

# CAR - Arbitrary-Waveform-Generator

## CAR - AWG 1200/3000/6000

EMC-Test Equipment for electrical installation of vehicles

- Batterie simulator
- Bandwidth DC-200kHz
- Signal Bandwith DC-1MHz (small signal -3dB)
- 4 quadrant amplifier
- Fast rise time up to 100V/ $\mu$ s
- Sense lines
- Arbitrary waveform up to 16MSa / 20MSa/s
- Selectable output impedance 0-200m $\Omega$
- Over voltage protection

<b>CAR-AWG 1200</b>	• Max. 75V Vpeak / 40A ( 100A short)
<b>CAR-AWG 3000</b>	• Max. 70V/-30V Vpeak / 100A
<b>CAR-AWG 6000</b>	• Max. 70V/-30V Vpeak / 200A



<b>According to</b>
<b>ISO 7637: 2011</b>
<b>ISO 16750-2</b>
<b>ISO 21848-2</b>
<b>SAE J1113</b>
<b>LV124 (VW80000)</b>
<b>... many manufacturer standards, GM, Ford, Chrysler, Mercedes, BMW, VW, PSA, Renault, Fiat .....</b>

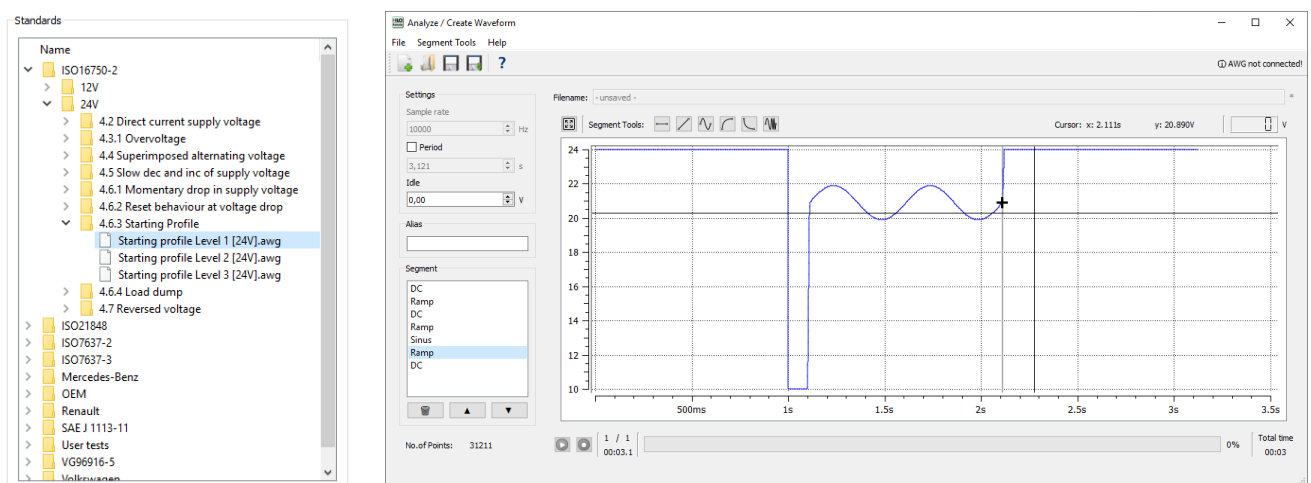
The CAR arbitrary waveform generator 1200/ 3000 /6000 is a compact EMC testing system for performing voltage variations on supply lines of vehicles. The system strictly complies with the international standards and manufacturer standards that describe phenomena on the power supply of vehicles.

Thus, the CAR arbitrary waveform generator 1200 / 3000 / 6000 is the optimal voltage power source for battery simulation up to 70V. It can simulate pulse 2b, pulse 4, starting profile, superimposed alternating voltage and others, up to a battery current of 40A/ 100A.

Optionally it can be expanded with CAR-TEST-SYSTEM 14 and PG2804. The CAR-TEST-SYSTEM 14 allows generation of transient immunity test pulses, pulse #1, #2 and #3. The generator PG2804 generates load dump pulses according to ISO16750-2 (Test A, Test B (Clip)).

The software program CAR-remote permits the PC control of the generator via Ethernet and also allows the standardized documentation according to IEC 17025 and the evaluation of test results.

The user can use the PC software to call up standard test procedures (ISO, VG, vehicle manufacturer specific) or define and execute individual test procedures on a point-by-point basis. Voltage curves up to 16MSa can be generated.



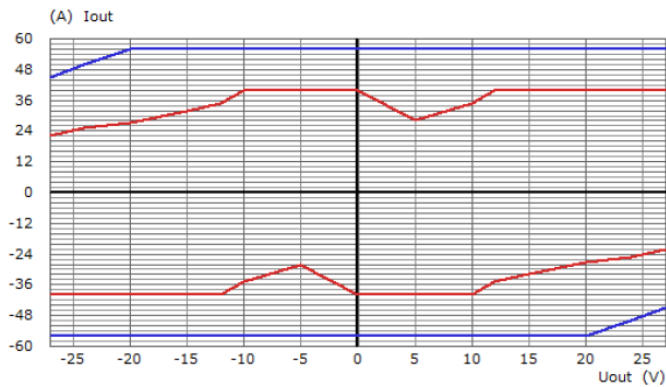
It is equipped with an Impulse Recording Function (IRF) to record definite impulses (with oscilloscope).

