



**Probing Solutions.  
Made in Germany.**

EN



# PHV SERIES

**High Voltage Passive Probes**  
400 MHz, 4000 V Peak

Datasheet



# Specifications

	PHV 1000	PHV 1000-3	PHV 1000-5	PHV 2000	PHV 2000-3	PHV 2000-5	PHVS 2000	PHVS 2000-3	PHVS 2000-5
<b>Base model</b>	PHV 1000 860-622-B00	PHV 1000-3 860-623-B00	PHV 1000-5 860-625-B00	PHV 2000 870-622-A00	PHV 2000-3 870-623-A00	PHV 2000-5 870-625-A00	PHVS 2000 870-722-A00	PHVS 2000-3 870-723-A00	PHVS 2000-5 870-725-A00
<b>Read-Out option</b>	PHV 1000-RO 860-622-B02	PHV 1000-3-RO 860-623-B02	PHV 1000-5-RO 860-625-B02	PHV 2000-RO 870-622-A02	PHV 2000-3-RO 870-623-A02	PHV 2000-5-RO 870-625-A02	PHVS 2000-RO 870-722-A03	PHVS 2000-3-RO 870-723-A03	PHVS 2000-5-RO 870-725-A03
<b>Base model with complementary accessories</b>	PHV 1000-C 86C-622-B00	PHV 1000-3-C 86C-623-B00	PHV 1000-5-C 86C-625-B00	PHV 2000-C 87C-622-A00	PHV 2000-3-C 87C-623-A00	PHV 2000-5-C 87C-625-A00	PHVS 2000-C 87C-722-A00	PHVS 2000-3-C 87C-723-A00	PHVS 2000-5-C 87C-725-A00
<b>Read-Out option with complementary accessories</b>	PHV 1000-C-RO 86C-622-B02	PHV 1000-3-C-RO 86C-623-B02	PHV 1000-5-C-RO 86C-625-B02	PHV 2000-C-RO 87C-622-A02	PHV 2000-3-C-RO 87C-623-A02	PHV 2000-5-C-RO 87C-625-A02	PHVS 2000-C-RO 87C-722-A03	PHVS 2000-3-C-RO 87C-723-A03	PHVS 2000-5-C-RO 87C-725-A03

## Electrical Specifications

<b>Attenuation Ratio (±2% at DC) (1)</b>	100:1	100:1	100:1	100:1	100:1	100:1	1000:1	1000:1	1000:1
<b>System Bandwidth (-3 dB)</b>	400 MHz	250 MHz	120 MHz	400 MHz	250 MHz	120 MHz	400 MHz	250 MHz	120 MHz
<b>Rise Time (10% - 90%)</b>	900 ps	1.4 ns	2.4 ns	900 ps	1.4 ns	2.4 ns	900 ps	1.4 ns	2.4 ns
<b>Voltage Coefficient (at DC)</b>	0.00025 %/V	0.0005 %/V	0.00025 %/V	0.00025 %/V	0.0005 %/V	0.00025 %/V	0.0005 %/V	0.0005 %/V	0.0005 %/V
<b>Input Resistance (System) (±1%)</b>	50 MΩ	50 MΩ	50 MΩ	50 MΩ	50 MΩ	50 MΩ	50 MΩ	50 MΩ	50 MΩ
<b>Input Capacitance (System)</b>	7.5 pF	7.5 pF	9.5 pF	7.5 pF	7.5 pF	9.5 pF	7.5 pF	7.5 pF	8 pF
<b>Compensation Range</b>	10 pF - 25 pF	10 pF - 25 pF	10 pF - 25 pF	10 pF - 25 pF	10 pF - 25 pF	10 pF - 25 pF	10 pF - 25 pF	10 pF - 25 pF	10 pF - 25 pF
<b>Input Coupling of the Measuring Instrument</b>	1 MΩ AC / DC	1 MΩ AC / DC	1 MΩ AC / DC	1 MΩ AC / DC	1 MΩ AC / DC	1 MΩ AC / DC	1 MΩ AC / DC	1 MΩ AC / DC	1 MΩ AC / DC

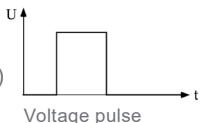
## Maximum Rated Input Voltages, CAT II, CAT III (2)

