TMS LITE SDN. BHD. (Co. No. 671971V)
LED ILLUMINATION SOLUTION PARTNER

SDP-CH1-A1-TB

Lighting Controller Unit

(Continuous and Pulse Mode)

USER MANUAL

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Revision Notes

Revision	Date	Description	Authors
1.0	2018-10-18	Initial version.	KF Lam
1.1	2018-11-19	Second version.	KOKWAH

Hardware

Packing List

Please ensure the following items are in the package:

SDP Series Controller Package

- SDP-CH1-A1-TB
- EXT-FL-M12F-3M-24V Cable x1 (optional)
- EXT-FL-24V-3M Cable x1 (optional)
- Adaptor 24V x1 (optional)
- User Manual x1 (download from the link below)

Link for user interface and user manual from TMS LITE website:
http://tms-lite.com/product/sdp-series-3/

General Description

Introduction

The SDP-CH1-A1-TB controller provides intensity control of LED lighting for machine vision applications. The SDP-CH1-A1-TB automatically detects the operating current of the LED light and can generate output pulses at as high as 6 times of the operating current..

Front Panel

Specification of SDP-CH1-A1-TB

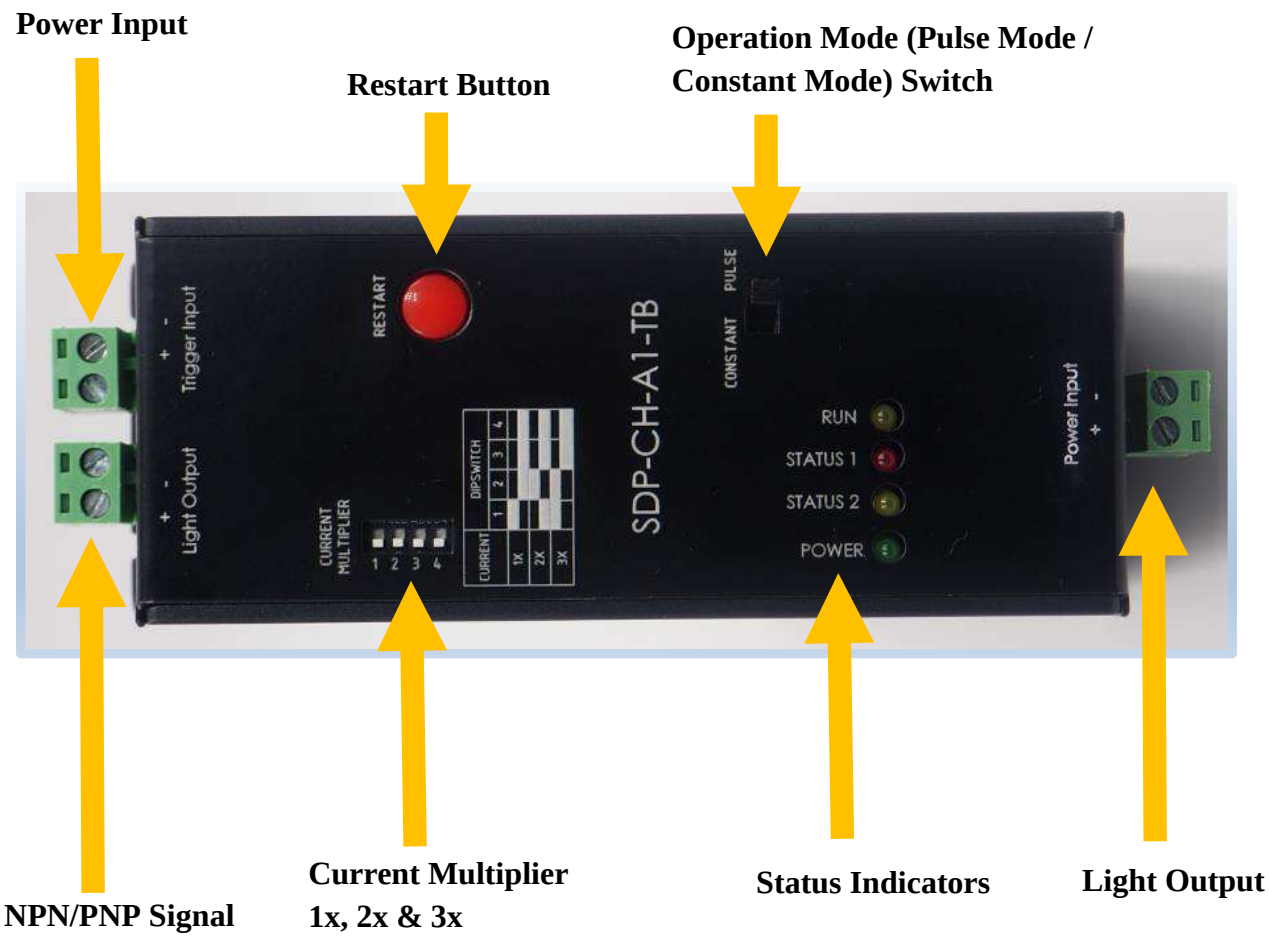
Lighting Output	No. of lighting output	1 per channel
	Min. current output	50mA
	Voltage	Continuous Mode : 24V Pulse Mode: 50V Max
	Output current	Continuous Mode: 2A Max Pulse Mode : 4A Max
Input Power Supply	Power rating	24V
	Input Current	Minimum 2.5x LED Light
Operation Mode	Continuous Mode	Output Voltage : 24V Output Current :50mA~2000mA
	Pulse Mode	Trigger Input Voltage : 3.3V~24V Overdrive Output Voltage : 24V~50V Overdrive Output Current : 50mA~4000mA Pulse Width ≤10ms Duty Cycle ≤10% Response Time ≤10μs

