DIRECT/INDIRECT, DIRECT, INDIRECT STATIC WHITE, BIOS





Type:

#### DESCRIPTION

**DIRECT OPTICS** 

HLO<sup>1</sup>

Optic

Our elegant, flexible Via family is composed of linear, pendant, surface, recessed, and wall mounted luminaires. Each lighting fixture can be installed as a discrete luminaire or in continuous runs or patterns in which a combination of luminaires forms part of a custom design that can also incorporate less conventional acute and obtuse angles. Via 3 Wall is offered with Lambertian, asymmetric, or grazing reflector optics.

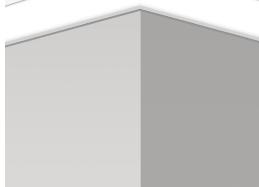
#### Up to 146 lm/W performance

GRO

Optic

Grazing Reflector





Leveled outside corner

### **INDIRECT OPTICS**



TIO <sup>2</sup> Translucent Indirect Optic



WAI2 Widespread Asymmetric Indirect Optic



High-Efficiency Lambertian

HLO <sup>3</sup> High-Efficiency Lambertian Optic



ARO2

Optic

Asymmetric Refractive

ARO2<sup>3</sup> Asymmetric Refractive Optic

<sup>1</sup> Drop lens positions available with HLO direct lens only. <sup>2</sup>Available only with Direct/Indirect. <sup>3</sup> Not available with Direct/Indirect.



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Intertek

DIRECT/INDIRECT, DIRECT, INDIRECT STATIC WHITE, BIOS



Project:

Type:

### Order Guide

A drawing of your pattern is required - anything from a line drawing to an architectural drawing.

LUMINAIRE ID	DISTRIBUTION	DIRECT OPTIC Specify NA for Indirect fixture	LENS POSITION Specify NA for Indirect		IDIRECT OPTIC ecify NA for Direct fixture	LIGHT SOURCE 5	CRI
VIA3WPAT							
VIA3WPAT - Via 3" Wall Pattern	DI - Direct/ Indirect D - Direct I - Indirect	HLO - High-Efficiency Lambertian Optic ARO2 - Asymmetric Refractive Optic GRO - Grazing Reflector Optic NA - Not applicable	FH - Flush 0.5D <sup>1</sup> - 0.5" drop 1.0D <sup>1</sup> - 1.0" drop NA - Not applicable <sup>1</sup> Available with HLO dire lens only.	ect All	<ul> <li>Q<sup>23</sup> - Translucent Indirect Optic</li> <li>(Al2<sup>2</sup> - Widespread Asymmetric direct Optic</li> <li>LO<sup>4</sup> - High-Efficiency</li> <li>Imbertian Optic</li> <li>RO2<sup>4</sup> - Asymmetric Refractive ptic</li> <li>A - Not applicable</li> <li>lot available with BIOS.</li> <li>vailable only with Direct/Indirect.</li> <li>lot available with Direct/Indirect.</li> </ul>	SW - Static white BIOSST <sup>6,7</sup> - BIOS Biological Static BIOSDY <sup>6,7</sup> - BIOS Biological Dynamic BIOSTU <sup>6,7</sup> - BIOS Biological Tunable <sup>5</sup> Chromawerx Sola, Duo and Quadro also available. Consult other spec sheets. <sup>6</sup> Only available with Iow and medium lumen packages. <sup>7</sup> See page 5 for details.	80CRI - 80 CRI 90CRI 8 90 CRI °Not available with BIO
DIRECT LUMEN Specify NA for Indire		INDIRECT LUMEN P Specify NA for Direct fixto		OLOR EMP.	PATTERN LENGTH	CORNER TYPE <sup>18</sup>	
<b>350LMF <sup>9</sup> -</b> Hypo <b>500LMF</b> - Low ou <b>750LMF</b> - Mediur		350LMF - Hypo output 500LMF - Low output 750LMF - Medium out	500 lm/ft 30	<b>7K <sup>16</sup> - 2700ł 0K - 3000K 5K - 3500K</b>	< ##FT##IN(#X#FT#IN- #X#FT#IN) <sup>17</sup> -	leveled inside corner (90	<u>GLE (##):</u> ) - 90° ;) <sup>19</sup> -

