

# User manual

## Dimmer



Please keep this page with the full device specific key (DSK) in a safe place!  
It is needed throughout the entire product lifetime

**TechniSat**

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## 1 Safety warnings



### INSTALLATION

1. To prevent electrical shock and/or equipment damage, disconnect electrical power at the main fuse or circuit breaker before installation and maintenance.
2. Be aware that even if the circuit breaker is off, some voltage may remain in the wires – before proceeding with the installation, be sure no voltage is present in the wiring.
3. Take extra precautions to avoid accidentally turning on the device during installation.
4. Connect the device according to the wiring diagram.



### **Danger of electrocution!**

Installation of this device requires a great degree of skill and may be performed only by a licensed and qualified electrician. Please keep in mind that even when the device is turned off, voltage may still be present in the device's terminals.

## **2 IMPORTANT DISCLAIMER**

Wireless communication is not always 100% reliable. This device should not be used in situations in which life and/or valuables are solely dependent on its functioning. If the device is not recognized by your gateway (hub) or shows up incorrectly, you may need to change the device type manually and make sure your gateway (hub) supports Z-Wave Plus devices.

### **WARNING**

Do not dispose of electrical appliances as unsorted municipal waste, use separate collection facilities. Contact your local government for information regarding the collection systems available. If electrical appliances are disposed of in landfills or dumps, hazardous substances can leak into the groundwater and get into the food chain, damaging your health and well-being. When replacing old appliances with new ones, the retailer is legally obligated to take back your old appliance for disposal free of charge.

### **Z-Wave**

This product can be operated in any Z-Wave network with other Z-Wave certified devices from other manufacturers. All non-battery operated nodes within the network will act as repeaters regardless of vendor to increase reliability of the network.

## Z-Wave Plus

This device is a security enabled Z-Wave Plus product that is able to use encrypted Z-Wave Plus messages to communicate to other security enabled Z-Wave Plus products.

This device must be used in conjunction with a Security Enabled Z-Wave Controller in order to fully utilize all implemented functions.

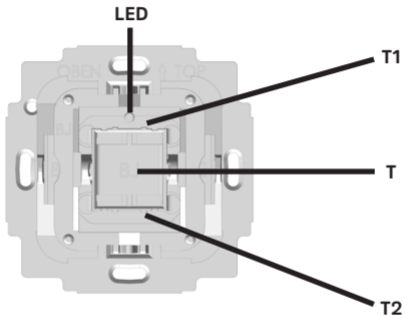
### 3 Key features

The Dimmer controls the on/off and dimming function for one electrical device. It measures power consumption of the connected device.

- In-wall mounted light dimmer
- Z-Wave Plus
- Security S2
- SmartStart
- compatible with German market wall switch product lines
- Overload protection

## 4 Overview

### Front



**LED**

status-LED

**T1**

short press = on / hold = dim up (brighter)

**T2**

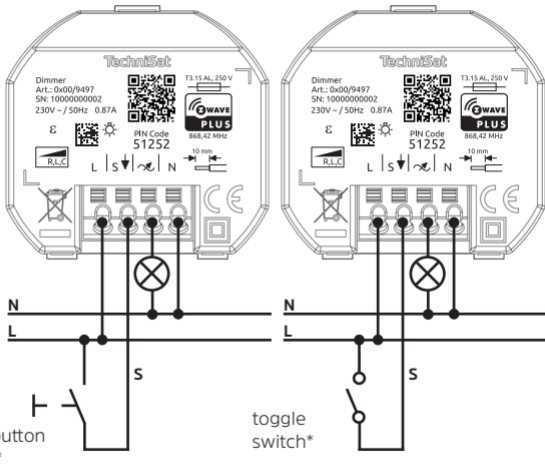
short press = off / hold = dim down (darker)

## Back



- L Live lead
- ~ Switched output with dim function to electrical device (T1 - T2)
- N Neutral lead
- S Extension input (can detect a live lead)

## 5 Wiring diagram



\* The switch type connected to extension input S can be configured with configuration parameter 5 (see page 12).



## 6 SmartStart inclusion

SmartStart enabled products can be added into a Z-Wave network by scanning the Z-Wave QR Code present on the product with a controller providing SmartStart inclusion. No further action is required and the SmartStart product will be added automatically within 10 minutes of being switched on in the network vicinity.

1. The Z-Wave QR-Code is located on the back of the product.
2. Please follow your SmartStart enabled Z-Wave gateway's manual, on how to use SmartStart inclusion.
3. Install the TechniSat Dimmer.
4. After checking the correct installation, re-enable electrical power at the main fuse or circuit breaker
5. The TechniSat Dimmer will be added to your Z-Wave network within 10 minutes after re-enabling electrical power.

## 7 Manually adding the device to the Z-Wave network

1. Install the TechniSat Dimmer.
2. After checking the correct installation, re-enable electrical power at the main fuse or circuit breaker.
3. Start the Z-Wave device add mode on your Z-Wave gateway, according to the gateway's manual.
4. Press position T1 3x within 1 second.

5. The red status LED is on while the device is added to the Z-Wave network.
6. The green LED is on for 5 seconds after successfully adding the device.

## 8 Removing the device from the Z-Wave network

1. Start the Z-Wave device remove mode on your Z-Wave gateway, according to the gateway's manual.
2. Press and hold position T1 for more than 10 seconds.
3. The red status LED is on while the device is removed from the Z-Wave network.
4. The green LED is on for 5 seconds after successfully removing the device.

## 9 Factory Default Reset



Use this procedure only when the network primary controller is missing or otherwise inoperable.

1. Press and hold position T2 for more than 20 seconds.
2. The LED will alternately flash red and green for 5 seconds after a successful reset.

