

Wiki of the Master Craftsmen's Schools at Munich East Station (0)

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0.1 **myst: enable_extensions: ["colon_fence"] html_meta: "description lang=en": "Central documentation hub for Meisterschulen am Ostbahnhof München" "description lang=de": "Zentrale Dokumentationsplattform der Meisterschulen am Ostbahnhof München" "keywords": "Sphinx, MyST, Dokumentation, Meisterschulen" "property=og:locale": "de"**

1. Wiki 0: Main Wiki of the Master Schools



Meisterschulen am Ostbahnhof

1.1 Master Schools at Munich East Station

1.1.1 This is in the curriculum (Framework Curriculum 2025)

Central Curriculum Hub: All technical and professional requirements of the new Master Craftsman Examination Ordinance 2025 (LandBauMechMstrV of 09.09.2024, in force from 01.08.2025) as well as the Wiki assignment matrix.

-  [This is in the curriculum – overall system & technology mapping](#)
-  [Complete curriculum 2025 & time distribution \(380 teaching units + 810 teaching units\)](#)
-  [Wiki mapping matrix \(Where can I find which topic?\)](#)
-  [Examination structure & requirements \(Part I & Part II\)](#)

Discover the official documentation of the master schools at Munich East Station.

This page is your central hub (“super search”). A search here in the main wiki automatically searches all wikis listed below simultaneously. Find tutorials, technical information, and learning materials quickly and efficiently.

Useful Links & Main Portal:

-  [Main Portal Master Schools Munich](#)
-  [Page overview of the main portal \(140 portal pages\)](#)
-  [This is in the curriculum \(Curriculum 2025\)](#)
-  [Super search \(all wikis\)](#)
-  [Media Library \(Videos & Podcasts\)](#)
-  [Download PDF manual](#)

1.2 Our Wikis and Projects

Here you will find direct access to the specialized documentation areas:

Wiki	Section / Topic	Link
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Wiki 0	Main Wiki of the Master Schools General information, Curriculum 2025 & resources.	 Open
Wiki 1	C Programming in ISOBUS Fundamentals of C programming and setting up the environment.	 Open
Wiki 2	ISOBUS Virtual Terminal Detailed documentation on user interfaces and objects.	 Open
Wiki 3	ISOBUS Technology & Machine Systems Hydraulics, Pneumatics, Motors, High-Voltage Technology, Gearboxes & Machine Safety.	 Open
Wiki 4	Visual Programming Languages Introduction and manual to low-code development environments (4diac).	 Open
Wiki 4.1	4diac Library Reference Function block & adapter reference for the 4diac libraries.	 Open
Wiki 4.2	4diac Exercises: Training Solutions Exercises and sample solutions for training with 4diac.	 Open
Wiki 5	Electronics Tools Handbook for soldering techniques, measuring instruments and workshop equipment.	 Open

1.2.1 PDF Downloads for All Wikis

Wiki	PDF (DE)	PDF (EN)
Wiki 0 – Main Wiki	 DE	 EN
Wiki 1 – C Programming in ISOBUS	 DE	 EN
Wiki 2 – ISOBUS Virtual Terminal	 DE	 EN
Wiki 3 – ISOBUS Technology & Machine Systems	 DE	 EN
Wiki 4 – Visual Programming Languages	 DE	 EN
Wiki 4.1 – 4diac Library Reference	 DE	 EN
Wiki 4.2 – 4diac Exercises	 DE	 EN
Wiki 5 – Electronic Tools	 DE	 EN

 [Main Menu](#) |  [Super Search \(All Wikis\)](#) | [Quick Search \(IEC 61499\)](#)

1.2.2 Related topic subpages on ms-muc-docs.de

-  [Eclipse 4diac IDE & Color Reference on ms-muc-docs.de](#)

2. This is what the curriculum says: Framework curriculum 2025 (Technology & Overall Systematics)

 **Source & Legal Basis:** **Source:** *Framework curriculum for preparing for the master craftsman's examination in the agricultural and construction machinery mechatronics trade* **Publisher:** German Association of Agricultural Machinery Manufacturers (LandBauTechnik-Bundesverband e. V.), Alfredstraße 102, 45131 Essen (Status: 25.02.2025) **Regulation:** *Master Craftsman Examination Regulation (LandBauMechMstrV)* of 09.09.2024 (Federal Law Gazette 2024 I No. 277, in force from 01.08.2025)

Legal basis: Master Examination Regulations in the Agricultural and Construction Machinery Mechatronics Trade (LandBauMechMstrV of 09.09.2024, Federal Law Gazette 2024 I No. 277, in force from 01.08.2025)

2.1 Overarching training objectives & number of hours

The 2025 curriculum framework comprises **1,190 teaching hours (UE/UStd.)**, divided into:

- **Part I – Practical Training (380 units):** Master Craftsman Examination Project & Situational Task
- **Part II – Specialized Theory (810 hours):** Specialized theoretical modules (of which 640 hours are pure technology & organization, 170 hours are business administration/management)

2.2 Content Pages & Systematic Assignment

2.2.1 1. Overall curriculum 2025 & timetable distribution

- Detailed breakdown of all learning units for Part I (practical skills) and Part II (theoretical skills).
- Overview of the required professional skills: *knowledge, skills, abilities and attitude*.

2.2.2 2. Wiki mapping matrix (Where can I find which topic?)

- Assignment of all technology topics required in the curriculum to our 6 documentation wikis (Wiki 0 to Wiki 5).
- Quick orientation for lecturers, trainers and master students.

2.2.3 3. Examination structure & requirements (Part I & Part II)

- Master craftsman's examination project, technical discussion and situational task in Part I.
 - Examination requirements and fields of action in Part II.
-

2.2.4 Related topic subpages on ms-muc-docs.de

-  Eclipse 4diac IDE & Color Reference on ms-muc-docs.de

2.3 Main portal & direct links to the 6 wikis

Wiki	Topic / Description	Link
Wiki 0	Wiki of the Master Schools General information, Curriculum 2025 & Main Wiki.	 Open
Wiki 1	C Programming in ISOBUS Fundamentals of C programming and the ISOBUS environment.	 Open
Wiki 2	ISOBUS Virtual Terminal User interfaces, ISO Designer & VT objects.	 Open
Wiki 3	ISOBUS Technology & Machine Systems Hydraulics, Pneumatics, Motors, High-Voltage Technology, Gearboxes & Machine Safety.	 Open
Wiki 4	Visual Programming Languages Low-code development, IEC 61499 & 4diac IDE (main curriculum topic).	 Open
Wiki 4.1	4diac Library Reference Function block & adapter reference for the 4diac libraries.	 Open
Wiki 4.2	4diac Exercises: Training Solutions Exercises and sample solutions for training with 4diac.	 Open
Wiki 5	Electronic Tools & Measuring Instruments Handbook for crimping technology, soldering stations, oscilloscopes & microscopes.	 Open

2.3.1 PDF Downloads for All Wikis

Wiki	PDF (DE)	PDF (EN)
Wiki 0 – Main Wiki	 DE	 EN
Wiki 1 – C Programming in ISOBUS	 DE	 EN
Wiki 2 – ISOBUS Virtual Terminal	 DE	 EN
Wiki 3 – ISOBUS Technology & Machine Systems	 DE	 EN
Wiki 4 – Visual Programming Languages	 DE	 EN
Wiki 4.1 – 4diac Library Reference	 DE	 EN
Wiki 4.2 – 4diac Exercises	 DE	 EN
Wiki 5 – Electronic Tools	 DE	 EN

2.4 Matrix overview: Which curriculum topic is in which wiki?

Subject area / Topic	Affected learning units	Wiki assignment	Direct link
C Programming & ISOBUS Setup	Part I LE 1.4 / Part II LE 1.1	Wiki 1 (C Programming)	 Open Wiki 1
ISOBUS Virtual Terminal (VT) & Masks	Part I LE 1.4 / Part II LE 1.1	Wiki 2 (ISOBUS VT)	 Open Wiki 2
Hydraulics, Motors, High Voltage & Machine Safety	Part I LE 2.3, 2.4, 2.5 / Part II LE 1.1, 1.3	Wiki 3 (ISOBUS Technology & Machine Systems)	 Open Wiki 3

IEC 61499, Low Code & 4diac	Part I LE 1.4, 2.6 / Part II LE 1.1	Wiki 4 (Visual Programming Languages)	 Wiki 4 Open
Soldering Techniques, Crimping & Workshop Equipment	Part I LE 1.3, 2.2 / Part II LE 1.2	Wiki 5 (Electronics Tools)	 Open Wiki 5
Overall Curriculum Systematics & Examination Regulations	Comprehensive	Wiki 0 (Main Wiki)	 Open Wiki 0

 **Central Portal of the Master Schools Munich:** Visit the main platform: www.ms-muc-docs.de |  [Interactive Curriculum Framework 2025](#) |  [Wiki Overview](#) |  [PDF Downloads](#)

3. Media Library

Here you will find an overview of all videos and podcasts from the master craftsman schools at Munich East Station.

3.1 Podcasts

3.1.1 Eclipse 4diac (DE)

- [4diac IDE: Your “Hello World” of Automation – The Blinking Tutorial Local](#)
- [4diac IDE: Your Open-Source Toolkit for Distributed Industrial Automation according to IEC 61499](#)
- [4diac IDE: How the IEC 61499 Standard is Revolutionizing Industrial Automation](#)
- [4diac Presentation: Target Groups, Structure, and Unique Selling Proposition Sharpening](#)
- [Taming the Software Dragon: Industrial Automation and the Future of Production](#)
- [Eclipse 4diac 3.0: ST Interpreter, FBE, and 7200 Commits – The Turbo for Distributed Automation](#)
- [Eclipse 4diac FORTE: Understanding IEC 61499 – The LEGO® Building Kit for Your Industry 4.0 Control](#)
- [Eclipse 4diac: Your Bicycle for Industry 4.0 – Mastering Software Complexity and Controlling Distributed Systems](#)
- [Eclipse 4diac: Innovation Engine Research vs. User Needs – What Really Drives Development?](#)
- [Eclipse 4diac: Open Source as a Game Changer for Industrial Controls?](#)
- [Eclipse 4diac: Open-Source Automation for Industry and Research According to IEC 61499](#)
- [Eclipse 4diac: How Open Source Research and Practice Connect in Industrial Automation](#)
- [IEC 61499: The Future of Industrial Automation and Distributed Systems](#)
- [Industry 4.0: The Magic of Self-Configuring Systems with fortiss, IEC 61499, and Eclipse 4diac](#)
- [Step 2 - Distributing 4diac Applications](#)
- [Taming Software Dragons: Why IEC 61499 Could Revolutionize Industry](#)
- [From PLC to Distributed Intelligence: Understanding IEC 61499 for Industry 4.0](#)

3.1.2 Eclipse 4diac (EN)

- [Eclipse 4diac and FORTE: Unlocking Next-Gen Industrial Automation with Open-Source Power](#)
- [Eclipse 4diac: Revolutionizing Industrial Control with Open-Source Cyber-Physical Systems](#)
- [Eclipse 4diac: Unpacking Open-Source Industrial Automation and the Power of Application-Centric Design](#)
- [From Pyramid to Plug-and-Play: The Rise of Self-Configurable Industrial Automation](#)
- [IEC 61499 Power Up: Feature Freeze Reveals the Eclipse 4diac 3.0 Revolution for Industrial Automation](#)
- [Simplifying Industrial Control: Your Deep Dive into Eclipse 4diac and IEC 61499](#)
- [The Future of Industrial Control: Decoding IEC 61499](#)

3.1.3 IEC 61499 Basic Course (DE)

- [Automation 4.0: Why Software Is Overtaking Hardware and What That Means for Your Skills](#)
- [Building Tomorrow’s Factories: Bridging OT and IT with IEC 61499](#)
- [The Secret of the 2-Bit Quadrant: Efficiency in the CAN Bus for Commercial Vehicles](#)
- [Data Communication in Automation: The Secrets of IEC 61499 Data Types](#)
- [Data Types of IEC 61499](#)
- [Decoding IEC 61499: The Industrial Revolution, Reshaping Factories and Careers](#)
- [\[The E_CTU in IEC 61499: Event-driven counting and why the minimalist approach is convincing in mechanical engineering](#)
- [The E_CTU block: Event-driven incrementing in industry according to IEC 61499](#)
- [The E_PERMIT block: The “gatekeeper” for events in IEC 61499 systems decoded](#)
- [The E_T_FF in IEC 61499: Modular tilting for Industry 4.0](#)
- [The E_T_FF_SR block: The heart of IEC 61499 – storing, switching, reacting](#)

- The three timers of DIN EN 61131-3 decoded – TP, TON & TOF Explained Precisely
 - DIN EN 61131-3 vs. 61499-1: Your Guide Through the Standards of Industrial Automation
 - DIN EN 61131-3: The Heart of Agricultural and Construction Machinery Mechatronics and the Leap into the Future with Object Orientation
 - DIN EN 61499-1 Demystified: Function Blocks, Object Orientation, and Distributed Systems
 - DIN EN 61499-1 Decoded: The Blueprint for Modular, Distributed Control Systems
 - [DIN EN 61499-1: Building Blocks for Industry 4.0 – How Function Blocks Revolutionize Automation] Automation](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/DIN-EN-61499-1-Bauklte-fr-die-Industrie-4-0-So-revolutionieren-Funktionsbausteine-die-Automatisierung-e3681j7>)
 - DIN EN 61499-1: The digital Lego set for flexible automation and a smart future
 - DIN EN 61499-1: The Lego bricks for flexible and event-driven industrial controls
 - DIN EN 61499-1: Function blocks and the paradigm shift in industrial software development
 - DIN EN 61499-1: Revolution in control technology – Understanding modular, event-driven systems
 - DIN EN 61499: Mastering modular and event-based industrial controls with function blocks – The ESR switch in focus
 - E_CTD: Event-driven down counter according to IEC 61499
 - E_CTUD: Bidirectional counter in IEC 61499 systems
 - E_DELAY in IEC 61499: Precise, cancelable time delay in control systems
 - E_REND: Event synchronization in IEC 61499
 - E_SWITCH: The switch of automation – Why simplicity is revolutionizing IEC 61499
 - E_TOF vs. FB_TOF: The event timer that doesn't tick cyclically – A revolution for automation systems?
-]* [E_TON in Industrial Automation: How a Simple Timer Creates Safety and Stability]
- Event-Based Automation in IEC 61499
 - Event Handling: The ABCs of Automation and How Systems “Think”
 - Event-Driven Timers: When Which One Makes Sense on a Fan – ETON, ETOF, ETP & More Explained
 - Events and IEC 61499: The Starting Signal for Intelligent Systems
 - ERP Systems: The Digital Brain – Opportunities, Risks, and the Path to Intelligent Production
 - [ETFA 2025: Plug and Produce – How IEC 61499 is Shaping Factory Automation] revolutionized](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/ETFA-2025-Plug-and-Produce-Wie-IEC-61499-die-Fabrikautomation-revolutioniert-e376pnk>)
 - EventFBs according to IEC 61499: Lego blocks of automation – How event function blocks work
 - FB_TOF and E_TOF: Delay timers in IEC 61131-3 and 61499
 - Field devices: Eyes, ears, and hands of industrial automation – Why this invisible technology is so crucial
 - Function blocks and instances: Understanding the modular principle for modern agricultural and construction machinery
 - Future Automation Unlocked: Powering “Plug & Produce” and Protecting Your Privacy
 - [IEC 61499 vs. 61131: Do we need a new standard for IIoT? Analysis of a heated debate about distributed intelligence
 - IEC 61499 vs. 61131: Necessary evolution or superfluous complication for the IIoT?
 - IEC 61499-1: The functional building block – Lego principle for modern control systems in agricultural and construction machinery
 - [IEC 61499: Does the new standard liberate industrial automation?] A comparison with 61131 and the bridge between OT & IT.](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/IEC-61499-Befreit-der-neue-Standard-die-Industrieautomation-Ein-Vergleich-mit-61131-und-die-Brcke-zwischen-OT-IT-e368446>)
 - IEC 61499: The E_SR block decoded – Simplicity meets event-driven control
 - IEC 61499: Factory automation in transition – From vision to industrial reality
 - IEC 61499: Revolution of automation – Event-driven systems and intelligent data flows decoded
 - IEC 61499: Revolution of automation – Event-driven FBs and distributed systems explained

- IEC 61499: Revolution of industrial automation – Why the new standard makes your systems fit for the future
- [IEC 61499: Revolution of Distributed Automation – Origins, Concepts, and Future Perspectives
- IEC 61499: How Modern Automation Wins – Strategies for Greater Reach and Business Impact
- IEC 61499: Leap into Industry – ETFA 2025 and the Future of Automation
- IEC 61499: The DNA of Flexible Automation – Powering Industry 4.0 from Factories to the High Seas
- Industrial Revolution Reloaded: Unpacking Plug & Produce, Data Privacy, and ETFA 2025
- [Understanding Industrial Automation: PLC, SCADA, MES, and ERP Decoded – A Journey Through Smart Automation] Factory](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/Industrielle-Automation-verstehen-SPS-PLS-SCADA-MES-und-ERP-entschluselt-Eine-Reise-durch-die-Smart-Factory-e3671qn>)
- Industrial Automation: The Invisible Forces Behind Your Everyday Life – From Suitcases to the Perfect Apple
- Industrial Automation: The Vyatkin Pyramid Decoded – From Sensor to ERP, and Why Connections Are Everything
- Industrial Networks: The Nervous System of the Modern Factory – OT, IT & the Future of Automation
- Master Knowledge 61499: The Event-Driven Up Counter (E_CTU) – Robust Counting in Agricultural Machinery Controls
- MES: The Nervous System of the Modern Factory – Real-Time Manufacturing in Focus
- Module 00 - Motivations and Origins
- Module 01 - Software for Industrial Automation - a Development
- Module 01b - Software for Industrial Automation - A Development](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/Modul-01b-Software-fr-die-industrielle-Automatisierung-eine-Entwicklung-e3671d4>)
- Module 02 - The Ecosystem of Industrial Automation](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/Modul-02-Das-kosystem-der-industriellen-Automatisierung-e3670uo>)
- Module 03 - The IEC 61499 Standard](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/Modul-03-Die-Norm-IEC-61499-e3672gh>)
- PLC vs. SCADA: The Nerve Centers of Industry – Security, Efficiency, and Challenges](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/PLS-vs-SCADA-Die-Nervenzentren-der-Industrie-Sicherheit-Effizienz-und-Herausforderungen-e375g37>)
- QUARTER](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/QUARTER-e36741d>)
- R_TRIG & F_TRIG: One-Time Actions in the Cyclic PLC World of IEC 61131-3](https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/R_TRIG-F_TRIG-Einmalige-Aktionen-in-der-zyklischen-SPS-Welt-der-IEC-61131-3-e370ke8)
- R_TRIG & F_TRIG: How PLC Controllers Reliably Detect Signal Edges – Without Double Treatment](https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/R_TRIG-F_TRIG-So-erkennen-SPS-Steuerungen-Signalfanken-zuverlssig-ohne-Doppelbehandlung-e370kqh)
- Revolution of the Factory: How Software is Changing Industrial Automation and Our Everyday Lives
- Revolutions of Industry: From Steam Engine to AI – A Deep Look into 250 Years of Automation
- SINT, INT, DINT: Why Choosing the Right Data Type Determines Efficiency and Errors
- PLC: The Invisible Brain of Industry – From Robust Hardware to IT/OT Convergence
- Universal Automation: How to Decouple Software and Hardware for the Future of Industry
- Universe of Data Types as Defined in IEC 61131-3 and IEC 61499
- Unlocking Universal Automation: The IEC 61499 Revolution from Factory Floors to the Seas
- From Steam to IoT: The Evolution of Industrial Automation and PLCs

- From Clicking Relays to Intelligent Code: How Software Revolutionized Industrial Control
- From Watts to Industry 4.0: How Software Became the Heart of the Factory
-

3.1.4 IEC 61499 Prime Course (EN)

- Anatomy of a Smart Machine
- Decoding E_PERMIT: The Unsung Hero of Industrial Automation's Safety and Reliability
- Decoding Industrial Control: Function Blocks, Object-Oriented Principles, and the Power of IEC 61499
- Decoding the E_SR Function Block: The Unsung Hero of Industrial Automation
- E_REND: Event Synchronization in IEC 61499
- E_SWITCH: The Unsung Hero of Industrial Automation's Modular Design
- Function Blocks The Future of Automation
- IEC 61499 vs. 61131: Unpacking the Architectural Revolution of Distributed Control and Industry 4.0
- The Unstoppable Counter: Why IEC 61499's ECTU Guarantees Safe, Event-Driven Control (and Never Overflows)
- Unpacking E_T_FF_SR: The Secret Toggle Switch of Industrial Control Systems

3.1.5 ISOBUS VT Objects

- ["Store Version" – Your key to managing object data pools in non-volatile VT memory (ISO 11783-6)
- [The Alarm Mask object: Your standardized sentry for warnings on agricultural machinery
- [The Working Set object: Understanding the brain of the ISOBUS user interface – From standard to practice in ISO Designer
- [ISO 11783-6: Understanding softkeys and the Virtual Terminal – Your key to agricultural machinery mechatronics
- [ISO Designer demystified: Object-oriented thinking for intelligent user interfaces
- ISOBUS Button: More than just a click – Standardizing the Agricultural Technology
- ISOBUS Object Pointer: The Secret of Dynamic Displays and Efficient Fault Diagnosis](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/ISOBUS-Object-Pointer-Das-Geheimnis-dynamischer-Displays-und-effizienter-Fehlerdiagnose-e36bp75>)
- ISOBUS Output Meter: Mastering Dynamic Displays – From Pointer to Visualization on the VT](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/ISOBUS-Output-Meter-Dynamische-Anzeigen-meistern-vom-Zeiger-bis-zur-Visualisierung-auf-dem-VT-e36t2tp>)
- ISOBUS Scaling: When the Tractor Screen Doesn't Fit – An Introduction to ISO 11783-6](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/ISOBUS-Skalierung-Wenn-der-Ackerschlepper-Bildschirm-nicht-passt-Eine-Einfhrung-in-ISO-11783-6-e36a8q6>)
- ISOBUS Bar Graph: The Output Linear Bar Graph Object of ISO 11783-6 Decoded](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/ISOBUS-Balkendiagramm-Das-Output-Linear-Bar-Graph-Objekt-der-ISO-11783-6-entschlsselt-e36l0v2>)
- ISOBUS User Interfaces: When Buttons and Main Display Scale Differently – ISO 11783-6 Decoded](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/ISOBUS-Bedienoberflchen-Wenn-Tasten-und-Hauptanzeige-unterschiedlich-skalierten-ISO-11783-6-entschlsselt-e36a8n8>)
- ISOBUS Containers: Dynamic Control Panels for Clear Visibility and greater efficiency](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/ISOBUS-Container-Dynamische-Bedienfelder-fr-klare-Sicht-und-mehr-Effizienz-e36alr9>)
- ISOBUS masks in the VT: The heart of agricultural and construction machinery interfaces (ISO 11783-6)](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/ISOBUS-Masken-im-VT-Das-Herzstck-der-Land-und-Baumaschinen-Interfaces-ISO-11783-6-e36a8m7>)
- ISOBUS interfaces: Background color vs. fill attributes – How to optimize your UI and performance](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/ISOBUS-Oberflchen-Hintergrundfarbe-vs-Fill-Attribut-So-optimieren-Sie-Ihre-UI-und-Performance-e36oo3f>)
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- Unpacking ISO Designer: Crafting intuitive industrial UIs for complex machines](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/Unpacking-ISO-Designer-Crafting-Intuitive-Industrial-UIs-for-Complex-Machines-e3673ph>)
- Understanding VT versions: Your path to becoming a master of agricultural and construction machinery Construction machinery mechatronics](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/VT-Versionen-verstehen-Dein-Weg-zum-Meister-der-Land-und-Baumaschinenmechatronik-e36a8e8>)

3.1.6 logiBUS

- [Code Renovation with AX Adapters: How Eclipse 4diac™ Conquers Complexity Through Signal Bundling
- [Content Assist Revealed: The Ingenious Productivity Booster for Your VDC Environment and How It Automatically Corrects Errors
- [Digital Memories: The SR Flip-Flop in the logiBUS® System Explained
- [Digital Technology Decoded: The Secret of the Three-Button SR-T Flip-Flop
- [ESP32 as an Industrial PLC: Revolutionizing Industrial Automation with Eclipse 4diac and logiBUS®
- ESP32 as PLC: Democratizing Industrial Automation with Eclipse 4diac
- ESP32 becomes an industrial PLC for agricultural machinery
- From “Mass Errors” to Masterpiece: Streamlining Industrial Software by Eliminating Mapping
- From Cable Chaos to Custom Control: How Logibus is Revolutionizing Agricultural Tech with Accessible ISOBUS
- Retrofitting ISOBUS: Cable clutter is a thing of the past – The modular solution for your agricultural technology
- Logibus Revolution: Unpacking the “No Mapping” Future and Streamlined Development
- Logibus Unleashed: How Eliminating “Mapping” Simplifies Complex Systems and Boosts Usability
- LogiBUS to 4diac 3.0: The Complete Migration Guide – Tips, Pitfalls, and Switching to Index 1
- logiBUS’s No-Mapping Revolution: Untangling Industrial Control and User Experience
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- LogiBUS® & IEC 61499: Data and Event Flows Explained Simply – From Switch to Intelligent Control
- logiBUS® Decoded: How Open Source & Standards Are Revolutionizing Agricultural Technology
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- Goodbye mapping layer: Leaner logiBUS® projects gestalten
- Understanding Switch Logic: How a Toggle Flip-Flop Works with logiBUS® – Simple Control in Agricultural Technology
- From 1400 Errors to Clean Code: Migrating the “Grain Hoe” to Eclipse 4diac™ 3.0 and the Power of AX Adapters

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- 0 and 1: Why the binary system remains the foundation of our digital world despite the quantum leap
- 3000 Watt Lie: The TVS Diode Decoded
- 400 Million Tons of Digitizing Agricultural Logistics
- 61499 Automation: The True Story of the Minds
- 800 HP High-Tech Giant: What the ROPA Tiger 6S Operating Manual Reveals About Modern Agriculture and Extreme Safety
- Ada Lovelace: The Poet of Science – Visionary, Programmer, and the Fight for the Digital Legacy
- Adolf Weber’s Sharp Analysis: Why Technology Alone Is Not Enough – Lessons from Three Industrial Phases
- Agricultural Revolution 1883: How Max Eyth Modernized England’s Agriculture

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- As Pioneers of Progress: How Machine Trials by the Royal Agricultural Society Revolutionized Agriculture and Still Teach Us Today
- Old Bavarian for Beginners: From Gratler Colds to City Dwellers – A Sound Journey Through Lesson 3
- Old Bavarian for Beginners: How Crude Jokes Are the Heart and Soul of the Dialect teaching
- Amazon Pizza Rule to IKEA Effect: 12 Amazingly Simple Ideas Behind Huge Business Success
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- Concrete Mixing on the Construction Site: Safe and Efficient with the HÄNER Concrete Mixing Bucket – Your Guide for Everyday Practice
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- Biogas: More Than Green Energy – Explosion Hazard and Precision in Biomass Feeding
- Bipolar vs. FET: Why Your Smartphone Doesn't Glow and How Transistors Shape Our Electronics forms
- Down-to-earthness, the Autobahn, and the color red
- Bronze giant and culture clash: The spectacular creation of the Bavaria statue, the explosive material between
- Brun's plants: *Carpinus betulus* 'Monumentalis'
- Bulldog legend: How the simple LANZ tractor revolutionized agriculture and became a Duden entry
- Bulldog, Boom and Business: Heinrich Lanz – Rise from Trading House to Agricultural Machinery Empire (The Underestimated Role of the Family)
- Bunker Filler: Vertical vs. Inclined Screw Conveyor
- CAN Bus Diagnostics: Beyond the Data – The Truth About Errors in Agricultural Technology
- Charles Babbage: The Visionary Who Imagined the Information Age with Gears
- Cyrus McCormick and the Reaper: How a Machine Fed the World and Triggered Revolutions
- Danfoss and Eaton Hydraulics: Twin Story Comes to an End
- [The Brain and Its Helpers: How CPU, GPU and Special chips power our digital world with zeros and ones
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- The tracked monster awakens: Lanz Bulldog Caterpillar – The fascinating revival of the 10-liter hot-bulb workhorse after 25 years of inactivity
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- The PUI triangle: The clever mnemonic for electrical power – Simply rearrange the formulas!
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- The IBBC: How Plugs, Cables, and ISO 11783 Connect High-Tech Agricultural Machinery
- The Intelligent Circuit Breaker: How the Infineon BTS7030 Replaces Relays and Fuses in Cars

