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The aim of the paper is to demonstrate how to use sampled method of control of a shunt active power filter to maintain invariable power of a supplying voltage source, even though the supplied load varies randomly. The definition by S. Fryze of load current components is used as a basis for the construction of a family of shunt active power filters. The distinctive property of these filters is maintaining non-deformed source current in every one individually considered period T.

The main features of the family of filters are described in the first part of the paper, which is devoted to DC circuit. In the second part, the results are implemented to a single- and a three-phase circuit. Additionally, some new features, which may be applied only for AC circuit, are discussed in the second part. All the presented waveforms are obtained using computer simulation tools.

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