

自动化

输电线路除冰机器人的S形曲线加减速算法设计

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摘要:

为提高输电线路除冰机器人的工作效率, 达到节能的目的, 提出了一种将S形曲线应用于机器人运动轨迹规划的方法。该方法充分利用了S形曲线的诸多优点, 并对传统的复杂S形曲线算法进行了改进, 采用4段加减速后退、2段加速前进的轨迹规划算法, 同时还给出了相应的数学描述, 最后通过仿真验证了该算法的实用性。

关键词: S形曲线 除冰机器人 轨迹规划 加减速算法

Design of S-Shape Curve Acceleration and Deceleration Algorithm of De-Icing Robot for Transmission Line

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Abstract:

To improve the working efficiency of de-icing robot for transmission line and save energy, a method to apply the S-shape curve in the motion trajectory planning of de-icing robot is proposed. In the proposed method, the advantages of S-shape curve are fully utilized and traditional complex S-shape curve algorithm is improved, and corresponding mathematical description of the algorithm, in which four backward acceleration and deceleration stages and two forward acceleration stages are adopted, is given. Simulation results show that the proposed algorithm is available for the de-icing work of transmission line.

Keywords: S-shape curve de-icing robot motion trajectory planning acceleration and deceleration algorithm

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