MEAN WELL

KNX LED actuator / dimmer

KAA-4R4V

EAC CE UKCA KNX ▷DEKRA
(LVD+EMC)

Indoor   LED   Household   Building Automation

■ Features

· Dimming and switching LED driver
  and conventional electronic ballast
· LED indicator for each channel
· Linear or logarithmic dimming curve
  programable via ETS software
· Manual control via Push button on panel
· Programmable various time and scene function
· 3 years warranty

■ Applications

· Building Automation
· Lighting switch / dimming control

■ Description

The KAA-4R4V dimming actuator is a 4 channels device with high quality independent latching relay to turn on or off ,which is suitable for MEANWELL all kinds of LED drivers. The product specification indicate the maximum number of recommended LED drivers per channel which is easy for building planning. Based on the KNX architecture, KNX system engineers can easily program through the ETS system as needed during planning or use, or manually through the physical buttons on the panel. KAA-4R4V is independently configured with a green LED on each channels to indicate the status of the switch. The compact design with 4 units(72mm) wide modular makes it suitable for installation in the distribution board on 35mm mounting rails in the EIB/KNX application. In addition to the basic switch function, a DC 0(1)-10V signal to perform the dimming on the connected driver at each channel. The dimming curve can be adjusted to linear or logarithmic mode, so that the end user has excellent dimming experience. It can also be used with motion sensors in the buildings to save energy. The dimmer are powered via the EIB/KNX and do not require any additional power supply. As result, KAA-4R4V is featuring both reliability and multi functionality to meet various needs in a modern building.

■ Model Encoding

KAA - 4R4V ☐

-10: 10A per channel

Blank: 16A per channel

R:Relay on/off for 4-channel(4 fold)   V: 0(1)-10V dimming for 4-channel(4 fold)

Series name
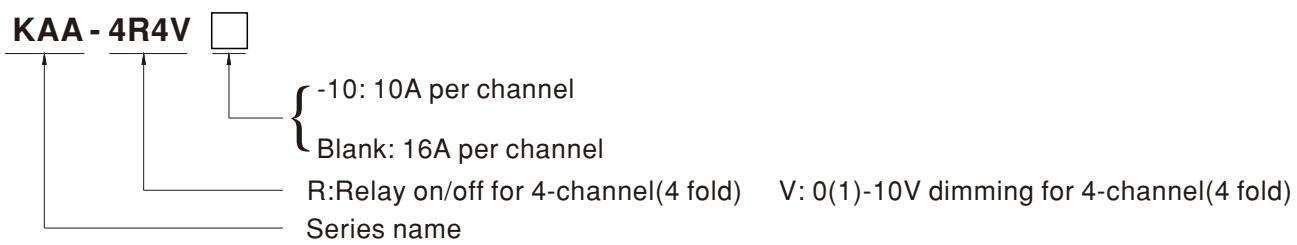
Type	Function	Note
-10	4 channel actuator, 10A per channel	In stock
Blank	4 channel actuator, 16A per channel	by request