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- The underestimated hero: Why the oil reservoir revolutionizes your hydraulic system
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- [FNIRSI® DWS-200 Soldering Station: Precision & Performance
- Fritz Huber and the Lanz Bulldog: How the Hot-Bulb Engine Revolutionized Agriculture
- From "Get Away with Electronics" to Essential: How Agricultural Tech Earned Trust and Delivered Real Relief
- From Workshop Grease to Wireless Updates: How One Man Bridged Mechanics and Digital AgTech for MF
- G50 Wood Chip Stress Test: What Cracks the Heating System
- George Boole: How a Self-Taught Man Laid the Foundation of Our Digital World with 0s and 1s
- Germany's Green Energy Crossroads: Navigating the End of Renewable Subsidies with Innovative Solutions](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Germanys-Green-Energy-Crossroads-Navigating-the-End-of-Renewable-Subsidies-with-Innovative-Solutions-e371l1tc>)
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- [Hochreiter: The true origin of AI
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- ISOBUS revolutionizes agriculture Universal Terminal Task Controller
- ISOBUS moped and GitHub: More than code – The digital workshop of software development
- ISOBUS: The secret language of agricultural machinery – From plug and play to high-speed networking
- James Watt and the Industrial Revolution: How an invention turned the world upside down
- JBC soldering tips C470 vs. C245 vs. C210 vs. C115: Which tip is the all-rounder and when do you need the nano specialist?
- JBC Soldering Tip Technology Revealed: Five Times Longer Lifespan and 2-Second Turbo Heat – What the Guide Reveals About Efficiency and Maintenance
- JBC's Soldering Secret: 350 Degrees in 2 Seconds and Why the Tip Determines Efficiency and Lifespan
- John Deere's Steel Plow: Myth or Masterpiece? A detailed investigation!
- AI agents revolutionize embedded development in 10 stages
- Capacitors and inductors in circuits
- Capacitors: Structure, properties, and applications
- Assembly tractors: How small manufacturers are using purchased engines and transmissions to boost German agriculture
- Powerhouses in action: The secret of hydraulic cylinders – From excavators to high-tech machines
- Circular economy: Agriculture without animals is impossible
- Agriculture and Forestry 4.0: The foundation of safety – Analysis of DIN EN ISO 25119-1 and der
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- PCBs: Manufacturing, Etching and Assembly
- Supply Chain vs. Psyche: The Two Faces of Resilience – What Connects People and Organizations
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 - Masters Learning to Learn: Self-Directed Through the German Curriculum for Agricultural and Construction Machinery Mechatronics Technicians
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 - Moore’s Law and Nanometer Miracles: The Unstoppable Journey of the CPU from the C64 to the Smart Car
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 - Laws of Nature vs. Norms: Your Compass for the Construction Machinery Championship
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- [Pinecil Power Supply: Safe, Efficient, Durable – The Ultimate Guide
 - [PINECIL: The Intelligent RISC-V Soldering Iron
 - [Circuit Board Defective, Device Scrap?] Replacing Components Yourself – Save Money and Avoid Electronic Waste
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 - RASE: How 19th-Century England Revolutionized Agriculture Through “Practice with Science”
 - RASE: How England’s Agricultural Revolution Conquered the World Through Practice, Science, and Steam Engines (after Max Eyth)
 - Series Connection of Resistors: Fundamentals and Behavior
 - Rudolf Diesel: Brilliant Work, Mysterious End – Who Disappeared on the Ferry in 1913?
 - Switching vs. Linear Controllers: Efficiency, EMC & the Compromise of Power Electronics](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Schalt-vs-Linearregler-Effizienz-EMV-der-Kompromiss-der-Leistungselektronik-e36t4uj>)
 - Switches, Stuttering, Stability: The Phenomenon of Contact Bouncing and its Debouncing in Mechanics and Electronics](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Schalter-Stottern-Stabilitt-Das-Phnomen-Kontaktprellen-und-seine-Entprellung-in-der-Mechanik-und-Elektronik-e36ab4u>)

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- Smart Power: How decentralized control reduces energy costs in industrial plants and stabilizes the grid](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Smart-Power-Wie-dezentrale-Steuerung-die-Energiekosten-in-Industrieanlagen-senkt-und-das-Netz-stabilisiert-e372aq3>)
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- Voltage Dividers: Unloaded](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Spannungsteiler-Unbelastet-e368hmf>)
- Mastering PLC Programming: Your Roadmap to the In-Demand Industry 4.0 Skills](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/SPS-Programmierung-meistern-Dein-Fahrplan-zur-gefragten-Industrie-4-0-Fhigkeit-e3718ok>)
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- Strip-Till in Maize Cultivation: How High Precision Saves Water and Protects the Soil – Insights into Agricultural Technology 2024
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- The Unseen Powerhouse: From Ancient Water Pumps to Modern Mechatronics in Oil Hydraulics
- The VBCD DE-A Valve: Unpacking the Silent Guardian of Hydraulic Safety and Precision
- TVS Diodes: Basics, Function, and Applications
- Unlock Simultaneous Connectivity: Your Guide to Dual Wi-Fi for Uninterrupted Local Device Control](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Unlock-Simultaneous-Connectivity-Your-Guide-to-Dual-Wi-Fi-for-Uninterrupted-Local-Device-Control-e3756vt>)
- Unlocking Property Power: Your Custom Blueprint for Energy Self-Sufficiency and Diesel Savings
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- VBCD DE A 
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- From a Bavarian Village to the Autodesk Cloud: The Fascinating Metamorphosis of the Software Legend EAGLE CAD
- From Rubber Boots to GPS: How Hermann Auernhammer Revolutionized Agriculture
- From “Get that away from me!” For real relief: How electronics conquered agriculture](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Vom-Geh-mir-weg-damit-zur-echten-Entlastung-Wie-die-Elektronik-die-Landwirtschaft-eroberte-e374h7t>)
- From steam power to gasoline engines: Bavaria’s agriculture in 1906 on the threshold of modernity

- From village workshop to high-tech pioneer: How Lorenz Riegger invented digital agriculture
- From circuit board to module: A journey into the world of electronics manufacturing
- Resistance to new things: Head or team DNA
- How simple switches “think”: The basics of digital technology – gates, logic and the power of 1s and 0s
- Zenergetic diodes: Function, effects and applications in electronics
- [Two WLANs simultaneously in Windows 10: The ingenious USB stick solution for IoT devices without internet interruption
- Oil Hydraulics Unleashed: How power, efficiency, and clever control drive machines
- Oil Hydraulics: The invisible heroes of cleanliness – Why filters are lifesavers for your systems
- Oil Hydraulics: The invisible heroes of cleanliness – Why filters are lifesavers for your systems
- Oil Hydraulics: How German-speaking countries use oil hydraulics to create a powerful, efficient, and intelligent control system
- 

3.2 YouTube Videos

(Excluding shorts and duplicate podcasts)

- May 6, 2025 Day 6 of logiBUS® training series (D)
- April 15, 2025 Day 1 of logiBUS® training series (D)
- 17 Apr. 2025 Day 2 of logiBUS® Training Series (D)
- 2024 09 05 17 59 50 Bavarian State Library Book Access
- 2025 11 15 12 35 11 Assembly DIN Rail Module logiBUS® – Part 3 – Housing
- 2025 11 15 12 52 26 Assembly DIN Rail Module logiBUS® – Part 4 – Superstructures
- 2025-01-28 17-51-25 logiBUS® Project Update and Setup (unfortunately without sound)
- 2025-01-28 20-01-36 logiBUS® Project Update and Installation (now with sound)
- 2025-01-29 09-27-56 Windows Defender exclusion check in the Eclipse 4diac™ IDE
- 2025-02-02 18-21-50 Exercise_006c Function E_DEMUX8 and ...DI_REPEAT
- 2025-02-02 18-56-54 DI_LONG_PRESS_HOLD (Part 1)
- 2025-02-02 19-11-57 DI_LONG_PRESS_HOLD (Part 2)
- 2025-02-21 13-04-43 Current status logiBUS® Eclipse 4diac™ IDE
- 2025-02-21 15-23-28 logiBUS® with Eclipse 4diac™ new I/O concept for all controllers
- 2025-02-23 11-18-57 Getting started with Autodesk Fusion 360 - Mechanical Design MCAD
- 2025-02-23 11-43-44 Fusion 360 Overview Tutorials
- 2025-02-23 11-47-07 Fusion 360 Electronics Introduction
- 2025-02-23 13-20-15 Fusion 360 Electronics Bill of Materials Export
- 2025-03-11 16-08-47 Generating IEC 61499 Documentation using deepseek
- 2025-03-11 16-53-43 Watch via App, not via Resource
- 2025-03-15 15-57-14 Arithmetic Overflow
- 2025-03-15 16-27-21 Arithmetic overflow leads to division by 0.
- 2025-03-30 16:22-28 Boot file in 4diac and logiBUS®
- 2025-03-30 16:40-13 Softkey control Exercise 10b2
- 2025-03-30 16:47-54 Subapplications Exercise 003a
- 2025-03-30 16:59-57 Linking object ID and object name
- 2025-03-30 17:14-22 Create ISO Designer project and in Integrating 4diac
- 2025-03-30 19:41-34 Checking Python Installation

- 2025-04-06 19:43-11 Slurry Tanker, Subapps, and Groups Explained
- 2025-07-20 21-12-23 Fusion 360 Schematic SPICE Simulation German
- 2025-08-17 14-05-25 Introduction to logiBUS®, a new I/O system without mapping
- 2025-08-17 14-39-09 Converting a logiBUS® project with mapping to one without Mapping.
- 2025-11-02 13:19-52 LogiBUS® on the way to Eclipse 4diac™ 3.0 - Conversion of a project
- 2025-11-04 16:12-16 LogiBUS® on the way to Eclipse 4diac™ 3.0 - Content Assist
- 2025-11-04 18:11-05 LogiBUS® on the way to Eclipse 4diac™ 3.0 - Conversion of a project
- 2025-11-04 20:15-06 LogiBUS® on the way to Eclipse 4diac™ 3.0 - Even More Adapters (AX)
- [2025-11-13 17:50-42] DIN Rail Mounting logiBUS® – Part 1 – Introduction and Soldering](<https://www.youtube.com/watch?v=HWBMBVLMPiw>)
- [2025-11-15 12:19-33] DIN Rail Mounting logiBUS® – Part 2 – Introduction and Soldering](<https://www.youtube.com/watch?v=nohE36SZY9M>)
- [2025-12-14 19:53-53] Installation of Eclipse 4diac™ IDE 3.0.0 and Import of the Training 1 Project](https://www.youtube.com/watch?v=O3S1o_NUyvc)
- [2025-12-14 20:03-27] Uploading Training 1 Exercise 1 to the DIN rail moped.](<https://www.youtube.com/watch?v=6iog7-DZvW0>)
- 2025-12-14 20-13-12 DIN rail moped Merged Bin upload via ESPTOOL js.
- 2026-01-13 12-14-50 logiBUS® Eclipse 4diac™ Subapplications
- 22 Apr 2025 Day 3 of logiBUS® Training Series (D)
- 24 Apr 2025 Day 4 of logiBUS® Training Series (D)
- 27 April 2025 Day 5 of logiBUS® Training Series (D)
- Install 4diac IDE and open project](<https://www.youtube.com/watch?v=Oa2mBXCEXM8>)
- Install 4diac IDE and open project](<https://www.youtube.com/watch?v=OrB3jAxtRXc>)
- Understand 61499? It's that easy! (Quickly Explained)](<https://www.youtube.com/watch?v=6HH62OdMP3o>)
- Achieving Maximum Energy Autarky for Agricultural Properties](<https://www.youtube.com/watch?v=h6v3op1qyYc>)
- Ada Lovelace: The World's First Female Programmer?](<https://www.youtube.com/watch?v=32-qMEKcL3o>)
- Ada Lovelace: The Pioneer](<https://www.youtube.com/watch?v=Jc5ZDYb-9DI>)
- Advancing Industrial Automation IEC 61499 at ETFA](<https://www.youtube.com/watch?v=vqdFhNFL2OI>)
- AI: The Unknown Story](<https://www.youtube.com/watch?v=9hD5RETI72w>)
- Analysis: Power for Pinecil](<https://www.youtube.com/watch?v=xfeqUInuwLQ>)
- Anatomy of Precision](<https://www.youtube.com/watch?v=-T-ha5g2UzE>)
- Anton Schlüter: Rise & Fall](<https://www.youtube.com/watch?v=mMfEyc9OERI>)
- Counting Up: Block E_CTU from IEC 61499 (Exercise 80)](https://www.youtube.com/watch?v=oZOWd_zKFcc)
- Count Up/Down Block E_CTUD from IEC 61499 (Exercise 82)
- Automation of the Future
- BTM9020EP: Motor Maestro
- CAN Bus Episode #1
- Charles Babbage
- Chip Becomes a Powerhouse

- [Circuit Board Repair Hacks](#)
- [Comparison of CAN Transceivers](#)
- [D flip-flop: E_D_FF from IEC 61499 \(Exercise 002c\) as “event brake”](#)
- [D Flip-Flop: E_D_FF from IEC 61499 \(Exercise 85\)](#)
- [The ESP32-S3-DevKitC-1](#)
- [The Brain of the Computer](#)
- [The DIN Rail Moped XL](#)
- [The Life of a Printed Circuit Board](#)
- [Deciphering the Secret Language](#)
- [Decoding the Data Sheet: Why the Fine Print Decides Between Life and Death](#)
- [Decoding the Data Sheet](#)
- [Deere’s Plow: The Steel Story](#)
- [The Thinking Tractor](#)
- [The Catalog of 1863](#)
- [The Man Who Conquered Hunger](#)
- [The Schlüter 1500 Special](#)
- [The Smart Switch](#)
- [The Tractor Visionary](#)
- [The Unstoppable Chip](#)
- [The Future-Proof Master](#)
- [The Digital Toolbox](#)
- [The Harvest Challenge](#)
- [The Trap of New Technology](#)
- [The Society That Invented Modern Agriculture](#)
- [The Great Migration](#)
- [The Art of Soldering](#)
- [The Strip-Till Revolution](#)
- [The Hidden Engineering Crisis](#)
- [The World of Standardization](#)
- [The Twin Story](#)
- [Digital Decisions](#)
- [Digital Electronics Decoded](#)
- [Double Load Holding Valve](#)
- [E_CYCLE from IEC 61499 \(Exercise 84\)](#)
- [EAGLE CAD: A Legend](#)
- [Eclipse & LogiBUS® Shortcut](#)
- [Eclipse 4diac: Brain of the Smart Factory](#)
- [Eclipse 4diac: More Than Code](#)
- [Eclipse 4diac 3.0 \(English\)](#)
- [Eclipse 4diac 3.0 \(German\)](#)
- [A Farmer’s Handbook: 1892](#)

- [A 1958 tractor awakens](#)
- [Event switch E_SWITCH from IEC 61499 \(Exercise 86\)](#)
- [First introduction to Eclipse 4diac™](#)
- [Awakening of the chain monster](#)
- [ESP Web Tools](#)
- [ESP32 in agriculture: Revolution through software!](#)
- [ESP32-S3: Universe in a chip](#)
- [Everything about timers in IEC 61131-3 | TON, TOF & TP explained in an easy-to-understand way! 🕒](#)
- [Fission Chips: The Art Behind “Open Circuits”](#)
- [Fritz Huber & the Lanz Bulldog](#)
- [From 1,400 errors to zero](#)
- [From clicks to chips](#)
- [From Control Box to Custom ISOBUS: A DIY Guide](#)
- [Frustration to Function Agri Tech’s Evolution](#)
- [Functional Safety: How Machine Safety Works!](#)
- [George Boole: The Code of Our World](#)
- [Germany’s Green Energy Cliff](#)
- [Device Manager 2022 10 18 17 38 10](#)
- [Controlled Propagation of an Event E_PERMIT from IEC 61499 \(Exercise 94\)](#)
- [Hacker Night: Code, Monitors & Secrets That Keep Us Awake!](#)
- [Wood Chip Conveyor](#)
- [Heinrich Lanz: Man, Myth, Empire](#)
- [Hero of the Auto Nervous System TLE9351VSJ](#)
- [Countdown Block E_CTD from IEC 61499 \(Exercise\) 81\)](#)
- [Horsch: Chance as a Brand - How Chance \(and the Color Red\) Created a Global Brand](#)
- [Flashing a DIN rail moped with Merged Flash](#)
- [Editing the logiBUS® wlan.ini file on a DIN rail moped – Channel](#)
- [Editing the logiBUS® wlan.ini file on a DIN rail moped – SSID](#)
- [Establishing a DIN rail moped connection via WLAN](#)
- [Ideal Diodes](#)
- [Understanding Ideal Diodes](#)
- [IEC 61499: The Great Debate](#)
- [ISOBUS: The Secret Language](#)
- [AI Leader: Coder to Architect](#)
- [Comments on UniversalAutomation.org at IEEE ETFA 2025](#)
- [Assembly Tractors: Boom & Fall of the Tractor Industry](#)
- [War, Collapse, Inflation](#)
- [Agricultural Technology Weihenstephan](#)
- [Lanz Bulldog: Anatomy of a Downfall](#)
- [Lanz Bulldog: The Myth of the Tractor in the Duden!](#)
- [Learn PLC Programming A Cost Effective Guide](#)

- PCB
- LogiBUS project update
- logiBUS mirror adjustment
- logiBUS® The End of Mapping
- logiBUS® The New Era Without Mapping
- logiBUS® ESP32 installer Google Chrome 2022 10 18 17 38 33
- logiBUS® ESP32 installer Google Chrome 2022 10 18 17 44 27
- LogiBUS® without Mapping: Simplified Installation & First Steps for Master Students
- logiBUS®: Revolution in Tractors
- Soldering in the Year 2025
- Soldering Like a Pro
- Create a sequence where an excavator loads sand onto a truck. #ai #ki
- Removing mapping with Christoph Behr - 2025/09/24 13:57 CEST – Recording
- Mastering Ohm's Law: The Electronics Primer explains series circuits, parallel circuits, and the Me
- Master of Tomorrow Plan 2025
- Assembling a DIN rail moped logiBUS® – Part 1 – Introduction
- Assembling a DIN rail moped logiBUS® – Part 2 – Soldering
- Assembling a DIN rail moped logiBUS® – Part 3 – Soldering
- Assembly of DIN rail moped logiBUS® – Part 4 – Mechanical assembly
- MOTIX™ BTM9020EP in detail
- Latest status of 4diac, logiBUS®, DIN rail moped
- Open Circuits: The Inner Beauty
- Analyzing project structure: Let's check the structure!
- RS flip-flop component E_RS from IEC 61499 (Exercise 006b)
- Run and debug using Exercise 1
- [Switch fail! Why these Amazon buttons cause trouble!
- Schlüter: Rise & Fall
- Training video logiBUS® CAN - SAE J1939 Communication
- SR&T Flip-Flop Exercise 006
- SR Flip-Flop Component E_SR from IEC 61499 (Exercise 006)
- Technology in modern soldering irons
- The data behind the harvest
- The decline of the tractor cult: From the ingenious swivel-chamber engine to the expensive end of...] (<https://www.youtube.com/watch?v=1EW7eNyAjYY>)
- The downfall of Lanz
- The Dual Wi Fi Solution
- The E_CTU upcounter
- The ETFA 2025 Industry Forum Explained
- The Explainer The Hidden Force of Hydraulics
- The Explainer The New logiBUS I O System
- The future of agriculture
- The Future of Automation Inside ETFA 2025

- The genius of electronics design
- The high-tech harvest
- The One Shot Signal How PLCs Prevent Double Takes
- The powerful relay
- The Refactoring Saga Deleting to Improve
- The Relay Mystery
- The secret of the field
- The secret of the tractor
- The silent failure
- The Unsung Hero of Hydraulic Safety
- TLE9250V CAN Transceiver
- [Toggle-Flip-Flop Component E_T_FF from IEC 61499 (Exercise 004a)](https://www.youtube.com/watch?v=XZqsqNy_g_g)
- [Turning a Hobby Chip into an Industrial Powerhouse]](<https://www.youtube.com/watch?v=veNA2vksxIQ>)
- [Understanding the relay]](<https://www.youtube.com/watch?v=QdJFfY00Yf8>)
- [Working with 2 WLAN connections under Windows 10]](<https://www.youtube.com/watch?v=a5Re1vOtmww>)
- [Reverse polarity protection solved]](<https://www.youtube.com/watch?v=Xmx8x0BZ6Z4>)
- [Via in Pad Plated Overlay]](<https://www.youtube.com/watch?v=E0vbluaWA8Y>)
- [VLF AÖ-MÜ / 20 Years of EEG - What Now?] Lecture 1: Prof. Wolfgang Wieser (Hydrogen...)](<https://www.youtube.com/watch?v=UzyBU9GCobs>)
- [VLF AÖ-MÜ / 20 Years of the EEG - What Now?] Lecture 2: Achim Kimmich, Climate Coach (PV Storage...)](https://www.youtube.com/watch?v=KoYvjf_wrZc)
- From Chaos to Clarity
- Why Computers Use 0 & 1
- Why Animals Are Indispensable
- Additionally: Exercise_083: Counting Up/Down: E_CTUD_UDINT Data Type UDINT; with Display on the VT.
- Exercise 31: Controlling LEDs with a Devkit without a DIN Rail Mount

3.3 Thematic Overview

3.3.1 ISOBUS

- **ISOBUS VT Objects** “Store Version” – Your key to managing object data pools in non-volatile VT memory (ISO 11783-6)
- **ISOBUS VT Objects** The Working Set Object: Understanding the brain of the ISOBUS user interface – From standard to practice in ISO Designer
- **logiBUS** From Cable Chaos to Custom Control: How Logibus is Revolutionizing Agricultural Tech with Accessible ISOBUS
- **[YouTube]** From Control Box to Custom ISOBUS: A DIY Guide
- **MS-MUC LAMA** Dot Rail Moped XL: ISOBUS ECU Development
- **ISOBUS VT Objects** ISO 11783-6: Understanding Softkeys and the Virtual Terminal – Your Key to Agricultural Machinery Mechatronics
- **ISOBUS VT Objects** ISOBUS Button: More Than Just a Click – Standardizing Agricultural Technology
- **MS-MUC LAMA** ISOBUS Makes Agricultural Machinery Plug and Play
- **logiBUS** ISOBUS Retrofit: Cable Mess is a Thing of the Past – The Modular Solution for Your Agricultural Technology

- **ISOBUS VT Objects** ISOBUS Object Pointer: The Secret of Dynamic Displays and Efficient Fault Diagnosis
- **ISOBUS VT Objects** ISOBUS Output Meter: Mastering Dynamic Displays – From Pointers to Visualization on the VT
- **MS-MUC LAMA** ISOBUS Revolutionizes Agriculture Universal Terminal Task Controller
- **ISOBUS VT Objects** ISOBUS Scaling: When the Tractor Screen Doesn't Fit – An Introduction to ISO 11783-6
- **ISOBUS VT Objects** ISOBUS Bar Graph: The ISO 11783-6 Output Linear Bar Graph Object Decoded
- **ISOBUS VT Objects** ISOBUS User Interfaces: When Buttons and Main Display Scale Differently – ISO 11783-6 Decoded
- **ISOBUS VT Objects** ISOBUS Containers: Dynamic Control Panels for Clear Visibility and Greater Efficiency
- **ISOBUS VT Objects** ISOBUS Masks in the VT: The Heart of Agricultural and Construction Machinery Interfaces (ISO 11783-6)
- **MS-MUC LAMA** ISOBUS Moped and GitHub: More Than Code – The Digital Workshop of Software Development
- **ISOBUS VT Objects** ISOBUS Interfaces: Background Color vs. Fill Attributes – How to Optimize Your UI and Performance
- **ISOBUS VT Objects** ISOBUS Terminals: Understanding Numbers – NumberVariable, InputNumber & OutputNumber Explained
- **MS-MUC LAMA** [ISOBUS: The Secret Language of Agricultural Machinery – From Plug-and-Play to High-Speed Networking(https://www.youtube.com/watch?v=Ce__kP5iFc0)
- **[YouTube]** ISOBUS: The Secret Language
- **ISOBUS VT Objects** ISOBUS: How Logos Get on Your Tractor Terminal – The Picture Graphic Object Explained
- **logiBUS** logiBUS: ISOBUS Programming Made Easy – The Revolution for Agricultural Technology and SMEs
- **logiBUS** logiBUS®: Revolutionizing Agricultural IT – How ISOBUS Becomes a Smart Home for Farmers
- **logiBUS** logiBUS®: Revolutionizing Agricultural Mechatronics – ISOBUS Simpler, More Open, smarter
- **ISOBUS VT Objects** [Understanding VT Versions: Your Path to Mastering Agricultural and Construction Machinery Mechatronics]](<https://podcasters.spotify.com/pod/show/isobus-vt-objects/episodes/VT-Versionen-verstehen-Dein-Weg-zum-Meister-der-Land-und-Baumaschinenmechatronik-e36a8e8>)
- **[YouTube]** [Additional: Exercise_083: Counting Up/Down: E_CTUD_UDINT Data Type UDINT; with Display on the VT]](<https://www.youtube.com/watch?v=oTPDtsw5eAw>)

3.3.2 4diac / IEC 61499

- **[YouTube]** 2025-01-29 09:27-56 Windows Defender exclusion check in the Eclipse 4diac™ IDE
- **[YouTube]** 2025-02-21 13:04-43 Current status of logiBUS® Eclipse 4diac™ IDE
- **[YouTube]** 2025-02-21 15:23-28 logiBUS® with Eclipse 4diac™ new I/O concept for all controllers
- **[YouTube]** 2025-03-11 16:08-47 Generating documentation for IEC 61499 using deepseek
- **[YouTube]** 2025-03-30 16:22-28 Boot file in 4diac and logiBUS®
- **[YouTube]** 2025-03-30 17:14-22 Creating an ISO Designer project and integrating it into 4diac
- **[YouTube]** 2025-11-02 13:19-52 LogiBUS® on the way to Eclipse 4diac™ 3.0 - Converting a project
- **[YouTube]** 2025-11-04 16:12-16 LogiBUS® on the way to Eclipse 4diac™ 3.0 - Content Assist
- **[YouTube]** 2025-11-04 18-11-05 LogiBUS® on the way to Eclipse 4diac™ 3.0 - Conversion of a project
- **[YouTube]** 2025-11-04 20-15-06 LogiBUS® on the way to Eclipse 4diac™ 3.0 - even more adapters (AX)
- **[YouTube]** 2025-12-14 19-53-53 Installation of Eclipse 4diac™ IDE 3.0.0 and import of the Training1 project
- **[YouTube]** 2026-01-13 12-14-50 logiBUS® Eclipse 4diac™ Subapplications
- **[YouTube]** Install 4diac IDE and open project
- **[YouTube]** Install 4diac IDE and open project
- **Eclipse 4diac (DE)** 4diac IDE: Your "Hello World" of Automation – The Blinking Tutorial Lokal
- **Eclipse 4diac (DE)** 4diac IDE: Your Open-Source Toolkit for Distributed Industrial Automation according to IEC 61499
- **Eclipse 4diac (DE)** 4diac IDE: How the IEC 61499 standard is revolutionizing industrial automation
- **Eclipse 4diac (DE)** 4diac presentation: Target groups, structure, and unique selling proposition Sharpening
- **MS-MUC LAMA** 61499 Automation: The true story of the minds behind it

- **[YouTube]** Understanding 61499? It's that easy! (Quickly explained)
- **[YouTube]** Advancing Industrial Automation IEC 61499 at ETFA
- **[YouTube]** Counting Up Block E_CTU from IEC 61499 (Exercise 80)
- **[YouTube]** Counting Up/Down Block E_CTUD from IEC 61499 (Exercise 82)
- **IEC 61499 Basic Course (DE)** Building Tomorrow's Factories: Bridging OT and IT with IEC 61499
- **logiBUS** [Code Renovation with AX Adapters: How Eclipse 4diac™ conquers complexity through signal bundling(<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/DIN-EN-61131-3-vs-61499-1-Dein-Wegweiser-durch-die-Normen-der-Industriearomatisierung-e36c6nc>)
- **[YouTube]** [D Flip-Flop: E_D_FF from IEC 61499 (Exercise 002c) as an “event brake”(https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/DIN-EN-61499-1-Entmystifiziert-Funktionsbausteine-Objektorientierung-und-verteilte-Systeme-e37229b)
- **[YouTube]** D Flip-Flop: E_D_FF from IEC 61499 (Exercise 85)
- **IEC 61499 Basic Course (DE)** Data communication in automation: The secrets of IEC 61499 data types
- **IEC 61499 Basic Course (DE)** Data types of IEC 61499
- **[IEC 61499 Prime Course (DE)]** Decoding IEC 61499: The Industrial Revolution Reshaping Factories and Careers
- **IEC 61499 Prime Course (EN)** Decoding Industrial Control: Function Blocks, Object-Oriented Principles, and the Power of IEC 61499
- **IEC 61499 Prime Course (EN)** Decoding the E_SR Function Block: The Unsung Hero of Industrial Automation
- **[IEC 61499 Prime Course (DE)]** The E_CTU in IEC 61499: Event-Driven Counting and Why the Minimalist is Convincing in Mechanical Engineering
- **[IEC 61499 Prime Course (DE)]** [The E_CTU Block: Event-driven incrementing in industry according to IEC 61499(https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/E_CTD-Ereignisgesteuerter-Abwrtszähler-nach-IEC-61499-e368lli)
- **IEC 61499 Basic Course (DE)** The E_PERMIT Block: The “gatekeeper” for events in IEC 61499 systems explained
- **IEC 61499 Basic Course (DE)** The E_T_FF in IEC 61499: Modular toggling for Industry 4.0
- **IEC 61499 Basic Course (DE)** The E_T_FF_SR Block: The heart of IEC 61499 – storing, toggling, reacting
- **IEC 61499 Basic Course (DE)* IEC 61499 Basic Course (DE)** DIN EN 61131-3 vs. 61499-1: Your Guide Through the Standards of Industrial Automation
- **IEC 61499 Basic Course (DE)** DIN EN 61499-1 Demystified: Function Blocks, Object Orientation and Distributed Systems
- **IEC 61499 Basic Course (DE)** DIN EN 61499-1 Decoded: The Blueprint for Modular, Distributed Control Systems
- **IEC 61499 Basic Course (DE)** DIN EN 61499-1: Building Blocks for Industry 4.0 – How Function Blocks Revolutionize the Automation
- **IEC 61499 Basic Course (DE)** DIN EN 61499-1: The digital Lego kit for flexible automation and a smart future
- **IEC 61499 Basic Course (DE)** DIN EN 61499-1: The Lego bricks for flexible and event-driven industrial control systems
- **IEC 61499 Basic Course (DE)** DIN EN 61499-1: Function blocks and the paradigm shift in industrial software development
- **IEC 61499 Basic Course (DE)** DIN EN 61499-1: Revolution in control technology – Modular, event-driven systems understand
- **IEC 61499 Basic Course (DE)** DIN EN 61499: Mastering Modular and Event-Based Industrial Controls with Function Blocks – The ESR Switch in Focus
- **IEC 61499 Basic Course (DE)** E_CTD: Event-Driven Down Counter according to IEC 61499
- **IEC 61499 Basic Course (DE)** E_CTUD: Bidirectional Counter in IEC 61499 Systems
- **[YouTube]** E_CYCLE from IEC 61499 (Exercise 84)
- **IEC 61499 Basic Course (DE)** E_DELAY in IEC 61499: Precise, Cancelable Time Delay in Control Systems
- **IEC 61499 Basic Course (DE)** E_REND: Event Synchronization in IEC 61499
- **IEC 61499 Prime Course (EN)** E_REND: Event Synchronization in IEC 61499
- **IEC 61499 Basic Course (DE)** E_SWITCH: The Switch of Automation – Why Simplicity Revolutionizes IEC 61499
- **[YouTube]** Eclipse 4diac Brain of the Smart Factory
- **[YouTube]** Eclipse 4diac: More Than Code

