

Abstract

FIELD: astronautics. SUBSTANCE: invention relates to electric rocket engines for use on small spacecrafts (SS) for their completion from the reference to the target orbit, correction and maintenance of the orbit, orientation, unloading of orientation systems, maneuvers between orbits, withdrawal of SS from target orbit at the end of its active life. Module with a plasma propulsion system for small spacecraft comprises: the elements of the rigid structure of the module, at least three gas-discharge chambers, at least three antennas, at least three rings of dielectric material, the storage and supply system of a propellant, at least six radial gas inlets, a module of RF generators, at least three RF generator communication lines with antennas, at least six magnetic systems, onboard power conversion module, power supply system of magnetic systems, control module, electromagnetic shielding system. EFFECT: technical result is elimination of parasitic discharges generation, reduction of losses at power input to plasma on antenna-plasma electromagnetic communication line, eliminating the effect of electromagnetic radiation on structural elements of the propulsion system and small spacecraft structure elements, leading to small spacecraft rotation in space, reduction of engine weight and volume for march operations, correction and maintenance of SS orbit, its orientation, maneuvers between orbits, withdrawal of SS at the end of its active life, increased specific thrust and specific impulse of the engine per unit of power.

Fig. 1