SPECIFICATION

MODEL			KAA-4R4V-10
SUPPLY	**KNX BUS VOLTAGE**		21~31V
	CURRENT CONSUMPTION		<11mA
	POWER CONSUMPTION		<250mW
OUTPUT CONTROL	**VOLTAGE RANGE**		0-10V
	NO. OF CONTROL OUTPUT		4
	TYPE OF CONTROL		passive
	MAX. CURRENT PER OUTPUT		50mA
	MAX. CABLE LENGTH AT FULL LOAD		100m with cable cross-section 1.5mm^2
OUTPUT RELAY OUTPUT SWITCHING RATINGS	**Nr. OF RELAY**		4
	INDEPENDENT & POTENTIAL-FREE PER RELAY		Yes
	CURRENT	**OHMIC LOAD**	10A
		CAPACITIVE LOAD	220 μF(See Note.2)
	MAX. INRUSH CURRENT		400A(max. 200 μs),80A(max. 20ms)
	BS EN/EN60947-4-1 AC1(COS θ =0.8)		10A
	BS EN/EN60947-4-1 AC5a(COS θ =0.45)		8A
	BS EN/EN60947-4-1 AC5b		10A
	MAX. TOTAL CURRENT OF THE ACTUATOR		40A
OUTPUT SERVICE LIFE	**MECHANICAL SERVICE LIFE**		>10^6
	ELECTRICAL ENDURANCE BS EN/EN60669-1 19.1		4*10^4(See Note.2)
	BS EN/EN60669-1 19.2 , FLOURSCENT LAMP(AX)		10^4(See Note.2)
OPERATING & DISPLAY	**PROGRAMMING BUTTON/LED**		For set the individual address
	MANUAL BUTTON/LED		For manually control the relay and dimming
ENVIRONMENT	**WORKING TEMP.**		-30 ~ +45℃(3K5)
	STORAGE TEMP.		-35 ~ +70℃
	WORKING HUMIDITY		10 ~ 95% RH non-condensing
	PROTECTION CLASS		Ⅱ, According to BS EN/EN61140
	OVER VOLTAGE CATEGORY		Ⅲ,According to BS EN/EN60664-1
	POLLUTION DEGREE		2, According to BS EN/EN60664-1
	DEGREE OF PROTECTION		IP20,According to BS EN/EN60529
SAFETY & EMC	**SAFETY STANDARDS**		BS EN/EN50491-3, BS EN/EN60669-1, BS EN/EN60669-2-1, BS EN/EN60669-2-5(See Note.2), EAC TP TC 004 approved
	EMC EMISSION		Compliance to BS EN/EN50491-5-1,-2,-3, BS EN/EN50090-2-2, BS EN/EN60669-2-1, BS EN/EN60669-2-5, BS EN/EN63044-5-1,-2,-3(See Note.2), EAC TP TC 020
	EMC IMMUNITY		Compliance to BS EN/EN50491-5-1,-2,-3, BS EN/EN50090-2-2, BS EN/EN60669-2-1, BS EN/EN60669-2-5, BS EN/EN63044-5-1,-2,-3(See Note.2), EAC TP TC 020
CONNECTIONS	**SCREW TERMINAL**		0.5 – 4.0mm² solid core 0,5 - 2,5mm² finely stranded
	KNX BUS CONNECTION TERMINAL		0.8mm ϕ , solid core
OTHERS	**DIMENSION**		72*90*57mm (W*H*D)
	MOUNTING WIDTH IN UNITS		4
	DIN RAIL MOUNTING		35mm mounting rail according to DIN BS EN/EN60715
	PACKING		0.247Kg ; 48pcs/12.53Kg/1.02CUFT
NOTE			1. All parameters NOT specially mentioned are measured at 230VAC input, rated load and 25℃ of ambient temperature. 2. Notified Body test report is provided. ※ Product Liability Disclaimer : For detailed information, please refer to https://www.meanwell.com/serviceDisclaimer.aspx

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■ Block Diagram

KNX BUS — TRANSCEIVER — DRIVER — RELAY — Channel A | Channel D

DC-DC CONVERTER

MCU

ISOLATOR — DIMMING — Channel 1 | Channel 4
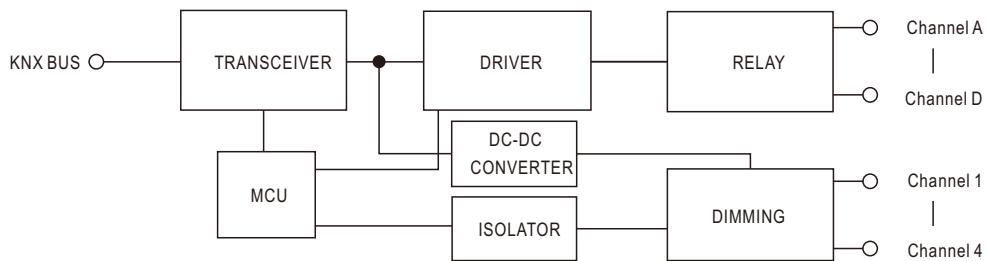
■ Mechanical Specification

