Four Quadrant Power Supply Voltage Change Simulator

APS xxxDSR Series

- ISO 7637-2
- ISO 16750-2:2023
- BMW 600 13.0(T1)
- BMW 600 13.0(T2)
- BMW GS 95002:2010
- BMW GS 95003-2
- BWM GS 95024-2-1:2010
- GB/T 28046.2
- GMW 3172:2010
- GMW 3172:2015
- VW TL82066:2006
- VW 80000:2013
- Peugeot B21 7110:2008
- Peugeot B21 7110:2005
- Volvo STD 515-0003:2008
- SMTC 3800001:2014
- MBN 10284-4:2011
- MBN 10284-2:2008
- Mazda MES PW 67600
- JEELY J7110982A:2016
- QFPT2800001:2011
- FIAT 7-Z0441
- FIAT 7-Z0444:2008
- Ford EMC-CS-2009rev1
- Ford ES-XW7T-1A278-AC:2003
- ISO 21780

Features

> Four quadrant bipolar power supply
> Adjustable output impedance
> The maximum test voltage can reach 80 V (Customizable higher voltage)
> The maximum test current can reach 200 A(Customizable higher current)
> Automatic compensation function for voltage drop
> High bandwidth output frequency up to 300 kHz
> Built in signal source can edit any wave
> Support AC voltage and current closed-loop testing
> Can simulate various power supply waveforms, such as superimposed noise, etc
> Ethernet and RJ45 interfaces, used for PC remote control and printing test reports
> Output voltage and current monitoring/protection function

Introduction

The APS xxxxDSR system meets the ISO 7637/16750 conduction transient test and is equipped with a four quadrant bipolar amplifier to simulate various voltage changes on the wiring harness. It can generate voltage drops, short-term interruptions, and other voltage changes, and the output internal resistance can be adjusted. Built in signal source, users can edit and output any wave through PC software. It can also be used as a battery powered analog and DC voltage source. During laboratory testing, APS xxxxDSR replaced the vehicle battery, generating Pulse 2b, Pulse 4, sine wave noise, and other complex voltage variation waveforms. At the same time, the APS xxxxDSR series complies with numerous international/national standards and automotive manufacturer standards. As a powerful DC power supply, it supports 12V, 24V, 42V, and 48V system automotive testing.

Application Areas

Technical Parameters

APS 40G30DSR			
Output Voltage	-40 V ~ +40 V		
Output Current	Max 30 A，continuity		
Peak Current	60 A, duration greater than 200 ms		
Frequency Range	DC ~ 300 kHz full frequency signal, resolution: 0.01 Hz, Accuracy: ± 5%		
Vpp	Max 32 V(DC - 300 kHz)	Accuracy	< 3V ± 0.1 V ≥ 3V ± 0.2 V
Ipp	Max 60 A		
APS 80I100DSR			
Output Voltage	-80 V ~ +80 V		
Output Current	Max 100 A，continuity		
Peak Current	200 A, duration greater than 200 ms		
Frequency Range	DC ~ 300 kHz full frequency signal, resolution: 0.01 Hz, Accuracy: ± 5%		
Vpp	Max 32 V(DC - 300 kHz)	Accuracy	< 3V ± 0.1 V ≥ 3V ± 0.2 V
Ipp	Max 200 A		
APS 80G200DSR			
Output Voltage	-40 V ~ +80 V		
Output Current	Max 200 A，continuity		
Frequency Range	DC ~ 300 kHz full frequency signal, resolution: 0.01 Hz, Accuracy: ± 5%		
Vpp	Max 32 V(DC - 300 kHz)	Accuracy	< 3V ± 0.1 V ≥ 3V ± 0.2 V
Ipp	Max 400 A		
Internal Signal Source			
Frequency Range	DC ~ 500 kHz		
Waveform Type	DC waveform, oblique wave, triangular wave, sine wave, square wave, sweep wave, exponential wave, oscilloscope stored data waveform, user-defined waveform editing, irregular and irregular arbitrary wave		
Can Set Waveform Parameters	Amplitude, duration, frequency, DC offset, rectification, cycle duty cycle, phase angle, trigger		
Amplitude and Bias Changes	Static, linear, logarithmic		
Frequency Variation	Static, linear, logarithmic Linear step range:10 Hz ~ 10 kHz Logarithmic step range:1% ~ 100%		
Start and End Phase Control	0°~ 359°, 1° step setting		
Rectification	None, Positive, Negative, Bridge Rectifier		
Introduce File Types	CSV		
Introduce the Number of Waveform PointsIn the file	8 k		
Segments that Make Up the Waveform	Each waveform can have up to 1000 segments, and each segment can be composed of several types of waveforms		
Duration of the Segment	DC waveform: 10 μs ~ 299 h Triangular wave, sine wave, square wave, sweep wave: 1 ms ~ 299 h Exponential wave, oscilloscope stored data waveform: 0.001 s ~ 20 s		
Number of Times	1 ~ 9999 times		

