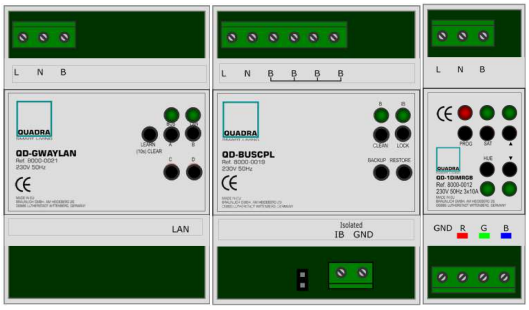
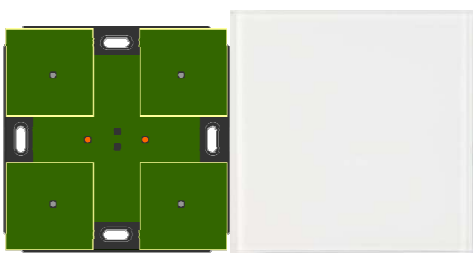
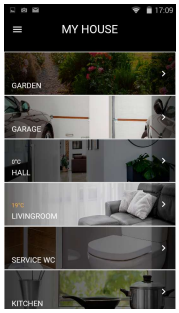
QUADRA

SMART LIVING

INSTALLATION MANUAL







Welcome to QUADRA

QUADRA SMART LIVING is an international brand for electronic actuators and switches based in Germany.

The concept and electronics are the result of 12 years of experience in the market, working daily with installers and integrators to ensure end customer satisfaction.

QUADRA has two fundamental properties:

QUALITY

SIMPLICITY

Both were taken to the extreme in the creation of QUADRA. The hardened glass surface, the high in-rush current relays, the efficient and robust switch mode power supply in all models, everything was made to guarantee the highest quality and durability. All units are automatically tested, guaranteeing 100% quality. QUADRA offers 5-year guarantee on all products.

On simplicity, QUADRA clearly assumes the smart-phone is the tool for interaction and control of the house. All programming is done through the APP in an intuitive, self-explaining and easy way.

Obviously QUADRA has more attributes: One of them is versatility. QUADRA switches can be grouped into double, triple or multiple boxes by selecting the appropriate glass cover. Glass covers for sockets with 55 mm centres round off the line.

QUADRA prices may be a surprise for some. Due to a completely new and robust construction, the standardization of the solutions and the limitation of the number of models, we were able to reduce the production costs significantly without compromising the quality. The result is a complete and competitive range of products for automation, air conditioning and (soon) security, offering solutions for the most demanding customers.

Security warnings

- The installer must make sure that suitable protections are installed for all QUADRA units and loads.
- All QUADRA units are supplied directly from mains. It is mandatory to use circuit breakers rated for the rating stated in the QUADRA unit (6, 10 or 16 A).
- If the QUADRA unit has an independent supply from the load (e.g. QD-6ONOFF or QD-3DIMLED), it is possible to protect the supply of the unit with one circuit breaker and another for the load. In that case, it is advisable to place a warning in the circuit breaker board informing which circuit breakers must be switched off to de-energize completely the module.
- The bus line is referred to Neutral and usually is about 18-22 VDC above that potential. The bus line does not need any protection because it is protected by the power supply of the bus driver.
- The bus line is an active line (referred to Earth).
- The QUADRA units and the APP inform the status of the outputs to the best ability. However, even if the status indicators indicate that the outputs are OFF, it is still possible that the output is energized due to some component fault – e.g. relay stuck. If you have to perform some intervention in a circuit energized by a QUADRA device, always switch off the main circuit breaker of the installation for your protection.
- Never use QUADRA devices to switch the power of machines that may cause injury to people or animals (e.g. electric saws, electric swimming-pool covers, cutting machines, etc.).

System architecture

The installer can choose between central switching, distributed switching or hybrid switching. In the centralized option, you can choose between wall commands at 230 VAC or 24 VDC or even use your own mechanical push-buttons.

For the communication QUADRA units use an extra wire called Bus wire.

QUADRA provides wall-mounted or DIN rail actuators for on/off switching, dimming, shutter command and gate command and also units with binary inputs and gateways for communication through the Internet with smart-phones or tablets.

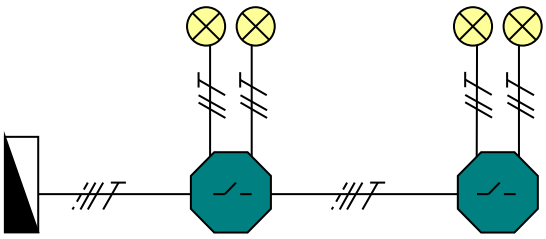


Fig 1: Distributed switching

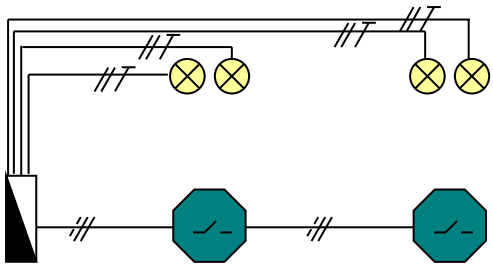


Fig 2: Centralized switching

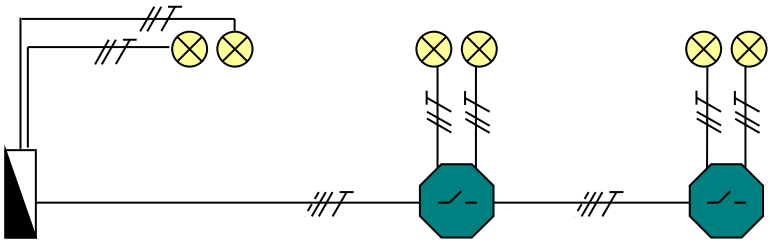


Fig 3: Hybrid switching

In a distributed switching installation, switching is made on the wall switch, similar to a conventional installation. Remote switching is made with programming keys for that function, reducing the need for tubes and wires in the installation.

In a centralized switching installation, switching is made in the circuit breaker box, using remote commands on the points of command on the wall. These can be 230VAC or 24VDC, depending on the cables used.

Hybrid installations are the most common, combining distributed switching with centralized, resulting in a more price-efficient installation.

System supply

Most QUADRA units are supplied from mains and use Neutral as the reference for all voltages. Exceptions are the 24V wall remote unit QW-REMOTE24 and the wall security expander QW-4SEC that is supplied by the central unit with 12V.

All 230 V supplied units assume Neutral as reference therefore polarity must be correct.

The Bus wire must be passed along Live and Neutral in the normal installation, this because BUS is about 22V above Neutral. This means the installation has a minimum of 3 wires.

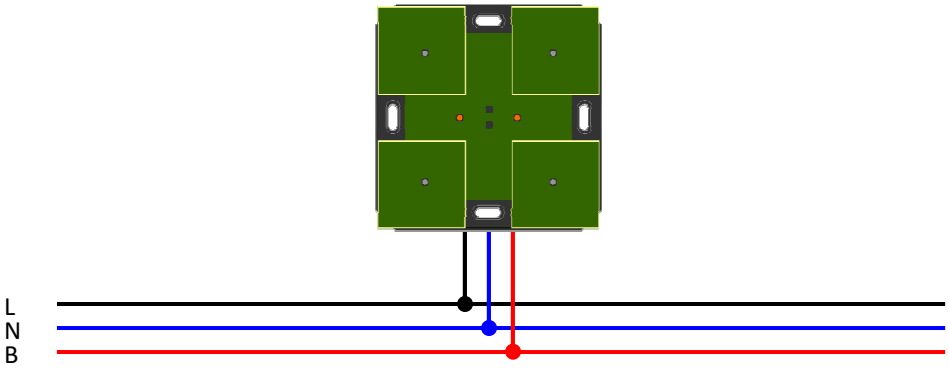


Fig 4: Installation wires required for QUADRA

IMPORTANT: Connect **LIVE** to **L**, Neutral to N and Bus to B. **Do not invert!**

Bus wire

The Bus wire is an active line because it is referred to Neutral. The line is pulled-up by the QD-BUSCPL to 22 VDC above neutral. During communication the Bus wire is short-circuited to Neutral, resulting in a current flowing from the Bus driver over the Bus wire that returns to it via the Neutral. This current is very small (20 mA) but it is enough to prevent QUADRA units protected by different RCDs (Rest Current Detectors) to be connected to the same bus line. In that case, 2 different Bus driver QD-BUSCPL are necessary, each one supplying the bus wire of their own, and connected together through the 2-wire bus that is isolated from mains.

