Load Dump Pulse Simulator

LDS 200NxxD Series

- BMW GS 95002
- BMW GS 95003-2
- BMW-（Airbag ECU）
- BMW 600 13.0(Part 1)
- BMW 600 13.0(Part 2)
- Case New Holland ENS0310
- Chrysler CS-11979
- Chrysler PF-9326
- Claas CN 05 0215
- Cummins 14269(982022-026)
- DaimlerChrysler DC-10842
- DaimlerChrysler PF-10540
- FAW Diesel ECU MY06.0(Rew.7)
- Fiat 9.90110
- Ford EMC-CS-2009.1
- Ford ES-XW7T-1A278-AB
- Ford ES-XW7T-1A278-AC
- Ford WDR 00.00EA
- Ford FMC1278
- Freightliner 49-00085
- GMW 3097

Features

> 5.7-inch color touch screen front panel operation
> Capable of generating clipped load dump pulses
> Built-in source impedance from 0.5 Ω to 40 Ω, adjustable in 0.1 Ω increments
> Max. pulse duration: 1,200 ms
> Freely editable waveforms
> Integrated 60 V/30 A coupler, expandable to 50 A, 100 A or 200 A
> DUT current monitoring and overcurrent protection
> Built-in battery switch
> Equipped with Ethernet and RJ45 ports for remote PC control and test report printing

Introduction

Load dump pulses generated by the LDS 200NxxD comply with ISO 7637-2, ISO 16750-2, SAE J1113 and numerous vehicle manufacturer standards

The LDS 200NxxD Series Load Dump Pulse Simulator reproduces the scenario where the battery is suddenly disconnected from the alternator (such as disconnection caused by corrosion) while the alternator supplies charging current to the battery. Such high-energy load dump pulses are highly destructive. The LDS 200NxxD generates this type of high-energy pulse with a pulse duration of hundreds of milliseconds.

Application Areas

Technical Parameters

ISO 7637-2 and ISO 16750-2 about P5a and P5b	
Pulse Amplitude	30 V ~ 210 V
Clamping Voltage	15 V ~ 100 V
Internal Impedance (Ri)	0.5 Ω ~ 40 Ω, adjustable in 0.1 Ω steps
Pulse Rise Time	5 ms ~ 10 ms (Adjustable from 1 ms to 10 ms with 1 ms step in free mode)
Pulse Duration	40 ms ~ 400 ms or 1,200 ms (subject to internal resistance), adjustable in 1 ms steps
Pulse Repetition Interval	15 s ~ 600 s, adjustable in 1 s steps (subject to pulse energy)
Pulse Output Modes	Single shot, continuous, programmable cycle (1 ~ 9,999 cycles)
SAE J1113-11-2012 about P5A (for 12 V battery supply systems)	
Open-Circuit Voltage	22 V ~ 87 V
Rise Time	10 ms +0 / –5 ms
Pulse Duration	40 ms ~ 400 ms
Internal Resistance	0.5 ohm ~ 4 ohm
SAE J1113-11-2012 about P5A (for 24 V battery supply systems)	
Open-Circuit Voltage	44 V ~ 174 V
Rise Time	10 ms +0 / –5 ms
Pulse Duration	100 ms ~ 350 ms
Internal Resistance	1 ohm ~ 8 ohm
SAE J1113-11-2012 about P5B (for 12 V battery supply systems)	
Open-Circuit Voltage	22 V ~ 87 V
Rise Time	10 ms +0 / –5 ms
Pulse Duration	40 ms ~ 400 ms
Internal Resistance	0.5 ohm ~ 4 ohm
SAE J1113-11-2012 about P5B (for 24 V battery supply systems)	
Open-Circuit Voltage	44 V ~ 174 V
Rise Time	10 ms +0 / -5 ms
Pulse Duration	100 ms ~ 350 ms
Internal Resistance	1 ohm ~ 8 ohm
SAE J1113-11-2012 about P5C (for 12 V battery supply systems)	
Open-Circuit Voltage	86 V (± 10%)
Rise Time	5 ms +0 / -5 ms
Pulse Duration	400 ms
Internal Resistance	0.4 ohm
Repetition Rate	10 s
SAE J1113-11-2012 about P5C (for 24 V battery supply systems)	
Open-Circuit Voltage	122 V (± 10%)
Rise Time	5 ms +0 / –5 ms
Pulse Duration	400 ms
Internal Resistance	0.8 ohm
Repetition Rate	10 s

