



# PML SERIES

Passive 400 V / 1650 V peak Probes up to 1.5 GHz

## Specifications

	PML 701 / PML 701-RO	PML 751 / PML 751-RO	PML 791 / PML 791-RO	PML 211 / PML 211-RO	PML 311 / PML 311-RO	PML 711A / PML 711A-RO	PML 712 / PML 712-RO	PML 713 / PML 713-RO	PML 721 / PML 721-RO
Order Number without Read-Out	855-701-000	875-751-000	875-791-000	855-211-000	855-311-000	855-711-A00	855-712-000	855-713-000	855-721-000
Order Number with Read-Out	855-701-00E	875-751-001	875-791-002	855-211-001	855-311-001	855-711-A01	855-712-001	855-713-001	855-721-004

Electrical Specifications									
Attenuation Ratio ( $\pm 2\%$ at DC) <sup>(1)</sup>	1:1	10:1	100:1	10:1	10:1	10:1	10:1	10:1	20:1
System Bandwidth (-3 dB)	38 MHz	1.5 GHz	1.5 GHz	200 MHz	350 MHz	500 MHz	350 MHz	250 MHz	500 MHz
Rise Time (10% - 90%)	9 ns	240 ps	240 ps	1.4 ns	1 ns	700 ps	1 ns	1.4 ns	700 ps
Voltage Coefficient (at DC)	n.a.	n.a.	n.a.	0.00025%/V	0.00025%/V	0.00025%/V	0.00025%/V	0.00025%/V	0.00025%/V
Input Resistance (System) ( $\pm 1\%$ )	1 M $\Omega$ (Scope Input)	500 $\Omega$	5 k $\Omega$	10 M $\Omega$	10 M $\Omega$	10 M $\Omega$	10 M $\Omega$	10 M $\Omega$	20 M $\Omega$
Input Capacitance (System)	39 pF + Scope	2 pF	2.6 pF	10 pF	10 pF	9.5 pF	11.5 pF	14.5 pF	5.6 pF
Compensation Range	n.a.	n.a.	n.a.	7 pF - 25 pF	10 pF - 25 pF	10 pF - 25 pF	10 pF - 25 pF	10 pF - 25 pF	7 pF - 20 pF
Input Coupling of the Measuring Instrument	1 M $\Omega$ AC/DC	50 $\Omega$	50 $\Omega$	1 M $\Omega$ AC/DC	1 M $\Omega$ AC/DC	1 M $\Omega$ AC/DC	1 M $\Omega$ AC/DC	1 M $\Omega$ AC/DC	1 M $\Omega$ AC/DC

Maximum Rated Input Voltages, CAT II <sup>(2)</sup>									
Pollution Degree	n.a.	n.a.	n.a.	2	2	2	2	2	2
Measurement Category II	n.a.	n.a.	n.a.	300V CAT II	300V CAT II	300V CAT II	300V CAT II	300V CAT II	300V CAT II

Maximum Rated Input Voltages, No Measurement Category, not in CAT II, III, IV <sup>(2)</sup>									
Pollution Degree	n.a.	n.a.	n.a.	2	2	2	2	2	2
No Measurement Category <sup>(2)</sup>	30V rms / 60V DC	12V DC incl. AC peak	30V DC incl. AC peak	400V / 1650V peak	400V / 1650V peak	400V / 1650V peak	400V / 1650V peak	400V / 1650V peak	400V / 1650V peak

Maximum Pulse Rating, No Measurement Category, not in CAT II, III, IV <sup>(2)</sup>									
Upulse <sup>(3)</sup>	n.a.			Upulse 1650 V (Step 0V to 1650V)			 <p>Voltage pulse</p>		

Mechanical Specifications									
Weight (Probe only)	43g	48g	48g	48g	48g	48g	59g	73g	48g
Cable Length	1.3m	1.3m	1.3m	1.3m	1.3m	1.3m	2m	3m	1.2m
Probe Tip Diameter	2.5mm	2.5mm	2.5mm	2.5mm	2.5mm	2.5mm	2.5mm	2.5mm	2.5mm

Environmental Specifications		
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
	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.

