

Read the complete manual before carrying out the installation and activating the system. Keep the manual for future reference.

## 1. DESCRIPTION

This 350 W universal modular dimmer is intended for DIN-rail mounting and is 1 U wide. The device is suitable for dimming resistive, inductive and capacitive loads as well as dimmable LED lamps and economy lamps (CFLi). The dimmer functions both as a phase control dimmer and as a reverse phase control dimmer. The choice of lamp type can be set using the first 3 DIP switches under the hinged cover (see fig. 2). The dimmer can be used with or without memory and is equipped with an automatic detection and indication of faulty conditions (overload, short circuit ...).

## 2. MOUNTING AND CONNECTION

To connect the load and the necessary power supply voltage, see fig. 1. If everything is correctly connected and the power supply and the lamp are switched on, then the indication LED on the dimming will be on. If an error has occurred, then the LED will flash. Make sure that no mixed loads are used on 1 dimmer.

### Mounting recommendations

- Preferably place the dimmers at the bottom of the electrical cabinet.
- Check the temperature. If the temperature in the electrical cabinet rises too high (max. 35°C), provide additional ventilation. Provide sufficient space at the top of the cabinet. Place a ventilator if necessary.

## 3. OPERATION AND USE

### 3.1. General operation

The dimmer is controlled via an NO push button (230 Vac or 8-24 Vac/Vdc). Press briefly to switch on and off. Hold down to dim up and down. When holding down, the dimming direction is switched after each interruption (dimming up -> stop -> dimming down-> stop -> dimming up -> etc.). Once the maximum intensity has been reached, the dimming level remains unchanged. The last dimming level reached before the dimmer is switched off is saved in a memory (see § 3.3.). Up to 30 NO contacts (170-0000X) can be connected in parallel at any one time (max. distance 100 m).

### 3.2. Two extra control modes

The following two additional operating modes are possible. These can be selected with DIP switch 4 under the hinged cover of the dimmer (see fig. 2).

#### Mode 1: One-button control

By selecting this mode, the dimmer works with an NO push-button control (230 Vac or 8-24 Vac/Vdc). Press briefly to switch on and off. Hold down to dim up and down. When holding down, the dimming direction is switched after each interruption (dimming up -> stop -> dimming down-> stop -> dimming up -> etc.). The last dimming level reached before the dimmer is switched off is saved in memory (see § 3.3.). This mode is selected by turning DIP switch 4 off (downward) (see § 3.6). For the wiring diagram, see figure 1a (one-button control).

#### Mode 2: Staircase function

By selecting this mode, the lighting switches off automatically after 3 minutes. This mode is selected by turning DIP switch 4 on (upward) (see § 3.6). For the wiring diagram, see figure 1b (staircase function).

### 3.3. Memory function

The dimmer can be used with or without memory. The standard setting of the dimmer is without memory function. You use the control button to change this function. Dim up to the maximum lighting intensity and then continue to press the control button for 10 s. After 10 s the light dims from 100 % to a lower light level to indicate that this function has been switched on. After this change in light intensity, immediately release the push button. Repeat the procedure to deactivate the memory function. This function, and the last set light level, is stored in a non-volatile memory, i.e. they will not be lost in the event of a power failure. With the memory function, the dimmer switches on the first time at a light level chosen by the manufacturer. Thereafter, the dimmer switches on at the last set value.

When dimming dimmable economy and LED lamps with the memory function activated, the dim profile is set up so that the dimmer is first switched on to its maximum capacity (boost function) for less than one second and then returns to the dimming level saved in memory. This ensures that each lamp, even those with memory function, can be switched on.

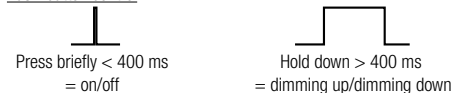
#### With memory

- Press briefly = on at previous level/off.
- Hold down when off = the dimmer dims up from the minimum light level.
- When dimming up, the dimmer stops at the maximum.
- When dimming down: the dimmer stops for 2 s at the min. and then dims up.
- A renewed (long) press reverses the dimming direction.

#### Without memory

- Press briefly = on at maximum/off. The rest of the operation is the same as the operation with memory.

#### Push-button control



### 3.4. All-off function

If another control point is connected to the all-off input OFF, then this control can switch off all lighting that is connected to this dimmer. For the wiring diagram, see fig. 1 c (all-off function).

