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ASL100-Sx/16 Series of Switch Driver

Instructions V1.0

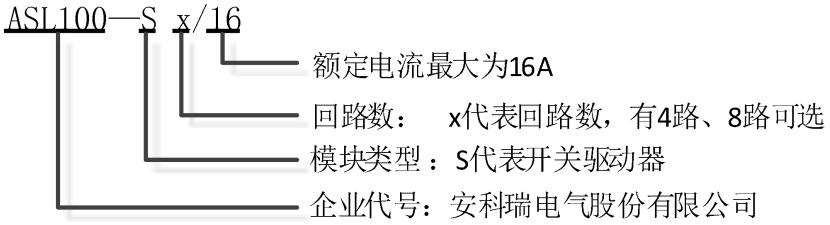
Acrel Electric Co., Ltd.

Catalog

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



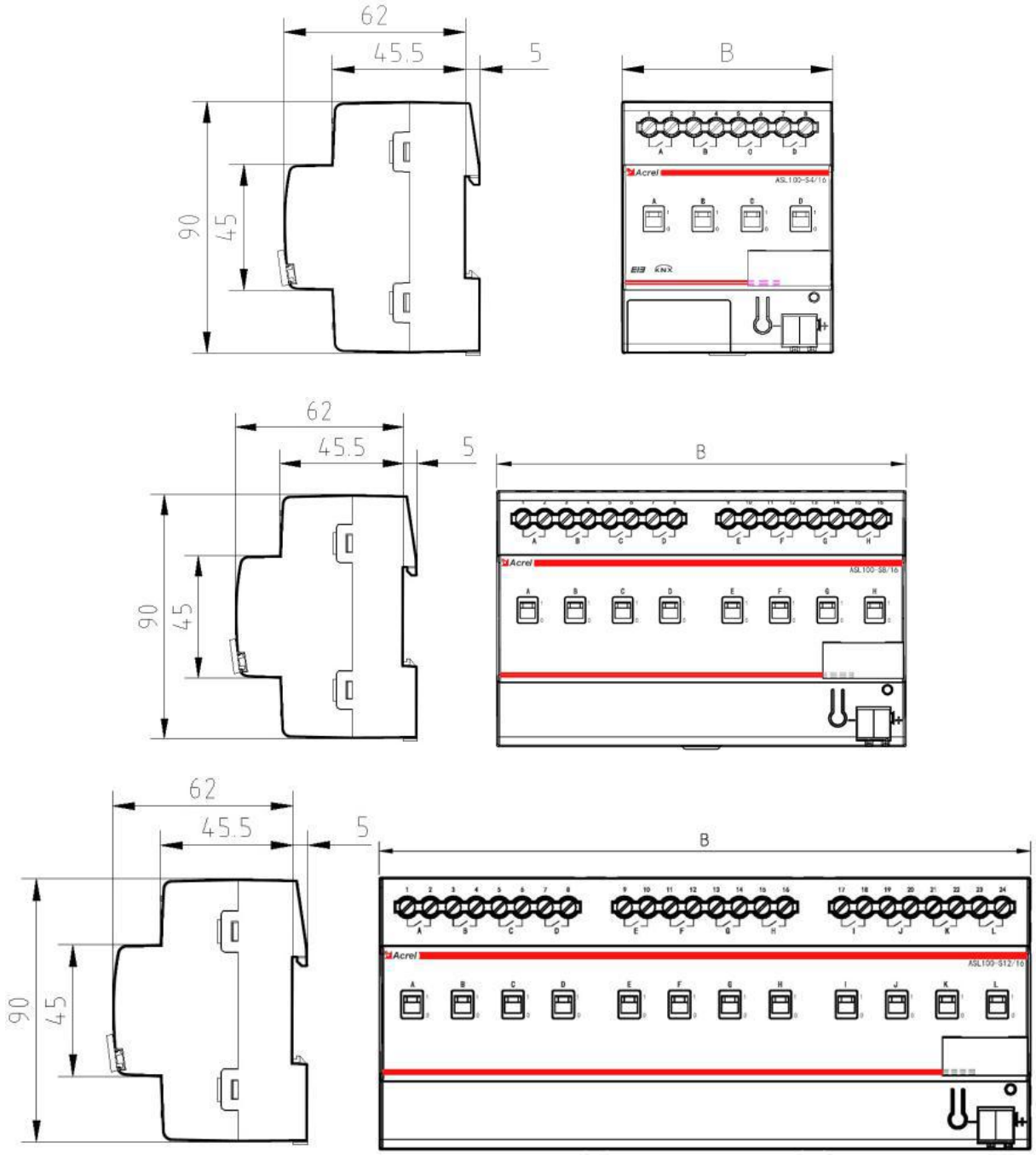
Acrel 智能照明系列产品标志	Acrel intelligent lighting product mark
开关驱动器模块标志	Switch driver module mark
回路数：4/8/12	Loop number:4/8/12
回路负载：16A	Loop load: 16A

