



# ASL100-Sx/16 Series of Switch Driver

Instructions V1.0

*Acrel Electric Co., Ltd.*



# Catalog

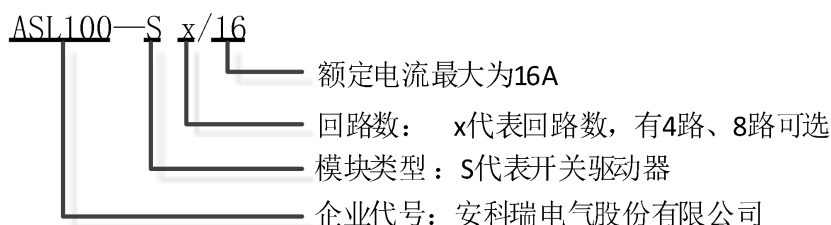
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## 1. Overview

ASL100-Sx/16 series of switch driver (hereinafter referred to as driver) is Acre-bus output control module. 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 driver 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 module is applicable to the resistance, inductance and capacity load.

## 2. Specification and model



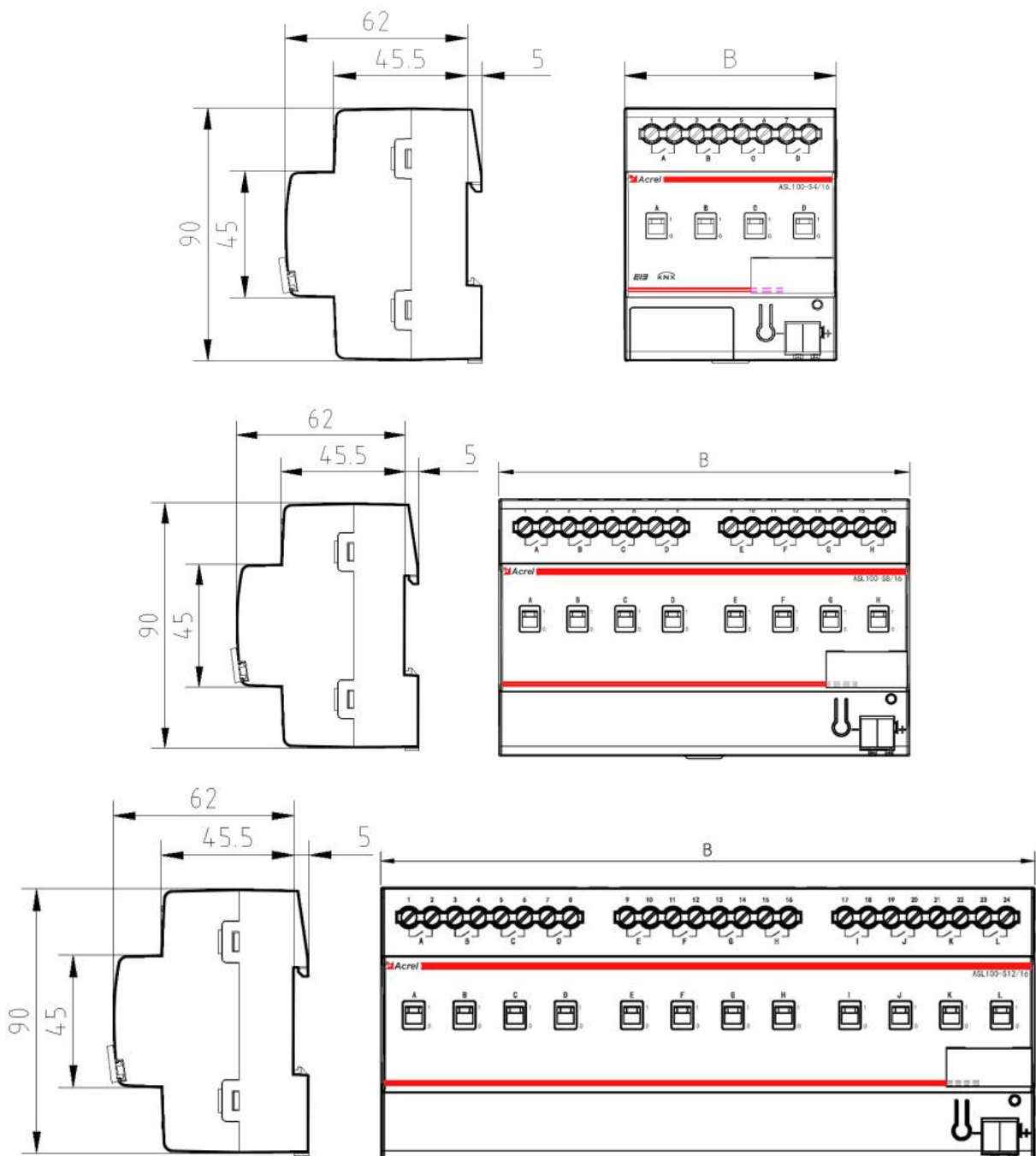
Acrel 智能照明系列产品标志	Acrel intelligent lighting product mark
开关驱动器模块标志	Switch driver module mark
回路数： 4/8/12	Loop number:4/8/12
回路负载： 16A	Loop load: 16A

