

## FOR IMMEDIATE RELEASE

### CCS Releases LED Lighting Digital Control Units PD4-A Series Easily Manages Multiple Lights with Enhanced Lighting Control Functions, Incorporating Various External Control Options

**Kyoto, Japan, March 7, 2025** – Today, CCS Inc. (CCS) has released the PD4-A Series, an image processing LED lighting digital control units that controls lighting brightness and lighting patterns. The PD4-A Series is a digital control units with new functions added to the PD4 Series released in 2022 to improve ease of use at production sites.

#### Product Overview

PD4-A Series are the control units for machine vision lighting that manage multiple LED lightings. It enables customers to easily adjust the brightness or switch the lights on based on the required camera shutter timing. In many cases, customers require simple operation while managing detailed settings for lighting duration, intensity, ON/OFF timing, etc. In the recent machine vision market, inspection processes have become more complex. This has led to increase demands of controllers that can handle multiple lights. The PD4-A Series offers a perfect match to these needs with broader capability of lighting control functions. For example, it can control a maximum of 8-channel lights, which is an upgrade from the conventional PD4 Series.

#### Lineup

The PD4-A Series is available in two output capacities, 30 W and 120 W. The 30 W type has a 2-channel model and a 4-channel model, and the 120 W model has 8 channels. In addition, two types of external control, Ethernet and parallel communication, are available to meet various customer needs. All models are capable of 1,024-step intensity settings.



PD4-3024A-4-P (-NC)  
(30 W model)



PD4-12024A-8-E (-NC)  
(120 W model)

#### Sequence control function

Lighting patterns and execution sequences can be set for up to 16 steps. Each step has its own intensity value and lighting time settings. For example, lighting patterns can be set for each channel when multiple lights are used to illuminate from various directions or when segmented ring lights used, and the lights can be switched on and off from an external device. This function will be the solution for multiple surface inspections or various types of defect inspections. It also works for inspections with the photometric stereo method\*1.

\*1 A method of extracting information from a workpiece by analyzing the differences among images captured from various angles.

## Supports trigger/parallel input signal voltages from 5V

To synchronize the lightings with the camera shutter timing, the camera output signal may be used as the lighting input signal. The voltage range of this output signal varies from camera to camera, requiring a separate voltage conversion unit when using the conventional control units. The PD4-A Series supports input signal voltages from 5V, eliminating the need for a voltage conversion unit and simplifying the equipment configuration.

## PWM\*2 frequency can be set at 500 kHz

In the conventional control units, the PWM frequency was fixed at 125 kHz, which caused a lack of synchronization between the lighting cycle and the camera shutter timing during high-speed image inspections, resulting in inconsistent brightness. The PWM frequency can be set at 500 kHz to shorten the lighting cycle with this product. It makes it easier to synchronize the lighting cycle with the camera shutter timing while securing stability of brightness.

\*2 Pulse Width Modulation: A method of controlling LED brightness by changing only the pulse width while keeping the lighting cycle and amplitude constant.

## Dedicated application software for configuration\*3

This product has a "normal mode," in which all functions can be used, and a "simple mode," which offers ease of use with basic functions such as intensity value and ON/OFF settings. Customers can switch between these modes using the buttons on the operation screen, according to their operating needs. Additionally, dedicated application software is available for both modes, which allows easier settings of lighting control parameters.

\*3 The dedicated application software available for the "PD4-A Series" and "PD4 Series" are different.

## Common Specifications

Model Name**4	PD4-3024A-2-▲ (-NC)	PD4-3024A-4-▲ (-NC)	PD4-12024A-8-▲ (-NC)
Applicable Light Units	24 VDC input, Total Channels: 30 W		24 VDC input, Total Channels: 120 W
Lighting Method	Continuous / Strobe lighting (no overdrive)		
Drive Method	Constant-voltage system		
Intensity Control Method	PWM Control (Selectable from 125 kHz or 500 kHz*5)		
No. of Channels	2 channels	4 channels	8 channels
External Control	Ethernet TCP/IP UDP/IP		
	(CCS Command communication, PLCCOM communication (MC protocol·FINS commands))		
	Parallel communication (▲ in Model name: Ethernet = E, Parallel communication = P), USB communication		
Power Consumption (max.)	84 VA (Ethernet)	84 VA (Ethernet)	168 VA (Ethernet)
	82 VA (parallel)	82 VA (parallel)	165 VA (parallel)
Cooling Method	Natural air cooling		
Intensity Setting	Select from 1,024 steps or 256 steps*5 (0: Not lit)		
Weight	0.62 kg max.		1.3 kg max.

\*4 AC power cable will not be included in the model with "-NC" at the end.

The product with the model name with "-NC" at the end conforms to the KC standards.

For customers in Korea and Europe, please select model name with "-NC" at the end. Example model: PD4-3024A-2-E-NC.

\*5 When 500 kHz PWM frequency is selected, 256 steps are available.

Since 1993, CCS has advanced the machine vision industry by developing LED lighting for inspection that creates customer satisfaction for both manufacturers and their consumers, who demanded safe, high-quality goods. Today, CCS leads the machine vision world in innovation with thousands of products including lights, controllers, and accessories. CCS's global network of employees is dedicated to helping manufacturers capture the most important details in an inspection so that their customers never receive anything less than their highest quality.

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