Case No. KAA   Unit:mm

72

57
53.1

90
57.84
45

KAA-4R4V
230VAC / 10A
0-10V Dimming Actuator
4CH
KNX
Prog. >1s

0-10V OUTPUT
- 1 +   - 2 +   - 3 +   - 4 +

35
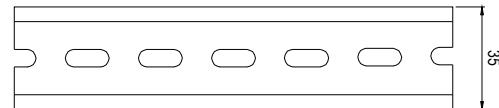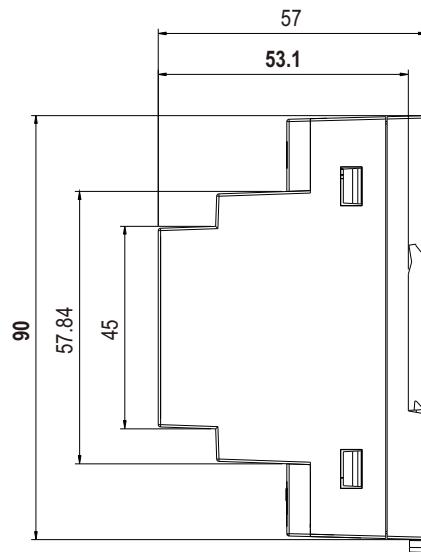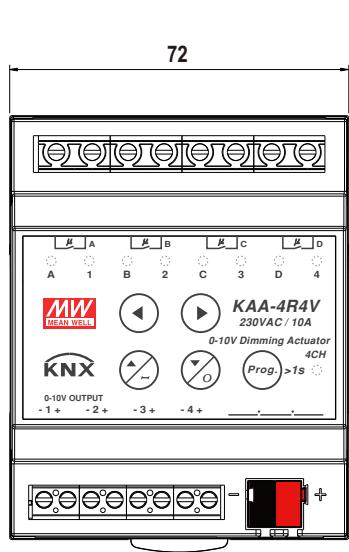
ADMISSIBLE DIN-RAIL:TS35/7.5 OR TS35/15

■ Max. output load per channel

Maximum load	KAA-4R4V-10
Resistive load	2300 W
LED driver	refer to table below
Incandescent lamps	2300 W
Halogen lamps 230V	2300 W
Halogen lamps, electronic transformer	1300 W
Fluorescent lamps, not compensated	2000W
Fluorescent lamps, parallel comp.	1200W
Max. number of electronic transformers	15

■ Nr. of driver per control output channel

The maximum number of driver is 500 pcs per channel in case current from each driver is sourcing 0.1mA.
The actual number of driver is subject to applications. i.e. total cable length in system.

■ Nr. of driver per relay channel

The maximum number of the LED PSUs that can be connected to each relay channel at 230V is shown as below	
Suggested model	KAA-4R4V-10
APC-8	22
APC-12	11
APC-16	18
APC-25	11
APC-35	11
APC-8E	22
APC-12E	18
APC-16E	15
APV-8	22
APV-12	11
APV-16	18
APV-25	11
APV-35	11
APV-8E	22
APV-12E	18
APV-16E	15
LCM-25	25
LCM-40	25
LCM-60	25
LCM-25DA	25
LCM-40DA	25
LCM-60DA	25
LPC-20	11
LPC-35	9
LPC-60	8