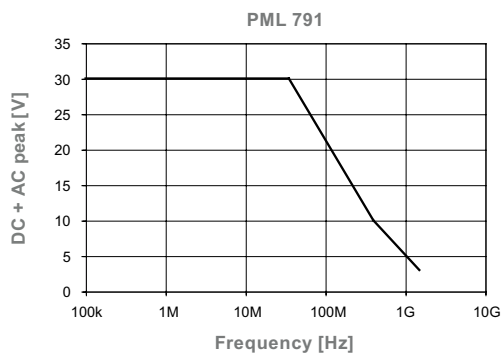
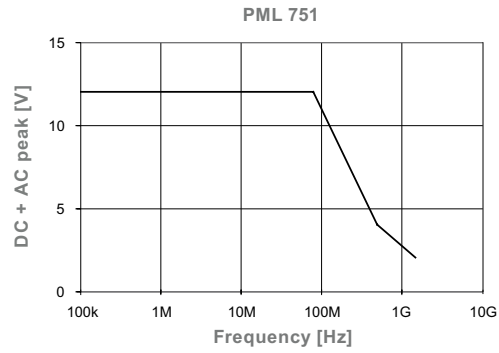
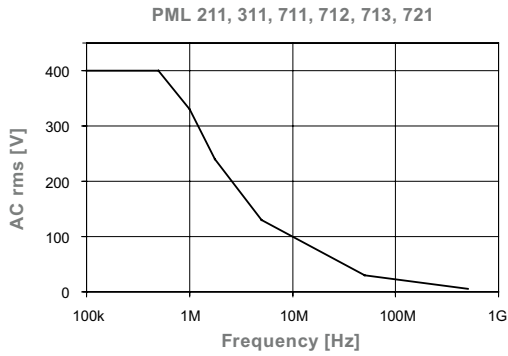
(1) Connected to oscilloscope with an input impedance of 1 M $\Omega$   $\pm$  1%.  
(2) As defined in IEC 61010-031.  
(3) No overshoot permitted.

## 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).

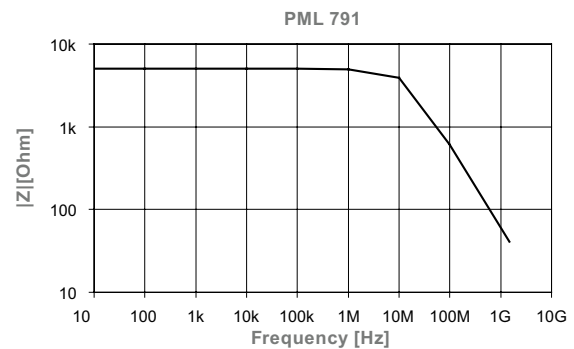
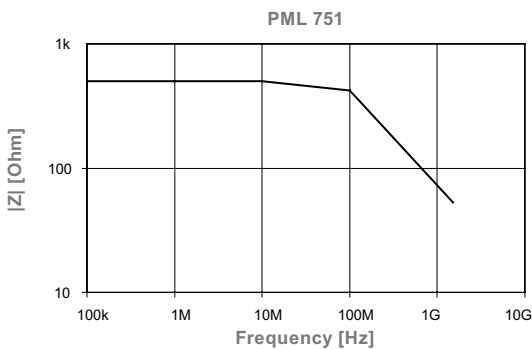
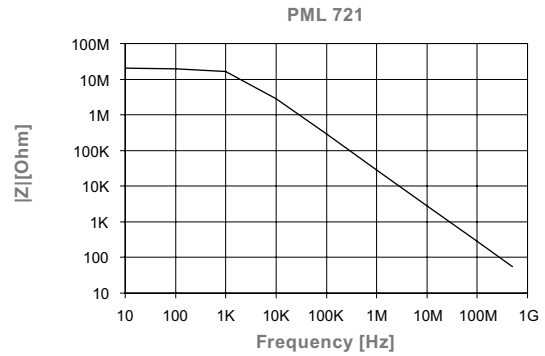
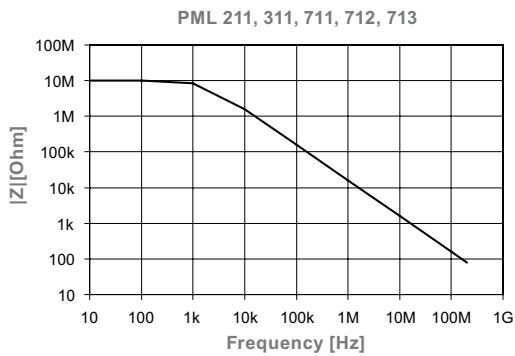