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

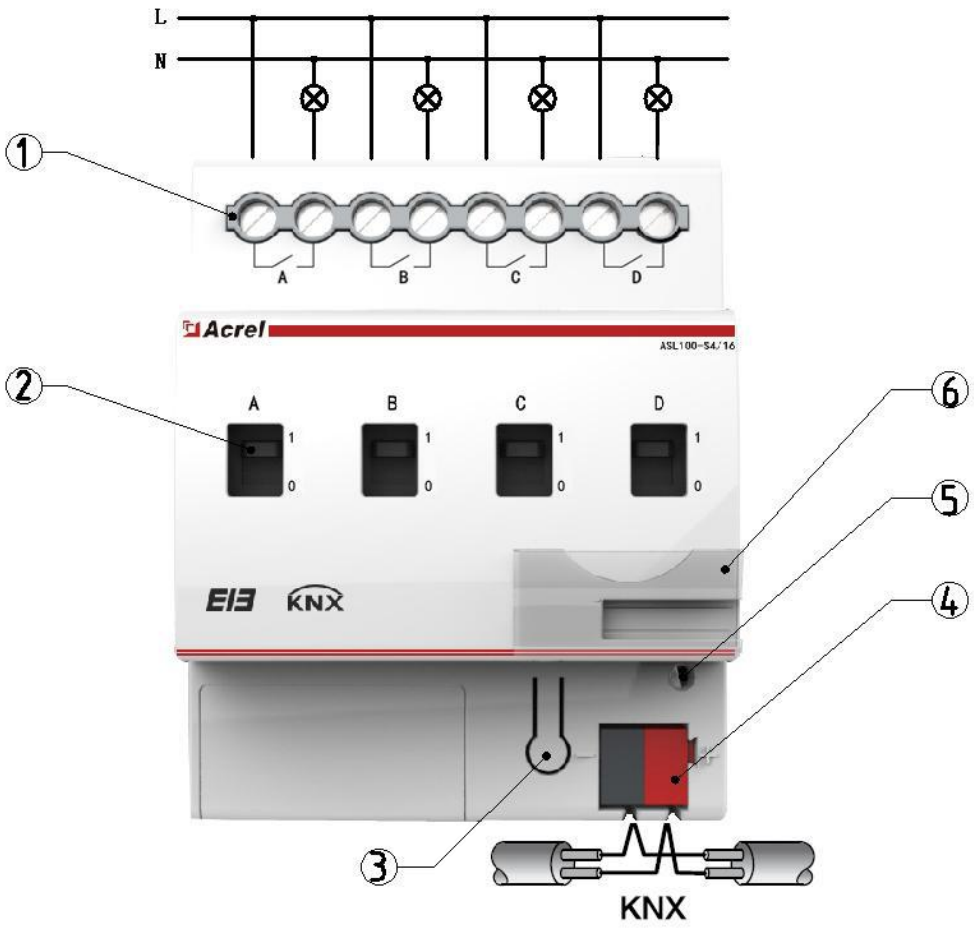
4. Configuration



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.