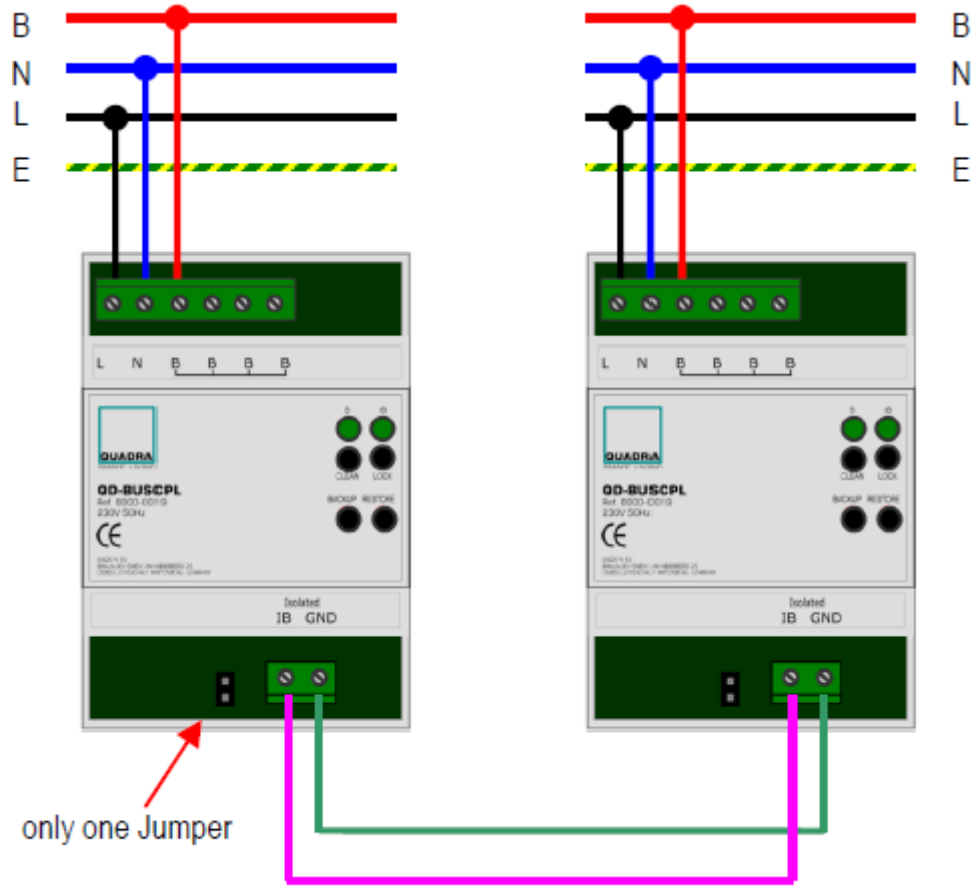


Fig 6: Connecting two QD-BUSCPL protected by different RCDs

Important: The isolated 2-wire bus must be driven by only one QD-BUSCPL. Therefore only one should have the jumper next to the isolated bus connector.

Circuit breaker board

Most probably you will have two or three DIN rail units mounted on your circuit breaker board, even if you choose a distributed installation: the QD-BUSCPL to drive the bus wire, the QD-GWAYLAN to connect the system to the Internet and maybe one more switching module, for example a QD-3SHU to switch 3 shutters.

All QUADRA 230V units that share the same Bus wire must be protected by the same RCD. DIN rail units should be protected also by a dedicated 6 ampere circuit breaker: their supply is independent from the supply of the loads they eventually switch. The 230V QUADRA wall mounted units are protected by the respective load circuit breaker because they get their supply from the same wire as the load.

The project of the circuit breaker should look more or less like this:

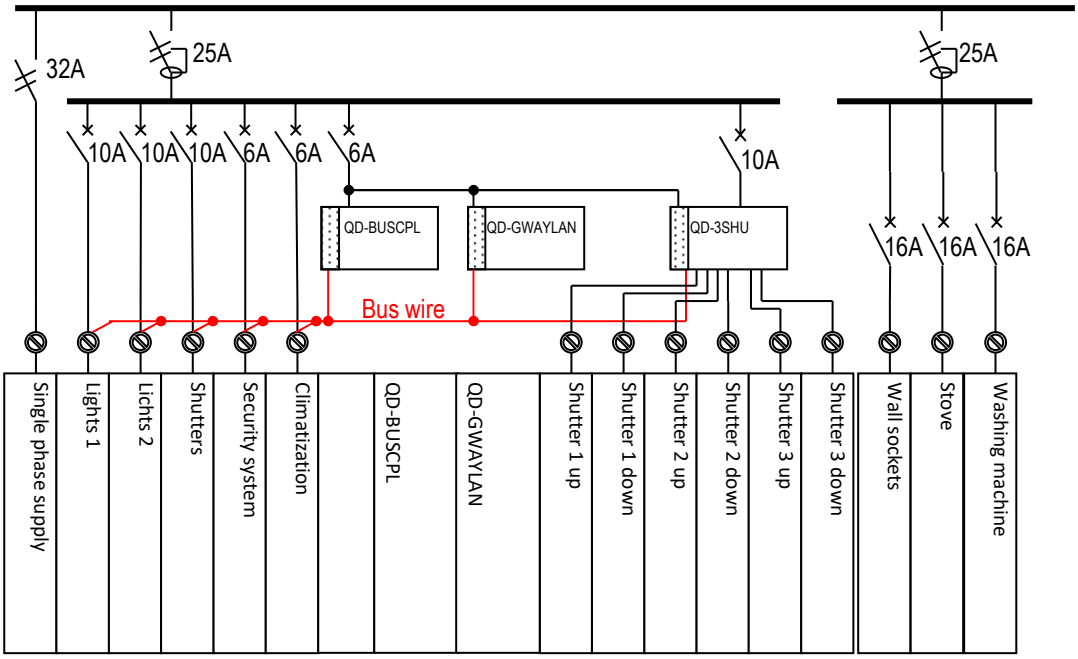


Fig 7: Circuit breaker diagram

The wiring of the units is illustrated on the next page.

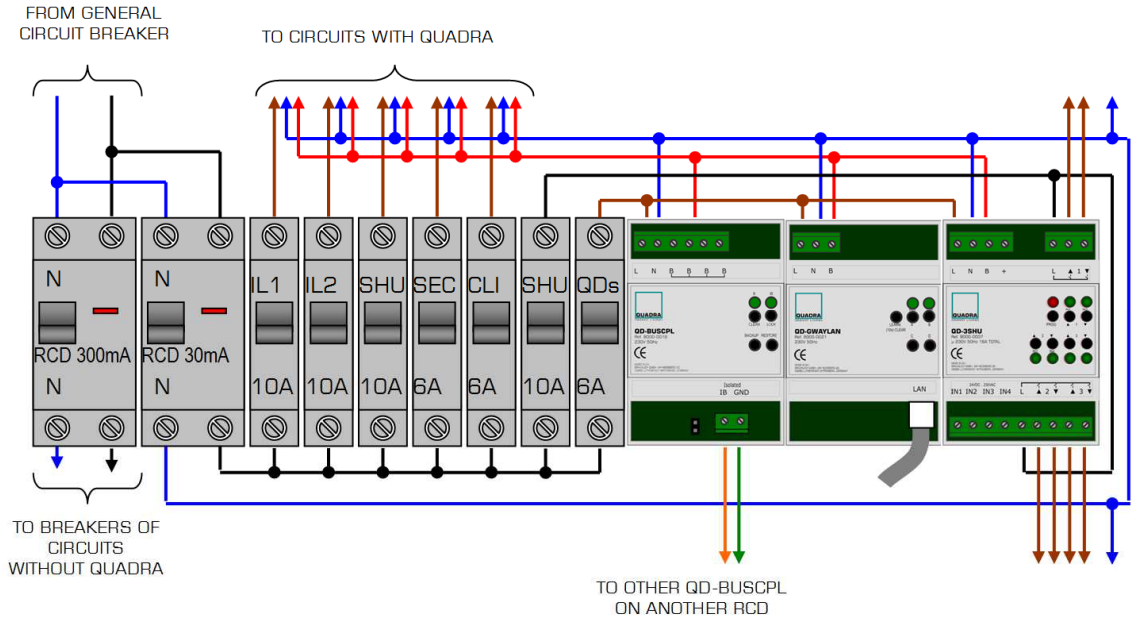


Fig 8: Circuit breaker wiring

Wiring wall units

Please make sure you disconnect the power before you make any installation. QUADRA wall units supplied with 230V have active parts exposed during mounting. Only connect the power after the protection glasses have been mounted.