/Solim - Median output /So m/n	<b>Social</b> - Median output / So in / it	<b>33R</b> - 3300R		#LEV02C(##)	()
1000LMF 10 - High output 1000 lm/ft	1000LMF <sup>14</sup> - High output 1000 lm/ft	<b>40K</b> - 4000K	##FT##IN: total nominal length	- 2-way leveled	Custom
1200LMF 11, 12, 13 - Hyper output 1200 lm/ft	1200LMF 13, 15 - Hyper output 1200 lm/ft	50K <sup>16</sup> - 5000K	of pattern in feet and/or inches	outside corner	
NA - Not applicable	NA - Not applicable		#X: quantity of each section	<sup>18</sup> Specify quantity (#) and angle	(##) for each
<sup>9</sup> Minimum 3' fixture. <sup>13</sup> Fi	xture will be very bright. Use in suitable	<sup>16</sup> Not available with BIOS.	#FT#IN: nominal length of each	required corner type.	
	plications.	WITH BIOS.	section in feet and/or inches	<sup>19</sup> Minimum angle is 45°.	1.1.000
	or Direct/Indirect, Direct must not exceed			For ARO2/GRO, minimum ang	gle is 75°.
	00 lm/ft, 750 lm/ft for GRO. or Direct/Indirect, Direct must not exceed		Continuous runs: lengths over 12'		
	0 lm/ft, 500 lm/ft for GRO.		<sup>17</sup> Minimum 2' for Direct, minimum 3'		
			for Direct/Indirect.		
		1			

VOLTAGE	DRIVER 21	ELECTRICAL	ELECTRICAL SECTIONS (optional) 28, 29	MOUNTING
				DMB
<b>120V</b> - 120V <b>277V</b> - 277V <b>UNV</b> - 120V-277V <b>347V</b> <sup>20</sup> - 347V	D1 - 1% 0-10V DA <sup>22</sup> - DALI LDE1 <sup>22</sup> - Lutron Hi-lume 1% Eco ELD1 - eldoLED 1% ECOdrive 0-10V ELD0 - eldoLED 0.1%	IC - 1 circuit 2C <sup>24</sup> - 2 circuits #MC <sup>25</sup> - Multi circuit EC - Emergency-powered fixture NL - Night light fixture DL - Daylight fixture	#EC## <sup>30</sup> - Emergency-powered section #NL## <sup>30</sup> - Night light section #DL## <sup>30</sup> - Daylight section #GTD## <sup>30, 31, 32</sup> - Generator transfer device section #EMB <sup>32, 33</sup> - Emergency battery NA - None	DMB - Drywall mounting bracket
<sup>20</sup> Available with D1 driver only.	SOLOdrive 0-10V ELV <sup>23</sup> - ELV 120V TRI <sup>23</sup> - TRIAC 120V <sup>21</sup> PoE (Power-over-Ethernet) compatible. Consult factory for details. <sup>22</sup> On-site commissioning is required. <sup>23</sup> Available with 120V only.	<ul> <li>GTD <sup>26,27</sup> - Generator transfer device fixture</li> <li><sup>24</sup> Available for Direct/Indirect only. Separate direct and indirect circuits.</li> <li><sup>26</sup> Specify total number of circuits (#), including any required for electrical section options. Provide drawing or layout specifications. Minimum 4' section per circuit.</li> <li><sup>26</sup> Minimum 4' fixture.</li> <li><sup>27</sup> Not available with 347V.</li> </ul>	<ul> <li><sup>28</sup> Specify with multi circuit (#MC) electrical option only.</li> <li><sup>29</sup> Provide drawing or layout specifications. Consult factory for other configurations. Default section length is 4'.</li> <li><sup>30</sup> Specify quantity (#), and section length in inches (##).</li> <li><sup>30</sup> Minimum 4' section.</li> <li><sup>30</sup> Not available with 347V.</li> <li><sup>33</sup> Specify quantity (#). All batteries will be on the same circuit. Each battery powers a 4' section. For Direct/Indirect, minimum 8' fixture.</li> </ul>	

