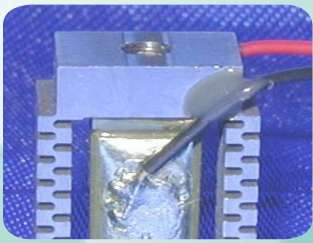


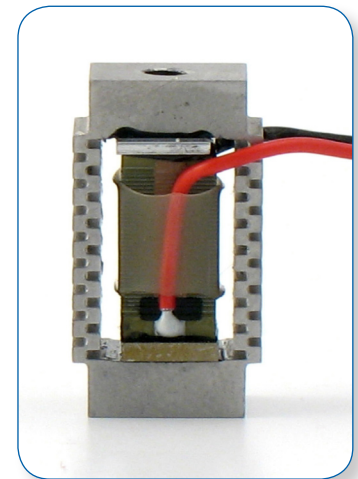
# Parallel Pre-stressed Actuator PPA10M



## Description

The Parallel Pre-stressed Actuator PPA10M is designed according to space rules and especially to avoid stick – slip behaviour. A high level of pre-stress allows for robustness. A typical application is laser cavity tuning in LIDAR and other opto-electronic functions.

References	Unit	PPA10M
Notes		space product
Displacement	( $\mu\text{m}$ )	8
Blocked force	(N)	800
Stiffness	(N/ $\mu\text{m}$ )	100
Resonance frequency (free-free)	(Hz)	65000
Response time (free-free)	(ms)	0,01
Resonance frequency (blocked-free)	(Hz)	32500
Response time (blocked-free)	(ms)	0,02
Voltage range	(V)	-20 ... 150
Capacitance	( $\mu\text{F}$ )	0,7
Resolution	(nm)	0,1
Thermo-mechanical behaviour	( $\mu\text{m}/^\circ\text{K}$ )	-0,03
Height (in actuation direction)	(mm)	18,0
Base depth	(mm)	10,0
Base width (incl. wedge & wires)	(mm)	9,0
Mass	(g)	6,0
Standard mechanical interface - Top		1 centered M2.5 threaded hole 2.5 mm deep
Standard mechanical interface - Base		1 centered M2.5 threaded hole 2.5 mm deep
Standard electrical interface		2 PTFE insulated AWG30 wires 100 mm long with $\varnothing$ 1 banana plug



PPA10M - Pre-stressed actuator.

## Space evaluation program

The PPA10M-space has followed a space qualification program according to ECSS standards (European Space Agency standards).

The PPA10M actuator is currently being qualified in the frame of the PHARAO instrument. Lifetime: 2e8 cycles full stroke.

Radiations	ESCC n° 22900
Outgassing	PSS 01-702
ESD	ESCC n° 23800
Micro-section examination	ESCC n° 23400

## Space heritage

A specific PPA actuator will flow on ROSETTA in 2004. The PPA10M is scheduled for flight on the ISS/ACES/PHARAO instrument in

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