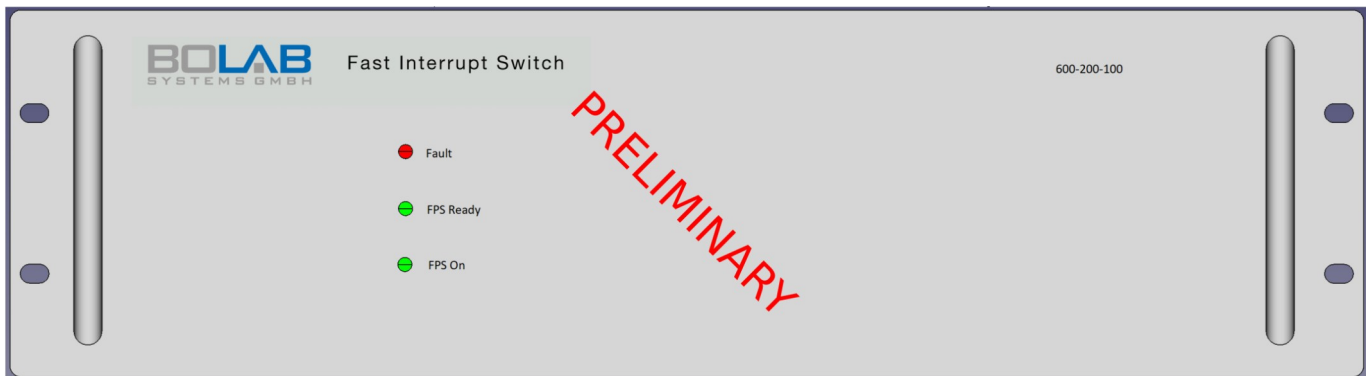




Datasheet



Fast Power Switch

DC-100kHz | 200A | 100V

Sales Partner:



ABSOLUTE EMC Llc.
Covering sales in North America
United States, Mexico, & Canada

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MADE IN GERMANY

Revision 1.0

1 Product Description

The Fast Power Switch (FPS) is a device with several discrete switched power stages, including internal loads, which enable the user to perform voltage dips and brief interruptions on the device under test (DUT / load), mainly targeted at automotive vehicle manufacturers to comply with LV124 and LV148 test norms. For lower currents, the FPS is fitted with a flexible configuration of small signal switch cards. These provide brief interruptions for signals such as CAN, Lin, Flexray etc.

The FPS can be incorporated into standard 19 inch rack systems for ease of testing and be remote controlled and monitored via a simple Byte-Protocol over USB. It is able to switch between different power stage configurations to enable various testing scenarios of the DUT.

All of the power stages are fault protected against over-current. Additionally, the main power stage has built in temperature, frequency and passive surge-protection to safeguard it during the most common operating circumstances.

Low noise, temperature controlled fans allow for quiet operation.