The maximum number of the LED PSUs that can be connected to each relay channel at 230V is shown as below	
Suggested model	KAA-4R4V-10
LPC-100	7
LPC-150	5
LPF-16	18
LPF-25	16
LPF-40	16
LPF-60	9
LPF-90	7
LPF-16D	18
LPF-25D	16
LPF-40D	16
LPF-60D	9
LPF-90D	7
LPH-18	16
LPHC-18	16
LPV-20	11
LPV-35	9
LPV-60	8
LPV-100	7
LPV-150	8
NPF-40	10
NPF-60	10
NPF-90	8
NPF-120	8
NPF-40D	10
NPF-60D	10
NPF-90D	8
NPF-120D	8
PCD-16B	80
PCD-25B	53
PCD-40B	45
PCD-60B	26
PLC-30	23
PLC-45	23
PLC-60	23
PLC-100	13
PLD-16B	40
PLD-25	32
PLD-40B	32
PLD-60B	32
PLM-12	53
PLM-25	53
PLM-40	53

The maximum number of the LED PSUs that can be connected to each relay channel at 230V is shown as below	
Suggested model	KAA-4R4V-10
PLN-20	23
PLN-30	23
PLN-45	23
PLN-60	23
PLN-100	13
PLP-30	32
PLP-45	27
PLP-60	23
PWM-40	10
PWM-60	10
PWM-90	8
PWM-120	8
HLN-40H	10
HLN-60H	9
HLN-80H	7
HLP-40H	7
HLP-60H	9
HLP-80H	7
CEN-60	22
CEN-75	22
CEN-100	22
CLG-60	23
CLG-100	13
CLG-150	8
ELG-75	10
ELG-100	8
ELG-150	8
ELG-75-C	10
ELG-100-C	13
ELG-150-C	8
HBG-100	8
HBG-160	8
HBG-240	7
HBG-60	18
HLG-40H	16
HLG-60H	9
HLG-80H	7
HLG-100H	8
HLG-120H	8
HLG-150H	8
HLG-185H	8
HLG-240H	5

The maximum number of the LED PSUs that can be connected to each relay channel at 230V is shown as below	
Suggested model	KAA-4R4V-10
HLG-320H	6
HLG-600H	3
HLG-60H-C	8
HLG-80H-C	8
HLG-120H-C	10
HLG-185H-C	9
HLG-240H-C	7
HLG-320H-C	6
HSG-70	9
HVG-65	20
HVG-100	8
HVG-150	8
HVG-240	5
HVG-320	4
HVGC-65	20
HVGC-100	8
HVGC-150	8
HVGC-240	5
HVGC-320	4

■ **Communication Object Table**

Num	Name	Object function	Length	DPT	Priority	Flag
1	Central Function	Manual control	1bit	Enable	Low	CW
2	Central Function	Switch On/Off	1bit	Switch	Low	CW
3	Central Function	Dim absolutely	1byte	Percentage	Low	CW
4	Central Function	Operation	1bit	State	Low	CRT
5	Channel 1	Switch On/Off	1bit	Switch	Low	CW
6	Channel 1	Switch State	1bit	State	Low	CRT
7	Channel A	Additional Switch On/Off	1bit	Switch	Low	CW
8	Channel A	Additional Switch state	1bit	State	Low	CRT
9	Channel 1	Dim relatively	4bit	Dimming control	Low	CW
10	Channel 1	Dim absolutely	1byte	Percentage	Low	CW
11	Channel 1	State Dimming Value	1byte	Percentage	Low	CRT
12	Channel 1	Scene	1byte	scene number	Low	CW
			1byte	scene control	Low	CW
13	Channel 1	Automatic 1	1bit	Switch	Low	CW
14	Channel 1	Automatic 2	1bit	Switch	Low	CW
15	Channel 1	Automatic 3	1bit	Switch	Low	CW
16	Channel 1	Automatic 4	1bit	Switch	Low	CW
17	Channel 1	Block I	1bit	Enable	Low	CW
18	Channel 1	Block II	1bit	Enable	Low	CW
19	Channel 1	Staircase light	1bit	Switch	Low	CW
20	Channel 1	Staircase light with time	2byte	time(0-65535)s	Low	CW
21	Channel 1	Prewarning	1bit	Alarm	Low	CRT
22	Channel 1	Permanent ON	1bit	Switch	Low	CW
23	Channel 2					
	……					
41	Channel 3					
	……					
59	Channel 4					
	……					

The priority of the particular communication objects as well as the flags can be adjusted. The flag control the function of the objects in the programming where C stands for communication, R for Read, W for write, T for transmit and U for update.

