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1. Application and Scope

Model: ZPDT802-45, ZPDT802-60

Installation people, adjust and maintenance people, Operator;

Please read carefully before use and do operate it as per this manual.

2. Product Introduction

◆ Feature

Use safe voltage isolated from city power system, free from electricity shock.

Standard ModBus protocol connection, it is easy for integration into ModBus system with up to 200,000+ lights and free adjustment for any light.

For both red and blue spectrum, it is available for adjustment from 0% to 100%, thus to get different spectrum mix and light intensity, say full red, full blue or any mix of them, to meet the different growth stage.

Smart heat management based intelligent calculation, limit the heat to safe range, slow the attenuation and enhance the reliability.

Thick enclosure and wide aluminum base lower the thermal resistance, improve the heat transfer.

Professional driver circuitry makes it free from strobe flash.

Without fluorescent powder, light emitted by LEDs reach plants directly with more efficiency.

◆ Application

Plants Research

Vegetables, flower and herbs commercial production

ZPDT802 series is T8 LED grow lights with light intensity and spectrum dimmable via Modbus protocol. It is reliable for long-term running under the allowed temperature range at 45watts and the max power can be up to 60W.

ZPDT802 series has extremely high lighting power density (LPD), together with its dimmable light intensity and spectrum; it can help on the light spectrum needed by different plants from vegetation to bloom. All these make it a perfect solution for research center and indoor grow facilities which needs high intensity light in a short distance and where the plants change a lot.

Via ZSP control system, ZPDT802 series can change the light intensity and spectrum sequentially, simulates the sunrise/ sunset in different seasons. And it can run automatically according to the pre-programmed spectrum mix, so this will lower the technical requirement on workers as well as their work load, thus improving the efficiency and accuracy.

ZPDT802 series can work alone or be integrated in system managed by ZSP software or third-party one compliant with Modbus protocol.

3. Production Introduction

3.1. ZPDT802 Electricity Specification

Input Voltage 45~52VDC;

Max. Input Current 1.4A

Power Consumption 0.05~45W(ZPDT802-45), 0.05~60W(ZPDT802-60);

Note:

ZPDT802-45 and ZPDT802-60 are the same, for full red or blue the max input power is 39w for red and 26w for blue. And when the power consumption of two channels is over 45w, ZPDT802-45 will limit the total consumption to 45w with the spectrum ratio the same. And this function in ZPDT802-45 is auto without software.

3.2. ZPDT802 Light Specification

Red 665nm;

Blue 445nm;

Electricity-light transfer rate: about 38%;

PPF (photosynthetic photon flux): 95umol/S (ZPDT802-45); 126umol/S (ZPDT802-45)

Spectrum ratio: Full Red, Full Blue or any spectrum mix

3.3. ZPDT802 Set Up and Communication Code

3.3.1 Common Function Instruction

Lights are controlled via ModBus protocol. In this manual we describe the instruction for common set up. For huge project, if there are more functions needed, please contact ZSP or your supplier.

In the system, lights are designed as terminal, which can execute the code from core system sequentially. When there is request for showing the code, lights save the last configuration. And when lights are turned off and on again, it will perform the configuration last time, or it will only execute the current code and not save new configuration. When there is no need to change the output of the lights, the set up step should be: configure and save.

Channel:

First channel (Modbus saver ID 0x0001) is for red spectrum control.

Second channel (Modbus saver ID 0x0002) is for blue spectrum control.

3.3.2 Data Form of Configuration Code

Via the visiting of saver we configure the light intensity in the range of 0x0000~0x00FF.

