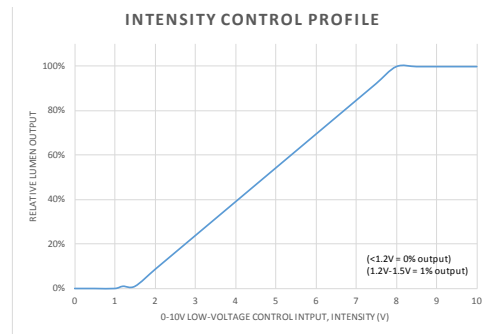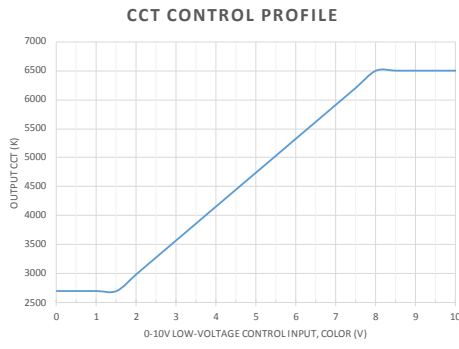# Frequently asked questions regarding Tunable White

1. **Do you have a recommended control system?** Since many facilities already have control systems in place, Kenall's Tunable White luminaires are designed to be compatible with the most common brands, including Lutron, Crestron and Acuity.

2. **What protocol do you use?** Kenall uses 0-10v and DALI.

3. **Do you support DALI 2.0?** DALI, as a system, is backward compatible, so technically a 2.0 system will work. However, the fixtures are not currently made with DALI 2.0 drivers.

4. **Is the 0-10v control linear or logarithmic?** It is linear. See below.

CCT CONTROL PROFILE

INTENSITY CONTROL PROFILE

(<1.2V = 0% output)
(1.2V-1.5V = 1% output)

5. **Why are the ranges not actually 0-10v?** The range of control for each is actually 1.5 to 8 volts to accommodate the effect on voltage, due to the length of the wiring distance. This is an important feature that allows full adjustment with the widest variety of applications.

6. **Do you maintain the feature "dim to dark with 1% dimming"?** Yes. This is provided with 0-10v.

7. **Can you name some compatible Lutron control systems?** Energy Saver Node, Graphic Eye and Quantum Systems are some of the compatible systems.

8. **Are local controls available?** Yes -- a single room or fixture can be addressed with two 0-10v slide controls, one for CCT and the other for intensity.

9. **Can you recommend specific controls?** Our manufacturer's representatives can recommend control systems that best suit your needs. They can provide scalable solutions with pricing and technical support.

10. **What happens to the quality of the light when it is tuned?** The quality actually improves. For our 27/65K8 option we are using two different +83CRI LEDs on our modules. This gives the added benefit of providing a higher CRI, improved fidelity* and gamut* when between the two ends of the CCT range. This is also true for our 27/65K9 LED modules. So the lowest CRI is actually at each end and still above the typical values for 80 and 90 CRI fixtures.

    * Gamut and fidelity are two newer metrics, shown below in the chart as Rg and Rf. These come from the IES TM-30-15, a new system used to evaluate color rendering properties. To learn more, visit the U.S. Department of Energy website: https://energy.gov/sites/prod/files/2016/04/f30/tm-30_fact_sheet.pdf

PERFORMANCE SCALING, BY LAMP COLOR

CCT (K)	27/65K8					27/65K9				
	LUMEN SCALE FACTOR	Ra	R9	Rf	Rg	LUMEN SCALE FACTOR	Ra	R9	Rf	Rg
2700	0.97	83	10	83	97	0.98	92	57	89	98
3000	0.98	84	15	83	98	0.99	94	70	91	99
3500	0.99	86	23	84	98	0.99	95	77	92	99
4000	1.00	86	26	84	98	1.00	96	83	92	99
4600	1.01	86	28	84	98	1.01	96	90	92	100
5000	1.01	86	25	83	98	1.03	96	96	91	101
5700	1.02	85	23	82	98	1.02	96	96	91	100
6500	1.04	84	16	82	96	1.02	96	96	90	100

11. **Are there separate control circuits for intensity and CCT?** Yes, for our 0-10v systems, the technology to separately and accurately control both the intensity and color temperature are built into the light engine.

12. **How many fixtures can you have on one 0-10v CCT control circuit?** We recommend using 10-20 fixtures per circuit, based on one or two light engines per fixture with recommended 20 engine maximum.