### 3.5. Meaning of the red indication LED

The LED turns on:
 

- the dimmer is connected correctly (when installing),
- and the load is switched on.

The LED is flashing:
 

- error condition: the dimmer is not connected correctly or there is an overload, short-circuit or an incorrect setting.

## 3.6. Setting the lamp type

All dimmable lamps. See table below.

Lamp					
		HAL. 230 V 	HAL. 12 - 24 V 	CFLi*	dimmable LED lamp*
Max.	350 W	350 W	350 W	200 W	200 W
Min.	5 W	5 W	20 W	5 W	5 W

\* Connect maximum 10 lamps.

Setting the correct load occurs by using the DIP switches.

	Incandescent lamp – reverse phase control	
	Halogen lamp with electronic transformer – reverse phase control	
	Halogen lamp with ferromagnetic transformer – phase control	
led 1	Dimmable LED lamp – reverse phase control	
led 2	Dimmable LED lamp – phase control	
CFLi1	Dimmable economy lamp – reverse phase control (*)	
CFLi2	Dimmable economy lamp – phase control (*)	
led 3	Dimmable LED lamp – reverse phase control (*)	
led 4	Dimmable LED lamp – phase control (*)	

(\*) These lamp profiles are equipped with a boost function, which means that when switched on, the lamp will be bright for a brief moment before going to the desired dimming level.

### 3.7. Selecting the profile for LED lamps

In order to select the right profile for the installed LED lamps, you proceed as follows:

1. Try out profiles LED 1 and LED 2, one after the other. If one of these profiles works properly, go to § 3.8.
2. Otherwise, try out profiles Incandescent Lamp or Halogen Lamp with electronic transformer. If one of these profiles works properly, go to § 3.8.
3. Otherwise, this is an indication that the installed LED lamps need quite a lot of energy in order to come on. It is therefore advisable to choose profile LED 3 or LED 4, as these profiles are equipped with a boost function that ensures that when switched on, the lamps receive enough energy before switching to the desired dimming level (with activated memory function).

Below you will find an example of the pros and cons of the latter two options:

Profile	Incandescent Lamp or Halogen Lamp with electronic transformer	LED 3 or LED 4
Advantage	The lamp isn't bright when switched on	The lamp can be dimmed to its minimum level
Disadvantages	<ul style="list-style-type: none"> <li>• The lamp cannot be dimmed to its minimum level</li> <li>• In certain cases, the difference in attainable light output is limited</li> </ul>	When switched on, the lamp is bright for a brief moment if a low dimming level was chosen



Switch the dimmer off and on after setting the minimum level. If the lamp is not on (with activated memory function), select a lamp profile with boost function (CFLi1, CFLi2, LED 3 or LED 4), see § 3.6.

### 3.8 Setting the minimum level

In order to reach the (optimal) maximum range for each lamp, the minimum level can be adjusted. See fig. 3.

## 4. TROUBLESHOOTING

Problem	Cause	Action
The dimmer is not working. The red LED on the dimmer is not on.	The mains voltage is disconnected.	Connect the device to the mains voltage.
	The wire is defect.	Replace the wire.
The dimmer is not working. The red LED on the dimmer is on.	The load is disconnected.	Connect the load correctly using the wiring diagram.
	The lamp or wire is defect.	Replace the lamp or wire.
	The minimal dimming level is set too low.	Increase the minimum dimming level or use a profile with boost function (LED 3 or LED 4).
	The dimming profile is wrong.	Choose another profile and adjust the minimum dimming level.