For example, set light intensity as 0xAA, code as below,

Send: 01 06 00 02 00 AA A8 75

Return: 01 06 00 02 00 AA A8 75

Code sent instruction:

Name	Byte	Content (Hex)	Description
Fixture ID	1	01	Range of Fixture ID: 0x02- 0xF7
Function Code	1	06	Single register Input
Register ID	2	00 02	Second Channel
Register Content	2	00 AA	Intensity Range: 0x00- 0xFF
CRC Low	1	A8	Check
CRC High	1	75	Check

Instruction of code returned

Name	Byte	Content (Hex)	Description
Fixture ID	1	01	Range of Fixture ID: 0x02- 0xF7
Function Code	1	06	Single retention register Input
Register ID	2	00 02	Second Channel
Register Content	2	00 AA	Intensity Range: 0x00- 0xFF
CRC Low	1	A8	Check
CRC High	1	75	Check

3.3.3 Read the Configuration Code

For example, read the configuration code of channel two as below,

Send: 01 03 00 02 00 01 25 CA

Return: 01 03 02 00 AA 38 3B

Code sent instruction:

Name	Byte	Content (Hex)	Description
Fixture ID	1	01	Range of Fixture ID: 0x02- 0xF7
Function Code	1	03	Read retention register
Register ID	2	00 02	Second Channel
Register Content	2	00 01	Code read from saver
CRC Low	1	25	Check
CRC High	1	CA	Check

Instruction of code returned

Name	Byte	Content (Hex)	Description
Fixture ID	1	01	Range of Fixture ID: 0x02- 0xF7
Function Code	1	03	Read retention register
Byte read	1	02	Byte
Value of saver	2	00 AA	Value read, take short byte of light intensity
CRC Low	1	A8	Check
CRC High	1	75	Check

3.3.4 Save the Configuration Code

Function: Save the configuration in the register. When the lights are turned off and on again, the lights work as per the spectrum saved last time.

For example,

Send: 01 06 00 10 53 65 74 D4

Return: 01 06 00 10 53 65 74 D4

Code sent instruction:

Name	Byte	Content(Hex)	Description
Fixture ID	1	01	Range of Fixture ID: 0x02- 0xF7
Function Code	1	06	Single register Input
Register ID range	2	00 10	Fixed value
Register Content	2	53 65	Fixed value
CRC Low	1	74	Check
CRC High	1	D4	Check

Instruction of code returned:

Name	Byte	Content(Hex)	Description
Fixture ID	1	01	Range of Fixture ID: 0x02- 0xF7
Function Code	1	06	Single register Input
Register ID range	2	00 10	Fixed value
Register Content	2	53 65	Fixed value
CRC Low	1	74	Check
CRC High	1	D4	Check

4. Installation

4.1.ZPDT802 Mechanism



ZPDT802 power cord is RVV4x0.5mm² with length default 500mm.

4.2.ZPDT802 installation

第一步：安装挂板，首先将两只挂板安装于目标平面上，此平面根据需求可以是任意方向的，距离为灯管总长度的 1/2 到 3/4，每只灯管配两只挂板；

第二步：将灯管推入挂板，依靠两只挂板的弹性固定灯管；

注意：

1.安装前请进行合理规划；

2.安装前不要接线；

5. Power connection and notice

5.1.ZPDT802 power cord instruction

NO.	Color	Name	Function
Y1	Yellow	485-B	RS485 Control B
Y2	Blue	485-A	RS485 Control A
Y3	Green	GND	48V DC Grounding
Y4	Red	VCC	48V DC Positive pole

5.2.ZPDT802 connection notice

接线时必须区分好颜色，按颜色和功能说明对照接线，接线完成后要有专人检测接线正确方可上电；RS485 总线采用总线型连接；

6. 订购信息

型号 ZPDT802-45

名称 双通道网络型植物灯

料号 800009001

描述 ZPDT802-45，可调光质与光强的 T8 外形的双通道植物灯

型号 ZPDT802-60

名称 双通道网络型植物灯

料号 800009002

描述 ZPDT802-60，可调光质与光强的 T8 外形的双通道植物灯

7. 型号命名规则

示例：ZPDT802-45

- ① ZP，智圣普植物照明；
- ② D，Dimming，可调光质与光强，S，SMART，智能型，DS，可调光质与光强的智能型；
- ③ T，Tube，管状，长条形；M，Mining Light 工矿灯，B，Light Bar，硬灯条，R，轨道灯，E，象鼻灯
- ④ 1,2……9,0，A，B，Z，子型号；1为基本型，可省略；
- ⑤ 80，系列名称，80，工业化生产用，60，商用，家用；
- ⑥ 2，通道数，两个通道；
- ⑦ 45，功率，45W。