<b>Pollution Degree</b>	2	2	2	2	2	2	2	2	2
<b>Measurement Category II</b>	1000 V CAT II	1000 V CAT II	1000 V CAT II	1000 V CAT II	1000 V CAT II	1000 V CAT II	1000 V CAT II	1000 V CAT II	1000 V CAT II

## Maximum Rated Input Voltages, No Measurement Category, not in CAT II, III, IV (2)

<b>Pollution Degree</b>	2	2	2	2	2	2	2	2	2
<b>No Measurement Category (2)</b>	2000 V peak	2000 V peak	2000 V peak	4000 V peak	4000 V peak	4000 V peak	4000 V peak	4000 V peak	4000 V peak

## Maximum Pulse Rating, No Measurement Category, not in CAT II, III, IV (2)

<b>Upulse (3)</b>	Upulse 2000V (Step 0V to 2000V)		Upulse 4000V (Step 0V to 4000V)	
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## Mechanical Specifications

<b>Weight (Probe only)</b>	67 g	82 g	120 g	67 g	82 g	120 g	67 g	82 g	120 g
<b>Cable Length</b>	2 m	3 m	5 m	2 m	3 m	5 m	2 m	3 m	5 m
<b>Probe Tip Diameter</b>	5 mm	5 mm	5 mm	5 mm	5 mm	5 mm	5 mm	5 mm	5 mm

## Environmental Specifications

<b>Altitude</b>	operating	up to 2000 m
	non-operating	up to 15000 m
<b>Temperature Range</b>	operating	0 °C to +50 °C
	non-operating	-40 °C to +71 °C
<b>Maximum Relative Humidity</b>	operating	80% relative humidity for temperatures up to +31 °C, decreasing linearly to 40% at +50 °C
	non-operating	95% relative humidity for temperatures up to +40 °C

This product comes with 2 years warranty.  
Specifications that are not marked as guaranteed are typical.

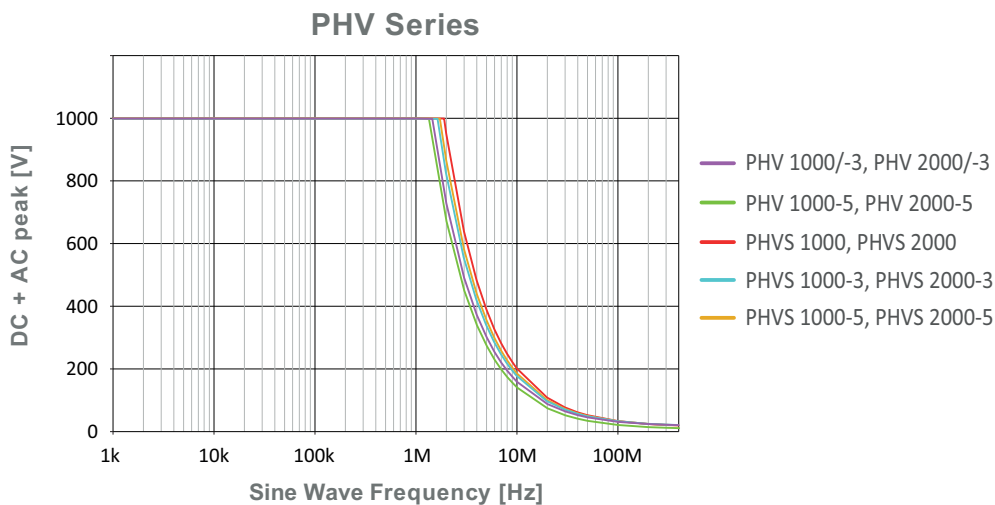
(1) Connected to oscilloscope with an input impedance of 1 MΩ ±1%.  
(2) As defined in IEC 61010-031.  
(3) No overshoot permitted.

## Typical Voltage Derating



Note that the maximum input voltage rating of the probe decreases as the frequency of the applied signal increases.

The charts given here are valid for no measurement category, not in CAT II, III, IV (1).

