TwinCAT Controller Redundancy: Software-based solution protects uptime through redundant control

TwinCAT Controller Redundancy protects plant uptime through redundant control operation using standard components.

While the robust design of the company's Industrial PCs alone already ensures a high level of availability, Beckhoff is now expanding its product portfolio to check yet another box with TwinCAT Controller Redundancy (TF1100). This entirely software-based solution allows two standard industrial PCs that both run the same PLC program to operate as redundant controllers in just a few easy steps.

An additional, high-performance network connection between the two controllers provides the necessary synchronization. Standard Ethernet is used here, so no dedicated hardware components are required. With minimal effort, this ensures that only one of the two industrial PCs addresses the fieldbus components at any given time, and that the control programs are executed simultaneously on both computers. This synchronicity is the basic prerequisite for changing the primary industrial PC in the event of a fault without losing any information.

In addition to controller redundancy, the well-established EtherCAT Redundancy (TF6220) software protects against failures caused by faulty cable connections. The I/O modules are connected by two separate cables, which should ideally be laid in different locations. While EtherCAT Redundancy addresses communication from the controller to the fieldbus, the TwinCAT Parallel Redundancy Protocol (PRP, TF6230) now also provides cable redundancy for Ethernet communication according to IEC 62439-3 to higher-level systems such as MES or decoupled HMI systems. The protocol defines a redundant and transparent network connection, which can be monitored and diagnosed in TwinCAT.

More information:
www.beckhoff.com/redundancy