



## Further operative notes

The circuitry used here is the only one on the market with the ability to **"identify" all normal electronic consumers.**

However, **exceptions** can never be completely excluded. In this case, briefly make use of an auxiliary electrical load (e.g. a filament bulb) in order to energise, or switch on a base load (available as accessory) somewhere on the circuit.

Even **impulse relays** with a control voltage of 230 Volt will normally not impede the trouble-free function of this Demand Switch. Impulse relays are employed, for instance, for lights in corridors or staircases when these are to be operated from various switches (push buttons).

In the case of external overvoltage being applied, an internal overheating protection could be the reason for the Demand Switch not to be able to decouple by itself. If this happens, it is necessary to switch off the main overcurrent upstream circuit breaker for about one minute and then switch it on again in order to re-initialise the device. Leave about 1 cm space to the left and to the right of the Demand Switch for temperature compensation.

Our ultima-series offers the possibility to automatically decouple a large number of the problem consumers mentioned below point 6 (on the reverse page). Further information available et al. in the internet under [www.gigahertz-solutions.de](http://www.gigahertz-solutions.de).



## A Demand Switch - what for?

Electricity has become indispensable for every day life. The use of electricity inevitably causes alternating electrical and magnetic fields. The effect of these electrical and magnetic fields on the human organism has been the subject-matter of many international studies with some concerning results.

At present, the "safe" levels of electric and magnetic fields are still to be determined, but it is now agreed by many doctors and scientists that the levels should be reduced on the principle of ALARA (As Low As Reasonably Achievable). Magnetic fields should be measured and any wiring faults corrected. Electric fields can only be reduced by using electrically screened cables or using a "Demand Switch" which remove the high (230 volt) supply when there is no load on the circuit that needs power. This is particularly useful at night-time.

A reliable Demand Switch optimised according to building biology criteria can substantially reduce your daily exposure without your being inconvenienced. It is for this reason that many experts recommend the decoupling from the mains (often also called "isolation") as a first and important technical step to be implemented when reducing alternating electrical and magnetic fields.



## Product-information

### Nominal voltage / capacity

230 VAC +/- 10 %, 16 Amp., 3500 watt filament lamp load

### Mechanical durability of the relay

approx.15.000.000 operating cycles

### Residual ripple (nominal/typical/maximum)

< 2 mV / < 4 mV / < 8 mV

### Monitoring voltage

Building biology compatible DC voltage (max.8mA / 230 VDC)

**Single-poled disconnection** for optimum operator protection A minimum residual ripple is guaranteed by a low resistance PTC connection to the terminal "neutral".

### Innovation

Various granted and pending patents are an impressive proof of our technical superiority in comparison with the state-of-the-art compared with other devices on the market.

### Safety

The Demand Switches NA1 comfort to NA8 comfort were the first "decouplers" ever to be certified the VDE (the Association for Electrical, Electronic & Information Technologies) certificate for fulfilling the severe safety regulations. VDE identification number: 40000677

### Practical efficiency

The Gigahertz Solutions Demand Switches have been installed by many experienced electrical engineering technicians for many years. They are on the recommendation lists of renowned building biologists and are in use in thousands of households every day.

### Two years guarantee



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Further information and answers to frequently asked questions on mains disconnection and field strength measurement techniques to be found in the internet under: [www.gigahertz-solutions.de](http://www.gigahertz-solutions.de)

Errors and alterations excepted. No liability assumed for inappropriate use.

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Innovative Electronic  
EMF and RF-Technology  
Made in Germany

**GIGAHERTZ**  
SOLUTIONS

# Demand Switch NA7 *comfort*



## Installation and operating instructions

## Product information

Please make **absolutely** sure to carefully read these operating instructions prior to initial operation. You will find important information on the safety, the installation and the use of the device.

# 1 Safety information and implementation requirements

Application in private households only. The installation of this electrical device is to be carried out exclusively by a skilled electrician.

The device must always be overcurrent protected by a **16 Amp circuit breaker, which is to be switched off before installation.** An upstream connection to an RCD or an RCBO fault safety circuit breaker increases the security level, but is not essential for the operation of the device.

Use approved phase indicators for no-voltage tests on the circuits.

Manipulations of the house consumer unit (fuse box) may cause perilous electric shocks. Please precisely follow the connection instructions. Under no circumstances allow the device to come into contact with water.

The enclosed label "Safety Information" is to be attached at a noticeable position in the fuse box.

