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3G/HD/SD-SDI Pattern Generator
Supports up to 1080p

MODEL: AT-3GSDI500

User's Manual

TABLE OF CONTENTS

INTRODUCTION

Atlona Technologies AT-3GSDI500 3G/HD/SD-SDI Pattern Generator is an advanced SDI pattern generator with multi-format (3G/HD/SD) and multi-pattern support. Besides still and moving video test patterns, other features such as audio (SMPTE-291M) are also provided. AT-3GSDI500 can support up to 8 channel AES compliant audio with 48KHz sample rate. Another attractive feature of AT-3GSDI500 comes from bypassing HDMI input and allows users with more testing patterns for connected display or treats AT-3GSDI500 as an advanced HDMI to SDI converter with 3G capability. With portable size, AT-3GSDI500 is equipped four buttons and LCM screen to ease the control. This device provides a cost effective way to calibrate and test SDI enable video devices and displays.

FEATURES

★ Supported output video resolution

SD-SDI − NTSC 525 @60Hz, PAL 625 @50Hz

HD-SDI − 720p @50Hz, 59.94Hz, 60Hz
            1080i @50Hz, 59.94Hz, 60Hz
            1080p @23.98Hz, 24Hz, 25Hz, 29.97Hz, 30Hz

3G-SDI − 1080p@50Hz, 59.94Hz, 60Hz

★ Supported output audio format

SMPTE 291M, SMPTE 299M (8 channel audio, audio group can be adjusted)

★ Bit rate

SD-SDI − 270Mbps

HD-SDI − 1.485Gbps, 1.4835Gbps

3G-SDI − 2.97Gbps, 2.967Gbps

★ Video Patterns

100% Color Bars, Borderline, Random Noise, Check Field, Black, Vertical Lines, Black / White alternate fields, Full Grey / Full White, Black to White Gradient, Random Generator for all still patterns, moving squares White noise, Inverse effect with still pattern, Scrolling Title (see Appendix for illustrations)

★ Supports HDMI bypass mode

★ Save settings to memory option

★ ANC data

EDH (RP-165), SMPTE 352M, SMPTE291M

★ Control

By LCM & Panel Buttons

★ Video output

Dual 3G capable SDI output

★ 1x AT-3GSDI500

★ 1x 5V power supply unit

★ 1x User's manual

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SPECIFICATIONS

Model Name		AT-3GSDI500
Technical		
Role of usage		Pattern generator
SDI standards		3G/HD/SD-SDI
Auto SDI rate detection		Yes
Supported protocols		SMPTE 259M (270Mbps / 360Mpbs) SMPTE 292M / HDTV (1.485 & 1.485/1.001Gbps) SMPTE 424M / 425M (2.97 & 2.97/1.001Gbps)
Video bandwidth		2.97Gpbs
Data rates		143 / 270 / 1483 / 1485 / 2967 / 2970 Mbps
Video support		[3G] 1080p@50/59.94/60 (4:2:2) [HD] 720p50/59.94/60, 1080p24/30, 1080i50/59.94/60 [SD] NTSC@59.94Hz, PAL@50Hz
SDI signal type		SMPTE-292M / 259M / 424M
Pathological pattern (RP-198)		Immune
HDMI bypass		Yes
Output impedance		75Ω
Cable (Belden 1694A) equalization / transmission		3G-SDI − up to 60m (190ft) HD-SDI − up to 150m (500ft) SD-SDI − up to 300m (1000ft)
Audio support		Yes
PCB Stack-up		4-layer board [impedance control — differential 100Ω; single 50Ω]
Input		None
Output		2x BNC [SDI]
BNC connector		75Ω interlocking socket
HDMI connector		Type A [19-pin female]
[HD] Eye pattern characteristics		Amplitude: Within 800mV <10% Long time jitter <1.0µ Rise overshoot: Less than 2% Timing jitter <1.0µ Fall overshoot: Less than 2% Alignment jitter <0.2µ
Mechanical		
Housing		Metal enclosure
Dimensions [L x W x H]	Model	150 x 190 x 32mm [5.9" x 7.5" x 1.3"]
	Package	175 x 270 x 100mm [6.9" x 10.6" x 3.9"]
Weight	Model	660g [1.5 lbs]
	Package	1260g [2.8 lbs]
Fixedness		Latch-locking power supply
Power supply		5V 4A DC
Power consumption		10 Watts [max]
Operation temperature		0~40°C [32~104°F]
Storage temperature		-20~60°C [-4~140°F]
Relative humidity		20~90% RH [no condensation]

The measurement results are from Tektronix WFM-7120 with SDI through 1m (3.3ft) long Belden 1694A.

