



# ASL100 Series of Silicon Controlled Dimming Driver

Instructions V1.0

*Acrel Electric Co., Ltd.*

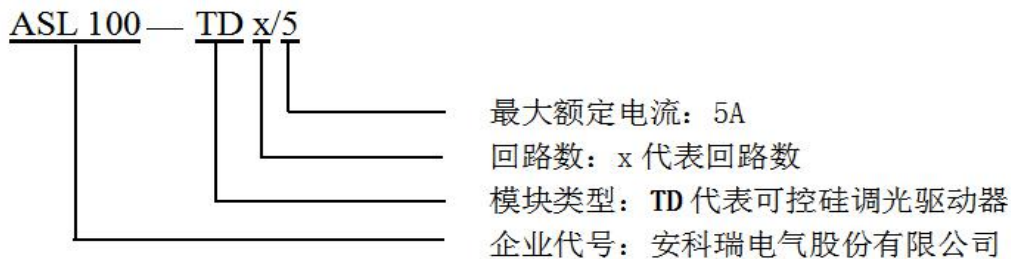
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## 1. Overview

ASL100-TD2/5 silicon controlled dimming driver (hereinafter referred to as dimmer) is the dimming module of Acrel-bus intelligent control system. European KNX communication bus is adopted to achieve intelligent lighting control of large buildings and public buildings. The latest single-chip microcomputer technology is adopted by the dimmer. The dimmer is the intelligent control module with high stability and reliability and matches other control modules, such as smart panel and dry node, to achieve the intelligence of lighting control. The dimmer dims LED by directly controlling high voltage part. 30V DC voltage is used for module power supply at the communication end and is used for system communication.

## 2. Specification and model



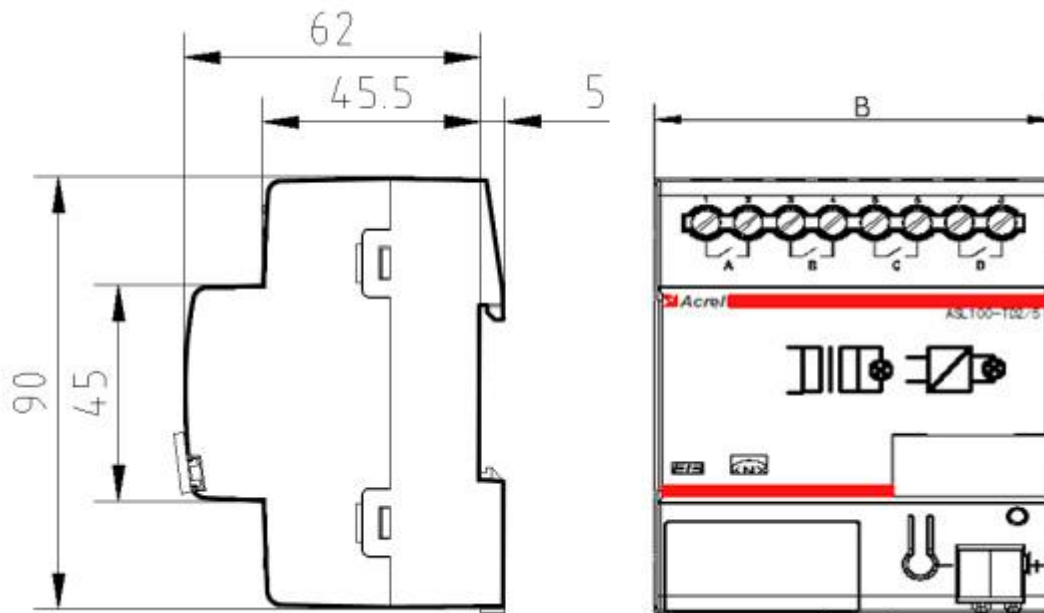
企业代号：安科瑞电气股份有限公司	Enterprise code: Acrel Electric Co., Ltd.
模块类型：TD 代表可控硅调光驱动器	Module type: TD refers to silicon controlled dimming driver
回路数：X 代表回路数	Loop number: X refers to loop number
传感器类型	Sensor type
最大额定电流：5A	Maximum rated current: 5A

## 3. Technical parameters

Power supply feature	KNX bus feeder	DC21~30V
	Power supply current	<12mA
	Power consumption	<360mW
	Load current	Max 5A
External connection	KNX-TP1	Use twisted-pair cable conforming to KNX standard
	Wiring terminal at load end	Terminating with 0.5nm~0.6nm torque

