



# Introduction to SORAA® LED Dimming Solution

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SORAA® manufactures LEDs using its own unique GaN on GaN™ process, so that SORAA® LEDs emit violet light, while conventional LEDs emit blue light. This important difference offers tremendous advantages and enables SORAA® lamps to render all colors of the spectrum from violet (400nm) to deep red (700nm) with accuracy and supreme natural looking white.

SORAA® VIVID lamps, with a **Color Rendering Index** (CRI) of 95 and **R9** (Deep Red Rendering) of 95, provide light emission in parts of the spectrum missing from Conventional Low CRI LEDs, such as deep red, cyan, and violet, commonly needed in the rendering of faces, food, fabrics, furniture, and finishes that contain complex colors.



**Whiteness Rendering** is not captured by standard light quality measures, such as the **Color Rendering Index** (CRI). Conventional (blue-based) LEDs cannot render white materials properly because they lack emission of short-wavelength light required to excite many fluorescent agents in many white objects. Failure to rendering whiteness properly is true even with a very high CRI but based on blue-based LEDs. As a result, the white materials look yellow and dingy under conventional LED lighting.

## SORAA® Professional Lamps, LED MR16 Bulbs

- POINT SOURCE OPTICS™ that Allows 10° Narrow Spot and Single Crisp Shadow
- VIVID series provides Color Rendering with CRI/95, R9/95 and Whiteness Rendering Matches or Exceeds that of Halogen and Incandescent Sources at 2700K and 3000K
- Low Operating Temperature that Allows 7.5W 12V LED MR16 Bulbs to be Used in Fully Enclosed Fixture
- Award-Winning SNAP SYSTEM™ accessories for Beam Shaping and Correlated Color-Temperature (CCT) Shift
- 85% Energy Efficient than Standard Halogen Lamps
- Dimmable with Trailing-edge Phase-Cut Dimmers

	Type	CCT	Power (W)	Total Flux (Lm)				Vivid Series / Model # Nomenclature [xx: Beam°]
				10°	25°	36°	60°	
VIVID Series, CRI/95, R9/95	MR16-12Vac	2700K	7.5	390	410	410	-	SM16-07-xxD-927-03-S3
			9	-	465	465	-	SM16-09-xxD-927-03-S3
		3000K	7.5	410	435	435	-	SM16-07-xxD-930-03-S3
			9	-	490	490	-	SM16-09-xxD-930-03-S3
	MR16-GU10	2700K	7.5	390	410	410	410	SM16GW-07-xxD-927-03-S3
			9	-	465	465	465	SM16GW-09-xxD-927-03-S3
		3000K	7.5	410	435	435	435	SM16GW-07-xxD-930-03-S3
			9	-	490	490	490	SM16GW-09-xxD-930-03-S3
	MR16-CC	2700K	7.5	430	455	455	-	SM16GW-07-xxD-940-03-S3
			8	485	515	515	-	SM16C-CC1-xxD-927-03-S3
		3000K	8	525	550	550	-	SM16C-CC1-xxD-930-03-S3
			8	550	580	580	-	SM16C-CC1-xxD-940-03-S3

  

	Type	CCT	Power (W)	Total Flux (Lm)				Brilliant Series / Model # Nomenclature [xx: Beam°]
				10°	25°	36°	60°	
BRILLIANT Series, CRI/85, R9 > 0	MR16-12Vac	2700K	7.5	475	500	500	-	SM16-07-xxD-827-03-S3
			9	-	560	560	-	SM16-09-xxD-827-03-S3
		3000K	7.5	500	525	525	-	SM16-07-xxD-830-03-S3
			9	-	590	590	-	SM16-09-xxD-830-03-S3
	MR16-GU10	2700K	7.5	475	500	500	500	SM16GW-07-xxD-827-03-S3
			9	-	560	560	560	SM16GW-09-xxD-827-03-S3
		3000K	7.5	500	525	525	525	SM16GW-07-xxD-830-03-S3
			9	-	590	590	590	SM16GW-09-xxD-830-03-S3

Above table is for reference only. Updated product specifications shall always refer to the manufacturer's website.



# Introduction to SORAA<sup>®</sup> LED Dimming Solution

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## AC Phase Dimming for LED Light Sources

SORAA<sup>®</sup> has three Types of LED MR16 Lamps offer and each type is powered differently by:

- I. 12Vac Electronic Transformer, or
- II. Constant Current LED Driver, or
- III. AC Mains (GU10)

Regardless of how the LED Lamps are powered, the following comments shall be paid attention:

- Equivalent to Incandescent Dimming (Resistive Load), but designed for LED Dimming (Capacitive Load)
- For Incandescent Dimming, the traditional TRIAC Dimmers would work properly. However, TRIAC Dimmers (Leading-edge Phase-cut Dimming) has proven to be problematic with LED load. Thus, it's been agreed among the Lighting Professionals to apply **Trailing-edge Phase-Cut Dimming** approach with LED load.
- Single Live-wire Input and provides a Chopped AC Sine-wave (Phase-Cut) Dimming Signal Output to reduce Input Power to Dimmable LED Fixtures, such as Dimmable Light Bulbs (MR16, E27, GU10) and Lighting Fixtures with External Dimmable LED Drivers (Constant Current / Constant Voltage type).

