

## HSI-HV

- Input ranges: 7 ranges ( $\pm 20$  V to  $\pm 1400$  V)
- Bandwidth: 2 MHz
- Isolation: 1.8 kV<sub>RMS</sub> line to line; 1.4 kV<sub>RMS</sub> line to ground
- Input impedance: 10 M $\Omega$
- Protection: 4 kV burst, surge
- Signal connection: Banana sockets

## Isolated high voltage module



## Module specifications

HSI-HV		
Input ranges	$\pm 20$ V <sup>1)</sup> , $\pm 50$ V <sup>1)</sup> , $\pm 100$ V, $\pm 200$ V, $\pm 400$ V, $\pm 800$ V, $\pm 1400$ V	
1 year accuracy <sup>2)</sup>	Range                      Signal frequency                      Accuracy	
	20 V; 50 V                      DC $\pm 0.05$ % of reading $\pm 60$ mV	
	100 V to 1400 V                      DC $\pm 0.05$ % of reading $\pm 0.05$ % of range	0.1Hz to 1kHz $\pm 0.05$ % of reading $\pm 0.01$ % of range
		>1kHz to 10kHz $\pm 0.1$ % of reading $\pm 0.05$ % of range
		>10kHz to 50kHz $\pm 0.4$ % of reading $\pm 0.05$ % of range
		>50kHz to 100kHz $\pm(0.016*f)$ % of reading $\pm 0.1$ % of range
		>100kHz to 1MHz $\pm(0.010*f)$ % of reading $\pm 1$ % of range
>1MHz to 2MHz $\pm(0.014*f)$ % of reading $\pm 3$ % of range		
f = signal frequency in kHz		
Gain linearity	0.05 %	
Gain drift range	Typically 20 ppm/°C (max. 50 ppm/°C)	
Offset drift		
20 V to 100 V	typical 1.5 mV/°C of range                      max. 4 mV/°C	
200 V to 1400 V	typical 5 ppm/°C                      max. 20 ppm of range/°C	
Long term stability	100 ppm/sqrt (1000 hrs)	
Input resistance	10 M $\Omega$    2.2 pF	
-3 dB Bandwidth	2 MHz	
Signal delay @ full bandwidth	approx. 390 ns	
Filter selection	Push button or software	
Filter (lowpass)	100, 300, 1k, 3k, 10k, 30k, 100k, 300 kHz, 1 MHz, 2 MHz <sup>3)</sup>	
Filter type	Bessel or Butterworth 40 dB/decade	
Filter characteristics		
100 Hz to 1 MHz	Butterworth or Bessel 40 dB/dec (2 <sup>nd</sup> order; $\pm 1.5$ dB @ $f_0$ )	
2 MHz	Butterworth 60 dB/dec (3 <sup>rd</sup> order; 0 to -3 dB @ 2 MHz)	
Typical SFDR and SNR		
	10kHz bandwidth                      100kHz bandwidth                      1MHz bandwidth                      2 MHz bandwidth	
	SFDR                      SNR                      SFDR                      SNR                      SFDR                      SNR                      SFDR                      SNR	
50 V	110 dB                      91 dB                      110 dB                      82 dB                      94 dB                      76 dB                      84 dB                      73 dB	
400 V	110 dB                      95 dB                      110 dB                      92 dB                      94 dB                      82 dB                      84 dB                      77 dB	
1400 V	110 dB                      95 dB                      110 dB                      95 dB                      94 dB                      82 dB                      84 dB                      77 dB	
Typical CMRR	>80 dB @ 50 Hz                      60 dB @ 1 kHz 70 dB @ 400 Hz                      48 dB @ 10 kHz	
Isolation voltage	Line to Ground 1.4 kVrms Line to Line 1.8 kVrms	
Protection	CAT III 600 CAT IV 300	
Surge (1.2/50)	$\pm 4000$ V	
Burst (5 kHz)	$\pm 4000$ V	
Output voltage	$\pm 5$ V	
Output resistance	10 Ohm	
Output current maximum	35 mA                      CAUTION: do not exceed maximum output current!	
Power supply	$\pm 9$ V <sub>DC</sub> $\pm 1$ %	
Power consumption	1.2 W	
Power On default settings	Software programable	
Special functions	Integrated temperature sensor	
Programming interface	RS-485	
<sup>1)</sup> 20 V and 50 V are auxiliary ranges and have a limited bandwidth. 20 V range typically 0.9 Mhz 50 V range typically 1.9 Mhz		
<sup>2)</sup> Conditions for accuracy: Module temperature is calibration temperature $\pm 5$ °C; humidity is 30 to 90 RH; AC accuracy: the highest filter (2 Mhz) has to be activated. f = signal frequency in kHz. for the 2 year accuracy multiply all % of range and % of reading values by 1.5.		
<sup>3)</sup> 2 MHz filter: exclusively Butterworth 60 dB/decade. Please consider possible bandwidth limitation of further components in the measuring chain, e.g. A/D cards or signal conditioning mainframe		