Operation and display interface	Programming key and relevant indicator	LED indicator is in red when waiting for programming and is in green during and after programming.
Temperature range	Operating temperature	-5°C ~ +45°C
	Storage temperature	-25°C ~ +55°C
	Transport temperature	-30°C ~ +70°C
Environmental requirements	Maximum air humidity	95%
Dimension (mm)	72x90x62	
Installation	Standard 35mm track installation	

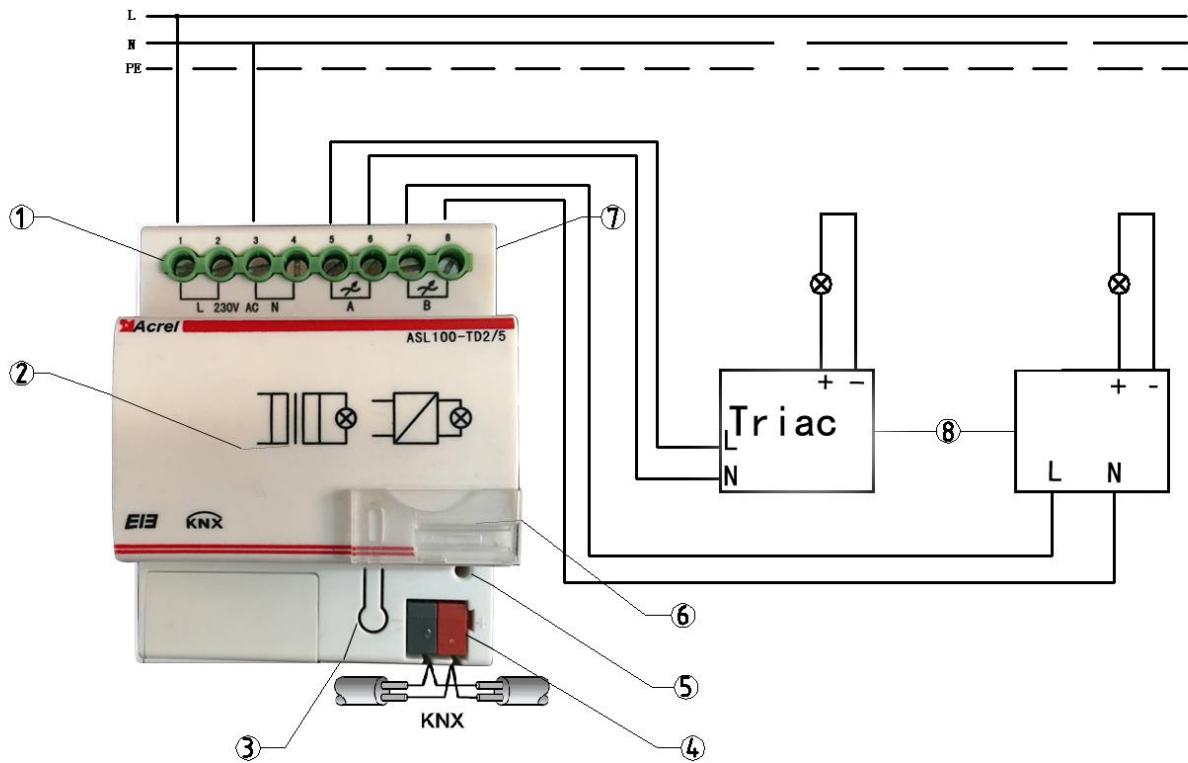
#### 4. Configuration



Model	length [B]
ASL100-TD2/5	72mm

**Installation notes:** the module is applicable to 35mm track installation. It is ok to clamp the dimmer into the track. The output terminal is connected with the load and KNX bus is connected with other modules by the bus terminal.

## 5. Electric wiring diagram



- ① Mains input terminal
- ② Schematic diagram of silicon controlled dimming
- ③ Programming key
- ④ KNX bus terminal
- ⑤ Running and programming indicator
- ⑥ Label
- ⑦ Triac dimming module output interface
- ⑧ LED Triac dimming power supply

## 6. Application guide

The silicon controlled dimming driver controls the load on-off as the dimming module by controlling the on-off of the input power supply. Besides, the dimmer can adjust the input voltage with the phase control method to achieve LED dimming. The dimmer receives the control message form the bus and then execute the corresponding actions according to the set parameters. With ETS programming, the dimmer can realize multiple control functions. The low voltage line is not changed and the lighting control is changed.

