

# LD 200N100

## LOAD DUMP GENERATOR WITH CLIPPING-MODULE AND BATTERY SWITCH



### FOR TESTS ACCORDING TO ...

- › BMW - (Airbag ECU)
- › BMW 600 13.0 (Part 1)
- › BMW 600 13.0 (Part 2)
- › BMW GS 95002 (1999)
- › BMW GS 95003-2
- › 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 (Rev.7)
- › Fiat 9.90110
- › Ford EMC-CS-2009.1
- › Ford ES-XW7T-1A278-AB
- › Ford ES-XW7T-1A278-AC
- › Ford FMC1278
- › Ford WDR 00.00EA
- › Freightliner 49-00085
- › GMW 3097
- › ...

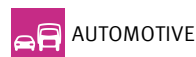
### LD 200N100- COMPACT HIGH-ENERGY LOAD DUMP GENERATOR

Load Dump pulses simulate the sudden disconnection (e.g. by corrosion) of the battery from the alternator while the alternator is generating current to load the battery. Such pulses have high energy with a high potential of destruction. These pulses having duration time in the range of hundreds of milliseconds. The LD 200N100 generates the Load Dump pulses as per ISO 7637, ISO 16750-2, SAE J1113, SAE J1455, JASO and many more manufacturer specification, e.g. Ford, Chrysler, Renault, PSA, NISSAN etc. By means of a built-in clipping circuit and battery switch, the LD 200N100 also generates negative- and clipped load dump pulses as per international standards as well as manufacturer requirements.

### HIGHLIGHTS

- › **Load Dump generator according to ISO 7637, ISO 16750-2, SAE J1113, SAE J1455, JASO, Nissan and most car manufacturer requirements**
- › **Built-in 100A coupler 60 V/100 A**
- › **Built-in battery switch for 100A**
- › **Generates Clipped Load Dump pulses**
- › **Pulse duration up to 1,200ms**

### APPLICATION AREAS



AUTOMOTIVE

## TECHNICAL DETAILS

## LOAD DUMP GENERATOR

## PULSE SPECIFICATION

Voltage (o.c.)	20 V - 200 V ± 10%
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## ISO PULSE 5 AND 7

Rise time	5 ms - 10 ms (10 - 90%)
Pulse duration	40 - 400 ms (10 - 10%)
Int. resistor	0.5 ohm - 38 ohm, selectable in steps of 0.1 ohm
Repetition rate	Min. 30 s

## ISO 16750-2, 12V SYSTEM

Voltage (o.c.)	+79V to 101V ± 10%
Rise time	10ms (+0/-5ms)
Pulse duration	40 - 400ms ± 10% (10 - 10%)
Int. resistor	0.5ohm - 4ohm

## ISO 16750-2, 24V SYSTEM

Voltage (o.c.)	+151 V to 202 V ± 10 %
Rise time	10ms (+0/-5ms)
Pulse duration	100 - 350ms ± 10% (10 - 10%)
Int. resistor	1ohm - 8ohm

## ISO 7637-2:2004, 12V SYSTEM

Voltage (o.c.)	+65V to 87V ± 10%
Rise time	10ms (+0/-5ms)
Pulse duration	40 - 400ms ± 10% (10 - 10%)
Int. resistor	0.5ohm - 4ohm

## ISO 7637-2:2004, 24V SYSTEM

Voltage (o.c.)	+123V to 174V ± 10%
Rise time	10ms (+0/-5ms)
Pulse duration	100 - 350ms ± 10% (10 - 10%)
Int. resistor	1ohm - 8ohm

## LOAD DUMP GENERATOR

## SAE J1455 FOR 12 V BATTERY SUPPLY

Voltage (o.c.)	+86 V ± 10%
Rise time	100 us (10% - 90%)
Pulse duration	400 ms ± 10% (10 - 10%)
Int. resistor	0.4 ohm

## SAE J1455 FOR 24 V BATTERY SUPPLY

Voltage (o.c.)	+122 V ± 10%
Rise time	100 us
Pulse duration	400 ms ± 10% (10 - 10%)
Int. resistor	0.8 ohm