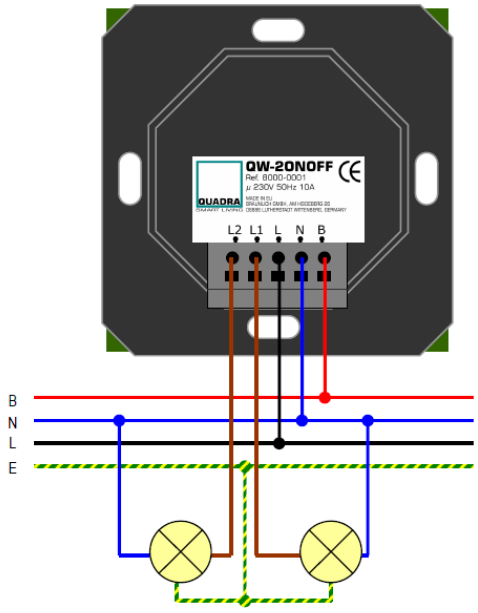


Fig 9: Wiring the QW-2ONOFF

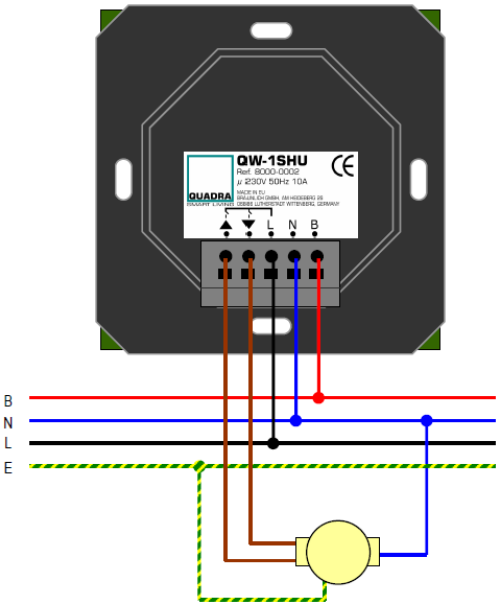


Fig 10: Wiring the QW-1SHU

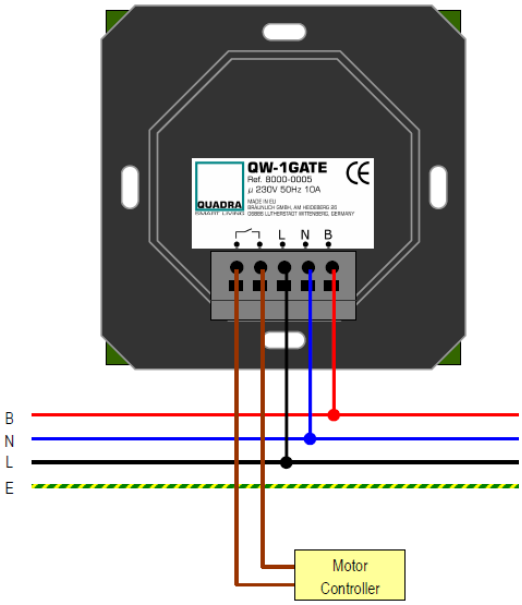


Fig 13: Wiring the QW-1GATE

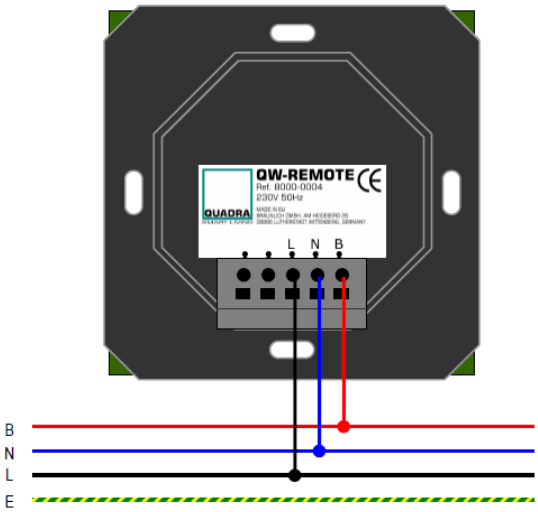


Fig 14: Wiring the QW-REMOTE

Wiring DIN rail units

Please make sure you disconnect the power before you make any installation.

