# MultiPlus Generator FAQ

What to do when a MultiPlus, or Quattro, does not accept generator power

---

Power supply from a generator is typically more variable than a power supply from shore or the main grid. The MultiPlus is sensitive to this and will reject power that is outside of it's programmed settings causing the unit to not connect, synchronise or charge.

**Selecting a Generator**

Some generators are more suitable than others for use with inverter/chargers, please talk to your local Victron Dealer before purchasing a generator and they may be able to advise you on locally available units that have been tested and are known to be good.

For example; some things to look for when selecting a generator is a high quality alternator and AVR (auto voltage regulation).

AVR equipped generators will audibly struggle and eventually stall when overloaded, signalling there is an issue. They are also better able to cope with a brief high current load which would overload an inverter based generator.

Inverter based generators have a characteristic where the motor continues to run even if the unit has electronically overloaded and no longer delivering power. It may appear that the generator is operating and the system is charging when it isn't. These units are also more easily overloaded by surge loads, as they are electronically limited rather than mechanically.

**Generator Sizing**

It is possible to overload generators with the power demanded by the Multi's charger. The following generator sizings are indicative of those sizes are appropriate for the charging potential of the various multis. It is still possible to overload these generator sizings with large loads, and flat batteries using the PowerAssist function, so they should be treated as safe minimums to eliminate this as a potential cause of issues.

2 kVa - 800VA Multi

2.5 kVa - 1200VA Multi

3 kVa - 1600VA Multi

5 kVa - 3000VA Multi

8 kVa - 5000VA Multi

**Operation**

It is important to note that the inverter/charger may take a minute or more to synchronise (though it can be much quicker). Treat the equipment with patience if the settings are thought to be correct.

Some generators will alter their voltage or frequency when loads change. This can be significant if the generator goes from no-load to full-load quickly. It can help to have a small 'stabilising' resistive load such as a 75W light globe smooth out this start up voltage/frequency variation.

If the generator is operating smoothly, but it still will not charge the system you may need to make some adjustments in the MultiPlus software via VEConfigure.

**Software Changes**

The settings which you should attempt first are 'Disable UPS mode' and 'Enable Dynamic Current limiting'. These compromise features, but maintain the quality of the power supply.

If the generator will still not synchronise or disconnects, try turning on the setting for Weak AC. This will compromise efficiency.

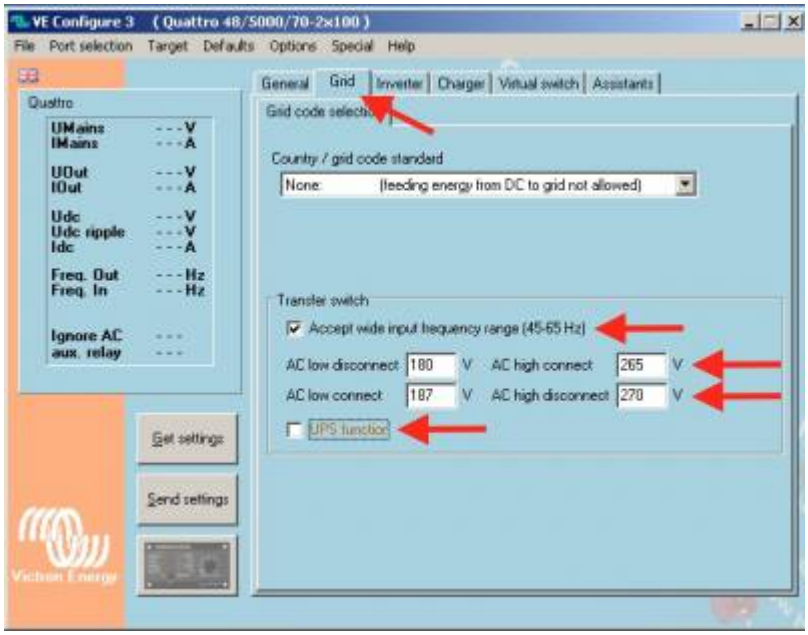
Lastly, adjusting the settings for Voltage and Frequency windows. These are higher risk to your appliances, they should only be used cautiously when it is confirmed that the loads will tolerate the out of specification power supply. This should be done by a competent technician with the aid of a multimeter and only opened so far as to allow for safe functionality.

