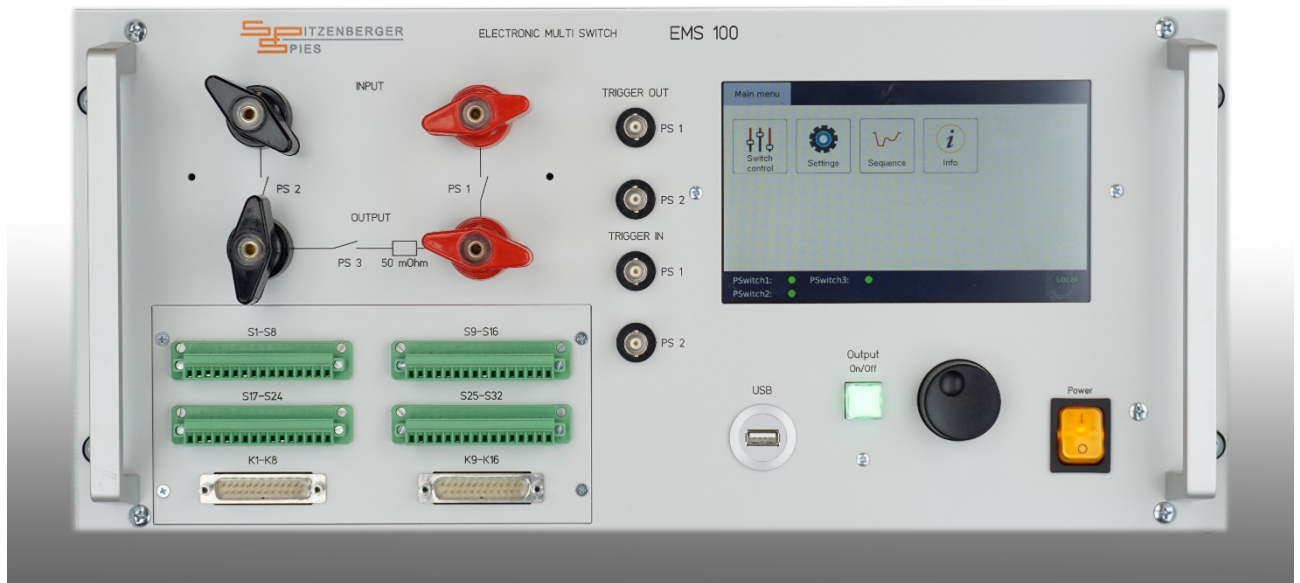# EMS 100 µs-switch

Simulation of micro cut-offs and discharge of load currents in automotive supply networks

The relating standards:
LV 124
VDA 320 (LV 148)
Renault 36-00-808L 6.1.10
PSA B21 7110 7.1.13

The µs-Switch type **EMS is a very fast electronic switch** combination for testing accordingly to several automotive test standards. Originally designed for the LV124 standard, the flexibility of EMS extends its use to the VDA 320 (LV148) and various manufacturer specific standards.

The ability of generating very short voltage drops with 10µs duration requires a very fast rise- and fall-time of the electronic switches. The LV124 standard specifies the rise- and fall-time t_r / t_f as 10% of the desired testing cycle t_1 (Fig. 2).
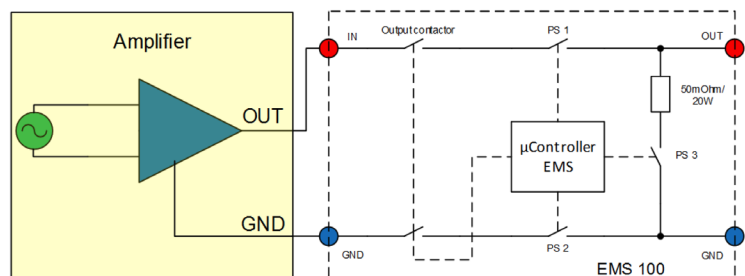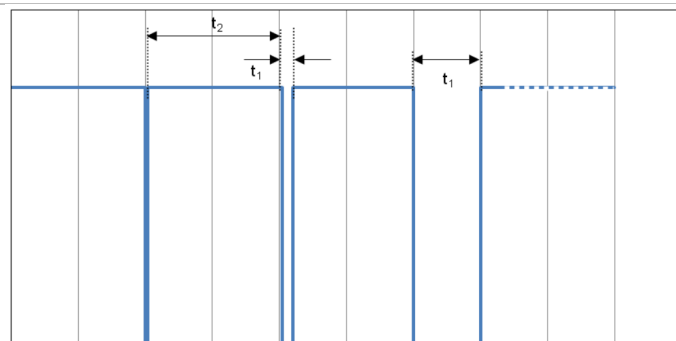

Fig. 1: Schematic diagram

Fig. 2: Test pulses accordingly to LV124/VDA 320 (LV148)

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With the EMS it is also possible to switch supply and ground lines independently.

