

# PRODUCT SPECIFICATION

 <p style="font-size: small;">APEM ITALIA</p>	<b>Issue</b> 06/2009  <b>Rev.</b> 00	<h2 style="margin: 0;">Technical Characteristics</h2> <h3 style="margin: 0;">“serie 82” Keyboards</h3>	<b>Page</b> 1 of 2
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## Construction:

Front Panel (OPTIONAL)	Stainless Steel AISI 304 2 mm (Punched and brushed / grain 120) <small>(AISI 316 L available upon request). Optional as keypads can be delivered without front pabnel</small>
Keys	ABS / PA6 Nylon (backlight versions) à U.L.V0.
Key tops	Stainless steel AISI 316L 0,5 mm (Chem. Etch. and brushed / grain 240)
Support	CEM1 (Gold contact) Printed Circuit Board 1,6 mm U.L.V0. FR4 (backlight versions) Printed Circuit Board 2 mm U.L.V0.
Key Holder/Spacer	ABS / Polycarbonate 3 mm à U.L.V0.
Sealing	Silicon sheet 0,5 mm on PCB + Silicon sheet 0,5 mm on front face.
Contacts	St. St. Snap Domes 12 mm. (12 mm with hole for 1 LED backlight vers. 8.5 mm for 2/4 LEDs backlight versions)
Connecting	Standard codes with 10 Ways Ribbon male straight header.

## Mechanical and Electrical Characteristic:

Actuator type	Stainless Steel Snap Domes AISI 304 Diam. 8,5/12 mm.
Contact force	4 N ± 0,5 N (3,5 N ± 0,5 N for Backlight versions)
Stroke	0,5 mm
Contact resistance	< 10 ohm (Gold plated PCB)
Contact Bounce	< 0,5 mS (On), < 6 mS (Off)
Peak current	50 mA (Gold plated PCB)
Insulation resistance	> 1Gohm (@ 500 V)
Power Max.	1,2 W at 24 Vcc
Contact LIFE	> 1 x 10 <sup>6</sup>
Backlighting (Option)	1or 2 or 4 LEDs with limit resistor (5Vcc or 12Vcc - 24Vdc on request)

## Environmental conditions:

Operating temperature	- 20 ÷ + 70 °C
Storage temperature	- 40 ÷ + 85 °C (-30 °C for Back light versions)
Relative humidity	5 ÷ 95 % RH (With no condensation)
Frontal protection (trackball version)	IP 65 (not moving the trackball) IP 54 (moving the trackball)

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## OTHER PHYSICAL AND MECHANICAL PROPERTIES

§	<b>PROTECTION AGAINST SOLID BODIES:</b> Level 6 according with NF C20-010 IEC529 & DIN40050
§	<b>PROTECTION AGAINST LIQUIDS:</b> Level 5 according with NF C 20-010 IEC529 & DIN40050 (on front side without trackball).
§	<b>MECHANICAL PROTECTION:</b> Level IK 7 (according with NF C 20-010 IEC529 & DIN40050 (frontal impact force = 2,00 joules).
§	<b>WASHABILITY:</b> Resistant to most common-use detergents and several solvents.
§	<b>ABRADABILITY:</b> Very good, because characters on the keys are realized using painting (Epoxy Bi-Component Resin) deposited in a 250 µm Chemical Etching.
§	<b>DUST RESISTANCE:</b> On front side up to fine dust (talc).
§	<b>FLAME RESISTANCE:</b> 30 sec. with lighters, matches, cigarettes (vertical pos. with direct flame on the keys).
§	<b>SALT FOG RESISTANCE:</b> 96H AT +35°C NaCl 5% (on front side after assembling).

### PROTECTION IS NOT GUARANTEED AGAINST:

§	SPECIAL ACIDS OR SOLVENTS.
§	RESINS, PAINTS OR SURFACE HARDENING TREATMENTS.

00	06/2009	1st issue	Piero Mollo	
<b>Rev.</b>	<b>Date</b>	<b>Changes</b>	<b>Issued and checked DT</b>	<b>Approval AQ</b>

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