

MINI P-FSM35XS

In the last 30 years, the Humanity has seen the democratization of computers and internet, and the birth of connected objects. At the same time, the Society has been more and more digitalized. We are now living in a world where the access to data has become vital at all levels: economy, national security, civil protection, agriculture, health or education.

Nations now need to make sure they can have access to a worldwide, fast, secure, affordable, reliable and sovereign connectivity. In this context, satellite constellations are being developed by many countries and is the symbol of the new space industry.

While existing satellite constellations are still using RF communications, optical space communication will be the new trend in the coming years, because they offer a higher bandwidth, more data protection, and they do not need licenses.

Fast Steering Mirrors (FSM) are a key component used in optical communication terminals. They are used for 3 main functions:

- Point ahead mechanism,
- Target finding,
- Target stabilization.

CTEC has more than **25 years of space heritage** and has developed and qualified FSM mechanisms for air and space applications, including new space.

Recently, CTEC has delivered a mini FSM for a 3U CubeSat, for an undisclosed constellation that will have several hundreds of satellites. This mini FSM offers a **stroke of 6 mrad and a resonant frequency of 1700 Hz, with a mass of 50 gr.**

This FSM mechanism is a good candidate for all projects involving nano satellites or cube satellites, and is a high end alternative to MEMS, which reliability and resistance to space conditions are still being questioned.

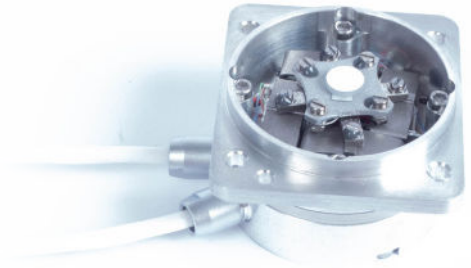


Fig. 1: View of the Mini P-FSM35XS

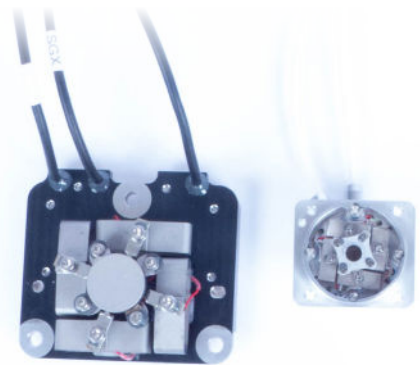


Fig. 2: P-FSM150S vs. Mini P-FSM35XS

PARAMETER	VALUE	UNIT
Angular displacement	±6	mrad
Resonant frequency with 1x5mm mirror (Blocked Free)	1700	Hz
Angular resolution	2.2	μrad
Operating temperature	-55 to 80	°C
Height without mirror	20	mm
Typical mass	50	g

Table 1: Mini P-FSM35XS Specifications