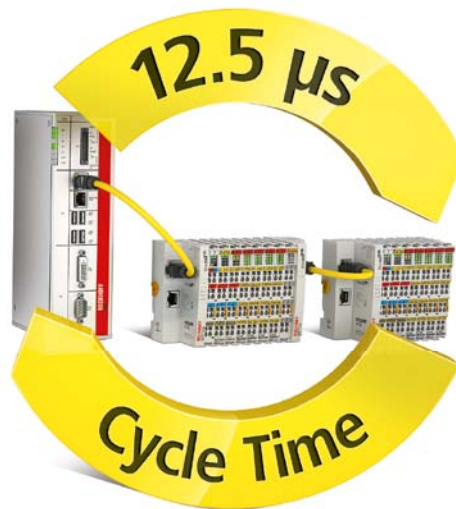


12.5 μ s



Ether**CAT**®

The EtherCAT PLC with a cycle time of just 12.5 μ s. Implemented entirely with standard components: a Beckhoff Industrial PC, TwinCAT 3 control software, ultra-fast I/O components and EtherCAT.

XFC: EtherCAT PLC with 12.5 μ s cycle time

Ultra-fast performance using standard components

12.5 μ s cycle time, continuously maintained from the PLC to the I/O signals: This is eXtreme Fast Control – XFC. With the presentation at Hannover Messe 2012, Beckhoff underlined its technological leadership in fast control technology. The components for this record-breaking system are: a high-performance CPU – a Beckhoff Industrial PC with control software to match – TwinCAT 3; ultra-fast I/O components – with 1 μ s latency; and naturally the fast Industrial Ethernet system – EtherCAT.



Performance data:

- cycle time: 12.5 μ s (80 kHz)
- I/O response time: 40 μ s max.
- number of EtherCAT slaves: 15
- PLC floating point instructions: 1000/4 μ s

Display on the scope:

- toggling output at 12.5 μ s/80 kHz
- variable input as trigger
- PLC response times < 40 μ s



“When we first presented EtherCAT in 2003, the performance of this new fieldbus technology was still miles ahead of the controller capability of the time. With TwinCAT 3 and the current IPC CPUs the gap is closing, although it’s still not possible to foresee when we will be able to make the maximum EtherCAT data throughput fully usable for machine controllers”, says Dr. Dirk Janssen, Manager Software Development System, CNC and I/O at Beckhoff and one of the inventors of EtherCAT. “With the 12.5 μ s presentation we are showing what the Beckhoff system is capable of together with our EtherCAT Terminals.” Dirk Janssen says that the bus cycle time, while exciting, is actually in itself not decisive: “A fast fieldbus only becomes a fast control system with a capable controller and ultra-fast I/O components. And only with EtherCAT can the highest performance of the fieldbus

be implemented continuously through to the I/O signals: All technologies that rely on bus couplers with a separate, local I/O bus suffer here from system-related disadvantages.”

The presentation at Hannover Messe was composed exclusively of standard components. In typical EtherCAT style, the controller does without special fieldbus hardware and implements the master in software. The EtherCAT Terminals are from the Beckhoff product portfolio and the fieldbus itself is standard EtherCAT, exactly as it has been known and standardized for years.

With XFC, control loops are closed much faster and the delay times after transitions are drastically shortened. As a result, Beckhoff provides an innovative system to its customers that makes machines and plants significantly more efficient.

Further Information:

www.beckhoff.com/XFC-PLC