## JASO PULSE A1

Voltage (o.c.)	+70 V ± 10%
Rise time	1 us (10% - 90%)
Pulse duration	200 ms ± 10% (measured at tau)
Int. resistor	0.8 ohm
Capacitor	110 mF

## JASO PULSE B1 (FIELD DECAY)

Voltage (o.c.)	-80 V ± 10%
Rise time	1 us (10% - 90%)
Pulse duration	6 0ms (measured at tau)
Int. resistor	8 ohm
Capacitor	3 mF

## JASO PULSE D1

Voltage (o.c.)	+110 V ± 10%
Rise time	1 us (10% - 90%)
Pulse duration	400 ms (measured at tau)
Int. resistor	1.5 ohm
Capacitor	73 mF

## TECHNICAL DETAILS

## LOAD DUMP GENERATOR

## CHRYSLER PF 9326 PULSE 5

Voltage (o.c.)	+91.5 V ± 10%
Rise time	5 - 10 ms (10% - 90%)
Pulse duration	300 ms td (10 - 10%)
Loaded pulse	+45.75 V ± 10% into a 0.5 ohm load
Pulse duration	> 95 ms (10 - 10%)
Int. resistor	0.5 ohm
Repetition rate	120 s

## FORD ES-XW7T CI 240 (AB-VERSION)

Voltage (o.c.)	60 V ± 10%
Rise time	1 - 10 ms (10% - 90%)
Pulse duration	300 ms (10% - 10%)
Voltage (loaded)	30 V ± 10% into a 0.7 ohm load
Pulse duration	150 ms ± 10% (10 - 10%)
Int. resistor	0.5 ohm
Repetition rate	3 pulses every 30 s

## FORD ES-XW7T CI 220G (AC-VERSION)

Voltage (o.c.)	60 V ± 10%
Rise time	1 - 10 ms (10% - 90%)
Pulse duration	300 ms (10% - 10%)
Voltage (loaded)	30 V ± 10% into a 0.5 ohm load
Pulse duration	150 ms ± 10% (10 - 10%)
Int. resistor	0.5 ohm
Repetition rate	3 pulses every 30 s

## LOAD DUMP GENERATOR

## FORD EMC-CS-2009.1, PULSE G1

Voltage (o.c.)	60 V ± 10%
Rise time	10 ms (-5/+0ms)
Pulse duration	300 ms ± 20%
Voltage (loaded)	30 V ± 10% into a 0.5 ohm load
Pulse duration	150 ms ± 20%
Int. resistor	0.5 ohm

## FORD EMC-CS-2009.1, PULSE G2

Voltage (loaded)	30 V ± 10% into a 0.5 ohm load
Voltage (suppressed)	21.5 V (-1/+0 V)
Rise time	10 ms (-5/+0 ms)
Pulse duration	150 ms ± 20%
Int. resistor	0.5 ohm

## FORD FMC1278, CI222, PULSE 5A

Voltage (o.c.)	60 V ± 10%
Rise time	10 ms (-5/+0ms)
Pulse duration	300 ms ± 20%
Voltage (loaded)	30 V ± 10% into a 0.5 ohm load
Pulse duration	150 ms ± 20%
Int. resistor	0.5 ohm

## FORD FMC1278, CI222, PULSE 5B

Voltage (loaded)	30 V ± 10% into a 0.5 ohm load
Voltage (suppressed)	21.5 V (-1/+0 V)
Rise time	10 ms (-5/+0 ms)
Pulse duration	150 ms ± 20%
Int. resistor	0.5 ohm

## TECHNICAL DETAILS

## LOAD DUMP GENERATOR

## MERCEDES BENZ MBN 10 284 PART 2

Voltage (o.c.)	100 V ± 10% (Pulse 5a for 12V)
Rise time	< 0.1 ms (10% - 90%)
Pulse duration	400 ms (10 - 10%)
Int. resistor	2 ohm
Voltage (o.c.)	200 V ± 10% (Pulse 5a for 24 V)
Rise time	< 0.1 ms (10% - 90%)
Pulse duration	500 ms (10 - 10%)
Int. resistor	2 ohm
Voltage (o.c.)	100 V ± 10% (Pulse 5a for 42 V)
Rise time	< 0.1 ms (10% - 90%)
Pulse duration	400 ms (10 - 10%)
Int. resistor	2 ohm
Repetition rate	120 s