General Parameters

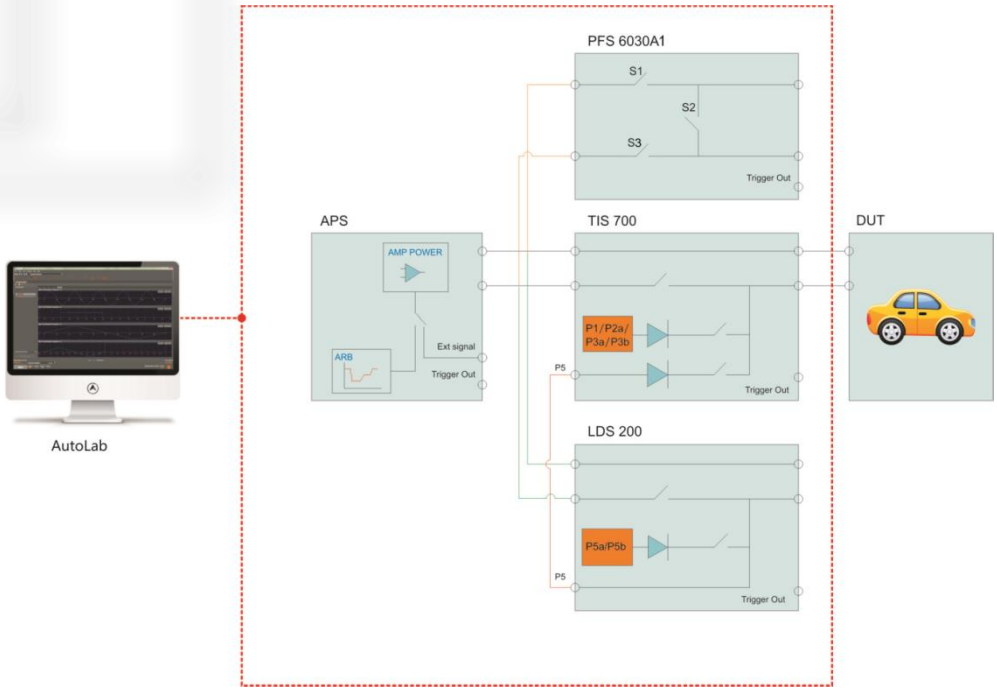
Analog Signal Input	BNC, according to the actual instrument configuration, the maximum voltage is ± 10 V
Sense Signal Input	BNC
Source Impedance	10 mΩ ~ 200 mΩ (10 mΩ step)/No internal resistance
Voltage Compensation Accuracy	± 0.1 V
Maximum Voltage Compensation Value	4 V
Voltage Offset	>90%, recovery time <10 μs
Voltage Fluctuation	Ur<0.2 Vpp
Boosting Time	<3 μs/10 μs (12 V DC to 13 V DC; 0 V to Vmax DC)
Serial Interface	LAN Ethernet and RJ45
External Signal Amplification Ratio	1:10
Ambient Temperature	15℃ ~ 35℃
Relative Humidity	45% ~ 75% ,RH(no condensation)
Atmospheric Pressure	86 kPa ~ 106 kPa

Model	APS 40xxxDSR	APS 80xxxDSR
Working Power	AC 220 V，±10%，45 Hz ~ 65 Hz	AC 380 V，±10%，45 Hz ~ 65 Hz
Dimension	8U/450 mm(W)*380 mm(H)* 620 mm(D)	35U/600 mm(W)*1250 mm(H)* 800 mm(D)
Weight	Approx.37 kg	Approx.150 kg