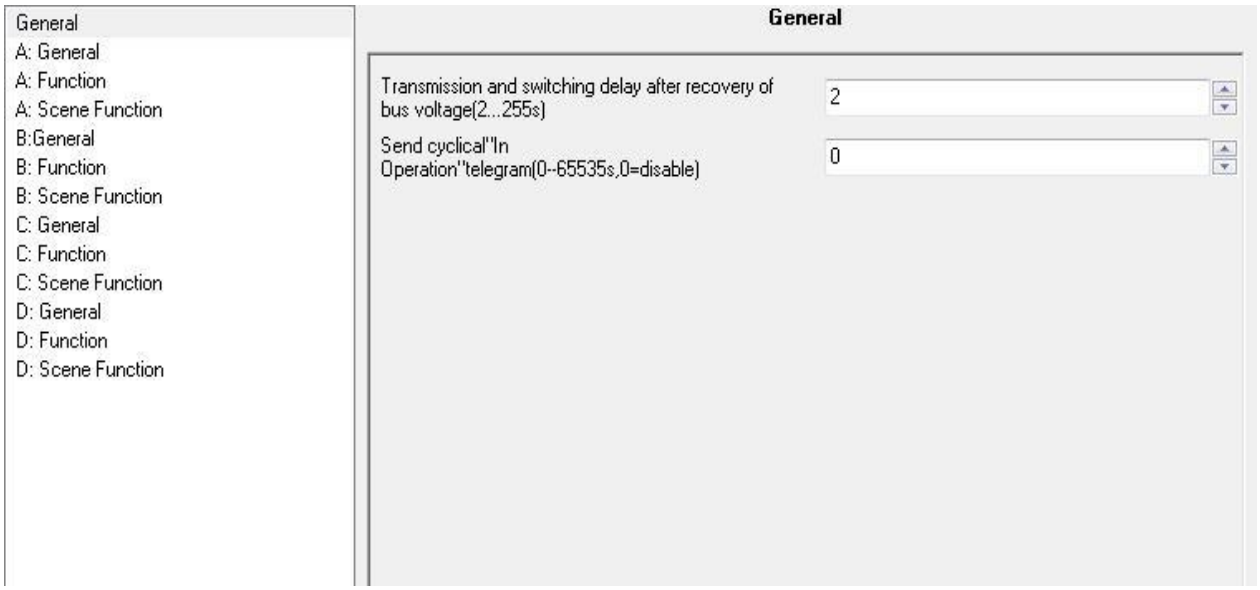
6.3 Parameter description

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]