## 3. Technical parameters

Power supply feature	KNX bus feeder	DC21...30V
	Power supply current	<12mA
	Power consumption	<360mW
	Load current	<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 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℃~+45℃
	Storage temperature	-25℃~+55℃

	Transport temperature	-30℃~+70℃
Dimension (mm)	ASL100-S4/16	72x90x62
	ASL100-S8/16	144x90x62
	ASL100-S12/16	216x90x62
Environmental requirements	Maximum air humidity	95%
Installation	Standard 35mm track installation	Installation

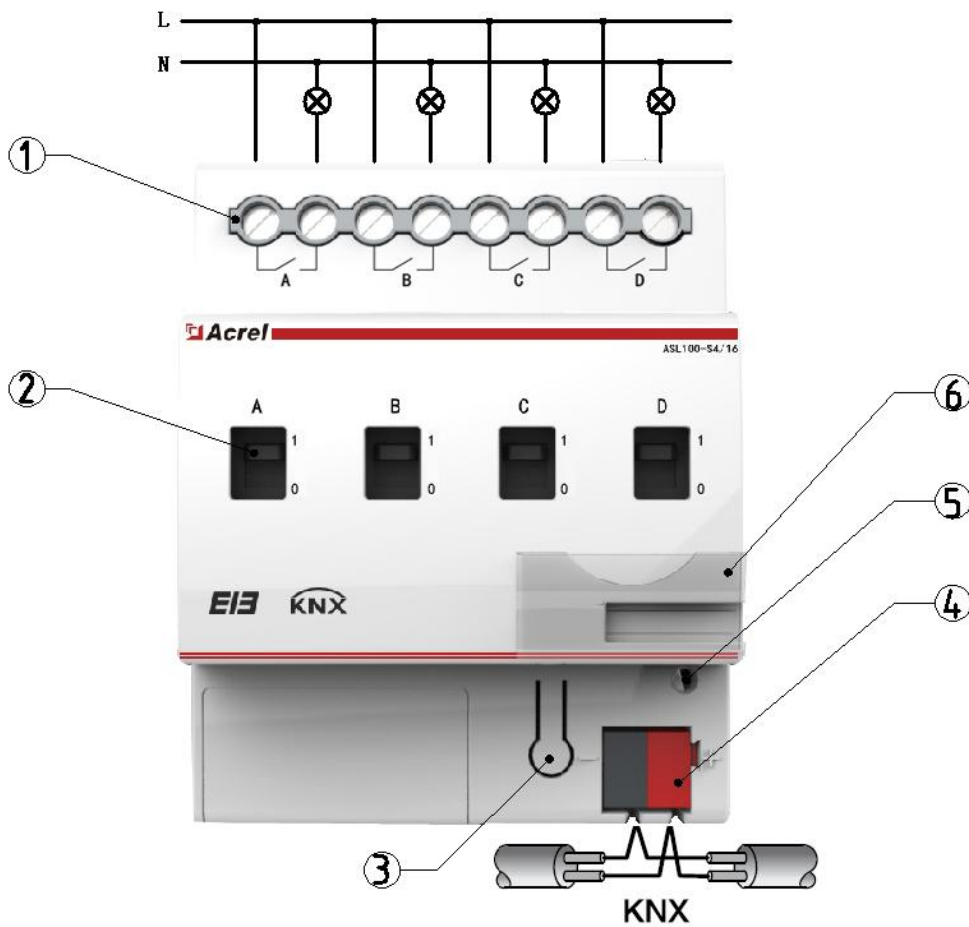
#### 4. Configuration



model	Length[B]
ASL100-S4/16	72mm
ASL100-S8/16	144mm
ASL100-S12/16	216mm

**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

## 6. Application guide

The switch driver directly controls the load on-off as the driving module, receives the control message from the bus and then executes the corresponding action. With ETS programming, the driver can realize multiple control functions. The high voltage line is not changed and the lighting control is changed.