Technical Parameters

FORD EMC-CS-2009.1 Pulse G1	
Open-Circuit Voltage	60 V ± (10%)
Rise Time	10 ms（-5/+0 ms）
Pulse Duration	300 ms ± 20%
Load Voltage	30 V (±10%), with 0.5 Ω load
Pulse Duration	150 ms ± 20% (with 0.5 Ω load)
Internal Resistance	0.5 ohm
Repetition Rate	30 s
FORD EMC-CS-2009.1 Pulse G2	
Open-Circuit Voltage	20 V ±10% (with 0.5 Ω load)
Clamping Voltage	21.5 V（-1/+0 V）
Rise Time	10 ms（-5/+0 ms）
Pulse Duration	150 ms ± 20%
Internal Resistance	0.5 ohm
Repetition Rate	30 s
FORD ES-XW7T CI 220G(AC)	
Open-Circuit Voltage	60 V ±10%
Rise Time	1 ms ~ 10 ms (10% ~ 90%)
Pulse Duration	300 ms (10% ~ 10%)
Load Voltage	30 V (±10%), with 0.5 Ω load
Pulse Duration	150 ms (±10%) (10% ~ 10%), with 0.5 Ω load
Internal Resistance	0.5 ohm
Repetition Rate	30 s
Number of Test Pulses	3 pulses
FORD FMC 1278，CI222 PULSE 5A	
Open-Circuit Voltage	60 V ±10%,12 V 120 V ±10%, 24 V
Rise Time	10 ms (-5/+0ms)
Pulse Duration	300 ms (±20%) (10% ~ 10%)
Load Voltage	30 V (±10%), with 0.5 Ω load
Pulse Duration	150 ms (±20%) (10% ~ 10%), with 0.5 Ω load
Internal Resistance	0.5 ohm
Repetition Rate	60 s
Number of Test Pulses	5 pulses
FORD FMC 1278，CI222 PULSE 5B	
Load Voltage	30 V (±10%), with 0.5 Ω load
Clamping Voltage	21.5 V (-1/+0 V)
Rise Time	10 ms (-5/+0ms)
Pulse Duration	150 ms (±20%) (10% ~ 10%), with 0.5 Ω load
Internal Resistance	0.5 ohm
Repetition Rate	60 s
Number of Test Pulses	5 pulses

Technical Parameters

FORD ES-XW7T CI 240(AB)	
Open-Circuit Voltage	60 V ±10%
Rise Time	1 ms ~ 10 ms (10% ~ 90%)
Pulse Duration	300 ms (10% ~ 10%)
Load Voltage	30 V (±10%), with 0.7 Ω load
Pulse Duration	150 ms (±10%) (10% ~ 10%), with 0.5 Ω load
Internal Resistance	0.7 ohm
Repetition Rate	30 s
Number of Test Pulses	3 pulses
CHRYSLER PF 9326 PULSE 5	
Open-Circuit Voltage	91.5 V ±10%
Rise Time	5 ms ~ 10 ms (10% ~ 90%)
Pulse Duration	300 ms T_D (10% ~ 10%)
Load Voltage	45.75 V (±10%), with 0.5 Ω load
Pulse Duration	＞ 95 ms (±10%)(10% ~ 10%), with 0.5 Ω load
Internal Resistance	0.5 ohm
Repetition Rate	120 s
NISSAN PULSE A1	
Open-Circuit Voltage	60 V ±10%
Rise Time	1 μs (±10%±1μs) (10% ~ 90%)
Internal Resistance R1	18 ohm
Internal Resistance R2	0.66 ohm
Capacitance	15 mF
Load Voltage	30 V (±10%), with 0.66 Ω load
Repetition Rate	30 s
Number of Test Pulses	10 pulses
NISSAN PULSE A2	
Open-Circuit Voltage	60 V ±10%
Rise Time	1 μs (±10%±1μs) (10% ~ 90%)
Internal Resistance R1	11 ohm
Internal Resistance R2	0.8 ohm
Capacitance	15 mF
Load Voltage	30 V (±10%), with 0.8 Ω load
Repetition Rate	30 s
Number of Test Pulses	10 pulses
NISSAN PULSE B1	
Open-Circuit Voltage	80 V ±10%
Rise Time	1 μs (±10%±1μs) (10% ~ 90%)
Internal Resistance R1	20 ohm
Internal Resistance R2	20 ohm
Capacitance	1 mF
Load Voltage	-40 V (±10%), with 20 Ω load
Repetition Rate	3 s
Number of Test Pulses	1,000 pulses