- **[YouTube]** Eclipse 4diac 3.0 (English)
- **[YouTube]** Eclipse 4diac 3.0 (German)
- **Eclipse 4diac (DE)** Eclipse 4diac 3.0: ST Interpreter, FBE and 7200 Commits – The Turbo for Distributed Automation
- **Eclipse 4diac (EN)** Eclipse 4diac and FORTE: Unlocking Next-Gen Industrial Automation with Open-Source Power
- **Eclipse 4diac (DE)** Eclipse 4diac FORTE: Understanding IEC 61499 – The LEGO® Building Kit for Your Industry 4.0 Control
- **MS-MUC LAMA** Eclipse 4diac: The Open Door to Industry 4.0 – Development and Runtime in Automation
- **Eclipse 4diac (DE)** Eclipse 4diac: Your Bike for Industry 4.0 – Mastering Software Overhead and Controlling Distributed Systems
- **Eclipse 4diac (DE)** Eclipse 4diac: Innovation Engine Research vs. User Needs – What Really Drives Development forward?
- **Eclipse 4diac (DE)** Eclipse 4diac: Open Source as a Game Changer for Industrial Controls?
- **Eclipse 4diac (DE)** Eclipse 4diac: Open-Source Automation for Industry and Research according to IEC 61499
- **Eclipse 4diac (EN)** Eclipse 4diac: Revolutionizing Industrial Control with Open-Source Cyber-Physical Systems
- **Eclipse 4diac (EN)** Eclipse 4diac: Unpacking Open-Source Industrial Automation and the Power of Application-Centric Design
- **Eclipse 4diac (DE)** Eclipse 4diac: How Open Source Research and Practice Connect in Industrial Automation
- **IEC 61499 Basic Course (DE)** Event-Based Automation in IEC 61499
- **[YouTube]** [Event Switch E_SWITCH from IEC 61499 (Exercise)] 86)](<https://www.youtube.com/watch?v=Gev-kGR4-Tc>)
- **IEC 61499 Basic Course (DE)** Events and IEC 61499: The Starting Signal for Intelligent Systems
- **[YouTube]** First Introduction to Eclipse 4diac™
- **logiBUS** ESP32 as an Industrial PLC: Revolution with Eclipse 4diac and logiBUS®
- **logiBUS** ESP32 as PLC: Democratizing Industrial Automation with Eclipse 4diac
- **IEC 61499 Basic Course (DE)** [ETFA 2025: Plug and Produce – How IEC 61499 is Transforming Factory Automation] revolutionized](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/ETFA-2025-Plug-and-Produce-Wie-IEC-61499-die-Fabrikautomation-revolutioniert-e376pnk>)
- **IEC 61499 Basic Course (DE)** EventFBs according to IEC 61499: Lego blocks of automation – How event function blocks work
- **IEC 61499 Basic Course (DE)** FB_TOF and E_TOF: Delay timers in IEC 61131-3 and 61499
- **IEC 61499 Prime Course (EN)** Function Blocks The Future of Automation
- **[YouTube]** Controlled propagation of an event E_PERMIT from IEC 61499 (Exercise 94)
- **[YouTube]** Countdown Block E_CTD from IEC 61499 (Exercise 81)
- **Eclipse 4diac (EN)** [IEC 61499 Power Up: Feature Freeze Reveals the Eclipse 4diac 3.0 Revolution for Industrial Automation]](<https://podcasters.spotify.com/pod/show/eclipse-4diac-en/episodes/IEC-61499-Power-Up-Feature-Freeze-Reveals-the-Eclipse-4diac-3-0-Revolution-for-Industrial-Automation-e3a5cu3>)
- **IEC 61499 Basic Course (DE)** [IEC 61499 vs. 61131: Do we need a new standard for IIoT?] Analysis of a heated debate on distributed intelligence(<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/IEC-61499-Sprung-in-die-Industrie-ETFA-2025-und-die-Zukunft-der-Automatisierung-e376pnm>)
- **[IEC 61499 Prime Course (DE)]** IEC 61499 vs. 61131: Necessary evolution or superfluous complication for the IIoT?
- **IEC 61499 Prime Course (EN)** IEC 61499 vs. 61131: Unpacking the Architectural Revolution of Distributed Control and Industry 4.0
- **[IEC 61499 Prime Course (DE)]** IEC 61499-1: The functional building block – Lego principle for modern control systems in agricultural and construction machinery
- **[IEC 61499 Prime Course (DE)]** [IEC 61499: Does the new standard liberate industrial automation? A comparison with 61131 and the bridge between OT & IT.](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/IEC-61499-Befreit-der-neue-Standard-die-Industrieautomation-Ein-Vergleich-mit-61131-und-die-Brücke-zwischen-OT-IT-e368446>)

- **IEC 61499 Basic Course (DE)** IEC 61499: The E_SR block decoded – Simplicity meets event-driven control
- **Eclipse 4diac (DE)** IEC 61499: The future of industrial automation and distributed systems
- **IEC 61499 Basic Course (DE)** IEC 61499: Factory automation in transition – From vision to industrial reality
- **IEC 61499 Basic Course (DE)** IEC 61499: Revolution of automation – Event-driven systems and intelligent data flows decrypted
- **IEC 61499 Basic Course (DE)** IEC 61499: Revolution of Automation – Event-Driven Function Blocks and Distributed Systems Explained
- **IEC 61499 Basic Course (DE)** IEC 61499: Revolution of Industrial Automation – Why the New Standard Makes Your Systems Fit for the Future
- **IEC 61499 Basic Course (DE)** IEC 61499: Revolution of Distributed Automation – Origins, Concepts and Future Perspectives
- **IEC 61499 Basic Course (DE)** IEC 61499: How Modern Automation Wins – Strategies for Greater Reach and Business Impact
- **IEC 61499 Basic Course (DE)** IEC 61499: Leap into Industry – ETFA 2025 and the Future of Automation
- **IEC 61499 Basic Course (DE)** IEC 61499: The DNA of Flexible Automation – Powering Industry 4.0 from Factories to the High Seas
- **[YouTube]** IEC 61499: The Great Debate
- **Eclipse 4diac (DE)** Industry 4.0: The Magic of Self-Configuring Systems with fortiss, IEC 61499 and Eclipse 4diac
- **logiBUS** LogiBUS to 4diac 3.0: The Complete Migration Guide – Tips, Pitfalls and Switching to Index 1
- **logiBUS** LogiBUS® & IEC 61499: Data and Event Flows Explained Simply – From Switch to Intelligent Control
- **IEC 61499 Basic Course (DE)** Expert Knowledge 61499: The Event-Driven Up Counter (E_CTU) – Robust Counting in Agricultural Machinery Controls
- **IEC 61499 Basic Course (DE)** Module 03 - The IEC 61499 Standard
- **[YouTube]** Latest Status of 4diac, logiBUS®, DIN Rail Moped
- **[YouTube]** RS Flip-Flop Component E_RS from IEC 61499 (Exercise 006b)
- **Eclipse 4diac (DE)** Step 2 - Distributing 4diac Applications
- **Eclipse 4diac (EN)** [Simplifying Industrial Control: Your Deep Dive into Eclipse 4diac and IEC 61499(<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Bulldog-Boom-und-Business-Heinrich-Lanz-Aufstieg-aus-dem-Handelshaus-zum-Landmaschinenimperium-Die-unterschtzte-Rolle-der-Familie-e3a99fs>)
- **Eclipse 4diac (DE)** Taming Software Dragons: Why IEC 61499 Could Revolutionize Industry
- **[YouTube]** SR Flip-Flop Component E_SR from IEC 61499 (Exercise 006)
- **Eclipse 4diac (EN)** The Future of Industrial Control: Decoding IEC 61499
- **IEC 61499 Prime Course (EN)** The Unstoppable Counter: Why IEC 61499's ECTU Guarantees Safe, Event-Driven Control (and Never Overflows)
- **[YouTube]** Toggle Flip-Flop Device E_T_FF from IEC 61499 (Exercise 004a)
- **IEC 61499 Basic Course (DE)** Universe of Data Types as defined in IEC 61131-3 and IEC 61499
- **IEC 61499 Basic Course (DE)** Unlocking Universal Automation: The IEC 61499 Revolution from Factory Floors to the Seas
- **logiBUS** From 1400 Errors to Clean Code: Migrating the “Grain Hoe” to Eclipse 4diac™ 3.0 and the Does the AX adapter work?
- **Eclipse 4diac (DE)** From PLC to distributed intelligence: Understanding IEC 61499 for Industry 4.0

From PLC to distributed intelligence: Understanding IEC 61499 for Industry 4.0

3.3.3 Agricultural Technology / LAMA

- **MS-MUC LAMA** Bulldog Legend: How the simple LANZ tractor revolutionized agriculture and became a standard term in the German dictionary
- **MS-MUC LAMA** Bulldog, Boom and Business: Heinrich Lanz – Rise from Trading House to Agricultural Machinery Empire (The Underestimated Role of the Family)
- **ISOBUS VT Objects** The Alarm Mask Object: Your Standardized Sentry for Warnings on Agricultural Machinery
- **[YouTube]** Deere's Plow: The Steel Story
- **[YouTube]** [The Thinking Tractor]

- **MS-MUC LAMA** [The IBBC: How Plugs, Cables and ISO 11,783 High-Tech Agricultural Machines Connected]
- **MS-MUC LAMA** [The Decline of the Tractor Cult: From the Ingenious Swivel Chamber Engine to the Costly End of the Anton Schlüter Engine Factory](<https://www.youtube.com/watch?v=pBo6QPdWtgA>)
- **[YouTube]** The Tractor Visionary
- **[YouTube]** A 1958 Tractor Awakens
- **logiBUS** ESP32 Becomes an Industrial PLC for Agricultural Machinery
- **MS-MUC LAMA** [Hot-Bulb Engine, Greed, and Loss of Control: How the Lanz Family Lost Their Tractor Empire]
- **MS-MUC LAMA** John Deere's steel plow: Myth or masterpiece? A detailed search for clues!
- **[YouTube]** Assembly tractors: Boom & Fall of the tractor industry
- **[YouTube]** Lanz Bulldog: The myth of the tractor in the dictionary!
- **[YouTube]** logiBUS®: Revolution in the tractor
- **MS-MUC LAMA** Max Eyth: From steam plow pioneer to DLG founder and bestselling author – A technology visionary of his time
- **MS-MUC LAMA** Schlüter: From Imperial engine to 500 hp giant – Rise and fall of the powerful tractors from Freising
- **MS-MUC LAMA** Conflict, Division, Spectacle: 200 Years of Agricultural Research in Weißenstephan – How the Plow, Testing Station, and Cow Computer Changed the World

3.3.4 Programming

- **[YouTube]** 2025-03-30 19:41:34 Check Python Installation
- **MS-MUC LAMA** Architectural Duel in Munich: King Ludwig's Palace Vision, Gärtner's Book Barracks and the Going
- **[YouTube]** AI Leader: Coder to Architect
- **logiBUS** logiBUS® IO: Bye-bye Mapping! What the New System Architecture Really Changes

3.3.5 Miscellaneous

- **MS-MUC LAMA** 0 and 1: Why the binary system remains the foundation of our digital world despite the quantum leap
- **[YouTube]** May 6, 2025 Day 6 of logiBUS® training series (D)
- **[YouTube]** April 15, 2025 Day 1 of logiBUS® training series (D)
- **[YouTube]** April 17, 2025 Apr. 2025 Day 2 of logiBUS® Training Series (D)
- **[YouTube]** 2024 09 05 17 59 50 Bavarian State Library Book Access
- **[YouTube]** 2025 11 15 12 35 11 Assembly DIN Rail Module logiBUS® – Part 3 – Housing
- **[YouTube]** 2025 11 15 12 52 26 Assembly DIN Rail Module logiBUS® – Part 4 – Superstructures
- **[YouTube]** 2025-01-28 17-51-25 logiBUS® Project Update and Setup (unfortunately without (Sound))
- **[YouTube]** 2025-01-28 2025-01-36 logiBUS® Project Update and Setup (now with sound)
- **[YouTube]** 2025-02-02 1821-50 Exercise_006c Function E_DEMUX8 and ..._DI_REPEAT
- **[YouTube]** 2025-02-02 1825-02-56-54 DI_LONG_PRESS_HOLD (Part 1)
- **[YouTube]** 2025-02-02 1925-02-11-57 DI_LONG_PRESS_HOLD (Part 2)
- **[YouTube]** 2025-02-23 11:18:57 Getting Started with Autodesk Fusion 360 - Mechanical Design MCAD
- **[YouTube]** 2025-02-23 11:43:44 Fusion 360 Overview Tutorials
- **[YouTube]** 2025-02-23 11:47:07 Fusion 360 Electronics Introduction
- **[YouTube]** 2025-02-23 13:20:15 Fusion 360 Electronics Bill of Materials Export
- **[YouTube]** 2025-03-11 16:53:43 Watch via app, not via resource
- **[YouTube]** 2025-03-15 15:57:14 Arithmetic overflow
- **[YouTube]** 2025-03-15 16:27:21 Arithmetic overflow leads to division by 0
- **[YouTube]** 2025-03-30 16:40:13 Softkey control exercise 10b2
- **[YouTube]** 2025-03-30 16:47:54 Subapplications exercise 003a
- **[YouTube]** 2025-03-30 16:59:57 Linking Object ID and Object Name
- **[YouTube]** 2025-04-06 19:43:11 Slurry Tanker, Subapps, and Groups Explained
- **[YouTube]** 2025-07-20 21:12-23 Fusion 360 Schematic SPICE Simulation German
- **[YouTube]** 2025-08-17 14:05-25 Introduction to logiBUS®, a new IO system without mapping
- **[YouTube]** 2025-08-17 14:39:09 Converting a logiBUS® project with mapping to one without mapping.
- **[YouTube]** [2025-11-13 17:50-42] Assembling the DIN rail module logiBUS® – Part 1 – Introduction and Soldering](<https://www.youtube.com/watch?v=HWBMBVLMPiw>)

- **[YouTube]** [2025-11-15 12:19-33] Assembling the DIN rail module logiBUS® – Part 2 – Introduction and Soldering](<https://www.youtube.com/watch?v=nohE36SZY9M>)
- **[YouTube]** [2025-12-14 20:03-27] Uploading Training 1 Exercise 1 to the DIN rail module.](<https://www.youtube.com/watch?v=6iog7-DZvW0>)
- **[YouTube]** [2025-12-14 20:13-12] Uploading the DIN rail module Merged Bin using ESPTOOL js.](<https://www.youtube.com/watch?v=XwtH1p5uw88>)
- **[YouTube]** April 22, 2025 Day 3 of logiBUS® Training Series (D)
- **[YouTube]** April 24, 2025 Day 4 of logiBUS® Training Series (D)
- **[YouTube]** April 27, 2025 Apr. 2025 Day 5 of logiBUS® Training Series (D)
- **MS-MUC LAMA** 3000 Watt Lie: The TVS Diode Decoded
- **MS-MUC LAMA** Digitizing 400 Million Tons of Agricultural Logistics
- **MS-MUC LAMA** 800 HP High-Tech Giant: What the ROPA Tiger 6S Operating Manual Reveals About Modern Agriculture and Extreme Safety
- **[YouTube]** Achieving Maximum Energy Autarky for Agricultural Properties
- **[YouTube]** Ada Lovelace: The World's First Female Programmer?
- **[YouTube]** Ada Lovelace: The Pioneer
- **MS-MUC LAMA** Ada Lovelace: The Poet of Science – Visionary, Programmer, and the Fight for the Digital Legacy
- **MS-MUC LAMA** Adolf Weber's Sharp Analysis: Why Technology Alone Is Not Enough – Lessons from Three Industrial Phases
- **MS-MUC LAMA** Agricultural Revolution of 1883: How Max Eyth Modernized England's Agriculture
- **[YouTube]** AI: The Unknown Story
- **MS-MUC LAMA** [As an Agricultural Technology Specialist Through Hell: How Lanz-Wery Coped with War, Occupation, and Hyperinflation survived – Insights into original business reports 1915-1922(<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Automatisierung-entschlusst-Leiten-Steuern-Regeln-Die-unsichtbare-Sprache-der-Technik-DIN-IEC-60050-351-e36t52b>)
- **MS-MUC LAMA** [As pioneers of progress: How Royal Agricultural Society machinery trials revolutionized agriculture and still teach us today(<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Auenzahnradmaschinen-Vom-Arbeitstier-zur-Intelligenz-der-Hydraulik-Herausforderungen-Innovationen-Keplers-Erbe-e36opo0>)
- ** **MS-MUC LAMA** [Old Bavarian for Beginners: From Gratler Colds to City Dwellers – A Sound Journey Through Lesson 3
- **MS-MUC LAMA** [Old Bavarian for Beginners: How Crude Jokes Teach the ABCs of the Dialect(<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Bipolar-vs-FET-Warum-dein-Smartphone-nicht-glht-und-wie-Transistoren-unsere-Elektronik-formen-e368kjt>)
- **MS-MUC LAMA** [From the Amazon Pizza Rule to the IKEA Effect: 12 Amazingly Simple Ideas Behind Huge Business Success(<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Bodenstndigkeit-Autobahn-und-die-rote-Farbe-e3cftu>)
- **MS-MUC LAMA** [Analysis of the Amendment to the Master Craftsman Examination Regulations in the Agricultural and Construction Machinery Mechatronics Trade: A Detailed Comparison of the 2024 and 2001 Regulations(<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Bronzeriese-und-Kulturkampf-Die-spektakulre-Entstehung-der-Bavaria-Statue-vom-Zndstoff-zwischen-e38t8th>)
- **[YouTube]** Analysis: Power for Pinecil
- **[YouTube]** Anatomy of Precision
- **IEC 61499 Prime Course (EN)** Anatomy of a Smart Machine
- **[YouTube]** Anton Schlüter: Rise & Fall
- **MS-MUC LAMA** Cider All-Purpose Weapon and Nitrogen Revolution: Middle Franconian Agriculture in 1892 in Newspaper Review
- **MS-MUC LAMA** Article 131: Democracy, Patriotism, and Cosmopolitanism in Bavarian Schools
- **[YouTube]** Automation of Future
- **IEC 61499 Basic Course (DE)** Automation 4.0: Why Software Is Overtaking Hardware and What That Means for Your Skills

- **MS-MUC LAMA** Automation Decoded: Guiding, Controlling, Regulating – The Invisible Language of Technology (DIN IEC 60050-351)
- **MS-MUC LAMA** External Gear Machines: From Workhorse to the Intelligence of Hydraulics – Challenges, Innovations & Kepler’s Legacy
- **MS-MUC LAMA** Concrete Mixing on the Construction Site: Safe and Efficient with the HÄNER Concrete Mixing Bucket – Your Guide for Everyday Practice
- **MS-MUC LAMA** Biogas & PV after the EEG subsidies: Survival in the new energy world – ways out of the funding gap
- **MS-MUC LAMA** Biogas: More than green energy – risk of explosion and precision in biomass feeding
- **MS-MUC LAMA** Bipolar vs. FET: Why your smartphone doesn’t glow and how transistors shape our electronics
- **MS-MUC LAMA** Down-to-earthness, highways and the color red
- **MS-MUC LAMA** Bronze giant and culture clash: The spectacular creation of the Bavaria statue, the explosive material between
- **MS-MUC LAMA** Bruns Plants: Carpinus betulus ‘Monumentalis’
- **[YouTube]** BTM9020EP: Motor-Maestro
- **MS-MUC LAMA** Bunker Filler Vertical vs. Inclined Screw Conveyor
- **[YouTube]** CAN Bus Episode #1
- **MS-MUC LAMA** CAN Bus Diagnostics: Beyond the Data – The Truth About Errors in Agricultural Technology
- **[YouTube]** Charles Babbage
- **MS-MUC LAMA** Charles Babbage: The Visionary Who Used Gears to Bring About the Information Age vordachte.
- **[YouTube]** Chip becomes a powerhouse
- **[YouTube]** Circuit board repair hacks
- **[YouTube]** Comparison of CAN transceivers
- **logiBUS** Content Assist Revealed: The ingenious productivity booster for your VDC environment and how it automatically corrects errors
- **MS-MUC LAMA** Cyrus McCormick and the Reaper: How a machine fed the world and sparked revolutions
- **MS-MUC LAMA** [Danfoss and Eaton Hydraulics twin story] end](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Danfoss-und-Eaton-Hydraulik-Zwillingsgeschichte-endet-e3bgpv9>)
- **[YouTube]** The ESP32-S3-DevKitC-1
- **IEC 61499 Basic Course (DE)** The Secret of the 2-Bit Quadrant: Efficiency in the CAN Bus for Commercial Vehicles
- **[YouTube]** The Brain of the Computer
- **MS-MUC LAMA** The Brain and Its Helpers: How CPU, GPU, and Special Chips Power Our Digital World with Zeros and Ones
- **[YouTube]** The DIN Rail Moped XL
- **MS-MUC LAMA** The Engineering Datasheet of the VBCD Valve Decoded
- **MS-MUC LAMA** The Chain Monster Awakens: Lanz Bulldog Caterpillar – The Fascinating Revival of the 10-Liter Hot-Bulk Workhorse After 25 Years of Inactivity
- **MS-MUC LAMA** The Fine Print of the Würth Terminal Block Decoded!
- **[YouTube]** The Life of a Printed Circuit Board
- **MS-MUC LAMA** The PUI Triangle: The Clever Mnemonic for Electrical Power – Simply Rearrange Formulas!

- **MS-MUC LAMA** The Relay in Detail: Switching Amplifiers, Protection, and the Secrets of A1/A2, 85/86, and Hysteresis
- **MS-MUC LAMA** [The Technology Panorama of 1863: Lanz & Comp. and the revolution of German agriculture through import, innovation, and guano(<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Der-Intelligente-Leistungsschalter-Wie-der-Infineon-BTS7030-Relais-und-Sicherungen-im-Auto-ersetzt-e39av14>)
- **MS-MUC LAMA** [The deadly dilemma of the relay: Why silver contacts fail with small signals and gold melts under load – The burn-off effect explained(<https://www.youtube.com/watch?v=fk7tjl2pTk>)
- **MS-MUC LAMA** [The underestimated heart of the system: How circuit boards in cars withstand extreme conditions – From Bosch technology to manufacturing precision(<https://www.youtube.com/watch?v=7jVQEMZVTL0>)
- **MS-MUC LAMA** [The URI triangle: Your visual cheat sheet for Ohm's law – Master electricity!(<https://www.youtube.com/watch?v=-44hxgNtKYk>)
- **MS-MUC LAMA** The VBCD DE A valve: How an invisible hero keeps cranes, excavators, and other equipment safe control
- **MS-MUC LAMA** Data Highway in the Field: Why Interoperability Drives the Agriculture of the Future
- **MS-MUC LAMA** Reading the Data Sheet, Understanding Engineering Risk
- **MS-MUC LAMA** Data Power in Agriculture: Who Controls Our Food – Algorithms or the Farmer?
- **[YouTube]** Deciphering the Secret Language
- **IEC 61499 Prime Course (EN)** Decoding E_PERMIT: The Unsung Hero of Industrial Automation's Safety and Reliability
- **[YouTube]** Decoding the Data Sheet: Why the Fine Print Decides Between Life and death
- **[YouTube]** Decoding the datasheet
- **MS-MUC LAMA** Demystifying PLCs: Your Fast Track to Industrial Automation Expertise
- **Eclipse 4diac (DE)** Taming the Software Dragon: Industrial Automation and the Future of Production
- **MS-MUC LAMA** The Bipolar Transistor: The Heart of Embedded Systems – Understanding Gain and Circuitry
- **MS-MUC LAMA** The BTS7030-2EPA Intelligent Car Power Monitor
- **MS-MUC LAMA** The Intelligent Circuit Breaker: How the Infineon BTS7030 Replaced Relays and Fuses in Cars
- **[YouTube]** The Catalog of 1863
- **[YouTube]** The Man Who Conquered Hunger
- **[YouTube]** The Schlüter 1500 Special
- **[YouTube]** The Smart Switch
- **[YouTube]** The Unstoppable Chip
- **MS-MUC LAMA** The Underrated Hero: Why the Oil Reservoir Revolutionizes Your Hydraulic System
- **[YouTube]** The Future-Proof Master
- **[YouTube]** The Digital Toolbox
- **IEC 61499 Basic Course (DE)** The Three Timers of DIN EN 61131-3 Decoded – TP, TON & TOF Explained Precisely
- **[YouTube]** The Harvest Challenge
- **[YouTube]** The Trap of New Technology
- **[YouTube]** The Society That Invented Modern Agriculture
- **[YouTube]** The Great Migration
- **[YouTube]** The Art Soldering

- **MS-MUC LAMA** The Loop Rule: How Forklifts & Electronics Understand Voltage / Kirchhoff's Second Rule (Loop Rule)
- **[YouTube]** The Strip-Till Revolution
- **[YouTube]** The Hidden Engineering Crisis
- **MS-MUC LAMA** The Four Dimensions of Truth: From Fact-Checking to Existential Truthfulness
- **[YouTube]** The World of Standardization
- **[YouTube]** The Twin Story
- **MS-MUC LAMA** [Diesels Radical Vision: Why the inventor considered all engines of his time “fundamentally flawed” – The path to the diesel engine(<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Elektrischer-Widerstand-und-Ohmsches-Gesetz-Das-Fundament-der-Elektrotechnik-Von-Elektronenfluss-bis-Verlustleistung-e36ec1b>)
- **[YouTube]** Digital decisions
- **[YouTube]** Digital electronics decoded
- **logiBUS** Digital memories: The SR flip-flop in the logiBUS® system explained
- **MS-MUC LAMA** Digital logic flip-flops and data types
- **logiBUS** Digital technology decoded: The secret of the SR-T flip-flop with three keys
- **IEC 61499 Basic Course (DE)** DIN EN 61131-3: The Heart of Agricultural and Construction Machinery Mechatronics and the Leap into the Future with Ob
- **MS-MUC LAMA** DIN, ISO & Co.: Who Really Sets the Rules for Our Technologized World
- **[YouTube]** Double Load Holding Valve
- **MS-MUC LAMA** Pressure Relief Valves: Hydraulics' Life Insurance – Types, Function, and System Integration
- **IEC 61499 Prime Course (EN)** E_SWITCH: The Unsung Hero of Industrial Automation's Modular Design
- **IEC 61499 Basic Course (DE)** E_TOF vs. FB_TOF: The event timer that doesn't tick cyclically – a revolution for automation systems?
- **IEC 61499 Basic Course (DE)** E_TON in industrial automation: How a simple timer creates safety and stability
- **[YouTube]** EAGLE CAD: A Legend
- **[YouTube]** Eclipse & LogiBUS® Shortcut
- **[YouTube]** A farmer's handbook: 1892
- **MS-MUC LAMA** Electrical resistance and Ohm's law: The foundation of electrical engineering – From electron flow to power loss
- **MS-MUC LAMA** Electricity Decoded: The Wanderlust of Free Electrons
- **MS-MUC LAMA** Electronics Primer Compact: Voltage, Current, Resistance and the Diode
- **MS-MUC LAMA** Electrical Engineering Fundamentals: Voltage, Current, Resistance & Power – The Formula Wheel Decoded
- **MS-MUC LAMA** EN 61131-3: Industrial Programming Languages Decoded – Text vs. Graphics, Why the Standard Counts
- **MS-MUC LAMA** End of EEG Subsidies: Your Path to Energy Self-Sufficiency – PV, Storage & Smart Use
- **IEC 61499 Basic Course (DE)** Event Handling: The ABCs of Automation and How Systems “Think”
- **IEC 61499 Basic Course (DE)** Event-Driven Timers: When Which One Makes Sense for a Fan – ETON, ETOF, ETP & More Explained
- **IEC 61499 Basic Course (DE)** ERP Systems: The Digital Brain – Opportunities, Risks, and the Path to Intelligent Production
- **MS-MUC LAMA** Kirchhoff's First Law (Kirchhoff's Current Law)

