

30-pin HBM Tester ANSI/ESDA/JEDEC JS-001 HBM-SM30-B

Advanced TLP/HMM/HBM Solutions

1 Features

- 30 V to 10 kV HBM matrix tester according ANSI/ESDA/JEDEC JS-001
- 30-pin switch matrix
- SULLINS FMM15DRKH (2x15 pin) DUT board female card edge connector at 0.156 " (3.96 mm) pin pitch
- Pogo-pin card edge connector exchange carrier
- DC test (pre/post spots and sweeps)
- Transient HBM current and voltage monitoring
- Industrial USB control interface
- Safety interlock lid
- Switch matrix self test
- Software control, test definition and evaluation:
 - Pin map generator
 - Test definition and setup, such as ANSI/ESDA/JEDEC JS-001 table 2A, 2B
 - Real-time task view
 - Measurement data analysis and storage
- 19"-rack: (W) 553 mm x (H) 1333 mm x (D) 675 mm

2 Description

Fig. 1 shows the product outline of the 30-pin HBM tester model HBM-SM30-B mounted in a 19"-rack. Additional space in the rack is available for SMU and accessories drawers. The test socket is protected by a lid including interlock switch (Fig. 2). The test socket is mounted on a pogo-pin socket replacement carrier type 1 (Fig. 6) or type 2 (Fig. 7), which makes it easy to replace a worn out test socket. A lamp (Fig. 4) indicates the tester state: red = "operator interaction required", green = "test finished" or "ready for test" and yellow = "test in progress". Fig. 3 shows the block diagram of the matrix tester. It has integrated two HBM pulse modules, one for the lower range from 30 V to 500 V and the other one for the upper range >500 V to 10 kV. The current sensor and voltage sensor gives an indication of the DUT current and voltage. Since the sensors are located behind the switch matrix, the readout can not represent exactly the situation at the connector. For verification purpose a Tektronix CT-1 or CT-2 current sensor need to be connected directly at the connector pins. A ANSI/ESDA/JEDEC JS-001 HBM verification test report is generated automatically by the software.