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A. Format

» Resolution – NTSC / PAL / 720p / 1080p / 1080i

» Frequency – 60Hz / 59.94Hz / 50Hz / 30Hz / 29.97Hz / 25Hz / 24Hz / 23.98Hz

» Output – YCbCr 4:2:2

B. Video

» Patterns – SMPTE Bar / 100% Bar / Check Field / EQ / PLL
               Gradient R1 / Gradient G1 / Gradient B1
               Gradient R2 / Gradient G2 / Gradient B2
               Gradient R3 / Gradient G3 / Gradient B3
               Gradient R4 / Gradient G4 / Gradient B4
               Red Level 1 / Red Level 2
               Green Level 1 / Green Level 2
               Blue Level 1 / Blue Level 2
               100% Red / 100% Green / 100% Blue / White / Gray Level
               40% Gray / 70% Gray / Black / Noise
               Circle 1 / Circle 2 / Moire
               H Stripe R / H Stripe G / H Stripe B
               V Stripe R / V Stripe G / V Stripe B
               Chess 1 / Chess 2 / Sequence

» Text – Off / On-White / On-Black

» Timer – Off / On-W/B / On-B/W

C. Audio

» Mode – Off / On

» Group – 1+2 / 3+4

» Level – -6dB / -12dB / -18dB / -24dB / -30dB / -36dB / -42dB / Silence / Random

» Mask – Off / CH 1234 / CH 1 / CH 2 / CH 3 / CH 4 / CH 1+2 / CH 3+4

D. Motion

» Motion – No Motion / Square 1 / Square 2 / 2 Squares / Square Inv

» Data Speed – 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8
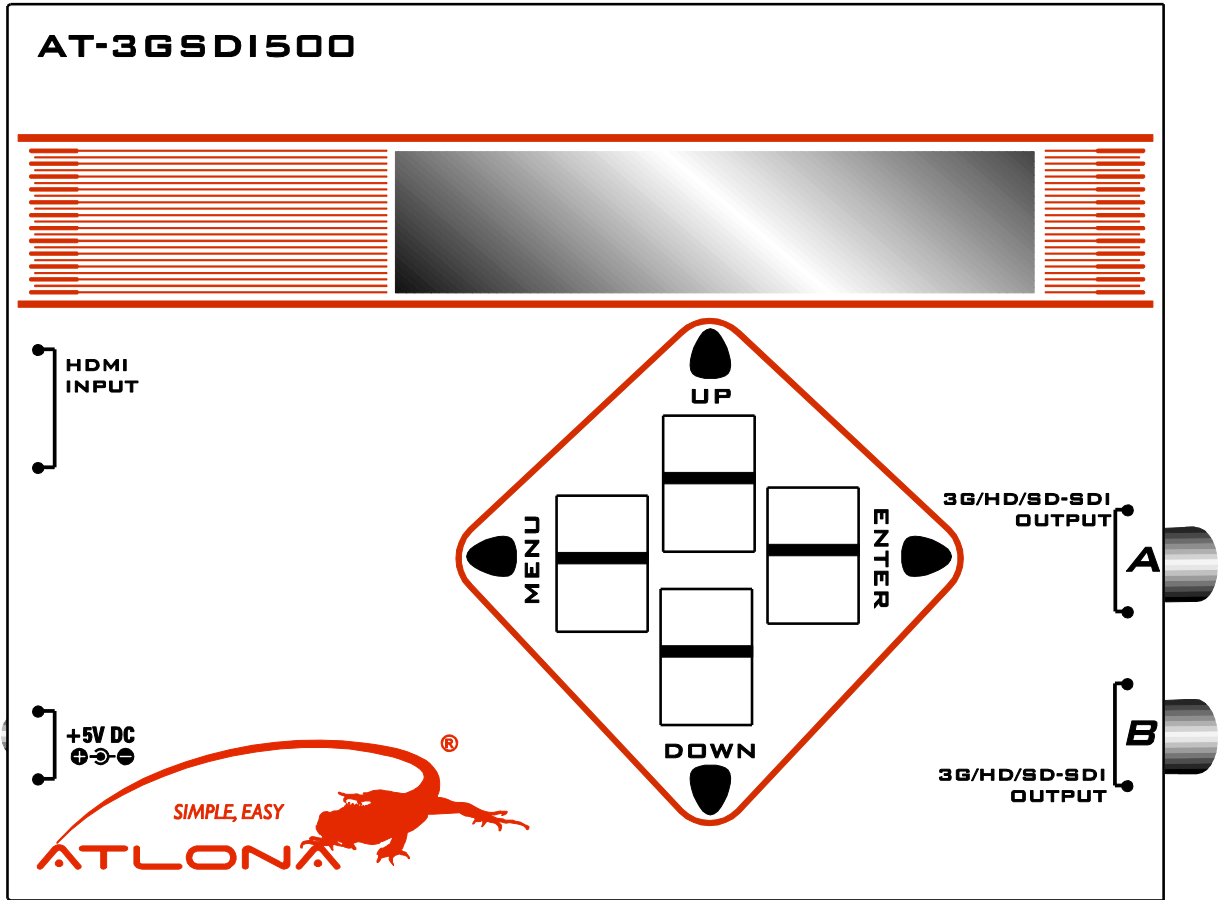
E. ANC Data

