

CHRISTIAN KÜHNHAUSER

Dipl.-Ing. (FH) · Electrical Engineering and Information
Technologie | Automation Expert

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PROFILE

Freelance automation engineer and Beckhoff system integrator with extensive experience in the design, software development and commissioning of demanding industrial automation and test systems. Core areas include TwinCAT 2/3, object-oriented PLC architecture, TwinSAFE, motion control, EtherCAT and HMI, technical consulting and developer training. Project experience spans special-purpose machinery, intralogistics, automotive, e-mobility, aerospace, research and DC technology.

CORE COMPETENCIES

- PLC / software architecture: IEC 61131-3, TwinCAT 2/3, CODESYS, object-oriented programming, frameworks and libraries
- Safety: TwinSAFE, distributed safety architectures, safety concepts and integration
- Motion control: NC PTP, NCI, CNC, servo, linear, stepper, BLDC, VFD and DC drives; XTS
- Communications: EtherCAT, FSoE, ADS, PROFINET, OPC UA, IO-Link, CAN, Modbus TCP/RTU, MQTT, TCP/IP
- Integration: HMI, robotics (Fanuc, ABB, cobots), vision/TcVision, 3D picking, databases and measurement systems
- Engineering: hardware and system concepts, diagnostics, worldwide commissioning, consulting and training

PROFESSIONAL EXPERIENCE

Since 2014

Freelance automation engineer | Beckhoff system integrator | CK-TEC Engineering Office

DACH region & worldwide

Design, development and commissioning of TwinCAT systems across multiple industries.

- PLC, HMI and safety programming; software architecture and framework development
- Motion control, EtherCAT diagnostics, robotics and vision integration, and system connectivity
- Technical consulting, tailored training and commissioning worldwide

SELECTED PROJECTS

AIT Austrian Institute of Technology (AUT) — DC pilot factory: DC grid with four-quadrant sources/sinks, droop control, PV tracker, EV charging station and grid-forming inverter; measurement and safety integration.

InnoLas Semiconductor (GER) — Assessment of the existing software landscape and design of a future-proof architecture to reduce engineering effort; workshops and developer training.

+GF+ Georg Fischer / Berger Maschinenbau (AUT) — Automated leakage testing and CNC loading with conveyor systems, XTS camera inspection, 3D vision and picking with Fanuc robots.

BBS Automation (GER) — Modular high-performance automation for plastics machinery, including material handling, camera inspection, sorting and packaging; XTS and TwinSAFE.

Brückner Group (GER) — Vision systems and predictive sensing for film lines, including live images and FFT vibration analysis.

KraussMaffei Automation (GER) — OOP Beckhoff XTS integration for an eight-station inspection cell with robot hand-offs, DMC laser/scanner and five camera systems.

Schaltbau (GER) — Manufacturing automation for DC switching components with robotics integration and software developer training.

cts / Kluger Prokutech / Fraunhofer (GER) — Industry-specific TwinCAT 3 training and tailored workshops.

Passavia (GER) — Retrofit and diagnostics for TwinCAT 2 paper machines.

Mubea Carbo Tech (AUT) — Retrofit and HMI upgrades for carbon-fibre laying machines using NCI/G-code, barcode scanning and weighing systems.

EARLIER CAREER

07/2012–07/2014	Lead Competence Center System Engineering SHZ Softwarehaus Zuleger GmbH · Ottobrunn / Manching Key account management, business development and functional/operational leadership of a team of approximately 25.
01/2006–02/2014	Project Management / TwinCAT 2 – Avionik-Testsysteme SHZ Softwarehaus Zuleger GmbH (im Auftrag von Airbus/EADS) · Ottobrunn Led specification, development, integration and commissioning of test systems for aircraft components; OPC-controlled aircraft-environment simulation using EtherCAT and IPC.
01/2010–11/2012	Development Engineer Electric Mobility Emobile Concept · Munich Designed electric drives and battery packs, control and communications software, and safety concepts for high-voltage systems.
03/2003–12/2005	Development Engineer SC Engineering GmbH (im Auftrag von EADS) · Rohrbach Hardware/software integration for aircraft ground test equipment; flight-control and actuator simulation for avionics test systems.
03/2002–02/2003	Development Engineer IDEA GmbH (im Auftrag von EADS) · Kolbermoor Automated ground test equipment, graphical user interfaces, built-in tests and fault isolation using LabWindows/CVI and C.
1995–1999	Labor-Elektroniker, Entwicklung BSH · Traunreut Development lab work on cooktops and ovens, including circuit development and wiring.

EDUCATION & PROFESSIONAL DEVELOPMENT

- Dipl.-Ing. (FH), Electrical and Information Engineering, focus on automation – University of Applied Sciences Rosenheim, 1997–2002. Diploma thesis at EADS Deutschland GmbH, written in English (grade 1.0).
- Industrial electronics technician, production engineering – BSH, 1991–1995; technical university entrance qualification, 1995–1996.
- Ongoing Beckhoff workshops (2018–2026): HMI, AI tools, XTS, TwinSAFE, PROFINET and system design; TwinCAT 3 (2014), NC (2016), TwinCAT 2 (2007).

TECHNICAL SKILLS

TwinCAT 2/3, IEC 61131-3, CODESYS, WAGO I/O, Siemens S5/S7; Python, C, C++, C#, Java, HTML; TwinCAT HMI/PLC HMI, LabWindows/CVI, InTouch; Git, SVN; Windows, Linux, VxWorks; PSpice and circuit design tools.

LANGUAGES & COMMUNITY

German: native · English: professional proficiency · Italian: basic knowledge

Volunteer work: Microsoft 365 administration (OneDrive, SharePoint, Exchange) for Sportverein Kirchanschöring; event technology for a local cultural association.

For more details about the projects see www.ck-tec.info