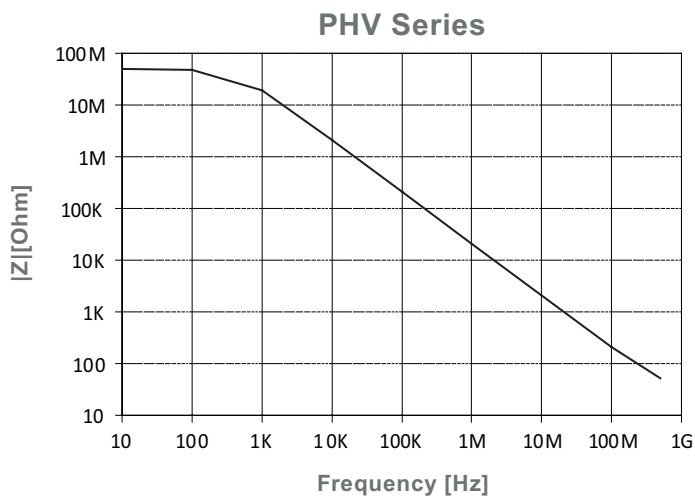


## Typical Input Impedance



Note that the input impedance of the probe decreases as the frequency of the applied signal increases.

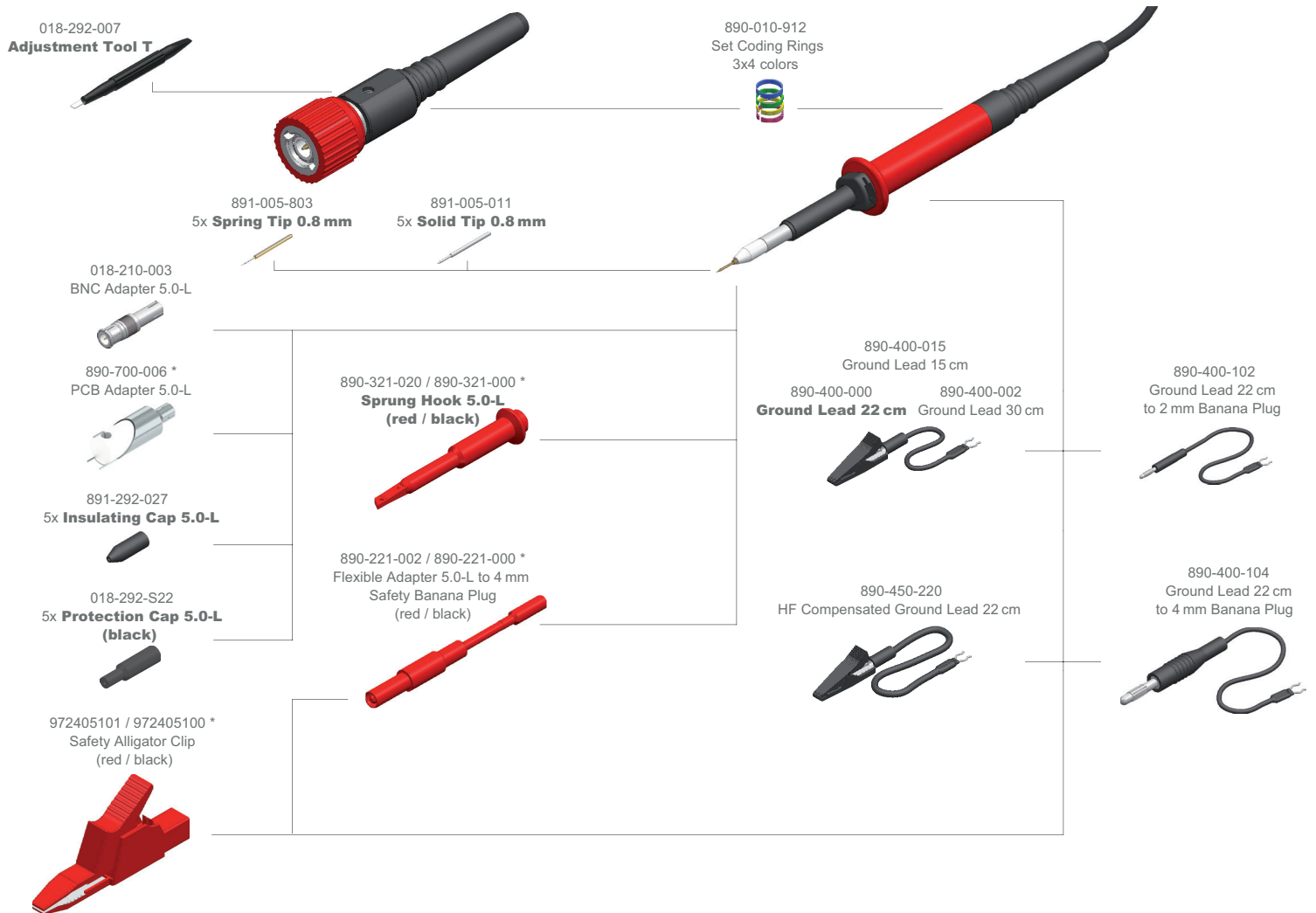
The charts given here are valid for no measurement category, not in CAT II, III, IV (1).