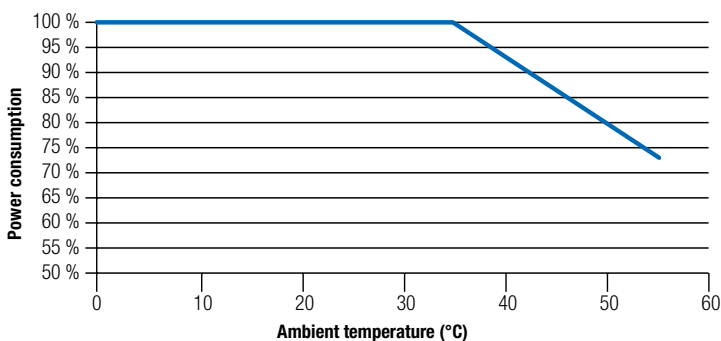
The dimmer switches off by itself. The red LED on the dimmer is flashing.	The protection against thermal overload (temperature is too high) and short circuits has been activated.	Check if the lamp is dimmable. This is shown on the packaging by the following symbol: 
		Check whether the load is too high. When doing this, keep in mind the reactive power of ferromagnetic transformers.
		Check the temperature in the cabinet (max 35° C) or create more distance between the dimmer and the adjoining module.
		Check whether mixed loads are being used.
	The dimming profile is wrong.	For LED lamps, use the profiles in the following order of preference: <ul style="list-style-type: none"> <li>- LED 1</li> <li>- Incandescent lamp</li> <li>- LED 3 (with boost function)</li> </ul>
The lamp is flashing.	The lamp is not dimmable.	Check if the lamp is dimmable. This is shown on the packaging by the following symbol: 
	The minimal dimming level is set too low.	Increase the minimum dimming level or use a profile with boost function (LED 3 or LED 4).
	The dimming profile is wrong.	Choose another profile and adjust the minimum dimming level.
	There is a PLC malfunction.	Place a PLC filter (Ripple Control Rejector)
	The lamp is not suitable.	Replace the lamp if it flashes during dimming the light up and down.
	The dimmer is defect.	Replace the dimmer
The lamp cannot be switched off.	There is current leakage.	Place a bypass

## 5. USAGE WARNINGS

- Control signals that are sent via the mains can interfere with the operation of the dimmer. (This is not a defect.)
- The dimmer is never electrically separated from the mains due to the operation of the control. Therefore, all parts remain "live" even if the load (e.g. the light) is "off".
- This appliance is not suitable for controlling motors.

## 6. TECHNICAL DATA

- Power supply voltage: 230 Vac  $\pm$  10%, frequency 50 Hz
- Mounting: DIN-rail (1 U)
- Weight:  $\pm$  70 g
- Allowable ambient temperature ( $t_a$ ): see power consumption graph
- Designed for use in an environment with a non-condensing atmospheric humidity (30% - 70%)
- No-load power consumption:  $\pm$  0.6 W
- Maximum temperature of the housing ( $t_c$ ): 90°C
- Maximum wire diameter per connection terminal: 2.5 mm<sup>2</sup>
- Power supply and load: 2 x 1.5 mm<sup>2</sup> or 1 x 2.5 mm<sup>2</sup>
- Input: 2 x 1.5 mm<sup>2</sup> or 1 x 2.5 mm<sup>2</sup>
- Minimum load: 5 W
- Protections: thermal overload protection, short-circuit protection
- Push buttons for control: 230 Vac, 5 mA or 8-24 Vac/Vdc
- Maximum distance to last push button: 100 m
- Complies with the EN60669-2-1 standards
- Power consumption graph: consumption in function of the ambient temperature



## 7. WARNINGS REGARDING INSTALLATION

- The installation should be carried out by a registered installer and in compliance with the statutory regulations.
- This user manual should be presented to the user. It should be included in the electrical installation file, and it should be passed on to any new owners. Additional copies are available on the Niko website or via the Niko support service.
- During installation, the following should be taken into account (non-exhaustive list):
  - the statutory laws, standards and regulations.
  - the technology currently available at the time of installation.
  - this user manual, which only states general regulations and should therefore be read within the scope of each specific installation.
  - the rules of proper workmanship.



This product complies with all of the relevant European guidelines and regulations. If applicable, you can find the EC declaration of conformity regarding this product at [www.niko.eu](http://www.niko.eu).

## 8. NIKO SUPPORT

In case of doubt or for the specific exchange procedure in case of a possible defect, contact the Niko support service in Belgium at +32 3 778 90 80 or your wholesaler/installer. Contact details and more information can be found at [www.niko.eu](http://www.niko.eu) under the "Help and advice" section.