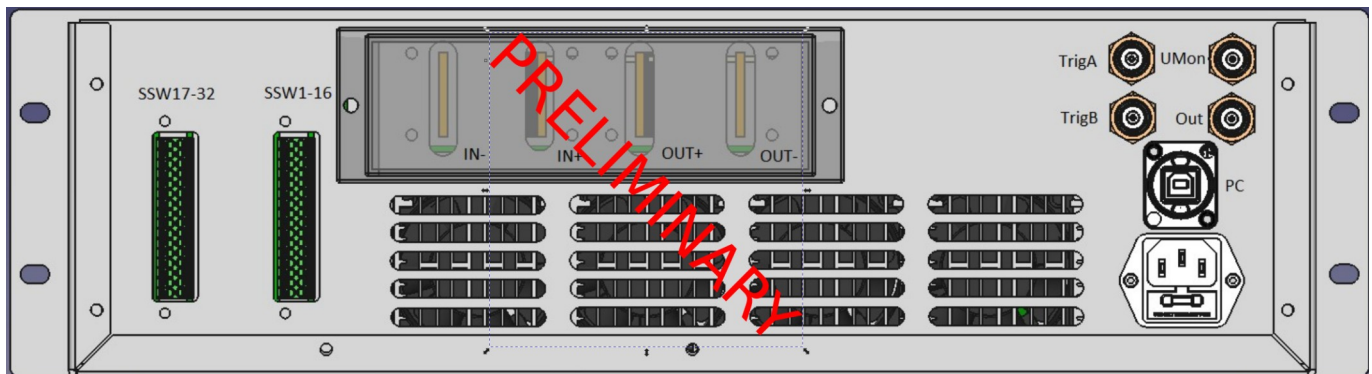
2 Features

- High current power stage (uni-directional)
- Up to 32 channels for switching low current signals (bi-directional)
- Switching of resistive, inductive, capacitive passive and active loads / devices
- Input voltage up to 100V
- Output current up to 200A DC
- Source and sink DUT currents of up to 1500A_{PK} for 1ms
- Switchable DC link input capacitor
- Switchable charge resistor to ease operation with various DC supplies
- Two trigger input (A & B) single ended from 5V up to 20V
- One trigger output 0-5V to control additional testing-equipment
- One analog FPS output voltage monitor with $f_{3dB}=10\text{Mhz}$ Bandwidth
- USB port (emulated com port)
- Device supply: 230V 50Hz

3 Applications

- General lab applications for research, development and testing
- Component tests
- Automotive equipment testing in compliance with LV128 & LV148
- Automated test systems

