ASL100 Series of 0-10V Dimming Driver

Instructions V1.0
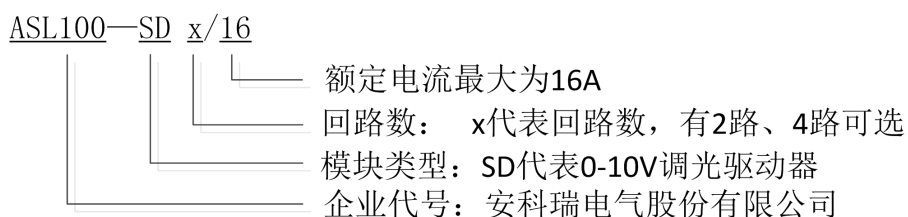
Acrel Electric Co., Ltd.

Catalog

1. Overview

ASL100-SDx/16 series of dimming driver (hereinafter referred to as dimmer) is dimming module of Acrel-bus intelligent control system. The product meets the rules of Q31/0114000129C032-2017 *ASL100 Intelligent Lighting 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 module. Thus, the module is an intelligent control module with high stability and reliability, such as smart panel and dry node that achieving intelligence of lighting control. The dimmer controls the on and off of high voltage circuit by the communication bus. 30V DC voltage is used for module power supply at the communication end and is used for system communication. The relay controls the mains on and off by the relay at the output end. The dimmer is applicable to the resistance, inductance and capacity load.

2. Specification and model

ASL100—SD x/16

- 额定电流最大为16A
- 回路数： x代表回路数，有2路、4路可选
- 模块类型：SD代表0-10V调光驱动器
- 企业代号：安科瑞电气股份有限公司

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：SD 代表 0-10v 调光驱动器	Module type: SD refers to 0-10v diming driver
回路数：X 代表回路数，有 2 路、4 路可选	Loop number: X refers to the loop number. There are 2 loops and 4 loops.
额定电流最大为 16A	Maximum rated current is 16A

3. Technical parameters

Power supply feature	KNX bus feeder	DC21～30V
	Power supply current	<12mA
	Power consumption	<360mW
	Load current	Max 16A
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	Programming key and	LED indicator is in red when waiting for programming

interface	relevant indicator	and is in green during and after programming.
Temperature range	Operating temperature	-5℃～+45℃
	Storage temperature	-25℃～+55℃
	Transport temperature	-30℃～+70℃
Environmental requirements	Maximum air humidity	95%
Dimension (mm)	36x90x62	
Installation	Standard 35mm track installation	