## Recommended Trailing-edge LED Dimmer, DZ3G450DIAL

- Operation Range: 3W - 450W, 220-240Vac @ 50Hz
- Powerful Dimming Core for Wide LED Dimmable Product Compatibility
- Built-in for Trailing-Edge Phase-Cut Dimming Mode, Restrike & Minimum-Brightness-Level Memory Features
- Suitable for Incandescent lights, Halogens, Low Voltage Lighting using Electronics Transformers and LED Lighting
- Restores Last Dimming Level at Next Power-Up
- Complies with IEC/EN60669-2-1 (LVD), IEC/EN55015, EN61547, EN61000-3-2, EN61000-3-3 (EMC)
- Officially listed as a Compatible Trailing-edge Phase Dimmer with SORAA<sup>®</sup> LED Lamps (specified as Trailing-edge dimmable LED Lamps) in SORAA<sup>®</sup> Compatible Table 17Q3



Legend Tech Gen 3 LED Phase Dimmer

**DZ3G450DIAL** CE



**DZ3G450DIAL** fitted into our Silver Solid Aluminum Alloy Faceplate to provide a 450W LED Dimmer Faceplate



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## SORAA<sup>®</sup> arc™ Track Light

For Directional Luminaires, the SORAA<sup>®</sup> arc™ series has Track Light, Pendant, Adjustable and Down Lights to cover different Lighting Requirements. Flexibly blending the SNAP SYSTEM™ and dimming functionality together would bring Gallery and Luxury Retail Display to the next level.

Flexibility is the key for Lighting Design for applications that require making frequent changes of the decoration settings. With DZ4G450MULT dimmers and SNAP SYSTEM™, it's possible to realize Different Color Temperature Values, Different Beam Shape & Beam Angles, Different Brightness Levels for the SORAA<sup>®</sup> arc™ Track Lights installed on the Same 3 Phase / 3 Circuit Track , all individually controlled.

- ART-100, 100 mm Diameter, 1000 - 1050 Lm @ 3000K,
- ART-50, 50 mm Diameter, 535 - 1000 Lm @ 3000K
  - ◆ 2700K / 3000K / 4000K
  - ◆ Brilliant / Vivid Series
  - ◆ Black / White / Silver



SORAA<sup>®</sup> arc™ ART-50-10D-930-E-G-S-S3 is dimmed by DZ4G450MULT to illustrate the Lighting Effect

## Recommended Two-Way LED Dimming, DZ4G450MULT

- One-Touch Control Button Design provides Deep Dimming, Light On/Off & Hi/Low Preset Brightness Select (Scene-Setting) for Professional Applications
- Enhanced Gen 3 Dimming Core to Continuously Address LED Dimmable Product Compatibility & Dimming Performance Optimization
- Built-in Trailing-edge Phase Dimming for LED Lighting Fixtures
- DZ4G450MULT can be used alone or in combination with other DZ4G450MULT units to dimming & switching the same set of light at different locations (**True Two-Way Dimming**). Expandable Wiring Approach to Cover More Locations, which Gives Multi-Way Dimming, Light On/Off and Scene-Setting Features Out of Single Pole Dimmers.
- Complies with EN60669-2-1:2004+A12:2010, EN60669-1:1999+A2:2008, EN55015:2013+A1:2015, EN55015:2006+A1:2007+A2:2009, EN61547-2009, EN61000-3-2:2014, EN61000-3-3:2013
- Control Button Color Options: Black (right), White, & Champagne Gold

Legend Tech Gen 4 Two-Way LED Phase Dimmer

**DZ4G450MULT** CE **5Years** WARRANTY



(Above right) 2x DZ4G450MULT\_BK (Black Button) units mounted to our Black Solid Aluminum Alloy Faceplate

(Below right) 2x DZ4G450MULT\_WT (White Button) units mounted to our Silver Solid Aluminum Alloy Faceplate





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## New Dimming Solution

Besides the standard LED Dimming unit approach (**DZ3G450DIAL**, **DZ4G450MULT**), our new LED Dimming Control solution enables End-User / Designers to separate the LED Dimming technology from limited choice of the associated Faceplate Design.

Originally designed for Tune-able White control, our **DZ2G300TUNE\_TOGG** and **DZ2G300TUNE\_PUSH** controller supports inputs from momentary switches to achieve Dimming functionality. These solutions can equally be applied with **SORAA®** LED Lamps (including **Warm Dimming** series).

Shown below are some of our solid aluminum alloy faceplates developed for these controllers to provide different user interfaces. Immediate below left design is for **Toggle Switch** interface, while the one of the right is for **Push Button** interface.



Other available faceplate designs (visible / no visible mounting screws, different colors and finishing) and installation in an office environment. Since a number of faceplate designs has been worked out, some level of customization with a small MOQ is possible with this approach.