- **[YouTube]** Awakening of the Chain Monster
- **[YouTube]** ESP Web Tools
- **[YouTube]** ESP32 in Agriculture: Revolution Through Software!
- **MS-MUC LAMA** ESP32-S3 Development Boards ESP32-S3-DevKitC-1
- **MS-MUC LAMA** ESP32-S3 in Detail: Dual-Core, 32MB Power and CAN Bus for Agricultural and Construction Machinery Mechatronics
- **MS-MUC LAMA** ESP32-S3 in Detail: Dual-Core, AI Turbo and the Swiss Army Knife of the IoT
- **MS-MUC LAMA** ESP32-S3-DevKitC-1 Documentation Analysis: The Memory Monster (32MB Flash/16MB PSRAM) and the Power of Dual USB Ports
- **[YouTube]** ESP32-S3: Universe in the Chip
- **[YouTube]** Everything about timers in IEC 61131-3 | TON, TOF & TP explained in an easy-to-understand way! 
- **IEC 61499 Basic Course (DE)** [Field Devices: Eyes, Ears, and Hands of Industrial Automation – Why This Invisible Technology Is So Crucial]](<https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/Feldgerte-Augen-Ohren-und-Hnde-der-industriellen-Automatisierung-Warum-diese-unsichtbare-Technologie-so-entscheidend-ist-e375g6u>)
- **[YouTube]** [Fission Chips: The Art Behind “Open Circuits”]](<https://www.youtube.com/watch?v=A1pfMP1AWH0>)
- **MS-MUC LAMA** [FNIRSI DWS-200 Soldering Station Review: 200 Watts of Power and the Truth from User Reviews]](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/FNIRSI-DWS-200-Ltstation-im-Test-200-Watt-Power-und-die-Wahrheit-aus-den-Nutzer-Reviews-e39auoe>)
- **MS-MUC LAMA** [FNIRSI® DWS-200 Soldering Station: Precision & Performance]](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/FNIRSI-DWS-200-Ltstation-Przision-Leistung-e368lhq>)
- **[YouTube]** Fritz Huber & the Lanz Bulldog
- **MS-MUC LAMA** Fritz Huber and the Lanz Bulldog: How the hot bulb engine revolutionized agriculture
- **MS-MUC LAMA** From “Get Away with Electronics” to Essential: How Agricultural Tech Earned Trust and Delivered Real Relief
- **logiBUS** From “Mass Errors” to Masterpiece: Streamlining Industrial Software by Eliminating Mapping
- **[YouTube]** From 1,400 errors to zero
- **[YouTube]** From clicks to chips
- **Eclipse 4diac (EN)** From Pyramid to Plug-and-Play: The Rise of Self-Configurable Industrial Automation
- **MS-MUC LAMA** From Workshop Grease to Wireless Updates: How One Man Bridged Mechanics and Digital AgTech for MF
- **[YouTube]** Frustration to Function Agri Tech’s Evolution
- **[YouTube]** Functional Safety: How Machine Safety Works!
- **IEC 61499 Basic Course (DE)** Function Blocks and Instances: Understanding the Modular System for Modern Agricultural and Construction Machinery
- **IEC 61499 Basic Course (DE)** Future Automation Unlocked: Powering “Plug & Produce” and Protecting Your Privacy
- **MS-MUC LAMA** [G50 Wood Chip Stress Test: What’s Making Your Heating System Crack]](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/G50-Hackgut-Stresstest-Was-die-Heizung-knackt-e3chov8>)
- **[YouTube]** [George Boole: The Code of Our World]](<https://www.youtube.com/watch?v=Ojhzj9PCbkk>)

- **MS-MUC LAMA** [George Boole: How a Self-Taught Man Laid the Foundation of Our Digital World with 0s and 1s]](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/George-Boole-Wie-ein-Autodidakt-mit-0-und-1-das-Fundament-unserer-digitalen-Welt-legte-e39hb34>)
- **[YouTube]** [Germany's Green Energy Crossroads]](<https://www.youtube.com/watch?v=eaoJMAfeGTg>)
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- **[YouTube]** Device Manager 2022 10 18 17 38 10
- **MS-MUC LAMA** Hot Bulb Dilemma and Missed Opportunities: The Critical Years That Led to the Sale of Lanz to John Deere.
- **MS-MUC LAMA** Hot Bulb Engine: The Ingenious Third Way Between Diesel and Gasoline – Lanz Bulldog, Blowtorch, and the
- **[YouTube]** Hacker Night: Code, Monitors & Secrets That Keep Us Awake!
- **[YouTube]** Wood Chip Conveyor
- **MS-MUC LAMA** Hannes' Turbo Corn: How a Farmer Processes 15,000 Tons of Grain Corn with a Wood Chip Recycling System and Tower Dryer
- **[YouTube]** Heinrich Lanz: Man, Myth, Empire
- **[YouTube]** Hero of the Auto Nervous System TLE9351VSJ
- **MS-MUC LAMA** High-Tech in the Barn: How Fliegl Uses Codesys Manure Processing revolutionized
- **MS-MUC LAMA** Hochreiter the true origin of AI
- **[YouTube]** Horsch: Chance as a brand - How chance (and red paint) created a global brand
- **[YouTube]** Flashing a DIN rail moped with Merged Flash
- **[YouTube]** Editing the logiBUS® wlan.ini on a DIN rail moped – Channel
- **[YouTube]** Editing the logiBUS® wlan.ini on a DIN rail moped – SSID
- **[YouTube]** Establishing a DIN rail moped connection via WLAN
- **MS-MUC LAMA** Ideal Diode vs. Schottky: The Lossless Trick Against Reverse Polarity and Heat
- **[YouTube]** Ideal Diodes
- **[YouTube]** Understanding Ideal Diodes
- **[YouTube]** Understanding Ideal Diodes
- **IEC 61499 Basic Course (DE)** Industrial Revolution Reloaded: Unpacking Plug & Produce, Data Privacy, and ETFA 2025
- **MS-MUC LAMA** [Industry 4.0: Hype or Revolution?] What Really Happens in German Factories](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Industrie-4-0-Hype-oder-Revolution-Was-wirklich-in-deutschen-Fabriken-passiert-e37mb7u>)
- **IEC 61499 Basic Course (DE)** Understanding Industrial Automation: PLC, DCS, SCADA, MES and ERP Decoded – A Journey Through the Smart Factory
- **IEC 61499 Basic Course (DE)** Industrial Automation: The Invisible Forces Behind Your Everyday Life – From Suitcases to the Perfect Apple
- **IEC 61499 Basic Course (DE)** Industrial Automation: Decoding the Vyatkin Pyramid – From Sensor to ERP, and Why Connections Are Everything
- **IEC 61499 Basic Course (DE)** Industrial Networks: The Nervous System of the Modern Factory – OT, IT & the Future of Automation
- **MS-MUC LAMA** Understanding the Infineon BTM9020EP Full Bridge
- **MS-MUC LAMA** Infineon BTS7030-2EPA: Intelligent High-Side Circuit Breaker

- **MS-MUC LAMA** Infineon CAN Transceiver TLE9250V versus TLE9351VSJ
- **MS-MUC LAMA** Infineon MOTIX BTM9020/9021EP: Datasheet Analysis for Automotive – Robust Motor Driver with Intelligent Diagnostics (HW vs. SPI)
- **MS-MUC LAMA** Infineon TLE9250V the invisible CAN guardian
- **MS-MUC LAMA** Infineon TLE9351VSJ the invisible car bodyguard
- **MS-MUC LAMA** integrated full-bridge ICs MOTIX™ BTM9020EP
- **ISOBUS VT Objects** ISO Designer Demystified: Object-Oriented Thinking for Intelligent User Interfaces
- **MS-MUC LAMA** James Watt and the Industrial Revolution: How an Invention Turned the World Upside Down
- **MS-MUC LAMA** [JBC Soldering Tips C470 vs. C245 vs. C210 vs. C115: Which tip is the all-rounder and when do you need the nano specialist?](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Linear-vs-Schaltregler-Effiziente-Spannungswandlung-verstehen-Vor-und-Nachteile-von-DCDC-Wandlern-im-Detail-e3697ts>)
- **MS-MUC LAMA** JBC Soldering Tip Technology Revealed: Five Times Longer Lifespan and 2-Second Turbo Heat – What the Guide Reveals About Efficiency and Maintenance
- **MS-MUC LAMA** JBC's Soldering Secret: 350 Degrees in 2 Seconds and Why the Tip Determines Efficiency and Lifespan
- **MS-MUC LAMA** JBC's Soldering Secret: 350 Degrees in 2 Seconds and Why the Tip Decides Efficiency and Lifespan
- **MS-MUC LAMA** AI Agents Revolutionize Embedded Development in 10 Steps
- **[YouTube]** Comments on UniversalAutomation.org at IEEE ETFA 2025
- **MS-MUC LAMA** Capacitors and Inductors in Circuits
- **MS-MUC LAMA** Capacitors: Structure, Properties, and Applications
- **MS-MUC LAMA** Assembly Tractors: How Small Manufacturers Use Purchased Engines and Transmissions to Influence German Agriculture
- **MS-MUC LAMA** Powerhouses in Action: The Secret of Hydraulic Cylinders – From Excavators to High-tech machines
- **MS-MUC LAMA** Circular economy: Agriculture without animals impossible
- **[YouTube]** War, collapse, inflation
- **MS-MUC LAMA** Agriculture and Forestry 4.0: The foundation of safety – Analysis of DIN EN ISO 25119-1 and the
- **[YouTube]** Agricultural technology Weihenstephan
- **MS-MUC LAMA** Lanz Alldog: The hot-bulb betrayal – Why Lanz sacrificed its icon for the revolutionary implement carrier
- **MS-MUC LAMA** [Lanz Bulldog, hay harvest and the Race Against Time: A Lesson in Old Technology, Teamwork, and the Dictates of the Weather](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Lt-Meisterklasse-Profi-Tricks-fr-Przisionselektronik-e3augdi>)
- **[YouTube]** Lanz Bulldog: Anatomy of a Downfall
- **[YouTube]** Learn PLC Programming: A Cost-Effective Guide
- **MS-MUC LAMA** Understanding LEDs: From Lighting to the LiFi Future – Why the Series Resistor Matters
- **[YouTube]** Printed Circuit Board
- **MS-MUC LAMA** Printed Circuit Board Design Saves Thousands of Euros
- **MS-MUC LAMA** [Printed Circuit Boards, Assemblies, Components, and...] Soldering](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Leiterplatten-Baugruppen-Bauelemente-und-Lten-e368ii0>)

- **MS-MUC LAMA** Printed Circuit Boards: Manufacturing, Etching, and Assembly
- **MS-MUC LAMA** Supply Chain vs. Psyche: The Two Faces of Resilience – What Connects People and Organizations
- **MS-MUC LAMA** Linear vs. Switching Regulators: Understanding Efficient Voltage Conversion – Advantages and Disadvantages of DC/DC Converters in Detail
- **[YouTube]** LogiBUS Project Update
- **logiBUS** Logibus Revolution: Unpacking the “No Mapping” Future and Streamlined Development
- **[YouTube]** logiBUS Mirror adjustment
- **logiBUS** Logibus Unleashed: How Eliminating “Mapping” Simplifies Complex Systems and Boosts Usability
- **logiBUS** logiBUS’s No-Mapping Revolution: Untangling Industrial Control and User Experience
- **[YouTube]** logiBUS® The End of Mapping
- **[YouTube]** logiBUS® The New Era Without Mapping
- **logiBUS** logiBUS® decoded: How open source & standards are revolutionizing agricultural technology
- **[YouTube]** logiBUS® ESP32 installer Google Chrome 2022 10 18 17 38 33
- **[YouTube]** logiBUS® ESP32 installer Google Chrome 2022 10 18 17 44 27
- **logiBUS** logiBUS® NEW: Mapping Eliminated, Sub-Apps & Direct Configuration – What the Software Really Simplifies
- **logiBUS** logiBUS® without Mapping: Revolution in Control Technology – Simplification, Advantages and Conversion of the I/O System
- **[YouTube]** LogiBUS® without Mapping: Simplified Installation & First Steps for Master Students
- **logiBUS** Understanding logiBUS®: Direct Signal Transmission – The “Hello World” Automation
- **MS-MUC LAMA** Soldering Masterclass: Professional Tricks for Precision Electronics
- **MS-MUC LAMA*** **[YouTube]** Soldering in the Year 2025
- **MS-MUC LAMA** Soldering with Style – The FNIRSI HS-01 Review
- **MS-MUC LAMA** Soldering from Classic to High-Tech Tools
- **[YouTube]** Soldering Like a Pro
- **MS-MUC LAMA** Soldering Iron Analysis: Active vs. Passive, Weller, Ersa, JBC and the USB-C Revolution – The Professional Guide for Mechatronics Engineers
- **[YouTube]** Make a sequence where an excavator loads sand onto a truck. #ai #ki
- **MS-MUC LAMA** Protecting Solenoid Valves: Your Guide Against Voltage Spikes in Agricultural and Construction Machinery
- **[YouTube]** Removing Mapping with Christoph Behr - 2025/09/24 13:57 CEST – Recording
- **logiBUS** Goodbye Mapping Layer: Streamlining logiBUS® Projects
- **[YouTube]** Mastering Ohm’s Law: The Electronics Primer Explains Series Circuits, Parallel Circuits, and the Me
- **MS-MUC LAMA** Max Eyth and the Success of the Royal Agricultural Society: How Science and Practice Shaped British Agriculture revolutionized
- **MS-MUC LAMA** Max Eyth: Engineer, Visionary, Bridge Builder – His Legacy in Technology, Agriculture, and Literature
- **MS-MUC LAMA** Master 2.0: High-Tech, Leadership & Digitalization in the Agricultural and Construction Machinery Trade – The New Framework Curriculum Revealed
- **MS-MUC LAMA** Masters of Change: How the Curriculum for Agricultural and Construction Machinery Mechatronics Technicians Redefines Lifelong Learning

- **MS-MUC LAMA** Masters Learning to Learn: Self-Directed Through the German Curriculum for Agricultural and Construction Machinery Mechatronics Technicians
- **[YouTube]** Masters of Tomorrow Plan 2025
- **IEC 61499 Basic Course (DE)** MES: The Nervous System of the Modern Factory – Real-Time Manufacturing in Focus
- **MS-MUC LAMA** Miniware TS101: The Mobile Soldering All-Rounder – Strengths, Weaknesses, and the USB-C Revolution
- **IEC 61499 Basic Course (DE)** Module 00 - Motivations and Origins
- **IEC 61499 Basic Course (DE)** Module 01 - Software for Industrial Automation - A Development
- **IEC 61499 Basic Course (DE)** Module 01b - Software for Industrial Automation - a development
- **IEC 61499 Basic Course (DE)** Module 02 - The Ecosystem of Industrial Automation
- **[YouTube]** Assembly of DIN Rail Module logiBUS® – Part 1 – Introduction
- **[YouTube]** Assembly of DIN Rail Module logiBUS® – Part 2 – Soldering
- **[YouTube]** Assembly of DIN Rail Module logiBUS® – Part 3 – Soldering
- **[YouTube]** Assembly of DIN Rail Module logiBUS® – Part 4 – Mechanical Assembly
- **MS-MUC LAMA** Moore's Law and Nanometer Wonders: The Unstoppable Journey of the CPU from the C64 to the Smart Car
- **MS-MUC LAMA** MOSFETs: How a Tiny Switch Revolutionized Our Digital World
- **[YouTube]** MOTIX™ BTM9020EP in Detail
- **MS-MUC LAMA** Laws of Nature vs. Standards: Your Compass for Construction Machinery Championship
- **MS-MUC LAMA** Mastering Ohm's Law: The Electronics Primer Explains Series Circuits, Parallel Circuits, and the Me
- **MS-MUC LAMA** Ohm's Law: Basics and Applications
- **MS-MUC LAMA** Open Circuits: The Hidden Beauty and Engineering Inside Our Electronics – Precision Work, Cat Hair, and Focus Stacking
- **MS-MUC LAMA** Open Circuits: The Hidden Aesthetics and Fascinating Complexity in the Cross-Section of Our Electronics
- **[YouTube]** Open Circuits: The Inner Beauty
- **MS-MUC LAMA** Open Source in Industry: More Than Code – A Network for Innovation and Collaboration
- **MS-MUC LAMA** Understanding Operational Amplifiers: The Magic of Ideal Op-Amps and Negative Feedback for Circuit Analysis
- **MS-MUC LAMA** Optical Amplifiers: Measuring Impedance and Cable Length (Simple TDR)
- **MS-MUC LAMA** Oskar von Miller: Genius, Power Player, Visionary – How the Man Behind the German Museum Bavaria with
- **MS-MUC LAMA** Parallel Circuit of Resistors: Basics and Applications
- **MS-MUC LAMA** Pinecil Power Guide: USB-C PD, Batteries & DC Traps – Maximum Power for Your Soldering Iron
- **MS-MUC LAMA** Pinecil Power Supply: Safe, Efficient, Durable – The Ultimate Guide
- **MS-MUC LAMA** PINECIL: The Intelligent RISC-V Soldering Iron
- **MS-MUC LAMA** [Circuit Defective, Device Scrap? Replacing Components Yourself – Save Money and Avoid Electronic Waste(<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Smart-Farming-Vision-1991-Auernhammers-Blaupausen-e3b09r2>)
- **IEC 61499 Basic Course (DE)** PLC vs. SCADA: The Nerve Centers of Industry – Security, Efficiency, and Challenges

- **MS-MUC LAMA** PROFET vs. MOSFET: Intelligent Switches for Automotive and Industry
- **[YouTube]** Analyzing Project Setup: Let's Check the Structure!
- **IEC 61499 Basic Course (DE)** QUARTER
- **IEC 61499 Basic Course (DE)** R_TRIG & F_TRIG: One-Time Actions in the Cyclic PLC World of IEC 61131-3
- **IEC 61499 Basic Course (DE)** [R_TRIG & F_TRIG: How PLCs reliably detect signal edges – without double processing]](https://podcasters.spotify.com/pod/show/iec-61499-grundkurs-de/episodes/R_TRIG-F_TRIG-So-erkennen-SPS-Steuerungen-Signalfanken-zuverlssig-ohne-Doppel-behandlung-e370kqh)
- **MS-MUC LAMA** [RASE: How 19th-Century England Revolutionized Agriculture Through “Practice with Science”]](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/RASE-How-19th-Century-England-Revolutionized-Agriculture-Through-Practice-with-Science-e36eb1v>)
- **MS-MUC LAMA** [RASE: How England's agricultural revolution conquered the world through practice, science, and steam engines (according to Max Eyth)]](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/RASE-Wie-Englands-Agrar-Revolution-durch-Praxis-Wissenschaft-und-Dampfmaschinen-die-Welt-eroberte-nach-Max-Eyth-e38diha>)
- **MS-MUC LAMA** [Series connection of resistors: Fundamentals and behavior]](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Reihenschaltung-von-Widerstnden-Grundlagen-und-Verhalten-e368ie0>)
- **IEC 61499 Basic Course (DE)** Revolution of the Factory: How Software is Changing Industrial Automation and Our Everyday Lives
- **IEC 61499 Basic Course (DE)** Industrial Revolutions: From Steam Engine to AI – A Deep Look into 250 Years of Automation
- **MS-MUC LAMA** Rudolf Diesel: Brilliant Work, Mysterious End – Who Disappeared on the Ferry in 1913?
- **[YouTube]** Run and Debug Using Exercise 1
- **MS-MUC LAMA** Switching vs. Linear Controllers: Efficiency, EMC & the Compromise of Power Electronics
- **MS-MUC LAMA** [Switching, Stuttering, Stability: The Phenomenon of Contact Bouncing and Its Debouncing] in mechanics and electronics](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/Schalter-Stottern-Stabilitt-Das-Phnomen-Kontaktprellen-und-seine-Entprellung-in-der-Mechanik-und-Elektronik-e36ab4u>)
- **[YouTube]** Switch Fail! Why these Amazon buttons cause trouble!
- **logiBUS** Understanding switch logic: How a toggle flip-flop works with logiBUS® – simple control in agricultural technology
- **MS-MUC LAMA** Schlüter 1500 Special: Turbo-toxicity, 40 years and the soul of a powerhouse
- **[YouTube]** Schlüter: Rise & Fall
- **[YouTube]** Training video logiBUS® CAN - SAE J1939 Communication
- **MS-MUC LAMA** Protection Circuitry: Variants and Fundamentals of Voltage Limitation
- **MS-MUC LAMA** Selandia: The Fate of the Fathers of the Diesel Engine and the Revolution of Globalization
- **IEC 61499 Basic Course (DE)** SINT, INT, DINT: Why the Choice of Data Type Decides Efficiency and Errors
- **MS-MUC LAMA** Smart Farming Vision 1991 Auernhammers Blueprints
- **MS-MUC LAMA** Smart Power: How decentralized control reduces energy costs in industrial plants and stabilizes the grid
- **MS-MUC LAMA** SMD Technology: Revolution in Electronics – Curse or Blessing for Modern Devices?
- **MS-MUC LAMA** Voltage Divider: Loaded

- **MS-MUC LAMA** Voltage Divider: Unloaded
- **MS-MUC LAMA** Mastering PLC Programming: Your Roadmap to the In-Demand Industry 4.0 Skills
- **[IEC 61499 Basic Course] (DE)** PLC: The Invisible Brain of Industry – From Robust Hardware to IT/OT Convergence
- **MS-MUC LAMA** Coils and Inductance: Fundamentals of Electronics
- **[YouTube]** SR&T Flip-Flop Exercise 006a
- **MS-MUC LAMA** Standard Interfaces of Embedded Systems
- **MS-MUC LAMA** Strip-Till in Maize Cultivation: How High Precision Saves Water and Protects the Soil – Insights into Agricultural Technology 2024
- **MS-MUC LAMA** Buttons & Events: GPIO Basics for Agricultural and Construction Machinery Mechatronics engineer
- **[YouTube]** Technology in modern soldering irons
- **[YouTube]** The data behind the harvest
- **[YouTube]** The decline of the tractor cult: From the ingenious swivel-chamber engine to the expensive end of...
- **[YouTube]** The downfall of Lanz
- **[YouTube]** The Dual Wi Fi Solution
- **[YouTube]** The E_CTU upcounter
- **[YouTube]** The ETFA 2025 Industry Forum Explained
- **[YouTube]** The Explainer The Hidden Force of Hydraulics
- **[YouTube]** The Explainer The New logiBUS I O System
- **[YouTube]** The future of agriculture
- **[YouTube]** The Future of Automation Inside ETFA 2025
- **[YouTube]** The genius of electronic design
- **[YouTube]** The high-tech harvest
- **[YouTube]** The One Shot Signal How PLCs Prevent Double Takes
- **[YouTube]** The powerful relay
- **[YouTube]** The Refactoring Saga Deleting to Improve
- **[YouTube]** The Relay Mystery
- **[YouTube]** The secret of the field
- **[YouTube]** The secret of the tractor
- **[YouTube]** The silent failure
- **MS-MUC LAMA** The Unseen Powerhouse: From Ancient Water Pumps to Modern Mechatronics in Oil Hydraulics
- **[YouTube]** The Unsung Hero of Hydraulic Safety
- **MS-MUC LAMA** The VBCD DE-A Valve: Unpacking the Silent Guardian of Hydraulic Safety and Precision
- **[YouTube]** TLE9250V CAN Transceiver
- **[YouTube]** Turning a Hobby Chip into an Industrial Powerhouse
- **MS-MUC LAMA** TVS Diodes: Fundamentals, Function and Applications
- **[YouTube]** Understanding the relay
- **IEC 61499 Basic Course (DE)** Universal Automation: How to Decouple Software and Hardware for the Future of Industry

- **MS-MUC LAMA** Unlock Simultaneous Connectivity: Your Guide to Dual Wi-Fi for Uninterrupted Local Device Control
- **MS-MUC LAMA** Unlocking Property Power: Your Custom Blueprint for Energy Self-Sufficiency and Diesel Savings
- **IEC 61499 Prime Course (EN)** Unpacking E_T_FF_SR: The Secret Toggle Switch of Industrial Control Systems
- **ISOBUS VT Objects** Unpacking ISO-Designer: Crafting Intuitive Industrial UIs for Complex Machines
- **[YouTube]** work with 2 WiFi connections under Windows 10
- **MS-MUC LAMA** VBCD DE A: Il Cuore Idraulico per Sicurezza e Controllo di Carichi Estremi
- **MS-MUC LAMA** VBCD DE A “”“”
- **MS-MUC LAMA** Constitutional Art 1946: Bavaria’s Educational Mission between Patriotism, Democracy, and Reconciliation between Nations
- **[YouTube]** Reverse Polarity Protection Solved
- **MS-MUC LAMA** Reverse Polarity Protection in Electronics: Why the Ideal Diode (LM74700) Beats MOSFETs and Schottky Diodes in Efficiency and Cost
- **[YouTube]** Via in Pad Plated Over
- **MS-MUC LAMA** [VIPPO and Gallium Nitride: How printed circuit boards tame the heat of GaN FETs in agricultural and construction machinery]](<https://podcasters.spotify.com/pod/show/ms-muc-lama/episodes/VIPPO-und-Galliumnitrid-Wie-Leiterplatten-die-Hitze-von-GaN-FETs-in-Land-und-Baumaschinen-bndigen-e3abgvd>)
- **[YouTube]** [VLF AÖ-MÜ / 20 Years of the EEG - What Now? Lecture 1: Prof. Wolfgang Wieser (Hydrogen...)]](<https://www.youtube.com/watch?v=UzyBU9GCobs>)
- **[YouTube]** VLF AÖ-MÜ / 20 Years of the EEG - What Now? Lecture 2: Achim Kimmich, Climate Coach (PV Storage...)
- **MS-MUC LAMA** From a Bavarian village to the Autodesk Cloud: The fascinating metamorphosis of the software legend EAGLE CAD
- **[YouTube]** From chaos to clarity
- **IEC 61499 Basic Course (DE)** From steam to IoT: The evolution of industrial automation and PLCs
- **MS-MUC LAMA** From rubber boots to GPS: How Hermann Auernhammer revolutionized agriculture
- **MS-MUC LAMA** From “Get that away from me!” For real relief: How electronics conquered agriculture
- **MS-MUC LAMA** From steam power to gasoline engines: Bavarian agriculture in 1906 on the threshold of modernity
- **MS-MUC LAMA** From village workshop to high-tech pioneer: How Lorenz Riegger invented digital agriculture
- **MS-MUC LAMA** From circuit board to module: A journey into the world of electronics manufacturing
- **IEC 61499 Basic Course (DE)** From clicking relays to intelligent code: How software revolutionized industrial control
- **IEC 61499 Basic Course (DE)** [From watts to industry 4.0: How Software Became the Heart of the Factory
- **[YouTube]** [Why Computers Use 0 & 1]
- **[YouTube]** [Why Animals Are Essential]
- **MS-MUC LAMA** [Resistance to New Head or Team DNA]
- **MS-MUC LAMA** [How Simple Switches “Think”: The Fundamentals of Digital Technology – Gates, Logic, and the Power of 1 and 0]
- **MS-MUC LAMA** [Zener Diodes: Function, Effects, and Applications in Electronics]
- **MS-MUC LAMA** [Two WLANs Simultaneously in Windows 10: The Ingenious USB Stick Solution] For IoT devices without internet interruption](<https://podcasters.spotify.com/pod/show/ms-muc-lama/>)

[episodes/Zwei-WLANs-gleichzeitig-in-Windows-10-Die-geniale-USB-Stick-Lsung-fr-IoT-Gerte-ohne-Internet-Unterbrechung-e375643\)](#)

- **MS-MUC LAMA** Oil Hydraulics Unleashed: How Power, Efficiency, and Smart Control Drive Machines
- **MS-MUC LAMA** Oil Hydraulics: The Invisible Heroes of Cleanliness – Why Filters Are Lifesavers for Your Systems
- **MS-MUC LAMA** Oil Hydraulics: The Invisible Heroes of Cleanliness – Why Filters Are Lifesavers for Your Systems
- **MS-MUC LAMA** * **[YouTube]** Exercise 31: LED control with Devkit without DIN rail moped
- **MS-MUC LAMA**                                    
- **MS-MUC LAMA**                                    

3.4 Planned Topics (Coming Soon)

There are currently no dedicated videos or podcasts available for the following wiki topics. These are planned:

3.4.1 Wiki 0: Main wiki

- Wiki 0: Main Wiki (coming soon)

3.4.2 Wiki 1: C Programming

- Atom Extensions (coming soon)
- Eagle (coming soon)
- Hardware (coming soon)
- DIN Rail Moped (coming soon)
- DIN Rail Moped Inputs (coming soon)
- DIN Rail Moped Extensions (coming soon)
- DIN Rail Moped Connectors (coming soon)
- DIN Rail Moped XL (coming soon)
- ISOBUS Cable Small (coming soon)
- Installation (coming soon)
- Installation and Use of GitKraken: (coming soon)
- IsoAgLib-ISOMAN (coming soon)
- JTAG (coming soon)
- JTAG-S3-USB (coming soon)
- Joystick (coming soon)
- Hardware Calculation (coming soon)
- Lego (coming soon)
- Optional (coming soon)
- Package (coming soon)
- Self-Test (coming soon)
- Setting-up (Linux) (coming soon)
- Installation Setting-up (coming soon)
- Setting-up II (coming soon)
- Wiki 1: C Programming in ISOBUS (coming soon)
- blink_on_atom (coming soon)
- cci_EasyExample (coming soon)
- cci_EasyExample_CAN2IP (coming soon)

3.4.3 Wiki 2: Virtual Terminal

- Attributes (coming soon)
- Edition (coming soon)
- AuxAssignOfApp (coming soon)
- Controls (coming soon)