» SMPTE-352M – Off / On

» EDH – On / Off

F. System

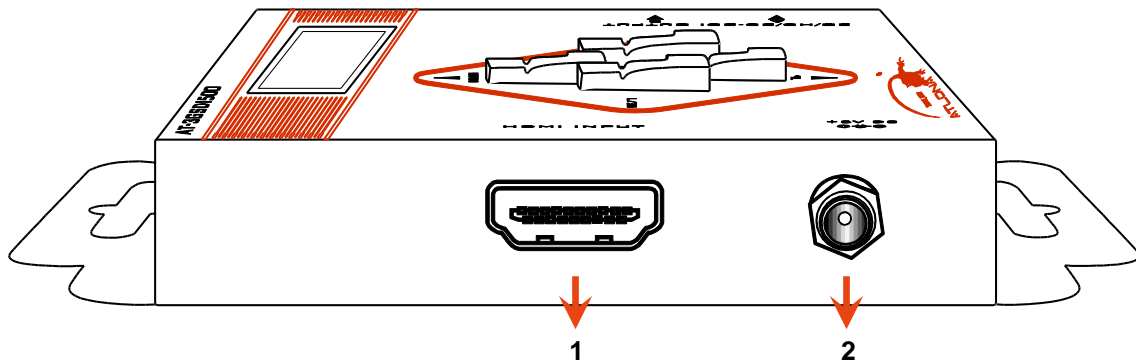» Status – No Change / Factory / Now Save

» Version – V1.01

Bird's View

AT-3GSDI500

HDMI INPUT

UP
MENU
ENTER
DOWN

+5V DC

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3G/HD/SD-SDI OUTPUT

A

B

3G/HD/SD-SDI OUTPUT

Button	Function
Menu	Trigger the function menu
Enter	Enter the menu item
Up	Choose the last menu item
Down	Choose the next menu item

