

GIV_V1.4_EN

Induction line generator

User manual

Contents

- Technical Parameters 2
- Storage and Transport..... 3
 - Storage 3
 - Transport 3
- Installation, Operation and Maintenance 3
- Switchboard Wiring Description..... 4
- Generator Controls Description 5
- Generator Control and Setting 6
 - Induction Loops Connection..... 6
 - Output Frequency Setting 6
 - Output Power Settings 7
 - Output Power Setting Calculation 7
- Generator Operating Status 8
 - Operating Status..... 8
 - Power Failure..... 8
 - Induction Loop Interruption 9

Technical Parameters

Input power	230V/50Hz
Maximum power consumption	20W
Output frequency	5kHz - 10kHz
Output current	50mA - 200mA
Operating temperature range	-20 °C - 40 °C
Storage temperature range	-25 °C - 40 °C
Maximum loop impedance	45Ω
Maximum line length	1500m, with 1.5mm ² cross-section
Device dimensions	302 x 232 x 110 mm (without glands)
Protection class	IP65 to EN 60529/DIN VDE 0470-1
Impact resistance	IK07 according to DIN EN 5012/VDE 0470 part 100
Protection class	II - Protective insulation according to VDE 0106
Fire behaviour according to UL 94	HB
Fire behaviour according to VDE	650°C according to VDE 0471/EN 60695

Storage and Transport

Storage

Protect the device from excessive moisture (damp storage, construction-unfinished premises), high temperature and frost - (see **temperature range for storage** specified in **the technical parameters**).

Avoid damage to the device!

Do not use a damaged device under any circumstances - electric shock risk!

Transport

The device can be transported in the usual, adequately fixed positions. Protect the device from excessive moisture, temperature and frost during transport.

When transporting the device, avoid excessive vibrations and dropping the device!

Installation, Operation and Maintenance

Due to the nature of the device and the potential danger to life and health, the instructions and safety regulations in force must be observed!

- Observe the basic technical parameters and operating conditions when installing and operating the device.
- Before installing the device, check the device condition, especially possible damage during transport.
- Install the device so that the device controls are located at a height of approximately 0.8 - 1.6 m above the access level.
- The device must be connected to a separately protected power supply.
- When the device is supplied with a battery, connect a negative contact (black wire) that is not plugged into the battery when the device is connected to a power source. You can remove the protective rubber that holds the battery in place. It only serves to secure the battery during transport.
- **It is forbidden to interfere with the device's internal connection (except for connecting the input power supply, connecting the battery and the induction line output to the specified terminal boxes).**
- **Connecting the device to the power supply at the installation site, connecting the output circuits, maintenance and repairs can only be carried out by qualified personnel pursuant to Decree 50/1978 Coll., as amended, at least according to §6.**

Never connect or use a damaged device – there is a risk of electric shock!

- Before working on the device, observe the ČSN EN 50110-1 ed.2 provisions, in particular, disconnect the device from the power supply, secure the work area, and verify that there is no foreign hazardous voltage from another source (UPS, induced voltage, etc.).
Warning! The device includes a power supply that is equipped with high capacity capacitors. Therefore, even after the power supply is switched off, there is a dangerous voltage present in the device from these discharging capacitors!
- Do not place any objects on the device, and do not cover the device or remove any markings or warning labels from the device.

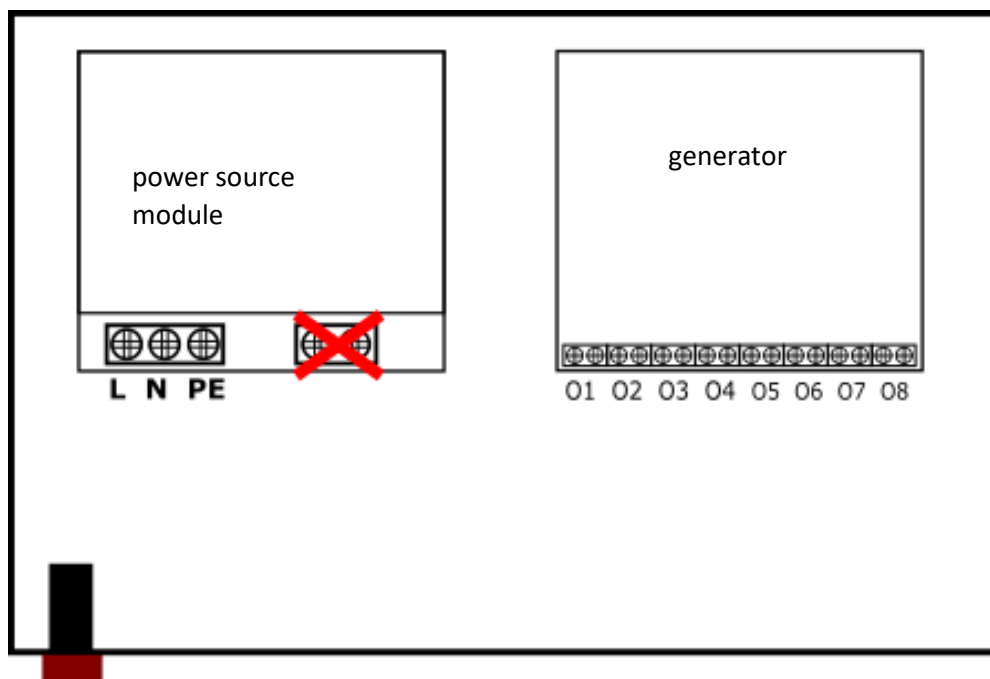
- Periodically inspect the device in terms of the environment where it is installed. Also, check and tighten the screw connections inside the device for inspection.
- Normal maintenance only requires occasional inspection of the device - checking the mechanical damage to the covers, marking and insulation of the supply line.
- **If the device cover is mechanically damaged, deformed or discoloured due to high temperatures stop using the device immediately, disconnect the power supply and call a qualified person according to Decree 50/1978 Coll., as amended, at least according to §6. Do the same if the cabinet starts to make unusual noises (buzzing, chattering), or if smoke is visible or you can smell smoke or smell burnt insulation, or the device stops working as it should.**
- If the protection element of the supply line is repeatedly switched off, stop using the device and call a qualified person immediately according to Decree 50/1978 Coll., as amended, at least according to §6.

