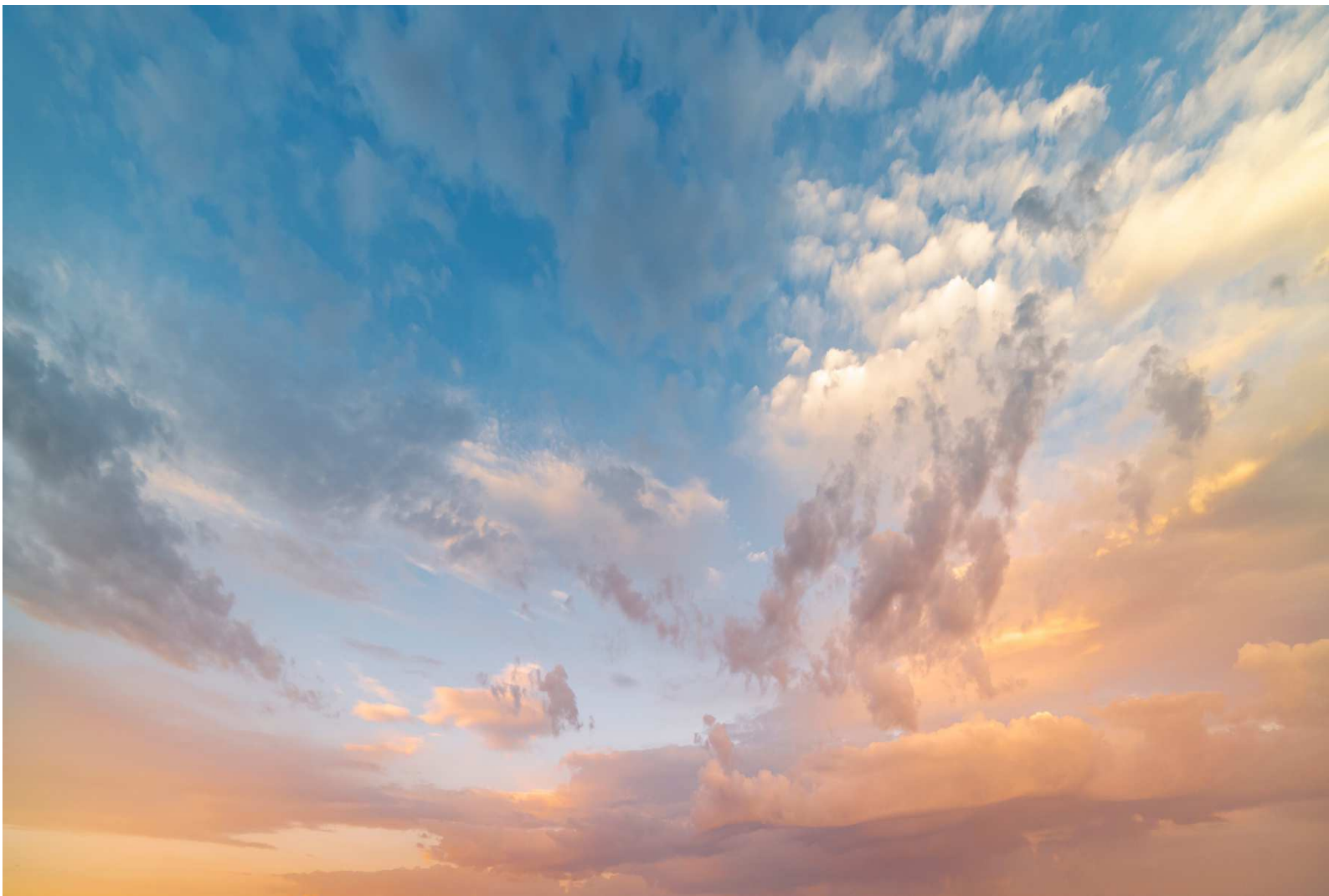




# Real-time Spectrometry



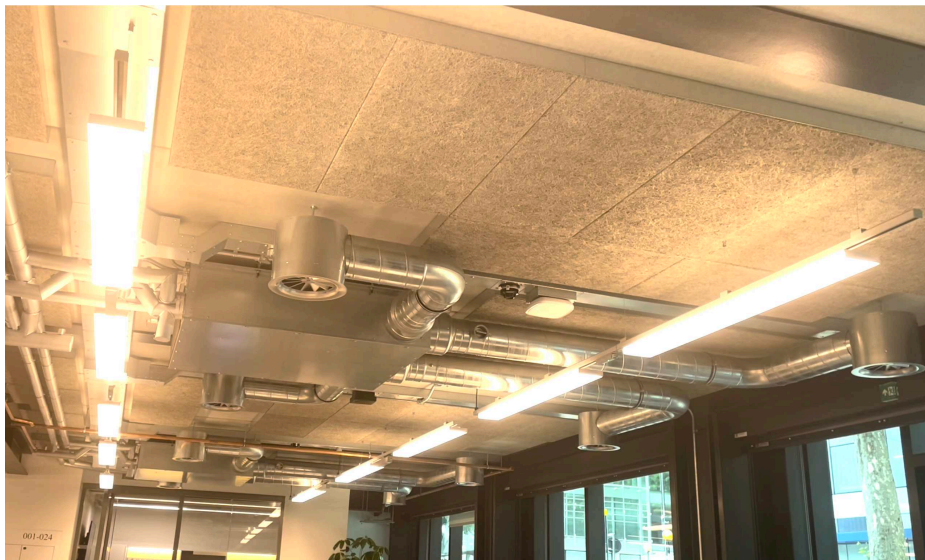
# Prolojik

The quality of artificial light has become an integral part of building design and is embodied in standards such as WELL™, BCO and NABERS. Management of intensity has long been the key metric, with defined levels being specified for particular applications.

The advent of tuneable white luminaires and the associated DALI drivers utilising the DALI DT8 standard now allows an even higher degree of user lighting control. Allowing typical dynamic control of colour temperature between 2700K and 6500K based on predefined use selection, application or time.



6000K Rendered over Prolojik Indigo Bluetooth Mesh