CONTROL 34 FINISH OPTIONS STANDALONE CONTROLS 35, 36, 37 W - Matte white CONNECTED CONTROLS 39 FU120 - Fuse 120V FU277 - Fuse 277V AL - Aluminum Specify the quantity (#) of sensors per fixture. LU- Lutron ENC - Encelium **B** - Matte black NA - None **#ODS** - Onboard Daylight AWNR - Lutron Athena WL - Cooper Wavelinx CF# - Custom finish, #OSS50 <sup>38</sup> - Onboard stairwell occupancy with 50% bi-Wireless Node RF Only AN - Acuity nLight specify RAL# level dimming AWNS - Lutron Athena CA - Casambi Wireless Node Sensor LG - Legrand EN - Enlighted NA - None <sup>34</sup> Standalone and connected control options cannot be combined. <sup>37</sup> Available with flush lens option only. <sup>38</sup> Minimum 4' fixture. Available with D1 driver and 1 circuit options only. <sup>36</sup> Minimum 4' per zone. Provide control zone length. <sup>39</sup> Consult factory for connected controls. 3737 Cote Vertu St-Laurent, Quebec, Canada H4R 2C9 Lumenwerx reserves the right to modify

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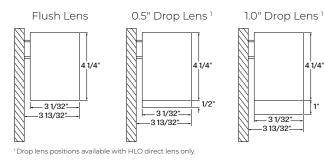
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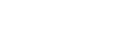


DIRECT/INDIRECT, DIRECT, INDIRECT STATIC WHITE, BIOS



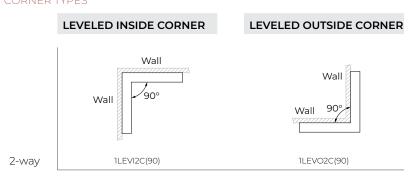
### Dimensions





Pattern Layout

### CORNER TYPES

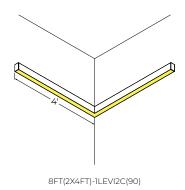


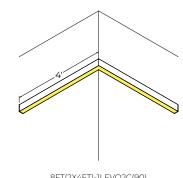
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**EXAMPLES** 





4 1/4"

1"

8FT(2X4FT)-1LEVO2C(90)



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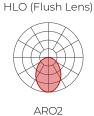


DIRECT/INDIRECT, DIRECT, INDIRECT STATIC WHITE, BIOS

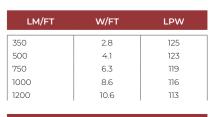
### Photometrics

Values calculated based on a 4ft fixture at 35K and 80 CRI for all optics.

#### DIRECT OPTICS



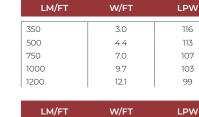
GRO



108 104

99 95

Multiplier - Drop Lens



LM/FT	W/FT
350	3.3
500	4.8
750	7.6
1000	10.6

INDIRECT OPTICS





750	6.3	119	
1000	8.8	114	
1200	10.9	110	
LM/FT	W/FT	LPW	
350	2.5	139	
350 500	2.5 3.7	139 135	
500	3.7	135	

W/FT

2.7

4.0

LPW

127

124

**LPW** 

123

HLO

LM/FT	W/FT
350	2.8
500	4.1
750	6.3
1000	8.6
1200	10.6

LM/FT

350

500



750	6.3	119
1000	8.6	116
1200	10.6	113
LM/FT	W/FT	LPW
350	3.0	116
350 500	3.0 4.4	116 113
		=
500	4.4	113

#### MULTIPLIER TABLES

Use these tables to get results for different color temperatures, CRI, and drop lenses, for all Direct and Indirect photometric tables.

#### Multiplier - CCT/CRI

					-		
сст	WA	TTS	LPW		DIRECT LENS	WATTS	LPW
(K)	CRI 80	CRI 90	CRI 80	CRI 90	DIRECTEENS		2
2700	1.05	1.27	0.95	0.79	Flush Lens	1.00	1.00
3000	1.02	1.23	0.98	0.81	Drop Lens 0.5"	0.98	1.02
3500	1.00	1.19	1.00	0.84	Drop Lens 1.0"	0.96	1.04
4000	1.00	1.19	1.00	0.84			
5000	0.96	1.12	1.04	0.89			

#### DIRECT/INDIRECT - LPW CALCULATION

For Direct/Indirect performance values, follow the formula.