■ **Configuration and Commissioning**

The application program(database) can be downloaded via Online Catalogs from ETS or via http://www.meanwell.com/productCatalog.aspx

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■ **Typical application**

　◎　**Application 1:Work with DC 1-10V LED driver**

230vac
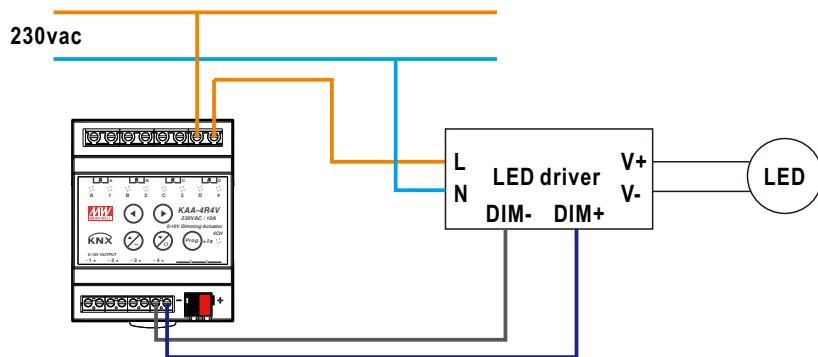
■ **Application 2:Work with DC 0-10V LED driver**

230vac
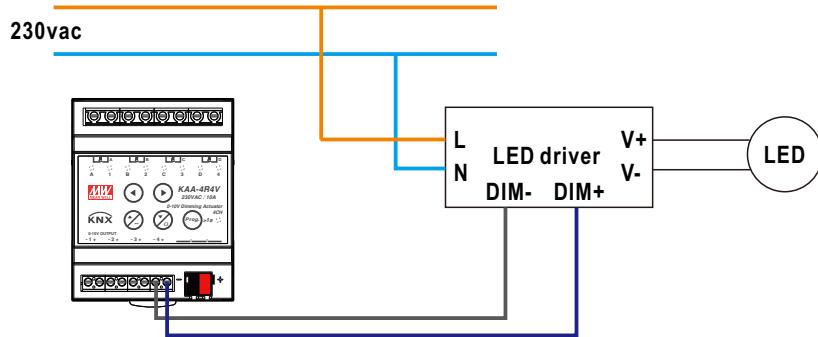
◎　**Application 3:Work with non-dimmable driver**

230vac
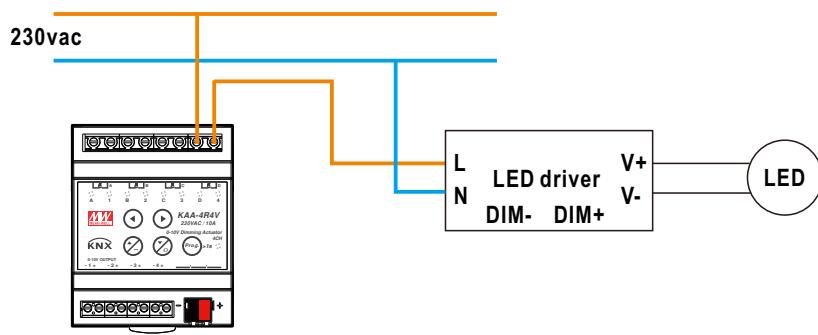
■ **Recommended Screwdriver, Wire and Torque Setting**

1.Screwdriver(Width*Thick):Slotted screwdriver 2.5*0.4~3.5*0.6
2.Wire:0.5~4.0mm2 solid core or 0.5~2.5mm2 finely stranded
3.Torque:0.8Nm

■ **Installation Manual**

Please refer to : http://www.meanwell.com/manual.html