

DSG831

EIGHT CHANNEL DIGITAL STIMULUS GENERATOR
FOR A WIDE VARIETY OF STIMULUS APPLICATIONS

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The DSG831 is a programmable eight channel digital stimulus generator, designed for a wide variety of stimulus applications.

All channels can be operated independently or synchronized to generate complex patterns of pulses.

The Paired Pulse function of the DSG831 allows to generate free-running or triggered paired pulses with subsequent inter-pulse intervals from a single channel. Auto-increment/decrement eliminates the need to overlap train functions from multiple channels to generate a complete protocol.

The Paired Pulse function of the DSG831 allows to generate free-

Concept

The user wants very different stimulating patterns for different research applications. Therefore, traditional stimulators have control panels that use buttons and knobs to give the user as much control options as possible. However, even with a full panel of buttons, the selection of the stimulating pattern is still limited and not very concise.

The DSG831 comes with an application software for Windows 2000 / XP / Vista. The software includes an editor to set up the stimulating protocols very comfortable and concise. All parameters may be set up with the editor and uploaded to the DSG831. Thus, there is a significant reduction in setup time and a minimization of the potential for human error during interactive protocol modification.

16 different setups may be saved in the non-volatile memory of the DSG831 and loaded with a single keystroke at the unit's front panel.

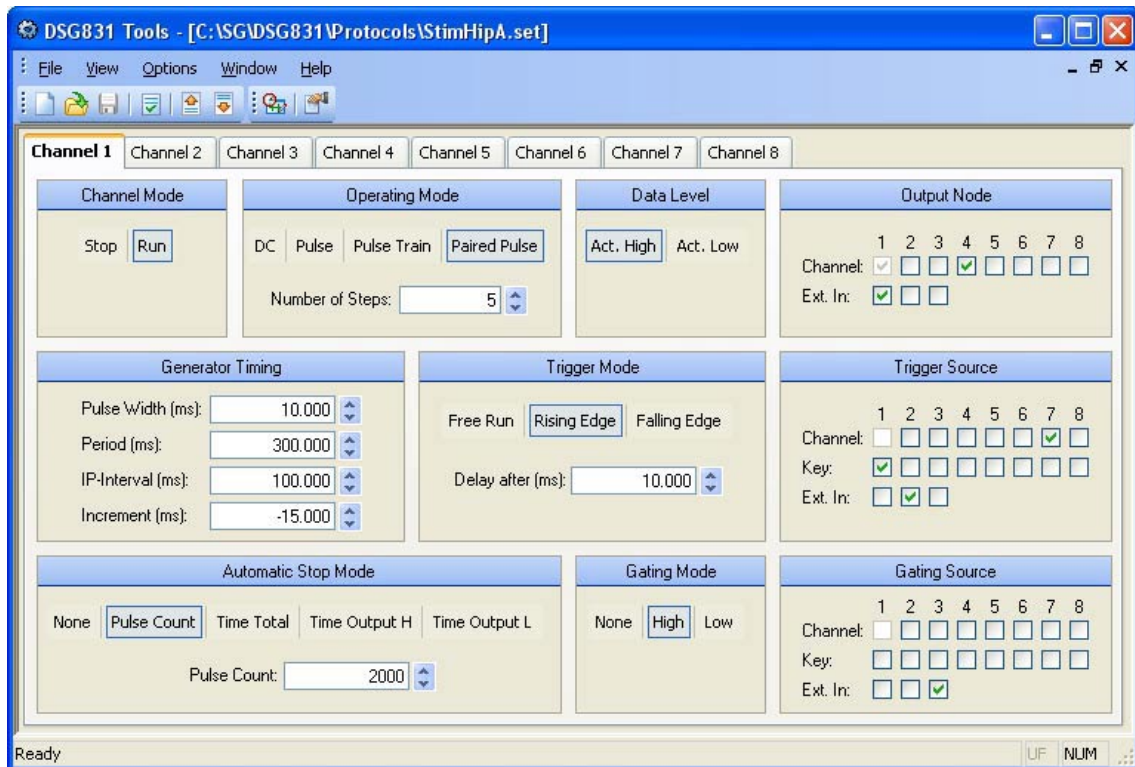
Main Features

- 8 channels, 3 external inputs
- Microcontroller controlled operation
- Serial interface RS-232 (optional USB 1.1 / 2.0 or Ethernet 10/100)
- Dynamic uploading of pulse protocols
- ASCII import of stimulation protocols
- 16 different setups loadable with a single keystroke at the front panel
- Continuous or triggered operation
- Each channel can be triggered and / or gated independently
- Unlimited duration of stimulus protocol and number of pulses
- Very accurate and flexible timing, time resolution 25 us
- Application software included
- Very competitive price, two years full warranty

Application Software

The DSG831 comes with an application software for Windows 2000 / XP / Vista. The software includes an editor to set up and manage the settings of the DSG831 as well as a scheduler to automatically upload new settings at scheduled times.

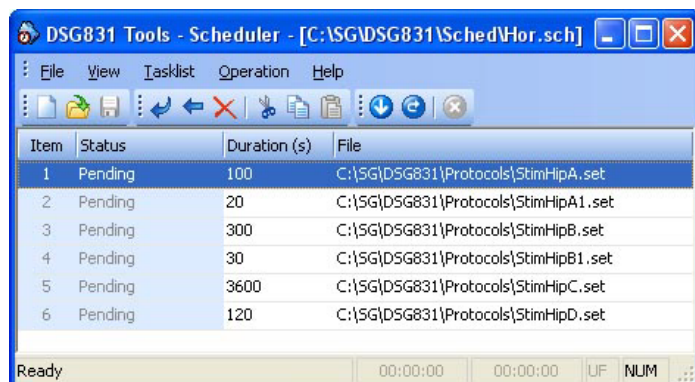
The editor allows to modify the settings of the DSG831 very comfortable and concise due to all relevant channel settings are apparent at a glance.