Control	Description
CAR-REMOTE-AWG	Remote software with Impulse Recording Function (IRF) ( XP, WIN7, WIN10 ) incl. Ethernet switch

TECHNICAL SPECIFICATIONS:	CAR – AWG		
	1200	3000	6000
<b>Mainframe</b>			
Ethernet Interface for remote control of the generator		Build in	
Connector for external safety interlock loop		24 V=	
External red and green warning lamps acc. to VDE 0104		24 V=, 40 mA	
Mains power	230V, 50 Hz	400V, 50 Hz	400V, 50 Hz
Dimensions desk top case, W * H * D	450*180*500 mm <sup>3</sup>	20HE Rack	34HE Rack
Weight	15kg	70kg	120kg
<b>Amplifier</b>			
4-quadrant voltage and current amplifier			
Power bandwidth		200kHz	
Frequency range (small signal -3dB)		1MHz	
Max. Voltage	±75V	+70V/-30V	+70V/-30V
Max. Current	±40A	+100A	+100A
Max. Current /10ms	±100A	+200A	+400A
selectable output impedance	0-200mΩ	0-200mΩ	0-200mΩ
Overvoltage protection	optional	✓	✓
Slew Rate		70V/us	
Small Signal Bandwidth		DC-600kHz	
Residual Noise Output		<62dBV; 10Hz - 500kHz	
Signal / Noise Output		>97dBV; 10Hz - 200kHz	
Cooling		Fans and Heat Sink	
Overcurrent Protection with CAR SYS		Magnetic and Thermic	
Triggering with CAR SYS		Software - Manual - Extern	
Trigger output with CAR SYS		For Oscilloscope	
<b>Arbitrary</b>			
Resolutuion	14 Bit		
Samplerate	20MSa/s		
Max. Points	16MSa		
Segmenttyps	DC, Sinus, Sinussweep, Ramp, Exponentialfunction		

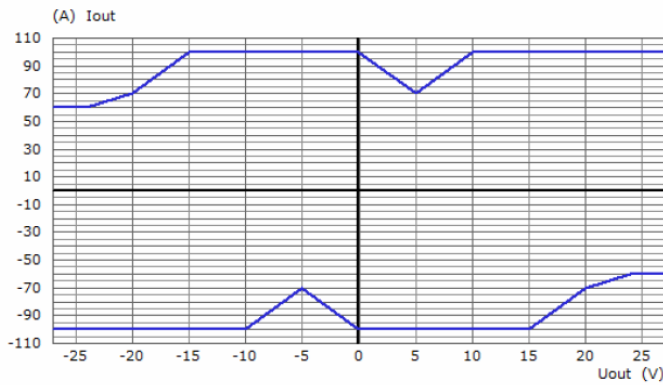
**Continuous Output Current vs. Output Voltage (THD + N < 1%)**

Uout= +/- 27V  
 Supply Voltage: Auto  
 Blue: AC Limit  
 Red: DC Limit



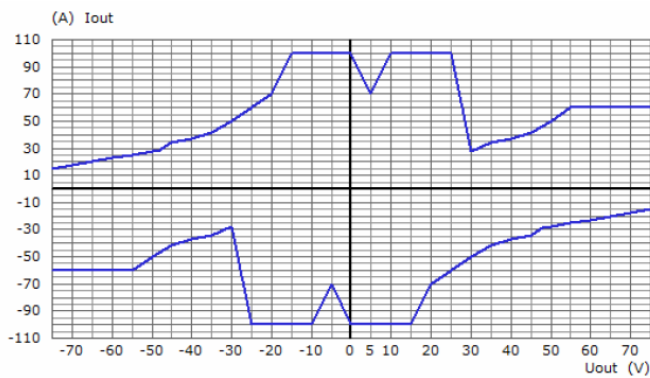
**Short-Time Output Current vs. Output Voltage (THD + N < 1%)**

Uout= +/- 27V  
 Supply Voltage: Auto  
 Blue: Pulse Current Limit; 200ms Pulse, duty cycle=5 %



**Short-Time Output Current vs. Output Voltage (THD + N < 1%)**

Uout= +/- 75V  
 Supply Voltage: Auto  
 Blue: Pulse Current Limit; 200ms Pulse, duty cycle=5 %



Sales Partner:

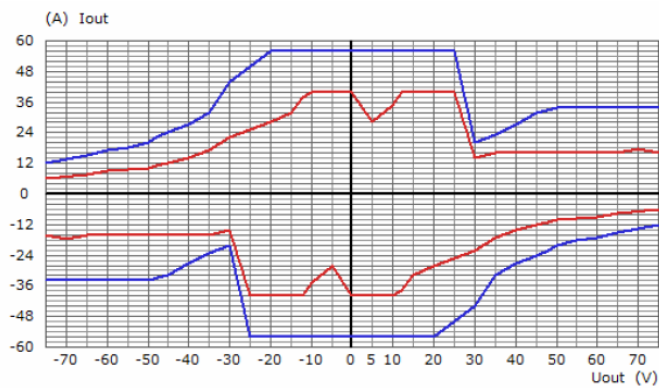


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Continuous Output Current vs. Output Voltage (THD + N < 1%)  
 Uout= +/- 75V  
 Supply Voltage: Auto  
 Blue: AC Limit  
 Red: DC Limit



### Example configuration of HILO-TEST system:

**CAR-TEST-SYSTEM 14 I** Puls #1, #2 und #3, Build in 19" Rack  
 + Option CAR-AWG 1200 (75V/40A)  
 + Option PG2804



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