, does not operate normally, or has been dropped.

 **Warning!** Do not open the chassis. There are no user-serviceable parts inside. Opening the chassis will void the warranty unless performed by an AJA service center or licensed facility.

 **Warning!** Disconnect the external AC power supply line cord(s) from the mains power before moving the unit.

  **Warning!** Active fiber-optic cables emit radiation invisible to the human eye. Do not look directly at the end of an active fiber-optic cable or the fiber connector on a FiDO-TR, FiDO-T, FiDO-2T, FiDO-4T-ST, FiDO-T-SC, or FiDO-T-ST; these models are Class 1 Laser Products.

Warranty Information

Limited Warranty on Hardware.

AJA Video Systems, Inc. (AJA Video) warrants that the hardware product, not including software components, will be free from defects in materials and workmanship for a period of five years from the date of purchase. AJA Video provides a separate software warranty as part of the license agreement applicable to software components.

If the Customer brings a valid claim under this limited warranty for a hardware product (hereafter, a “product”) during the applicable warranty period, AJA Video will, at its sole option and as the Customer's sole remedy for breach of the above warranty, provide one of the following remedies:

- Repair or facilitate the repair the product within a reasonable period of time, free of charge for parts and labor.
- Replace the product with a direct replacement or with a product that performs substantially the same function as the original product.
- Issue a refund of the original purchase price less depreciation to be determined based on the age of the product at the time remedy is sought under this limited warranty.

To obtain service under this warranty, the Customer must notify AJA Video of the defect before expiration of the warranty period and make suitable arrangements for the performance of service by contacting AJA Video support through

the channels set forth on the support contacts web page at <https://www.aja.com/support>. Except as stated, the Customer shall bear all shipping, packing, insurance and other costs, excluding parts and labor, to effectuate repair.

Customer shall pack and ship the defective product to a service center designated by AJA Video, with shipping charges prepaid. AJA Video shall pay to return the product to Customer, but only if to a location within the country in which the AJA Video service center is located. SOME JURISDICTIONS DO NOT ALLOW THE EXCLUSION OF IMPLIED WARRANTIES OR LIMITATIONS ON APPLICABLE STATUTORY RIGHTS OF A CONSUMER, SO SOME OR ALL OF THE TERMS OF THIS PARAGRAPH MAY NOT APPLY TO YOU.

Limitation of Liability

Under no circumstances shall AJA video BE LIABLE IN ANY WAY FOR ANY LOST, CORRUPTED OR DESTROYED DATA, FOOTAGE OR WORK, OR FOR ANY OTHER INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOST PROFITS, OR FOR ANY THIRD PARTY CLAIM, IN CONNECTION WITH THE PRODUCT, WHETHER RESULTING FROM DEFECTS IN THE PRODUCT, SOFTWARE OR HARDWARE FAILURE, OR ANY OTHER CAUSE WHATSOEVER, EVEN IF AJA VIDEO HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. AJA VIDEO'S LIABILITY IN CONNECTION WITH THE PRODUCT SHALL UNDER NO CIRCUMSTANCES EXCEED THE PURCHASE PRICE PAID FOR THE PRODUCT. The

foregoing limitations apply even if any remedy set forth in this LIMITED WARRANTY fails of its essential purpose. SOME JURISDICTIONS DO NOT ALLOW THE LIMITATION OF LIABILITY FOR PERSONAL INJURY, OR OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO SOME OR ALL OF THE TERMS OF THIS PARAGRAPH MAY NOT APPLY TO YOU.


Governing Law and Language; Your Rights.

This limited warranty is the only warranty provided by AJA Video on the hardware product. It supersedes all prior or contemporaneous understandings regarding such subject matter. No amendment to or modification of this warranty will be binding unless in writing and signed by AJA Video. The laws of the State of California, USA will govern this warranty and any dispute arising from it. Any translation of this Agreement is intended for convenience and to meet local requirements and in the event of a dispute between the English and any non-English versions, the English version of this warranty will govern. This limited warranty gives you specific legal rights and you may have other rights that vary from jurisdiction to jurisdiction, some of which are noted above.

FiDO 3G Series SDI/Optical Fiber Mini-Converters v1.1r3

www.aja.com

Documents / Resources

	<p>AJA FiDO 3G Series 1 Channel Single Mode SC Fiber with Loop Out Transmitter [pdf] Instruction Manual</p> <p>FiDO 3G Series 1 Channel Single Mode SC Fiber with Loop Out Transmitter, FiDO 3G Series, 1 Channel Single Mode SC Fiber with Loop Out Transmitter, SC Fiber with Loop Out Transmitter, Loop Out Transmitter, Transmitter</p>
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References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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