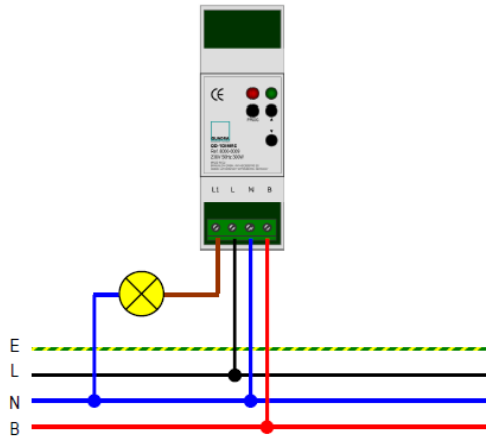


Fig 15: Wiring the QD-1DIMRC

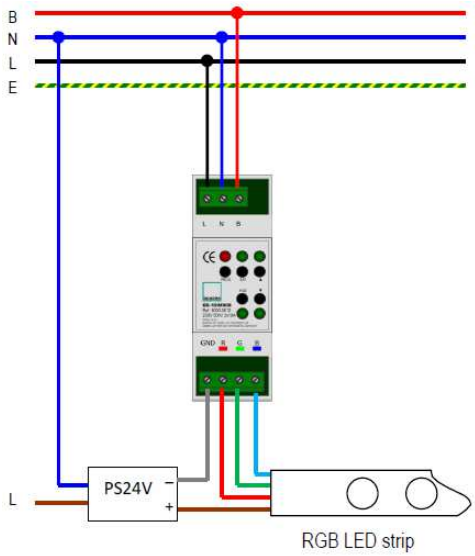


Fig 16: Wiring the QD-1DIMRGB

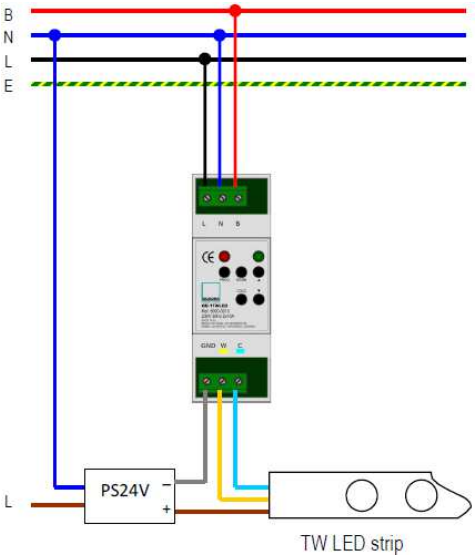


Fig 17: Wiring the QD-1TWLED

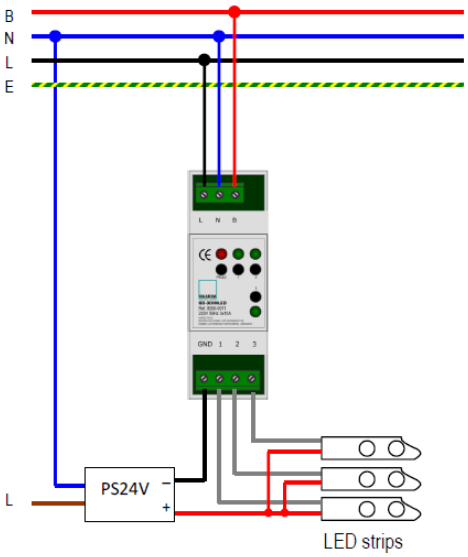


Fig 18; Wiring the QD-3DIMLED

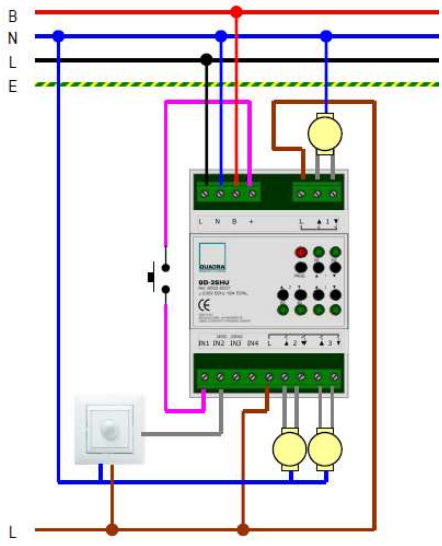


Fig 19: Wiring the QD-3SHU

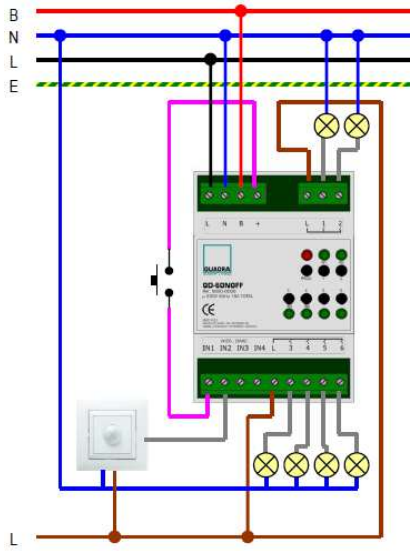


Fig 20; Wiring the QD-6ONOFF

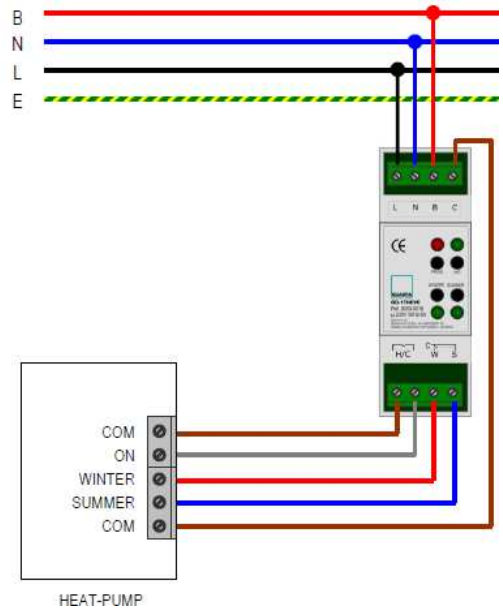


Fig 21: Wiring the QD-1THCYC

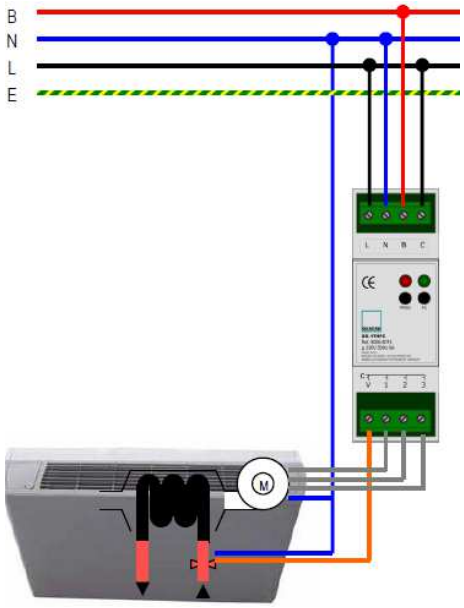


Fig 22; Wiring the QD-1THFC

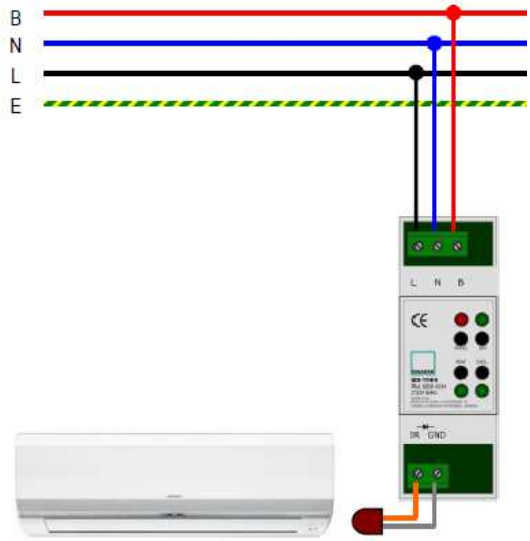


Fig 23: Wiring the QD-1THIR

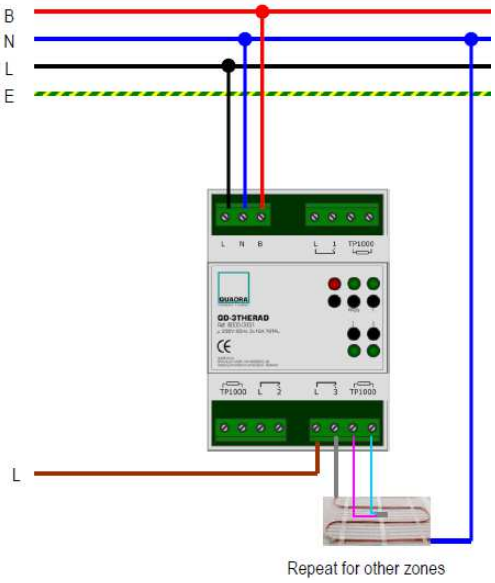


Fig 24: Wiring the QD-3THERAD

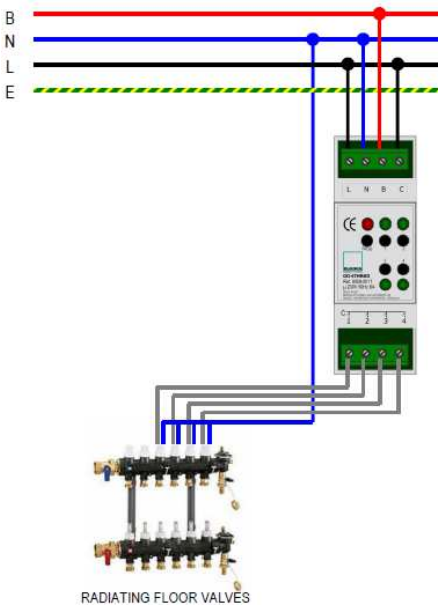


Fig 25: Wiring the QD-4THRAD

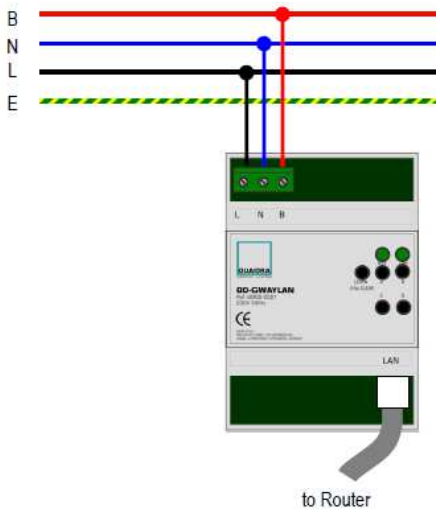


Fig 26: Wiring the QD-GWAYLAN

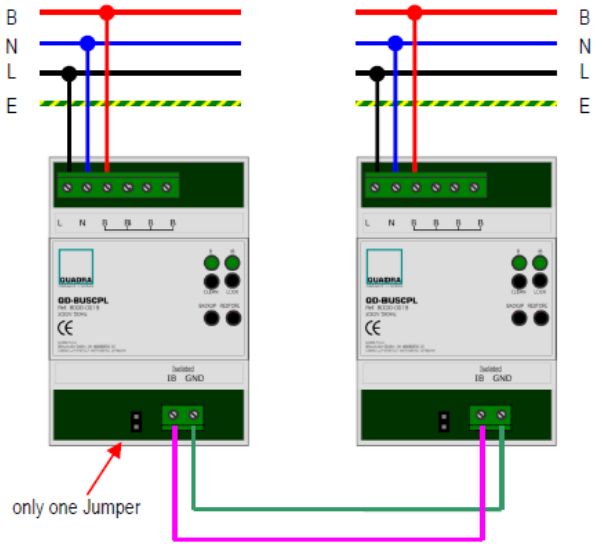


Fig 27: Wiring the QD-BUSCPL

Unit rating and de-rating

The technical characteristics define the voltage and current ratings of the units. Those ratings should never be surpassed.