- Pictures (coming soon)
- Insert bitmaps (coming soon)
- Containers (coming soon)
- Input (coming soon)
- Entries from students (coming soon)
- Features (coming soon)
- ID 0 – Working set – ISO 11783-6 – B.1 (coming soon)
- ID 1 – Data mask – ISO 11783-6 – B.2 (coming soon)
- ID 10 – Input list – ISO 11783-6 – B.8.5 (coming soon)
- ID 11 – Output string – ISO 11783-6 – B.9.2 (coming soon)
- ID 12 – Output number – ISO 11783-6 – B.9.3 (coming soon)
- ID 13 – Output line – ISO 11783-6 – B.10.2 (coming soon)
- ID 14 – Output rectangle – ISO 11783-6 – B.10.3 (coming soon)
- ID 15 – Output ellipse – ISO 11783-6 – B.10.4 (coming soon)
- ID 16 – Output polygon – ISO 11783-6 – B.10.5 (coming soon)
- ID 17 – Output meter – ISO 11783-6 – B.11.2 (coming soon)
- ID 18 – Output linear bar graph – ISO 11783-6 – B.11.3 (coming soon)
- ID 19 – Output arched bar graph – ISO 11783-6 – B.11.4 (coming soon)
- ID 2 – Alarm Mask – ISO 11783-6 – B.3 (coming soon)
- ID 20 – Picture graphic – ISO 11783-6 – B.12.2 (coming soon)
- ID 21 – Number variable – ISO 11783-6 – B.13.2 (coming soon)
- ID 22 – String variable – ISO 11783-6 – B.13.3 (coming soon)
- ID 23 – Font attributes – ISO 11783-6 – B.14.2 (coming soon)
- ID 24 – Line attributes – ISO 11783-6 – B.14.3 (coming soon)
- ID 25 – Fill attributes – ISO 11783-6 – B.14.4 (coming soon)
- ID 26 – Input attributes – ISO 11783-6 – B.14.5 (coming soon)
- ID 27 – Object pointer – ISO 11783-6 – B.15 (coming soon)
- ID 28 – Macro – ISO 11783-6 – B.16 (coming soon)
- ID 29 – Auxiliary Function Type 1 – ISO 11783-6 – J.4.2 (coming soon)
- ID 3 – Container – ISO 11783-6 – B.4 (coming soon)
- ID 30 – Auxiliary Input Type 1 – ISO 11783-6 – J.4.4 (coming soon)
- ID 31 – Auxiliary Function Type 2 – ISO 11783-6 – J.4.3 (coming soon)
- ID 32 – Auxiliary Input Type 2 – ISO 11783-6 – J.4.5 (coming soon)
- ID 33 – Auxiliary Control Designator Type 2 Object Pointer – ISO 11783-6 – J.4.7 (coming soon)
- ID 34 – Window Mask – ISO 11783-6 – B.19 (coming soon)
- ID 35 – Key Group – ISO 11783-6 – B.20 (coming soon)
- ID 36 – Graphics Context Object – ISO 11783-6 – B.18 (coming soon)
- ID 37 – Output List – ISO 11783-6 – B.9.4 (coming soon)
- ID 38 – Extended Input Attributes – ISO 11783-6 – B.14.6 (coming soon)
- ID 39 – Color Map – ISO 11783-6 – B.17 (coming soon)
- ID 4 – Soft Key Mask – ISO 11783-6 – B.5 (coming soon)
- ID 40 – Object Label Reference List – ISO 11783-6 – B.21 (coming soon)
- ID 41 – External Object Definition – ISO 11783-6 – B.22 (coming soon)
- ID 42 – External Reference NAME – ISO 11783-6 – B.23 (coming soon)
- ID 43 – External Object Pointer – ISO 11783-6 – B.24 (coming soon)
- ID 44 – Animation – ISO 11783-6 – B.25 (coming soon)
- ID 45 – Color Palette – ISO 11783-6 – B.26 (coming soon)
- ID 46 – Graphic Data (PNG) – ISO 11783-6 – B.27 (coming soon)
- ID 47 – Working Set Special Controls – ISO 11783-6 – B.29 (coming soon)
- ID 48 – Scaled Graphic – ISO 11783-6 – B.28 (coming soon)
- ID 5 – Key (Soft Key) – ISO 11783-6 – B.6 (coming soon)
- ID 6 – Button – ISO 11783-6 – B.7 (coming soon)
- ID 7 – Input boolean – ISO 11783-6 – B.8.2 (coming soon)
- ID 8 – Input string – ISO 11783-6 – B.8.3 (coming soon)
- ID 9 – Input number – ISO 11783-6 – B.8.4 (coming soon)
- ISOBUS object IDs (coming soon)
- ISOBUS objects (coming soon)
- ISOBUS VT objects (coming soon)
- ISOBUS object versions (coming soon)

- Open Jetter ISO Designer Workspace (coming soon)
- Jetter ISO designer (coming soon)
- Masks (coming soon)
- Objects (coming soon)
- Variables (coming soon)
- Create vector graphics (coming soon)
- Videos (coming soon)
- Wiki 2: ISOBUS Virtual Terminal (coming soon)
- logiBUS® (coming soon)

3.4.4 Wiki 3: ISOBUS Technology

- **Vehicle Direction/Speed (VDS) – PGN 65256 (0x18FEE8FE) in the J1939 protocol** (coming soon)
- AEF ISOBUS CHECK Tool (coming soon)
- Flowcharts (coming soon)
- Bus Master (coming soon)
- C Programming (coming soon)
- CCI Displays (coming soon)
- COG & SOG, Rapid Update (PGN 129026) in the NMEA 2000 standard (coming soon)
- GPS Simulation on the Display (coming soon)
- GPS Simulation via PC (avangardo) (coming soon)
- Basic Connections (coming soon)
- IEC Programming according to IEC 61131-3 (coming soon)
- ISO/OSI Layer Model (coming soon)
- Literature (coming soon)
- Literature on C Programming (coming soon)
- Literature on ESP32 (coming soon)
- Literature on ISOBUS Standards (coming soon) soon)
- Literature SAE-J1939 (coming soon)
- Literature CAN bus (coming soon)
- Literature ISOBUS (coming soon)
- Operators (coming soon)
- PEAK (coming soon)
- PEAK adapter cable (coming soon)
- PEAK driver (coming soon)
- PEAK driver2 (coming soon) *PGN (coming soon)
- PGN 61474 (coming soon)
- PGN 65091 (coming soon)
- PGN 65092 (coming soon)
- PGN 65093 (coming soon)
- PGN 65094 (coming soon)
- PGN 65096 (coming soon)
- PGN 65097 (coming soon)
- PGN 65267 (coming soon)
- Pconvert teaching materials (coming soon)

- UT-VT-AUX (coming soon)
- VNC mirroring (coming soon)
- Wiki 3: ISOBUS technology (coming soon)
- nx_farm_display (coming soon)
- pconvert (coming soon)

3.4.5 Wiki 4: Visual Languages

- Create a new 4Diac project (coming soon)
- A2X (BOOL) (coming soon)
- A2X_2AX_TO_2X (coming soon)
- A2X_2X_TO_2AX (coming soon)
- A2X_2X_TO_BOOL (coming soon)
- A2X_BOOL_TO_2X (coming soon)
- AB (BYTE) (coming soon)
- AB2 (coming soon)
- AB2_BYTE_TO_B (coming soon)
- AB2_B_TO_BYTE (coming soon)
- AB_BYTE_TO_B (coming soon)
- AB_B_TO_BYTE (coming soon)
- AD (DWORD) (coming soon)
- ADDRESS (coming soon)
- ADD_2 (coming soon)
- ADD_3 (coming soon)
- ADD_4 (coming soon)
- ADI (DINT) (coming soon)
- ADI_DINT_TO_DI (coming soon)
- ADI_DI_TO_DINT (coming soon) *ADS (coming soon)
- ADS_SERVER_CONFIG (coming soon)
- AD_AUDI Conversion (coming soon)
- AD_DWORD_TO_D (coming soon)
- AD_D_TO_DWORD (coming soon)
- AD_TO_AUDI (coming soon)
- AE (EVENT) (coming soon)
- AE2 (coming soon)
- AE2_EVENT_TO_E (coming soon)
- AE2_E_TO_EVENT (coming soon)
- AE2_SPLIT_MERGE (coming soon)
- AE2_SPLIT_MERGE_FORWARD (coming soon)
- AE_EVENT_TO_E (coming soon)
- AE_E_TO_EVENT (coming soon)
- AI (INT) (coming soon)
- AI_INT_TO_I (coming soon)

- AI_I_TO_INT (coming soon)
- AL (LWORD) (coming soon)
- ALI (LINT) (coming soon)
- ALI_LINT_TO_LI (coming soon)
- ALI_LI_TO_LINT (coming soon)
- ALR (LREAL) (coming soon)
- ALR_LREAL_TO_LR (coming soon)
- ALR_LR_TO_LREAL (coming soon)
- AL_LWORD_TO_L (coming soon)
- AL_L_TO_LWORD (coming soon)
- AND_10 (coming soon)
- AND_10_BOOL (coming soon)
- AND_2 (coming soon)
- AND_2_BOOL (coming soon)
- AND_3 (coming soon)
- AND_3_BOOL (coming soon)
- AND_4 (coming soon)
- AND_4_BOOL (coming soon)
- AND_5 (coming soon)
- AND_5_BOOL (coming soon)
- AND_6 (coming soon)
- AND_6_BOOL (coming soon)
- AND_7 (coming soon)
- AND_7_BOOL (coming soon)
- AND_8 (coming soon)
- AND_8_BOOL (coming soon)
- AND_9 (coming soon)
- AND_9_BOOL (coming soon)
- AR (REAL) (coming soon)
- ARR08B_TO_BYTES (coming soon)
- ARR08B_TO_ST08B (coming soon)
- ARR08X_TO_BOOLS (coming soon)
- ARR08X_TO_BYTE (coming soon)
- ARR08X_TO_ST08X (coming soon)
- ARRAY2ARRAY_2_LREAL (coming soon)
- ARRAY2VALUES_2_LREAL (coming soon)
- ARTIMEOUT (coming soon)
- AR_REAL_TO_R (coming soon)
- AR_R_TO_REAL (coming soon)
- AS (SINT) (coming soon)
- ASR (EVENT) (coming soon)

- ASR2 (coming soon)
- ASR2_4EVENTS_TO_SR2 (coming soon)
- ASR2_SR2_TO_4EVENTS (coming soon)
- ASR_2EVENTS_TO_SR (coming soon)
- ASR_AX_SR (coming soon)
- ASR_SR_TO_2EVENTS (coming soon)
- ASSEMBLE_BYTE_FROM_BOOLS (coming soon)
- ASSEMBLE_BYTE_FROM_QUARTERS (coming soon)
- ASSEMBLE_DWORD_FROM_BOOLS (coming soon)
- ASSEMBLE_DWORD_FROM_BYTES (coming soon)
- ASSEMBLE_DWORD_FROM_QUARTERS (coming soon)
- ASSEMBLE_DWORD_FROM_WORDS (coming soon)
- ASSEMBLE_LWORD_FROM_BOOLS (coming soon)
- ASSEMBLE_LWORD_FROM_QUARTERS (coming soon)
- ASSEMBLE_WORD_FROM_BOOLS (coming soon)
- ASSEMBLE_WORD_FROM_BYTES (coming soon)
- ASSEMBLE_WORD_FROM_QUARTERS (coming soon)
- AS_SINT_TO_S (coming soon)
- AS_S_TO_SINT (coming soon)
- ATimeout (coming soon)
- AUDI (UDINT) (coming soon)
- AUDI_CTUD_UDINT (adapter-based up/down counter) (coming soon)
- AUDI_TO_AD (coming soon)
- AUDI_UDINT_TO_UDI (coming soon)
- AUDI_UDI_TO_UDINT (coming soon)
- AUI (UINT) (coming soon)
- AUI_UINT_TO_UI (coming soon)
- AUI_UI_TO_UINT (coming soon)
- AULI (ULINT) (coming soon)
- AULI_ULINT_TO_ULI (coming soon)
- AULI_ULI_TO_ULINT (coming soon)
- OFF (USINT) (coming soon)
- AUS_USINT_TO_US (coming soon)
- AUS_US_TO_USINT (coming soon)
- AW (WORD) (coming soon)
- AW_WORD_TO_W (coming soon)
- AW_W_TO_WORD (coming soon)
- AX (BOOL) (coming soon)
- AX2 (coming soon)
- AX2_BOOL_TO_X (coming soon)
- AX2_X_TO_BOOL (coming soon)

- AX_AE_MERGE (coming soon)
- AX_AND_2 (coming soon)
- AX_AND_3 (coming soon)
- AX_AND_4 (coming soon)
- AX_ASR_SWITCH / AX_ASR_SWITCH_X (coming soon)
- AX_BLINK (coming soon)
- AX_BLINK_TRAIN (coming soon)
- AX_BOOL_TO_X (coming soon)
- AX_CYCLE (coming soon)
- AX_DEMUX_2 (coming soon)
- AX_DEMUX_3 (coming soon)
- AX_DEMUX_4 (coming soon)
- AX_DEMUX_5 (coming soon)
- AX_D_FF (coming soon)
- AX_FB_TOF (coming soon)
- AX_FB_TON (coming soon)
- AX_FB_TP (coming soon)
- AX_INTERLOCK_2 (coming soon)
- AX_MUX_2 (coming soon)
- AX_MUX_3 (coming soon)
- AX_NOT (coming soon)
- AX_OR_10 (coming soon)
- AX_OR_2 (coming soon)
- AX_OR_3 (coming soon)
- AX_OR_4 (coming soon)
- AX_OR_5 (coming soon)
- AX_OR_6 (coming soon)
- AX_OR_7 (coming soon)
- AX_OR_8 (coming soon)
- AX_OR_9 (coming soon)
- AX_PERMIT (Unidirectional Adapter Permit) (coming soon)
- AX_PULSE (coming soon)
- AX_RS (coming soon)
- AX_SEL (coming soon)
- AX_SELECT (coming soon)
- AX_SPLIT_2 (coming soon)
- AX_SPLIT_3 (coming soon)
- AX_SPLIT_4 (coming soon)
- AX_SPLIT_5 (coming soon)
- AX_SPLIT_6 (coming soon)
- AX_SPLIT_7 (coming soon)

- AX_SPLIT_8 (coming soon)
- AX_SPLIT_9 (coming soon)
- AX_SR (coming soon)
- AX_SWITCH (coming soon)
- AX_TOF (coming soon)
- AX_TON (coming soon)
- AX_TONOF (coming soon)
- AX_TP (coming soon)
- AX_T_FF (coming soon)
- AX_T_FF_SR (coming soon)
- AX_XOR_2 (coming soon)
- AX_XOR_3 (coming soon)
- AX_XOR_4 (coming soon)
- AX_XOR_5 (coming soon)
- AX_XOR_6 (coming soon)
- AX_XOR_7 (coming soon)
- AX_XOR_8 (coming soon)
- AX_X_TO_BOOL (coming soon)
- Demarcation and classification (coming soon)
- AlPgnRxNew8B (coming soon)
- AlPgnRxNew8B_REQ (coming soon)
- AlPgnRxNew8Bcylc (coming soon)
- AlPgnRxNew8Bcylc_REQ (coming soon)
- AlPgnTxNew8B (coming soon)
- AlPgnTxNew8B_REQ (coming soon)
- AlPgnTxNew8Bcycl (coming soon)
- AlPgnTxNew8Bcycl_REQ (coming soon)
- General (coming soon)
- Arithmetic functions (coming soon)
- Selection functions (coming soon)
- Aux_IE (coming soon)
- Aux_IX (coming soon)
- Aux_IXA (coming soon)
- Aux_QD (coming soon)
- Aux_QX (coming soon)
- Aux_QXA (coming soon)
- Aux_Val1_IW (coming soon)
- Aux_Val1_QW (coming soon)
- Aux_Val2_IW (coming soon)
- Auxiliary (coming soon)
- AuxiliaryState (coming soon)

- AuxiliaryState_S (coming soon)
- BCD conversions (coming soon)
- BOOL (coming soon)
- BOOL conversions (coming soon)
- BOOLS_TO_ARR08X (coming soon)
- BOOLS_TO_QUARTERS (coming soon)
- BOOLS_TO_ST08X (coming soon)
- BOOL_TO_QUARTER (coming soon)
- BYTE (coming soon)
- BYTE conversions (coming soon)
- BYTES_TO_ARR08B (coming soon)
- BYTES_TO_ST08B (coming soon)
- BYTE_TO_ARR08X (coming soon)
- BYTE_TO_ST08X (coming soon)
- BaseMemberExternAdd (coming soon)
- Basic (coming soon)
- Basic logic and direct connections (coming soon)
- BeagleBoneBlack (coming soon)
- Libraries (coming soon)
- Preparing images for ISOBUS. (coming soon)
- Bistable elements (coming soon)
- Bitwise operators (coming soon)
- BlinkMarine (coming soon)
- Building (coming soon)
- Button (coming soon)
- ButtonActivationCode (coming soon)
- ButtonActivationCode_S (coming soon)
- Button_IE (coming soon)
- Button_IX (coming soon)
- Button_IXA (coming soon)
- Books German (coming soon)
- Books English (coming soon)
- CAN_MSG (coming soon)
- CF_INFO_T (coming soon)
- CF_NAME_T (coming soon)
- CLIENT_0 (coming soon)
- CLIENT_0_1 (coming soon)
- CLIENT_1 (coming soon)
- CLIENT_1_0 (coming soon)
- CLIENT_2_1 (coming soon)
- CLIENT_3_2 (coming soon)

- CONSTANTS_MATH (coming soon)
- CSV_WRITER_1 (coming soon)
- CSV_WRITER_10 (coming soon)
- CSV_WRITER_2 (coming soon)
- CSV_WRITER_3 (coming soon)
- CSV_WRITER_4 (coming soon)
- CSV_WRITER_5 (coming soon)
- CSV_WRITER_6 (coming soon)
- CSV_WRITER_7 (coming soon)
- CSV_WRITER_8 (coming soon)
- CSV_WRITER_9 (coming soon)
- CTRL_IN (coming soon)
- CTRL_OUT (coming soon)
- CTRL_PI (coming soon)
- CTRL_PID (coming soon)
- CYCLE_TIME (coming soon)
- Callback (coming soon)
- CallbackFB (coming soon)
- CbVtStatus (coming soon)
- CommunicationPartners (coming soon)
- Computers (coming soon)
- Config_EMB_RES (coming soon)
- Constants (coming soon) *Control (coming soon)
- DEAD_ZONE (coming soon)
- DINT Conversion (coming soon)
- DINT conversions (coming soon)
- DI_CAN (coming soon)
- DO LED (coming soon)
- DO servo (coming soon)
- DT conversions (coming soon)
- DWORD Conversion (coming soon)
- DWORD conversions (coming soon)
- D_TRUNC (coming soon)
- The first project (coming soon)
- Data Panel (coming soon)
- DataPanel_AMP_FEEDBACK_SAE_J1939 (coming soon)
- DataPanel_FREQ_SAE_J1939 (coming soon)
- DataPanel_LO_DO (coming soon)
- DataPanel_LO_DO_S (coming soon)
- DataPanel_LO_QX (coming soon)
- DataPanel_LO_QXA (coming soon)

- DataPanel_MI_AI (coming soon)
- DataPanel_MI_AI_S (coming soon)
- DataPanel_MI_DI (coming soon)
- DataPanel_MI_DI_S (coming soon)
- DataPanel_MI_DO (coming soon)
- DataPanel_MI_DO_S (coming soon)
- DataPanel_MI_IW (coming soon)
- DataPanel_MI_IX (coming soon)
- DataPanel_MI_IXA (coming soon)
- DataPanel_MI_QW_PWM (coming soon)
- DataPanel_MI_QW_PWMi (coming soon)
- DataPanel_MI_QW_PWMp (coming soon)
- DataPanel_MI_QX (coming soon)
- DataPanel_MI_QXA (coming soon)
- DataPanel_STATUS_SAE_J1939 (coming soon)
- Data_types (coming soon)
- Data type detail: BOOL (coming soon)
- Data type detail: BYTE (coming soon)
- Data type detail: DATE (coming soon)
- Data type detail: DATE_AND_TIME (DT) (coming soon)
- Data type detail: DINT (coming soon)
- Data type detail: DWORD (coming soon)
- Data type detail: INT (coming soon)
- Data type detail: LDATE (coming soon)
- Data type detail: LDT (coming soon)
- Data type detail: LINT (coming soon)
- Data type detail: LREAL (coming soon)
- Data type detail: LTIME (coming soon)
- Data type detail: LTOD (coming soon)
- Data type detail: LWORD (coming soon)
- Data type detail: QUARTER (coming soon)
- Data Type Detail: REAL (coming soon)
- Data Type Detail: SINT (coming soon)
- Data Type Detail: STRING (coming soon)
- Data Type Detail: TIME (coming soon)
- Data Type Detail: TIME_OF_DAY (TOD) (coming soon)
- Data Type Detail: UDINT (coming soon)
- Data Type Detail: UINT (coming soon)
- Data Type Detail: ULINT (coming soon)
- Data Type Detail: USINT (coming soon)
- Data Type Detail: WORD (coming soon)

- Data Type Detail: WSTRING (coming soon)
- Data Type: BOOL (coming soon)
- Data Type: BYTE (coming soon)
- Data Type: CHAR (coming soon)
- Data Type: DATE (coming soon)
- Data Type: DATE_AND_TIME (coming soon)
- Data Type: DINT (coming soon)
- Data type: DWORD (coming soon)
- Data type: INT (coming soon)
- Data type: LDATE (coming soon)
- Data type: LDT (coming soon)
- Data type: LINT (coming soon)
- Data type: LREAL (coming soon)
- Data type: LTIME (coming soon)
- Data type: LTOD (coming soon)
- Data type: LWORD (coming soon)
- Data type: QUARTER (coming soon)
- Data type: REAL (coming soon)
- Data type: SINT (coming soon)
- Data type: STRING (coming soon)
- Data type: TIME (coming soon)
- Data type: TIME_OF_DAY (coming soon)
- Data type: UDINT (coming soon)
- Data type: UINT (coming soon)
- Data type: ULINT (coming soon)
- Data type: USINT (coming soon)
- Data type: WCHAR (coming soon)
- Data type: WORD (coming soon)
- Data type: WSTRING (coming soon)
- Data types (overview) (coming soon)
- DualCAN ESP32 (coming soon)
- DualCAN ESP32S3 (coming soon)
- DualCAN deca output ESP32S3 (coming soon)
- DualCAN hex output ESP32 (coming soon)
- DualCAN octa output ESP32S3 (coming soon)
- DualCAN overview (coming soon)
- DualHysteresis (coming soon)
- DualOut ESP32 (coming soon)
- DualOut ESP32S3 (coming soon)
- DualOut overview (coming soon)
- EBMaster (coming soon)

- EBSlave2181 (coming soon)
- EBSlave2301 (coming soon)
- EC_KILL_ELEM (coming soon)
- EC_SET_EVT (coming soon)
- EC_START_ELEM (coming soon)
- EC_STOP_ELEM (coming soon)
- EMB_RES (coming soon)
- EVENT (coming soon)
- E_CTD (coming soon)
- E_BLINK (coming soon)
- E_BLINK_TRAIN (coming soon)
- E_CTU (coming soon)
- E_CTUD (coming soon)
- E_CTUD_UDINT (coming soon)
- E_CYCLE (coming soon)
- E_DELAY (coming soon)
- E_DEMUX (coming soon)
- E_DEMUX_2 (coming soon)
- E_DEMUX_4 (coming soon)
- E_DEMUX_8 (coming soon)
- E_D_FF (coming soon)
- E_F_TRIG (coming soon)
- E_MERGE (coming soon)
- E_MERGE_2 (coming soon)
- E_MERGE_3 (coming soon)
- E_MERGE_4 (coming soon)
- E_MOVE (coming soon)
- E_MUX_2 (coming soon)
- E_MUX_4 (coming soon)
- E_MUX_8 (coming soon)
- E_N_TABLE (coming soon)
- E_PERMIT (coming soon)
- E_PULSE (coming soon)
- E_RDELAY (coming soon)
- E_REND (coming soon)
- E_RESTART (coming soon)
- E_RS (coming soon)
- E_RTimeOut (Resettable Timeout Service) (coming soon)
- E_R_TRIG (Rising Edge Detection) (coming soon)
- E_SELECT (coming soon)
- E_SPLIT (event dispatcher) (coming soon)

- E_SPLIT_2 (coming soon)
- E_SPLIT_3 (coming soon)
- E_SPLIT_4 (coming soon)
- E_SR (coming soon)
- E_SREN (coming soon)
- E_STOPWATCH (coming soon)
- E_SWITCH (coming soon)
- E_TABLE (coming soon)
- E_TABLE_CTRL (coming soon)
- E_TOF (coming soon)
- E_TON (coming soon)
- E_TONOF (coming soon)
- E_TP (coming soon)
- E_TRAIN (coming soon)
- E_TRIG (coming soon)
- E_T_FF (coming soon)
- E_T_FF_SR (coming soon)
- E_TimeOut (coming soon)
- Eclipse 4diac™ (coming soon)
- Eclipse 4diac™ IDE Icon (coming soon)
- Eclipse 4diac™ Update (coming soon)
- EliteBoard (coming soon)
- Engineering (coming soon)
- Esp32EthernetKitIO (coming soon)
- Ethernet (coming soon)
- External Libraries (coming soon)
- FBRT_WINDOW (coming soon)
- FB_CTD (coming soon)
- FB_CTD_DINT (coming soon)
- FB_CTD_LINT (coming soon)
- FB_CTD_UDINT (coming soon)
- FB_CTD_ULINT (coming soon)
- FB_CTU (coming soon)
- FB_CTUD (coming soon)
- FB_CTUD_DINT (coming soon)
- FB_CTUD_LINT (coming soon)
- FB_CTUD_ULINT (coming soon)
- FB_CTU_DINT (coming soon)
- FB_CTU_LINT (coming soon)
- FB_CTU_UDINT (coming soon)
- FB_CTU_ULINT (coming soon)

- FB_F_TRIG (coming soon)
- FB_RANDOM (coming soon)
- FB_RS (coming soon)
- FB_R_TRIG (coming soon)
- FB_SR (coming soon)
- FB_TOF (coming soon)
- FB_TON (coming soon)
- FB_TP (coming soon)
- FIELDBUS_PERCENT_TO_WORD (coming soon)
- FIELDBUS_WORD_TO_PERCENT (coming soon)
- FLOOR (coming soon)
- FLOOR2 (coming soon)
- FORTE_PC (coming soon)
- FRACT (coming soon)
- FT_DERIV (coming soon)
- FT_DERIV_10 (coming soon)
- FT_PIDWL (coming soon)
- FT_PIWL (coming soon)
- FT_PT1 (coming soon)
- FT_PT2 (coming soon)
- F_ABS (coming soon)
- F_ACOS (coming soon)
- F_ADD (coming soon)
- F_ADD_DT_TIME (coming soon)
- F_ADD_TOD_TIME (coming soon)
- F_AND (coming soon)
- F_ASIN (coming soon)
- F_ATAN (coming soon)
- F_BOOL_AS_STRING (coming soon)
- F_BOOL_AS_WSTRING (coming soon)
- F_BOOL_TO_BYTE (coming soon)
- F_BOOL_TO_DINT (coming soon)
- F_BOOL_TO_DWORD (coming soon)
- F_BOOL_TO_INT (coming soon)
- F_BOOL_TO_LINT (coming soon)
- F_BOOL_TO_LWORD (coming soon)
- F_BOOL_TO_SINT (coming soon)
- F_BOOL_TO_UDINT (coming soon)
- F_BOOL_TO_UINT (coming soon)
- F_BOOL_TO_ULINT (coming soon)
- F_BOOL_TO_USINT (coming soon)

- F_BOOL_TO_WORD (coming soon)
- F_BYTE_AS_STRING (coming soon)
- F_BYTE_AS_WSTRING (coming soon)
- F_BYTE_BCD_TO_USINT (coming soon)
- F_BYTE_TO_DINT (coming soon)
- F_BYTE_TO_DWORD (coming soon)
- F_BYTE_TO_INT (coming soon)
- F_BYTE_TO_LINT (coming soon)
- F_BYTE_TO_LWORD (coming soon)
- F_BYTE_TO_SINT (coming soon)
- F_BYTE_TO_UDINT (coming soon)
- F_BYTE_TO_UINT (coming soon)
- F_BYTE_TO_ULINT (coming soon)
- F_BYTE_TO_USINT (coming soon)
- F_BYTE_TO_WORD (coming soon)
- F_CONCAT (coming soon)
- F_CONCAT_DATE_TOD (coming soon)
- F_COS (coming soon)
- F_DELETE (coming soon)
- F_DINT_AS_STRING (coming soon)
- F_DINT_AS_WSTRING (coming soon)
- F_DINT_TO_BYTE (coming soon)
- F_DINT_TO_DWORD (coming soon)
- F_DINT_TO_INT (coming soon)
- F_DINT_TO_LINT (coming soon)
- F_DINT_TO_LREAL (coming soon)
- F_DINT_TO_LWORD (coming soon)
- F_DINT_TO_REAL (coming soon)
- F_DINT_TO_SINT (coming soon)
- F_DINT_TO_UDINT (coming soon)
- F_DINT_TO_UINT (coming soon)
- F_DINT_TO_ULINT (coming soon)
- F_DINT_TO_USINT (coming soon)
- F_DINT_TO_WORD (coming soon)
- F_DIV (coming soon)
- F_DIVTIME (coming soon)
- F_DT_TO_DATE (coming soon)
- F_DT_TO_TOD (coming soon)
- F_DWORD_AS_STRING (coming soon)
- F_DWORD_AS_WSTRING (coming soon)
- F_DWORD_BCD_TO_UDINT (coming soon)

