SIGNAL GENERATOR

The SG Series and SG PRO Series of RF signal generators include full frequency sweeping support. This can be configured via the GUI shown below, or using remote SCPI commands. Sweeps can additionally be triggered using the optional analog MCX input trigger port on some models.

DSI signal generators support two types of sweeping, we call these **SCAN MODE** and **LIST MODE**. SCAN mode moves through a frequency range specified by a start frequency, stop frequency, dwell time, and point count at equally spaced increments. LIST mode iterates through a list of arbitrary user-provided frequency points.

1. **Repeat Mode**: Single or Continuous: will the sweep execute once only, or sweep repeat forever.
2. **Direction**: Up, Down: Down will initiate the sweep from the stop frequency downward.
3. **Trigger**: Sweep, Step: Trigger signal initiates entire sweep, or just the next point.
4. **Points**: Total number of frequency points including start and stop
5. **Start**: Bottom frequency point to start at when in UP direction
6. **Stop**: Top frequency point to end at in UP direction
7. **Dwell**: Number of milliseconds to wait at each frequency point
8. **Save**: Load all these sweep settings into the device for the next trigger
9. **Abort**: End sweep now
10. **Trigger**: Start the sweep now or execute the next step depending on the settings

SCAN MODE - COMMAND EXAMPLE

The signal generator can sweep a frequency range once configured from a USB connected host system. Here is an example of the commands to send to setup a new sweep.

```
SWE:MODE SCAN
FREQ:START 2000MHZ
FREQ:STOP 4000MHZ
SWE:POINTS 100
SWE:DWELL 200
LIST:DIR DOWN
INIT:CONT 0
TRIG:SWEEP
INIT:IMM
```

*Notes:

- Leave a small delay between sending commands
- Dwell time is in mS
- In "TRIG:STEP" mode, the "INIT:IMM" command would be sent again for EACH frequency point, dwell time has no affect

```
SWE:MODE SCAN
FREQ:START 3000MHZ
FREQ:STOP 5000MHZ
SWE:POINTS 20
LIST:DIR UP
INIT:CONT 1
TRIG:STEP
INIT:IMM
INIT:IMM
INIT:IMM

...
```

*Notes:

- In this mode the trigger command "INIT:IMM" only jumps once per execution

- Because INIT:CONT is set to 1, the device will accept the trigger command indefinitely until the ABORT command is sent.

LIST MODE - SWEEPING EXAMPLE

The signal generator can sweep through a user-provided list once configured from a host PC. After selecting the system mode (LIST), select the repeat mode, direction, and dwell time, and click *Save Settings*. The system is now ready to load list points, simply enter a comma-separated frequency list in the right-hand box, and click *Save List*. You are now ready to trigger the sweep with the *Start* button.

Here is an example of the commands to send to setup a new list sweep *without the GUI*:

```
SWE:MODE LIST
SWE:DWELL 200
LIST:DIR DOWN
INIT:CONT 0
LIST:ADD 5GHZ
LIST:ADD 235MHZ
LIST:ADD 3.23GHZ
TRIG:SWEEP
INIT:IMM
```

*Notes:

- Leave a small delay between sending commands
- Dwell time is in mS
- In "TRIG:STEP" mode, the "INIT:IMM" command would be sent again for EACH frequency point, dwell time has no affect

SWEEPING NOTES

1. Minimum dwell time is 3+ milliseconds
2. Maximum points is 10,000
3. Trigger can be executed repeatedly after settings have been saved
4. After a sweep is complete the RF output will be set to OFF
5. Sweeping will leave the output power level at the last saved setting

Control software can be downloaded here: https://www.dsinstruments.com/downloads/

For more information or questions contact us.

Support@DSInstruments.com