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| **Abstract:** |  |
| Interconnected power system is a promising source of electric power that fulfils the excess demand of electricity throughout the world whose safe and reliable operation is necessary for decreasing loadshedding and increasing resiliency. The development of information and communication technology (ICT) not only blessing for us but also hampers our technology by promoting cyber-crime. Cyber-attack (CA) on power system is now becoming a common problem that produces unauthorized access to the control unit of power system and hampers the whole system partially or completely by changing the sensitive data of power system and control unit. The performance of the power system is regulated by employing a fractional-order-proportional-integral-derivative (FPID) controller and is compared with conventional PID controller in this paper. The reliable performance of the power system completely depends on the efficient design of controller, but the parameters of the controller are largely affected by the CA and damage the whole system. Any change of the control unit or the system parameters may decrease the resiliency and the stability of the power system. An automatic cyber-attack mitigation technique (ACAMU) has been proposed in this article to completely mitigate the CA and its impact on the system and controller to enhance the security and resiliency of power system by maintaining a fixed data for both system and controller. | |