Remark:

- Maximum lighting rating can be applied is 2A±10%. Fail to do so may cause the controller malfunction.

Panel Label Description

SDP-CH1-A1-TB



Connections

Power Input & Trigger Input Connector

Pin	Description
1	24V
2	GND
3	TRIG +
4	TRIG -

Light Output Connector

Pin	Description
1	LIGHT+
2	LIGHT-

SDA-CH1-A1-TB Operation Mode

SDP can operate in 2 different modes: continuous mode and pulse mode. The operation mode can be set by the Operation Mode Switch in the front panel. (Fig - 1.0)

Fig - 1.0

Auto Current Detection

The SDP-CH1-A1-TB Controller detects the LED current automatically while power-up (Power Green LED Fig - 1.2). Users can use the Restart Button (Fig-1.1) to restart the detection process.

The RUN LED (Fig - 1.2) in the front panel will blink at a higher rate to indicate the controller is performing the current detection process. When the detection process is finished, the “RUN LED” will blink at a lower rate. If there is any error, the red LED status 1, will be turned on.

The Status 2 Led turns on while Input Pulse Signal is active, the duration of the turn on period is the same as the input signal.

Fig -1.1

Fig - 1.2

Continuous Mode

Continuous mode offers continuous lighting intensity to fully ON (100%), the output voltage of the controller is 24V and the maximum output current is 2A.