- F_DWORD_TO_BYTE (coming soon)
- F_DWORD_TO_DINT (coming soon)
- F_DWORD_TO_INT (coming soon)
- F_DWORD_TO_LINT (coming soon)
- F_DWORD_TO_LWORD (coming soon)
- F_DWORD_TO_REAL (coming soon)
- F_DWORD_TO_SINT (coming soon)
- F_DWORD_TO_UDINT (coming soon)
- F_DWORD_TO_UINT (coming soon)
- F_DWORD_TO_ULINT (coming soon)
- F_DWORD_TO_USINT (coming soon)
- F_DWORD_TO_WORD (coming soon)
- F_EQ (coming soon)
- F_EXP (coming soon)
- F_EXPT (coming soon)
- F_FIND (coming soon)
- F_GE (coming soon)
- F_GT (coming soon)
- F_INSERT (coming soon)
- F_INT_AS_STRING (coming soon)
- F_INT_AS_WSTRING (coming soon)
- F_INT_TO_BYTE (coming soon)
- F_INT_TO_DINT (coming soon)
- F_INT_TO_DWORD (coming soon)
- F_INT_TO_LINT (coming soon)
- F_INT_TO_LREAL (coming soon)
- F_INT_TO_LWORD (coming soon)
- F_INT_TO_REAL (coming soon)
- F_INT_TO_SINT (coming soon)
- F_INT_TO_UDINT (coming soon)
- F_INT_TO_UINT (coming soon)
- F_INT_TO_ULINT (coming soon)
- F_INT_TO_USINT (coming soon)
- F_INT_TO_WORD (coming soon)
- F_LE (coming soon)
- F_LEFT (coming soon)
- F_LEN (coming soon)
- F_LIMIT (coming soon)
- F_LINT_AS_STRING (coming soon)
- F_LINT_AS_WSTRING (coming soon)
- F_LINT_TO_BYTE (coming soon)

- F_LINT_TO_DINT (coming soon)
- F_LINT_TO_DWORD (coming soon)
- F_LINT_TO_INT (coming soon)
- F_LINT_TO_LREAL (coming soon)
- F_LINT_TO_LWORD (coming soon)
- F_LINT_TO_REAL (coming soon)
- F_LINT_TO_SINT (coming soon)
- F_LINT_TO_UDINT (coming soon)
- F_LINT_TO_UINT (coming soon)
- F_LINT_TO_ULINT (coming soon)
- F_LINT_TO_USINT (coming soon)
- F_LINT_TO_WORD (coming soon)
- F_LN (coming soon)
- F_LOG (coming soon)
- F_LREAL_AS_STRING (coming soon)
- F_LREAL_AS_WSTRING (coming soon)
- F_LREAL_TO_DINT (coming soon)
- F_LREAL_TO_INT (coming soon)
- F_LREAL_TO_LINT (coming soon)
- F_LREAL_TO_LWORD (coming soon)
- F_LREAL_TO_REAL (coming soon)
- F_LREAL_TO_SINT (coming soon)
- F_LREAL_TO_UDINT (coming soon)
- F_LREAL_TO_UINT (coming soon)
- F_LREAL_TO_ULINT (coming soon)
- F_LREAL_TO_USINT (coming soon)
- F_LT (coming soon)
- F_LWORD_AS_STRING (coming soon)
- F_LWORD_AS_WSTRING (coming soon)
- F_LWORD_BCD_TO_ULINT (coming soon)
- F_LWORD_TO_BYTE (coming soon)
- F_LWORD_TO_DINT (coming soon)
- F_LWORD_TO_DWORD (coming soon)
- F_LWORD_TO_INT (coming soon)
- F_LWORD_TO_LINT (coming soon)
- F_LWORD_TO_LREAL (coming soon)
- F_LWORD_TO_SINT (coming soon)
- F_LWORD_TO_UDINT (coming soon)
- F_LWORD_TO_UINT (coming soon)
- F_LWORD_TO_ULINT (coming soon)
- F_LWORD_TO_USINT (coming soon)

- F_LWORD_TO_WORD (coming soon)
- F_MAX (coming soon)
- F_MID (coming soon)
- F_MIN (coming soon)
- F_MOD (coming soon)
- F_MOVE (coming soon)
- F_MUL (coming soon)
- F_MULTIME (coming soon)
- F_MUX_2 (coming soon)
- F_MUX_3 (coming soon)
- F_MUX_4 (coming soon)
- F_NE (coming soon)
- F_NOT (coming soon)
- F_NOT_BOOL (coming soon)
- F_NOW (coming soon)
- F_NOW_MONOTONIC (coming soon)
- F_OR (coming soon)
- F_REAL_AS_STRING (coming soon)
- F_REAL_AS_WSTRING (coming soon)
- F_REAL_TO_DINT (coming soon)
- F_REAL_TO_DWORD (coming soon)
- F_REAL_TO_INT (coming soon)
- F_REAL_TO_LINT (coming soon)
- F_REAL_TO_LREAL (coming soon)
- F_REAL_TO_SINT (coming soon)
- F_REAL_TO_UDINT (coming soon)
- F_REAL_TO_UINT (coming soon)
- F_REAL_TO_ULINT (coming soon)
- F_REAL_TO_USINT (coming soon)
- F_REPLACE (coming soon)
- F_RIGHT (coming soon)
- F_ROL (coming soon)
- F_ROR (coming soon)
- F_SEL (coming soon)
- F_SEL_E_2 (coming soon)
- F_SEL_E_3 (coming soon)
- F_SEL_E_4 (coming soon)
- F_SHL (coming soon)
- F_SHR (coming soon)
- F_SIN (coming soon)
- F_SINT_AS_STRING (coming soon)

- F_SINT_AS_WSTRING (coming soon)
- F_SINT_TO_BYTE (coming soon)
- F_SINT_TO_DINT (coming soon)
- F_SINT_TO_DWORD (coming soon)
- F_SINT_TO_INT (coming soon)
- F_SINT_TO_LINT (coming soon)
- F_SINT_TO_LREAL (coming soon)
- F_SINT_TO_LWORD (coming soon)
- F_SINT_TO_REAL (coming soon)
- F_SINT_TO_UDINT (coming soon)
- F_SINT_TO_UINT (coming soon)
- F_SINT_TO_ULINT (coming soon)
- F_SINT_TO_USINT (coming soon)
- F_SINT_TO_WORD (coming soon)
- F_SQRT (coming soon)
- F_STRING_AS_BOOL (coming soon)
- F_STRING_AS_BYTE (coming soon)
- F_STRING_AS_DINT (coming soon)
- F_STRING_AS_DWORD (coming soon)
- F_STRING_AS_INT (coming soon)
- F_STRING_AS_LINT (coming soon)
- F_STRING_AS_LREAL (coming soon)
- F_STRING_AS_LWORD (coming soon)
- F_STRING_AS_REAL (coming soon)
- F_STRING_AS_SINT (coming soon)
- F_STRING_AS_TIME (coming soon)
- F_STRING_AS_UDINT (coming soon)
- F_STRING_AS_UINT (coming soon)
- F_STRING_AS_ULINT (coming soon)
- F_STRING_AS_USINT (coming soon)
- F_STRING_AS_WORD (coming soon)
- F_STRING_TO_WSTRING (coming soon)
- F_SUB (coming soon)
- F_SUB_DATE_DATE (coming soon)
- F_SUB_DT_DT (coming soon)
- F_SUB_DT_TIME (coming soon)
- F_SUB_TOD_TIME (coming soon)
- F_SUB_TOD_TOD (coming soon)
- F_TAN (coming soon)
- F_TIME_AS_STRING (coming soon)
- F_TIME_AS_WSTRING (coming soon)

- F_TIME_IN_MS_TO_DINT (coming soon)
- F_TIME_IN_MS_TO_LINT (coming soon)
- F_TIME_IN_MS_TO_LREAL (coming soon)
- F_TIME_IN_MS_TO_UDINT (coming soon)
- F_TIME_IN_MS_TO_ULINT (coming soon)
- F_TIME_IN_NS_TO_DINT (coming soon)
- F_TIME_IN_NS_TO_LINT (coming soon)
- F_TIME_IN_NS_TO_LREAL (coming soon)
- F_TIME_IN_NS_TO_UDINT (coming soon)
- F_TIME_IN_NS_TO_ULINT (coming soon)
- F_TIME_IN_S_TO_DINT (coming soon)
- F_TIME_IN_S_TO_LINT (coming soon)
- F_TIME_IN_S_TO_LREAL (coming soon)
- F_TIME_IN_S_TO_UDINT (coming soon)
- F_TIME_IN_S_TO_ULINT (coming soon)
- F_TIME_IN_US_TO_DINT (coming soon)
- F_TIME_IN_US_TO_LINT (coming soon)
- F_TIME_IN_US_TO_LREAL (coming soon)
- F_TIME_IN_US_TO_UDINT (coming soon)
- F_TIME_IN_US_TO_ULINT (coming soon)
- F_TRUNC (coming soon)
- F_UDINT_AS_STRING (coming soon)
- F_UDINT_AS_WSTRING (coming soon)
- F_UDINT_TO_BCD_DWORD (coming soon)
- F_UDINT_TO_BYTE (coming soon)
- F_UDINT_TO_DINT (coming soon)
- F_UDINT_TO_DWORD (coming soon)
- F_UDINT_TO_INT (coming soon)
- F_UDINT_TO_LINT (coming soon)
- F_UDINT_TO_LREAL (coming soon)
- F_UDINT_TO_LWORD (coming soon)
- F_UDINT_TO_REAL (coming soon)
- F_UDINT_TO_SINT (coming soon)
- F_UDINT_TO_UINT (coming soon)
- F_UDINT_TO_ULINT (coming soon)
- F_UDINT_TO_USINT (coming soon)
- F_UDINT_TO_WORD (coming soon)
- F_UINT_AS_STRING (coming soon)
- F_UINT_AS_WSTRING (coming soon)
- F_UINT_TO_BCD_WORD (coming soon)
- F_UINT_TO_BYTE (coming soon)

- F_UINT_TO_DINT (coming soon)
- F_UINT_TO_DWORD (coming soon)
- F_UINT_TO_INT (coming soon)
- F_UINT_TO_LINT (coming soon)
- F_UINT_TO_LREAL (coming soon)
- F_UINT_TO_LWORD (coming soon)
- F_UINT_TO_REAL (coming soon)
- F_UINT_TO_SINT (coming soon)
- F_UINT_TO_UDINT (coming soon)
- F_UINT_TO_ULINT (coming soon)
- F_UINT_TO_USINT (coming soon)
- F_UINT_TO_WORD (coming soon)
- F_ULINT_AS_STRING (coming soon)
- F_ULINT_AS_WSTRING (coming soon)
- F_ULINT_TO_BCD_LWORD (coming soon)
- F_ULINT_TO_BYTE (coming soon)
- F_ULINT_TO_DINT (coming soon)
- F_ULINT_TO_DWORD (coming soon)
- F_ULINT_TO_INT (coming soon)
- F_ULINT_TO_LINT (coming soon)
- F_ULINT_TO_LREAL (coming soon)
- F_ULINT_TO_LWORD (coming soon)
- F_ULINT_TO_REAL (coming soon)
- F_ULINT_TO_SINT (coming soon)
- F_ULINT_TO_UDINT (coming soon)
- F_ULINT_TO_UINT (coming soon)
- F_ULINT_TO_USINT (coming soon)
- F_ULINT_TO_WORD (coming soon)
- F_USINT_AS_STRING (coming soon)
- F_USINT_AS_WSTRING (coming soon)
- F_USINT_TO_BCD_BYTE (coming soon)
- F_USINT_TO_BYTE (coming soon)
- F_USINT_TO_DINT (coming soon)
- F_USINT_TO_DWORD (coming soon)
- F_USINT_TO_INT (coming soon)
- F_USINT_TO_LINT (coming soon)
- F_USINT_TO_LREAL (coming soon)
- F_USINT_TO_LWORD (coming soon)
- F_USINT_TO_REAL (coming soon)
- F_USINT_TO_SINT (coming soon)
- F_USINT_TO_UDINT (coming soon)

- F_USINT_TO_UINT (coming soon)
- F_USINT_TO_ULINT (coming soon)
- F_USINT_TO_WORD (coming soon)
- F_WORD_AS_STRING (coming soon)
- F_WORD_AS_WSTRING (coming soon)
- F_WORD_BCD_TO_UINT (coming soon)
- F_WORD_TO_BYTE (coming soon)
- F_WORD_TO_DINT (coming soon)
- F_WORD_TO_DWORD (coming soon)
- F_WORD_TO_INT (coming soon)
- F_WORD_TO_LINT (coming soon)
- F_WORD_TO_LWORD (coming soon)
- F_WORD_TO_SINT (coming soon)
- F_WORD_TO_UDINT (coming soon)
- F_WORD_TO_UINT (coming soon)
- F_WORD_TO_ULINT (coming soon)
- F_WORD_TO_USINT (coming soon)
- F_WSTRING_AS_BOOL (coming soon)
- F_WSTRING_AS_BYTE (coming soon)
- F_WSTRING_AS_DINT (coming soon)
- F_WSTRING_AS_DWORD (coming soon)
- F_WSTRING_AS_INT (coming soon)
- F_WSTRING_AS_LINT (coming soon)
- F_WSTRING_AS_LREAL (coming soon)
- F_WSTRING_AS_LWORD (coming soon)
- F_WSTRING_AS_REAL (coming soon)
- F_WSTRING_AS_SINT (coming soon)
- F_WSTRING_AS_TIME (coming soon)
- F_WSTRING_AS_UDINT (coming soon)
- F_WSTRING_AS_UINT (coming soon)
- F_WSTRING_AS_ULINT (coming soon)
- F_WSTRING_AS_USINT (coming soon)
- F_WSTRING_AS_WORD (coming soon)
- F_WSTRING_TO_STRING (coming soon)
- F_XOR (coming soon)
- Edge detection (coming soon)
- Flip-Flops & Memory (coming soon)
- Funk (coming soon)
- Funk_DI (coming soon)
- Funk_DI_S (coming soon)
- Funk_IX (coming soon)

- Funk_IXA (coming soon)
- GEN_RMP (coming soon)
- GEN_SIN (coming soon)
- GEN_SQR (coming soon)
- GET_STRUCT_VALUE (coming soon)
- GPIO Chip (coming soon)
- GenericClassName (coming soon)
- GetInstancePath (coming soon)
- GetInstancePathAndName (coming soon)
- Globals (coming soon)
- GreenWhiteBackground (coming soon)
- Basics & Logic (coming soon)
- HANDLE (coming soon)
- HYST (coming soon)
- HYST_1 (coming soon)
- HYST_2 (coming soon)
- HYST_3 (coming soon)
- Hardware (coming soon)
- DIN rail moped (coming soon)
- DIN rail moped XL (coming soon)
- DIN rail moped overview (coming soon)
- IDs (coming soon)
- INI (coming soon)
- INT Conversion (coming soon)
- INT conversions (coming soon)
- INTEGRAL (coming soon)
- INTEGRATE (coming soon)
- IORevPiAIO (coming soon)
- IORevPiCore (coming soon)
- IORevPiDIO (coming soon)
- ISOBUS (coming soon)
- ISOBUS (UT, TECU, TC) (coming soon)
- ISOBUS, softkeys and terminals (coming soon)
- ISONETEVENT_T (coming soon)
- ISO_CAN_NODE (coming soon)
- ISO_NETEVENT_e (coming soon)
- I_COGSORapidUpdate (coming soon)
- I_FHS (coming soon)
- I_FPTO (coming soon)
- I_GBSD (coming soon)
- I_MSS (coming soon)

- I_PosDeltaHighPrecRapidUpd (coming soon)
- I_RHS (coming soon)
- I_RPTO (coming soon)
- I_VDS (coming soon)
- I_VP1 (coming soon)
- I_WBSD (coming soon)
- Installing Eclipse 4diac™ (coming soon)
- IsoCommonDef (coming soon)
- IsoVtcApi (coming soon)
- LED_COLORS (coming soon)
- LED_FREQ (coming soon)
- LED_strip (coming soon)
- LINT conversion (coming soon)
- LINT conversions (coming soon)
- LOG_16 (coming soon)
- LREAL Conversion (coming soon)
- LREAL conversions (coming soon)
- LWORD Conversion (coming soon)
- LWORD conversions (coming soon)
- LeftRight (coming soon)
- Literature on IEC 61499 (coming soon)
- MODR (coming soon)
- MULTIME (coming soon)
- Mathematical (coming soon)
- Modules with low IO density (coming soon)
- Modules with medium IO density (coming soon)
- MyLib (coming soon)
- NAMEFIELD_T (coming soon)
- NVS (coming soon)
- NetEv2NetEv (coming soon)
- Network (coming soon)
- NmGetCfInfo (coming soon)
- NmSetName (coming soon)
- NmSetNameField (coming soon)
- Norms and standards (coming soon)
- NumericValue (coming soon)
- NumericValue_ID (coming soon)
- Numerical functions (coming soon)
- OFFSET (coming soon)
- OFFSET_UDINT (coming soon)
- OR_10 (coming soon)

- OR_10_BOOL (coming soon)
- OR_16 (coming soon)
- OR_16_BOOL (coming soon)
- OR_2 (coming soon)
- OR_2_BOOL (coming soon)
- OR_3 (coming soon)
- OR_3_BOOL (coming soon)
- OR_4 (coming soon)
- OR_4_BOOL (coming soon)
- OR_5 (coming soon)
- OR_5_BOOL (coming soon)
- OR_6 (coming soon)
- OR_6_BOOL (coming soon)
- OR_7 (coming soon)
- OR_7_BOOL (coming soon)
- OR_8 (coming soon)
- OR_8_BOOL (coming soon)
- OR_9 (coming soon)
- OR_9_BOOL (coming soon)
- OSCAT (coming soon)
- OUT (coming soon)
- OUT_ANY_CONSOLE (coming soon)
- PFC200 (coming soon)
- PKP-2200-LI (coming soon)
- PKP_2200 (coming soon)
- PKP_2200_LI_DI (coming soon)
- PKP_2200_LI_DI_S (coming soon)
- PKP_2200_LI_IX (coming soon)
- PKP_2200_LI_IXA (coming soon)
- PLC01A1 (coming soon)
- PLCnext (coming soon)
- PLCnextAXLSEDI16 (coming soon)
- PLCnextAXLSEDO16 (coming soon)
- PLCnextAXLSESC (coming soon)
- PLCnextMaster (coming soon)
- POU's (coming soon)
- POWERLINK_MN (coming soon)
- PUBLISH_0 (coming soon)
- PUBLISH_1 (coming soon)
- PUBLISH_10 (coming soon)
- PUBLISH_2 (coming soon)

- PUBLISH_3 (coming soon)
- PUBLISH_4 (coming soon)
- PUBLISH_5 (coming soon)
- PUBLISH_6 (coming soon)
- PUBLISH_7 (coming soon)
- PUBLISH_8 (coming soon)
- PUBLISH_9 (coming soon)
- PgnDef (coming soon)
- Port (coming soon)
- QUARTERS_TO_BOOLS (coming soon)
- QUARTER_TO_BOOL (coming soon)
- QUARTER_TO_E (coming soon)
- QUARTER_TO_STR_MEASURED (coming soon)
- QUARTER_TO_STR_STATUS (coming soon)
- Q_ActiveMask (coming soon)
- Q_Attribute (coming soon)
- Q_BackgroundColour (coming soon)
- Q_BackgroundColourAux (coming soon)
- Q_ChangeObjectLabel (coming soon)
- Q_ChangePolygonPoint (coming soon)
- Q_ChangePolygonScale (coming soon)
- Q_ChildLocation (coming soon)
- Q_ChildPosition (coming soon)
- Q_CtrlAudioSignal (coming soon)
- Q_ESC (coming soon)
- Q_EndPoint (coming soon)
- Q_ExecuteExtendedMacro (coming soon)
- Q_ExecuteMacro (coming soon)
- Q_FillAttributes (coming soon)
- Q_FontAttributes (coming soon)
- Q_GetAttribute (coming soon)
- Q_GraphicsContext (coming soon)
- Q_INTERLOCK_2 (coming soon)
- Q_LineAttributes (coming soon)
- Q_ListItem (coming soon)
- Q_LockUnlockMask (coming soon)
- Q_NumericValue (coming soon)
- Q_NumericValueAux (coming soon)
- Q_NumericValue_AUDI (ISOBUS Numeric Value Adapter) (coming soon)
- Q_ObjEnableDisable (coming soon)
- Q_ObjHideShow (coming soon)

- Q_ObjSelectInput (coming soon)
- Q_Priority (coming soon)
- Q_SelectActiveWorkingSet (coming soon)
- Q_SelectColourMap (coming soon)
- Q_SetAudioVolume (coming soon)
- Q_Size (coming soon)
- Q_SoftKeyMask (coming soon)
- Q_StringValue (coming soon)
- REAL Conversion (coming soon)
- REAL conversions (coming soon)
- RT_Bridge_1 (coming soon)
- RT_Bridge_10 (coming soon)
- RT_Bridge_11 (coming soon)
- RT_Bridge_2 (coming soon)
- RT_Bridge_3 (coming soon)
- RT_Bridge_4 (coming soon)
- RT_Bridge_5 (coming soon)
- RT_Bridge_6 (coming soon)
- RT_Bridge_7 (coming soon)
- RT_Bridge_8 (coming soon)
- RT_Bridge_9 (coming soon)
- RT_E_CYCLE (coming soon)
- RT_E_DELAY (coming soon)
- RT_E_DEMUX (coming soon)
- RT_E_EC_COUPLER (coming soon)
- RT_E_F_TRIG (coming soon)
- RT_E_MERGE (coming soon)
- RT_E_PERMIT (coming soon)
- RT_E_REND (coming soon)
- RT_E_R_TRIG (coming soon)
- RT_E_SELECT (coming soon)
- RT_E_SPLIT (coming soon)
- RT_E_SWITCH (coming soon)
- RT_E_TRAIN (coming soon)
- RampLimitFS (coming soon)
- RangeBasedPulse (coming soon)
- RaspberryPI (coming soon)
- Resting (coming soon)
- Runtime (coming soon)
- SCALE (coming soon)
- SCALE_LIM (coming soon)

- SEND_RECV_1_1 (coming soon)
- SERVER_0 (coming soon)
- SERVER_1 (coming soon)
- SERVER_1_2 (coming soon)
- SET_LOCAL_ADS_ADDRESS (coming soon)
- SET_STRUCT_VALUE (coming soon)
- SIGN_I (coming soon)
- SIGN_R (coming soon)
- SINT Conversion (coming soon)
- SINT conversions (coming soon)
- SPLIT_BYTE_INTO_BOOLS (coming soon)
- SPLIT_BYTE_INTO_QUARTERS (coming soon)
- SPLIT_DWORD_INTO_BOOLS (coming soon)
- SPLIT_DWORD_INTO_QUARTERS (coming soon)
- SPLIT_DWORD_INTO_WORDS (coming soon)
- SPLIT_LWORD_INTO_BOOLS (coming soon)
- SPLIT_LWORD_INTO_QUARTERS (coming soon)
- SPLIT_WORD_INTO_BOOLS (coming soon)
- SPLIT_WORD_INTO_BYTES (coming soon)
- SPLIT_WORD_INTO_QUARTERS (coming soon)
- PLC (coming soon)
- ST01B (coming soon)
- ST01X (coming soon)
- ST02B (coming soon)
- ST02X (coming soon)
- ST04B (coming soon)
- ST04X (coming soon)
- ST08B (coming soon)
- ST08B_TO_ARR08B (coming soon)
- ST08B_TO_BYTES (coming soon)
- ST08X (coming soon)
- ST08X_TO_ARR08X (coming soon)
- ST08X_TO_BOOLS (coming soon)
- ST08X_TO_BYTE (coming soon)
- ST16B (coming soon)
- ST16X (coming soon)
- ST32B (coming soon)
- ST32X (coming soon)
- ST64B (coming soon)
- ST64X (coming soon)
- START (coming soon)

- STATES (coming soon)
- STEST_END (coming soon)
- STRING conversions (coming soon)
- STRUCT_DEMUX (coming soon)
- STRUCT_MUX (coming soon)
- ST_CREATE_CONN (coming soon)
- ST_CREATE_FB (coming soon)
- ST_DEL_CONN (coming soon)
- ST_DEL_FB (coming soon)
- ST_REC_CONN (coming soon)
- ST_SET_PARM (coming soon)
- SUBSCRIBE_0 (coming soon)
- SUBSCRIBE_1 (coming soon)
- SUBSCRIBE_10 (coming soon)
- SUBSCRIBE_2 (coming soon)
- SUBSCRIBE_3 (coming soon)
- SUBSCRIBE_4 (coming soon)
- SUBSCRIBE_5 (coming soon)
- SUBSCRIBE_6 (coming soon)
- SUBSCRIBE_7 (coming soon)
- SUBSCRIBE_8 (coming soon)
- SUBSCRIBE_9 (coming soon)
- SYS_ONTIME (coming soon)
- Scaling (coming soon)
- SliderAuxInStruct (coming soon)
- SliderAuxOutStruct (coming soon)
- SliderColorStruct (coming soon)
- SliderControl (coming soon)
- SliderStruct (coming soon)
- SliderLock (coming soon)
- SliderLockComposite (coming soon)
- Step Chains & Sequencers (coming soon)
- Sequencers and Step Chains (coming soon)
- Signal Processing & PWM (coming soon)
- Signal Processing, PWM, and Control (coming soon)
- SoftKey Reduction (coming soon)
- SoftKeyActivationCode (coming soon)
- SoftKeyActivationCode_S (coming soon)
- Softkey (coming soon)
- Softkey_IE (coming soon)
- Softkey_IX (coming soon)

- Softkey_IXA (coming soon)
- Other German (coming soon)
- Other English (coming soon)
- Memory Elements and Click Events (coming soon)
- Standard Libraries (coming soon)
- Status (coming soon)
- Create Control Drill Switches (coming soon)
- TC_ID (coming soon)
- TC_QD (coming soon)
- TECU (coming soon)
- TEST_CONDITION (coming soon)
- TIME conversions (coming soon)
- TIMESTAMP_NS (coming soon)
- TIME_TO_REAL (coming soon)
- T_PLC_MS (coming soon)
- T_PLC_US (coming soon)
- Groping (coming soon)
- Time_Date (coming soon)
- Timer & time functions (coming soon)
- Timer and time functions (coming soon)
- TypeHash (coming soon)
- TypeLibrary (coming soon)
- UDINT Conversion (coming soon)
- UDINT conversions (coming soon)
- UINT Conversion (coming soon)
- UINT conversions (coming soon)
- ULINT Conversion (coming soon)
- ULINT conversions (coming soon)
- USERFUNC_e (coming soon)
- USINT Conversion (coming soon)
- USINT conversions (coming soon)
- Exercise_000: Basic Arithmetic Functions (ADD) (coming soon)
- Exercise_000_AX: Simple Addition (coming soon)
- Exercise_001: Direct Signal Forwarding (Event & Data) (coming soon)
- Exercise_001_AX: DigitalInput_I1 to DigitalOutput_Q1, with Plug and Socket (coming soon)
- Exercise_001_AX_b: DigitalInput_I1 to DigitalOutput_Q1, with Signal Conversion (coming soon)
- Exercise_001c: Input Query on Boot (Standard Pins) (coming soon)
- Exercise_001c_AX: Input Query on Boot (coming soon)
- Exercise_002: Signal Distribution to Multiple Outputs (Fan-Out) (coming soon)
- Exercise_002_AX: Signal Distribution to Multiple Outputs (coming soon)
- Exercise_002a2: Logic AND operation (Generic F_AND) (coming soon)

- Exercise_002a2_AX: AND operation with signal conversion (coming soon)
- Exercise_002a3: Logical OR operation (OR) (coming soon)
- Exercise_002a3_AX: Logical OR operation of two signals (coming soon)
- Exercise_002a4: Logical AND operation (AND_2_BOOL) (coming soon)
- Exercise_002a5_AX: OR operation with three inputs (coming soon)
- Exercise_002a5b: OR operation with signal distribution (coming soon)
- Exercise_002a5b_AX: DigitalInput_I1-3 with OR to DigitalOutput_Q1-3, with Plug and Socket (coming soon)
- Exercise_002a6_AX: Logical AND operation with three inputs (coming soon)
- Exercise_002a7_AX: XOR operation with three inputs (coming soon)
- Exercise_002a: Logical AND operation (AND) (coming soon)
- Exercise_002a_AX: Logical AND operation of two signals (coming soon)
- Exercise_002b2: Combinational Logic (AND/OR with F_MOVE) (coming soon)
- Exercise_002b3: DigitalInput_I1/_I2/_I3 to DigitalOutput_Q1; without MOVE (coming soon)
- Exercise_002b3_AX: Combinational Logic (AND/OR) (coming soon)
- Exercise_003: Parallel Signal Paths (Standard Pins) (coming soon)
- Exercise_003_AX: Parallel Control of Two Channels (coming soon)
- Exercise_003a0: Structuring through Untyped Sub-Applications (coming soon)
- Exercise_003a0_AX: Structuring through Untyped Sub-Applications (coming soon)
- Exercise_003a: Modular Parallel Control (Typed Sub-App) (coming soon)
- Exercise_003a_AX: Reuse through Typed Sub-Applications (coming soon)
- Exercise_003a_sub: Universal Channel (Sub-App) (coming soon)
- Exercise_003b2: Mass Mapping (Radio to Data Panel) (coming soon)
- Uebung_003b2_AX: Mass processing with untyped sub-applications (coming soon)
- Uebung_003b2_sub: Radio-to-CAN driver (SubApp) (coming soon)
- Uebung_003b3_AX: Parameterizable mass processing (coming soon)
- Uebung_003b3_sub_AX (coming soon)
- Uebung_003b: Modular parallel control (4-fold) (coming soon)
- Uebung_003b_sub: Universal channel (variant) (coming soon)
- Uebung_003c: Mapping to ISOBUS AUX (standard pins) (coming soon)
- Uebung_003c_AX: Mapping to ISOBUS AUX (coming soon)
- Uebung_003c_sub: ISOBUS AUX channel (SubApp) (coming soon)
- Exercise_003d: Repeat parallel control (coming soon)
- Uebung_003d_AX: Repeat parallel control (coming soon)
- Uebung_004a2: Impulse switch from two places (event merge) (coming soon)
- Uebung_004a2_AX: Impulse switch from two places (event merge) (coming soon)
- Uebung_004a3: Implicit event merge (fan-in) (coming soon)
- Uebung_004a3_AX: Implicit event merge (coming soon)
- Uebung_004a4: Event Splitter (E_SPLIT) (coming soon)
- Uebung_004a4_AX: Event Splitter (E_SPLIT) (coming soon)
- Uebung_004a5: Implicit event split (fan out) (coming soon)
- Uebung_004a5_AX: Implicit event split (Fan Out) (coming soon)