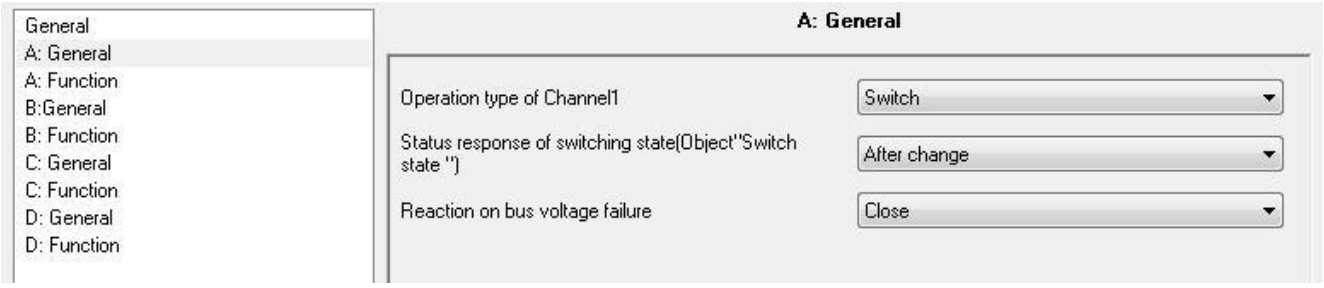
Options: 2~255s

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

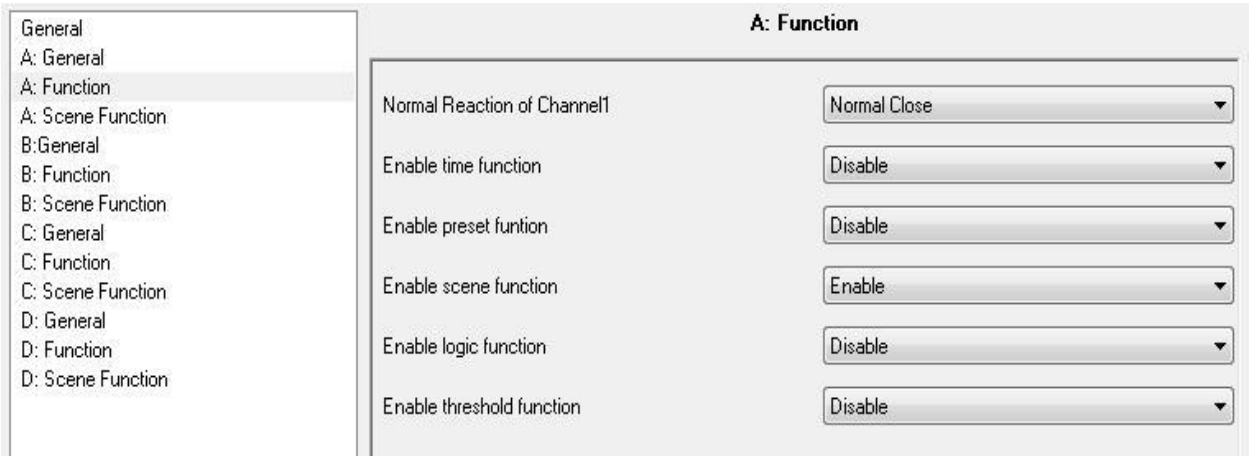
Options: Close

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:

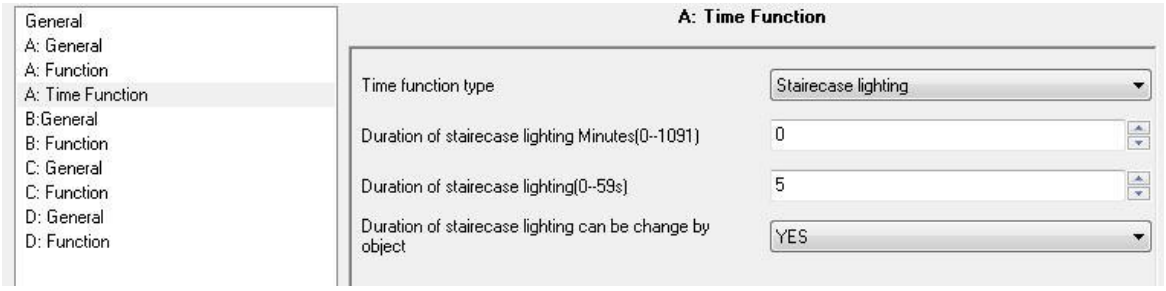
Value object ”Disable Time Function ” after bus voltage recovery

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: Stairecase 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 stairecase lighting [0—59s]