The functions of the switch driver are shown below:

- Switch function
- Time function, including stair light, flash and delay functions
- Preset function
- Scene control
- Logic function
- Threshold function
- Heater control function

### 6.1 Product features

The switch driver, as the execution unit, is to control the on-off of all high voltage circuits. The maximum load current of each circuit of relay of the driver is 16A. The load is capacitive, resistive or sensible. This module can be connected with any control module in accordance with KNX standard. The sensor module sends the control message. The driver receives and parses the message and then executes the relevant action. The module has seven functions. The specific functions need to be set with ETS software. The module adopts standard 35mm track installation and it is ok to clamp the module into the track.

### 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

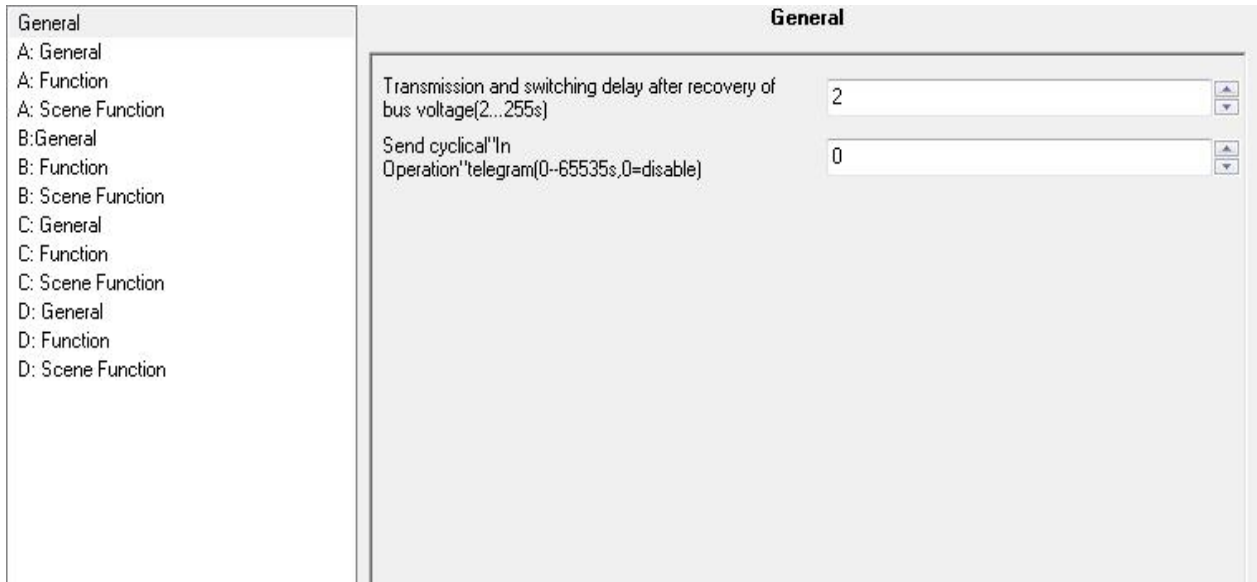
The driver parameters are used to set all the functions of the module. The parameters include channel functions and specific execution action of the corresponding function. The module has 2 circuits, 4 circuits, 8 circuits and 12 circuits. All circuits of functions and parameters are same. Thus, take 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:



**Transition and switching delay after recovery of bus voltage [2...255s]**

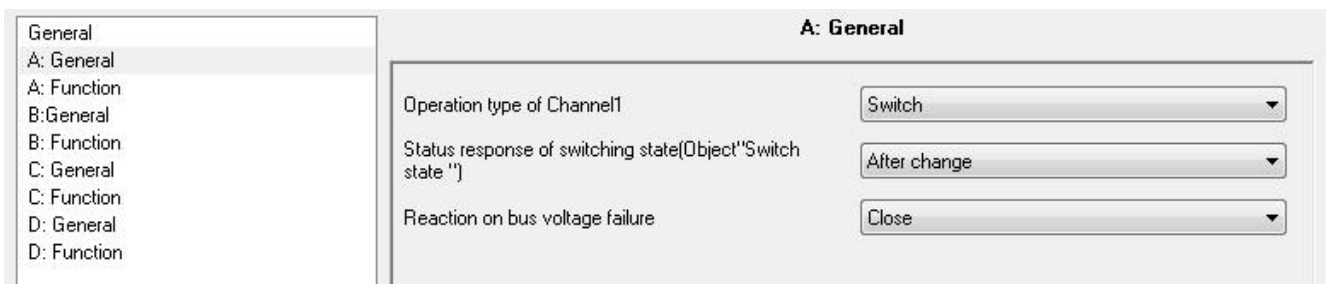
Options: 2~255s

**Send cyclical "In operation" telegram[0—65535s,0=disable]**

Options: 0---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:



**Operation type of Channel1**

Options: Switch

Heating

**Status response of switch state [Object "Switch state"]**

Options: Do not send

After change

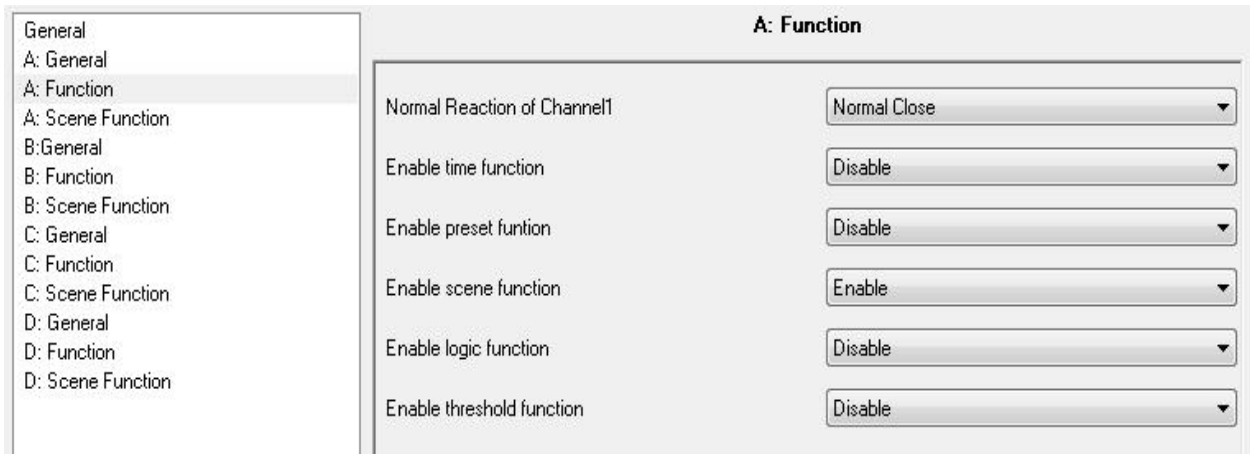
Always

**Reaction on bus voltage failure**

- Options: Close
- Open
- Unchanged

6.3.3 A :Function

This parameter block is displayed after the Operation of channel 1 in A: General is selected as switch. The parameter block is to select all functions and function relative parameter setting under Switch mode. As the parameter block window is dynamically displayed, please notice the added parameter window after selecting the corresponding options. The specific parameter window is shown below:



**Normal Reaction of channel 1**

- Options: Normal Close
- Normal Open
- Unchange

**Enable time function**

- Options: Disable
- Enable

After the time function is enabled, first, the parameters below are displayed:

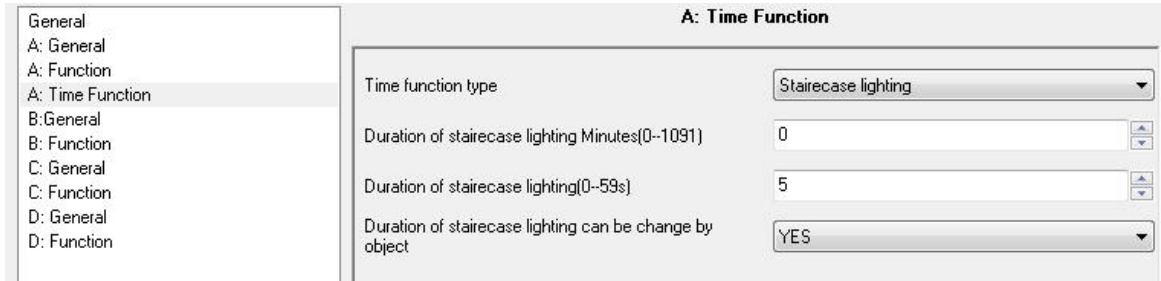


**Value object "Disable Time Function " after bus voltage recovery**

- Options: Disable
- Enable

### 6.3.3.1 Time function

The time function has three specific functions, including stair light, flash and delay switch. The specific functions are shown below:



#### **Time function type**

- Options: Staircase lighting  
 ON/OFF delay  
 Flashing

Under the time function, all the following parameters are the parameter setting for stair light:

#### **Minutes [0--1091]**

- Options: 0--1091

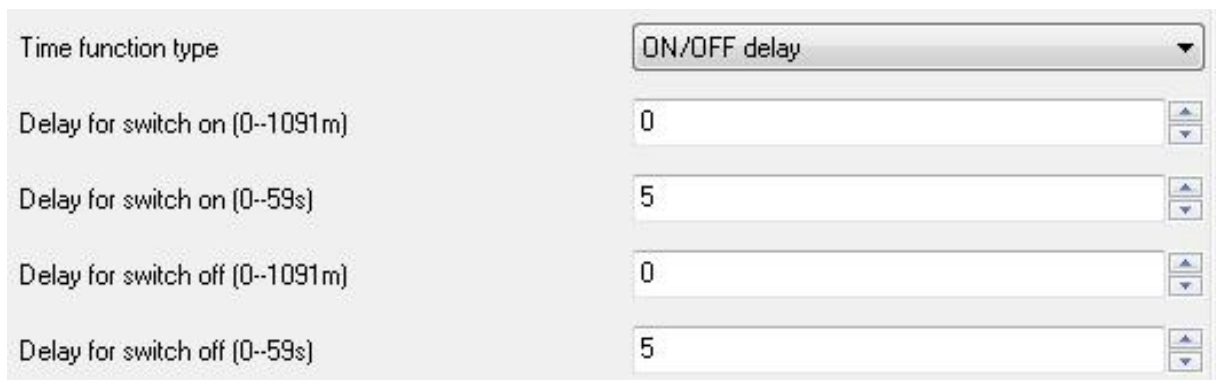
#### **Duration of staircase lighting [0—59s]**

- Options: 0--59s

#### **Duration of staircase lighting can be change by object**

- Options: ON  
 YES

Under the time function, all the following parameters are the parameter setting for ON/OFF delay. The specific parameters are shown below:



#### **Delay for switch on [0---1091m]**

- Options: 0--1091

**Delay for switch on [0—59s]**

Options: 0---59s

**Delay for switch off [0---1091m]**

Options: 0---1091

**Delay for switch off [0—59s]**

Options: 0---59s

Under the time function, all the following parameters are the parameter setting for Flashing function. The specific parameters are shown below:

Time function type	Flashing
The Number of flash	5
Time for ON:Min(0--1091)	0
Time for ON:Sec(0-59)	5
Time for OFF:Min(0--1091)	0
Time for OFF:Sec(0-59)	5

**The number of flash**

Options: 0---100

**Time for ON : Min[0---1091]**

Options: 0---1091

**Time for ON : Sec [0—59]**

Options: 0---59

**Time for OFF : Min[0---1091]**

Options: 0---1091

**Time for OFF : Sec[0---59]**

Options: 0---59

6.3.3.2 Preset Function)

This function is displayed after Enable preset function in A: Function parameter window is selected as Enable.

Besides, the corresponding group object is displayed in the topology window. The specific parameter setting is shown below:

Reaction on preset 0(telegram value 0)	OFF
Reaction on preset 1(telegram value 1)	OFF

**Reaction on preset 0[telegram value 0]**

Options: OFF  
ON

**Reaction on preset 1[telegram value 1]**

Options: OFF  
ON

6.3.3.3 Scene Function

The functional is displayed after the Enable Scene function is selected as Enable in A:Function parameter window. Besides, the corresponding group object is displayed in the topology window. The series of switch driver has five scene numbers and the setting of all scene numbers is same. Thus, we only introduce the parameter setting of Scene 1. The specific setting is shown below:

Scene 1	1
Scene NO1 reaction	OFF
Scene 2	2
Scene NO2 reaction	ON
Scene 3	3
Scene NO3 reaction	OFF
Scene 4	11
Scene NO4 reaction	ON
Scene 5	10
Scene NO5 reaction	OFF

**Scene 1**

Options: 0--63

**Scene NO1 reaction**

Options: ON  
OFF

### 6.3.3.4 Logic Function

The function is displayed after the Enable Logic function in A:Function parameter window is selected as Enable. Besides, the corresponding group object is displayed in the topology window. The series of switch driver has 2 logic group objects and the setting of all group objects is same. Thus, we only introduce the first logic parameter. The specific setting is shown below:

Enable logic1	Enable
Logic1 type	AND
Object value"Logic1"after bus recovery	'0'
Enable logic2	Enable
Logic2 Type	AND
Object value"Logic2"after bus recovery	'0'

#### Enable logic 1

Options: Enable  
Disable

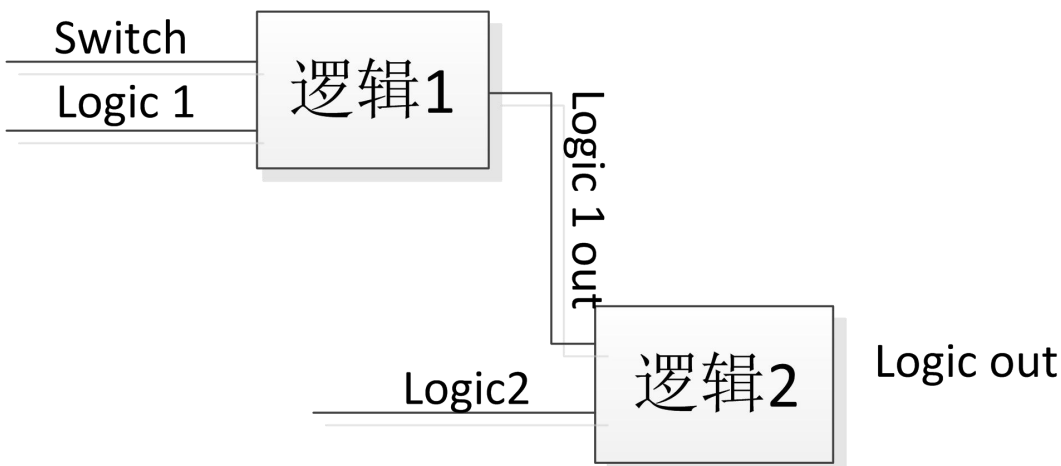
#### Logic 1 type

Options: AND、OR、XOR、GATE

#### Object value "Logic 1"after bus recovery

Options: 0、1

The logic function has two groups of logic. As the result of logic 1 is the input of logic 2, only after the logic 1 is enabled, the logic 2 is displayed. If the logic 2 is off, the logic 1 output is directly as the final logic output. The specific logic is shown below:



### 6.3.3.5 Threshold Function

The function is displayed after the Enable Threshold function in A:Function parameter window is selected as Enable. Besides, the corresponding group objects are displayed in the topology window. The specific setting is shown below:

Change threshold value1 over bus	NO
Threshold value1 (0--255)	36
Threshold value2 (0--255)	15
Threshold defien hysteresis	NO

#### **Change threshold value1 over bus**

Options: NO  
YES

#### **Threshold value 1[0--255]**

Options: 0---255

#### **Threshold value 2[0--255]**

Options: 0---255

#### **Threshold define hysteresis**

Options: NO  
YES

The following parameter options are disable hysteresis, that is, the above parameters are selected as No. For the details, see the diagram below:

Object value < lower threshold	OFF
Lower threshold <= Object value <= Upper threshold	OFF
Object value > Lower threshold	OFF

#### **Object value < lower threshold**

Options: ON  
OFF

#### **Lower threshold <= Object value <= Upper threshold**

Options: ON  
OFF

**Object value > Upper threshold**

Options: ON  
OFF

The following parameter options are enabled hysteresis, that is, the above parameters are selected as YES. For the details, see the diagram below:

Falling below lower threshold	OFF
Exceding Upper threshold	OFF

**Falling below lower threshold**

Options: ON  
OFF

**Exceding Upper threshold**

Options: ON  
OFF

6.3.3.6 Heat Function

The parameter block is displayed after the Operation of channel 1 in A:General is selected as Heating to select all functions and all relevant parameters under heating mode. As the parameter block window is dynamically displayed, please notice the added parameter window after selecting the corresponding options. The specific parameter window is shown below:

Connected value type	Normal Close
Control telegram type	1 Bit(pwm or 2-step)
PwM [0--1091]m	0
PwM [0--59s]	20
Position of the value drive on bus voltage recovery	0% (Close)

**Connected value type**

Options: Normal Close  
Normal Open

**Control telegram type**

Options: 1 bit(pwm or 2-step)  
1 Byte(continuous)

**PWM [0--1091]m**



Options: 0---1091

**PWM [0--59]s**

Options: 0---59

**Position of the value drive on bus voltage recovery**

Options: 0%(Close)、10%(26)、20%(51)、30%(77)、40%(102)、50%(128)、60%(153)、70%(179)、80%(204)、90%(230)、100%(Open)

Enable monitoring of the controller	Enable
Monitoring time in min(0--1091m)	0
Monitoring time in second(0--255s)	0
Enable fault function	Enable
Enable forced operation operation	Enable
Value position during forced position	0% (Close)

**Enable monitoring of the controller**

Options: Disable  
Enable

**Monitoring time in min [0---1091m]**

Options: 0---1091

**Monitoring time in second [0---255s]**

Options: 0---255

Note: the maximum monitoring time is 65535s. Thus, when the sum of two time is more than 65535s, there will be unknown error. The engineering designer shall notice the setting of time parameter.

**Enable fault function**

Options: YES  
NO

**Enable forced operation**

Options: Disable  
Enable

**Value position during forced position**

Options: 0%(Close)、10%(26)、20%(51)、30%(77)、40%(102)、50%(128)、60%(153)、70%(179)、80%(204)、90%(230)、100%(Open)

#### 6.4 Description of communication object

##### 6.4.1 Description of functional communication object

11 System In Operation 1 比特 C - - T - 1 bit D... 低级

No.	Description
1	In order to display the switch driver working state in order, there is need to send one detection message to the bus cyclically in order. The group object is enabled all the time.

10 Channel 1 Switch 1 比特 C - W - - 低级

No.	Description
10	The group object is used to turn on or off the switch. The switch driver accepts the switch message by the Switch object of the group object. Message value 1 = switch ON 0 = switch OFF

11 Channel 1 ON/OFF Switch 1 比特 C - W - - 1 bit D... 低级

No.	Description
11	The group object is used to delay on/off. The group object executes the corresponding operation after receiving the message. Message value 1: relay is closed after reaching the delay time 0: relay off after reaching the delay time

11 Channel 1 Flash Switch 1 比特 C - W - - 1 bit D... 低级

No.	Description
11	The group object is used to flashing function. The group object receives '1' and triggers the flashing. The group object receives "0" and has no action

12 Channel 1 Disable Time Function 1 比特 C - W - - 1 bit D... 低级

No.	Description
12	The communication object can be enabled after the Time Function in A: Function parameter window is



No.	Description
22	A value used to change Threshold Value 1

28 Channel 1 Switch state 1 比特 C R - T - 低级

No.	Description
28	To feed back the switch state

#### 6.4.1 Description of heating function communication object

1 System In Operation 1 比特 C - - T - 1 bit D... 低级

No.	Description
1	In order to display the switch driver working state in order, there is need to send one detection message to the bus cyclically in order. The group object is enabled all the time.

10 Channel 1 PWM or on\_off control 1 比特 C - W - - 1 bit DPT\_Sw... 低级

No.	Description
10	This group object is to turn on or off the switch. The module receives the switch message with the group object.

10 Channel 1 1 Byte Heat Data 1 字节 C - W - - 8 bit si... 低级

No.	Description
10	The group object is to receive 1Byte of Heat control data.

11 Channel 1 RTR Fault 1 比特 C - - T - 低级

No.	Description
11	The object sends one message in case of error in Heat function.

12 Channel 1 Forced Operation 1 比特 C - W - - 1 bit D... 低级

No.	Description
12	The object is to force the operation disable/enable.

28 Channel 1 Heating switch status 1 比特 C R - T - 低级

No.	Description
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28	To indicate the switch state. If the switch group object sends message ‘1’, it indicates that the driver is at on state, on the contrary, it indicates that the actual is at off state.
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## 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.