

Protocol for welding generators with **sonicator extension**

Data format 115200 baud 8 bit no parity 2 stop bits  
RS485 100 ohm standard line

Request for parameter

**%06f<cr>** request for frequency  
**%06d<cr>** request for amplitude  
**%06s<cr>** request for span  
**%06p<cr>** request for phase  
**%06t<cr>** request for time  
**%06k<cr>** request for peak power  
**%06e<cr>** request for energy  
**%06r<cr>** request for time limit plus  
**%06o<cr>** request for time limit minus  
**%06l<cr>** request for peak power plus  
**%06u<cr>** request for peak power minus  
**%06v<cr>** request for energy limit plus  
**%06w<cr>** request for energy limit minus  
**%06c<cr>** request for output capacitor  
**%06S<cr>** request for scanning range  
**%06C<cr>** request for current gain  
**%06M<cr>** request for startup mode  
**%06H<cr>** request for output choke \*  
**%06T<cr>** request for output voltage \*  
**%06G<cr>** request for process time  
**%06H<cr>** request for time ON  
**%06I<cr>** request for time OFF  
**%06J<cr>** request for process energy  
**%06Z<cr>** request for sonicator parameters  
**%06K<cr>** request for type  
**%06?<cr>** request for parameters

Answers

**#02fxxxxx<cr>** answer for frequency scale 1Hz  
**#02dxxxxx<cr>** answer for amplitude scale 0.1%  
**#02sxxxxx<cr>** answer for span scale 1Hz  
**#02pxxxxx<cr>** answer for phase scale 5mV  
**#02txxxxx<cr>** answer for time scale 0.01s  
**#02kxxxxx<cr>** answer for peak power scale 1W  
**#02exxxxx<cr>** answer for energy scale 1Ws  
**#02rxxxxx<cr>** answer for time limit plus scale 0.01s  
**#02oxxxxx<cr>** answer for time limit minus scale 0.01s  
**#02lxxxxx<cr>** answer for peak power limit plus scale 1W  
**#02uxxxxx<cr>** answer for peak power limit minus scale 1W

#02vxxxxx<cr> answer for energy limit plus scale 1Ws  
#02wxxxxx<cr> answer for energy limit minus scale 1Ws  
#02cxxxxx<cr> answer for output capacitor scale 1nF  
#02Sxxxxx<cr> answer for scanning range scale 1Hz  
#02Cxxxxx<cr> answer for current gain scale 0.01%  
#02Mxxxxx<cr> answer for startup mode 0-normal 1-scan on save start 2-scan every time 3-hot start  
#02Hxxxxx<cr> answer for output choke 1 - 800μH 2-1000μH 3-1200μH \*  
#02Txxxxx<cr> answer for output voltage 1-low 2-midle 3-hight \*

#02Gxxxxx<cr> answer for process time scale 1s

#02Hxxxxx<cr> answer for time ON scale 1s

#02Ixxxxx<cr> answer for time OFF scale 1s

#02Jxxxxxx<cr> answer for process energy scale 1j

#02Kxxxxx<cr> answer for type 0 – welding 1 - sonicator

#02Zppppppnnnfffeeeeeee<cr> answer for sonicator parameters

-ppppp - process time scale 1s

-nnn – time ON scale 1s

-fff – time OFF scale 1s

-eeeeeee – process energy scale 1j

#02?aaappppffffsvvvaaeettttrrrrnhhhm<cr> answer for parameters

-aaa - amplitude scale 0.1%

-ppp - phase scale 5mV

-ffff - frequency scale 1Hz

-s status

0 - off

1 - on

2 - overheat

3 - overcurrent

5 - limit time

6 - limit peak power

7 - limit energy

8 - untested

9 - overload

-vvv actuator value of internal regulator scale 0.1%

-aaa power scale 1W

-eeee last weld energy scale 1Ws

-tttt last weld time scale 0.01s

-rrrr peak power scale 1W

-n load number (only 1000W generators)

-hhh transducer current in relative units

-m mode of operation 0 off state, 1 normal operation, 2 scanning

Settings

#06fxxxxx<cr> set frequency scale 1Hz

**#06dxxxxx<cr>** set amplitude scale 0.1%  
**#06sxxxxx<cr>** set span scale 1Hz  
**#06pxxxxx<cr>** set phase scale 5mV  
**#06txxxxx<cr>** set time scale 0.01s  
**#06kxxxxx<cr>** set peak power scale 1W  
**#06exxxxx<cr>** set energy scale 1Ws  
**#06rxxxxx<cr>** set time limit plus scale 0.01s  
**#06oxxxxx<cr>** set time limit minus scale 0.01s  
**#06lxxxxx<cr>** set peak power limit plus scale 1W  
**#06uxxxxx<cr>** set peak power limit minus scale 1W  
**#06vxxxxx<cr>** set energy limit plus scale 1Ws  
**#06wxxxxx<cr>** set energy limit minus scale 1Ws  
**#06cxxxxx<cr>** set output capacitor scale 1nF  
**#06Sxxxxx<cr>** set scanning range scale 1Hz  
**#06Cxxxxx<cr>** set current gain 0.01%  
**#06Mxxxxx<cr>** set startup mode  
**#06Hxxxxx<cr>** set output choke \*  
**#06Txxxxx<cr>** set output voltage \*

\* Only for welding generators 2000W and 3000W

**#06Gxxxxx<cr>** set process time scale 1s  
**#06Hxxxxx<cr>** set time ON scale 1s  
**#06lxxxxx<cr>** set time OFF scale 1s  
**#06Jxxxxxxx<cr>** set process time scale 1j  
**#06Kxxxxx<cr>** set type 0 – welding 1 - sonicator

Answer for settings

><cr>

Remark - <cr> is ASCII code for 'Carriage return' hex code 0x0D decimal 13

Start generator

**@06start<cr>**

Answer for start

ok<cr>

Stop generator

**@06stop<cr>**

Answer for stop

ok<cr>

Write to eeprom memory

**@06wr<cr>**

Answer for write

ok<cr>