

非满管电磁流量计液位测量方法研究

作者: 卫开夏^{1,2}, 李斌¹, 陈坚祯¹

单位: (1 上海大学机电学院自动化系 上海 100072; 2 徐州师范大学计算机系 徐州 221116)

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摘要:

在研究非满管电磁流量计液位测量所要解决的技术问题基础上, 提出了一种长弧形电极液位测量方法。该方法是在测量管壁上设置一对长弧形电极作为流速和信号的测量电极, 在管壁底部设置一对激励电极。通过在激励电极上施加电压幅值恒定的交流信号, 在测量电极上得到反映液位高度变化的电压信号。理论分析和实验结果表明传感器对液位测量具有较高的灵敏度且不受被测导电液体电导率变动的影响, 适用于对污水排放等场合的非满管流的测量。

关键词: 流量测量; 非满管液位测量; 弧形测量电极

The research of the EMF-PF fluid level measuring technique

Author's Name: Wei kaixia^{1,2}, Li bin¹, Chen jianzheng¹

Institution: (1. Dept. of Automation, Shanghai University, Shanghai, 200072, China) (2. Xuzhou Normal University, 221116, China)

Abstract:

A new sensor of electromagnetic flowmeter in the partially filled pipes (EMF-PF) is presented. A pair of arc electrodes on the sensor pipe wall is set as the measurement electrodes. The measurement electrodes alternate duties, sensing both the flow velocity and fill height signals. On the sensor pipe bottom, one pair of the electrodes is set as the signal injection electrodes that inject the AC signal used to determine liquid level. The theoretical analysis and experiment results indicate that the conductivity of the liquid in the partially filled pipes has no influence on the fluid level measurement in some intervals. This sensor is suitable to use in the sewage flow measurement particularly.

Keywords: flow measurement; the EMF-PF fluid level measurement; arc electrodes

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