4. Configuration
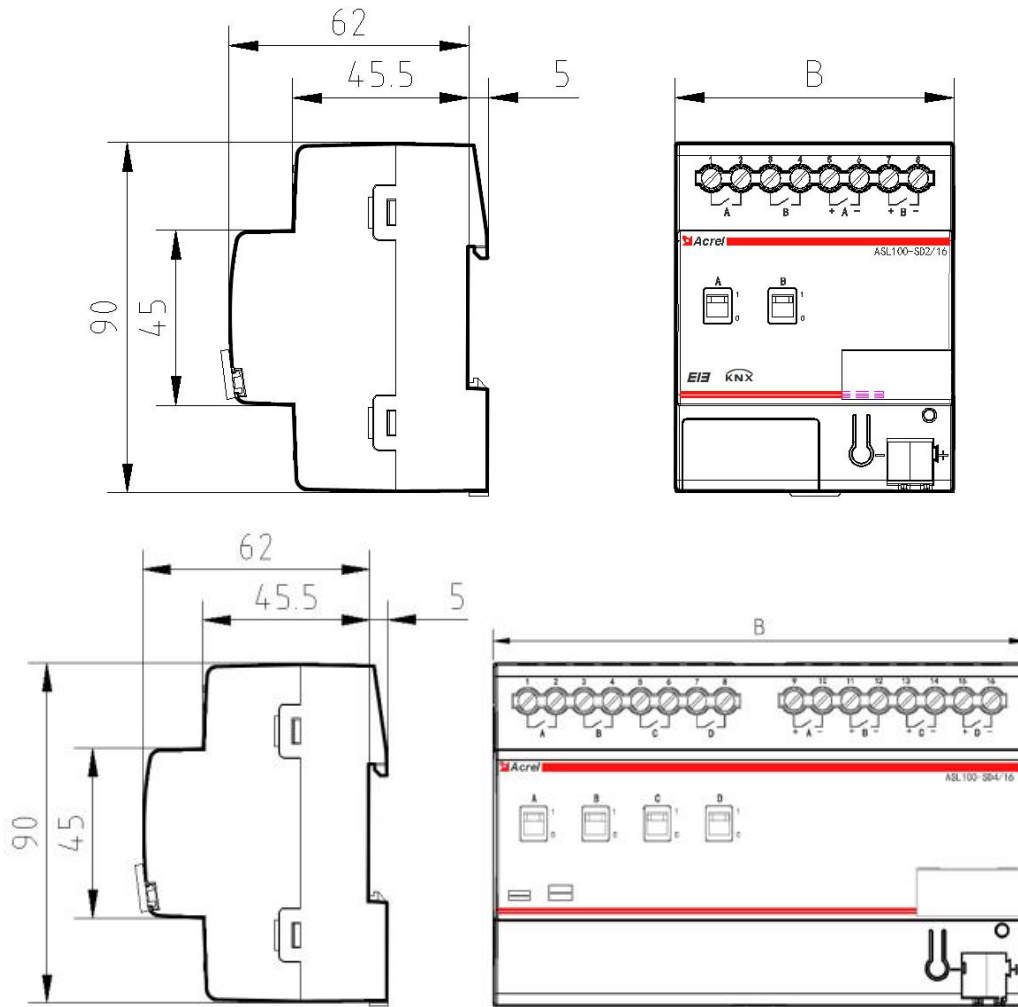
Model	length [B]
ASL100-SD2/16	72mm
ASL100-SD4/16	144mm

Installation notes: this module is applicable to 35mm track installation. You just need to clamp the module into the track for installation.

5. Electric wiring diagram
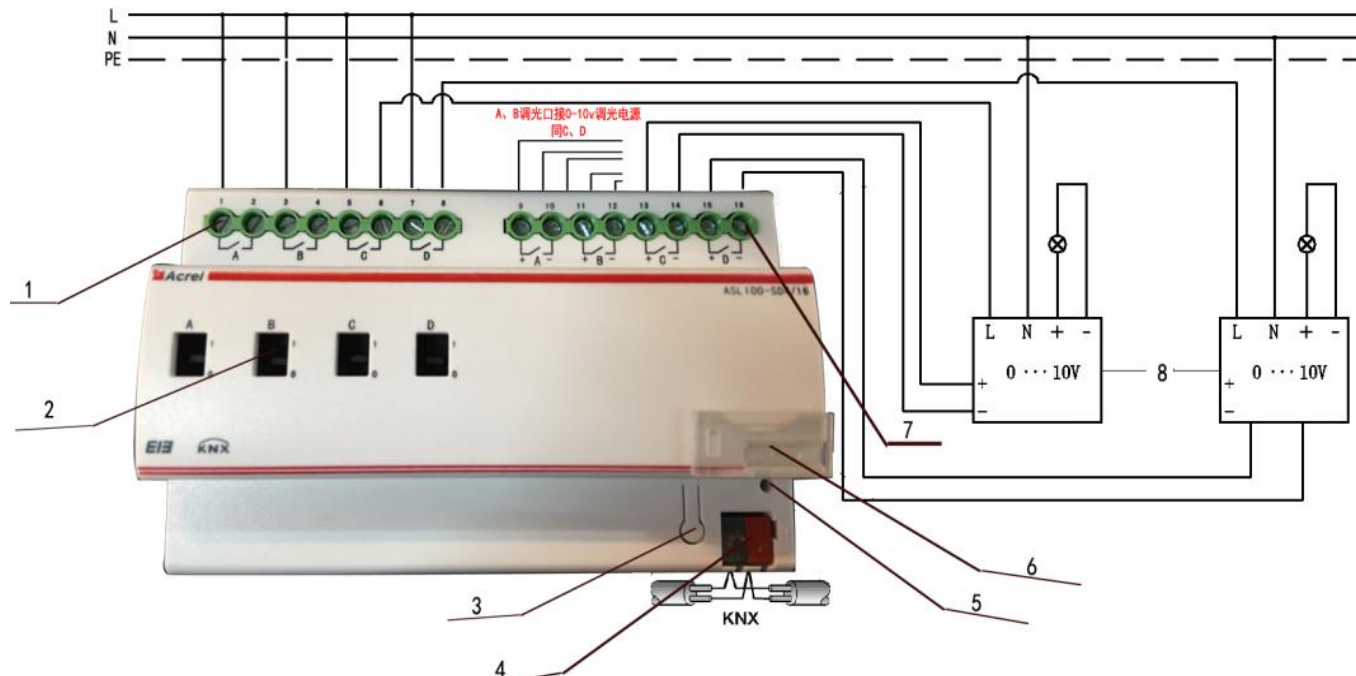
① Mains input terminal

② Relay manual operation hole

③ Programming key

④ KNX bus terminal

⑤ Running and programming indicator

⑥ Label

⑦ 0-10V dimming signal output

⑧ 0-10V diming power supply

6. Application guide

0-10V dimming driver controls the load on-off as the diming module and outputs 0-10V dimming signals. The dimmer receives the control message from the bus and then executes the corresponding actions according to the set parameters. With ETS programming, the dimmer can realize multiple control functions. The high voltage line is not changed and the lighting control is changed.

