More attention has been brought to the importance of the diffuse pollution rule in the sort of urban rivers. These systems are usually exposed to different pollutants and the mechanisms of transport are definitely more dynamic especially because of the complex characteristics of land use and drainage system in a watershed. Better understanding of this subject is dependent on proper assessment of the mass balance of the pollutants within the catchment and the hydrological nature of the problem. This requires a distinct monitoring approach. In such a context, a dedicated low cost automatic water sampler is proposed. The equipment is capable of executing specific functions as follow, not observed in traditional samplers: Automatically turn itself in when the stream level rises beyond a limit previously established by the operator; Continuously read the level of the stream; Collect samples when the rising waters achieve pre-determined levels; Collect samples when the receding waters achieve pre-determined levels; Lock itself with the samples collected if a determined water level is achieved; Discharge all samples collected when the water level recedes if the minimum significant level was not achieved during the entire event. Turn off automatically when the water level receded to below the turning on level. This paper presents the concept developed and the early results for case study in the Barigui river, at the Metropolitan Area of Curitiba – Brazil and in a rainwater sediment tank in Rastatt, at the Karlsruhe Institute of Technology, Germany.