(	DIRECT LM/FT	+	INDIRECT LM/FT	)	= I PW
(	DIRECT W/FT	+	INDIRECT W/FT	)	



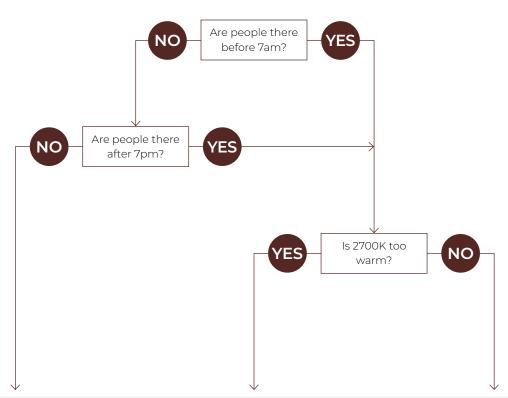




DIRECT/INDIRECT, DIRECT, INDIRECT STATIC WHITE, BIOS

### BIOS

Three BIOS Circadian LED solutions are offered – Biological Static, Biological Dynamic, and Biological Tunable. Use the decision tree below to identify when and where to use BIOS Wellness LED Lighting Solutions.



Biological Static BIOSST	Biological Dynamic BIOSDY	Biological Tunable BIOSTU	
No CCT change when dimmed	500K shift when dimmed	Dims to 2700K	
Daytime solution	Daytime + evening solution	Daytime + evening solution	
Spaces in operation during daytime hours, between 7am and 7pm	Spaces in operation overnight, after 7pm and before 7am, and when CCT color shift in the evening is not preferred	Suitable for spaces in operation overnight, after 7pm and before 7am, and where people do not sleep (CCT color shift in the evening is preferred)	
E.g. offices, medical/dental offices	E.g. hospitals	E.g. offices, shiftwork	
Pugging and the second	Deptime Full Bloc SityBloc <sup>1/4</sup> Bio-Dimming <sup>1/4</sup> Bio-Dimm	Daytime           Full BIOS SkyBlue?*           (490mm)           Bio.Dimmingfw           Bio.SkyBlue** Removed           BIOS SkyBlue**           0         40         50         60         70         70         70	





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DIRECT/INDIRECT, DIRECT, INDIRECT STATIC WHITE, BIOS

### Technical Specifications

#### DIRECT OPTICS

#### High-Efficiency Lambertian Optic (HLO)

The High-Efficiency Lambertian Optic (HLO) uses matte white reflectors to distribute LED output across 0.075" acrylic shielding, providing up to 88% transmission and good obscuration. Available as a flush lens or as a drop lens, the HLO has a spacing criterion of 1.10.

#### Asymmetric Refractive Optic (ARO2)

The Asymmetric Refractive Optic (ARO2) uses a sophisticated reflector combined with a matte beam-shaping film to create a smooth, effective downward light component without shadows or hot spots. It provides directional Gaussian light distribution with peak intensity at 20° above nadir and a 55° Full Width at Half Maximum (FWHM) beam angle. Microstructure material applied to the snap-in lens provides the precise refractive power and visual comfort, while achieving a high luminous efficacy.

#### Grazing Reflector Optic (GRO)

The Grazing Reflector Optic (GRO) is oriented to project light with maximum luminous intensity at 5° from nadir. This provides a tight beam to highlight and accentuate a wall with subtle vertical illumination.

#### INDIRECT OPTICS

#### Translucent Indirect Optic (TIO)

The Translucent Indirect Optic (TIO) is composed of a horizontal LED array that has a translucent lens to mask pixilation from the diodes. TIO has a 100° spread in the indirect that is ideal when the fixture is mounted farther away from the ceiling.

#### Widespread Asymmetric Indirect Optic (WAI2)

The Widespread Asymmetric Indirect Optic (WAI2) offers an upward grazing effect with a 45° forward throw. It softly highlights the ceiling in the up-light while distributing the required illumination of the rest of an interior space. For avoiding glare and enjoying visual comfort, WAI2 is an ideal solution.