Input Panel

HDMI INPUT

+5V DC

1   2

1. **HDMI INPUT:** Plug in a HDMI cable to be linked to a HDMI source

2. **+5V DC:** Connect to a 5V DC power supply unit

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Output Panel

3   4   5
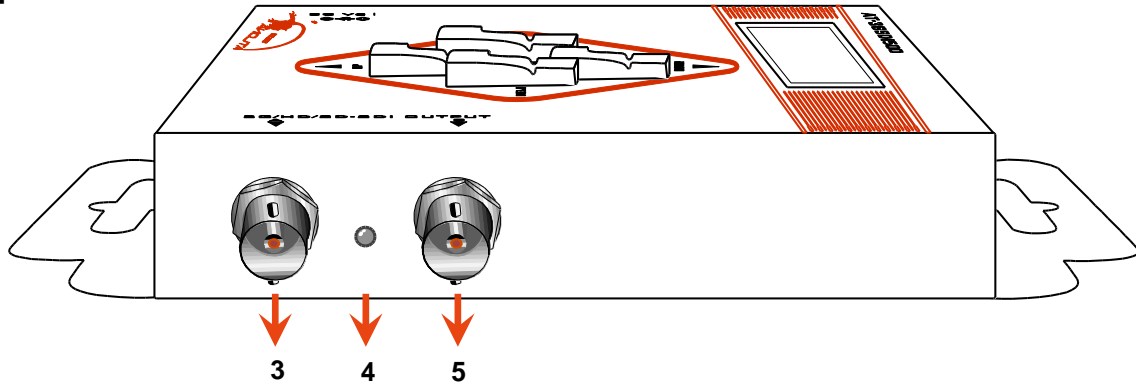
1. **SDI OUTPUT A:** Connect to a SDI device for SDI, HD-SDI, or 3G-SDI signal output either from the chosen pattern or the converted HDMI source signal

2. **Lock LED:** showing if the audio/video signal existed or not

3. **SDI OUTPUT B:** Connect to a SDI device for SDI, HD-SDI, 3G-SDI signal output either from the chosen pattern or the converted HDMI source signal

Bottom Panel
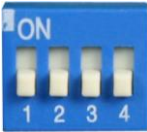
A 4-pin DIP switch is used for user interface, and users can access this switch from the bottom of the unit.

Pin No.	1	2	3	4
ON (⬆)	Used for SMPTE352M	3G level B	10	Update EDID
OFF (⬇)		3G level A	Not in use	Default EDID

1. *Factory default for 4-pin DIP switch:* OFF-OFF-OFF-OFF [⬇-⬇-⬇-⬇]

2. *In order to keep the compatibility of HDMI to most monitors, AT-3GSDI500 features EDID learning ability. The operation is shown in the EDID LEARNING section.*

1. Power off AT-3GSDI500 and set the pin 4 of DIP switch of AT-3GSDI500 to OFF [⬇].

2. Connect the HDTV to the HDMI port on the AT-3GSDI500, and then power on AT-3GSDI500.

3. The Lock LED on the AT-3GSDI500 will dim and light again, which indicates the EDID learning process is done.

4. Connect AT-3GSDI500 to the HDMI source through a HDMI cable and enjoy the experience.

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1. In HDMI bypass mode, users must be aware of that the jitters coming from HDMI sources, such as DVD players, may be much higher than typical requirement according to SMPTE request on HD-SDI signals. This will result in SDI output with high jitters or even no SDI outputs!

2. Due to the high frequency bandwidth and low jitter requirement of 3G-SDI signals, for single SDI output case, it is strongly recommended to use one 75 ohm terminator for the unused SDI output to keep the best performance.

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- Data Identification Word of Ancillary Data Packet

ANC Data	DID	SDID/DBN
352M	0x41	0x01
RP-165-EDH*	0xF4	0x00

* Data Type 1(SMPTE-291M)

- Built-in Video Patterns
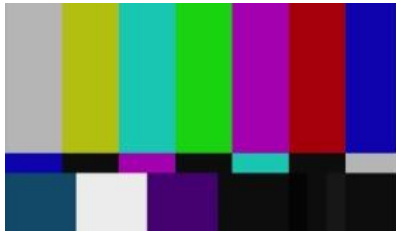
SMPTE Bar
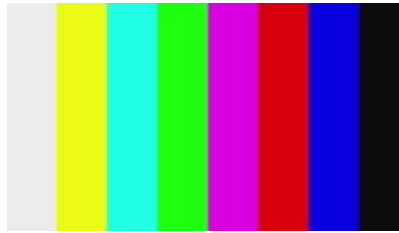
100% Bar

