



**Probing Solutions.
Made in Germany.**

EN



ENVI[®] Series

**Passive High-Temperature Probes for
Extreme Environmental Testing**

300V CAT II, 1250 V pk, 500MHz

Preliminary

Datasheet



About ENVI® Series

The ENVI® P(U)HT series, ENVIronmental Probes for (Ultra) High Temperatures, from PMK sets a new benchmark in passive probing under extreme environmental conditions. Designed for also direct measurements inside climate chambers, these probes reliable operate from -55°C up to $+200^{\circ}\text{C}$. At the same time, bandwidth capabilities have expanded to 500 MHz, allowing precise signal acquisition even under thermal stress.

What makes the ENVI® P(U)HT series unique is the combination of ultra-wide temperature range, high signal fidelity, and passive architecture, without compromising the measurement accuracy. These probes are ideally suited for a wide range of industries and applications:

- In the automotive industry, they support endurance and functional testing of ECUs, inverters, sensors, and battery management systems under extreme temperature cycles.
- In power electronics and industrial environments, they enable safe, accurate signal acquisition on components like power modules, gate drivers, or converters during thermal stress tests.
- In R&D laboratories, universities, and institutes, the probes are perfect for material studies or sensor development, where precise analog or fast digital signals must be captured during controlled environmental changes.
- In sectors like aerospace, railway, or energy systems, where reliability under tough conditions is critical, the ENVI® P(U)HT probes offer a robust solution that requires no active circuitry or thermal compensation.

Whether you're validating a powertrain component at $+200^{\circ}\text{C}$, testing a converter during cold start at -55°C , or conducting high-speed measurements during thermal cycling, the ENVI® P(U)HT series gives you unmatched flexibility, robustness, and precision, built for engineers who measure where others can't.

All ENVI® P(U)HT models are designed with special components and a patented coaxial design for stable performance across the full temperature range. The BNC connector features automatic Read-Out (RO) detection, allowing oscilloscope scaling to adjust instantly to the probe's dividing factor.

A wide range of standard and optional accessories ensures safe contact, even in difficult test setups with condensation or high humidity.

Specifications

Read the Instruction Manual before first use, and keep it for future reference. A digital copy of the latest Instruction Manual revision can be downloaded at www.pmk.de

This probe comes with 2 years warranty.

Electrical Specifications

Do not exceed the specifications. Specifications that are not marked with (*) as guaranteed are typical.

Order Number with Read-Out	835-312-U01 PUHT: -55°C to 200°C	835-312-Z01 PHT: -55°C to 155°C
Attenuation Ratio (± 2% at DC) ⁽¹⁾	10:1	10:1
Probe Bandwidth (- 3 dB)	500 MHz	500 MHz
Rise Time (10 % - 90 %)	600 ps	600 ps
Voltage Coefficient (at DC)	0.00025 % / V	0.00025 % / V
Input Resistance (System) (± 1 %)	4.5 MΩ	4.5 MΩ
Input Capacitance (System)	20 pF	20 pF
Compensation Range	10 pF - 25 pF	10 pF - 25 pF
Input Coupling of the Measuring Instrument	1 MΩ AC / DC	1 MΩ AC / DC

The following specifications are valid for all models:

Maximum Rated Input Voltages, CAT II ⁽²⁾:

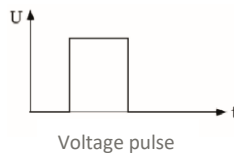
Pollution Degree	3
Measurement Category II	300 V CAT II

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

Pollution Degree	3
No Measurement Category	400 V / 1250 V peak

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

Upulse



Upulse ⁽³⁾: 1250 V
(Step 0 V to 1250 V)

Notes

(1) Connected to oscilloscope with an input impedance of 1 MΩ ± 1 %.

(2) As defined in IEC 61010-031. See definitions explained on page 7.

(3) No overshoot permitted.

Mechanical Specifications

Weight (Probe only)	93 g
Cable Length	2 m
Probe Tip Diameter	5 mm

Environmental Specifications

Probe head and cable assembly

Altitude	operating	up to 2000 m
	non-operating	up to 15000 m
Temperature Range	operating (probe head & cable)	835-312-Z01: -55 °C to +155 °C, 835-312-U01: -55 °C to +200 °C
	operating (probe BNC output)	0 °C to +50 °C
	non-operating (probe head & cable)	835-312-Z01: -55 °C to +155 °C, 835-312-U01: -55 °C to +200 °C
	non-operating (probe BNC output)	40 °C to +71 °C
Maximum Relative Humidity	operating	98 % relative humidity

BNC connector and (*) marked accessories ¹

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

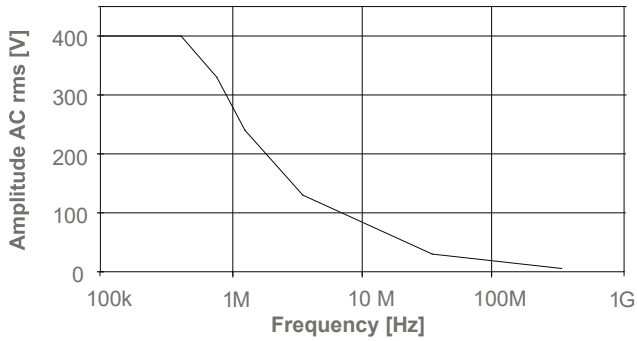
¹ See section Probe Accessories

Typical Voltage Derating



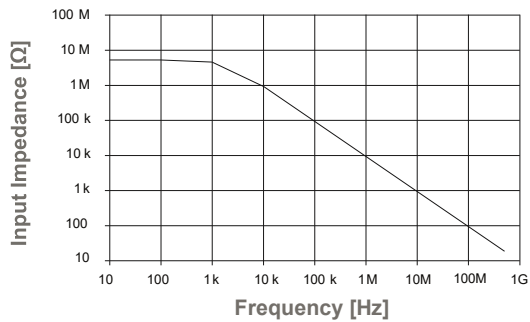
Note that the maximum input voltage rating of the probe decreases as the frequency of the applied signal increases.