- Uebung_004a6: Event Rendezvous (synchronization) (coming soon)
- Uebung_004a6_AX: Event Rendezvous (synchronization) (coming soon)
- Uebung_004a7: T-Flip-Flop with Reset and Rendezvous (coming soon)
- Uebung_004a7_AX: SR flip-flop with Rendezvous (coming soon)
- Uebung_004a8: Double event splitter (E_SPLIT_2) (coming soon)
- Uebung_004a8_AX: Event splitter 2-fold (E_SPLIT_2) (coming soon)
- Uebung_004a9: Triple Event Splitter (E_SPLIT_3) (coming soon)
- Uebung_004a9_AX: Event splitter Triple (E_SPLIT_3) (coming soon)
- Exercise_004a: Toggle Flip-Flop (coming soon)
- Exercise_004a_AX: Toggle Flip-Flop (coming soon)
- Exercise_004b2: Dual Manual Toggle Logic (coming soon)
- Exercise_004b3: Mutually Interlocked Toggle Logic (coming soon)
- Exercise_004b: Manual Toggle Switch (Switch & Memory) (coming soon)
- Exercise_004b_AX: Complex Event Switching (Anti-Pattern?) (coming soon)
- Exercise_004c1: Double-Click Evaluation (coming soon)
- Exercise_004c1_AX: Double-Click Evaluation (coming soon)
- Exercise_004c2: Long Key Press (Start Event) (coming soon)
- Uebung_004c2_AX: Long key press (Start) (coming soon)
- Uebung_004c3: Long key press (release event) (coming soon)
- Uebung_004c3_AX: Long key press (release) (coming soon)
- Uebung_004c4: Repetitive Event (Hold) (coming soon)
- Uebung_004c4_AX: Hold (repeat) (coming soon)
- Uebung_004c5: Any release (Press End) (coming soon)
- Uebung_004c5_AX: Letting Go (General) (coming soon)
- Uebung_004c6: Triple-Click (coming soon)
- Uebung_004c6_AX: Multiple click (3 times) (coming soon)
- Exercise_004c7: Parameterized Long Press (coming soon)
- Exercise_004c7_AX: Parameterized Long Press (coming soon)
- Exercise_005: Toggle with Standard Input (IX) (coming soon)
- Exercise_005_AX: Toggle with Level Input (Unnecessarily complicated?) (coming soon)
- Exercise_006: Memory Element (SR Flip-Flop) (coming soon)
- Exercise_006_AX: Set-Reset Flip-Flop (Memory) (coming soon)
- Exercise_006a2: Global Reset for Multiple Channels (coming soon)
- Exercise_006a2_AX: Central Reset for Multiple Memories (coming soon)
- Exercise_006a3: Motor Reversing Circuit (Discrete) (coming soon)
- Exercise_006a3_AX: Motor Control (Left/Right) with interlock (coming soon)
- Exercise_006a3_sub: Direction Marker (SubApp) (coming soon)
- Exercise_006a4: Motor Reversing Circuit (Library) (coming soon)
- Exercise_006a4_AX: Motor Control with Library Block (coming soon)
- Exercise_006a: Universal Flip-Flop (Toggle/Set/Reset) (coming soon)
- Exercise_006a_AX: Combined T/SR Flip-Flop (coming soon)

- Exercise_006b: Memory Element (RS Flip-Flop) (coming soon)
- Exercise_006b_AX: RS Flip-Flop (Reset Dominant) (coming soon)
- Exercise_006c: Collective Control (Demultiplexer) (coming soon)
- Exercise_006d: Protection against accidental Turn on (coming soon)
- Exercise_006d_AX: SR Flip-Flop with Double-Click Set (coming soon)
- Exercise_007: Simple Turn Signal (Timer) (coming soon)
- Exercise_007_AX: Simple Turn Signal (Clock Generator) (coming soon)
- Exercise_007a1: Switchable Turn Signal (Problematic) (coming soon)
- Exercise_007a1_AX: Switchable Turn Signal (Problematic) (coming soon)
- Exercise_007a2: Switchable Turn Signal (Variant) (coming soon)
- Exercise_007a2_AX: Switchable Turn Signal (Second Variant) (coming soon)
- Exercise_007a3: Safe Turn Signal (Defined OFF State) (coming soon)
- Exercise_007a3_AX: Correct Turn Signal (Defined Stop) (coming soon) soon)
- Uebung_008: Autonomous indicator module (coming soon)
- Uebung_008_AX: Autonomous indicator component (coming soon)
- Uebung_009: Event counter (ticker) (coming soon)
- Uebung_009_AX: Event counter (ticker) with adapters (coming soon)
- Uebung_009a: Ramp generator (RampLimitFS) (coming soon)
- Uebung_010: ISOBUS softkey (direct) (coming soon)
- Uebung_010_AX: ISOBUS softkey (direct) (coming soon)
- Uebung_010a2: ISOBUS button (data mask) (coming soon)
- Uebung_010a2_AX: ISOBUS Button (A1) (coming soon)
- Uebung_010a3: Latching Button (coming soon)
- Uebung_010a3_AX: Latching Button (Rastend) (coming soon)
- Uebung_010a4: Softkey on external CAN module (coming soon)
- Uebung_010a4_AX: Softkey on DataPanel (coming soon)
- Uebung_010a: Two softkeys (parallel) (coming soon)
- Uebung_010a_AX: Two softkeys (parallel) (coming soon)
- Uebung_010b1: ISOBUS AUX-N (joystick buttons) (coming soon)
- Uebung_010b1_AX: ISOBUS AUX Input (Joystick) (coming soon)
- Uebung_010b2: Softkey release as trigger (coming soon)
- Uebung_010b2_AX: Softkey Event (SK_RELEASED) (coming soon)
- Uebung_010b3: AUX event control (coming soon)
- Uebung_010b3_AX: AUX Event (AuxDisabled_START) (coming soon)
- Uebung_010b4: Structured softkey mapping (8-fold) (coming soon)
- Uebung_010b4_AX: Softkey mass mapping (8-fold) (coming soon)
- Uebung_010b4_sub: Softkey mapping unit (SubApp) (coming soon)
- Uebung_010b5: Structured softkey mapping (10-fold) (coming soon)
- Uebung_010b5_AX: Softkey mass mapping (10-fold) (coming soon)
- Uebung_010b5_sub: Extended softkey unit (SubApp) (coming soon)
- Uebung_010b6: Softkey pressed as trigger (coming soon)

- Uebung_010b6_AX: Softkey Event (SK_PRESSED) (coming soon)
- Uebung_010b7: Button release (Unlatched) (coming soon)
- Uebung_010b7_AX: Button Event (RELEASED_UNLATCHED) (coming soon)
- Uebung_010b8: Button-Pressed (Latched) (coming soon)
- Uebung_010b8_AX: Button Event (PRESSED_LATCHED) (coming soon)
- Uebung_010b9: Timer by holding (STILL_HELD) (coming soon)
- Uebung_010b9_AX: Button Event (STILL_HELD - Blinker) (coming soon)
- Uebung_010bA2: AUX status events (Enabled) (coming soon)
- Uebung_010bA2_AX: AUX Event (Enabled - Latched vs NonLatched) (coming soon)
- Uebung_010bA3: AUX repeater event (Hero) (coming soon)
- Uebung_010bA3_AX: AUX Event (Hero - Blinker) (coming soon)
- Uebung_010bA4: One-time AUX hold event (coming soon)
- Uebung_010bA4_AX: AUX Event (Held_START) (coming soon)
- Uebung_010bA: Single long key press (coming soon)
- Exercise_010bA_AX: Button Event (STILL_HELD_START) (coming soon)
- Uebung_010c2: Structuring UI feedback (Untyped) (coming soon)
- Uebung_010c2_AX: Encapsulation of Feedback (Untyped) (coming soon)
- Uebung_010c3: Structuring UI feedback (Typed) (coming soon)
- Uebung_010c3_AX: Encapsulation of Feedback (Typed) (coming soon)
- Uebung_010c3_sub: Softkey with feedback (SubApp) (coming soon)
- Uebung_010c4: Multiple use of feedback blocks (coming soon)
- Uebung_010c4_AX: Multiple use Smart Softkey (coming soon)
- Uebung_010c4_sub: Softkey with feedback (variant) (coming soon)
- Uebung_010c: Visual softkey feedback (coming (coming soon))
- Exercise_010c_AX: Softkey Feedback (Visual) (coming soon)
- Exercise_011: Numeric Input (Universal Terminal) (coming soon)
- Exercise_011_AUDI: Numeric Input with Adapters (coming soon)
- Exercise_011a2: Dynamic Display (Long Press Release) (coming soon)
- Exercise_011a: Dynamic Display (Repeat Done) (coming soon)
- Exercise_012: Persistent Data Storage (NVS) (coming soon)
- Exercise_012a: Modular Storage (Typed SubApp) (coming soon)
- Exercise_012a_sub: Persistent Setting Value (SubApp) (coming soon)
- Exercise_012b: Saving to INI Files (coming soon)
- Exercise_012c: Saving Text (Strings) (coming soon)
- Exercise_013: Softkey SR Flip-Flop (Memory) (coming soon)
- Exercise_013_AX: Softkey SR Flip-Flop (coming soon)
- Exercise_014: Show/Hide Objects (Container) (coming soon)
- Exercise_015: Dynamic UI with Object Pointers (coming soon)
- Exercise_015a: Multiple Switching of UI Objects (coming soon)
- Exercise_016: Dynamic Background Colors (coming soon)
- Exercise_016a: Multicolor Status Indicator (coming soon)

- Exercise_017: Audible Signals (Beep) (coming soon)
- Exercise_018: Melodies and Sequences (Audio Delay) (coming soon)
- Exercise_019: Screen Switching (coming soon)
- Exercise_019a: Alarm Masks and Acknowledgement (coming soon)
- Exercise_019b: Alarm Logic with Hardware Output (coming soon)
- Exercise_019c: Interactive Alarm Interlock (coming soon)
- Exercise_020a: Manual Memory (Standard Pins) (coming soon)
- Exercise_020a_AX: Buffered Signal Forwarding (RS) (coming soon)
- Exercise_020b: Manual Power-On Delay (coming soon)
- Exercise_020b_AX: Power-On Delay (Resolved) (coming soon)
- Exercise_020c2: Configurable Power-On Delay (coming soon)
- Exercise_020c2_sub: Persistent Timeout (SubApp) (coming soon)
- Exercise_020c3: Cyclic Timer Update (FB_TON) (coming soon)
- Uebung_020c3_AX: AX_FB_TON with clock input (coming soon)
- Exercise_020c: Switch-on delay (E_TON) (coming soon)
- Uebung_020c_AX: Switch-on delay (TON) (coming soon)
- Uebung_020d: Manual switch-off delay (coming soon)
- Uebung_020d_AX: Switch-off delay (resolved) (coming soon)
- Uebung_020e2: Cyclic TOF timer (FB_TOF) (coming soon)
- Uebung_020e2_AX: AX_FB_TOF with clock input (coming soon)
- Uebung_020e: Switch-off delay (E_TOF) (coming soon)
- Uebung_020e_AX: Switch-off delay (TOF) (coming soon)
- Uebung_020f2: Cyclic pulse generator (FB_TP) (coming soon)
- Uebung_020f2_AX: FB_TP with clock input (coming soon)
- Uebung_020f3: Integrated indicator (E_BLINK) (coming soon)
- Uebung_020f3_AX: Blinker (AX_BLINK) (coming soon)
- Uebung_020f: Impulse generator (E_TP) (coming soon)
- Uebung_020f_AX: Impulse element (TP) (coming soon)
- Uebung_020g: Combined delay (E_TONOF) (coming soon)
- Uebung_020g_AX: On and off delay (TONOF) (coming soon)
- Uebung_020h: Event-controlled pulse (E_PULSE) (coming soon)
- Uebung_020h_AX: Event-controlled pulse (AX_PULSE) (coming soon)
- Exercise_020i: Teach-In Time Control (coming soon)
- Exercise_020i_AX: Teach-In Pulse (Stopwatch) (coming soon)
- Exercise_021: Sequence Basics (Cylinder 1) (coming soon)
- Exercise_022: Linked Sequence (2 Cylinders) (coming soon)
- Exercise_023: Complete Cycle (Extension and Retraction) (coming soon)
- Exercise_024: Sequence with Delay (coming soon)
- Exercise_025: Synchronized Sequence (Rendezvous) (coming soon)
- Exercise_026: Structured Sequence Output (coming soon)
- Exercise_026_sub: Sequence Actuator Unit (SubApp) (coming soon)

- Exercise_028: Analog Inputs (Measurements) (coming soon)
- Exercise_029: LED Status Indicators (Frequencies) (coming soon) (coming soon)
- Exercise_030: PWM LED Effects (Breathing) (coming soon)
- Exercise_031: RGB LED Strip (HSV Control) (coming soon)
- Exercise_032: Multicolor LED Strip Effects (coming soon)
- Exercise_033: Modular RGB Control (coming soon)
- Exercise_033_sub: Modular RGB Channel (SubApp) (coming soon)
- Exercise_034: Power Control (Analog to PWM) (coming soon)
- Exercise_034a1_Q1: PWM Value from Terminal (Channel 1) (coming soon)
- Exercise_034a1_Q2: PWM Value from Terminal (Channel 2) (coming soon)
- Exercise_034a1_Q4: PWM Value from Terminal (Channel 4) (coming soon)
- Exercise_034b: Dynamic PWM Keying (Hold) (coming soon)
- Exercise_035: Step Chain Control (4 Phases) (coming soon)
- Exercise_035a2: Traffic Light Circuit with Flashing Phase (coming soon)
- Exercise_035a3: Traffic Light Circuit (Variant) (coming soon)
- Exercise_035a: Traffic Light Circuit (Standard) (coming soon)
- Exercise_036: Event-Controlled Step Chain (coming soon)
- Exercise_037: Endless Step Chain (Loop) (coming soon)
- Exercise_038: Time-Controlled Chasing Light (8-fold) (coming soon)
- Exercise_038_AX: Chasing Light (Time-Controlled) (coming soon)
- Exercise_039: Hydraulic Valve Control (coming soon)
- Exercise_039_sub_NumbDisplay (coming soon)
- Exercise_039a: Directional Control Valve (3/2-way) (coming soon)
- Exercise_039b: Valve Timing (Pulse Control) (coming soon)
- Exercise_040: Manual Step Selection (Counter & Demux) (coming soon)
- Exercise_040_AX: Running Light (Event-Controlled / Manual) (coming soon)
- Exercise_041: One-Button Running Light (Counter Control) (coming soon)
- Exercise_042: Signal Scaling (SCALE) (coming soon)
- Exercise_043: Scaling with Limit Values (SCALE_LIM) (coming soon)
- Exercise_049: Multi-Channel Mapping (Standard) (coming soon)
- Exercise_051: Signal Bundling (Structures) (coming soon)
- Exercise_052: Targeted Access to Structures (coming soon)
- Exercise_053: Bit Manipulation (Assemble/Split) (coming soon)
- Exercise_054: Signal Vectors (Arrays) (coming soon)
- Exercise_055: Diagnostic Status (Quarter Concept) (coming soon)
- Exercise_056: Multi-Channel Status Monitoring (coming soon)
- Exercise_060: Task Controller Section Control (TC-SC) (coming soon)
- Exercise_060_sub_Outputs (coming soon)
- Exercise_070: Tractor Speed (WBSD) (coming soon)
- Exercise_071: Speed-Dependent Switching (coming soon)
- Exercise_071a: Synchronized Threshold Logic (coming soon)

- Exercise_071b: Distance Pulses (Distance Meter) (coming soon)
- Exercise_072: Wheel vs. Radar Speed (coming soon)
- Exercise_072b: Offset Distance Pulses (Phase Shifter) (coming soon)
- Exercise_072c: Velocity Integration (Distance Calculation) (coming soon)
- Exercise_073: GPS Speed (VDS) (coming soon)
- Exercise_074: Power Take-Off (PTO) Monitoring (coming soon)
- Exercise_079: Tractor ECU (TECU) Overview (coming soon)
- Exercise_080: Event Counter (Up-Counter) (coming soon)
- Exercise_080b: Event Frequency Doubling (coming soon)
- Exercise_080c: Event Frequency Halving (coming soon)
- Exercise_081: Down-Counter (Down-Counter) (coming soon)
- Exercise_082: Up/Down Counter (coming soon)
- Exercise_083: Precision Counter (UDINT) (coming soon)
- Exercise_083_AX: Precision Counter (AUDI) with Adapters (coming soon)
- Exercise_084: Automatic Counter (Clock & Count) (coming soon)
- Exercise_085: State Synchronization (D Flip-Flop) (coming soon)
- Exercise_086: Event Switch (E_SWITCH) (coming soon)
- Exercise_087: Conditional Event Distribution (E_DEMUX) (coming soon)
- Exercise_087a1: Example for E_DEMUX_4 (coming soon)
- Exercise_087a2: Example for E_DEMUX_4 (coming soon)
- Exercise_088: Falling Edge (F_TRIG) (coming soon)
- Exercise_089: Rising Edge (R_TRIG) (coming soon)
- Exercise_090a1: Data Selection (Multiplexer) (coming soon)
- Exercise_090a1_AX: Signal Multiplexer (2-way) (coming soon)
- Exercise_090a2: Example of F_MUX_3 (coming soon)
- Exercise_090a2_AX: Signal Multiplexer (3-way) (coming soon)
- Exercise_091: Event Salvo (E_TRAIN) (coming soon)
- Exercise_093: Time-Controlled Event Table (E_TABLE) (coming soon)
- Exercise_093b: Multi-Channel Time Table (E_N_TABLE) (coming soon)
- Exercise_094: Event Release (PERMIT) (coming soon)
- Exercise_094a: Integrated Release (QI) (coming soon)
- Exercise_094a_AX: Disabling Block Elements (QI) (coming soon)
- Exercise_095: Event Selection (E_SELECT) (coming soon)
- Exercise_095_AX: Event Selector (Turnout) (coming soon)
- Exercise_103: DigitalInput_I1 to DigitalOutput_Q1, with Plug and Socket and DEMUX (coming soon)
- Exercise_103: Mode Selection (Multiplexer/Demultiplexer) (coming soon)
- Exercise_103c2: Simplified Selection (coming soon)
- Exercise_103c: Fixed Mode Selection (coming soon)
- Exercise_110: Arithmetic Overflow (Integer Overflow) (coming soon)
- Exercise_111: Overflow Prevention through Type Conversion (coming soon)
- Exercise_120: Reading ISOBUS Device Names (NAME) (coming soon)

- Exercise 121: Custom ISOBUS Name (coming soon)
- Exercise 122: Network Scan (16 participants) (coming soon)
- Exercise 122b (coming soon)
- Exercise 123: Participant Filtering (coming soon)
- Exercise 124: Sending Custom PGNs (Peer-to-Peer) (coming soon)
- Exercise 125: TX on Request (coming soon)
- Exercise 126: Cyclic Sending with Callback (coming soon)
- Exercise 127: Cyclic Sending (Static Data) (coming soon)
- Exercise 128: Global Broadcast (coming soon)
- Exercise_12x_sub (coming soon)
- Exercise_130: Receiving Custom PGN (Peer-to-Peer) (coming soon)
- Exercise_131: Cyclic Receiving with Monitoring (coming soon)
- Exercise_132: Actively Querying Data (RX on Request) (coming soon)
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- Exercise_134: Receiving from Unknown Partners (coming soon)
- Exercise_140: Operating Hours Counter (SYS_ONTIME) (coming soon)
- Exercise_150_AX: Pulse Counter (Monitoring) (coming soon)
- Exercise_151_AX: Speed Calculation (Derivation) (coming soon)
- Exercise_152: PI Control (Speed Control) (coming soon)
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- Exercise_160: Motor rotation direction control (coming soon)
- Uebung_160_AX: Motor logic with status message (coming soon)
- Unidirectional BOOL Adapter (coming soon)
- Unidirectional BYTE Adapter (coming soon)
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- Unidirectional DWORD Adapter (coming soon)
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- logiBUS_ID (coming soon)
- logiBUS_IE (coming soon)
- logiBUS_IE2 (coming soon)
- logiBUS_IX (coming soon)
- logiBUS_IXA (coming soon)
- logiBUS_LED_DO_QX (coming soon)
- logiBUS_LED_PWM_QX (coming soon)
- logiBUS_LED_strip_QX (coming soon)
- logiBUS_PI (coming soon)
- logiBUS_PI_ID (coming soon)
- logiBUS_PI_S (coming soon)
- logiBUS_QD_PWM (coming soon)
- logiBUS_QW_SERVO (coming soon)
- logiBUS_QX (coming soon)
- logiBUS_QXA (coming soon)
- logiBUS® (coming soon)
- math (coming soon)
- measurement (coming soon)
- measurements (coming soon)

- net (coming soon)
- pgn (coming soon)
- powerlink (coming soon)
- quarter (coming soon)
- quarterconst (coming soon)
- reconfiguration (coming soon)
- resources (coming soon)
- reversing (coming soon)
- revpi (coming soon)
- RGB (coming soon)
- rte events (coming soon)
- slider (coming soon)
- script (coming soon)
- segments (coming soon)
- selection (coming soon)
- sequence (coming soon)
- sequence_ET_04 (coming soon)
- sequence_ET_04_04 (coming soon)
- sequence_ET_04_04_AX (coming soon)
- sequence_ET_04_AX (coming soon)
- sequence_ET_04_loop (coming soon)
- sequence_ET_04_loop_AX (coming soon)
- sequence_ET_05 (coming soon)
- sequence_ET_05_AX (coming soon)
- sequence_ET_05_loop (coming soon)
- sequence_ET_05_loop_AX (coming soon)
- sequence_ET_08 (coming soon)
- sequence_ET_08_AX (coming soon)
- sequence_ET_08_loop (coming soon)
- sequence_ET_08_loop_AX (coming soon)
- sequence_E_04 (coming soon)
- sequence_E_04_AX (coming soon)
- sequence_E_04_loop (coming soon)
- sequence_E_04_loop_AX (coming soon)
- sequence_E_05 (coming soon)
- sequence_E_05_AX (coming soon)
- sequence_E_05_loop (coming soon)
- sequence_E_05_loop_AX (coming soon)
- sequence_E_08 (coming soon)
- sequence_E_08_AX (coming soon)
- sequence_E_08_loop (coming soon)

- sequence_E_08_loop_AX (coming soon)
- sequence_T_04 (coming soon)
- sequence_T_04_AX (coming soon)
- sequence_T_04_loop (coming soon)
- sequence_T_04_loop_AX (coming soon)
- sequence_T_05 (coming soon)
- sequence_T_05_AX (coming soon)
- sequence_T_05_loop (coming soon)
- sequence_T_05_loop_AX (coming soon)
- sequence_T_08 (coming soon)
- sequence_T_08_AX (coming soon)
- sequence_T_08_loop (coming soon)
- sequence_T_08_loop_AX (coming soon)
- signal_generators (coming soon)
- signal processing (coming soon)
- signals (coming soon)
- splitting (coming soon)
- stations (coming soon)
- status (coming soon)
- storage (coming soon)
- str (coming soon)
- strip_set_pixel (coming soon)
- sys (coming soon)
- system (coming soon)
- groping_TON_5s (coming soon)
- timed (coming soon)
- timers (coming soon)
- timing (coming soon)
- training1 - Exercises VV (Distributed Processing) (coming soon)
- types (coming soon)
- unidirectional (coming soon)
- unidirectional conversion (coming (coming soon))
- utils (coming soon)
- version (coming soon)
- distributor (coming soon)
- wago (coming soon)
- zephyr (coming soon)
- About Eclipse 4diac™ (coming soon)
- Overview of Visual Programming Languages (coming soon)
- Exercise 039a - Sub-Application Outputs (coming soon)
- Exercises (workspace test_AX) (coming soon)

- Exercises (workspace test_B) (coming soon)
- Practice Tasks (coming soon)
-  4diac Training: Valve Control & ISOBUS Automation (coming soon)

3.4.6 Wiki 5: Tools

- Crimping (coming soon)
- DWS-200 (coming soon)
- German crimping pliers set (coming soon)
- Eagle (coming soon)
- Electrics (coming soon)
- Electronics (coming soon)
- Desoldering braid (coming soon)
- FNIRSI (coming soon)
- FNIRSI HS-01 (coming soon)
- FNIRSI HS-02 (coming soon)
- Fusion 360 Electronics (coming soon)
- Hand tool (coming soon)
- Hot tool (coming soon)
- Hot Plate Mecanic IX5 (coming soon)
- Hotair Rework (coming soon)
- Hotplate (coming soon)
- Hotplate Station (coming soon)
- Hydraulic crimping tool (coming soon)
- Infrared Rework Station T862 (coming soon)
- Infrared rework stations (coming soon)
- JBC soldering iron (coming soon)
- Combination device (coming soon)
- Compressor (coming soon)
- Soldering (coming soon)
- Soldering iron (coming soon)
- Solder paste dispenser (coming soon)
- Mechanics (coming soon)
- Microscope (coming soon)
- Mini Hot Plate Preheater MHP30 (coming soon)
- Power supply (coming soon)
- Oscilloscope (coming soon)
- PINECIL-BB2 (coming soon)
- Tweezers (coming soon)
- Platino soldering iron (coming soon)
- SUNSHINE (coming soon)
- SUNSHINE S210 (coming soon)
- SUNSHINE S245 (coming soon)
- Side cutters (coming soon)
- Software (coming soon)
- Weller WX series (coming soon)
- Wiki 5: Electronics tools (coming soon)
- YIHUA-982 (coming soon)
- amp (coming soon)
- German (coming soon)
- hand pliers (coming soon)
- hot air (coming soon)
- hydraulic (coming soon)
- jbc (coming soon)
- measuring devices (coming soon)
- miniware (coming soon)
- miniware TS-100 (coming soon)
- miniware TS-101 (coming soon)

- miniware TS-80 (coming soon)
- pinecil (coming soon)
- sequire (coming soon)
- sequire-S99 (coming soon)
- other (coming soon)
- standard (coming soon)
- standard soldering iron (coming soon)
- weller (coming soon)
- yihua (coming soon)

3.5 NotebookLM

- Direct I/O Interconnection in logiBUS®: Exercise 001
- Digital Input and Output Connection with logiBUS® Exercise_001_AX
- Engineering Trends: IEC 61131 vs. IEC 61499
- Engineering Trends: IEC 61131 vs. IEC 61499
- 3M Double-Sided Adhesive Tape 93020LE
- 3M Transfer Adhesive Tape 468MP
- CPU / Microprocessor Basics
- Datasheet: WR-TBL 7097 Horizontal SMT Terminal Block
- Data Types](<https://notebooklm.google.com/notebook/42980c6a-51a9-4c1c-8b42-258dec92e570>)
- Connector Derating: Theory and Characteristic Curves](<https://notebooklm.google.com/notebook/1d182618-3af1-4cac-b37a-f39d7b65f3fe>)
- Eclipse 4diac™](<https://notebooklm.google.com/notebook/ea007636-7163-451b-9ff6-de748b8b5530>)
- Connector Inrush Current Behavior: An Analysis](<https://notebooklm.google.com/notebook/527713e4-7ac3-46ea-9273-21ac09a0812d>)
- ESP IoT Solution: Pushbutton Drivers and Event Control](<https://notebooklm.google.com/notebook/14313ad8-e034-4932-97ea-aaafff20a53>)
- ESP32-S3 Devkit Development Board Documentation](<https://notebooklm.google.com/notebook/6b6e4eae-d37f-49e8-b359-d89c3baedfd0>)
- Event and Boolean](<https://notebooklm.google.com/notebook/28172f3b-1936-4173-99ab-7d96bec5fd17>)
- Fundamentals and Interconnections of Digital Technology](<https://notebooklm.google.com/notebook/80002b86-13fe-4afc-8479-56667abeb18e>)
- DIN Rail Moped XL: Project and Hardware Details](<https://notebooklm.google.com/notebook/4e876888-8950-4705-baf9-f663135fa836>)
- IEC 61499 Adapter Concept: EVENT & BOOL
- IEC 61499 Adapter Concept: Simplified Function Block Network
- IEC 61499 Adapter Concept: Simplification
- Infographic: Boolean Algebra of Logic
- ISODesigner Quiz Questions
- Terminal Blocks: Standard, Modified, and Custom
- Capacitor (Context)
- Contact Debouncing Circuit for Buttons
- Power Driver (Context 1)
- Power Driver (Context 2)
- Power Driver (Context 3)
- PCB Design
- LM74700-Q1 Ideal Diode Controller for Battery Protection
- LogiBUS® on the Way to Eclipse 4diac™ 3.0
- DIN Rail Mounting (Introduction and Soldering)
- MX74700T: Ideal Diode Controller for Battery Protection
- Notebook: The Mathematical Analysis of Logic](<https://notebooklm.google.com/notebook/b253ca36-906d-45c4-a92b-0678948a2cbc>)
- Standards Organizations (Part 2)](<https://notebooklm.google.com/notebook/2aad5c97-3c0f-4608-b48c-3251bb41150a>)
- Standards Organizations (Part 1)](<https://notebooklm.google.com/notebook/555cd42e-86bc-4542-929d-63224b8bb9e6>)

- Relay Types: Small Signal, Load, and Hybrid Function](<https://notebooklm.google.com/notebook/32d7fd8a-1194-4349-9830-9b587d509e3a>)
 - Tactile Switches from Würth Elektronik eiSos](<https://notebooklm.google.com/notebook/f5ff7c06-99cf-4b2d-bbf6-bb2c510dbea6>)
 - Harmonized Standards / Introduction to European Standardization](<https://notebooklm.google.com/notebook/9f10342a-5502-4bc6-a041-d728fce508e5>)
-

3.5.1 Related topic subpages on ms-muc-docs.de

- [ Interactive JBC soldering tip guide & infographic on ms-muc-docs.de
- [ The right soldering tip for the mechatronics engineer (web app & comparison on ms-muc-docs.de)
- [ E_CTU event counter module on ms-muc-docs.de
- [ Eclipse 4diac IDE & color reference on ms-muc-docs.de
- [ Ohm's law & formula wheel on ms-muc-docs.de
- [ Kirchhoff's Laws on ms-muc-docs.de
- [ Total Resistance in Series & Parallel Circuits on ms-muc-docs.de
- [ Loaded & Unloaded Voltage Dividers on ms-muc-docs.de
- [ Diode & Semiconductor Basics on ms-muc-docs.de
- [ Smart Switch vs. Relay on ms-muc-docs.de
- [ ESP32 & ESP32-S3 DevKit on ms-muc-docs.de
- [ PCB Design & Assembly on ms-muc-docs.de
- [ The PWM Signal & Infographic on ms-muc-docs.de

4. Site Overview of the Main Portal (www.ms-muc-docs.de)

 **Central Website Directory:** Complete overview of all websites, learning materials, infographics, and interactive tools available on the main portal www.ms-muc-docs.de].