## SCANIA TB1400

Voltage (o.c.)	+90 V ± 10% for trucks
Rise time	1 - 10 ms (10% - 90%)
Pulse duration	300 ms (10 - 10%)
Voltage (o.c.)	+125 V ± 10% for buses
Rise time	1 - 10 ms (10% - 90%)
Pulse duration	480 ms (10 - 10%)
Int. resistor	1.5 ohm

## LOAD DUMP GENERATOR

## SCANIA TB1700

Voltage (o.c.)	+125 V ± 10%
Rise time	1 - 10 ms (10% - 90%)
Pulse duration	480 ms (10 - 10%)
Int. resistor	1.5 ohm

## NISSAN PULSE A1

Voltage (o.c.)	+60 V ± 10%
Rise time	1 ms ± 50% (10% - 90%)
Int. resistor R1	18 ohm
Int. resistor R2	0.66 ohm
Capacitor	15 mF

## NISSAN PULSE A2

Voltage (o.c.)	+60 V ± 10%
Rise time	1 ms ± 50% (10% - 90%)
Int. resistor R1	11 ohm
Int. resistor R2	0.8 ohm
Capacitor	1 mF

## NISSAN PULSE B1

Voltage (o.c.)	+80 V ± 10%
Rise time	1 ms ± 50% (10% - 90%)
Int. resistor R1	20 ohm
Int. resistor R2	20 ohm
Capacitor	1 mF

## TEST ROUTINES

ISO 7637-2	Load Dump & Field Decay
PF-9326	Pulse 5a and 5b
Ford	ES-XW7T, AB & AC versions EMC-CS-2009.1
MBN 10284	Pulse 5a, 5b and 5c
SCANIA	Pulse 5 & 5b (TB1400 and TB1700)
JASO	Pulse A1, B1, D1
NISSAN	Pulse A1, A2, B1
Service	Service, setup, self test

## TECHNICAL DETAILS

## FREESTYLE MODE LOAD DUMP

## PULSE PROGRAMMING MODE

Rise time	< 1 us 10 us - 90 us with 10 us steps 100 us - 900 us with 100 us steps 1 ms - 10 ms with 1 ms steps
Pulse duration	10 ms - 1,200 ms
Int. resistor	0.5 ohm - 38 ohm, in steps of 0.1 ohm

## MODULE CLIPPED LOAD DUMP

## TEST ROUTINES

Standard Test routines	pre-programmed and controlled via iso.control
ISO 7637-2	Pulse 5b for 12 V and 24 V
ISO/WD 16750	Pulse 5b
SAE J1113-11	Pulse 5b
EMC-CS-2009.1	(Ford) Pulse G2
FIAT 9.90110	Pulse 5a
PSA B21 7110	Pulse 5b for 12 V
Volvo	Pulse 5a and 5c
GS 95003-2	Pulse 5b
Porsche EMV	Pulse 5
GMW 3097	Pulse 5b
36.00.808	Pulse 5b
TSC 7034G	Pulse 5b
Iveco	Pulse 5b
Scania TB1400	Pulse 5b
Scania TB1700	Pulse 5b
ES 96100-02	Pulse 5b

## CLIPPING PROGRAMMING

Clipped Voltage	15 V - 99.5 V, in steps of 0.5 V
Min. Clipped voltage	minimum 15 V or Vdc + 10.0 V
Polarity for clipping	positive impulse

## GENERAL DATA

## DIMENSIONS AND WEIGHT

Dimensions (LxWxH)	19"/9HU, 500 mm x 450 mm x 420 mm
Weight	38.8 kg 40.1 kg with clipping module
Supply voltage	115V/230 V +10%/-15%
Fuses	2x T4AT (115V) or 2x T2AT (230V)

## OUTPUT

+/- output	Safety laboratory connectors 4 mm / 6 mm
Coupling	To the battery +line
Decoupling	Via diode and battery switch
DUT supply	Max. 80 V/100 A

