

4 CHANNEL UNIVERSAL DIMMING ACTUATOR



USER MANUAL

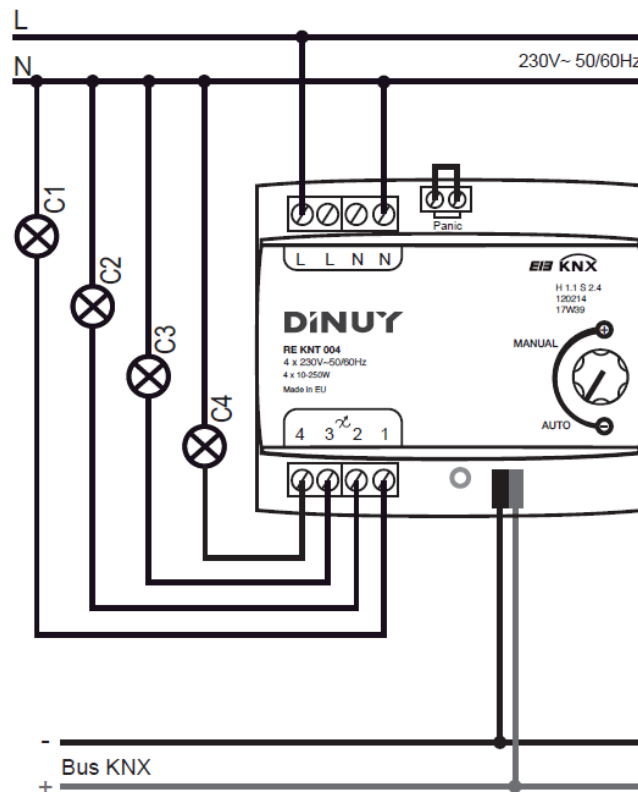
General Description

- 4 Channel universal modular dimming actuator for leading and trailing edge phase control (R, L & C loads):
 - o Incandescence & Halogens 230V~.
 - o Halogens with electronic transformer.
 - o Dimmable 230V~ LED lamps.
 - o Dimmable 12V~ LED lamps with electronic transformer.
- Four independent output channels.
- Modular installation device. DIN-rail mounting. 5-modules wide.
- High switching capacity, maximum 250W per channel.
- Built-in potentiometer on the front of the dimmer, which allows checking manually the correct operation of the device without connecting the Bus:
 - o Manual (any position above the minimum): with the potentiometer the lamps can be regulated without having to connect the Bus.
 - o Automatic (at minimum): operation through the Bus.
- Protected against overload and short circuit. Incorporates resettable heating protection.
- Anti-panic input for safety systems: enabling this input, in an emergency the lamps will light at maximum ignoring the dimming.
- Programming and commissioning by ETS4 or later. Built-in KNX standard connecting terminal.

Technical Data

Nominal voltage	230V~ 50/60Hz
Supply from KNX bus	21 ~ 32V _{DC} (via Bus)
Consumption	<10mA
Connection	Connecting terminal
Commissioning	ETS4 or later
KNX Media	TP1
Insulation voltage	4KV _{AC} (bus/mains voltage)
Channels	4
Configuration mode	System Mode
High Switching Capacity	<ul style="list-style-type: none"> Incandescence & Halogens 230V~ 4 ~ 250W por canal Halogen with Electronic Transformer 4 ~ 250VA por canal 230V~LED (dimmmable by leading-edge) 4 ~ 150VA por canal 230V~LED (dimmmable by trailing-edge) 4 ~ 250VA por canal 12V~LED Lamps (wit Electronic transformer) 10 ~ 250VA de transformador por canal
Dimensions	5 modules, 87.5 mm width x65mm depth
Mounting	DIN 46277 rail
Working temperature	-5°C ~ +45°C
Storage temperatura	-30°C ~ +70°C
Protection degree	IP20 (EN60529)
Directives	Seguridad 2014/35/UE Comp. Electromagnética 2014/30/UE
According to the Standards	KNX Standard 2.0 EN60669-1, 2-1, 2-3