The functions of the dimming driver are shown below:

- Dimming function: relative dimming and value dimming function

- Preset function
- Scene control

### 6.1 Product features

The dimming driver is the execution unit. The maximum load current of each circuit of the dimmer is 5A. The dimmer can communicate with any module in accordance with KNX standard. The sensor sends the message, the driver receives and parses the message and then execute the corresponding action. The dimmer has multiple functions and the specific functions need to be set with ETS software.

### 6.2 Operating guide

1. Connect the module with the engineering network and connect the communication network with the computer attached with ETS by USB or IP gateway. Check whether the communication between the computer and network is normal.
2. Import VD3 file into ETS database and establish the relevant project. Add the dry contact module in the topological structure and set its physical address (the physical address cannot be repeated); later, open the parameter configuration page of the dry contact module and configure the corresponding parameters; finally, set the corresponding group address according to the actual needs.
3. Click the download options in ETS, press the programming button of the dry contact module, and then download the parameter configuration information to the module. Finally, finish the application programming.

### 6.3 Parameter description

The parameters of dry contact module are used to set all relevant parameters. The external input signal or module key is used to control the light, air conditioner and blind and so on. The module is the 4-way control module. All circuits have the same functions and parameters. Thus, take Channel 1 for example in the parameter description in this manual. For parameter setting of other channels, refer to Channel 1.

#### 6.3.1 General

The parameter setting includes the module initialization delay time and cycle message sending time. The specific parameters are shown below:

Operating delay after bus voltage recovery[2...255s]	2
Cyclical send "In Operation" telegram	Send '0'
"In Operation" cycle time[1...65535s]	1

#### **Operation delay after bus voltage recovery [2...255s]**

Options: 2~255s

**Send cyclical "In operation" telegram type**

Options: Do not send

Send '0'

Send '1'

**In operation time[1...65535s]**

Options: 1...65535

6.3.2 A:General

The parameter block sets the general setting of Channel A, including the operation type an initial setting. The specific parameters are shown below:

The response type of switch	Do not send
The response type of brightness	Do not send
Contact state on bus voltage failure	ON
Enable preset function	Enable
Enable scene function	Enable

**The response type of switch**

Options: Do not send

After change

Always

**The response type of brightness**

Options: Do not send

After change

Always

**Enable preset function**

Options: Disable

Enable

**Enable Scene function**

Options: Disable

Enable

### 6.3.2.1 A :Switch

The parameter block is used to select the brightness and brightness change rate under Switch function. The specific parameter window is shown below:

A:Switch	
The brightness value on 'switch' receive '1'	60
The time of brightness change from 0 to 100%[0...65535ms]	20000
The time of brightness change from 100% to 0[0...65535ms]	20000

#### The brightness value on 'Switch' receive '1'

Options: 0---100

#### The time of brightness change from 0 to 100%[0...65535ms]

Options: 0---65535

#### The time of brightness change from 100% to 0[0...65535ms]

Options: 0---65535

### 6.3.2.2 A : Dimming Function

The parameter block is used to set all parameters related to dimming, including value dimming and relative dimming. The specific parameter window is shown below:

A:Dimming Function	
Relative Dimming	
The time of brightness change from 100% to 0 on relative dimming[0...65535ms]	20000
The max dimming value	100
The min dimming value	0
Contact state when the brightness value is smaller than the min value	ON
Dimming by value	
Dimming speed	20000
The max brightness value	100
The min brightness value	0
Contact state when the brightness value is smaller than the min value	ON



**Relative Dimming**

**The time of brightness change from 100% to 0 on relative dim[0...65535ms]**

Options: 0---65535

**The max dimming value**

Options: 0---100

**The min dimming value**

Options: 0---100

**Contact state when the brightness value is smaller than the min value**

Options: ON

OFF

**Dimming by Value 数值调光**

**Dimming speed**

Options: 0---65535

**The max brightness value**

Options: 0---100

**The min brightness value**

Options: 0---100

**Contact state when the brightness value is smaller than the min value**

Options: ON

OFF

**6.3.2.3 A : Preset**

The parameter block is displayed after the Enable preset function in A:General is selected as Enable. The parameter block is to select the brightness and brightness change rate. Two group objects are preset and the functions and setting methods are same. Thus, we only introduce the parameter setting of one group object. The specific parameters are shown below:

Reaction of preset1(telegram '0')	0
Reaction of preset1(telegram '1')	100
The time of the brightness change 0 to 100%[0...65535ms]	0
Reaction of preset2(telegram '0')	0
Reaction of preset2(telegram '1')	100
The time of the brightness change 0 to 100%[0...65535ms]	0