Electrical current will go through the MultiPlus only if it meets the programmed minimal quality requirements; in that way the MultiPlus protects the electrical supply of delicate equipment.

Warning: changing these settings will allow to feed-through current that may be of insufficient quality for the electrical requirements of your equipment.

For information on VE-Configure and how to get started, please see this VE Configure Software page, or contact your local Victron dealer.

# 1. In the “Grid” tab of VE-Configure:



## 1.1 Wave shape quality

**UPS Function:** (default = enabled)

When the sine wave is of good quality, the Inverter of the MultiPlus will hook up on it, thus allowing a synchronised and fast transfer when the generator stops.

Many generators have more or less ill-shaped sine waves, in particular during sudden load changes. In these situations, the MultiPlus will disconnect frequently or not connect at all. The UPS function must then be deactivated. The drawback is a slightly longer transfer time.

## 1.2 Frequency stability

**Accept wide input frequency range (45-65Hz):** The MultiPlus accepts frequencies from 45 to 65Hz (default = enabled). If the generator is extremely stable and if that same stability is required on the output of the MultiPlus, this setting may be disabled.

## 1.3 Minimum voltage levels

**AC low disconnect:** low limit: below this value, the MultiPlus will disconnect (default = 180Vac).

On generators where the output voltage drops under load, setting this value to a higher value can help solve shutdowns on overload.

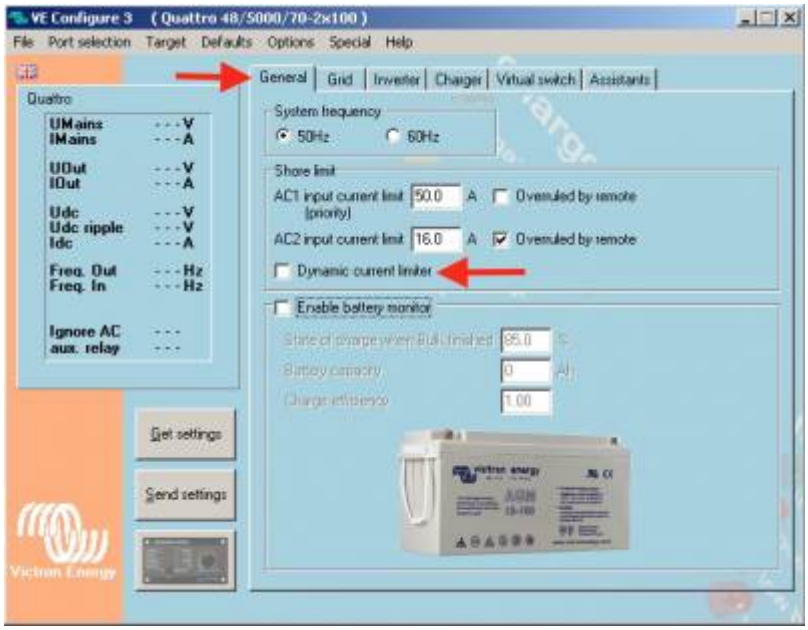
**AC Low connect:** minimum value: at this value or any higher value, the MultiPlus will reconnect after having disconnected (default = 187Vac).

## 1.4 Maximum voltage levels

**AC high disconnect:** high limit: above this value, the MultiPlus will disconnect (default = 270Vac).

**AC high connect:** maximum value: at this value or any lower value, the MultiPlus will reconnect after having disconnected (default = 265Vac).

# 2. In the “General” tab of VE-Configure:




## 2.1 Dynamic current limiter

(default = disabled)

This feature is intended to reduce load impacts on low-power generators, such as portable inverter technology models. These generators may be unable to respond to sudden load impacts.