Once all your settings for an experiment are complete, they can be uploaded to the DSG831 - either to the working memory to apply the settings immediately or to one of the 16 non-volatile memories for later loading with a single keystroke at the front panel of the DSG831. Before uploading, the editor automatically tests the feasibility of the settings and shows detailed error and warning messages if required.

The settings can be saved to a file. Therefore, an almost unlimited number of different settings can be managed and the stimulation protocols for a specific experiment may be loaded very easy. The settings are saved as ASCII files and therefore the editor may also import and export the settings from / to other applications (*.txt, *.csv).

The scheduler allows the automatic uploading of new settings to the DSG831 at scheduled times. This may be very useful to change the pulse protocols after a predetermined period of time.



Operating Modes

Note that the triggering capabilities are independent of the used operating mode, i.e. each pulse generator may be operated free-running or triggered. Also the gating capabilities are independent of the used operating mode, i.e. the output signals may be gated or not, no matter what operating mode is used.

- *DC*
DC output (high level / low level or toggle state)
- *Pulse*
Pulse output (free-running or triggered operation)
- *Pulse Train*
Train of pulses output (free-running or triggered operation)
- *Paired Pulse*
Paired pulse output (free-running or triggered operation)

Trigger Modes

The trigger mode of each channel is selectable independently of the used operating mode, i.e. each pulse generator may be operated free-running or triggered.

- *Free Running*
Continuous pulse, pulse train or paired pulse output
- *Rising Edge Trigger*
Triggered pulse, pulse train or paired pulse output
Adjustable delay after positive edge triggering from key(s), other channel(s), external signal(s) or any combination of them
- *Falling Edge Trigger*
Triggered pulse, pulse train or paired pulse output
Adjustable delay after negative edge triggering from key(s), other channel(s), external signal(s) or any combination of them

Gating Modes

The gating mode of each channel is selectable independently of the used operating mode, i.e. the output may be gated or not, no matter what operating mode is used.

- *None*
The output is not gated
- *High Level*
High level gating of the output by key(s), other channel(s), external signal(s) or any combination of them
- *Low Level*
Low level gating of the output by key(s), other channel(s), external signal(s) or any combination of them

Output Node

The output signal of each channel can be any combination of the 8 available channels and the 3 external signals.

Automatic Stop Modes

Each channel may be configured to automatically stop its operation once a predetermined condition becomes true.

- *None*
No automatic stop
- *Pulse Count*
Stop operation after the channel has outputted the predetermined number of pulses
- *Time Total*
Stop operation after the channel has been running for the predetermined period of time
- *Time Output High*
Stop operation after the channel has outputted a high level signal for the predetermined period of time
- *Time Output Low*
Stop operation after the channel has outputted a low level signal for the predetermined period of time

Stimulus Isolation

The DSG831 can be used with a wide variety of stimulus isolators to achieve isolated signals if required. Our opto-electrically isolated stimulus isolator IS4 is perfectly suited in conjunction with the DSG831.

Options

The DSG831 comes with a serial interface RS-232 and logic level output signals (0 / +5 V). The following options are available:

- *Option –USB*
USB 1.1 / 2.0 interface
- *Option –ETH*
Ethernet 10/100 interface
- *Option –ADJ*
Adjustable levels of the output signals in the range from –10 V to +10 V (10 mV resolution)

Pricing and Warranty

The DSG831 comes with 2 years full warranty. The pricing is very competitive, please contact us for details.

Specifications

In General	
Mains Input	90 VAC to 250 VAC, 47 to 63 Hz, 50 W max.
Outline Dimension	484 x 140 x 310 mm (w x h x d)
Weight	5 kg
Operating Temperature	10° C to 40° C
Signal Outputs	
In General	8 channels
Output Voltage	0 V / +5 V typ. Option -ADJ: -10 V to +10 V typ. (10 mV resolution)
Output Impedance	50 Ohm typ.
External Inputs	
In General	3 external inputs
Input Voltage Low / High	0.8 V max. / 2.0 V min.
Input Impedance	5 kOhm typ.
Signal Timing and Configuration	
Timing Error	±1 ppm typ., ±4 ppm max. over operating temperature range
Pulse Width	0.025 ms to 107,374,182.375 ms (pulse, pulse train and paired pulse)
Period	0.050 ms to 107,374,182.375 ms (pulse, pulse train and paired pulse)
Inter-Pulse Interval	0.050 ms to 107,374,182.375 ms (pulse train and paired pulse)
Inter-Pulse Increment	-53,687,091.200 ms to 53,687,091.200 ms (paired pulse)
Trigger Delay	0.050 ms to 107,374,182.375 ms (pulse, pulse train and paired pulse)
Pulse Train	2 to 4,294,967,295 pulses
Paired Pulse	2 to 4,294,967,295 steps
Trigger Source	Channel 1...8, Key 1...8, External Input 1...3 (any combination possible)
Gating Source	Channel 1...8, Key 1...8, External Input 1...3 (any combination possible)
Output Node	Channel 1...8, External Input 1...3 (any combination possible)
Data Transfer	
Serial Interface	RS-232 (115200 bps, N81) Option -USB: USB 1.1 / 2.0 Option -ETH: Ethernet 10/100