The functions of the dimming driver are shown below:

➢ Switch function: manual operation control included

- ➢ 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 relay of the dimmer is 16A. The load may be capacitive, resistive or sensible. The dimmer can communicate with any module in accordance with KNX standard. The sensor sends the control message, the dimmer receives and parses the message and then executes the relevant 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 dimmer parameters are used to set all dimmer parameters. The parameters include each channel of channels and the specific execution action of the corresponding function. The module has 2 circuits and 4 circuits. All circuits of functions and parameters are same. Thus, take Channel 1 in the parameter description in the manual for example. For other channels' setting, 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:

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

Options: Do not send

　　　　　After change

　　　　　Always

The response type of brightness

Options: Do not send

　　　　　After change

　　　　　Always

Contact state on bus voltage failure

Options: ON

OFF

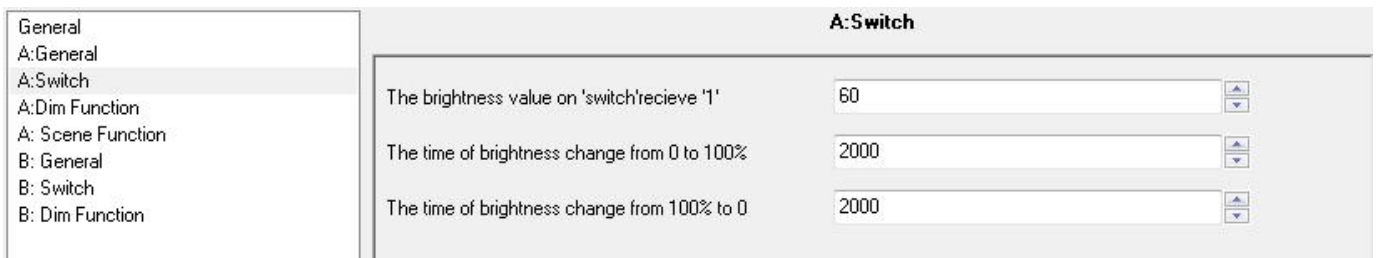Unchange

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:

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 diming and relative dimming. The specific parameter window is shown below:

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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 closed when the brightness value is bigger than the min value

Options: NO

             Yes

Contact open when the brightness value is smaller than the min value

Options: NO

             Yes

Dim speed can change by the object

Options: NO

Yes

Dimming by Value

Dimming speed from 0…100% while setting brightness[0…65535ms]

Options: 0---65535

The max brightness value

Options: 0---100

The min brightness value

Options: 0---100

Contact open when the brightness value is bigger than the min value

Options: NO

Yes

Contact closed when the brightness value is smaller than the min value

Options: NO

Yes

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 15 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:
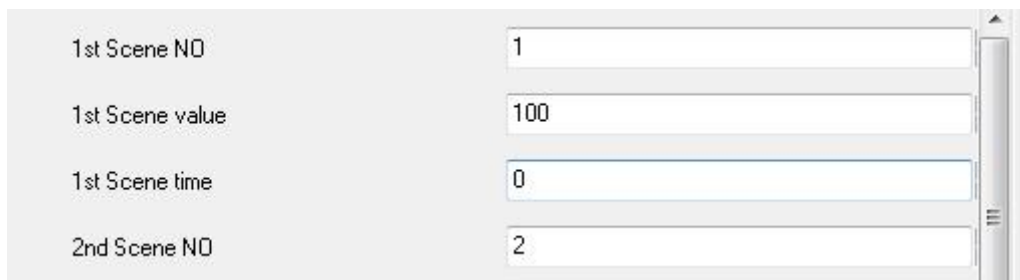
1st Scene NO

Options: 0---63   Distribute scene number for Scene 1

1st Scene value

Options: 0---100   Set the brightness of the scene number

1st Scene 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 and 4 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 (In Operation)

| ☐⚡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 function

| ☐⚡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
☐⚡15	Channel A	Rel Dim Speed		2 字节	C	R	W	-	-		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.
15	The group object is used to change the relative dimming rate. When the Dom speed can change by the object in the Dim Function on the parameter panel is selected as Yes, it is displayed. One 2Byte data is sent by the group object. It is used to set the time of dimming brightness becoming from 0 to 100%. The unit is ms.

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 adjusts the light brightness according to the parameter setting. For the message value, refer to the appendix relative dimming command.
19	The group object is used for value dimming. The dimmer receives the brightness value from the group object Brightness Value and then adjusts the light brightness to the corresponding value according to the change rate in the parameters.

6.4.5 Scene function

☐☑21	Channel A	8 Bit Scene	1 字节	C	-	W	-	-	低级

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.