ZES ZIMMER Electronic Systems

Precision Wideband High Voltage Divider Series HST

Rear Side with High Voltage Leads

- Precise measurement of high voltages up to 20kV, DC to 300kHz
- High transient voltage resistivity
- One-, two- and three-phase version
- Line to line voltage as difference at outputs
- Negligible phase error, therefore very suitable for **wideband power measuring**

Optimum for Inverters at Medium Voltage

Precision High Voltage Dividers for Precision Power Meters

The wide band precision high voltage divider of series HST expand the voltage measuring range of ZES ZIMMER precision power meter LMG for use at power grid of nominal voltage over 1000V. The high voltage inputs are equipped with 2m leads that is attached to the voltage measured against earth. The open leads can be aligned by the customer.

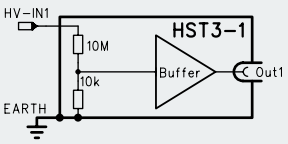
The HST 3 (resp. HST6/9/12) divides DC, AC or any distorted voltages with very high accuracy by the factor 1000 (resp. 2000/3000/4000). The divided voltage is available at the buffered low impedance BNC output.
To avoid noise interference it is recommended to use shielded cables to the measuring input of the LMG.

The HST can be delivered in one, two or three channel version as to match the particular measuring task.
The single phase HST is used in single ended systems (e.g. overhead traction line, ultrasonic applications).
Line to line voltages can be measured as difference between the output signals of the channels. For floating (difference) voltage measuring therewith the 2-phase HST is best suitable.
Typical application fields for the 3-channel HSTx-3 are frequency inverter fed medium voltage drives and power quality analysis at the distribution network.

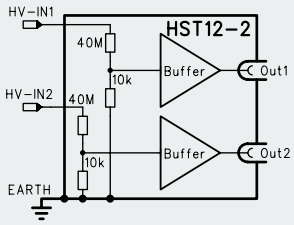
Safety

To guarantee a safe measuring the earth terminal of the enclosure must be connected with an appropriate earthing point. Here you have to take a sufficient cross section of the earthing conductor into account with respect to the possible short circuit current of the application. The existing protecting earth connection of the power supply is not dimensioned for this.
The related safety instructions are strictly to be observed!

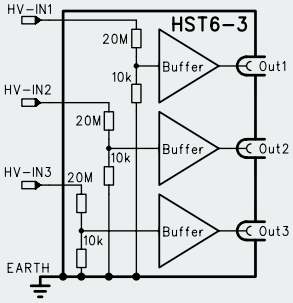
Measurement principle



1-channel HST for single ended voltages



2-channel HST for floating voltages (difference measuring)



3-channel HST for three phase systems (inverters)

Technical Data

Series	**HST3**			**HST6**			**HST9**			**HST12**		
Type	HST3-1	HST3-2	HST3-3	HST6-1	HST6-2	HST6-3	HST9-1	HST9-2	HST9-3	HST12-1	HST12-2	HST12-3
Number of channels	1	2	3	1	2	3	1	2	3	1	2	3
Max. trms input	4.2kV			8.4kV			12.6kV			16.8kV		
Max. peak value for full scale	5kV			10kV			15kV			20kV		
Overvoltage capabilities of high voltage input against earthed case in accordance to EN61010:2001												
Max. periodic peak working voltage	6kV			12kV			18kV			24kV		
Max. transient overvoltage	9.2kV			14.2kV			18kV			21.3kV		
Non repetitive max. peak voltage	15.2kV			26.2kV			36kV			45.3kV		
Input impedance	10MOhms||50pF			20MOhms||25pF			30MOhms||22pF			40MOhms||20pF		
Dividing ratio	1/1000			1/2000			1/3000			1/4000		
Uncertainty for voltage measurement	max. ± 0.1% (DC ... 45Hz) max. ± 0.05% (45Hz ... 65Hz) max. ± 0.1% (65Hz ... 2.5kHz) max. ± 0.2% (2.5kHz ... 10kHz) max. ± 0.3% (10kHz ... 100kHz) typ. ± 2% (300kHz; max. 100pF)											
Uncertainty for active power measurement	max. ± 0.08% (45Hz ... 65Hz; PF>0.8) max. ± 0.5% (DC ... 100kHz; PF>0.8) typ. ± 3% (300kHz; Burden <100pF; PF>0.8)											
Measurement input	One fixed high voltage lead (length 2m) for each channel, earth jack as the common reference point											
Signal output	One BNC socket for each channel											
Output burden	min. 1kOhms; max. 1nF											
Safety class	Class I, **case must be earthed in addition!**											
Enclosure	Robust aluminium case											
Protection class	IP54											
Temperature range	0 ... 50°C											
Dimension (L x W x H) in mm	330 x 230 x 110						400 x 230 x 110					
Installation dimension (L x W x H) in mm	490 x 230 x 110						590 x 230 x 110					
Weight	about 6.1kg						about 7.2kg					
Supply	85 ... 265V; 45 ... 65Hz; about 20VA											

Subject to technical changes, especially to improve the product, at any time without prior notification.

ZES ZIMMER Electronic Systems

ZES ZIMMER Electronic Systems GmbH
Tabaksmühlenweg 30, D-61440 Oberursel/Ts.
Tel. +49 6171 628750 Fax +49 6171 52086
www.zes.com • sales@zes.com