Warning! This is a Class A device. In a household environment, this device may cause radio interference.

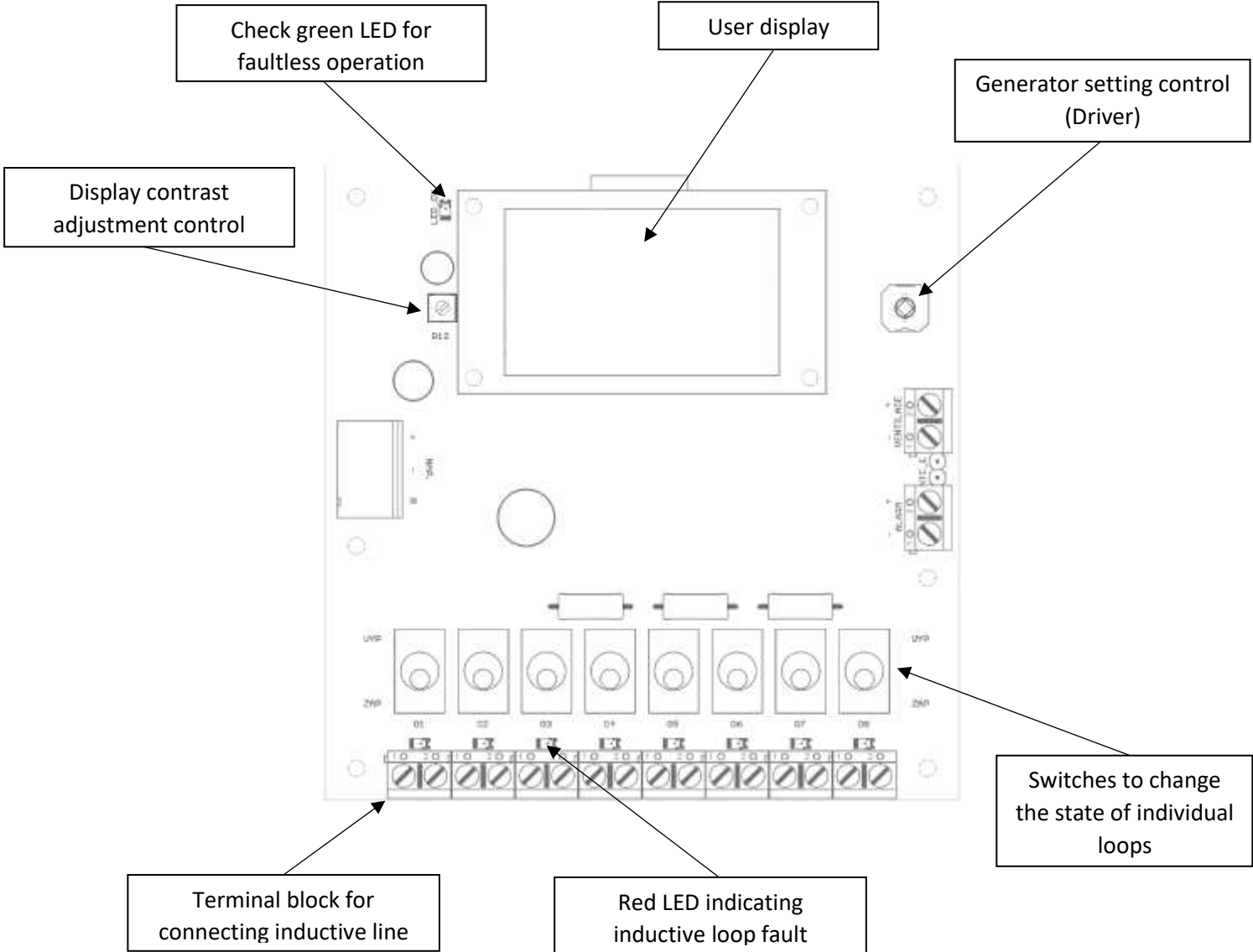
Switchboard Wiring Description

There is a power supply module and a generator module inside the switchboard (see figure below).