Installation and Wiring

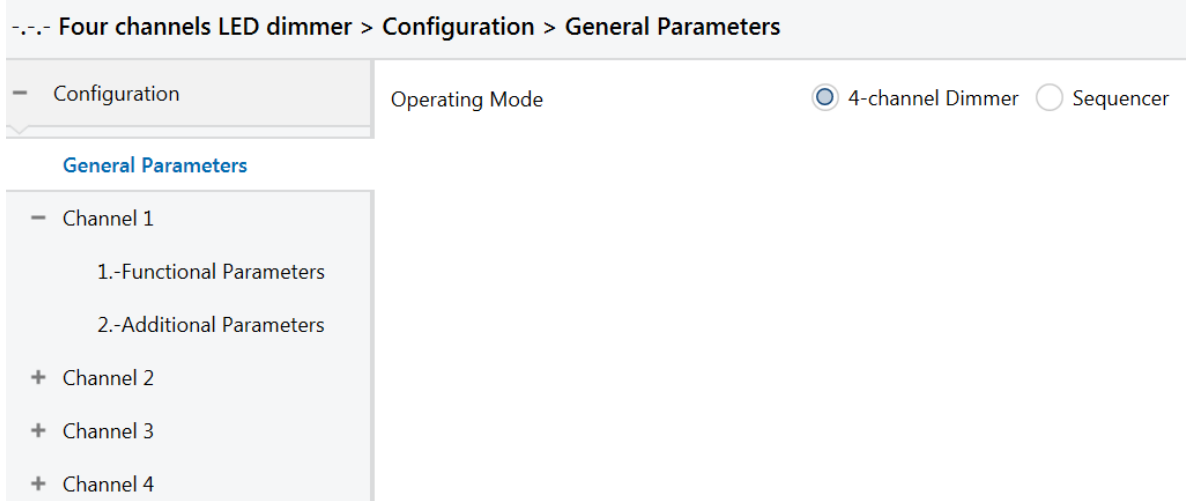


Project Development and Commissioning

I – CHANNELS LED DIMMER CONFIGURATION

○ General Parameters

- Selection of the operating mode:
 - Independent 4-channel Dimmer.
 - Sequencer. It allows to make up to 5 different sequences with the % dimming value for each output channel.



I.1- 4 CHANNELS LED DIMMER CONFIGURATION

○ **Functional Parameters:**

Functional regulation parameters for any of the 4 channels:

- Minimum Brightness: sets the minimum dimming level of the lamps in % (0% ~ 100%).
- Maximum Brightness: sets the maximum dimming level of the lamps in % (0% ~ 100%).
- Soft Turn-On Time (x 0,1sec): sets the time delay of the switching-on from the reception of the telegram until it reaches the end value. Among other features, allows to avoid damaging the lamps in case of incandescent, halogens or LED lamps. This time can be set 0,1 ~ 6553sec.
- Soft Turn-Off Time(x 0,1sec): sets the time delay of the switching-off from the reception of the telegram until it reaches the end value. Among other features, allows to avoid damaging the lamps in case of incandescent, halogens or LED lamps. This time can be set 0,1 ~ 6553sec.
- Switch-On Mode: sets how the lamps are switched-on each time it receives an ON telegram: Switch-On at last turn-off Brightness, Switch-On at Maximum Brightness, Switch-On at this % Brightness or Cyclic Work.
 - Cyclic Work:
 - Switch-On Ramp Time (sec)
 - ON Time (sec)
 - Switch-Off Ramp Time (sec)
 - OFF Time (sec)
- OFF state Brightness (%): It is measured in % and can be between 0% ~ 100%.
- Regulation Type: Leading edge phase or Trailing edge phase.

--- Four channels LED dimmer > Configuration > Channel 1 > 1.-Functional Parameters

Configuration	Minimum Brightness (%)	3
General Parameters	Maximum Brightness (%)	99
Channel 1	Soft Turn-On Time (x 0,1sec)	1
1.-Functional Parameters	Soft Turn-Off Time (x 0,1sec)	3
2.-Additional Parameters	Switch-On Mode	Switch-On at Last turn-off Brightness
+ Channel 2	OFF state Brightness (%)	2
+ Channel 3	Regulation Type	<input checked="" type="radio"/> Leading edge <input type="radio"/> Trailing edge
+ Channel 4		

○ **Additional Parameters:**

Additional Parameters for any of the 4 channels.

- Timer Time Delay (sec): time delay in case of receiving a timing telegram. 0sec ~ 7.200sec. Default value: 60 seconds.
- Prewarning in Timer function (sec): can make a brief flickering of the LED lamps a time before the end of the set time: 0sec ~ 60sec.
- Action after Power Supply Fault: sets the state the dimmer will come back after a fault on the power supply or KNX bus: ON, OFF or Switch-On at this % Brightness.
- Dimming Speed (from 0% to 100% x 0,1sec): Time in seconds to make the regulation from 0% to 100% (between): 0,1seg ~ 486seg.
- Behavior on incoming Dimming Value:
 - Go Directly.
 - Go Across Dimming Speed.
- Number of Scenes attended: It can be selected from 1 to 5 scenes:

- Scene Number 1: It can be selected from Scene 1 to scene 64
- Default Brightness (%) Scene 1: between 0% ~ 100%.