The relay contact ratings depend on the power factor of the load. Inductive or capacitive loads are critical and de-rate considerably the current that can be switched.

QUADRA uses high in-rush current relays on on/off and shutter units to ensure proper operation and endurance. However, always switch 20 times less current than the relay contact rating if the load is inductive or capacitive.

Control options via Smart-phone

You may select one of two solutions to visualise and control your house with your smart-phone:

- using only the QD-GWAYLAN and a dynamic DNS service to access your house from anywhere;
- using the QD-CLOUD on top of the QD-GWAYLAN that adds a cloud service to access your house from anywhere without any configuration in your router.

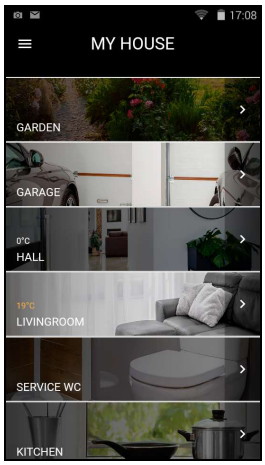
The first option requires you to configure your router's DNS service and activate Port forwarding for the Gateway. You can access the house anytime you want but the house cannot contact you in case of some event (e.g. Alarm).

The second option does not require any configuration in your router and adds the possibility that the house sends you a push-notification in case of an alarm, for example. It also provides the means for future functionalities like voice-control integration and other features.

Both options are similar in terms of safety and privacy. The QD-CLOUD uses https with encryption to communicate with the smart-phone through the cloud, while the QD-GWAYLAN uses another proprietary encryption for communication with the APP in the smart-phone.

Programming

The programming of QUADRA is made exclusively with your smart-phone. You will need a Wi-Fi Router connected to the QD-GWAYLAN and (if used) QD-CLOUDDRV4 if you don't have Wi-Fi in the house, providing the connection of your smart-phone with the system.



LEARN the house on the Gateway

When the electrical installation is finished, it is time to LEARN the house. Press LEARN key on the Gateway; the gateway will scan the house to create the list of devices and get their status. This may take several minutes, depending on the size of the house and number of devices installed.

Plan your programming

Make sure you have a plan of what you want to do:

- list of rooms in the house
- what name you will assign to each room
- what name you will assign to each light, shutter, thermostat, etc.
- what keys are going to control what lights
- what slides are going to control what shutters
- what scenarios you will need to leave-the-house, go-to-sleep, arrival-at-night, etc.

This will help you speed-up the programming of the house and create a more intuitive operation of the house.

Using the APP

Install the APP from Google Play or App Store and run it after installation. The APP will automatically search for the Gateway and inform you of that fact if successful. In this process, the APP will check if QD-CLOUDDRV4 is installed or not and select the correct setting.

Once found, the APP will ask you if you want to install the House. Answering YES will start the procedure to register your smart-phone on the Gateway. You must enter an 8-digit password on the Gateway.

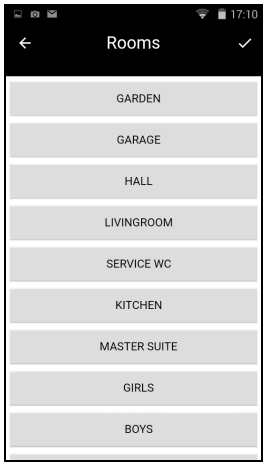
From the factory, there is no password defined. The first password you type will be assumed but you must type it twice for confirmation.

Once the password is set, you can register the phone on the gateway.

After the transfer of all the data, it is time to perform a one-time house creation and device identification.

Create the rooms

In the Settings menu, select ROOMS.



By default, the Gateway creates some rooms but you can delete them, rename them and create other ones.

Rooms are entities that will group devices in it. In Android, you cannot sort this list, therefore create the rooms in the order you want them to appear on the Main Menu.

When creating a room, define its name and select the respective room type. This will assign a predefined image to it for the Main menu.

Example of useful rooms

You can create virtual rooms that may have no devices in it. Instead, you will use it only as scenario key.

In this example we propose you create an “LEAVE HOME” room, selecting as type for example ELEVATOR. The idea is to create a scenario key in the phone to configure your house as you want when you leave home.

In the DEVICE menu, you will not assign any device to this room because it is in fact not a room but only a scenario key. Instead, you will open the PROGRAM menu and select the devices you want to control and set to a certain status when you leave home. For example, you can select all the lights and shutters in the PROGRAM list.

Navigate then to the Main Menu and press the LEAVE HOME picture: this will add this scenario key to all devices you selected.

Now set the devices to the state you want: lights off, shutters in the closed position, for example. Once all is set as you want, navigate to the LEAVE HOME picture and press the rightmost side arrow to enter the room: it will show an empty room because no devices were added to it but now press the top right <> symbol and confirm. This sets the actual states of all the devices of the scenario to LEAVE HONE scenario.

Now, when you leave home, all you need is press this key: all lights will go off and all shutters will close.

Other tips for useful rooms:

- ARRIVE HOME, for when you arrive home at night
- GO TO SLEEP, for setting the house for the night
- CINEMA, to configure your living room to watch a movie
- SHUTTERS, to open and close all the shutters of the house

Identify the devices

In the Settings menu, press DEVICES.

A list of all the devices in the house will appear. At first all devices have the factory name – model name and output number.

Press the symbol of a light, identify it in the installation, and then press the rightmost arrow of that device. For lights, dimmers and gate units you can:

- define the name
- select another icon
- define the room it belongs to
- define if you want it time limited or not
- define if you want the display on the panel or not (only for wall switches)

In the shutters, you can:

- define the name
- select another icon
- define the room it belongs to
- measure the open and close times
- if the function should be inverted or not

In the thermostats, you can:

- define the name
- select another icon
- define the room it belongs to
- select the touch panel you want to use to measure the temperature
- select the possible cycles for this thermostat

Note that selecting a room for a thermostat doesn't mean the thermostat will appear inside the room. Instead, its temperature will appear on the Room picture in the Main Menu. All thermostats are always grouped in the Climatization room for easier control.

In the remote units you can:

- define the name
- select another icon

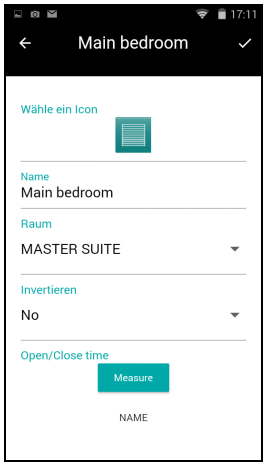
You must repeat this procedure for all devices until you identified all of them.

Note: another way to identify your devices is to open the device list and then switch the light or shutter you want to identify: the device will be automatically positioned on the screen. This happens to all devices except security zones.

Checking the connection of the shutters and curtains

You don’t need to test the motors of shutters or curtains to find the right wires for Up and Down because you can change the relay operation just by pressing a button on the Smart-phone once you test the operation:

- if pressing DOWN opens the shutter, then you can invert the operation by pressing INVERT on the device configuration menu.



