


		
EtherCAT [®]	 Technologie Management Gruppe Technologie und Engineering	
	 IO-Link	EtherNet/IP [®]

► Industrial Communication Technology

TMG TE GmbH

Industrial Communication without borders



Consulting

Development

Products

35 Years
Enabling Technology



Accredited as
PROFIBUS & PROFINET
Competence Center

Accredited as
IO-Link
Competence & Test Center

EtherNet/IP™



functional safety



Safety over
EtherCAT®



Device Engineering, IoT and Edge Gateways

- ▶ Device Engineering Tools
- ▶ Communication Drivers
- ▶ WEB Services
- ▶ Cloud Services
- ▶ IT Integration





Accredited as Competence Center by
PROFIBUS & PROFINET International



Accredited as Competence & Test Center
by IO-Link Community



Accredited as Competence Center by
PROFIBUS & PROFINET International

► Consulting

- Trainings & Workshops
 - adapted to the target group
 - on site, at TMG TE or via WEB
 - International
- System specification
- Choice of Technology
- Platform Concepts

► Certification and Test Support

- Conformance tests
- Interoperability tests
- Expertise
- Operate demo systems
- Certification support
- Accredited as
IO-Link Test Center
(Master and Devices)

► Engagement in PI and IO-Link Community

- Collaboration in many technical and marketing working groups
- Member of IO-Link steering committee
- Collaboration in user and development workshops of IO-Link and PROFINET



► Compatibility to PROFINET

- compliant according to the latest PROFINET specification

► Functionality

- Conformance Class A, B, C (IRT with Sitara/AMIC from Texas Instruments)
- Features: Fast Start Up, Shared Device, Device Access, MRP (Medium Redundancy), DCP, LLDP
- System Redundancy S2, Dynamic Reconfiguration and multi Instances for PA Profile 4.0
- Prepared for Profiles/API like PROFIsafe, PROFIenergy and IO-Link Integration
- Used in first applications with APL (Advanced Physical Layer)

► Portable to many platforms

- RTOS like FreeRTOS, embos, TI RTOS, sciopta or Linux with preemptive RT patch
- Multiprotocol platforms like TI Sitara/AMIC or Renesas RZ/N
- Single Chip Microcontroller STM32 M3, M4, H7 / Rx6xx / PIC32
With and without external switches e.g. microchip KSZ8863

► Small Footprint

- Stack: Code ~ 300 Kbyte, RAM > 250 Kbyte RAM (without OS and SNMP)



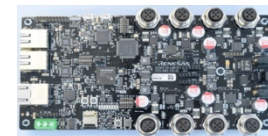
► Texas Instruments – Sitara (AM 2x,3x,4x,5x,6x and AMIC)

- All kind of PROFINET IO Devices: CC-A, CC-B, CC-B(PA), CC-C
 - Also available EtherNet/IP and EtherCAT
 - TI-RTOS, FreeRTOS and Linux



► Renesas RZ/N 1S, 1D

- All kind of All kind of PROFINET IO Devices: CC-A, CC-B, CC-B(PA)
 - Also available EtherNet/IP and EtherCat



► STMicroelectronics STM32 Arm® Cortex® M3..M7

- All kind of All kind of PROFINET IO Devices: CC-A, CC-B, CC-B(PA)
 - Also available EtherNet/IP
 - FreeRTOS, LWIP, 2 Ports with Microchip KSZ8863
 - Used with APL (Advanced Physical Layer)



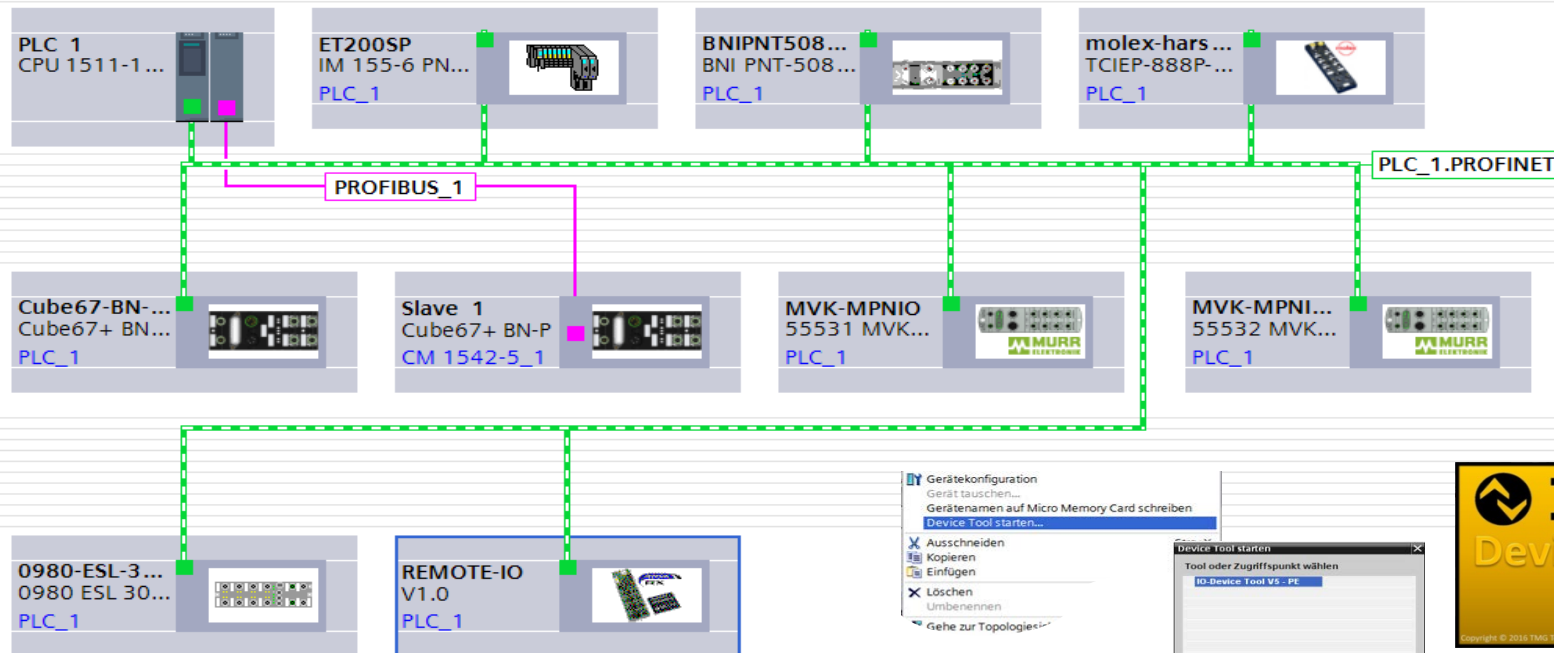
► With all platforms: IO-Link Master implementation available

- PROFINET IO-Link Integration according to PI specification
- TMG Interface Protocol SMI-TCP for Engineering, IO-Link Master Test and IoT
- IO-Link Device Tool V5.1 – Professional Edition





IO-Link Device Tool – TCI : Call from PROFINET/PROFIBUS Configuration



- ▶ PROFINET & PROFIBUS Hardware Configuration with IO-Link masters of multiple vendors
- ▶ Supported from IO-Link Device Tool V5.1 – use right mouse click „Start Device Tool“
- ▶ Also prepared for IO-Link Safety

Thank You

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