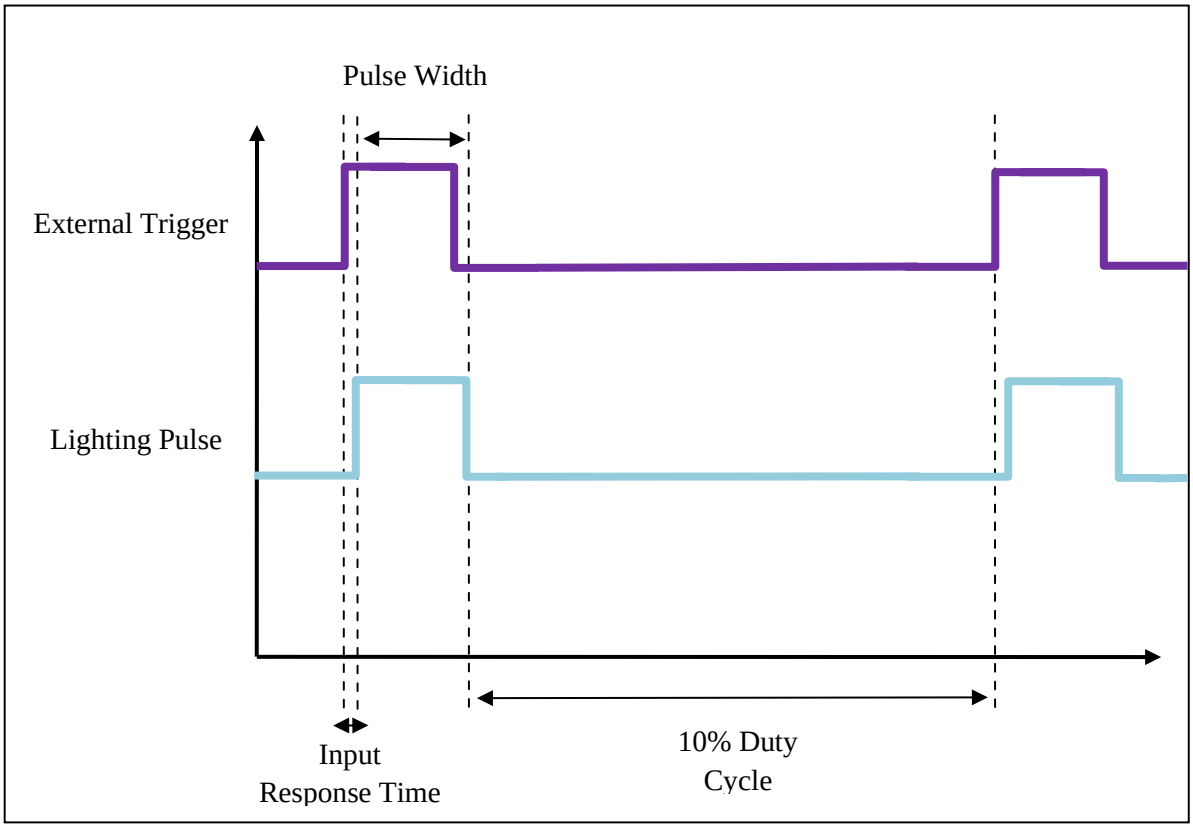
Pulse Mode

In the pulse mode, the controller outputs a pulse to the LED when received a trigger signal. The duration of the output pulse is the same as the duration of the trigger pulse. The maximum pulse width is 10ms

Pulsing provides high current and short interval triggering for applications that require high intensity and high precision.

As the overdrive percentage increases, the brightness of the lighting also increases.

Pulse width is the duration of the lighting ON time.



Remark:

- Maximum pulse width is 10mS and maximum duty cycle for lighting pulse is 10%. Fail to do so may cause the controller malfunction.
- Input response time is ≤10us
- The Output Width follows the same pattern as the Lighting Pulse Width

Pulse Mode Current Multiplier

The current of the output pulse can be set via the Current Multiplier Switch.

DIP Switch

DIP SWITCH NO	1	2	3	4	Multiplier
CURRENT PULSE **1x**	0	0	0	0	1
CURRENT PULSE **1x**	1	0	0	0	1
CURRENT PULSE **2x**	0	1	0	0	2
CURRENT PULSE **3x**	1	1	0	0	3

Limitations

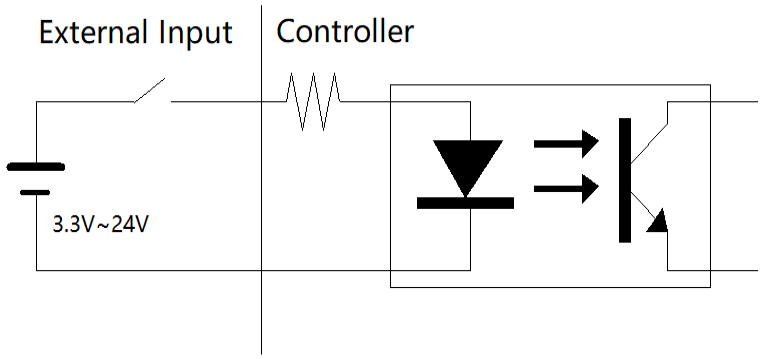
In order to protect the SDP-CH1-A1-TB and LED light from overloading, the maximum current, the duration and the duty cycle of the output pulses are limited. The maximum current of a pulse is 4A. The maximum pulse duration is 10ms. The maximum duty cycle is 10%.