## INTERFACE

Serial interface	USB
Parallel interface	IEEE 488, addresses 1 - 30

## ENVIRONMENT

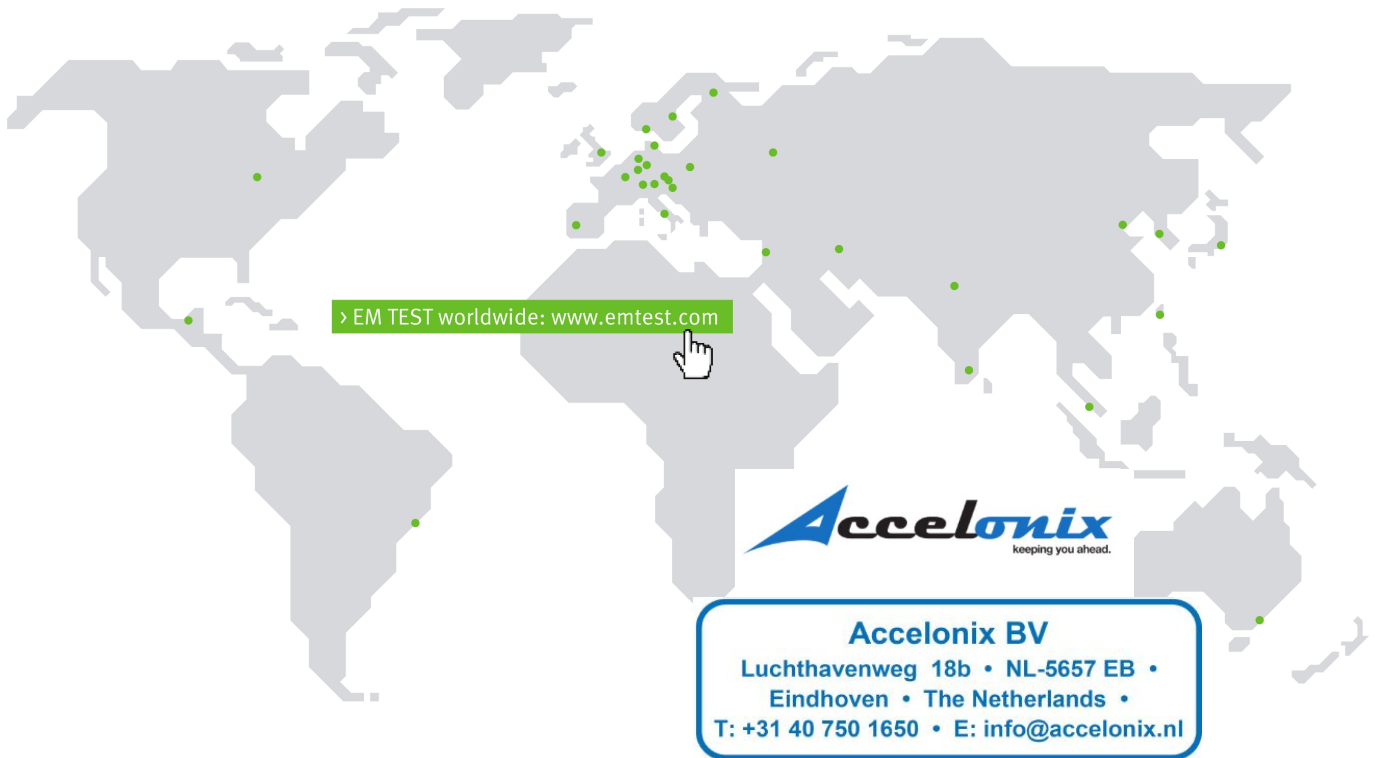
Temperature	10 °C to 35 °C
Humidity	30 % to 75 %, non condensing
Atmospheric pressure	86 kPa (860 mbar) to 106 kPa (1,060 mbar)

## OPTIONS

## OPTIONS

iso.control	Software to control the test, including standard library, test report facility and data conversion generator
CA ISO	Pulse verification set for micropulse and load dump pulse verification

# COMPETENCE WHEREVER YOU ARE



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