Figure 1: Product outline HBM-SM30-B

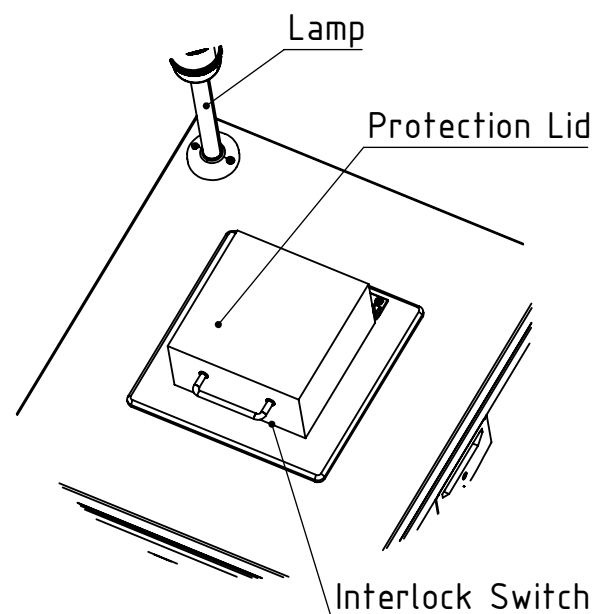


Figure 2: Device test top area detail view

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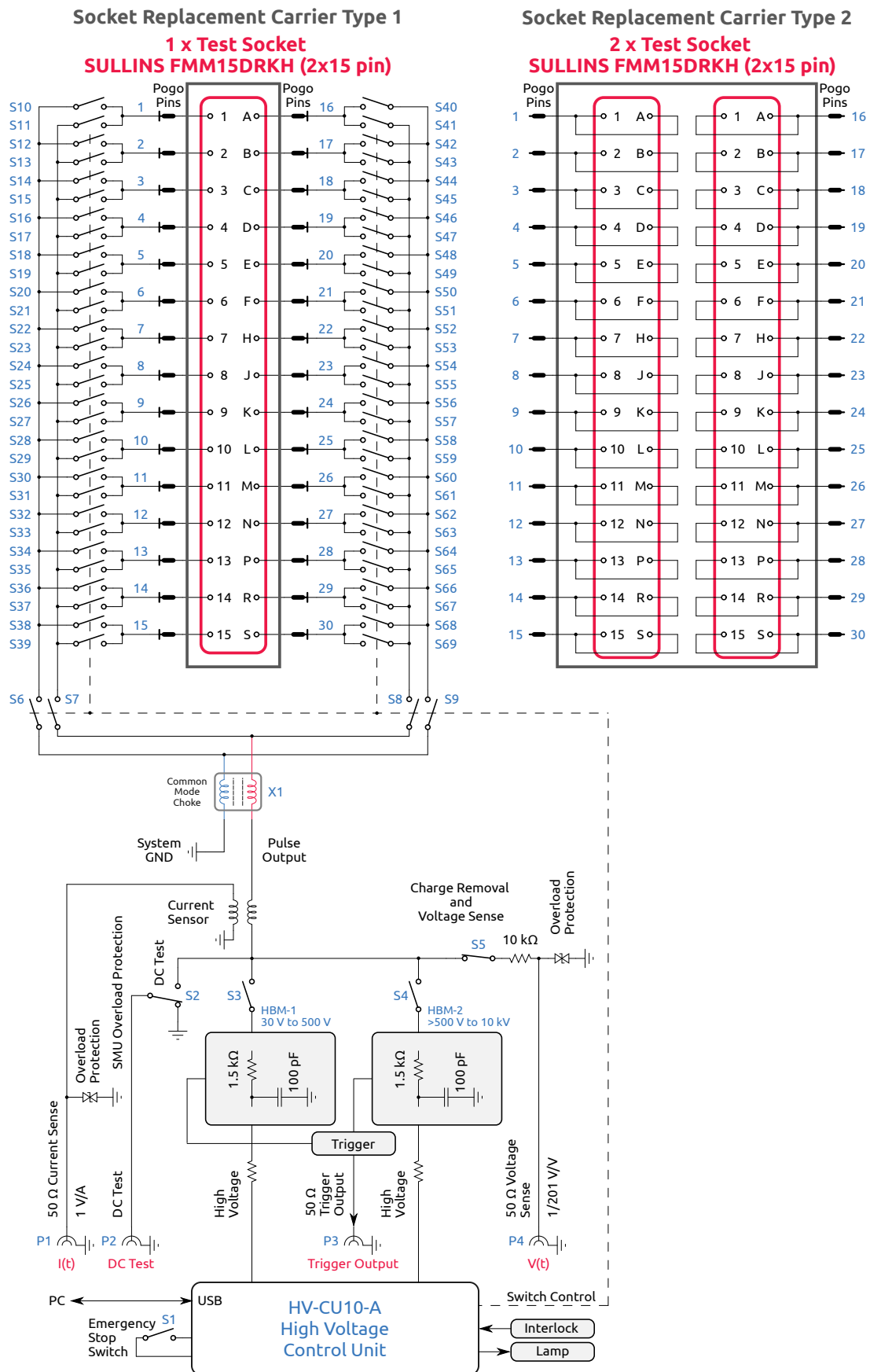