4 Rear View

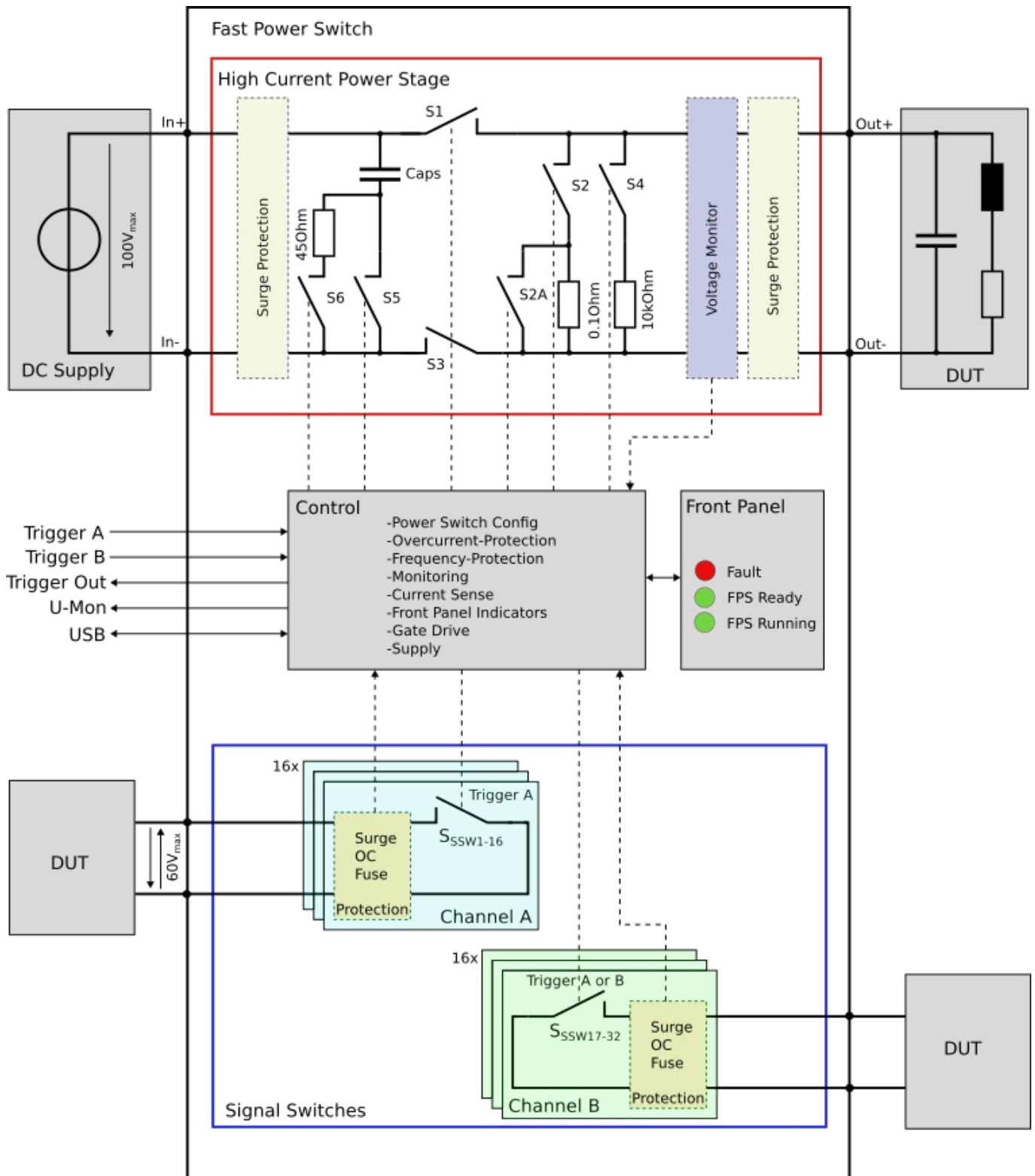


5 Specifications

Parameters	Specification	Conditions/ Remarks
		25° C ambient temperature
		Continuous operation
Main power stage (1x)		
Input voltage	<100V DC	
Input current	200A DC	
Output current	200A _{DC} +/-1500A _{Peak} for <1ms	capacitive load, low repetition rate >1s
t _{rise} / t _{fall}	<100ns	measured at 100V input & resistive load
Switch on-resistance	<900μOhm	S1 & S2 On resistance measured at DC at device output
P _{out,max, DC}	10kW	depends on load resistance, thermally limited
P _{out,max, Pulse}	5kW	100kHz inductive load, 50% duty
Current direction	uni-directional	Switch blocking voltage direction
Overcurrent-protection	Yes	All switches open after OCP event for >5s
Overvoltage-protection	Yes, passive against surge at input & output	
Input buffering	9mF, low ESR electrolytic caps	switchable
Input load resistance	45Ohm	switchable
Internal loads	0.1Ohm & 10kOhm	
Internal 0.1Ohm maximum power & energy dissipation	200W DC <3Joule <100μs 10Joule 1ms 30Joule 10ms 120Joule 100ms	Frequency / pulse repetition > 1s
Temperature-protection	Yes	S1, S2, 0.1Ohm
Isolation	Complete isolation from PE / chassis of the power stage	
Small Signal switches (x32)		
Input voltage	<60V	Both polarities
Maximum current	2A DC	
Overcurrent-protection	Yes, analog & fuse protected with OCP blanking 5μs-500μs	Blanking time beginning with trigger rising edge

Overvoltage-protection	Yes, passive surge protection	
Temperature-protection	No	
Isolation	Each channel is completely galvanically isolated from each other and from chassis	
Bandwidth	50Mhz	
Trigger In (A & B)		
Trigger input	5-20V single ended	
Trigger delay	<900ns	From trigger In to gate driver
Trigger Out		
Trigger output	0-5V single ended	
Trigger maximum frequency	100kHz	100kHz square wave, 50% duty
Isolation	All reference potential is interconnected to chassis GND / PE	
Monitoring		
Output	+/-10V	
Attenuation	1:25 +/- 100V == +/- 2V	
Bandwidth	<10Mhz	Connected internally to the device outputs low capacitive loads with high rise & fall times may look distorted due to higher required bandwidth
Remote		
	USB	
Physical Characteristics		
AC Power	230V _{AC} 50-60Hz	for internal 12V Supply, P _{max} ~25W
Ambient operating temperature	10°C to 40°C	
Humidity	80% or less at 40°C	
Cooling	Forced air	Hot air expelled at rear panel
Dimensions (WxHxD)	133x482x518	
Weight	~6kg	

6 Block Diagram



7 Product Options

The following product options are available at the time of placing the order. Upgrades of existing devices are not possible.

Article Name	Article Description	Article Number
Calibration Kit		
10hm, 1000hm, 1kOhm	Resistors for device calibration in accordance with LV124 & LV148	TBD

8 Contact



9 Document History

Revision	Date	Changes
1.0	January 2024	First publication