

Generic Generator Format Specification

Generic generator configuration files are used to configure the EMC32 generator driver in order to enable it to remotely control a generator via its GPIB bus interface for which no dedicated driver exists.

An example files GenSMG.DeviceConfiguration is available from the EMC32 installation CD-ROM. Please refer to them or the example listing below for further clarification of the format specification.

Listing of DemoGenerator.DeviceConfiguration can be found in GenericGeneratorFileListing.pdf

A generator configuration file must conform to the following basic formal rules:

- The file shall be written in ASCII text format.
- It must be located in the \Execute\Configuration subfolder of the EMC32 main installation folder.
- Its name must be <xxx>.DeviceConfiguration, where <xxx> stands for an arbitrary descriptive name.
- Its contents shall conform to the syntax of Windows initialization files (extension .ini), that is, all contents shall be arranged in sections, each section containing an arbitrary number of lines, each line being composed by an entry string followed by a '=' character and the data string associated to the entry.
- Comment lines are allowed at any place throughout the file and must start with a ';' character.

The following sections and entries in the file are mandatory:

- Section FileInfo. This section identifies a file for EMC32. If not available, EMC32 will refuse to open the file. For the contents of this section please refer to the demo file printout above.
- Section General. This section must contain at least the line "Driver=GenericGenerator". This line will identify the file as a configuration file for a generic generator. If this line is not present, the file will not be displayed in the configuration file selection box in the Generic Generator Properties dialog.
- Sections Frequency, Level. This two sections with the following contents must be available:

A line "Mode=3", which defines that this parameter is a number value.

A line "Unit=<unit>", where <unit> is the unit of the number value (Hz for frequency and dBm for level).

A line "Range=<min>; <max>; <step>", where <min> is the lower limit, <max> is the upper limit and <step> is the resolution of the number value.

A line "Default=<value>", where <value> is the value for the initialization of the parameter.

A line "GpibLine=<cmd>", where <cmd> represents the GPIB command for the transfer of this parameter to the instrument.

Additionally, <cmd> may contain a waiting time indication for the command: for example, "@1000@ABC" defines that EMC32 shall delay further execution for 1000 ms after sending the command "ABC" to the device.

Without these two sections the file will not be accepted as a valid generic generator configuration file.

- Section SwitchLevel. This section must contain the following contents:

A line "Mode=1", which defines that this parameter is a selection out of a list of predefined entries.

A line "Count=2", which defines that the list consists out of two entries.

A line "Line1=ON", which defines that this entry is linked with the command to switch ON the RF signal of the generator.

A line "GpibLine1=<cmd>", where <cmd> is the GPIB command for switching ON the RF signal (RF ON).

A line "Line2=OFF", which defines that this entry is linked with the command to switch OFF the RF signal of the generator.

A line "GpibLine2=<cmd>", where <cmd> is the GPIB command for switching OFF the RF signal (RF OFF).

Additionally, <cmd> may contain a waiting time indication for the command: for example, "@1000@ABC" defines that EMC32 shall delay further execution for 1000 ms after sending the command "ABC" to the device.

Without this section the file will not be accepted as a valid generic generator configuration file.

The file should additional contain the following sections and entries:

- Section GpibSettings. Contains one line "EOITermination=<i>" to set the termination character for IEEE communication. <i> stands for an integer according to the following meaning:

i = 1: Termination character is a Carriage Return character (hexadecimal 0D)

i = 2: Termination character is a Line Feed character (hexadecimal 0A). This is the default if the line is not present.

i = 3: All strings are terminated with a CR and a LF character in sequence.

Additionally, the section may contain a line "GpibTimeout=<time>" where <time> stands for an integer determining the value in milli-seconds to be used as general timeout for IEEE bus communication.

- Sections SwitchModulationOn, SwitchModulationOff:

This sections are used for generally switching on and off the modulation types supported by the device and the device driver. The following modulation types are supported by the driver: AM, FM, PM and PhM.

This sections must contain the following entries:

A line "Mode=2", which defines that this parameter is a table which contains in the first column a number representing the modulation type and in the second column the appropriate GPIB command. Each modulation type the following number is fixed assigned:

AM = 1, FM = 2, PM = 3, PhM = 4

A line "Count=<cnt>", where <cnt> is an integer, tells the driver that cnt (number of the supported modulations types) command lines will follow, each line defining a command for one modulation type.

An entry "ValLine<i>=<modtype>" defines the number of the modulation type <modtype> supported by the following GPIB command, where <i> is an index in the range 1 to the command line count <cnt>.

The command lines themselves then shall read "GpibLine<i>=<cmd>" where <i> is an index ranging from 1 to the command line count defined before, and <cmd> defines the IEEE bus command.