Figure 3: HBM-SM30-B schematic diagram

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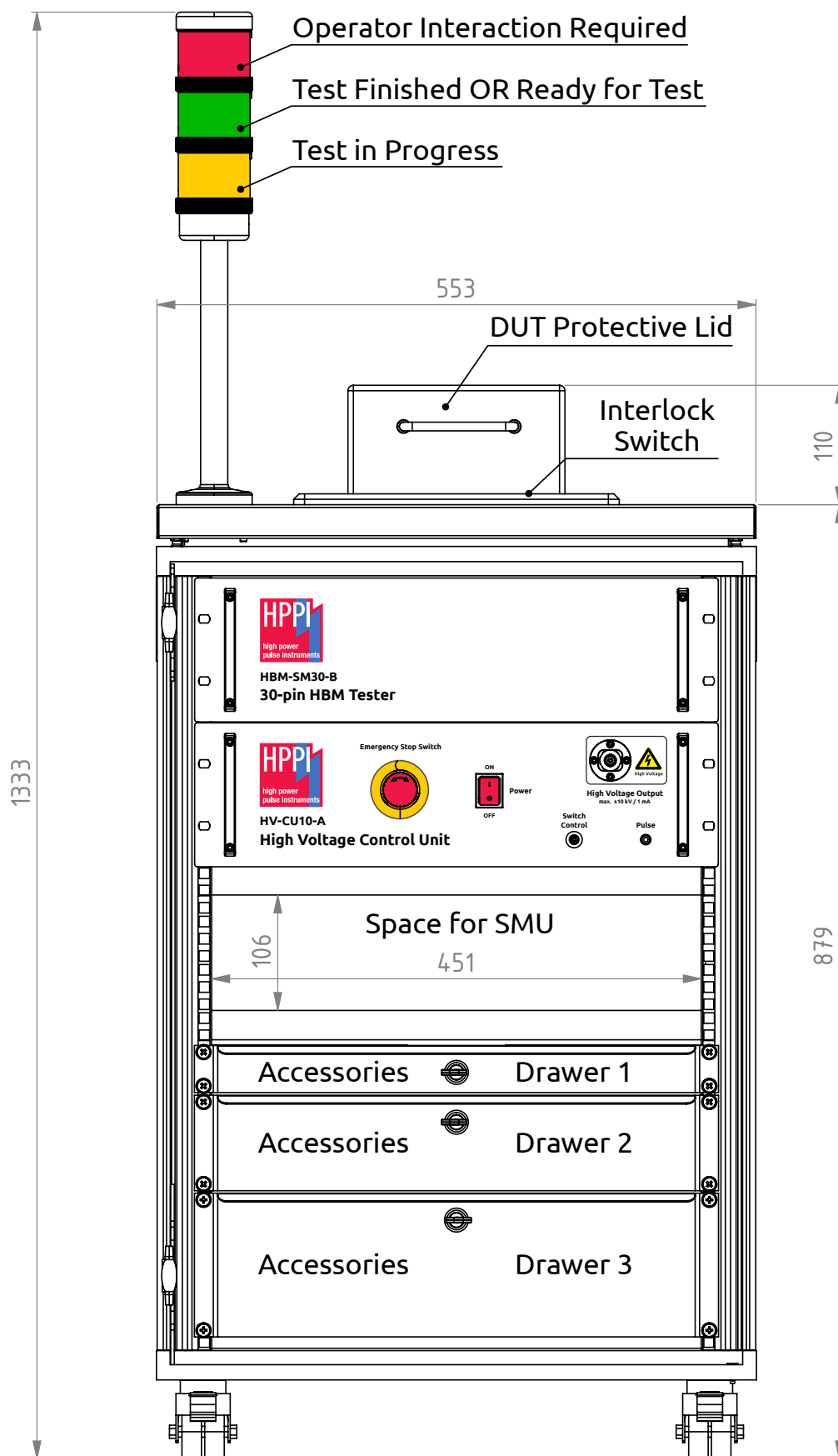


Figure 4: HBM-SM30-B front side view. Dimensions in [mm].

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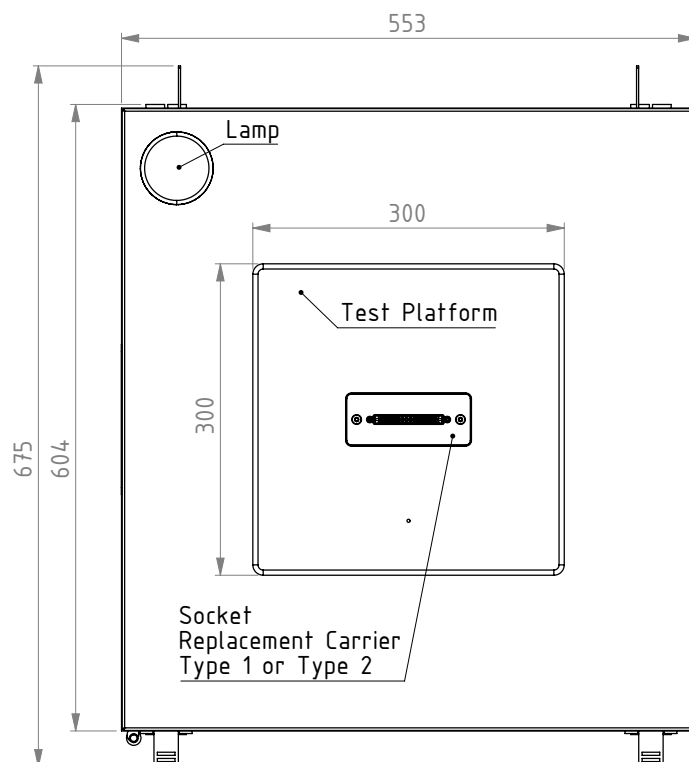


Figure 5: HBM-SM30-B top view (protection lid not shown). Dimensions in [mm].