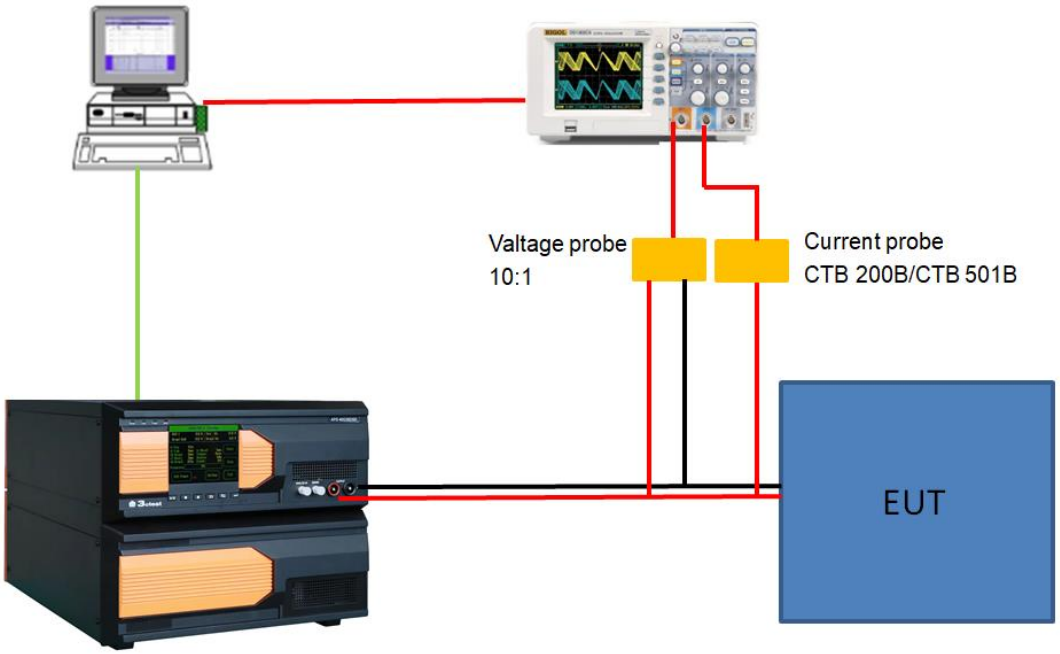
Standard Accessories

Power cord,Testing Wire,Flat Grounding Wire,Feedback Compensation Wire, User Manual , Calibration Report, Product Warranty

Optional Accessories	1	Automotive Immunity Testing Software	Model: AutoLab Supports Windows 7, Windows 8, Windows 10, and Windows 11 .It is easy to use, with a beautiful and intuitiveuser interface. Its various operational functions andstandard testing library enable users to easily complete custom testing programs. It can automatically/manually identify the connected AutoLab testing equipment and configure it automatically. The template based reporting function can helpusers generate test reports flexibly.	
	2	Oscilloscope	Model: TEK MDO 3000 Series TEK MDO 30 Series	
	3	Current Probe	Model:CTB 200B AC/DC 200 A;Bandwidth 600 kHz Current transmission ratio: 10 mV/A	
			Model:CTB 501B AC/DC 500 A;Bandwidth 500 kHz Current transmission ratio: 4 mV/A	
			Monitor current usage during ripple closed-loop.	
	4	Negative voltage levels can be customized except for D, E, F, G, H, and I.		



System overall connection diagram



ISO 16750-2 2023 Sweep Frequency Closed Loop Layout

The naming convention for instruments is as follows, using APS 80I100DSR as an example:

APS: Four Quadrant Power Supply Voltage Change Simulator;

80 : Maximum voltage 80 V; 40:40 V, 60:60 V; (Customizable higher voltage)

I : The level representing negative voltage, D:0 V,E:-15 V,F:-20 V,G:-40 V,H:-60 V,I:-80 V;(Customizable higher voltage)

100 : Output current level, can be divided into 10 A, 30 A, 50 A, 100 A,200 A; (Customizable higher current)

D : Four-quadrant, bipolar power supply (if D is not included in the model, it is a unipolar power supply);

S : Built in AWG signal generator (without S in the model, there is no built-in signal generator);

R : The output impedance is adjustable (if there is no R in the model, the output impedance is not adjustable).

SUZHOU 3CTEST ELECTRONIC CO., LTD.

Address: No. 99 E'meishan Road, SND, Suzhou, Jiangsu Province, China
E-mail: globalsales@3ctest.cn
Service: service@3ctest.cn
Tel: + 86 - 512 - 68077192
Web: www.3c-test.com

3ctest is always striving for product innovation and quality improvement.
Product appearance and technical specifications are subject to change without further notice.