This setting is automatically saved in the memory of the unit.

Measuring Open and Close times of the shutters and curtains

Shutters and curtains can be set to the desired position in scenarios but for that it is necessary the unit knows how long it takes for the full movement. As open and close times may differ, you must measure both.

In the device configuration menu, make sure you move the shutter or curtain to completely closed or completely open, and then press MEASURE in the APP:

- the movement starts.

Press MEASURE again in the exact moment the movement stops at the other end.

Press now MEASURE to measure the time of the other movement.

- the movement starts in the opposite direction.

Press MEASURE again in the exact moment the movement stops at the other end.

The open and close times are now measured and automatically saved.

Assigning a touch panel to measure the temperature to a thermostat

Thermostats need to know the temperature of the room they are controlling and this is done at the touch panels mounted on the walls.

Each thermostat needs to be assigned to one touch panel. This is done in the device edit menu of each thermostat:

- Press ASSIGN KEYBOARD in the APP.
- Now press any key of the touch panel you want to assign to it:

- the keyboard will be assigned to the thermostat and, a few seconds later, the temperature will be displayed in the thermostat.

Operation principle

All QUADRA units communicate with each other through the Bus wire, also with the ones connected to other bus drivers.

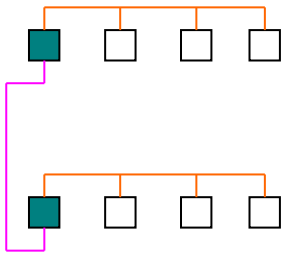


Fig 28: Communication path in QUADRA

Commands circulating on one floor bus (orange colour) will be repeated on the vertical bus (purple colour) and then repeated on the other floor bus (orange colour). This causes a slight delay in the operation between floors but this delay is around 200 ms.

When communicating, units are identified by their serial number, which was defined at production. When pressing a key, this serial number together with the key number are sent with one of the following commands you can select for the key:

TOGGLE to change the state of the load (off -> on, off -> on)

ON/UP	to turn on a light or move up a shutter or dimmer
OFF/DOWN	to turn off a light or move down a shutter or dimmer
TIMER	to turn on a light for a certain period of time
DELAY OFF	to turn off a light after a certain delay time
SCENARIO	to select a combination of states of several lights and shutters

Each actuator, no matter which one, has a table to save numbers of keys they can be associated with. When a command arrives, the actuator checks if the key number is in the list or not:

- if yes, it executes the command;
- if not, it ignores the command.

Programming becomes in fact adding or removing key numbers from actuators.

Each actuator can save at least 20 key addresses, meaning that each light can be switched from at least 20 different keys.

Factory default programming

QUADRA units have a factory programming to allow you to test each switch. All keys send the TOGGLE command but some keys were added to the output of the module behind. Depending on the module, the operation is programmed as follows:

OUT1	OUT2
OUT1	OUT2

QW-2ONOFF

SHUTTER	FREE
FREE	FREE

QW-1SHU

OUT1	FREE
FREE	FREE

QW-1GATE

Sliders are free and Multi-touch switches the lights OFF in QW-2ONOFF.

MULTI-TOUCH function

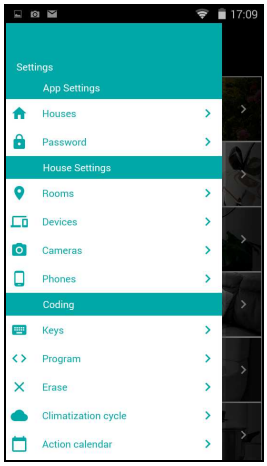
All touch panels have a special feature: when all keys are pressed together, the command sends a SCENARIO command: this can be used for example to select the default light scenario of the room. Pressing again will switch off all the lights.

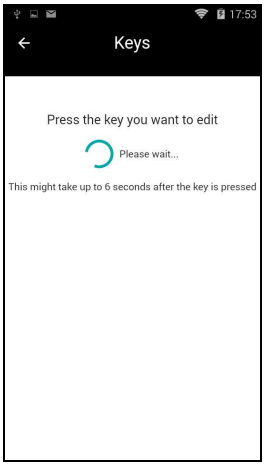
The MULTI-TOUCH function always sends the SCENARIO command and this command can't be changed.

Defining commands for the keys

All touch sensor and binary inputs are programmed to send the TOGGLE by default. You can however change the function of a key.

Just go to the Settings menu on the App and press KEYS:





Now touch one of the keys of the panel you want to configure:

- a picture with the 4 keys appears with the command assigned to each key and slide.

You can select one of the following commands:

TOGGLE	to invert the state of the actuator
ON/UP	to switch on or move up
OFF/DOWN	to switch off or move down
TIMER	to switch on or up for a period of time
DELAY OFF	to switch off or down after a period of time
SCENARIO	to select a combinations of states

The TIMER and DELAY commands require defining the time that you want for the operation. In the case of TIMER, the output will switch ON for the period defined, switching automatically OFF when this time elapses. In the case of DELAY, the outputs will switch OFF or CLOSE after the time elapses.

After selecting the command, you can select also the time assigned to it.

1 second
1 minute
5 minutes
15 minutes
30 minutes
60 minutes
value in memory

Select the wished time code by pressing time you want.

Press the top right SAVE icon to confirm the selection: it will be transferred to the panel.

Note: when you program an output with the TIME command, if the time code selected is 1 to 6 then the output will store this time in the memory. If you program with time code 7 then the previous value will not be changed.

When TIMER or DELAY commands are sent with a time code 1 to 6 then the outputs will operate according to the time defined in the command. If the time code is 7 then the outputs will operate for the time stored in their memory. This enables for example that one TIMER key can switch an output for 1 second and another for 15 minutes.

You must repeat these steps for every key you want to change prior to adding the keys to the commands.

Particularities of TOGGLE command

The TOGGLE command is intended to invert the state of a device. When one key, programmed with TOGGLE, should control 2 different lights, you might expect them to be synchronised. To achieve it, the TOGGLE command needs a MASTER, the output that tells the others to switch ON or OFF, synchronizing the function.

The choice of the MASTER occurs automatically when you program: the first output you put in programming mode will be the MASTER. The outputs programmed after the MASTER will be SLAVE and always follow the state of the MASTER.

You must be aware that the slave units stop working if you delete the MASTER because they don’t have a master to tell them what to do.

Another particularity is when you use TOGGLE for Shutters. These are modules that have a considerable time of up and down movement and you might want to stop this in some point in between.

Shutters have the particularity that they stop their movement if they receive a command for the same direction. The operation is as follows:

State	Command received	Operation
Stopped	ON/UP	Move up
Moving up	ON/UP	Stop
Stopped	OFF/DOWN	Move down
Moving down	OFF/DOWN	Stop
Moving up	OFF/DOWN	Move down
Moving down	ON/UP	Move up

This means that a Shutter that is configured as a MASTER will generate a command that depends on the actual state.

State	Command received	Operation
Stopped	TOGGLE	Move in the opposite direction as last time
Moving up	TOGGLE	Stop
Moving down	TOGGLE	Stop

This means that you should select for MASTER the Shutter to operate with a TOGGLE command if you want to combine it with an ON/OFF light.

Particularities of SCENARIO command

The SCENARIO command allows selection of a combination of states of several outputs, no matter their type. Programming of a scenario has 2 steps:

- define the members of the scenario
- define the sate of each output for the scenario

The first step was already explained above: put the outputs in programming mode and add the SCENARIO key.

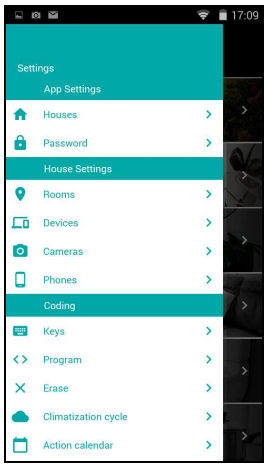
After you have added the key to the outputs you must define the state of each output in the scenario. For that proceed as follows:

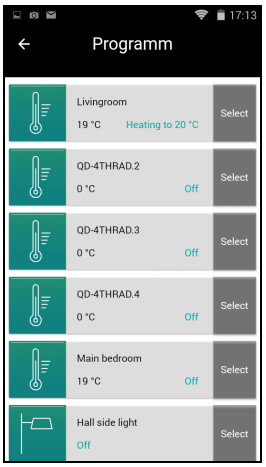
- Put all the members of the scenario in the state you want: lights on or off, shutter in the desired position, dimmers with the desired brightness.
- Now press and hold the SCENARIO key for more than 5 seconds:
  you will hear a long beep on the keyboard, informing you the scenario was updated.