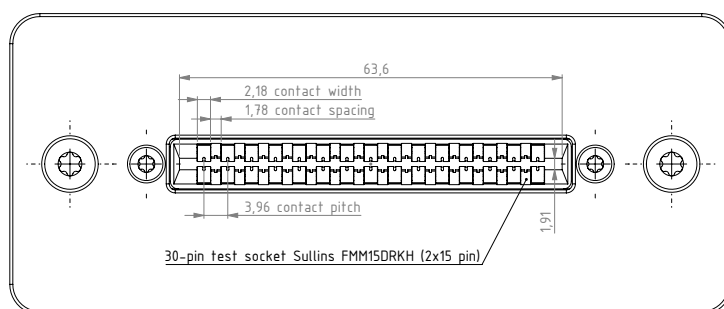


Figure 6: Socket replacement carrier type 1. Dimensions in [mm].

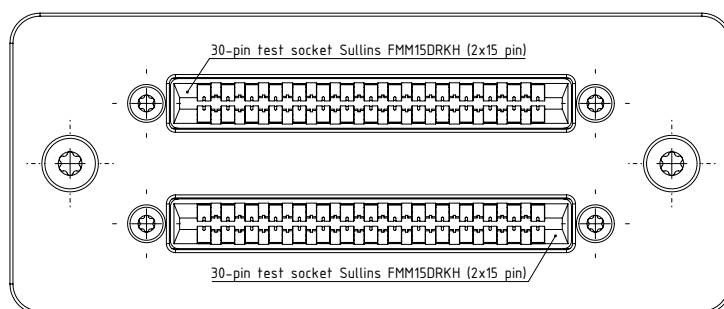


Figure 7: Socket replacement carrier type 2

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3 Specifications

Parameter	Symbol	Limit Values			Unit	Remarks
		Min.	Typ.	Max.		
Compliant to HBM standard	ANSI/ESDA/JEDEC JS-001 (C=100 pF, R=1.5 kΩ)					
Maximum HBM test voltage	V _{HBM,max}	−10		+10	kV	
Minimum HBM test voltage	V _{HBM,min}	−30		+30	V	
HBM test voltage step size	V _Δ		1		V	digital programmable
DUT voltage range	V _{DUT}		tbd		kV	Arcing may occur at the DUT board connector pins.
DUT current range	I _{DUT}	−6.7		+6.7	A	according to ±10 kV HBM
Charge removal resistance	R _{CR}		10		kΩ	±5 % ¹ (condition: voltage sense output terminated with 50 Ω)
DUT voltage sensor sensitivity	k _V		1/201		V/V	±10 %, voltage sense output terminated with 50 Ω ²
DUT current sensor sensitivity	k _I		1		V/A	±3 % (condition: current sense output terminated with 50 Ω)
Current sensor series impedance	Z _{CS}		50		mΩ	current sense output to be terminated with 50 Ω
Trigger output voltage	V _{TR}		1		V _P	to be terminated with 50 Ω
Pulse repetition frequency	f _p		1	5	Hz	state dependent, digital programmable.
Digital control interface	-	USB			-	Industrial isolated and EMI/ESD protected USB 2.0 interface
AC line voltage range	V _{AC}	100		240	V	47-63 Hz, max. 1.8 A
Dimensions (W x H x D)	D	553 x 1333 x 675			mm ³	19" rack
Weight	M		50		kg	excluding SMU and oscilloscope
Software support of oscilloscopes	All models from Keysight, LeCroy, Tektronix, Iwatsu. New models will be added on request.					
Software support of SMU	Keithley 24xx/26xx series SMU, Keithely 230 voltage source, Agilent B2900A, Iwatsu. New models will be added on request.					
Supported PC operating system	Microsoft Windows 7-11, 64-bit (required)					

¹nominal 10.050 kΩ, including oscilloscope input resistance.

²The internal voltage sense oscilloscope overload protection starts clamping at 8.5 V onward which results in clipped voltage sensor readout of >1.7 kV DUT voltage.

4 Ordering Information

Pos.	Description	Part No.
01	30-pin HBM Tester ANSI/ESDA/JEDEC JS-001	HBM-SM30-B

General

The product data contained in this data-sheet is exclusively intended for technically trained staff. You and your technical departments will have to evaluate the suitability of the product for the intended application and the completeness of the product data with respect to such application. Our products are solely intended to be commercially used internally and should not be sold to consumers. This data-sheet is describing the specifications of our products for which a warranty is being granted by HPPI GmbH. Any such warranty is granted exclusively pursuant to the terms and conditions of the respective supply agreement. There will be no guarantee of any kind for the product and its specifications. For further information on technology, specific applications of our product, delivery terms, conditions and prices please contact HPPI:

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