

Profile

Personal Data

Name and Address

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Date of Birth

May 30th, 1953

Nationality

German

Practicum

Siemens

Siemens AG, Berlin

1977-1978

Electromechanics and Machine Tools

Education

1979-1982

Study of Information Technology at the „Technische Fachhochschule Berlin“
Final Work: „Digital Transversal Filter“

Professional Work

Stadttheater

Stadttheater Giessen GmbH.

1974-1977

Sound technician in the main building and technical coaching of a theatre studio

Schering AG

Schering AG, Berlin

1979-1982

Freelancer: Development and assembly of electronic devices for the research laboratories

1982

Technical assistant: Development and assembly of electronic devices for the research laboratories

Endress+Hauser

Endress+Hauser GmbH.+Co. KG, Maulburg

1982-1985

Project manager development: Humidity measurement

1985-1988

Team manager: Digital communications, smart devices, gate arrays, microcomputer

1988-1991

Department manager: Digital communications, system parts, software and firmware, fieldbus technology

1991-1992

Department manager: New information technologies, fieldbus, fuzzy logic, artificial intelligence

Self-employed

1992-2006

Engineering consultancy ‚Borst Automation‘

Knowledge/Skills

Programming Languages	FORTRAN, PLM51, FORTH, PASCAL, VB, C, C++, C#, SQL, Java, Assembler
Application Languages	DDL, HTML, XML, Java Script, VB Script, UML
Source Code Maintenance	MKS, CVS
Operating Systems	DOS, Windows 3.1/3.11/98,NT,2000,XP, CP/M, MicroC OS-II, EmbOS
Microprocessors	6800, 6805, 6809, 6811, 680xx, 8080, 8085, Z80, 8086-80386, 8031/51/52, H8, M16C, PIC
Platforms/Interfaces	GEM, MFC, COM, DCOM, Borland Builder, Delphi, Visual Basic, Visual Studio.net
Application (Windows)	Word, Publisher, Access, Project, Power Point, Excel, FrontPage, Homepagemaker, Installshield, Doc-to-Help
Hardware	Gate-Array Design, intrinsically safe electronic circuits, microcomputer design, electronics for data acquisition (A/D converters etc.), electronics to connect to fieldbus
Communication Technique	HART, CAN/CANOpen, PROFIBUS, FF, 802.x, TCP/IP
Coaching and Mentoring	I am used to establish teams and to lead them. Even under time pressure I manage it to distribute work meaningful, to hide the pressure from the team and to keep the team in a positive mood. To catch crashed projects and to get them back to where they were targeted to or to stop them it's also part of my work.
Languages	German, verhandlungsfest in Wort und Schrift

Referees

On request Please send email or call.

Borst Automation

Services

Consulting

- Fieldbus Systems
- Microcomputer Systems
- Project Planning
- Platform Design
- Technology Analysis

Project Management

- Consulting
- Coaching
- Mentoring

Development

- Embedded Systems (hardware but no layout)
- Measurement Electronics (no layout)
- Software Frameworks for Embedded Systems
- Complete Firm- and Software for Microsystems
- Driver and Middleware for Windows
- Windows Application Programs
- Device Descriptions for HART and Profibus
- Databases for the Generation of Source Code
- Databases for the Generation of DDs
- PC-Simulations¹ for Embedded Systems

Miscellaneous Services

- Code Inspections
- Task Analyses
- Feasibility Studies
- Test Design and Testing
- Editing of Specifications
- System and Software Documentation

Fees

920.- Euro/day, 115.- Euro/hour

Products

- Windows ActiveX for the HART Protocol
- HART Slave in C for Embedded Systems 8/16 Bit
- HART Communication DLL for Windows
- TCP/IP for Embedded Systems 8/16 Bit

¹ Almost all device software can be developed in Visual Studio by using a Simulation on the PC

Customers for Consulting and Projects

Bebro-Elektronik, Frickenhausen
Embex, Freiburg
Endress+Hauser, Gerlingen
Endress+Hauser, Manchester
Endress+Hauser, Nesselwang
Endress+Hauser, Maulburg
Endress+Hauser, Reinach
Force Computers, München
Inor Transmitter, Vantaa
IMTT, Oulu
Integriti Solutions, Aberdeen
Fischer & Porter, Göttingen
Hartmann & Braun, Frankfurt
Liebherr, Bad Schussenried
Mettler-Toledo GmbH., Urdorf
MTL, Luton
Pepperl+Fuchs, Mannheim
Phoenix Contact, Blomberg
Rosemount, Chanhassen
Samson, Offenbach
Sensycon, Alzenau
Siemens, Karlsruhe
VEGA Griesshaber, Schiltach
Yokogawa Electric Corporation, Tokoy

Work in Standards

1994-2001 Delegate of NAMUR(Germany) into the German standards committee (UK 951.3 of DKE, Fieldbus)
1993-1994 German delegate into the international standards committee IEC SC65C WG6
1994-1999 German delegate into the European standards committee TC65CX
1988-1992 Contributions to IEC SC65C WG6 (as guest)
1988-1992 Contributions to ISA SP50

Patents

2005 Method for the Calibration of non-Linear Sensors
2004 Method² for the Operation of a Modular Built Field-Device for Plant Automation

