



DEVELOPED FOR: Almatech SA, FHNW, ESA  
STIX-DEM



**STIX – DETECTOR ELECTRONICS MODULE «STIX-DEM»**

Design, development, production and qualification of the Detector Electronics Module «DEM» used in the Spectrometer Telescope for Imaging of X-rays - a Swiss experiment on board Solar Orbiter.

# Solar Orbiter

## Mission

Solar Orbiter will explore the inner regions of the sun and the heliosphere from a near-sun orbit. Travelling to within 45 million km of the Sun (approximately  $\frac{1}{4}$  of the distance between the Earth and the Sun), closer than any other spacecraft to date, Solar Orbiter will allow a portion of the surface to be observed for extended periods of time.

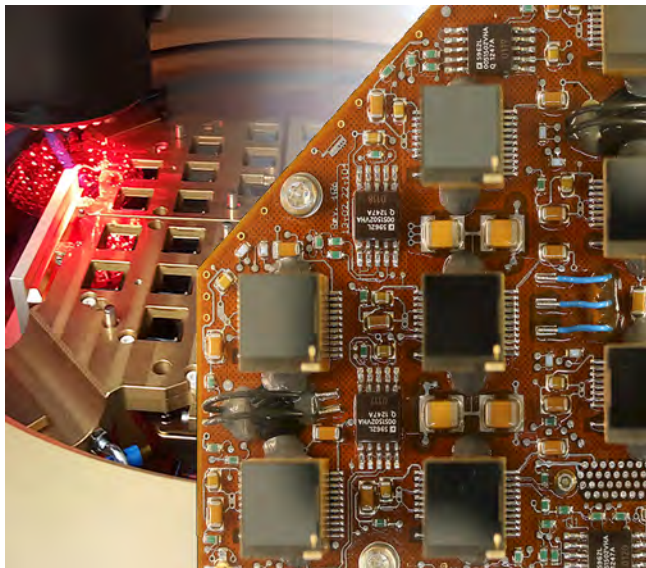
Solar Orbiter will provide close-up views of the sun's high latitude regions to study the fundamental physical processes common to solar, astrophysical and laboratory plasmas. With a novel orbital design and its state-of-the-art instruments, Solar Orbiter will provide exactly the observations required during its 7-year mission.

## Spectrometer Telescope for Imaging X-rays

Designed and built at the University of Applied Sciences and Arts Northwestern Switzerland (FHNW), the Spectrometer Telescope for Imaging X-rays «STIX» will determine the intensity, spectrum, timing and location of accelerated electrons near the sun.



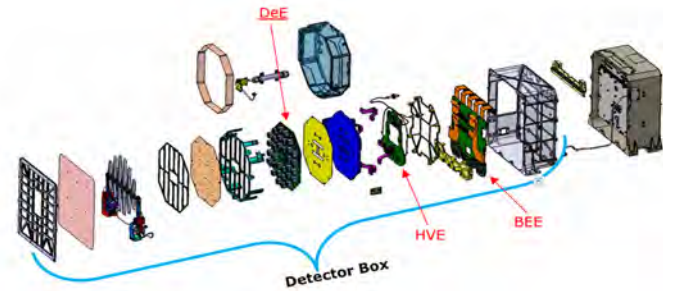
«STIX» will simultaneously make images and spectra of the solar flares where the solar wind originates in the inner heliosphere. Working with other instruments, the X-ray measurements made by «STIX» will help to provide direct tracing, field line length and connectivity of the Sun's magnetic structure. Together with RPW (Radio and Plasma Waves detector) and EPD (Energetic Particle Detector), «STIX» will be able to magnetically link the heliospheric region observed at the spacecraft with the regions on the Sun where the electrons are accelerated.



Optical Alignment of the STIX Detector Electronics (DeE, Q1)

## Our contribution

Design and development of the Detector Electronics Module «DEM» including supervision of production and definition, preparation and supervision of qualification testing.



### Detector Electronics (DeE)

- 2W total thermal power (at  $-10^{\circ}\text{C}$ )

### High Voltage Electronics (HVE)

- Noise filter and distribution network

### Back-End Electronics (BEE)

- Attenuator driver and AD/DA converter

### System design support

- Interface to Instrument Data Processing Unit (IDPU)
- Interface to Power Supply Unit (PSU)

### Support instrument integration and testing

- Power Supply Unit (PSU)
- Instrument Data Processing Unit (IDPU)
- Supervise functional testing during production
- Supervise functional testing during integration
- Supervise EMC testing
- Supervise qualification and acceptance testing

### Electronic Ground Support Equipment (EGSE)

- Production & test of electronics and test adaptors

### Power Supply Unit (PSU)

- Support and review of flight design layout

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