Input Signal

Input signal is optional and used to turn on the lighting based frequency/duty cycle of input signal. The turn on time of lighting is adjustable and depending on the value of pulse width.
Note: Pulse width adjustment from 0s to 10ms.

IN(+) is common positive input. Acceptable voltage is from 3.3-24VDC.
IN(-) is common negative input. Should be connected to GND.

The trigger signal can be acknowledge by controller on the rising edge or falling edge.



Drawing Layout

Accessories

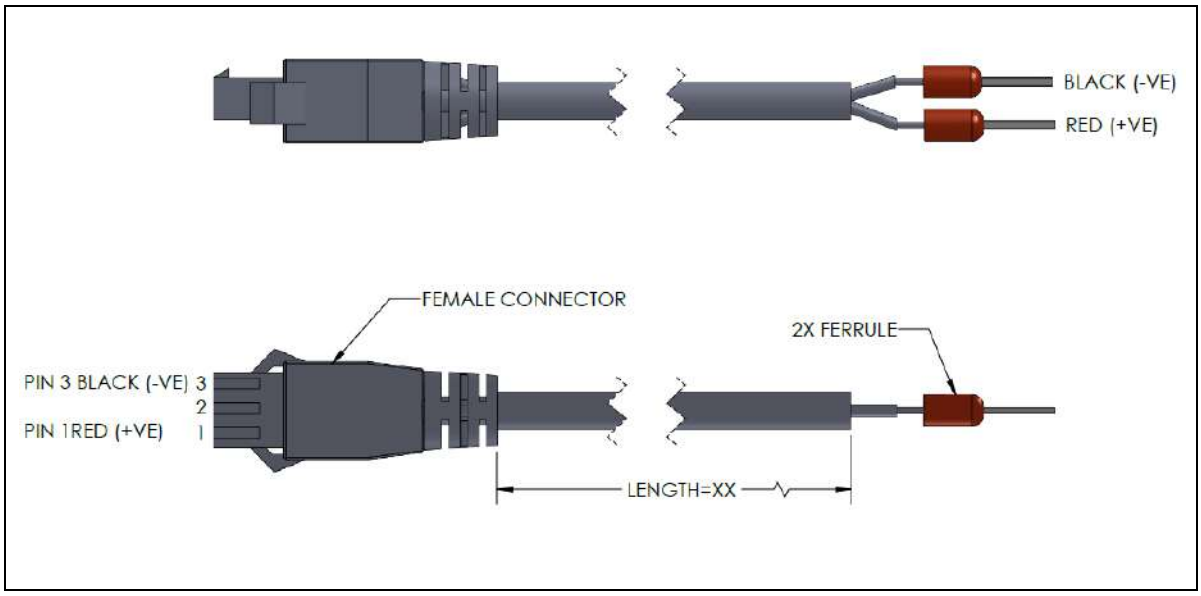
Additional accessories that can be used with SDP-CH1-A1-TB controllers.