#### High-Efficiency Lambertian Optic (HLO)

The High-Efficiency Lambertian Optic (HLO) uses matte white reflectors to distribute LED output across 0.075" acrylic shielding, providing up to 88% transmission and good obscuration. HLO has a spacing criterion of 1.10.

#### Asymmetric Refractive Optic (ARO2)

The Asymmetric Refractive Optic (ARO2) uses a sophisticated reflector combined with a matte beam-shaping film to create a smooth, effective downward light component without shadows or hot spots. It provides directional Gaussian light distribution with peak intensity at 20° above nadir and a 55° Full Width at Half Maximum (FWHM) beam angle. Microstructure material applied to the snap-in lens provides the precise refractive power and visual comfort, while achieving a high luminous efficacy.





DIRECT/INDIRECT, DIRECT, INDIRECT STATIC WHITE, BIOS

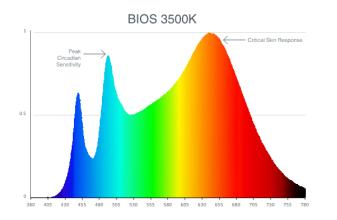


#### LIGHT SOURCE - STATIC WHITE

Custom linear array of mid-flux LEDs are cartridge-mounted with quick-connect wiring to facilitate service and thermal management. Available in 2700K, 3000K, 3500K, 4000K, and 5000K with a minimum 80 CRI and an option for 90 CRI with elevated R9 value. Color consistency maintained to within 3 SDCM. LEDs operate at reduced drive current to optimize efficacy and lumen maintenance. All LEDs have been tested in accordance with IESNA LM-80-08 and the results have shown L80 lumen maintenance greater than 60,000 hours. Absolute product photometry is measured and presented in accordance with IESNA LM-79, unless otherwise indicated.

#### LIGHT SOURCE - BIOS

BIOS SkyBlue™ Technology is designed to provide the specific circadian stimulus to improve overall sleep quality, recovery during the night, and overall feelings of well-being. The non-visual light signals that stimulate our circadian system have peak intensity in the "sky blue" region. As the diagram below illustrates, BIOS SkyBlue technology shifts the peak LED spectral intensity (490 nm) to align better with the peak response of circadian stimulus. Also note the enhanced deep-red (near 660 nm) spectrum.



Three BIOS solutions are offered: BIOS Biological Static (BIOSST), BIOS Biological Dynamic (BIOSDY), and BIOS Biological Tunable (BIOSTU). See page 5 for details.

#### PATTERN LENGTH

All individual sections are joined together onsite using the joiner kits provided. Lumenwerx offers joiner kits that are extremely simple to work with in the field and result in a fixture that appears virtually seamless with no light leak at any connection.

#### ELECTRICAL

Factory-set, adjustable output current LED driver with universal (120-277VAC) input. Dimmable from 100% to 1% with 0-10V dimming control. Rated life (90% survivorship) of 50,000 hours at 50°C max. ambient (and 70°C max. case) temperature. At maximum driver load: Efficiency>84%, PF>0.9, THD<20%. Other specifiable options include Lutron Hi-Lume 1% Eco, eldoLED 1% ECOdrive 0-10V, eldoLED 0.1% SOLOdrive 0-10V, ELV, TRIAC, and DALI protocol drivers. All of our standard 0-10V drivers are NEMA 410 compliant.

#### PoE

Depending on the PoE manufacturer selected, Lumenwerx will install the node in factory as either integral to the luminaire or as a remote module. Factory programming of the PoE node may or may not enable the following functionalities: lumen package, Duo (tunable white), Quadro (RGBW) emergency battery backup, and sensor integration. These must be addressed and evaluated on a case-by-case basis.

#### ELECTRICAL SECTION OPTIONS

Electrical section options are available for fixtures specified as multi circuit (#MC). With MC, specify the total number of circuits (#), including any circuits required for optional electrical sections. A drawing is required to specify the layout. Please consult factory for custom configurations.

#### **Electrical sections**

Options include emergency-powered (#EC##), night light (#NL##), daylight (#DL##), and generator transfer device (#GTD##) sections. Specify the quantity (#), as well as the section length in inches (##).