In the case of multi-installation of Demand Switches in one fuse box, they must be mounted either on different bars or having a space and blanking plate of at least half a unit (about 9mm) **between neighbouring Demand Switches.**

**Note: Please maintain these instructions in the fuse box in order to have them at hand in the case of any potential questions arising in the future!**

# 2 Operational elements

Terminal Phase (L)  
Terminal "Neutral" (N)

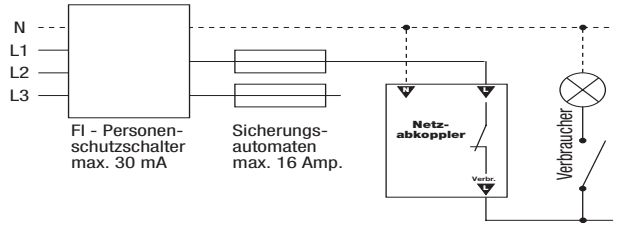
LEDs:  
stand-by (green) ("betriebsbereit")  
circuit connected (yellow) ("-/+")  
circuit disconnected (green) ("abgekoppelt")

Automatic on/off ("ein/aus")

Power output at user's side



# 3 Connection instructions and functional test



Switch off the Main Switch for the electricity supply before installation. Connect input "N" with the neutral conductor bar and input "L" with the output of the desired circuit breaker. Switch on the main switch.

Conduct a functional test (**p r i o r** to connecting the output phase to the electrical circuit)

- Green LED "stand-by" ("betriebsbereit") must glow permanently.
- If "Autom." is switched on, the device must uncouple and switch the output off.

Once again switch off the Main Switch. Connect the phase conductor of the electrical supply circuit which is to be protected to the output "L". Switch on the Main Switch. In the case of an inadvertent input polarity reversal, the relay can clearly be heard toggling. If so, please check the connections and correct them.

# 4 Brief instructions considering the initial operation

Install the Demand Switch according to paragraph 3 and conduct the functional test.

Switch off all lights and devices connected to the relevant circuit, also units in stand-by mode (unplug them if need be).

**Push "Autom." button until it engages:**



After approx. two to three seconds the Demand Switch should uncouple ("disconnect") the respective mains section from the 230 V mains power supply. This is indicated by the illuminated lower green LED ("230 V~: abgekoppelt").

Then plug the system control lamp included in the package into a clearly visible socket in the bedroom. This serves as a function monitor, as it only glows in the case of voltage supply.

EA neon "night light" or a light or socket switch with a neon glow lamp will, in contrast, also glow when a.c. voltage supply is disconnected, as the monitoring voltage of the Demand Switch allows both to be provided with DC voltage (230 VDC, max. 8 mA or 1.8 watt load) uncritical with regard to the building biology.

# 5 If the Demand Switch doesn't disconnect...

First of all **check whether the "Autom." button has been pushed and has fully engaged.** If the button shows "Autom.: aus", the electronic system is bridged and the relevant circuit is supplied with voltage.

If the "Autom." button is pushed, but either one or both yellow LEDs are illuminated, the relevant mains section has not been uncoupled and is still supplied with mains voltage.

- If both yellow LEDs are illuminated, major consumer loads must be on the line.
- If only minor consumer loads are on-line, the LED on the right (+) will go out first, eventually followed by the LED on the left (-).

The Demand Switch will not uncouple until the left LED (-) has completely ceased to glow, also if it only glows very lightly. In doubt, temporarily disconnect the phase output "L" in order to repeat the functional test of the Demand Switch (see par. 3). Should this test run successfully, one or more permanent electricity consumers (such as electric clock or radio on standby) must either still be connected to the circuit that you wish to protect, or the wiring is faulty and the leakage current rate is too high.

For further steps please see par. 6.

# 6 Permanent consumers prevent decoupling

If the Demand Switch does not uncouple, there must be hidden electricity consumers on the line which need to be disconnected, such as:

**Permanent minor consumers** (clock radio, sensor dimmer, antenna amplifier, motion detector, clock timer, roller blind controls, refrigerator, dishwasher, waterbed, thermostat for electrical heating, comfort telephone, fax machine, printer, scanner, etc.)

**LBattery chargers** (rechargeable shaver, toothbrush, telephone, gameboy, etc.)

**Stand-by units** (hi-fi system, television, video-tape recorder, etc.).

All these devices consume power even when "switched off" so that it would make sense in any case to disconnect them from the mains, for example by using a switchable multiple socket outlet. When using single-poled switchable multiple socket outlets it is important to pay attention to the correct polarity (the phase must be disconnected!) - this will always be the case if the wiring complies with the UK wiring regulations.

Further factors which can prevent decoupling may be too much leakage current in the walls, too many light switches with glow lamps, or "baby lights". The Comfort-series can "cope with" up to approx. 47 kOhm reduced insulation resistance in the distribution network, which is considerably lower than the test requirement to meet the IEE wiring regulations, BS7671.