Check Field

EQ

PLL

Gradient R1

Gradient G1

Gradient B1

Gradient R2

Gradient G2

Gradient B2

Gradient R3
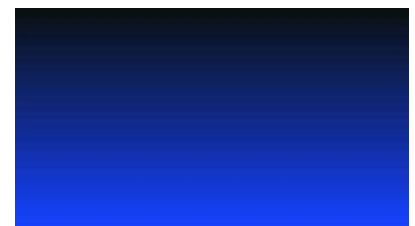
Gradient G3

Gradient B3
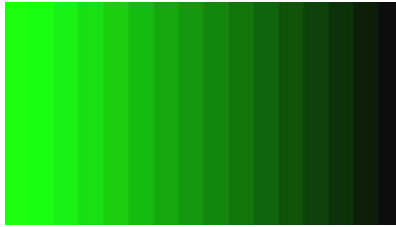
Gradient R4   Gradient G4   Gradient B4

Red Level 1   Red Level 2
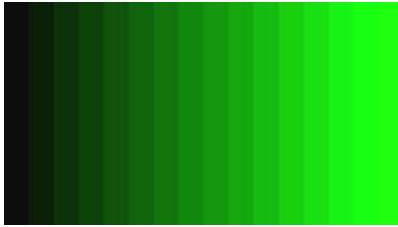
Green Level 1   Green Level 2

Blue Level 1   Blue Level 2
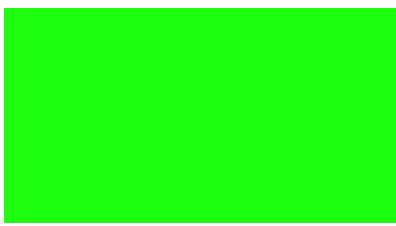
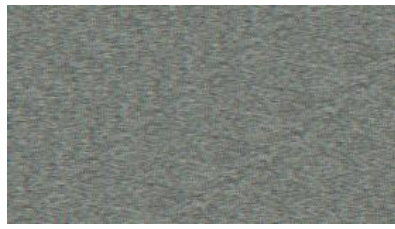100% Red   100% Green   100% Blue

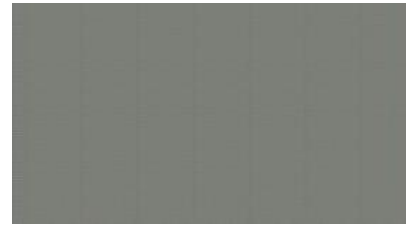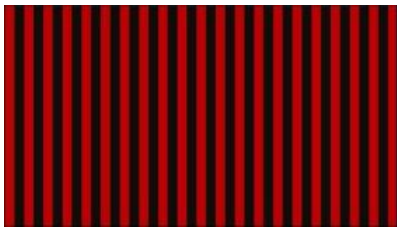Gray Level   40% Gray   70% Gray

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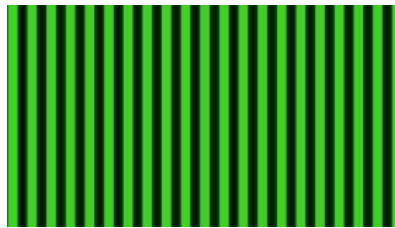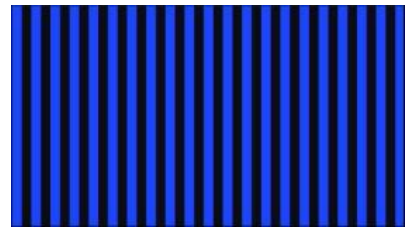www.atlona.com

Black

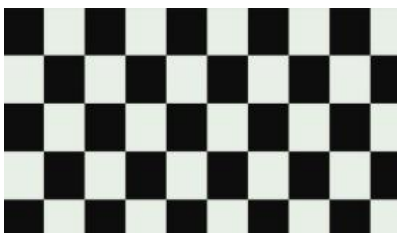Noise

Circle 1

Circle 2

Moire

V Stripe R

V Stripe G

V Stripe B

H Stripe R

H Stripe G

H Stripe B

Chess 1

Chess 2
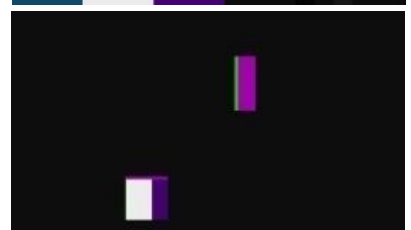
Sequence

Safeguards

To reduce the risk of electric shock, do not expose this product to rain or moisture.

