GIESEPP

Highest efficiency in every mission

The GIESEPP (Gridded Ion Engine Standardised Electric Propulsion Platform) project has been set up to develop, build and test to TRL5 the first European Plug and Play Gridded Ion Engine System to operate ArianeGroup and QinetiQ Space Ion Engines for LEO, GEO and Space Exploration Missions.

Glossary:
EPR - *Electronic Pressure Regulator*
EPS - *Electric Propulsion System*
FCU - *Flow Control Unit*
GEO - *Geostationary Orbit*
ISP - *Specific Impulse*
LEO - *Low Earth Orbit*
MEO - *Medium Earth Orbit*
NTR - *Neutralizer*
PPU - *Power Processing Unit*
RFG - *Radio Frequency Generator*

Gridded Ion Engine Standardised Electric Propulsion Platforms

for LEO, GEO and beyond...

University of Southampton
MARS SPACE LTD
SPACE AND PLASMA TECHNOLOGIES
AST Advanced Space Technologies GmbH
Crisa
GIESEPP
QINETIQ
AIRBUS
OHB
arianeGROUP

GIESEPP Project Coordination
c/o ArianeGroup GmbH
Im Langen Grund
74239 Lampoldshausen
Germany

www.giesepp.com
mail@giesepp.com

The GIESEPP project is supported by the European Union's Horizon 2020 research and innovation programme.

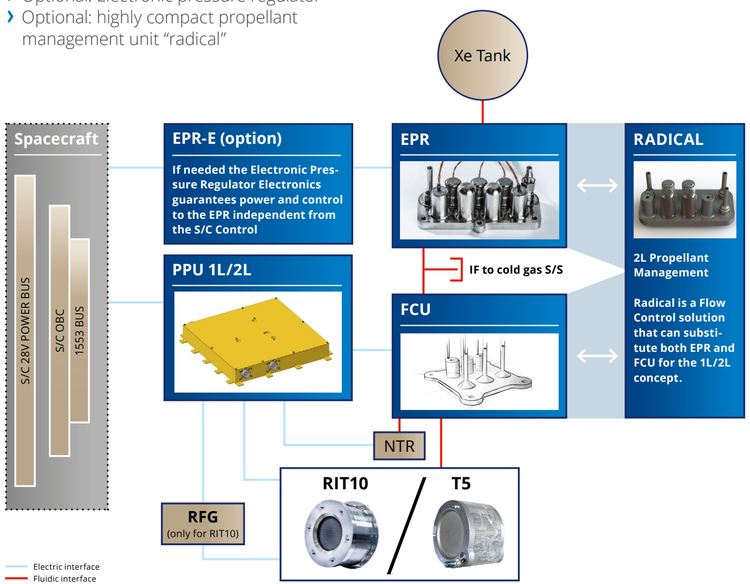
GIESEPP
GRIDDED ION ENGINE STANDARDISED ELECTRIC PROPULSION PLATFORMS

PROGRAMM OVERVIEW

1L/2L
Low power solution

The 1L/2L configuration is a 500 W-class electric propulsion subsystem which has been developed to address LEO constellations requirements primarily. It also performs station-keeping in higher orbits and can be implemented for in-orbit servicing demands. 1L/2L is a compact, innovative and cost-effective subsystem designed for higher production rates.

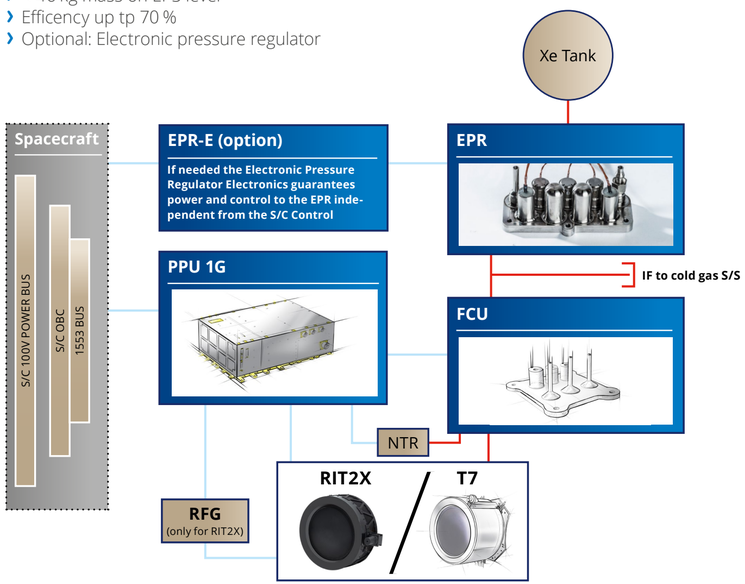
- Power input range 200 – 800 W
- 2 predefined operating points
  - w / high power: 22,5 mN, 3000 s @ 700 W
  - w / low power: 9,6 mN, 2500 s @ 300 W
- Lead time < 1 year
- < 15 kg mass on EPS level
- Efficency up tp 70 %
- Optional: Electronic pressure regulator
- Optional: highly compact propellant management unit “radical”



1G
Medium power solution

The 1G configuration is a 5 kW-class electric propulsion subsystem, primarily developed to address GEO Telecommunication and navigation requirements. 1G offers two operational navigation modes, orbit raising and station-keeping. For the 1G configuration factors such as industrialization, simplification of the design, modularity and in-orbit reconfiguration were taken into account during development.

- Power input range 3 – 6 kW
- 2 predefined operating points
  - High Thrust for Orbit Raising: 228 mN, ISP 2500 s @ 5,5 kW
  - High ISP for Station Keeping: 95 mN, ISP 3500 s @ 3 kW
- Maximum Thrust up to 249 mN (temporary)
- Lead time < 1 year
- < 46 kg mass on EPS level
- Efficency up tp 70 %
- Optional: Electronic pressure regulator



1S
High power solution

The 1S configuration is a subsystem based on 1G elements to address high power and long durations like deep space exploration missions.

Variable operating scenarios characterize the 1S clustered electric propulsion subsystem. High reliability for exploration missions is ensured through full chain full chain instead of single component redundancy.

- Up to 22 kW Input power
- Up to 912 mN thrust
- Up to 3500s ISP
- Total Impulse > 30 MNs
- Multi-stage Actioning
- Thrust vectoring capable