**Reaction of preset 1[telegram '0']**

Options: 0---100

**Reaction of preset 1[telegram '1']**

Options: 0---100

**The time of brightness change 0 to 100%[65535ms]**

Options: 0---65535

6.3.2.4 A : Scene

The parameter block is displayed after the Enable scene function in A:General is selected as Enable. The parameter is to set the brightness and brightness change rate related to the scene. There are 9 scene numbers and the functions and setting methods are same. We only introduce the parameter setting of one scene number. The specific parameter is shown below:

Scene NO1	1
Scene NO1 value	100
Scene NO1 time	0

**Scene NO 1**

Options: 0---63

Distribute scene number for Scene 1

**Scene NO 1 value**

Options: 0---100

Set the brightness of the scene number

**Scene NO1 time**

Options: 0---65535                      Set the time of brightness becoming from 100% to 0, that is, change rate, in ms

#### 6.4 Description of communication object

The communication object is the communication medium between dimmer and other modules on the bus. The corresponding operation may be realized by the address setting of communication object. There are two types of channels for the dimer, 2 channels. The functions and parameter setting of all channels is same. Thus, we only introduce all communication objects of Channel A.

##### 6.4.1 Cycle send message

1 System In Operation                      1 比特 C R - T - 1 bit DPT\_Bo... 低级

No.	Function
1	The dimmer sends one message to the bus cyclically. Other modules or Pc will judge whether the dimer works normally according to the message.

##### 6.4.2 Switch

10 Channel A Switch                      1 比特 C - W T - 1 bit DPT\_Sw... 低级  
 11 Channel A Switch Status                      1 比特 C R - T - 1 bit DPT\_Sw... 低级

No.	Function
10	The group object is used to control the switch function of dimmer. The dimmer receives the control message from the group object Switch and then adjusts the light brightness according to the parameter setting.  Message value    1 = switch ON 0 = switch OFF
11	The group object is used to feed back the current switch state according to the feedback mode in the parameter. The group object can judge whether the dimmer correctly receives the message through the feedback.

##### 6.4.3 Dim function

12 Channel A Relative Dim                      4 比特 C - W - - 3 bit controll... 低级  
 13 Channel A Brightness Value                      1 字节 C - W T - 低级  
 14 Channel A Brightness Status                      1 字节 C R - T - 低级

No.	Function
12	The group object is used to control the relevant dimming command. The dimmer receives the control message from the group object Relative Dim and then adjust the light brightness according to the parameter setting. For the message value, refer to the appendix relative dim command.
13	The group object is used for value dimming. The dimmer receives the brightness value from the group object Brightness Value and adjust the light brightness to the corresponding value according to the change rate in the parameter setting.
14	The group object is to feed back the current brightness. After the dimmer changes the light brightness with the dimming group object, the current brightness value will be observed by the group object. The specific feedback mode is set on the parameter panel.

#### 6.4.4 Preset function

17	Channel A Preset 1	1 比特	C - W - -	低级
19	Channel A Preset 2	1 比特	C - W - -	低级

No.	Function
17	The group object is used to control the relevant dimming command. The dimmer receives the control message from the group object Relative Dim and then adjust the light brightness according to the parameter setting. For the message value, refer to the appendix relative dim command.
19	The group object is used for value dimming. The dimmer receives the brightness value from the group object Brightness Value and adjust the light brightness to the corresponding value according to the change rate in the parameter setting.

#### 6.4.5 Scene function

21	Channel A 8 Bit Scene	1 字节	C - W - -	低级
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No.	Function
21	The group object is used to control the scene setting. The dimmer receives the scene number from the group object 8 Bit Scene and then adjusts the light brightness according to the parameter setting.

## 7. Notes

1. Check whether its appearance is damaged before using the module. In case of damage, please ask the retailer to replace it to prevent electric leakage during use and avoid personal injury.
2. Install the module with the power failure. If the module cannot be replaced with the power failure, please ask the professional personnel to conduct the operation according to the situation.

3. **Connect the module with the bus before debugging. Check whether its running indicator is normal. Operate the programming button and check whether the programming indicator works normally. If the indicator works abnormally, please contact the relevant staffs. Operate the programming button and observe whether the programming indicator works normally.**

4. **Confirm whether the bus and computer are connected correctly before downloading the parameter.**

5. Select the standard EIB twisted-pair cable as the communication cable and use the standard KNX wiring terminal.