2700K Rendered over Prolojik Indigo Bluetooth Mesh

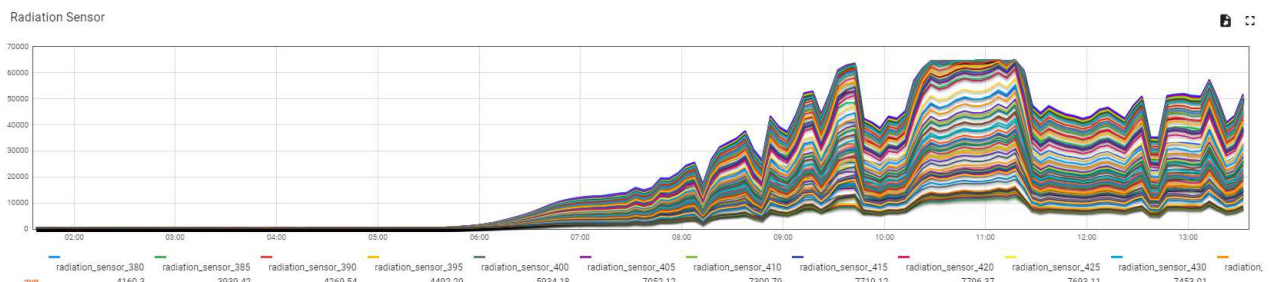
# Prolojik

Prolojik has worked with leading consultants to develop a solution which enhances circadian lighting to the next level, by applying real-time spectrometry and dynamic colour control to its lighting solutions.

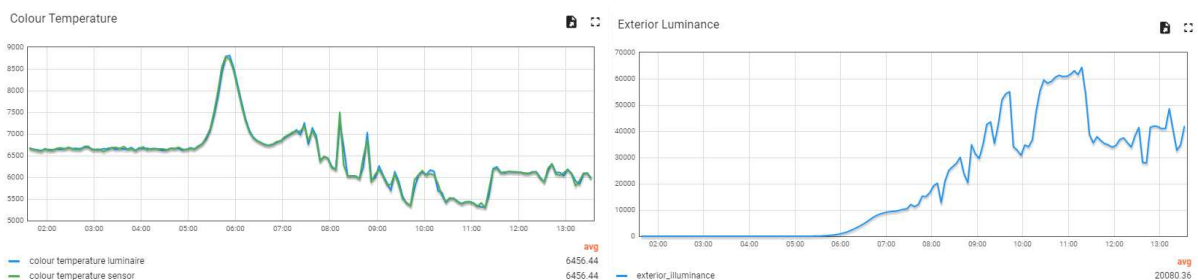
The solution employs our PS321 spectrometer mounted externally to measure the natural light from 1ms intervals and integrate wavelengths between 200nm and 1.025um into a 1024-pixel sensor. Data from the PS321 is transmitted via MQTT (Message Queuing Telemetry Transport) to both Prolojik's Perspective software, and concurrently to our GN100 edge gateways for onward transmission to the lighting controllers.