Example 1: A 32' Direct fixture with two 8' emergency-powered sections on a second circuit. Code: 2MC-2EC96

Example 2: A 16' Direct/Indirect fixture with separate circuits for direct and indirect, and with one 4' night light section on the direct side on a third circuit. Code: 3MC-1NL48

Example 3: A 24' Direct fixture with one 4' generator transfer device section. Code: 1MC-1GTD48

#### Battery

Each emergency battery (#EMB) powers a 4' section. All batteries will be on the same circuit. Specify the number of batteries (#) required.

Factory installed long life, high temperature, maintenance-free Lithium-Ion battery pack with self-test functionality, test switch and charge indicator. Minimum of 90 minutes operation, up to 1000 lumens per 4' (25°C) emergency lighting output and recharge time of 24 hours.

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#### MOUNTING OPTIONS

Fixtures may be horizontally mounted to the wall using a bracket. For long runs, a minimum of 6" from adjacent wall is required.

#### FINISH

Interior - 95%, reflective matte powder coated white paint Exterior - Matte white, matte black or aluminum powder coating Custom finishes are also available.

#### CONTROLS

Lumenwerx offers several options for integrating occupancy and daylight harvesting controls in our luminaires. For latest information on sensors, click here.



#### STANDALONE CONTROLS

An integrated standalone sensor controls the luminaire in which it is installed. Depending on the length, more than one sensor may be necessary and may control the entire luminaire, or just a section of it. These controls operate independently. Unless otherwise agreed, sensor location, blank size, and functionality of the sensor within the luminaire are selected by Lumenwerx. See client drawings for details. Two types are available:

**ODS**: An integral, daylight harvesting sensor with closed-loop operation dims the luminaire in which it is installed in order to compensate for available daylight. The sensor measures the combination of daylight and luminaire light reflected from horizontal surfaces below the luminaire. Initial onsite calibration is required via the use of provided remote control.

**OSS**: An integral stairwell occupancy sensor uses ultrasonic sensing technology to turn light on when movement is detected. The sensor, located in the middle of the fixture, transmits sound waves in the stairwell. When motion is detected in the space, the luminaire turns on to full brightness. When the space is unoccupied, light levels are dimmed to 50%. Please consult factory for other sensor locations on the luminaire, as well as for other minimum light level options.

#### CONNECTED CONTROLS

With connected controls, sensors or nodes installed in the luminaire form part of a larger control system infrastructure from manufacturers such as: Lutron, Enlighted, Encelium, Cooper Wavelinx, Acuity nLight, Casambi, Legrand, and others. These connected controls allow for a scalable system providing features like occupancy and daylight control, manual control, scheduling and configuration of various zones and scenes. Energy reporting and system monitoring are also possible. Specific capabilities depend on the control system being used.

Lumenwerx installs the components (sensors, nodes, power packs, etc) which may be supplied to us by a third party, or procured directly by Lumenwerx, depending on the control system manufacturer.

Lumenwerx is solely responsible for the installation of specified components; the controls manufacturer is responsible for performance of the control system.

To indicate a Lumenwerx luminaire with connected controls, identify the specific onsite control system to be integrated into the luminaires using the ordering code. Due to the diversity of components, you must contact factory to assure complete compatibility with intended control system and to fully specify the luminaire.

Complete control specifications, sensor/node/power pack layout, and narrative for the control system are required for Lumenwerx to create shop drawings and submittals.

#### CONSTRUCTION

Housing - Extruded aluminum, up to 90% recycled content Interior brackets - Die-formed cold rolled sheet steel Joining system - Die-cast zinc Reflectors - Die-formed cold rolled steel, 95% reflective matte white painted Lens - Acrylic Drop lens - Extruded with glued end caps End caps - Die-cast aluminum

#### CERTIFICATION

**ETL** - Rated for Indoor dry/damp locations. Conforms to UL Standard 1598 and certified to CAN/CSA Standard C22.2 No. 250.0

#### WARRANTY

Lumenwerx provides a five-year limited warranty on electrical and mechanical performance of the luminaires, including the LED boards, drivers, and auxiliary electronics. Lumenwerx will repair or replace defective luminaires or components at our discretion, provided they have been installed and operated in accordance with our specifications. Other limitations apply, please refer to the full warranty on our website.