The front-panel touch screen supplies an easy to use interface.

The EMS has three upgrade slots for options like SSW or Relay. These options can be selected according to the application needs.

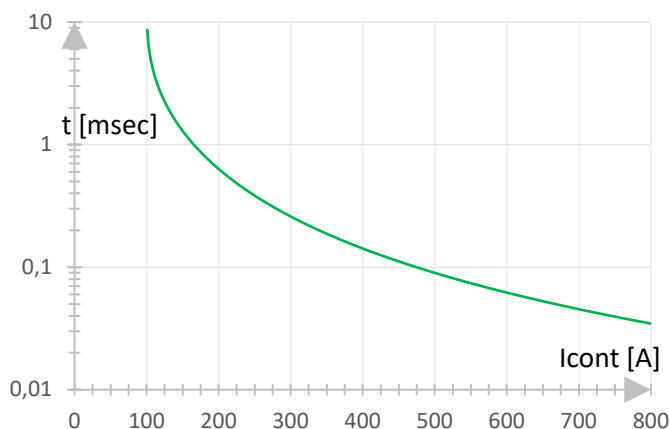SSW and Relays are used for testing according to LV124, PSA and other relating standards.

Fig. 3 Max. Current Characteristic

TECHNICAL DATA EMS 100

		EMS 100
Input voltage:		$0 \ldots 70V_{DC}$
Output:		
Output current capability:		$100A_{DC}$ continuous
Short time current capability:		See fig. 2
Internal Impedance:		approx. $10m\Omega$ at nominal current
Rise time t_r / Fall time t_f @1kΩ:		<1µs / <10µs
Rise time t_r / Fall time t_f @100Ω:		<1µs / <1µs
Rise time t_r / Fall time t_f @10Ω:		<1µs / <1µs
Rise time t_r / Fall time t_f @1Ω:		<1µs / <1µs
Min. adjustable pulse width:		1µs
Protection circuits:		overload / short circuit / overtemperature, overvoltage limitation for inductive loads
Interface:		Ethernet
Trigger PS1+PS2:	*Output*	TTL level (+5V)
	Input:	$5 \ldots 24V_{DC}$
Power Supply:		230V (±10%, 50Hz / 60Hz) Safety plug
Protection:		2A fuse
Ambient temperature:		$10 \ldots 40°C$
Housing:		19"-plug-in unit; 5U
Dimensions (mm):		485x455x223
Weight:		15.5kg
Cooling:		Temperature-controlled fans
Extension slots for SSW/Relay:		3

TECHNICAL DATA OPTIONS:

Option EMS.CAL:	Calibration Kit LV124
Resistor types:	high precision non-inductive measurement resistors
	power capability / accuracy
1kΩ:	5 Watt / 1%
100Ω:	5 Watt / 1%
1Ω:	125 Watt / 1%
Monitoring output:	BNC Connector
Dimensions (mm):	114x64x55
Option EMS.SSW.1.16:	**SSW module 1A/16**
Number of switches:	16 per module
Input voltage:	0 … 70V_{DC}
Output current capability:	1A_{DC}
Rise time t_r / Fall time t_f @1kΩ:	<1µs / <1µs
Rise time t_r / Fall time t_f @100Ω:	<1µs / <1µs
Protection:	2A fuse
Option EMS.SSW.4.8:	**SSW module 4A/8**
Number of switches:	8 per module
Input voltage:	0 … 70V_{DC}
Output current capability:	4A_{DC}
Rise time t_r / Fall time t_f @1kΩ:	<1µs / <1µs
Rise time t_r / Fall time t_f @100Ω:	<1µs / <1µs
Option: EMS.K.2.16:	**Relay module 2A/16**
Number of relays:	16 per module –contact type 2C
Max. switching current (real load):	2A_{DC}
Max. switching voltage (real load):	70V_{DC}
Max. switching power (real load):	60W
Option: EMS.IEEE:	**IEEE488 Interface / RS232 Interface**

www.spitzenberger.de/weblink/1253

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