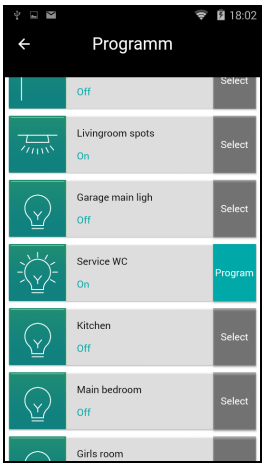
Now, every time you press the SCENARIO key, the outputs will go to the desired state. If when you press the SCENARIO key all members of the scenario are already in the scenario state, the command is repeated to the bus but this time as OFF/DOWN: this means the members of the scenario will switch off or close. Like this, the scenario key can be used both to switch on and off the scenario.

Adding keys to outputs

To add keys to an actuator, press PROGRAM in the Settings menu of the App:







Press SELECT on the device you want to assign the key to, and then press the key you want to control it.

Note that pressing Program will cancel the Programming mode of all units you previously selected.

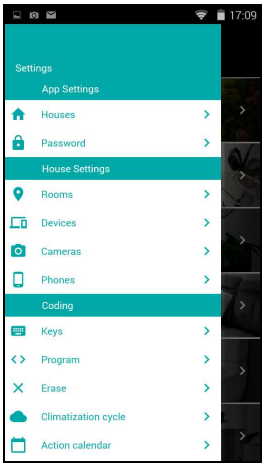
You can add the same key to as many outputs as you like and the same key can command several types of loads.

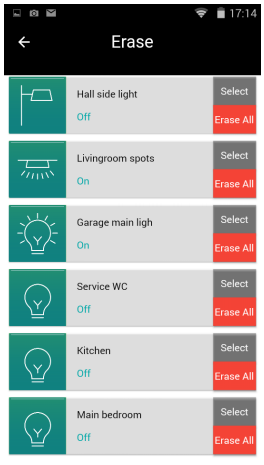
Erasing keys

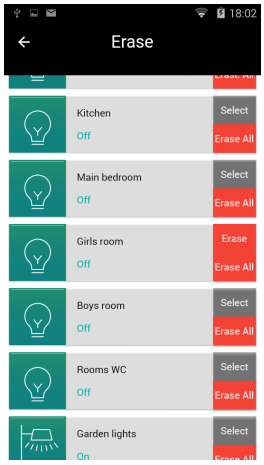
You can erase keys from outputs in 3 different ways:

Erasing a key from an output

Press ERASE in the Settings menu and press SELECT on the output you want to erase the key:







Now press the key you want to erase. The key no longer functions for that output.

Erasing all keys from an output

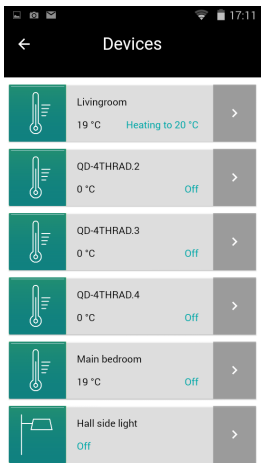
To erase all keys from an output, press Erase All on the ERASE menu on the selected device, then confirm: all keys are erased from this device.

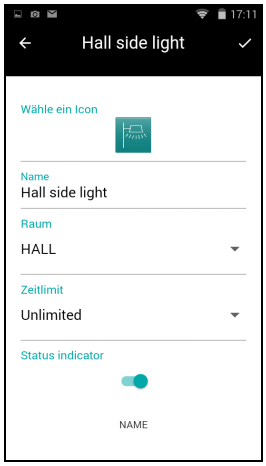
Erasing a key from all the outputs

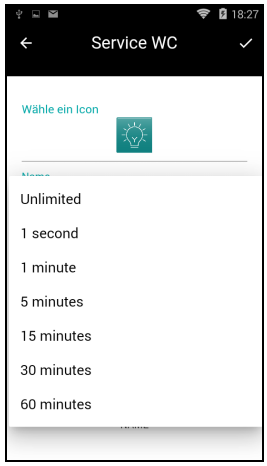
Press KEYS on the settings menu and then select ERASE for the key you want to erase. When you Save on the top right, this will erase the key from all devices in the house.

Time limit

All ON/OFF devices may have their function limited in time. If selected, the device will switch off automatically after the time selected elapses. By default, all ON/OFF are unlimited but you can select a different setting as follows:







- On the DEVICES menu, select the right most arrow of the device you want to configure.
- Select the field Time Limit: a list with all the time limit options appears.
- Select the time you wish.

The time selected is automatically saved on the unit.

Status indication

The QW-2ONOFF has 2 LEDs that light up if the respective output is ON. You can however select not to display the status: just slide the Status indicator to OFF and the LED will never light up.

Using binary inputs

The QD-6ONOFF and QD-3SHU are equipped with 4 binary inputs that detect the presence of voltage (binary means Yes or No). These inputs can be used for motion, light, wind or other detectors and be programmed to perform certain operations like switching on a light for some time, close the shutters if too much wind, block garden lights during the day or other functions you might think of.

Binary inputs can also be used to read mechanical push buttons to control anything you like.

Depending on the use, binary inputs should be configured for the proper operation, detector or button, because the commands sent are slightly different:

- you can program lights with buttons
- you cannot program with detectors

This difference is understandable because once you set a device in programming mode, the first key pressed will be programmed. If a motion detector could program, then just moving would inevitably program the motion detector once you moved, instead of another key you wanted to program.

For that reason, detectors must be programmed by manually actuating the correspondent input on the module keys instead of triggering the binary input.

On the other hand, keys can and should be programmed.

The configuration can be made as follows:

- press shortly the PROG key in the QD module:
  - PROG LED goes on.
- now press and hold the correspondent IN key you want to program (1-4) during 2 seconds:
  - the correspondent LED blinks as follows:
    1 time ⇔ detector (factory default)
    2 times ⇔ push button
- press PROG shortly to select the mode you want
- press the IN key correspondent to the input (1-4) shortly to confirm:
  - the new value is saved in the memory.

Similar to the touch buttons of wall units, each binary input can be programmed to send a certain command. This selection is made through the APP as follows:

- press KEYS in the settings menu
- press for 2 seconds the IN key correspondent to the input you want to program:
  - the APP will show the selected mode. The possibilities are:
    1 ⇔ TOGGLE
    2 ⇔ ON/UP
    3 ⇔ OFF/DOWN
    4 ⇔ TIMER
    5 ⇔ DELAY OFF
    6 ⇔ SCENARIO
    7 ⇔ FOLLOW INPUT
- press the mode text and select the mode you want
- press SAVE

The binary input mode is now changed.

FOLLOW INPUT explained

The FOLLOW INPUT mode is a special case but quite useful for some kinds of detectors and can better be explained with an example.

Assume you want to make sure that your garden lights go on when it becomes dark and go off when the day begins. On top, you want to make sure that nobody can switch on the garden lights during the day. The FOLLOW INPUT mode is perfect for this.

The FOLLOW INPUT mode has another parameter that defines what commands are sent and if the device is then locked or not.