- On the left, there is a power source for the generator where **the input power** is connected to the terminals marked **L, N** and **PE**.
- On the right side there is the generator itself, to which **the inductive loops** are connected to the terminals marked **O1 - O8**.



Generator Controls Description



During normal operation, the generator display shows the generator firmware version and the vendor designation.



Generator Control and Setting

Induction Loops Connection

We connect individual induction loops to the generator terminals marked O1 - O8.

After connecting the inductive loop to the terminal block, it is necessary to switch on a particular inductive loop with a switch belonging to the terminal block.

For other unconnected terminals, the switches remain in the "OFF" position.

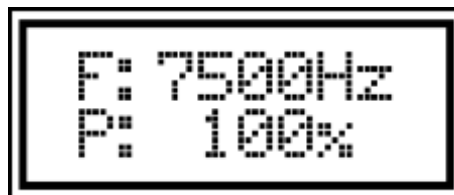
If all inductive loops are correct and all switches are set correctly, only the green control LED next to the display is lit on the generator.

If there is a problem with the switch settings, or some inductive loop is interrupted, the green control LED will go out and the red error LED will light up on the generator above the terminal block (see Generator Operating Conditions) from the first defective line to the O8 line.

Output Frequency Setting

To adjust the output frequency when the operating screen is displayed, turn the control knob to the right.

- The set-up screen is displayed, where F is flashing



- Turn the generator controller again to the right to get to the output frequency setting (see figure below).



- The first digit of the frequency value is highlighted on the display.
- Moving the controller up/down increases/decreases the highlighted digit's value.
- Move the controller to the right/left to move between the frequency setting values.
- Move the controller to the left (up to the first digit) to save the output frequency and return to the original display.

Output Power Settings

To adjust the output power when the operating screen is displayed, turn the controller to the right.

- The set-up screen is displayed, where F flashes



- By moving the controller down, the letter P starts flashing.
- Press the generator controller again to the right to get to the output power setting (see figure below).



- The first digit of the power value is highlighted on the display.
- Moving the controller up/down increases/decreases the value of the highlighted digit.
- Move the controller to the right/left to move between the individual power setting values.
- Move the controller to the left (up to the first digit) to save the output power and return to the original display.

Output Power Setting Calculation

To calculate the output power setting, it is necessary to know the sum of the electrical resistance of all the loops connected to the generator (can be measured with a conventional multimeter) and the current passing through the loop required by the forklift manufacturer (see the Forklift manual).

Then the following relationship applies:

For 75mA passing through the loop:

$$P = (R + 6) * 4$$

Where P is the power in % and R is the sum of the electrical resistance of all loops.

For 100mA passing through the loop:

$$P = (R + 6) * 5$$

Where P is the power in % and R is the sum of the electrical resistance of all loops.

After setting the output power, it is advisable to perform a loop current measurement and, if necessary, adjust the output power.

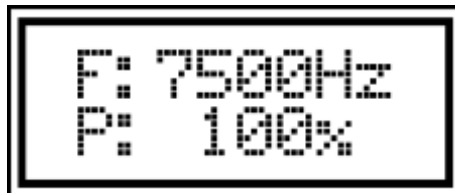
Generator Operating Status

Operating Status

If the generator is running in operating status, the setting of all loop switches is correct and all induction loops are correct, only the green control LED next to the display is lit on the generator, and the generator firmware version and the supplier designation are shown on the generator display.



After turning the generator controller to the right, the display will show the set value of the output frequency and output power.



Power Failure

- If the device does not have a backup battery, the device stops working after a power failure (the display goes out and no LED lights are on the generator).
- If the device is equipped with a backup battery, the device continues to operate according to the set parameters after a power failure. The power failure is indicated on the generator display a "Power failure" message and an acoustic signal that gives a short tone every 15 seconds.



When power is restored, the acoustic indicator light stops emitting a tone and the generator display returns to operating values. Recharging the backup battery is automatically initiated with power recovery.

Induction Loop Interruption

If the induction loop is interrupted, the entire induction line stops working. The green LED on the generator stops illuminating and the red error LED lights-up above the terminal block. The red LED lights from the first broken loop to the last loop O8.

By gradually turning off the loops (switching the loop switch to the OFF position) it is possible to see which loop was interrupted - after switching off the respective loop all red error LEDs go out, the green LED on the generator lights-up and the line, outside the closed loop, starts to work again.