Technical Parameters

SCANIA TB1400	
Open-Circuit Voltage	90 V ±10% (Truck)
Rise Time	5 ms ~ 10 ms (10% ~ 90%)
Pulse Duration	300 ms (10% ~ 10%)
Internal Resistance	1.5 ohm
Load Voltage	45 V (±10%), with 1.5 Ω load
Number of Test Pulses	10 pulses
SCANIA TB1700	
Open-Circuit Voltage	125 V ±10% (ECU's)
Rise Time	1 ms ~ 10 ms (10% ~ 90%)
Pulse Duration	480 ms (10% ~ 10%)
Internal Resistance	1.5 ohm
Load Voltage	62.5 V (±10%), with 1.5 Ω load
Number of Test Pulses	10 pulses
SCANIA TB1901	
Open-Circuit Voltage	140 V ±10% (ECU's)
Rise Time	1 ms ~ 10 ms (10% ~ 90%)
Pulse Duration	600 ms (10% ~ 10%)
Internal Resistance	1 ohm
Load Voltage	70 V (±10%), with 1 Ω load
Number of Test Pulses	10 pulses
ISO7637-1-1990 P7	
Open-Circuit Voltage	-20 V ~ -80 V (± 10%)
Rise Time	5 ms ~ 10 ms (10% ~ 90%)
Pulse Duration	100 ms (10% ~ 10%)
Internal Resistance	10 ohm
Pre-Pulse Disconnection	＜ 100 μs
Number of Test Pulses	⩾ 1 pulse
MERCEDES BENZ MBN 10 284 PART 2	
Open-Circuit Voltage	100 V ±10% (Pulse 5a, 12 V supply system)
Rise Time	＜ 0.1ms (10% ~ 90%)
Pulse Duration	400 ms (10% ~ 10%)
Internal Resistance	2 ohm
Load Voltage	50 V (±20%)
Open-Circuit Voltage	200 V ±10% (Pulse 5a, 24 V supply system)
Rise Time	＜ 0.1 ms (10% ~ 90%)
Pulse Duration	500 ms (10% ~ 10%)
Internal Resistance	2 ohm
Load Voltage	100 V (±20%), with 2 Ω load
Open-Circuit Voltage	200 V ±10% (Pulse 5a, 42 V supply system)
Rise Time	＜ 0.1 ms (10% ~ 90%)
Pulse Duration	400 ms (10%~10%)
Internal Resistance	2 ohm
Load Voltage	50 V (±20%), with 2 Ω load
Repetition Rate	120 s
Number of Test Pulses	5 pulses

Technical Parameters

Clipped Load Dump Test	
ISO 7637-2 Pulse 5b (12 V and 24 V supply systems)	Porsche EMV Pulse 5
ISO/WD 16750 Pulse 5b	GMW 3097 Pulse 5b
SAE J1113-11 Pulse 5b	36.00.808 Pulse 5b
EMC-CS-2009.1 (Ford) Pulse G2	TSC 7034G Pulse 5b
FMC-1278 CI 222 Pulse 5b	Iveco Pulse 5b
FIAT 9.90110 Pulse 5a	Scania TB1400 Pulse 5b
PSA B217110 Pulse 5b (12 V supply system)	Scania TB1700 Pulse 5b
Volvo Pulse 5a and 5c	ES 96100-02 Pulse 5b
GS 95003-2 Pulse 5b	

General Parameters

Load Resistor for Pulse Calibration	0.4 ohm ~ 38 ohm
Output	P5a / P5b output waveforms can be connected to the TIS 700 transient pulse interference simulator.
Coupling	Via diode or built-in battery switch
DUT Power Supply	60 V / 30 A, expandable to 50 A, 100 A or 200 A
CRO	5 V TTL trigger signal for oscilloscope
Communication Interface	LAN Ethernet (RJ45)
Working Power	AC 110/220 V, (±10%), 45Hz ~ 65Hz
Weight	Approx. 60 kg
Dimensions	2* 6U rack, 450 mm (W)*280 mm (H)*620 mm (D) or others
Ambient Temperature	15°C ~ 35°C