The 4 possible modes are:

- 1 ⇔ SET/RESET without LOCK
  When voltage is detected, the command ON/UP is sent so that devices are switched on or opened.
  When the voltage disappears, the command OFF/DOWN is sent so that devices go back to the status they had before the voltage appeared.
- 2 ⇔ RESET/SET without LOCK
  When the voltage is detected, the command OFF/DOWN is sent so that devices switch off or close.
  When voltage disappears, the command ON/UP is sent so that devices go back to the status they had before the voltage appeared.
- 3 ⇔ SET/RESET with LOCK
  When voltage is detected, the command ON/UP is sent so that devices are switched on or opened and they become locked so that their state cannot be changed.
  When the voltage disappears, the command OFF/DOWN is sent so that the devices go back to the state they had before the voltage appeared and are no longer locked.
- 4 ⇔ RESET/SET with LOCK
  When the voltage is detected, the command OFF/DOWN is sent so that devices switch off or close and become locked so that their state cannot be changed.
  When voltage disappears, the command ON/UP is sent so that devices go back to the state they had before the voltage appeared and are no longer locked.

Going back to our example, we connect a daylight detector to our binary input and make sure that voltage is present when daylight is present. As we want to make sure that during the day the lights are off and that nobody can switch them on, we need to select mode 4:

- when daylight comes the lights go off and locked
- when daylight disappears the lights go on and unlocked.

Note that if lights were switched off during the night, lights will not go on when darkness sets in.

In other words, the FOLLOW INPUT takes over during voltage presence according to the selected mode and sets back the devices as they was before when the voltage disappears. This means that shutters or dimmers go back to the same position and brightness as they were before the input triggered.

Master/Slave definition in dimmers

It is often the case that several dimmers are necessary to drive different lights in the same room and it is desirable that the different lights have the same brightness and colour when they are on.

QUADRA dimmers of the same type can be programmed so that one of them is the Master and the others are Slave of this master. In such a situation, only the master is controlled because the slaves will set their status automatically equal to the status of the master at all times.

The programming is made as follows:

- set all SLAVE dimmers in PROG mode
- Switch the Master on or off

You will notice that, from that moment on, the setting you select on the master will be followed by the slaves.

To erase a Master from a Slave make the same procedure, only set the Slave in ERASE mode instead of PROG.

Programming the infrared commands on the QD-1THIR

The QD-1THIR is a thermostat intended for use with air-conditioning machines that are controllable with infrared remote controls.

The infrared remote control commands of the machine usually contain the following information:

- Cycle (Cooling, Heating, Dry)
- Target temperature
- Ventilation speed
- Swing
- Operation: ON or OFF (see notes below)

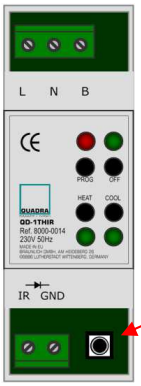
This is quite suitable because each command contains all the information needed to operate the machine. The QD-1THIR can learn 3 commands:

- ON in Heating mode
- ON in Cooling mode
- OFF

These commands must be generated by the original remote control unit of the machine during the learn procedure and will be then used to control the machine.

To learn the commands proceed as follows:

- On the remote control of your machine, select the Cooling cycle, select the target temperature (e.g. 24ºC), select the ventilation speed you want (Auto, 1, 2 or 3) and the swing function you prefer and try it out: if your machine starts cooling then press again to switch it off.
- On the QD-1THIR press PROG and then COOL:
  - PROG and COOL LEDs go on.
- Aim the remote control at the infrared receiver on the bottom of the QD-1THIR and press the ON/OFF key on the remote control:
  - The LEDs go off and OFF LED remains on.
- Now press PROG and OFF on the QD-1THIR:
  - The PROG and OFF LEDs go on.
- Aim the remote control at the bottom of the QD-1THIR and press the ON/OFF key on the remote control:



- The PROG LED goes off and OFF LED remains on.

- On the remote control of your machine, select now the Heating cycle, select the target temperature (e.g. 20ºC), select the ventilation speed you want (Auto, 1, 2 or 3) and try it out: if your machine starts heating then press again ON/OFF to switch it off.
- On the QD-1THIR press PROG and then HEAT:
    - PROG and HEAT LEDs go on.
- Aim the remote control at the bottom of the QD-1THIR and press the ON/OFF key on the remote control:
    - The LEDs go off and OFF LED remains on.

Now point the infrared LED of the QD-1THIR at your machine and try out each command:

- Press HEAT key on the QD-1THIR:
    - the machine goes ON in heating mode.
- Press OFF key on the QD-1THIR:
    - the machine goes OFF.
- Press COOL key on the QD-1THIR:
    - the machine goes ON in cooling mode.
- Press OFF again to switch off the machine.

If any of the commands fail to operate, please repeat the learning of that command.

NOTE: most machines have different commands for ON and OFF. However, some may use the same command to switch ON and OFF. In this case, the QD-1THIR cannot know if the air-conditioning is ON or OFF and it may happen that, if one command goes lost, the thermostat switches the machine ON when sending an OFF command and vice-versa.

Unfortunately, there is no way to prevent this from happening.

To check if your machine has different commands for ON and OFF proceed as follows:

- while pointing the infrared LED to the machine, press HEAT on QD-1THIR:
    - the machine goes ON.
- Press HEAT again on the QD-1THIR:
    - if the machine continues ON then the commands for ON and OFF are different.

Using the QD-1THIR

The QD-1THIR can also be assigned a panel to measure the room temperature. This serves to inform you the actual temperature of the room, not the target setting of the machine.

Air conditioning machines have the ability to control the room temperature themselves. They do so by controlling the temperature of the fluid they use internally, adjusting it to the needs. The blower usually remains on all the time, even if the machine is not currently heating or cooling.

The QD-1THIR is also capable of controlling the temperature of the room but it will do so by switching on the machine when necessary and switching it off when the target temperature was achieved. As many air conditioning machines beep when switching on and off, this can be annoying especially in bedrooms. Also, this might not be the most efficient way of controlling the room temperature.

The most efficient way is to let the machine control the room temperature. For that, the target temperature selected in the QD-1THIR must be, in the winter higher and in the summer lower than the

target temperature that was programmed in the infrared command. Like this, the target temperature set in the QD-1THIR is never achieved and the machine operates continuously.

The QD-1THIR can only store one target temperature in the ON commands and cannot change it without learning a new command. This means that a temporary change of the target temperature can only be made with the remote control of the machine. If you wish to select permanently another target temperature, then you need to reprogram that command with the new target temperature on the QD-1THIR.

Temperature scheduling

The QUADRA thermostats can be programmed to control the climatization of the house according to a fixed schedule. Each thermostat can have up to 8 temperature schedules for summer and 8 for winter. Each schedule contains the following information:

- weekdays
- starting time (hours and minutes)
- stop time (hours and minutes)
- target temperature (in ºCelsius)

Different schedules may overlap and the arbitration is as follows:

- Winter: the highest target temperature is taken.
- Summer: the lowest target temperature is taken.

The programming of the temperature schedule is made for each thermostat as follows:

- In the climatization room, select the thermostat you want to program and press the > key on the right side.
    - the thermostat sub-menu opens and the actual schedules will be loaded.
- Select the Schedule you want to change or press + to add a new one.
- Adjust the start time, the end time and the weekdays you want.
- Adjust the target temperature.
- Press SAVE on the top right
    - The temperature calendar is stored on the device.

For the calendar to run you must set the SCHEDULE to ON.

Changing the target temperature during program execution automatically updates the target temperature for that period in the schedule.

If starting time equals the stop time, then the program will not run. Stop time must always be later that the start time.

Action calendar

The action calendar is thought to perform actions at a given time certain days of the week. The action calendar is not thought for temperature scheduling.

A typical use is to switch off the garden lights everyday of the week at 00:30, for example.

- To adjust it select Action Calendar on the settings menu.
    - You will see the list of actual Action Calendars programmed.
- Select one or create a new one by pressing +.
- Define a name for the action (e.g. Garden Off)

- Define the time (e.g. 00:30)
- Define the weekdays (e.g. everyday)
- Choose the command to send (e.g. OFF/DOWN)
- Press Select Devices:
    - The device list opens so you can select the devices you want to operate
- Press Select on the devices you want to operate (e.g. Garden lights)
- Press BACK on the top left:
    - You are back in the Action Calendar Edit menu.
- Press SAVE on the top right.
    - The Action calendar is programmed on the devices you selected.

You can try out if the programming is correct:

- Press the icon of the Action Calendar you just created.
    - The command is sent to the bus, so the devices should perform the command you selected.

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