Four channels LED dimmer > Configuration > Channel 1 > 2.-Additional Parameters

- Configuration		Timer Time Delay (sec)	60
- General Parameters		Prewarning in Timer function (sec)	0
- Channel 1		Action after Power Supply Fault	OFF
1.-Functional Parameters		Dimming Speed (from 0% to 100% x 0,1sec)	2
2.-Additional Parameters		Behavior on incoming Dimming Value	<input type="radio"/> Go Directly <input checked="" type="radio"/> Go Across Dimming Speed
+ Channel 2		Number of Scenes attended	Five Scenes
+ Channel 3		Scene Number 1	Scene 1
+ Channel 4		Default Brightness (%) Scene 1	90
		Scene Number 2	Scene 2
		Default Brightness (%) Scene 2	100
		Scene Number 3	Scene 3
		Default Brightness (%) Scene 3	100
		Scene Number 4	Scene 4
		Default Brightness (%) Scene 4	100
		Scene Number 5	Scene 5

Objetos de Comunicación / Canales / Parámetros

I.2-SEQUENCER CONFIGURATION

○ Channel “Sequencer”:

It can be selected each channel (1,2,3,4) the type of dimming:

- Leading edge or Trailing edge.
- Action after Power Supply Fault: OFF or Call one Sequence.

Four channels LED dimmer > Configuration > Channel "Sequencer"

Configuration	Dimming type Channel 1	<input checked="" type="radio"/> Leading edge <input type="radio"/> Trailing edge
General Parameters	Dimming type Channel 2	<input checked="" type="radio"/> Leading edge <input type="radio"/> Trailing edge
Channel "Sequencer"	Dimming type Channel 3	<input checked="" type="radio"/> Leading edge <input type="radio"/> Trailing edge
Sequences	Dimming type Channel 4	<input checked="" type="radio"/> Leading edge <input type="radio"/> Trailing edge
+ Sequence Number 1	Action after Power Supply Fault	<input checked="" type="radio"/> OFF <input type="radio"/> Call one Sequence
+ Sequence Number 2		
+ Sequence Number 3		
+ Sequence Number 4		
+ Sequence Number 5		

○ Sequences:

This function allows us to select up to 5 different sequences, so that they are activated when the activation value is received through the corresponding Ibit sequence objects.

Four channels LED dimmer > Configuration > Channel "Sequencer" > Sequences

Configuration	Enable Sequence Number 1	<input type="radio"/> No <input checked="" type="radio"/> Yes
General Parameters	Enable Sequence Number 2	<input type="radio"/> No <input checked="" type="radio"/> Yes
Channel "Sequencer"	Enable Sequence Number 3	<input type="radio"/> No <input checked="" type="radio"/> Yes
Sequences	Enable Sequence Number 4	<input type="radio"/> No <input checked="" type="radio"/> Yes
+ Sequence Number 1	Enable Sequence Number 5	<input type="radio"/> No <input checked="" type="radio"/> Yes
+ Sequence Number 2		
+ Sequence Number 3		
+ Sequence Number 4		
+ Sequence Number 5		

- Sequence Number 1:
 - Do this Sequence:
 - One time.
 - One time y Continue with Sequence 1.
 - One time y Continue with Sequence 2.
 - One time y Continue with Sequence 3.
 - One time y Continue with Sequence 4.
 - One time y Continue with Sequence 5.
 - Number of Steps: It can be selected:
 - One Step.
 - Two Steps.
 - Three Steps.
 - Four Steps.
 - Five Steps.
- STEP ONE:
 - **Step Time:** Timing from 0,1seg ~ 6553seg. Default value 10 seconds.
 - **Brightness Initial Value** in % from 0% to 100% for the 4 independent output channels.
 - **Brightness Final Value** in % from 0% to 100% for the 4 independent output channels.