Standard Accessories

Power Cord, User Manual, Test Cable, Fuse

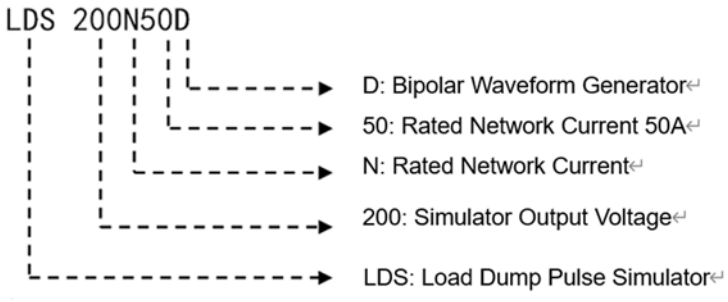
Optional Accessories

1	AutoLab Software	It supports Windows XP and Windows 7 operating systems. It can detect connected AutoLab test equipment automatically or manually and finish automatic configuration. The template-based reporting function enables users to generate test reports flexibly.	

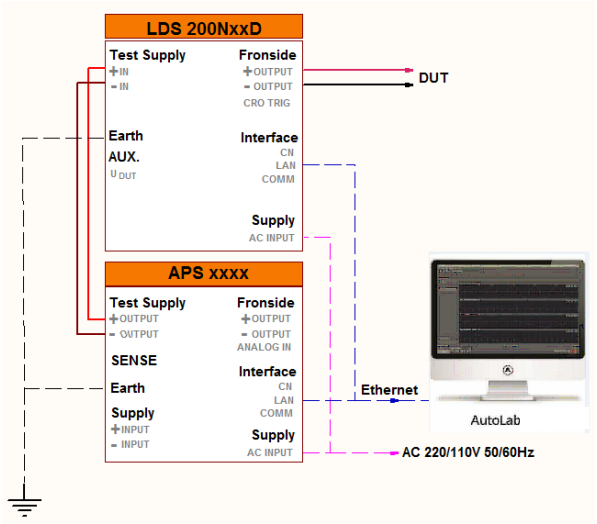
Selection Guide

LDS 200N30D	Max. power supply for DUT: 60 V / 30 A
LDS 200N50D	Max. power supply for DUT: 60 V / 50 A
LDS 200N75D	Max. power supply for DUT: 60 V / 75 A
LDS 200N100D	Max. power supply for DUT: 60 V / 100 A
LDS 200N200D	Max. power supply for DUT: 60 V / 200 A

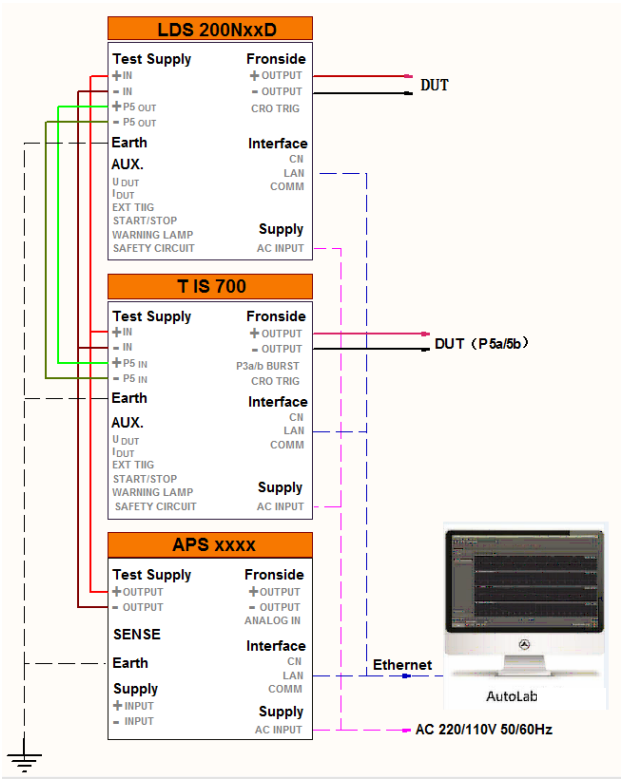
Naming Rules



Test Connection Diagram 1



Test Connection Diagram 2



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