

A combined tipping bucket/siphon precision raingauge

DAXING SHU

State Key Laboratory of Hydrology, Water Resources and Hydraulic Engineering, Hohai University, No.1 Xikang Road, Nanjing 210098, China
njstdx9208@126.com

Abstract Of all the errors of rain sensors, the maximum one is from rainfall intensity. The advantages of a combined siphon rainfall recorder and a tipping-bucket rainfall recorder are analysed in this paper. An operating principle and control process for a precision automatic raingauge station are proposed, and a solid storage function and many kinds of remote transmission methods are designed based on modern control theory. The precision automatic raingauge station features accurate measurement, super-low power dissipation, stability and reliability. For any rainfall intensity, the synthetic relative error of observation of rainfall may be within 1%. It is suitable to spread and apply this technique at automatic meteorological and hydrological stations.

Key words automatic raingauging station; error; memory; flood-reporting