- 24V power supply
- Lighting cable

24V Power Supply

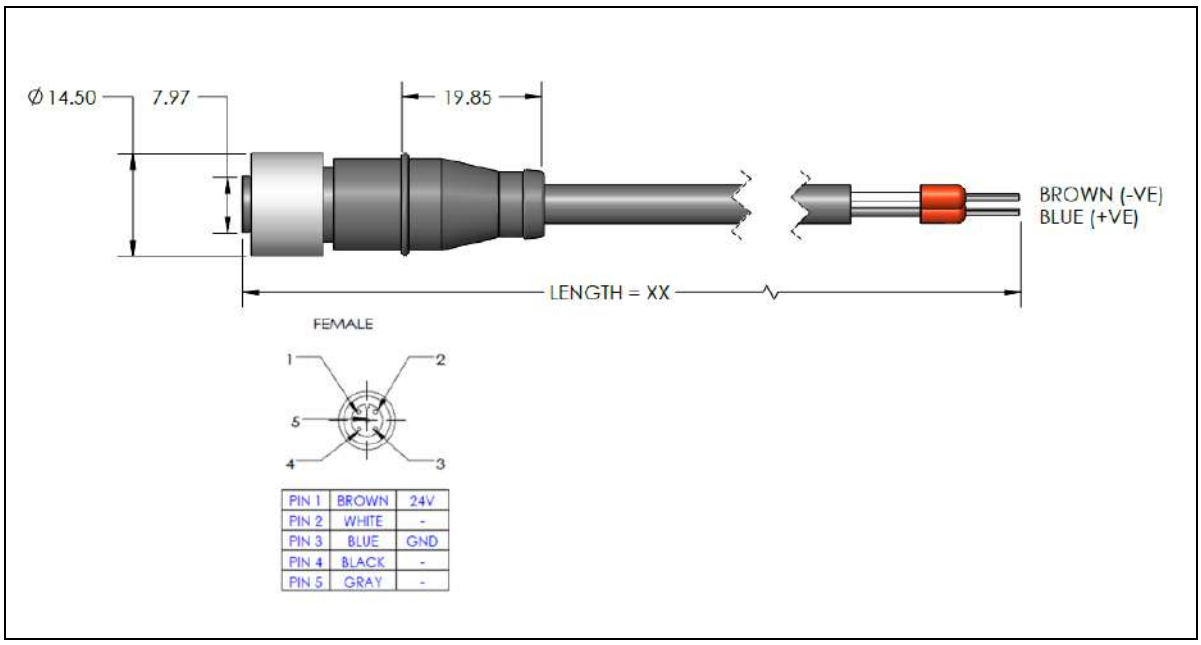
MODEL	SPECIFICATIONS
    **24V POWER SUPPLY WITH POWER CORD**	• 24V-2.5A-UK (24V ADAPTOR WITH POWER CORD UK) • 24V-2.5A-US (24V ADAPTOR WITH POWER CORD US) • 24V-2.5A-EU (24V ADAPTOR WITH POWER CORD EU)

Cable Selection



MODEL	POWER	LENGTH
EXT-24V-F-**XX**	24V	3M
		5M

** XX = Length



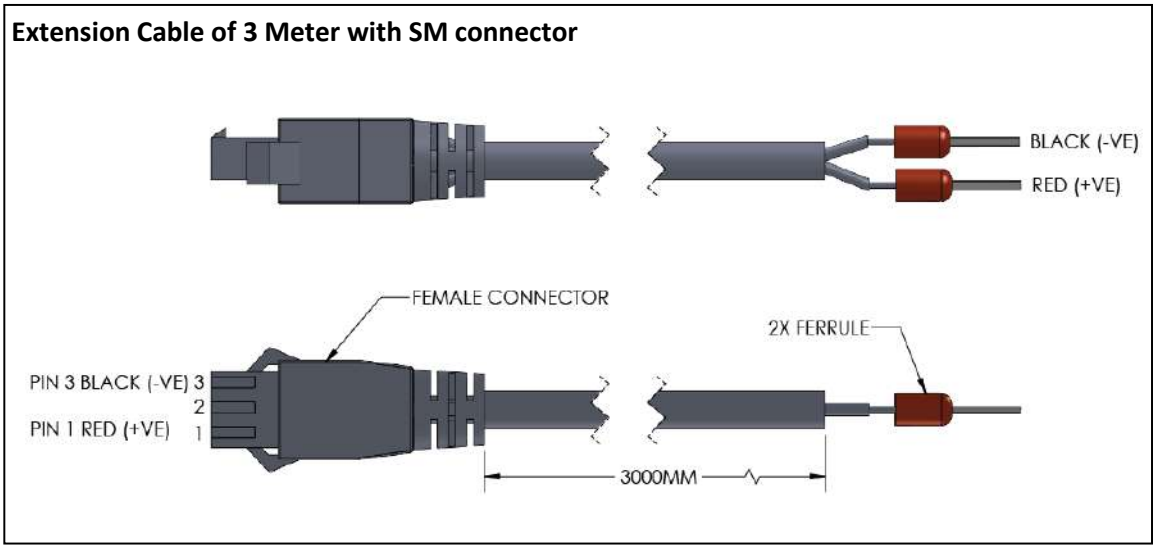
MODEL	POWER	LENGTH
EXT-FL-M12F-**XX**	24V	3M
		5M