Four channels LED dimmer > Configuration > Channel "Sequencer" > Sequences > Sequence Number 1 > STEP ONE

- Configuration	STEP ONE	
General Parameters	Step Time (x 0,1sec)	<input type="text" value="1"/>
- Channel "Sequencer"	Brightness Final Value (%)	
- Sequences	Channel 1	<input type="text" value="100"/>
- Sequence Number 1	Channel 2	<input type="text" value="100"/>
STEP ONE	Channel 3	<input type="text" value="100"/>
STEP TWO	Channel 4	<input type="text" value="100"/>
STEP THREE	Brightness Final Value (%)	
STEP FOUR	Channel 1	<input type="text" value="100"/>
STEP FIVE	Channel 2	<input type="text" value="100"/>
+ Sequence Number 2	Channel 3	<input type="text" value="100"/>
+ Sequence Number 3	Channel 4	<input type="text" value="100"/>
+ Sequence Number 4		
+ Sequence Number 5		

Nº	Nombre	Función	Longitud	C	R	W	T	U	Tipo Datos	Prioridad	Descripción
0	Channel 1 – Switch On-Off Input	Switch	1 bit	√	•	√	•	•	switch	Low	Switch ON (1) o Switch OFF (0)
1	Channel 1 – Relative Set Value Control Input	Relative Set Value Control	4 bit	√	•	√	•	•	dimming control	Low	Relative Set Value Control
2	Channel 1 – Absolute Set Value Control Input	Dimming Value	1 byte	√	•	√	•	•	percentage (0...100%)	Low	Absolute Set Value Control (total)
3	Channel 1 – Timed Start-Stop Input	Timed Start-Stop	1 bit	√	•	√	•	•	switch	Low	Start or End of a timed switching
4	Channel 1 – Forced Input	Forced	2 bit	√	•	√	•	•	Enable control	Low	Forced Input
5	Channel 1 – Scene Number Input	Scene Numbered	1 byte	√	•	√	•	•	Scene control	Low	Scene Number
6	Channel 1 – Info Switch On-Off Output	Info Switch On-Off	1 bit	√	√	•	√	•	Switch	Low	Info Switch On-Off
7	Channel 1 –Info Actual Dimming Value Output	Info Dimming Value	1 Byte	√	√	•	√	•	percentage (0...100%)	Low	Info Dimming Value (%)
8	Channel 1 – Dimming Speed (from 1% to 100%)	Dimming Speed	1 Byte	√	•	√	•	•	Percentage (0...100%)	Low	Dimming Speed (%)
10	Channel 1 – Dimmer Block Input	Dimmer Block	1 bit	√	•	√	•	•	Enable	Low	Dimmer Block

Nº	Nombre	Función	Longitud	C	R	W	T	U	Tipo Datos	Prioridad	Descripción
16	Channel 2 – Switch On-Off Input	Switch	1 bit	√	•	√	•	•	switch	Low	Switch ON (1) o Switch OFF (0)
17	Channel 2 – Relative Set Value Control Input	Relative Set Value Control	4 bit	√	•	√	•	•	dimming control	Low	Relative Set Value Control
18	Channel 2 – Absolute Set Value Control Input	Dimming Value	1 byte	√	•	√	•	•	percentage (0...100%)	Low	Absolute Set Value Control (total)
19	Channel 2 – Timed Start-Stop Input	Timed Start-Stop	1 bit	√	•	√	•	•	switch	Low	Start or End of a timed switching
20	Channel 2 – Forced Input	Forced	2 bit	√	•	√	•	•	Enable control	Low	Forced Input
21	Channel 2 – Scene Number Input	Scene Numbered	1 byte	√	•	√	•	•	Scene control	Low	Scene Number
22	Channel 2 – Info Switch On-Off Output	Info Switch On-Off	1 bit	√	√	•	√	•	Switch	Low	Info Switch On-Off
23	Channel 2 –Info Actual Dimming Value Output	Info Dimming Value	1 Byte	√	√	•	√	•	percentage (0...100%)	Low	Info Dimming Value (%)
24	Channel 2 – Dimming Speed (from 1% to 100%)	Dimming Speed	1 Byte	√	•	√	•	•	Percentage (0...100%)	Low	Dimming Speed (%)
26	Channel 2 – Dimmer Block Input	Dimmer Block	1 bit	√	•	√	•	•	Enable	Low	Dimmer Block

