**Standard Operating Procedure for**

**R&S Power Supply NGL202**

Specification Limits

1. Max. output voltage: 20.05 V DC
2. Max. output current: 6.01 A (if voltage is less or equal to 6 V)

3.01 A (if the voltage is higher than 6 V)

1. Max. power output 120 W
2. Two-channel instrument

Procedure

1. Switch on the power supply and press the power key of the NGL202
2. Since the device has two channels, we will now use Ch1, same can be done for Ch2
3. Connect the Red and Blue wires, to the CH1 ‘+’ve and ‘-’ve terminal respectively
4. Connect a resistance to the Red and Blue wire
5. Now click on the SETTINGS button on the screen of Ch1, then click on OUTPUT button, then OUTPUT MODE, and make sure it is in AUTO mode
6. Click on HOME button (physical button), to return to the home screen
7. Enter your set voltage (in V or mV), and enter your set current limit (in A or mA)
8. Click on CH1 physical button and then press the OUTPUT physical button
9. The screen will show in green colour, the voltage applied and the current measured
10. Constant Voltage Mode (channel font will be in green)
    1. SOURCE MODE: If the load voltage (applied in SMU) is less than the set voltage or zero (no voltage applied in SMU), the channel is in source mode, the current flows from the NGL202 to SMU
    2. SINK MODE: If the load voltage (applied in SMU) is more than the set voltage, the channel is in sink mode, the current flows from the SMU to NGL202
11. Constant Current Mode (channel font will be in red)
    1. If the load current is more than the set current, the channel is in constant current mode
    2. To test, take a resistor, connect it to the NGL202 with help of crocodile clips, apply some voltage say 1V, measure the current, now stop the output, set the current limit to a lower value than the measured current, now the reading will be in red colour, and the current will be constant

Use the power supply as constant current Source:

**1mA constant current source**:

1. Connect a 1k resistor to one of the channels of power supply using banana cables and crocodile clips, apply 2V, the current measured by the power supply will be 2mA, now set the current limit of that channel to 1mA, the colour of the channel will change to red (wait few second), which indicates the unit is working as constant current source, with current as 1mA

**10mA constant current source**:

1. Same procedure as above, use 1k resistor, apply 10V, and the set current limit to 10mA (or 0.01 A)

**100mA constant current source**:

1. Same as previous, except use a 100ohm resistor, apply 10V and set the current limit to 100mA (or 0.1 A)

**Note:**

Sometimes it may happen that even after setting the current limit, the fonts are still in green (i.e., In constant source mode), in such cases, usually waiting for a few seconds solve the problem otherwise just increase the voltage value by a small amount (e.g., 10V -> 10.2V)