The monitory plays a major role for the safety of industrial system because of the number of variables and the complexity of their relationships. Therefore, the dynamics of the process is not always precise or accurate. In our approach we focus on monitoring without a model, the monitoring involves two inseparable phase as faults detection and isolation. We propose to apply for phase detection wavelet transform and statistical analysis technique. For the isolation we used neural networks like self organizing maps. To detect the presence of fault on the system, we applied a wavelet transform in order to extract the approximation and details coefficients. From these coefficients, we compute the area of eligibility for each standard deviation (confidence limit). After the occurrence of fault, the values of the standard deviation should not be in these intervals. This decision rule gives a good results. For isolation, we propose to apply the reconstructed approximation coefficients at the maximum input cards kohonen. The fault isolation is performed after a period to calculate the Euclidean distance between a given input and weight of the map, and this input is classified as a member of the class represented by the neuron selected. The results we confirm the ability of the combination of the wavelet transform with the statistic analysis technique for the fault detection and neural network for isolation in nonlinear systems