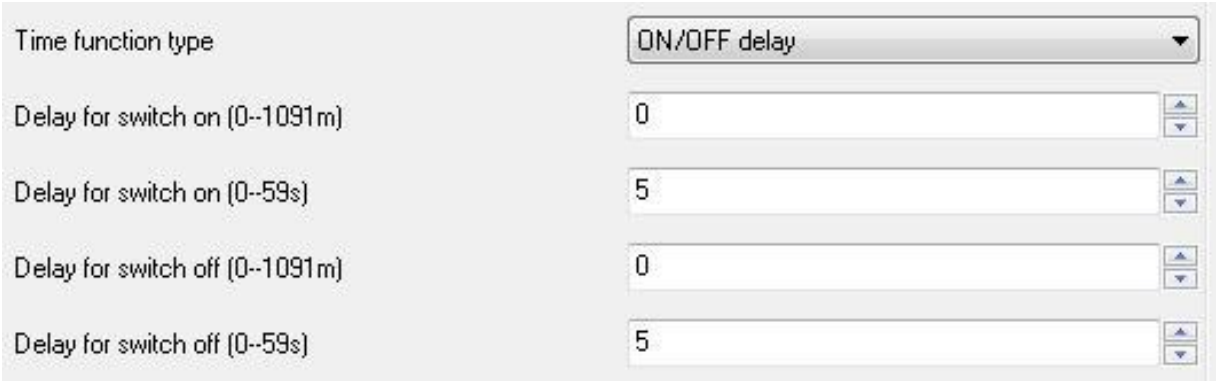
Options: 0---59s

Duration of stairecase 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

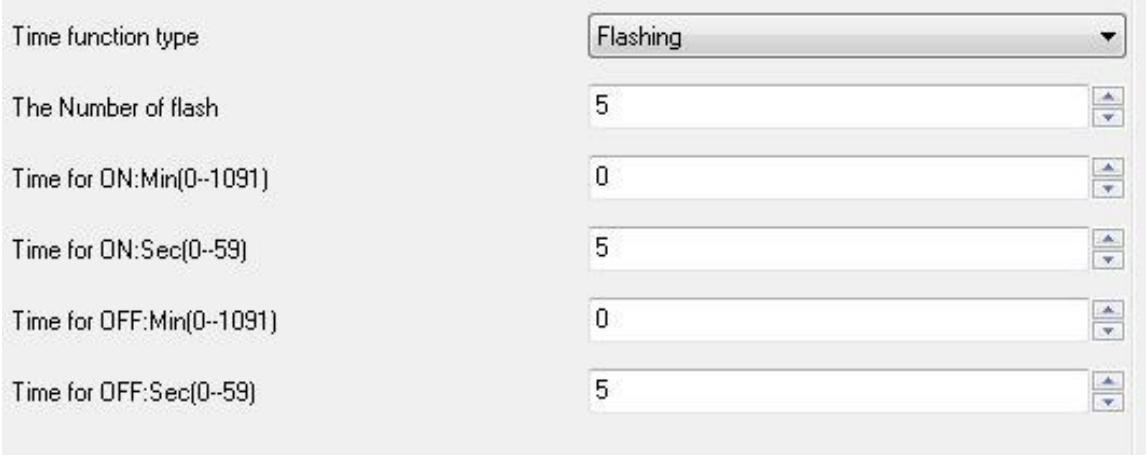
Delay for switch off [0---1091m]

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:



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]

Options: OFF

ON

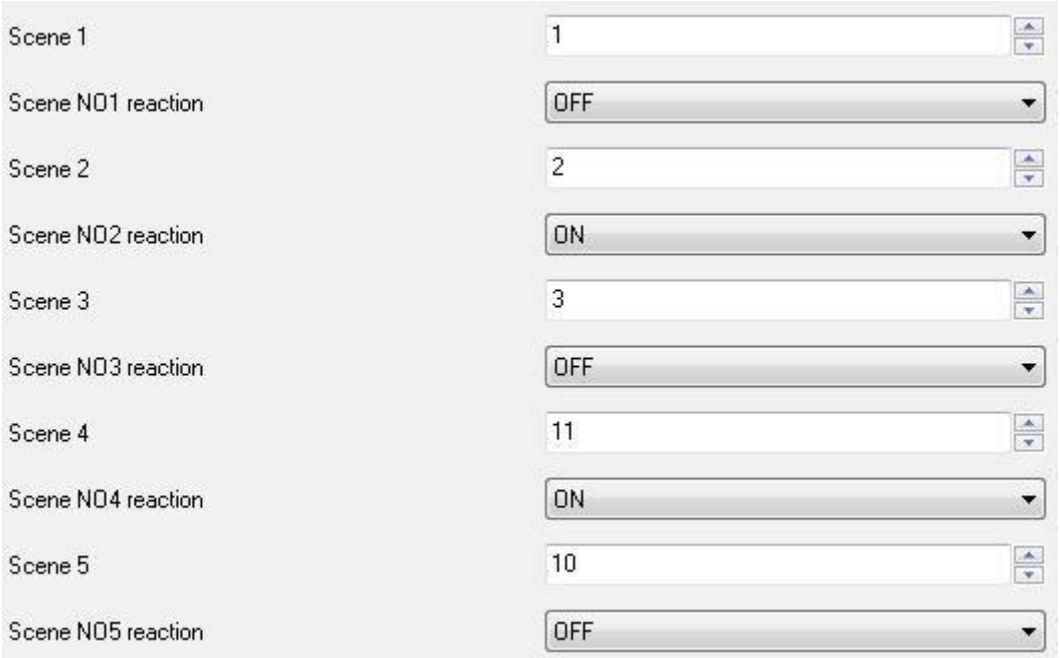
Reaction on preset 1[telegram value 1]