Total number of portal pages recorded: 173 Seiten

4.1 Homepage & Main Portal

- [docs/wikis Meisterschulen am Ostbahnhof](#)

Content and documentation of the Master Craftsmen's Schools at Munich East Station.

- [docs/wikis Meisterschulen am Ostbahnhof](#)

Content and documentation of the Master Craftsmen's Schools at Munich East Station.

4.2 Curriculum Framework 2025, Examination Regulations & Didactics

- [Bavarian Constitution](#)

Students are to be educated in the spirit of democracy, with love for their Bavarian homeland and the German people, and in the spirit of international understanding.

- [The Importance of Self-Directed Learning in the Curriculum Framework](#)

Lifelong self-directed learning

Lifelong self-directed learning refers to a continuous learning process in which learners define their goals, content, and...

- [Infographic: The Two Types of Truth](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Infographic: Competencies](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Infographic: Self-Directed Learning](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Interactive Curriculum Framework](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Standardization Organizations](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Standardization Organizations Overview](#)

Content and documentation of the master craftsman schools at Munich East Station.

4.3 Electrical Engineering & Electrical Fundamentals

- [Construction Sizes](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [Electrical Systems](#)

Electrical Systems

- [Electrical Charge](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [Electrical Policy: An Interactive Analogy](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [Electrical Policy: Coil vs. Capacitor](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [Electrical Current](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [Energy, Power](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Electrical Engineering Formula Wheel](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Total Resistance Series-Parallel Circuits](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Historical Development & Standardization of Cable Dimensioning](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Derivation of Formulas for Cable Calculation in Motor Vehicles](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Infographic: Capacitor & Inductor in a DC Circuit](#)

Content and documentation of the master craftsman schools at Munich East Station.

- – [Interactive Guide to Resistors]

Content and documentation from the Master Craftsman Schools at Munich East Station.

- [Kirchhoff's Laws](#)

Content and documentation from the Master Craftsman Schools at Munich East Station.

- [Capacitor \(Components\)](#)

Capacitor (Components)

- [Capacitor \(Theory\)](#)

Capacitor (Theory)

- [Capacitor in a DC Circuit](#)

Content and documentation from the Master Craftsman Schools at Munich East Station.

- [Capacitor and Inductor in an AC Circuit](#)

Content and documentation from the Master Craftsman Schools at Munich East Station.

- – [Cable Calculation according to DIN ISO 6722 / ISO 19642 & Bosch Tables]

Content and documentation of the master craftsman training courses at Munich East Station.

- [Ground and 2-wire system](#)

Content and documentation of the master craftsman training courses at Munich East Station.

- [MLCC - Multilayer Ceramic Chip Capacitor](#)

Content and documentation of the master craftsman training courses at Munich East Station.

- [Modern Vehicles: LED Headlights, Smart Switches & Long-Range Inputs](#)

Content and documentation of the master craftsman training courses at Munich East Station.

- [Standards History](#)

Content and documentation of the master craftsman training courses at Munich East Station.

- – [Ohm's Law]

Content and documentation of the master craftsman schools at Munich East Station.

- [Voltage, Resistance, Power](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Voltage, Current, and Power](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Voltage Drop](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Voltage Divider](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Specific Resistance](#)

Content and documentation of the master craftsman schools at Munich East Station.

- – [Coil](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Coil \(Components\)](#)

Coil (Components)

- [Coil \(Theory\)](#)

Coil (Theory)

- [Circuit](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Transient Diagrams for C and L](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [AC Phase Shift Infographic](#)

Content and documentation of the master craftsman schools at Munich East Station.

4.4 Electronics I & II: Diodes, LEDs, BJTs, FETs, Op-amps & Smart Switches

- [Bipolar Transistor](#)

Content and documentation from the master craftsman training courses at Munich East Station.

- [Diode](#)

Content and documentation from the master craftsman training courses at Munich East Station.

- [Electronics I](#)

Electronics

- [Electronics II](#)

Electronics II

- [ESD Diodes for CAN and CAN-FD](#)

Content and documentation from the master craftsman training courses at Munich East Station.

- [Rectifiers, Zener Diodes and Freewheeling Diodes](#)

Content and documentation from the master craftsman training courses at Munich East Station.

- – [H-Bridge](#)

Content and documentation of the master craftsman training courses at Munich East Station.

- [H-Bridge as a Relay](#)

Content and documentation of the master craftsman training courses at Munich East Station.

- [Ideal Diode](#)

Content and documentation of the master craftsman training courses at Munich East Station.

- [Ideal Diode](#)

Content and documentation of the master craftsman training courses at Munich East Station.

- [Contact Bouncing and Debouncing](#)

Content and documentation of the master craftsman training courses at Munich East Station.

- [LED with Constant Current Diode](#)

Content and documentation of the master craftsman training courses at Munich East Station.

- [LED – Light-emitting diode](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [LED driver instead of series resistor](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Calculating LED series resistor](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [MOSFETs and field-effect transistors](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Operational amplifiers and comparators](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Relays vs. Smart Switch](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Relays vs. Smart Switches](#)

Content and documentation from the master craftsman training courses at Munich East Station.

- [Switches and Pushbuttons](#)

Content and documentation from the master craftsman training courses at Munich East Station.

- [Smart Switches vs. Relays](#)

Content and documentation from the master craftsman training courses at Munich East Station.

- [Voltage Converters - Linear Regulators vs. Switching Regulators](#)

Content and documentation from the master craftsman training courses at Munich East Station.

- [TVS Diodes](#)

Content and documentation from the master craftsman training courses at Munich East Station.

- [Reverse Polarity Protection](#)

Content and documentation from the master craftsman training courses at Munich East Station.

- – [Reverse Polarity Protection](#)

Content and documentation of the master craftsman schools at Munich East Station.

4.5 Microelectronics & ESP32-S3

- Moore's Law: A Visual Journey

Content and documentation from the Master Schools at Munich East Station.

- Moore's Law: Limits and Future
- The Invention of the Integrated Circuit
- The Evolution of the Microchip: A Visual Analysis
- The Microcontroller Revolution: Infographic
- [Digital technology](#)  

IT at the bar

- [ESP32 at the ms-muc](#)

Espresso: <https://www.espressif.com/>

Chip: ESP32 S3 https://www.espressif.com/sites/default/files/documentation/esp32-s3_datasheet_en.pdf
Module: ESP32...

- [ESP32-S3 Chip](#)

ESP32-S3 Infographic

- [ESP32-S3 DevKit](#)

ESP32-S3 DevKit

- [ESP32-S3 Infographic](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [ESP32-S3 Module](#)

ESP32-S3 Module

- [ESP32-S3-DevKitC-1 Infographic](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [ESP32-S3-DevKitC-1 Interactive Application](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [ESP32-S3-WROOM-2 AIoT Infographic](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [ESP32-S3-WROOM-2 Interactive Report](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [IC](#)

https://de.wikipedia.org/wiki/Integrierter_Schaltkreis

https://de.wikipedia.org/wiki/Integrierter_Schaltkreis#cite_note-Kilby1976-5

Jack S. Kilby: Invention...

- [Microcontroller Infographic](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Infographic: The Anatomy of the Microchip](#)

Content and documentation of the Master Craftsman Schools at Munich East Station.

- [Infographic: The Invention of the Integrated Circuit](#)

Content and documentation of the Master Craftsman Schools at Munich East Station.

- [Infographic: Microprocessor vs. Microcontroller](#)

Content and documentation of the Master Craftsman Schools at Munich East Station.

- [Interactive Analysis of Microchip Fundamentals](#)

Content and documentation of the Master Craftsman Schools at Munich East Station.

- [\[Interactive Analysis of Moore's Law ... * Interactive History of the Microcontroller](#)

Content and documentation from the Master Craftsman Schools at Munich East Station.

- [Interactive Overview: ESP32-S3 SoC](#)

Content and documentation from the Master Craftsman Schools at Munich East Station.

- [Interactive Microcontroller Guide](#)

Content and documentation from the Master Craftsman Schools at Munich East Station.

- [Interactive Microprocessor Guide](#)

Content and documentation from the Master Craftsman Schools at Munich East Station.

- [Microcontroller MCU](#)

<https://de.wikipedia.org/wiki/Mikrocontroller>

] https://de.wikipedia.org/wiki/Texas_Instruments_TMS1000
Interactive Microcontroller Guide Microelectronics Infographic

- Microelectronics
- Microprocessor (MPU) vs. Microcontroller (MCU)

Content and documentation of the master craftsman schools at Munich East Station

- Microprocessor Infographic
- Microprocessor MPU
- Microprocessor MPU

Moor's Law

4.6 Printed Circuit Boards & PCB Manufacturing

- [Assembly](#)

Assembly

- [Printed Circuit Board Design](#)

Printed Circuit Board Design

- [Manufacturing](#)

Manufacturing

- [Printed Circuit Boards](#)

Printed Circuit Boards

- [Printed Circuit Boards](#)

Content and documentation of the master craftsman courses at Munich East Station.

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4.7 Electronics Tools, Soldering Technology, Crimping Technology & Measurement Technology

- [Crimping Technology and Connector Systems](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [The Right Soldering Tip for the Mechatronics Technician](#)

Script: The Right Soldering Tip for the Mechatronics Technician Scene: The workshop of the master craftsman schools at Munich East Station. Master craftsman Gruber (M.) observes his student Max...

- [Infographic: Active vs. Passive Soldering Tips](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Infographic: Active vs. Passive Soldering Tips](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Interactive JBC Cartridge Guide](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [Interactive Soldering Tip Comparison](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [JBC Soldering Tip Infographic](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [JBC Soldering Tip Overview](#)

JBC Soldering Tips Wiki:

- [Soldering Iron](#)

Notes Soldering Tips Active soldering tips generally offer higher performance and better temperature stability at the solder joint, which makes working faster...

- [Measurement and Testing Technology in the Workshop](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [Visual Inspection of Crimp Connections](#)

A concise overview of quality assurance and visual inspection of open crimp connections according to test posters from Kabelforum.com.

- [Web App: Soldering Tips for Professionals](#)

Content and documentation from the master craftsman training courses at Munich East Station.

4.8 Automation & Signal Types

- [The PWM Signal: The Art of Splitting Voltage Infographic](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [The PWM Signal: The Art of Splitting Voltage Website](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [The Ratiometric Signal Infographic](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [The Ratiometric Signal Website](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [Infographic_Standards_Automation](#)

Content and documentation from the master craftsman schools at Munich East Station.

- [Automation Standards](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Signal Shapes in Control and Automation Technology Infographic](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Signal Shapes in Control and Automation Technology Website](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [From Problem to Program](#)

Content and documentation of the master craftsman schools at Munich East Station.

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4.9 IEC 61499 & Visual Programming Languages

- [Abbreviations and Meanings](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Abbreviations and Meanings](#)

Abbreviations and Meanings this way

You can find the documents under the following:

- [Abbreviations and Meanings](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [E_CTU](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Eclipse 4diac Color Reference](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Eclipse 4diac™](#)

Eclipse 4diac™

- [EVENT](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [EVENT_2](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Colors](#)

Colors

- [IEC 61499 Events Explained](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [IEC 61499 Event - The Pulse of Automation](#)

Content and documentation of the master craftsman schools at Munich East Station.

4.10



Computer Science & Digital Technology

- [Ada Lovelace: The Architect of the Digital Age](#)

Content and documentation from the Master Schools at Munich East Station.

- [Ada Lovelace: Interactive Biography](#)

Content and documentation from the Master Schools at Munich East Station.

- [Boolean Algebra](#)

Boolean Algebra

- [The Revolution of Logic: George Boole & Boolean Algebra](#)

Content and documentation from the Master Schools at Munich East Station.

- [First female computer scientist in the world](#)

Ada Lovelace – The world's first programmer Wikipedia

- [Computer science](#)
- [Interactive exploration of Boolean algebra](#)

Content and documentation of the master schools at Munich East Station.

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4.11 Podcasts & Media Highlights

- [Selected Podcasts](#)

Agricultural Technology First Industrial Revolution, Steam Engine, Max Eyth Agricultural Revolution 1883: How Max Eyth Modernized England's Agriculture Landing Page Spot...

- [Podcast Highlights](#)

Content and documentation from the Master Schools at Munich East Station.

- [Podcasts](#)

Content and documentation from the Master Schools at Munich East Station.

- [Podcasts](#)

Content and documentation from the Master Schools at Munich East Station.

- [Podcasts - Interesting](#)

Content and documentation from the Master Schools at Munich East Station.

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4.12 Literature, Libraries & Links

- [Libraries](#)

Libraries

- [Hermann Auernhammer - Pioneer of Precision Farming](#)

Contents and documentation of the master craftsman schools at Munich East Station.

- [IEC 61499 Pioneers](#)

Contents and documentation of the master craftsman schools at Munich East Station.

- [Karl Theodor Renius](#)

Contents and documentation of the master craftsman schools at Munich East Station.

- [Literature](#)

Contents and documentation of the master craftsman schools at Munich East Station.

- [Literature - Important Links](#)

Literature Collections mediaTUM – the media and publication server of the Technical University of Munich mediaTUM is the media and publication server of...

- [Two Giants, One Goal](#)

Content and documentation of the master craftsman schools at Munich East Station.

4.13 Events, Trade Fairs & Seminars

- [Trade Fairs](#)

productronica World's Leading Trade Fair for Electronics Development and Manufacturing

- [Seminars](#)

T T VDI Working Group on Agricultural Engineering you can register here: <https://www.vdi-sued.de/info-mails/ak-agrartechnik>

VDI Seminar on Agricultural Engineering <https://www.lse.lse...>

4.14 i General Information, Contact & Other

- [All PDFs](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Electrical Engineering](#)

Electrical Engineering

- [GitHub Repositories](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Infographic: Fundamentals of Electrical Engineering](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Interactive Fundamentals of Electrical Engineering](#)

Content and documentation of the master craftsman schools at Munich East Station.

- [Contact Form](#)

Contact Form

- [Links](#)

Master Schools at Munich East Station, Agricultural Machinery Mechanics Documentation, Links, Shortcuts <https://www.ms-muc-docs.de/> To the main page: Master Schools at Munich East Station

- [Wikis](#)

Content and documentation of the Master Schools at Munich East Station.

5. Lehrplan

5.1 Overall curriculum 2025 & timetable

 **Source & Legal Basis:** **Source:** Framework curriculum for preparing for the master craftsman's examination in the agricultural and construction machinery mechatronics trade **Publisher:** German Association of Agricultural Machinery Manufacturers (LandBauTechnik-Bundesverband e. V.), Alfredstraße 102, 45131 Essen (Status: 25.02.2025) **Regulation:** Master Craftsman Examination Regulation (LandBauMechMstrV) of 09.09.2024 (Federal Law Gazette 2024 I No. 277, in force from 01.08.2025)

5.1.1 Framework curriculum for the master craftsman's examination in the agricultural and construction machinery mechatronics trade

5.1.2 Part I – Practical Training (380 teaching units)

5.1.2.1 Field of activity 1: Extensions to agricultural and construction machinery (160 teaching units)

- LE 1.1 (20 UE): Order acceptance, analysis of customer requirements & workshop organization.
- LE 1.2 (60 UE): Planning & development of mechatronic solutions (design, circuit diagrams).
- LE 1.3 (40 UE): Practical installation, wiring & assembly of mechatronic accessories.
- LE 1.4 (40 UE): Parameter adjustment, calibration, commissioning of networked systems.

5.1.2.2 Field of Action 2: Diagnosis and Repair (220 teaching units)

- LE 2.1 (40 UE): Structured troubleshooting & repair planning for machines.
 - LE 2.2 (40 UE): Fault diagnosis of vehicle & machine functions (sensors, actuators, bus).
 - LE 2.3 (40 UE): Fault diagnosis on drive systems (diesel engines, Stage V, HV, transmissions).
 - LE 2.4 (40 UE): Fault diagnosis on hydraulic, electro-hydraulic & pneumatic systems.
 - LE 2.5 (40 UE): Fault diagnosis of transmission systems, telemetry, GNSS & customer IT.
 - LE 2.6 (20 UE): Fault diagnosis on autonomous & automated systems.
-

5.1.3 Part II – Subject-Specific Theory (810 teaching hours)

5.1.3.1 Area of activity 1: Analyzing requirements, developing and offering solutions (380 hours)

- LE 1.1 (160 hours): Mechanical and systems engineering as well as technical fundamentals.
- LE 1.2 (40 hours): Maintenance technology, servicing & repair processes.
- LE 1.3 (100 hours): Diagnostic technology & troubleshooting.
- LE 1.4 (40 hours): Creating plans, sketches & technical drawings.
- LE 1.5 (40 hours): Customer requirements & order-specific framework conditions.

5.1.3.2 Area of activity 2: Providing, controlling & handing over the services of a company (260 hours)

- LE 2.1 (80 hours): Preparation & execution of work processes in customer service.
- LE 2.2 (80 hours): Quality control, performance monitoring & fault prevention.
- LE 2.3 (60 hours): Invoicing, post-calculation & handover to the customer.
- LE 2.4 (40 hours): Application of workshop identification systems.

5.1.3.3 Area of activity 3: Managing and organizing a business (170 hours)

- (Commercial, business administration & legal modules – separately in the business administration documents)

5.2 Examination structure & requirements (LandBauMechMstrV 2024)

 **Source & Legal Basis:** **Source:** Framework curriculum for preparing for the master craftsman's examination in the agricultural and construction machinery mechatronics trade **Publisher:** German Association of Agricultural Machinery Manufacturers (LandBauTechnik-Bundesverband e. V.), Alfredstraße 102, 45131 Essen (Status: 25.02.2025) **Regulation:** Master Craftsman Examination Regulation (LandBauMechMstrV) of 09.09.2024 (Federal Law Gazette 2024 I No. 277, in force from 01.08.2025)

5.2.1 Regulations for the Master Craftsman's Examination in Parts I and II in the Agricultural and Construction Machinery Mechatronics Trade

5.2.2 Part I of the Master Craftsman Examination (Practical Skills)

Part I comprises exactly **three examination components**:

5.2.2.1 1. Master craftsman examination project (§ 5 MPVO)

- Creation of a complex project plan, installation, configuration or diagnostics on an agricultural or construction machine.
- **Weighting:** Implementation work (50%), planning documents (25%), documentation & control (25%).
- **System selection:** For the customer order, 2 systems must be selected from the 7 legally defined system categories (1–4: electrohydraulics, electropneumatics, mechanics, mechatronics; 5–7: drive, networking, autonomy).

5.2.2.2 2nd Expert Discussion (§ 6 MPVO)

- Max. 30-minute technical discussion based on the completed master craftsman examination project (customer consultation, justification of procedure, error analysis).

5.2.2.3 3. Situational task (§ 7 MPVO)

- Practical diagnostic and repair task on networked mechatronic systems (duration: approx. 6 to 8 hours).

5.2.3 Part II of the Master Craftsman Examination (Specialized Theory)

Part II is examined in **three written examination areas**:

5.2.3.1 1. Area of Action 1

Analyze customer requirements, develop and offer solutions (case study / specialist theory).

5.2.3.2 2. Area of Action 2

Providing, monitoring, and handing over the services of a company.

5.2.3.3 3. Area of Action 3

Managing and organizing a business in the agricultural and construction machinery mechatronics trade (commercial/legal).

5.3 Wiki assignment matrix (Framework curriculum 2025)

 **Source & Legal Basis:** **Source:** *Framework curriculum for preparing for the master craftsman's examination in the agricultural and construction machinery mechatronics trade* **Publisher:** German Association of Agricultural Machinery Manufacturers (LandBauTechnik-Bundesverband e. V.), Alfredstraße 102, 45131 Essen (Status: 25.02.2025) **Regulation:** *Master Craftsman Examination Regulation (LandBauMechMstrV)* of 09.09.2024 (Federal Law Gazette 2024 I No. 277, in force from 01.08.2025)

 **Central Web Portal of the Munich Master Schools:** www.ms-muc-docs.de |  [Interactive Curriculum Framework 2025](#) |  [Wiki Overview](#) |  [PDF Downloads](#)

Here you will find the exact location of all technical teaching content required in the **Framework Curriculum 2025** on our 6 topic wikis.

5.3.1 Overview of the 6 documentation wikis (clickable direct links)

5.3.1.1 Wiki 0: Main Wiki (.github)

- **Focus:** Overall curriculum 2025, examination regulations (Part I & II), media library, central search.
- **Contents:** [das_steht_im_lehrplan.md](#), [pruefungsordnung_teil1_teil2.md](#), overall structure.
- **Direct link:**  [Open Wiki 0 on ReadTheDocs](#)

5.3.1.2 Wiki 1: C programming in ISOBUS (Install-ISOBUS-Environment-docs)

- **Focus:** C/C++ development, toolchains, C libraries for ISO 11783, IsoAgLib.
- **Curriculum Reference:** Part I LE 1.4 | Part II LE 1.1 (Systems Engineering & Programming).
- **Direct link:**  [Open Wiki 1 on ReadTheDocs](#)

5.3.1.3 Wiki 2: ISOBUS Virtual Terminal (ISOBUS-VT-Objects-docs) – Human-Machine Interface (HMI)

- **Focus:** ISOBUS Virtual Terminal (UT / VT according to ISO 11783-6), ISO Designer, VT object pools (Data Mask, SoftKey Mask, Alarm Mask), HMI ergonomics, key events & input attributes.
- **Curriculum Reference:** Part I LE 1.4 (Operation & Visualization of Automated Functions) | Part II LE 1.1 (Human-Machine Interfaces & Systems Engineering), LE 1.4 (Planning of User Interfaces & Screen Layouts).
- **Direct link:**  [Open Wiki 2 on ReadTheDocs](#)

5.3.1.4 Wiki 3: ISOBUS Technology & Machine Systems (ISOBUS-other-docs)

- **Focus:** Hydraulics, pneumatics, motors (Stage V), HV technology (DGUV 209-093), gearboxes, machine safety (ISO 25119 AgPL) & CAN protocols (SAE J1939, PGNs).
- **Curriculum Reference:** Part I LE 2.3, 2.4, 2.5 | Part II LE 1.1, 1.3 (Diagnosis & Repair).
- **Direct link:**  [Open Wiki 3 on ReadTheDocs](#)

5.3.1.5 Wiki 4: Visual Programming Languages (visual-programming-languages-docs) – Central Main Method of the Curriculum 2025

- **Focus:** IEC 61499, Eclipse 4diac IDE, Low-Code, event-driven block networks, ESP32 DualCAN control.

- **Curriculum Reference:** Part I LE 1.4 (Automated Functions), LE 2.6 (Autonomous Systems) | Part II LE 1.1 (Systems Engineering & Programming Methodology), LE 1.3 (Diagnostics in Block Networks).
- **Central role:** The 2025 curriculum framework requires graphical-visual modeling instead of pure text-based code writing for networked automation and autonomy.
- **Direct link:**  [Open Wiki 4 on ReadTheDocs](#)

5.3.1.6 **Wiki 4.1: 4diac Library Reference (4diac-library-reference-docs)**

- **Focus:** Reference of all function blocks (FB) and adapters in the 4diac standard libraries.
- **Curriculum Reference:** Part II LE 1.1 (Systems Engineering & Programming Methodology), complementing Wiki 4.
- **Direct link:**  [Open Wiki 4.1 on ReadTheDocs](#)

5.3.1.7 **Wiki 4.2: 4diac Exercises: Training Solutions (4diac-exercises-docs)**

- **Focus:** Exercises and sample solutions for training with Eclipse 4diac.
- **Curriculum Reference:** Part II LE 1.1 (Systems Engineering & Programming Methodology), practical deepening of Wiki 4.
- **Direct link:**  [Open Wiki 4.2 on ReadTheDocs](#)

5.3.1.8 **Wiki 5: Tool & Measuring Equipment Handbook (werkzeug-docs) – Workshop Equipment & Diagnostic Tools**

- **Focus (All 3 tool categories):**
 1. **Measurement & Diagnostic Tools (Analyzing):** Oscilloscopes, multimeters, CAN testers (PEAK, Busmaster, AEF-Check), digital microscopes for solder joint & crimp inspection.
 2. **Production tools (processing):** Soldering technology (SMD/THT, Hotair, Hotplates, JBC/Aixun/Ersa), crimping technology (Deutsch connectors, AMP, hydraulic crimping).
 3. **Workshop infrastructure (supply):** Laboratory power supplies, solder paste dispensers, ESD protection stations.
- **Curriculum Reference:** Part I LE 1.3 (Cable harness manufacturing & installation), LE 2.1 & 2.2 (Fault diagnosis & circuit board repair) | Part II LE 1.2 (Workshop organization & quality assurance), LE 1.3 (Diagnostic & measuring systems).
- **Direct link:**  [Open Wiki 5 on ReadTheDocs](#)

5.3.1.9 **Related topic subpages on ms-muc-docs.de**

-  [Interactive JBC soldering tip guide & infographic on ms-muc-docs.de](#)
-  [Eclipse 4diac IDE & Color Reference on ms-muc-docs.de](#)
-  [ESP32 & ESP32-S3 DevKit on ms-muc-docs.de](#)
-  [PCB design & assembly at ms-muc-docs.de](#)

5.3.2 **Overview, main portal & direct links to all 6 wikis**

Wiki	Topic / Description	Link to ReadTheDocs
Wiki 0	Wiki of the Master Schools General information, Curriculum 2025 & Main Wiki.	 Open
Wiki 1	C Programming in ISOBUS Fundamentals of C programming and the ISOBUS environment.	 Open

Wiki 2	ISOBUS Virtual Terminal (VT) User interfaces, ISO Designer, VT object pools & HMI.	 Open
Wiki 3	ISOBUS Technology & Machine Systems Hydraulics, Pneumatics, Motors, High-Voltage Technology, Gearboxes & Machine Safety.	 Open
Wiki 4	Visual Programming Languages Low-code development, IEC 61499 & 4diac IDE (main curriculum topic).	 Open
Wiki 4.1	4diac Library Reference Function block & adapter reference for the 4diac libraries.	 Open
Wiki 4.2	4diac Exercises: Training Solutions Exercises and sample solutions for training with 4diac.	 Open
Wiki 5	Electronic Tools & Measuring Instruments Handbook for crimping technology, soldering stations, oscilloscopes & microscopes.	 Open

5.3.3 PDF Downloads for All Wikis

Wiki	PDF (DE)	PDF (EN)
Wiki 0 – Main Wiki	 DE	 EN
Wiki 1 – C Programming in ISOBUS	 DE	 EN
Wiki 2 – ISOBUS Virtual Terminal	 DE	 EN
Wiki 3 – ISOBUS Technology & Machine Systems	 DE	 EN
Wiki 4 – Visual Programming Languages	 DE	 EN
Wiki 4.1 – 4diac Library Reference	 DE	 EN
Wiki 4.2 – 4diac Exercises	 DE	 EN
Wiki 5 – Electronic Tools	 DE	 EN