Additionally, <cmd> may contain a waiting time indication for the command: for example, "@1000@ABC" defines that EMC32 shall delay further execution for 1000 ms after sending the command "ABC" to the device.

- Sections ModAMFrequency, ModFMFrequency, ModPMFrequency, ModPhMFrequency:

This sections contain the commands for the transmission of the modulation frequency for the current modulation type. For each in the section SwitchModulationOn defined modulation type an own section must be defined here.

The sections have a structure as follows:

If the modulation frequency can be set in a fixed frequency range:

A line "Mode=3", which defines that this parameter is a number value.

A line "Unit=<unit>", where <unit> is the unit of the number value (Hz for frequency).

A line "Range=<min>; <max>; <step>", where <min> is the lower limit, <max> is the upper limit and <step> is the resolution of the number value.

A line "Default=<value>", where <value> is the value for the initialization of the parameter.

A line "GpibLine=<cmd>", where <cmd> represents the GPIB command for the transfer of this parameter to the instrument.

If the modulation frequency can be only set to discrete values:

A line "Mode=2", which defines that this parameter is a table which contains in the first column a number representing the discrete modulation frequencies and in the second column the appropriate GPIB command.

A line "Unit=<unit>", where <unit> is the unit of the number value (Hz for frequency).

A line "Count=<cnt>", where <cnt> is an integer, tells the driver that cnt (number of the supported discrete modulations frequencies) command lines will follow, each line defining a command for one modulation frequency.

An entry "ValLine<i>=<modfreq>" defines the value of the modulation frequency <modfreq> supported by the following GPIB command, where <i> is an index in the range 1 to the command line count <cnt>.

The command lines themselves then shall read "GpibLine<i>=<cmd>" where <i> is an index ranging from 1 to the command line count defined before, and <cmd> defines the IEEE bus command.

- Sections ModAMDepth, ModFMDeviation, ModPMPulseWidth, ModPhMDeviation:

This sections contain the commands for the transmission of the modulation parameter for the current modulation type. For each in the section SwitchModulationOn defined modulation type an own section must be defined here.

This sections must contain the following entries:

If the modulation parameter can be set in a fixed range:

A line "Mode=3", which defines that this parameter is a number value.

A line "Unit=<unit>", where <unit> is the unit of the number value (% for AM, Hz for frequency, rad for PhM and us for PM).

A line "Range=<min>; <max>; <step>", where <min> is the lower limit, <max> is the upper limit and <step> is the resolution of the number value.

A line "Default=<value>", where <value> is the value for the initialization of the parameter.

A line "GpibLine=<cmd>", where <cmd> represents the GPIB command for the transfer of this parameter to the instrument.

If the modulation parameter can be only set to discrete values:

A line "Mode=2", which defines that this parameter is a table which contains in the first column a number representing the discrete modulation parameter value and in the second column the appropriate GPIB command.

A line "Unit=<unit>", where <unit> is the unit of the number value (% for AM, Hz for frequency, rad for PhM and us for PM).

A line "Count=<cnt>", where <cnt> is an integer, tells the driver that cnt (number of the supported discrete modulations parameter values) command lines will follow, each line defining a command for one modulation parameter value.

An entry "ValLine<i>=<modpar>" defines the value of the modulation parameter <modpar> supported by the following GPIB command, where <i> is an index in the range 1 to the command line count <cnt>.

The command lines themselves then shall read "GpibLine<i>=<cmd>" where <i> is an index ranging from 1 to the command line count defined before, and <cmd> defines the IEEE bus command.

A line "Default=<value>", where <value> is the value for the initialization of the parameter.

- Sections ModAMSource, ModFMSource, ModPMSource, ModPhMSource:

This sections contain the commands for the transmission of the modulation frequency source for the current modulation type. For each in the section SwitchModulationOn defined modulation type an own section must be defined here.

This sections must contain the following entries:

A line "Mode=2", which defines that this parameter is a table which contains in the first column a number representing the modulation source and in the second column the appropriate GPIB command. Each modulation source the following number is fixed assigned:

internal = 0, external AC = 1, external DC = 2, external = 3

A line "Count=<cnt>", where <cnt> is an integer, tells the driver that cnt (number of the supported modulation sources) command lines will follow, each line defining a command for setting one modulation source.

An entry "ValLine<i>=<modsrc>" defines the modulation source <modsrc> supported by the following GPIB command, where <i> is an index in the range 1 to the command line count <cnt>.

The command lines themselves then shall read "GpibLine<i>=<cmd>" where <i> is an index ranging from 1 to the command line count defined before, and <cmd> defines the IEEE bus command.

A line "Default=<value>", where <value> is the value for the initialization of the parameter.