The PS321 spectrometer measures colour temperature, illuminance and wavelength to provide a comprehensive set of measurements that enable accurate, dynamic close control of circadian lighting.



Measured Wavelength Data



Colour Temperature Data

Luminance Data



# Prolojik

We have developed a feature-rich interface which allows full configurability of the spectrometer, giving users complete control of the mapping and tracking to provide a lighting environment tailored to their particular needs.

The screenshot shows a 'Spectrometer Setup' window with several sections for configuring the spectrometer. The 'Sensor Settings' section includes fields for Iteration Time (15000 milliseconds), Integration Time (50 milliseconds), Illuminant (D65), Observer Degree (10), and Rolling Average Count (8). The 'Telemetry' section has a 'Telemetry Active' checkbox checked, and fields for Telemetry Delta Send (200 kelvin), Telemetry Min Send Time (10 seconds), and Telemetry Max Send Time (60 seconds). The 'CCT Control' section is divided into 'Sunrise' and 'Sunset' sub-sections. The 'Sunrise' sub-section includes fields for Sunrise Trigger Time (45 minutes), Pre Sunrise Fade Time (30 minutes), Sunrise CCT (3000 kelvin), Sunrise CCT Holdtime (15 minutes), Sunrise Day Threshold (2000 lux), and Sunrise E Enable Time (30 minutes). The 'Sunset' sub-section includes fields for Sunset E Enable Time (30 minutes), Day Sunset Threshold (2000 lux), Sunset CCT (3000 kelvin), Sunset Fade Time (15 minutes), and Sunset CCT Holdtime (15 minutes). The 'Daytime' section includes fields for Day Mode Fade Time (15 minutes), Max Day CCT (6000 kelvin), and Min Day CCT (3500 kelvin). The 'Nighttime' section includes fields for Evening CCT (3500 kelvin), Post Sunset Fade Time (15 minutes), Night Trigger Time (22:30), Night CCT (4000 kelvin), and Night Fade Time (60 minutes). At the bottom right, there are 'OK' and 'Cancel' buttons.

Section	Parameter	Value	Unit
Sensor Settings	Iteration Time	15000	milliseconds
	Integration Time	50	milliseconds
	Illuminant	D65	
	Observer Degree	10	
	Rolling Average Count	8	
Telemetry	Telemetry Active	<input checked="" type="checkbox"/>	
	Telemetry Delta Send	200	kelvin
	Telemetry Min Send Time	10	seconds
CCT Control	<input checked="" type="checkbox"/> CCT Active		
	Sunrise		
	Sunrise Trigger Time	45	minutes
	Pre Sunrise Fade Time	30	minutes
	Sunrise CCT	3000	kelvin
	Sunrise CCT Holdtime	15	minutes
	Sunrise Day Threshold	2000	lux
	Sunrise E Enable Time	30	minutes
	Sunset		
	Sunset E Enable Time	30	minutes
	Day Sunset Threshold	2000	lux
	Sunset CCT	3000	kelvin
	Sunset Fade Time	15	minutes
	Sunset CCT Holdtime	15	minutes
	Daytime		
Day Mode Fade Time	15	minutes	
Max Day CCT	6000	kelvin	
Min Day CCT	3500	kelvin	
Nighttime			
Evening CCT	3500	kelvin	
Post Sunset Fade Time	15	minutes	
Night Trigger Time	22:30		
Night CCT	4000	kelvin	
Night Fade Time	60	minutes	

## Perspective Configuration Parameters

All parameters can be set and viewed by both the Perspective Configuration and also via MQTT.

By applying a hybrid approach of real-time colour control, combined with overnight pre-sets allows for smooth control to be achieved to enhance user-experience within buildings that closely echo natural circadian rhythms.

The PS321 spectrometer has been designed to work with all Prolojik product families including Modular, Plexus and Indigo when paired with DT8 driver integrated luminaires.

For further information of the system, please contact Prolojik at <https://www.prolojik.com/contact/>.