Nº	Nombre	Función	Longitud	C	R	W	T	U	Tipo Datos	Prioridad	Descripción
32	Channel 3 – Switch On-Off Input	Switch	1 bit	√	•	√	•	•	switch	Low	Switch ON (1) o Switch OFF (0)
33	Channel 3 – Relative Set Value Control Input	Relative Set Value Control	4 bit	√	•	√	•	•	dimming control	Low	Relative Set Value Control
34	Channel 3 – Absolute Set Value Control Input	Dimming Value	1 byte	√	•	√	•	•	percentage (0...100%)	Low	Absolute Set Value Control (total)
35	Channel 3 – Timed Start-Stop Input	Timed Start-Stop	1 bit	√	•	√	•	•	switch	Low	Start or End of a timed switching
36	Channel 3 – Forced Input	Forced	2 bit	√	•	√	•	•	Enable control	Low	Forced Input
37	Channel 3 – Scene Number Input	Scene Numbered	1 byte	√	•	√	•	•	Scene control	Low	Scene Number
38	Channel 3 – Info Switch On-Off Output	Info Switch On-Off	1 bit	√	√	•	√	•	Switch	Low	Info Switch On-Off
39	Channel 3 –Info Actual Dimming Value Output	Info Dimming Value	1 Byte	√	√	•	√	•	percentage (0...100%)	Low	Info Dimming Value (%)
40	Channel 3 – Dimming Speed (from 1% to 100%)	Dimming Speed	1 Byte	√	•	√	•	•	Percentage (0...100%)	Low	Dimming Speed (%)
42	Channel 3 – Dimmer Block Input	Dimmer Block	1 bit	√	•	√	•	•	Enable	Low	Dimmer Block

Nº	Nombre	Función	Longitud	C	R	W	T	U	Tipo Datos	Prioridad	Descripción
48	Channel 4 – Switch On-Off Input	Switch	1 bit	√	•	√	•	•	switch	Low	Switch ON (1) o Switch OFF (0)
49	Channel 4 – Relative Set Value Control Input	Relative Set Value Control	4 bit	√	•	√	•	•	dimming control	Low	Relative Set Value Control
50	Channel 4 – Absolute Set Value Control Input	Dimming Value	1 byte	√	•	√	•	•	percentage (0...100%)	Low	Absolute Set Value Control (total)
51	Channel 4 – Timed Start-Stop Input	Timed Start-Stop	1 bit	√	•	√	•	•	switch	Low	Start or End of a timed switching
52	Channel 4 – Forced Input	Forced	2 bit	√	•	√	•	•	Enable control	Low	Forced Input
53	Channel 4 – Scene Number Input	Scene Numbered	1 byte	√	•	√	•	•	Scene control	Low	Scene Number
54	Channel 4 – Info Switch On-Off Output	Info Switch On-Off	1 bit	√	√	•	√	•	Switch	Low	Info Switch On-Off
55	Channel 4 –Info Actual Dimming Value Output	Info Dimming Value	1 Byte	√	√	•	√	•	percentage (0...100%)	Low	Info Dimming Value (%)
56	Channel 4 – Dimming Speed (from 1% to 100%)	Dimming Speed	1 Byte	√	•	√	•	•	Percentage (0...100%)	Low	Dimming Speed (%)
58	Channel 4 – Dimmer Block Input	Dimmer Block	1 bit	√	•	√	•	•	Enable	Low	Dimmer Block

Nº	Nombre	Función	Longitud	C	R	W	T	U	Tipo Datos	Prioridad	Descripción
64	Sequence 1 SwitchOnOff	Switch	1 bit	√	•	√	•	•	on/off	Low	Switch ON (1) o Switch OFF (0)
65	Sequence 2 SwitchOnOff	Switch	1 bit	√	•	√	•	•	on/off	Low	Switch ON (1) o Switch OFF (0)
66	Sequence 3 SwitchOnOff	Switch	1 bit	√	•	√	•	•	on/off	Low	Switch ON (1) o Switch OFF (0)
67	Sequence 4 SwitchOnOff	Switch	1 bit	√	•	√	•	•	on/off	Low	Switch ON (1) o Switch OFF (0)
68	Sequence 5 SwitchOnOff	Switch	1 bit	√	•	√	•	•	on/off	Low	Switch ON (1) o Switch OFF (0)
69	Info On-Off Output Sequence 1	Switch	1 bit	√	√	√	√	•	on/off	Low	Info On-Off Output
70	Info On-Off Output Sequence 2	Switch	1 bit	√	√	√	√	•	on/off	Low	Info On-Off Output
71	Info On-Off Output Sequence 3	Switch	1 bit	√	√	√	√	•	on/off	Low	Info On-Off Output
72	Info On-Off Output Sequence 4	Switch	1 bit	√	√	√	√	•	on/off	Low	Info On-Off Output
73	Info On-Off Output Sequence 5	Switch	1 bit	√	√	√	√	•	on/off	Low	Info On-Off Output
74	Temperature Value	Temperature	2 bytes	√	•	√	•	•	Temperature (°C)	Low	Temperature inside of the dimmer
75	High Temperature Alarm Output	High Temperature Alarm	1 bit	√	•	√	•	•	Alarm	Low	High Temperature Alarm
76	Critical Temperature Alarm Output	Critical Temperature Alarm	1 bit	√	•	√	•	•	Alarm	Low	Critical Temperature Alarm