(1) As defined in IEC 61010-031 in PHV manual.

## Probe Accessories

The parts supplied are **highlighted**, see also "Scope of Delivery".



\* See ratings for these accessories below.

## Rating Accessories

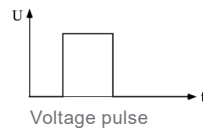
### • PCB Adapter 5,0-L (890700006)

Maximum Rated Input Voltages, No Measurement Category, not in CAT II, III, IV<sup>(1)</sup>:

- Pollution Degree: 2
- No Measurement Category: 2000V DC or AC peak

Maximum Pulse Rating, No Measurement Category, not in CAT II, III, IV<sup>(1)</sup>:

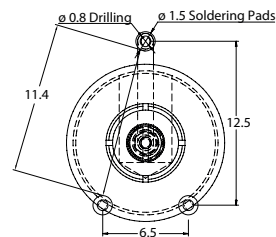
$U_{pulse}^{(2)} = 6000\text{ V}$  (Step 0V to 6000V)



### Drilling- / Soldering Template



The minimum distance between all solder pads of 11.4 mm (see adjacent template) must not be undercut under any circumstances. Undercutting this distance will void the rating.



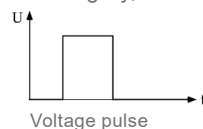
### • Sprung Hook 5,0-L (890321020 / 890321000)

Maximum Rated Input Voltages, No Measurement Category, not in CAT II, III, IV<sup>(1)</sup>:

- Pollution Degree: 2
- No Measurement Category: 2000V DC or AC peak

Maximum Pulse Rating, No Measurement Category, not in CAT II, III, IV<sup>(1)</sup>:

$U_{pulse}^{(2)} = 6000\text{ V}$  (Step 0V to 6000V)



### • Safety Alligator Clip (972405101 / 972405100)

Maximum Rated Input Voltages, CAT II<sup>(1)</sup>:

- Pollution Degree: 2
- Measurement Category II: 1000V CAT II

### • Flexible Adapter 5,0-L to 4 mm Safety Banana Plug (890221002 / 890221000)

Maximum Rated Input Voltages, CAT II<sup>(1)</sup>:

- Pollution Degree: 2
- Measurement Category II: 1000V CAT II

(1) As defined in IEC 61010-031. (2) No overshoot permitted.

## Scope of Delivery

Accessories delivered with each probe are highlighted in the graphical overview.

Items	Qty
Adjustment tool T	1
Ground lead 22cm	1
Instruction manual	1
Insulating cap 5.0-L	1
Probe PHV	1
Protection cap 5.0-L <sup>(1)</sup>	1
Readout for use with Keysight oscilloscopes <sup>(2)</sup>	1
Solid tip 0.8 mm	1
Spring tip 0.8 mm <sup>(3)</sup>	1
Sprung hook 5.0L	1
<b>Additional items with complementary accessories option</b>	
BNC adapter 5.0L	1
Environmental friendly cardboard box	1
Coding rings (set) 3x4 colors	1
Flexible adapter 5.0-L	1
Ground lead 22cm to 4 mm bananaplug	1
Safety alligator clip (red)	1
<b>Overview - Optional probe accessories</b>	
See on page 4	
<b>PHV(S) - Options</b>	
Option	Expansion compensation range 65 pF
Option	Additional insulation of the probe cable with silicone hose (price per meter)
Option	Integrated steel wire as strain relief of probe cable (price per meter) Only possible in conjunction with additional silicone hose insulation
Option	Custom Probe attenuation ratio, for example: 200:1 on request

(1) plugged on probe    (2) only included with models having read-out option  
(3) installed in probe



Use ground lead only for connections to earth ground.



The accessories provided with the probe have been safety tested.  
Do not use any other accessories than those "originally" provided.

## Manufacturer

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