If the wall plug does not fit into your local power socket, hire an electrician to replace your obsolete socket.
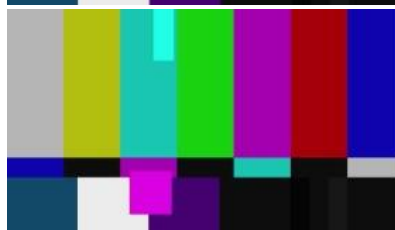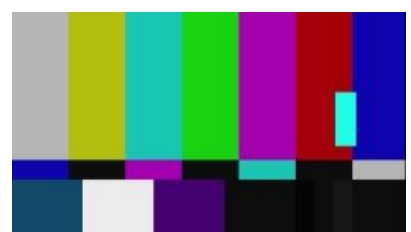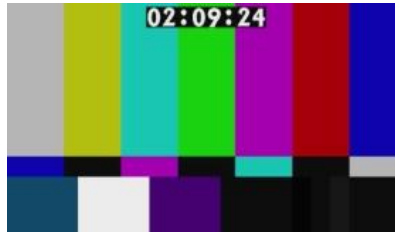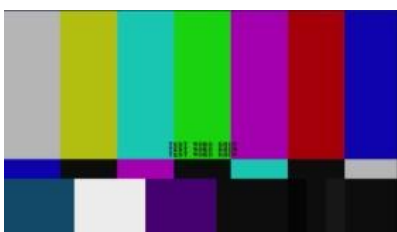
Do not modify the wall plug.
Doing so will void the warranty and safety features.

This equipment should be installed near the socket outlet and the device should be easily accessible in case it requires disconnection.

Precautions

FCC Regulations state that any unauthorized changes or modifications to this equipment not expressly approved by the manufacturer could void the user's authority to operate this equipment.

Operate this product using only the included external power supply. Use of other power supplies could impair performance, damage the product or cause fires.

In the event of an electrostatic discharge, this device may automatically turn off. If this occurs, unplug the device, and plug it back in.

Protect and route power cords so they will not be stepped on or pinched by anything placed on or against them. Be especially careful of plug-ins, or cord exit points from this product.

Avoid excessive humidity, sudden temperature changes or temperature extremes.

Keep this product away from wet locations such as bathtubs, sinks, laundries, wet basements and swimming pools.

Use only accessories recommended by ATLONA to avoid fire, shock or other hazards.

Unplug the product before cleaning. Use a damp cloth for cleaning. Do not use cleaning fluid or aerosols, which could enter the unit and cause damage, fire or electrical shock. Some substances may also mar the finish of the product.

Never open or remove unit panels or make any adjustments not described in this manual. Attempting to do so could expose you to dangerous electrical shock or other hazards. It may also cause damage to your AT-3GSDI500. Opening the product will void the warranty.

Do not attempt to service the unit. Instead disconnect it and contact your Authorized ATLONA reseller or contact ATLONA directly.

1. LIMITED WARRANTY

Atlona Technologies warrants that (a) its products (the "Product") will perform substantially in accordance with the accompanying written materials for a period of 3 years from the date of receipt and (b) that the Product will be free from defects in materials and workmanship under normal use and service for a period of 3 years. In the event applicable law imposes any implied warranties, the implied warranty period is limited to 3 years from the date of receipt. Some jurisdictions do not allow such limitations on duration of an implied warranty, so the above limitation may not apply to Customer.

2. CUSTOMER REMEDIES

Atlona Technologies and its suppliers' entire liability and Customer's exclusive remedy shall be, at Atlona Technologies' option, either return of the price paid for the Product, or repair or replacement of the Product that does not meet this Limited Warranty and which is returned to Atlona Technologies with a copy of Customer's receipt. This Limited Warranty is void if failure of the Product has resulted from accident, abuse, or misapplication. Any replacement Product will be warranted for the remainder of the original warranty period or 3 year, whichever is longer.

3. NO OTHER WARRANTIES

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, ATLONA TECHNOLOGIES AND ITS SUPPLIERS DISCLAIM ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WITH REGARD TO THE PRODUCT AND ANY RELATED WRITTEN MATERIALS. THIS LIMITED WARRANTY GIVES CUSTOMER SPECIFIC LEGAL RIGHTS. CUSTOMER MAY HAVE OTHER RIGHTS DEPENDING ON THE JURISDICTION.

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