Valid for no measurement category, not in CAT II, III, IV ⁽¹⁾:

ENVI® P(U)HT 312**Typical Input Impedance**

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

Valid for no measurement category, not in CAT II, III, IV ⁽¹⁾:

ENVI® Series

(1) As defined in IEC 61010-031. See definitions explained on page 7.

Rating Accessories



Do not exceed the probe’s specifications.
The following accessories can be used with multiple probe series.

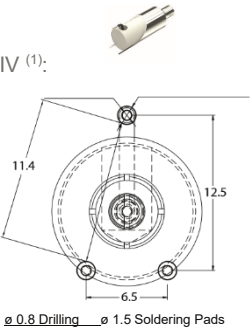
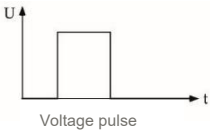
• **PCB Adapter 5,0-L (890-700-006)**

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

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

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

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



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.

(1) As defined in IEC 61010-031. See definitions explained on page **Error! Bookmark not defined.**

Probe Accessories

The parts supplied are marked with x in the row for scope of delivery.



The accessories for this probe series have been safety tested.
Do not use any other accessories or power supplies than what is recommended.

Order No.	Item	Scope of Delivery	Picture
<i>varying</i>	Probe ENVI® P(U)HT series	x	
018-292-007	Adjustment Tool T*	x	
	Probe BNC-Connector *		
891-005-803	5x Spring Tip 0.8mm	x (2pcs)	
891-005-011	5x Solid Tip 0.8mm	x	
018-291-102	Ground Blade 5.0	x	
018-292-524	HT-Insulating Cap	x	
018-210-003	BNC Adapter 5.0-L	x	
890-700-006	PCB Adapter 5.0-L	x	
890-520-712	HT-Dual Lead Adapter to 0.8mm Sockets	x	
018-291-779	10x Solder-in Contact Pin 0.64mm	x	
890-500-141	HT-IC Clip-M to 0.64mm Pin		
890-500-142	HT-IC Clip-L to 0.64mm Pin		
890-321-025	HT-Sprung Hook 5.0	x	
890-400-022	HT-Ground Lead 10cm	x	
890-400-021	HT-Ground Lead 10cm to 4mm Banana Plug <i>Not for hand-held use!</i>	x	
930122000	Alligator Clip V2A to 4mm Socket <i>Not for hand-held use!</i>	x	
890-808-105	2 Footer Positioner		
890-400-015	Ground lead 15cm	x	

(*) Not suitable for use in high temperatures: Tested at ambient temperatures between 0°C to +50 °C.

Scope of Delivery

See chapter “Ordering Information” to review the selection of accessories.

- 1x ENVI® series probe
- 1x **018-292-007** Trimmer Adjustment Tool
- 2x Spring Tip 0.8mm⁽¹⁾
- **891-005-011** 5x Solid Tip 0.8mm
- **018-291-102** Ground Blade 5.0
- **018-292-524** HT-Insulating Cap
- **018-210-003** BNC Adapter 5.0-L
- **890-700-006** PCB Adapter 5.0-L
- **890-520-712** HT-Dual Lead Adapter to 0.8mm Sockets
- **018-291-779** 10x Solder-in Contact Pin 0.64m
- **890-321-025** HT-Sprung Hook 5.0⁽²⁾
- **890-400-022** HT-Ground Lead 10cm
- **890-400-021** HT-Ground Lead 10cm to 4mm Banana Plug
*For non-handheld use only **
- **930122000** Alligator Clip V2A to 4mm Socket
*For non-handheld use only **
- **890-400-015** Ground lead 15cm
- 1x Instruction manual



⁽¹⁾ plugged on probe

⁽²⁾ installed in probe



* 890-400-021 HT-Ground Lead 10cm to 4mm Banana Plug and 930122000 Alligator Clip V2A to 4mm Socket are not for hand-held use and can only be used in climatic chambers.

Ordering Information

Step 1: Select Base Probe

835-312-U01	Probe ENVI® PUHT, 500MHz, -55°C to 200°C
835-312-Z01	Probe ENVI® PHT, 500MHz, -55°C to 155°C

Step 2: Select Optional Accessories

890-500-141	HT-IC Clip-M to 0.64mm Pin <i>*limited supply*</i>
890-500-142	HT-IC Clip-L to 0.64mm Pin <i>*limited supply*</i>



Step 3: Select Optional Calibration Certificate

KAL-ENVI	factory calibration certificate
KAL-DAKKS-ENVI	ISO 17025 (re-)calibration certificate

Notes

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Notes

This image shows a single page of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page, leaving small margins at the top and bottom. There are no vertical margin lines, and the page is completely blank except for the lines themselves.



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