## Typical Input Impedance



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

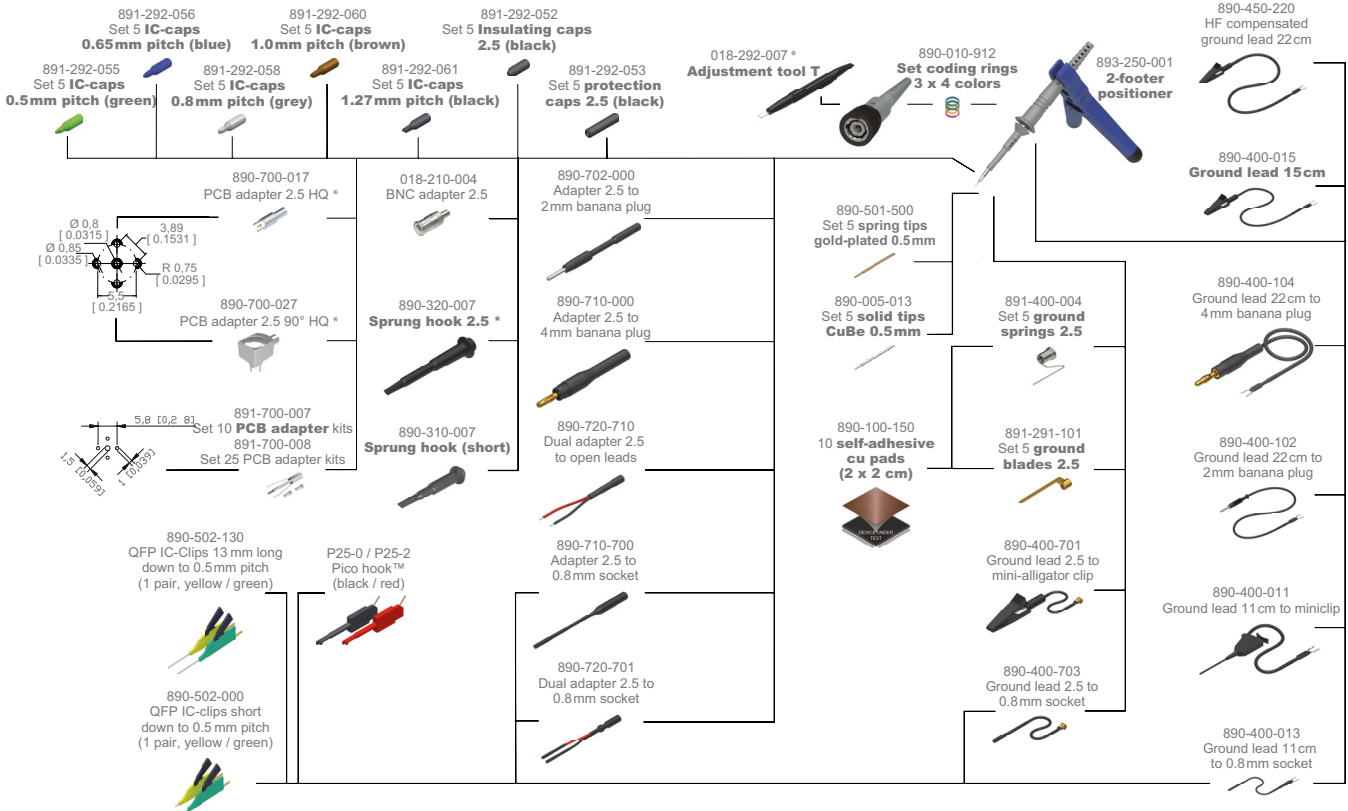
The charts given here are valid for no measurement category, not in CAT II, III, IV (1).