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

Options: 0--63

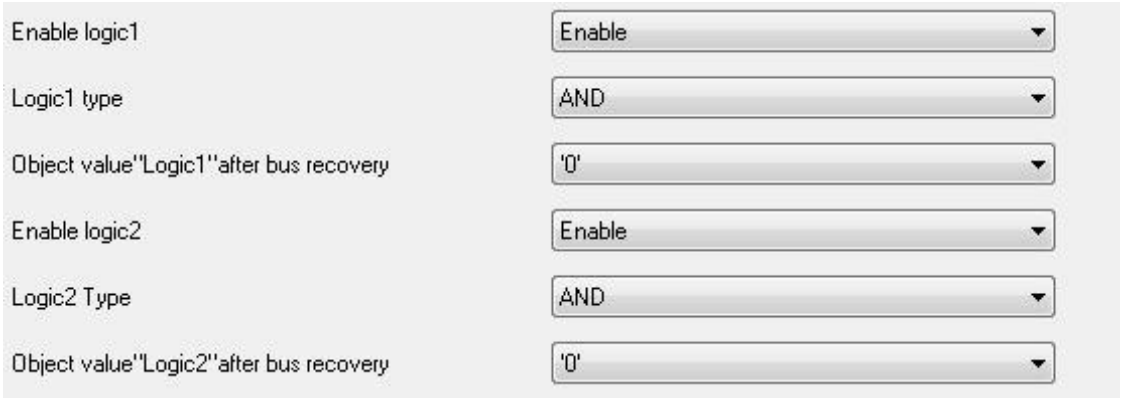
Scene NO1 reaction

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 logic 1

Options: Enable

Disable

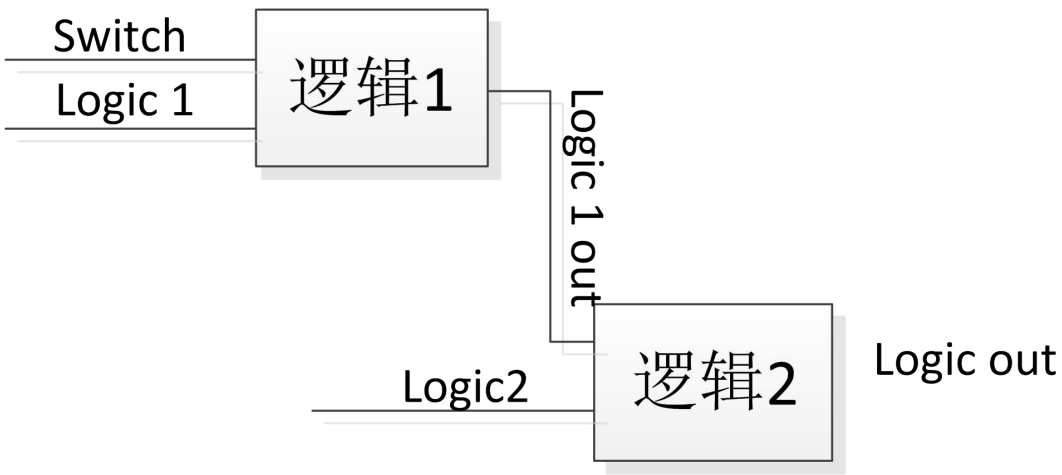
Logic 1 type

Options: AND、OR、XOR、GATE

Object value "Logic 1"after bus recovery

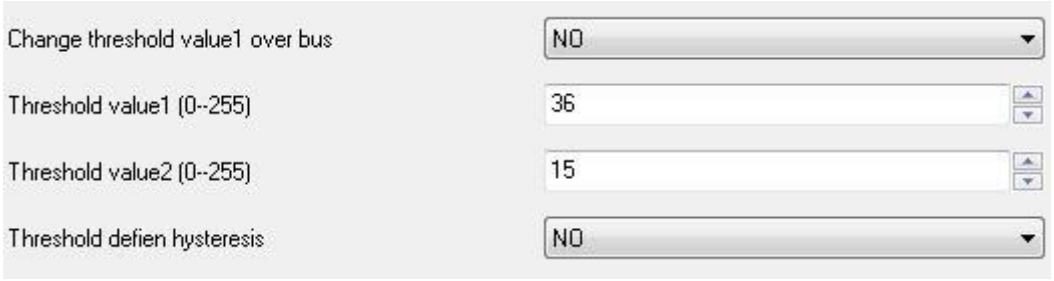
Options: 0、1

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:



6.3.3.5Threshold 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

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

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

Options: ON

OFF

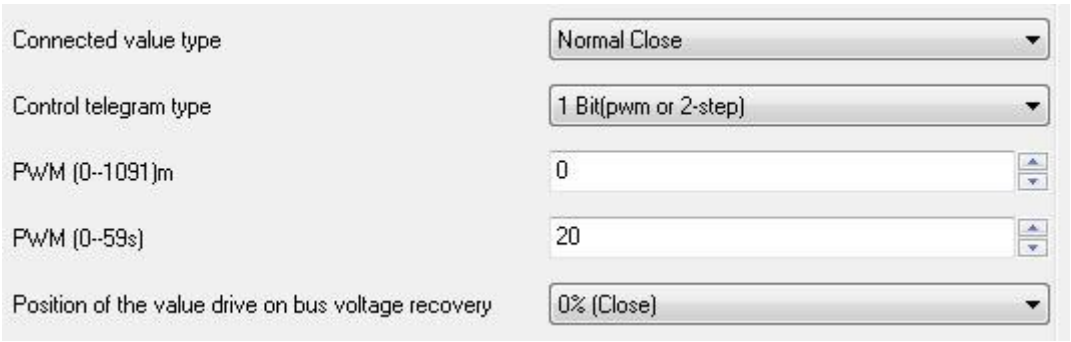
Exceding Upper threshold

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

Options: Normal Close

Normal Open

Control telegram type

Options: 1 bit(pwm or 2-step)

1 Byte(continuous)

PWM [0--1091]m

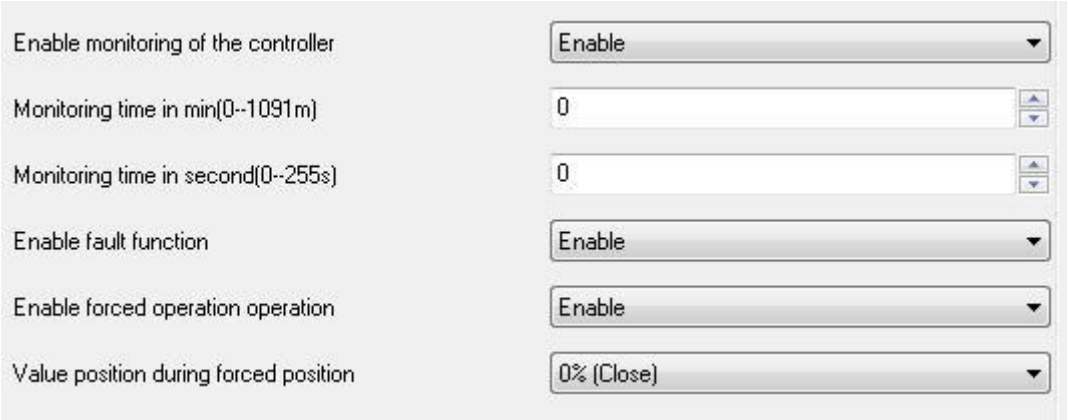
Options: 0---1091

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

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

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.

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

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

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

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

	enabled. After powered on, the initial value is decided according to *Value object "Disable Time Function"* on bus voltage recovery parameter value in the parameter window. The group object can disable/enable all operation modes under Time Function, including stair light, switch delay and flashing. Message value 1 Enable Time Function 0 Disable Time Function

13 Channel 1 Duration of Staircase 2 字节 C R W - - 2 byte ... 低级

No.	Description
13	The group object is displayed after the last parameter in A:Time Function is selected as Yes. The group object is used to change the duration of stair light.

15 Channel 1 Call Preset 1 比特 C - W - - 低级

No.	Description
15	The group object is displayed after A:Function is enabled. The communication object is used to call the stored switch state. Message value 0 corresponding relay action depends on parameter Reaction on Preset 0 1 corresponding relay action depends on parameter Reaction on Preset 1

17 Channel 1 8 Bit Scene 1 字节 C - W - - 低级

No.	Description
17	The communication object is displayed after Scene in A:Function is enabled. The group object can send one 1Byte scene number to the bus. According to the standard of KNX association, the scene uses 8 bytes but only the first six bits are used. thus, the scene number is 0--63.

18 Channel 1 Logic1 1 比特 C - W - - 1 bit D... 低级

No.	Description
18	The group object can be displayed after the Logic function in A:Function is enabled. Logic 1, as the first logic input, sets the corresponding parameters in the corresponding parameter setting window.

21 Channel 1 Threshold Input 1 字节 C - W - - 8 bit u... 低级

No.	Description
21	For threshold input

22 Channel 1 Change Threshold value1 1 字节 C - W - - 8 bit u... 低级

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

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.

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.