

USER MANUAL OF THE PORTABLE SPECIALIZED FREQUENCY CONVERTER (PSFC – 400)

The frequency converter (*PSFC – 400*) is designed to supply the Victar electric chainsaw. The input voltage is three-phased 380V, 50Hz with the neutral wire. The output voltage is three-phased 220V, 400 Hz.

The PSFC – 400 provides overvoltage and thermal protection. It contains a warning alarm that will be set off in case of an incorrect connection to the power supply. The operation of the saw will be blocked if the output connector is not properly connected.

At the front of the PSFC – 400 there are the following indicators: red (left) for the alarm indicating an incorrect connection to the power supply, two-coloured (right) for the alarm indicating that a protection device has been activated. On the left side panel there are the following: automatic switch and connector (plug) for connecting the input network cable. On the right side panel there is the connector (socket) for output cable connection to the saw (motor) and the exhaust fan. During the connection of the PSFC – 400 to the power supply and during the operation of the saw the operator must make sure that input and output connectors are connected properly.

1. SPECIFICATIONS:

Input voltage (three-phased with neutral wire)	_____	380 V+10%, - 15%; 50 Hz
Output voltage (three-phased)	_____	220V+10%, - 15%; 400 Hz
Nominal output capacity	_____	3 kW
Maximum output capacity	_____	7 kW
Operation cycle maximum duration	_____	60%
Weight	_____	5 kg

2. CONNECTION TO THREE-PHASED POWER SUPPLY 380 V WITH THE NEUTRAL WIRE

The PSFC – 400 is connected to power supply with a cable of five copper wires of not less than 2.5 mm.

The input connector outputs L1, L2, L3 are connected to the phases of the power supply 380V, 50 Hz. The output “N” of the input connector is connected to the neutral wire.

The output “!” of the input connector should be connected to the ground wire. IT IS PROHIBITED to connect to ground with the neutral wire.

The connection to the power supply should be done when the automatic switch on the PSFC – 400 is off. If there is an incorrect connection to the input power supply (the supply supply phase is improperly connected to the output “N” instead of the neutral wire) the red (left) indicator will flash. In this case IT IS STRICTLY PROHIBITED to switch on the automatic switch on the PSFC – 400 as it may cause a PSFC – 400 failure. The alarm indicating an incorrect connection to the power supply functions only if the PSFC – 400 IS GROUNDED. It is necessary to make the correct connection to the power supply.

3. CONNECTION TO THE SAW

The output connector of the PSFC – 400 is connected to the saw when the PSFC – 400 automatic switch is off.

The PSFC – 400 is connected to the saw with a cable of five copper wires of not less than 2.5 mm. The outputs L1, L2, L3 of the output connector (the power leads of voltage 220V, 400 Hz) are connected to the phases of the saw motor.

The output “N” of the output connector of the PSFC – 400 is connected to the output “Y” on the saw connector (it is connected to the starting switch on the saw handle).

The output “!” of the PSFC – 400 output connector “0” on the saw connector (the saw is grounded with the cable wire from the PSFC – 400 ground).

When the output connector is incorrectly connected it may lead to 2 situations:

- if the output “N” or “!” of the PSFC - 400 is connected to the phase of the saw motor the wrong way, then when the starting switch on the saw handle is closed the motor does not start, the green indicator does not flash at the moment of closing;
- if both outputs “N” and “!” of the PSFC – 400 are connected to the phases of the saw motor, then the PSFC – 400 automatic switch will be locked to prevent an incorrect connection of the output connector: the right indicator of the warning alarm flashes red and green alternately, the PSFC – 400 operation is locked.

It is necessary to switch off the automatic switch of the PSFC – 400 and to perform the correct connection of the PSFC – 400 output connector.

4. OPERATION

In a second after the start and during the normal operation, the right two-coloured indicator flashes green. When pushing the starting switch on the saw handle, the green indicator flashes once and the saw operates. When the overvoltage protection is on, the indicator flashes red and the PSFC – 400 operation is locked. When the thermal protection is on, the indicator blinks red and the PSFC – 400 operation is locked. To reset these modes, it is necessary to switch off the main automatic switch of the PSFC – 400, it is necessary to wait at least 30 s before switching the PSFC – 400 back on. After the thermal protection is activated, the FC operation is locked until the radiator cools to 40 C.

If the input and output circuits connected properly and the saw is in good operating condition, but the warning alarm is activated repeatedly, this indicated that the PSFC – 400 needs to be fixed.

A single warning alarm is possible due to the circuit troubles.

It is required to make a pause of one second between the switching on and off of the starting switch on the saw handle.

When the saw operates, the red left indicator may normally flash for a short time.

5. IT IS PROHIBITED:

- To use the device if the housing of the PSFC – 400 and the saw is not grounded (the PSFC – 400 housing is grounded through the output “!” of the input connector; the saw is grounded through the output “!” of the output connector of the PSFC – 400 and the output 0 of the connector on the saw);
- To connect to the PSFC – 400 connectors before switching off the main automatic switch on the front of the PSFC – 400;
- To touch the guide bar with the chain if the automatic switch of the PSFC – 400 is not switched off and the electric connector and the saw are not disconnected;

(If the electric motor is switched off by the switch and the locking toggle switch it does not prevent against accidental switching on of the saw!!!);

- To leave the PSFC – 400 on during a long operation interruption;
- It is necessary to follow the general safety rules while operating with manual electric devices;

6. STORAGE

The PSFC – 400 is installed in a dry place. The interior of the FC should be protected against water and snow. The ambient temperature should be between - 25 C... +25 C. During the installation and the operation of the PSFC – 400 in a closed

premise it is necessary to provide for the sufficient natural cooling of the PSFC – 400.

7. LAYOUT OF CONNECTORS:

INPUT CONNECTOR “SUPPLY”: L1, L2, L3 – 380 V, 50 Hz;

“N” – neutral wire;

“!” – grounding wire;

OUTPUT CONNECTOR “LOADING” L1, L2, L3 – 220 V, 400 Hz;

“N” -- to connect the starting switch on the saw;

“!” — “0”, grounding wire to the saw.