## 10 Configuration

Parameter	Description	Size (Bytes)	Value	Default
1	Enable/Disable Central scene notifications for 2x-5x press	1	0 - disable 1 - enable	1
2	Interval of current wattage meter reports in 10 seconds	2	0 - disable unsolicited reports  1 ... 8640 (30 seconds - 1 day)	3 (30s)
3	Interval of active energy meter reports in minutes	2	0 - disable unsolicited reports  10 ... 30240 (10 minutes - 3 weeks)	60 (1hour)

Parameter	Description	Size (Bytes)	Value	Default
4	Operation mode of button T	1	0 - T1 turns output L1 on, T2 turn output L1 off  1 - T1 & T2 toggle output L1	0
5	Configuration of switch type connected to extension connector S	1	0 - toggle switch  1 - push button switch	0
6	Central Scene mapping of extension input S	1	1 - map S to central scene of T1  2 - map S to central scene of T2  3- map S to own central scene	1

Parameter	Description	Size (Bytes)	Value	Default
7	Dimming curve selection	1	0 - dimming curve 1  1 - dimming curve 2	0

## 11 Supported Association Groups

ID	Name	Max group members	CC-Commands
1	Lifeline	1	- Device Reset Locally Notification - Central Scene notification - Meter Report - Multilevel Switch Report - Notification Report
2	Switch State	10	- Basic Set

## 12 Basic Command Class

This device controls members of association group 2 with Basic Command Class Set commands.

The set commands mirror the device's state.

When the device is set to a specific multilevel value, the same value is send as a Basic Set to members in association group 2.

If the target value is unspecific, because the up or down buttons are held (the dimmer will dim until the button is released or min/max brightness is reached), a Basic Set with the min/max dimming value corresponding with the current direction of dimming (either 0x01 or 0x63)) will be send to members in association group 2.

If dimming is stopped before min/max brightness is reached, an additional Basic Set command with the current dimming value where the dimming was stopped, will be send to members in association group 2.

### 13 Notification Command Class

Notification Type	Notification Event	Description
Power Management (0x08)	Idle (0x00)	No event detected / event cleared
	Overload detected (0x08)	The maximum resistive load on L1 has been exceeded

### 14 Supported Command Classes documentation

Command Class	Version	Required Security Class
Association	2	highest granted
Association Group Information	1	highest granted
Basic	2	highest granted
Central Scene	3	highest granted
Configuration	1	highest granted
Device Reset Locally	1	highest granted
Firmware Update Meta Data	4	highest granted
Manufacturer Specific	2	highest granted

<b>Command Class</b>	<b>Version</b>	<b>Required Security Class</b>
Meter	4	highest granted
Multilevel Switch	4	highest granted
Notification	8	highest granted
Powerlevel	1	highest granted
Security 0	1	none
Security 2	1	none
Supervision	1	none
Transport Service	2	none
Version	3	highest granted
Z-Wave Plus Info	2	none



## 15 Central Scene

The Dimmer can send central scene activation notifications to a Z-Wave gateway.

Pressing the respective button position multiple times, will send the corresponding scene number:

Button position	T1	T2	S (switch connected to extension input)
Scene number	1	2	1 or 2 or 3 depending on configuration parameter 6

The following Z-Wave key attributes are available for all scenes:

Button position pressed	Z-Wave key attribute
two times	Key Pressed 2 times
three times	Key Pressed 3 times
four times	Key Pressed 4 times
five times	Key Pressed 5 times

## 16 Meter Command Class

The device measures and accumulates energy consumption and reports it via the meter command class. The following table shows the supported meter types and scales:

<b>Meter Type</b>	<b>Rate Type</b>	<b>Scale</b>
Electric Meter (0x01)	Import (consumed) (0x01)	kWh (0x00) (default)
Electric Meter (0x01)	Import (consumed) (0x01)	W (0x02)

## 17 Firmware update

This device supports firmware update via Z-Wave. For enhanced security, the device requires a manual confirmation, before an update of the device's firmware can be initiated.

To perform a firmware update follow these steps:

1. Follow your Z-Wave gateway's manual, on how to update the firmware of a Z-Wave device.
2. From your gateway issue a Z-Wave request to get the current firmware version of the device to be updated.
3. When the request has been received, your device's LED will glow red for 10 seconds.
4. While the LED glows red, press T1 or T2 to allow a firmware update - the LED will now glow green for 10 seconds.
5. While the LED glows green, start the device's firmware update from your gateway.

## 18 Technical Data

Product Key Features	In-wall mounted binary switch control Z-Wave Plus Security S2 SmartStart compatible with German market wall switch product lines Overload protection
supply voltage	230 VAC +/- 10%
line frequency	50Hz +/- 10%
rated load current of output (resistive load)	0.87 A
output circuit power - minimum load - resistive load - capacitive load - inductive load	1 W 200 W 200 VA 200 VA (cos phi > 0,95 (0 < phi < 18°) in case of transformer)
power consumption (without load)	< 0.5 W

extension input S	supply voltage 230 VAC +/- 10% power consumption: < 35 mW
operation altitude	< 2000 m sea level
IEC protection class	II
accuracy of power measurement	>= 100W: +/- 3%
Status LED	Red status LED is on while adding the device  Green LED is on for 5 s after successfully adding the device
Z-Wave frequency and transmission power	868,42MHz 4dBm
Ambient Conditions Operational	Temperature: +5°C to +35°C Humidity: 10 % to 75% RH IP Code: IP20
Ambient Conditions Warehousing & Transport:	Temperature: -20°C to +60°C Humidity: 5 % to 90% RH non condensing

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