## 9. GUARANTEE PROVISIONS

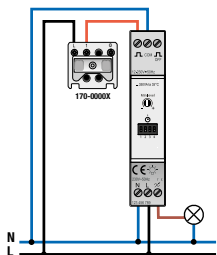
- The period of guarantee is four years from the date of delivery. The delivery date is the invoice date of purchase of the product by the consumer. If there is no invoice, the date of production applies.
- The consumer is obliged to inform Niko in writing about the non-conformity, within two months after stating the defect.
- In case of a non-conformity, the consumer only has the right to a product repair or replacement free of charge, which shall be decided by Niko.
- Niko shall not be held liable for a defect or damage resulting from incorrect installation, improper or careless use, incorrect operation, transformation of the product, maintenance that does not adhere to the maintenance instructions or an external cause, such as damage due to moisture or overvoltage.
- The compulsory regulations of the national legislation concerning the sale of consumer goods and the protection of the consumer in the countries where Niko sells, directly or via sister companies, subsidiaries, chain stores, distributors, agents or permanent sales representatives, take priority over the above-mentioned rules and regulations.



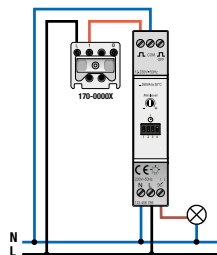
Do not dump this product with the unsorted waste. Bring it to a recognised waste collection point. Together with producers and importers, you have an important role to play in the advancement of sorting, recycling and reusing discarded electrical and electronic appliances. In order to finance the waste collection and processing, the government levies a recycling contribution in some cases (included in the purchase price of this product).

**Fig. 1 Dimmer aansluiten / Raccordement variateur / Dimmer anschließen / Connect dimmer / PRIPOJENIE STMIEVAČA**
**a. Eénknopsbediening**

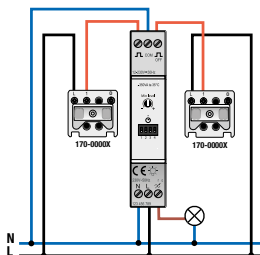
Commande à un bouton  
1-Taster-Bedienung  
One-button control  
Ovládanie jedným tlačidlom


**b. Trappenhuisfunctie**

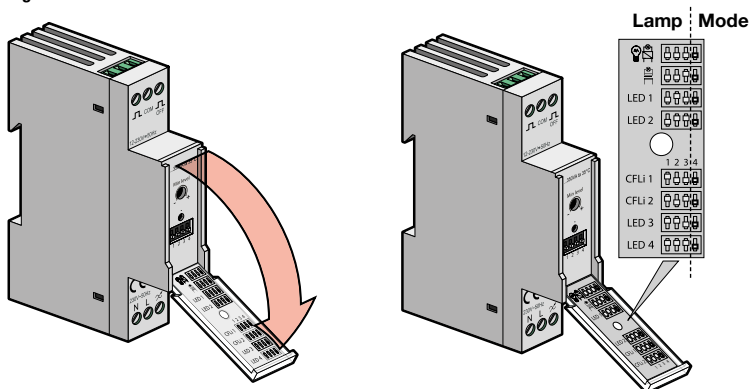
Fonction cage d'escalier  
Treppenhausfunktion  
Staircase function  
Funkcia schodisko


**c. Alles-uitfunctie**

Fonction 'tout éteint'  
'Alles-Aus'-Funktion  
All-off function  
Funkcia všetko vypnúť


**d. 8-24Vac/Vdc-sturing**

Commande 8-24 Vac/Vdc  
Steuerung über 8-24 Vac/Vdc  
8-24 Vac/Vdc control  
Ovládanie 8-24 Vac/Vdc


**Fig. 2**

**Fig. 3 Minimumniveau instellen / Réglage du niveau minimum / Mindestdimmniveau einstellen / Setting the minimum level / Nastavenie minimálnej úrovne**

ACTIE ACTION MASSNAHME ACTION AKCIA	CONTROLE VÉRIFICATION ANZEIGE CHECK STAV	CONCLUSION ERKLÄRUNG CONCLUSION ZÁVER	ACTIE ACTION MASSNAHME ACTION AKCIA	CONTROLE VÉRIFICATION ANZEIGE CHECK STAV
Dimmen tot MINIMUMNIVEAU Variation au MINIMUM Auf MINDESTDIMMNIVEAU herabdimmern Dim to MINIMUM Stmievania na MINIMUM		Brandt op minimaal niveau Eclaire à son intensité minimale Brennt auf minimaler Leistung Minimum level Minimálna úroveň	/	
		Brandt nog te fel Eclaire trop fort Brennt noch zu hell Still too bright Svetlo je stále príliš silné		
		Brandt niet of flakkert Ne s'allume pas ou scintille Brennt nicht oder flackert Not on or flickering Nie je zapnutá, alebo bliká		