** XX = Length

Cable Information

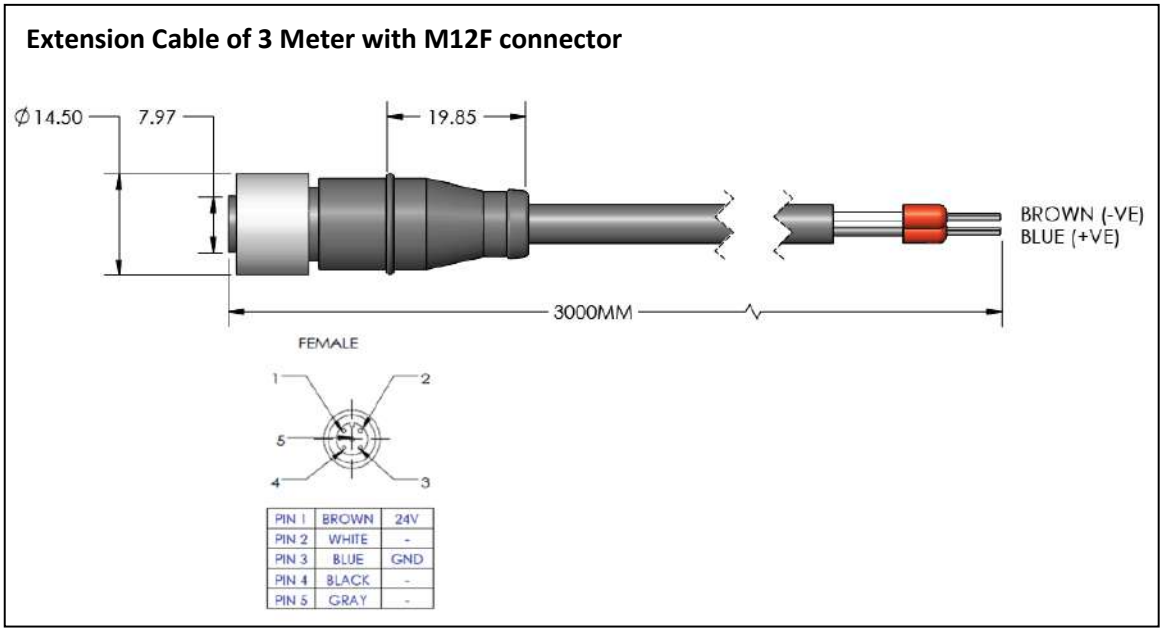
i) **EXT-FL-24V-3M**

Extension Cable of 3 Meter with SM connector



ii) **EXT-FL-M12F-3M-24V**

Extension Cable of 3 Meter with M12F connector



PIN 1	BROWN	24V
PIN 2	WHITE	-
PIN 3	BLUE	GND
PIN 4	BLACK	-
PIN 5	GRAY	-

Power Cord Information

The cable length is 1.8 Meter length of power cord.

240VAC Power Cord (UK)

220VAC Power Cord (EU)

110VAC Power Cord (US)

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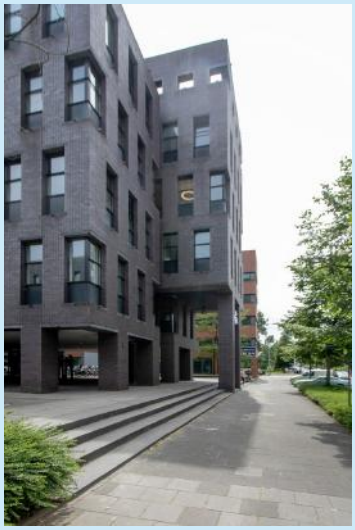
Our vision experts are happy to help you.

Natascha Overhof

Christian Crompvoets



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