(1) As defined in IEC 61010-031 in PML manual on page 21.

## Probe Accessories

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



\* See ratings for these accessories below.

## Rating Accessories

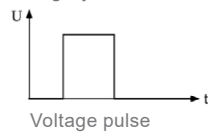
### • PCB Adapter 2.5 HQ / PCB Adapter 2.5 90° HQ (890-700-017 / 890-700-027)

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

- Pollution Degree: 2
- No Measurement Category: 250V DC or AC peak

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

$$U_{\text{pulse}}^{(2)} = 1600\text{V (Step 0V to 1600V)}$$



### • Sprung Hook 2.5 (890-320-007)

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

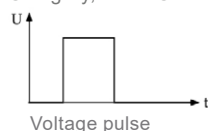
- Pollution Degree: 2
- Measurement Category II: 300V CAT II

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

- Pollution Degree: 2
- No Measurement Category: 400V / 1650V peak

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

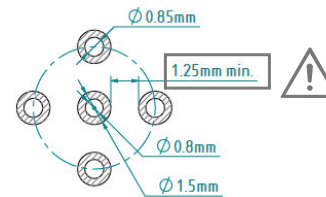
$$U_{\text{pulse}}^{(2)} = 1650\text{V (Step 0V to 1650V)}$$



### Drilling / soldering template



The minimum distance between all solder pads of 1.25 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 in PML manual on page 21.
- (2) No overshoot permitted

## Scope of Delivery

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

Items	Qty	Items	Qty
Adjustment tool T <sup>(1)</sup>	1	Instruction manual	1
Coding rings (set) 3x4 colors	1	Insulating cap 2.5	1
2 footer positioner	1	PCB adapter kit 2.5	1
Ground-blade 2.5	1	Protection cap 2.5 <sup>(2)</sup>	1
Ground lead 15 cm	1	Probe PML	1
Ground spring 2.5	1	Self adhesive cu pad (2 x 2 cm)	2
IC-cap 2.5 / 0.5mm pitch; green	1	Solid tip CuBe 0.5mm	1
IC-cap 2.5 / 0.65mm pitch; blue	1	Spring tip gold plated 0.5 mm <sup>(3)</sup>	1
IC-cap 2.5 / 0.8mm pitch; grey	1	Sprung hook 2.5 <sup>(1)</sup>	1
IC-cap 2.5 / 1.0mm pitch; brown	1	Sprung hook short <sup>(4)</sup>	1
IC-cap 2.5 / 1.27mm pitch; black	1	-	-

(1) Not included in PML 701, 751 and 791 models.

(2) Plugged on probe.

(3) Installed in probe.

(4) Only included in PML 701, 751 and 791 models.



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.

## Accessory Kits for PML Series

Items	Order No.	Description
Accessory Kit "Standard"	899-170-A00	1x Adjustment tool PVC / metal
		1x Sprung Hook 2.5, black
		1x Solid Tip 0.5mm
		1x Spring Tip 0.5mm
		1x Ground Lead 15cm
		1x Insulating Caps 2.5, black
		1x BNC Adapter 2.5
Accessory Kit "Basic"	899-170-A01	1x Sprung Hook 2.5, black
		1x Solid Tip 0.5mm
		1x Spring Tip 0.5mm
		1x Ground Lead 15cm
Accessory Kit "Advanced"	899-170-A02	1x Adjustment tool PVC/metal
		1x Sprung Hook 2.5, black
		1x Solid Tip 0.5mm
		1x Spring Tip 0.5mm
		1x Ground Lead 15cm
		1x Insulating Caps 2.5, black
		1x BNC Adapter 2.5
		1x PCB Adapter Kit 2.5
		1x Set Coding Rings, 3x4 Colors
		1x Ground Spring 2.5
		1x IC Cap 2.5 for 0.5mm pitch, green
		1x IC Cap 2.5 for 0.65mm pitch, blue
		1x IC Cap 2.5 for 0.8mm pitch, gray
		1x IC Cap 2.5 for 1.0mm pitch, brown
1x IC Cap 2.5 for 1.27mm pitch, black		