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EXPLORATION AND PRACTICE OF MASS PRODUCTION MODE FOR COMMERCIAL SATELLITES

Abstract

Low-cost mass production of satellites is the core issue faced by commercial space companies. The world's commercial space companies, represented by SpaceX, Oneweb, etc., are conducting relevant technical research and low-cost production practices. GalaxySpace, a leading commercial micro-satellites developer headquartered in China, is actively exploring technical solutions for low-cost mass production of satellites. In order to form the commercial space service mode with Chinese characteristics, as well as meet the need of low-cost mass production for satellite internet engineering, GalaxySpace carries out innovative design, exploration and practice in production mode, production line technology, quality control, supply chain, etc.

GalaxySpace has initially established a low-cost mass production triangle model of "satellite design–mass production–supply chain". A solution for low-cost mass production of satellites was formulated by strengthening the self-research of core single machine and improving the integration and generalization of system functions. Further, GalaxySpace constructed a flexible intelligent satellite production line, where human-machine collaborative assembly robots are adopted, intelligent logistics, lean production and big data control technology are involved. In addition, by integrating the mature industrial production system on the ground and building an experimental test system for the constellation system, GalaxySpace intends to build a low-cost and efficient commercial space supply chain based on the national industrial system.

GalaxySpace is ready to launch 6 low-orbit communication satellites in March, 2022, in order to build a testing network of satellite internet, codenamed "Mini-spider Constellation," which will be able to provide uninterrupted low-orbit satellite broadband communication services for more than 30 minutes at a time. These deployed satellites can be used for subsequent exploration of new satellite payloads, constellation networking technologies and communication systems.