By activating the limiter, the **PowerAssist®** function of the MultiPlus will absorb the change in load and transfer it smoothly to the generator, giving it time to react.

## 2.2 AC Input Current Limit

The charger on the Multiplus is very powerful. If you have an existing generator that is not able to supply the maximum charging current of the Multi, you will need to adjust the AC Input Current Limit in the General Tab of VE-Configure.

A reasonable starting point for the AC Current input limit is 80% of the generator capacity in Watts. For example:

a 5kVA generator typically provides about 4 kW

80% of 4 kW is 3200 W

3200 W / 230 V volts = 13.9 A

Set the AC Current Input Limit to 13 A

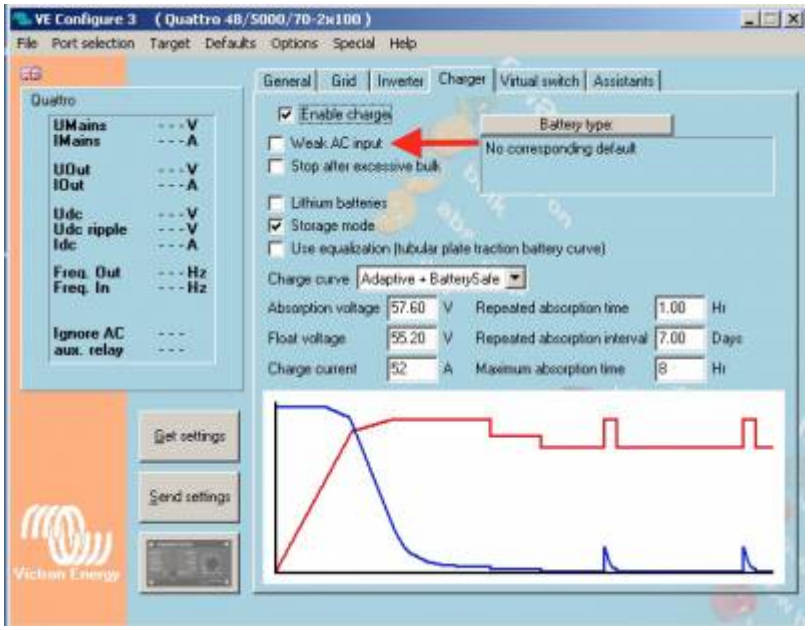
If you find the generator is still overloading, or running too hard, you may lower this further. It can also be increased if you find the generator easily handles the load (though this can be difficult to test as it requires a flat battery to maximise charging demand and a large load).

There is another additional setting in the Charger Tab for DC current limiting.

The AC input current should be adjusted first, as it also takes into account the PowerAssist functionality.

The Multi is able to synchronise the generator waveform with it's own and provide power to the loads from the generator as well charging the battery. This means it still possible to overload the generator with a low 'DC Charger current limit' if the AC input limit is not also set correctly to the size of the generators output.

# 3. In the "Charger" tab of VE-Configure:




**Derating of the power factor**

Some generators have a waveform which makes it difficult to charge with the normal charge mechanism. Through activating the "**Weak AC input**" function, another mechanism is used which will enable the MultiPlus to charge under practically any condition.

Disadvantage of using this option is that the input power factor, normally equal or close to 1, will be degraded. This function should be used only when the preceding ones are ineffective.

This leading or lagging power factor will have the effect of demanding more kVa from the generator for the same or less DC Watts delivered to the batteries. You may need to further reduce the DC Current Limit in the Charger tab of VEConfigure if the generator continues to overload after changing this setting.

**Important note:**

A detailed description of all settings is available in the VE-Configure help menu, and more instructions are available in our manuals.

# Disqus

~~DISQUS~~

From:
https://www.victronenergy.com/live/ - **Victron Energy**

Permanent link:
**https://www.victronenergy.com/live/multiplus_faq?rev=1514918598**

Last update: **2018-01-02 19:43**