² Software Options

Publications

- 2004 Method for the Operation of a Field Device in Automation³
- 2003 Method to Transfer Data between two Measurement Devices⁴ WO 2005/045782 A2
- 1990 Arrangement for Digital Voltage Measurement⁵, BRD-Patent 36 17 936 / 6.9.1990
- 1989 Method to Transfer Binary Coded Information in a Measurement System⁶, US-Patent 4.777.331 / Ovt 11.1988
- The articles are all in German language. The titles have been translated for your information.
- 1994 W. Borst, R. Patzke: „Sensor-/Actorbus as IEC Gateway“, industrie-elektrik+elektronik 1994, No 4, P. 32-36
- 1994 W. Blome, W.Borst: „Fieldbus Protocols in Comparison“, Elektronik 1994, No 1, P 48-58
- 1992 W. Borst: „The Fieldbus in Factory and Plant Automation“, Franzis-Verlag 1992, ISBN 3-7723-4621-9
- 1991 W. Borst: „Communication at the Instrumentation Level“, Elektronik 1991, No 18, P 72-81 and Elektronik 1991, No 20, P. 82-86
- 1990 W. Borst: „CIP is Approaching“, Elektronik 1990, No 13, P. 42-49
- 1989 W. Borst: „New Technology fully Integrated“, Konstruktion & Elektronik 1989, No 42, P. 4
- 1989 W. Borst: „Digital Communication in Process Measurement“, mikro elektronik 1989, No 4, P. 158-162
- 1988 W. Borst, K.P. Lindner, M. Ziesemer: „The EUREKA Field for the Instrumentation in the 90s“, Automatisierungstechnische Praxis 1988, No 9
- 1987 W. Borst, B. Gut, E. Pfündlin, M. Ziesemer: „Intelligent Transmitters for Plant Automation“, Automatisierungstechnische Praxis 1987, No 11, P. 526-532
- 1985 W. Borst: „Real Time Monitor for Measurement and Control Engineering“, Elektronik 1985, No 23, P. 79-83
- 1985 W. Borst: „Curve Approximation by Additive Segmentation“, Elektronik 1985, No 20, P. 91-93

Memberships

- 1993–2006 HCF (HART Communication Foundation)
- 1993–2006 VDI/VDE (Association of German Engineers)

³ Smart Device Management in Profibus

⁴ HART Input, a HART Slave understands Burst Messages

⁵ Ultra Low Power A/D-Converter

⁶ Ultra Low Power Data Transfer

Relevant Project Work

- 2007–2009** Development of a software platform for embedded systems. Design and development of a test system with integration of a pc-simulation in Visual Studio.
- 2008–2009** Development of a multiplexer software for Windows (40 measured values/second).
- 2008–2009** Development of a Windows CE driver for the Hart protocol.
- 2006** Development of a complex pump control software for an embedded system.
- 2006** Development of a special measurement arrangement (hardware and software) for measuring the profile of a magnetic field of the sensor of a flow transmitter.
- 2005–2006** Development of a TCP/IP stack for embedded controllers 8/16 bit
- 2004–2005** Software project management, system design and development: Thermal mass flow meter with HART, Profibus PA und MODBUS
- 2004–2005** System design and development: Two wire⁷ measurement transmitter for Profibus and FF.
- 2001–2004** System design and development: Software platform for two wire transmitters with variable I/O structure, design of a PC simulation for the firmware development in Visual Studio, support for the integration of the platform in various devices.
- 2001–2003** System design and development: Porting of a software platform for two wire devices to a new hardware structure, integration of a fuzzy logic regulator.
- 2002–2003** Software project management, system design and development: Two wire flow transmitter Vortex with temperature measurement, 4..20 mA, HART, Profibus and FF.
- 2001–2002** Software project management, system design and development: Two wire flow transmitter Vortex, 4..20 mA, HART and Profibus.
- 2000–2001** Development: Windows application für the calibration of mass flow meters, ActiveX for digital communication with a proprietary protocol.

⁷ A two wire device is propagating data (e.g. measured value) on the same wires which are used for the power supply. Because the supply current could be as low as 3.6 mA the resources are very restricted.

1999–2000	Software system design and development; Two wire MID flow meter, porting of a software platform for four wire devices ⁸ in the two wire environment.
1999	Software design and development: Contribution to the software development for a mass flow meter based on the coriolis effect, contribution to the design of a function block model as software structure.
1998–1999	„Single Source“ concept design: Development of a database to generate device descriptions, XML descriptions and source code for a target system.
1998–1999	Development of an ActiveX (OCX) for the HART protocol.
1998–1999	Development of a HART slave for an embedded systems
1998–1999	Development of the field device configuration program PARASOFT for pressure transmitter Operating system: Windows Communication: HART
1994–1999	Active contribution and consultance for the standardization of the Interbus-S
1995–1998	Development of the configuration program K-SK1 for I/O multiplexer Operating system: Windows Communication: specific
1995–1998	Development of the configuration program Smart Vision for field devices (pressure, temperature, flow) Operating system: Windows Communication: HART, Profibus and specific
1995–1996	Design and development: Gateway system for an I/O multiplexer Communication: Profibus
1995	Development: Manchester decoder encoder for HART Microcontroller: PIC
1994–1995	Design and development: Hard- and software platform for gateways in a 19” system (VEGACOM)
1994–1995	Contribution to the development of the configuration program CMD for Interbus-S devices Operating system: Windows
1994–1995	Design and development of a gateway system for Interbus-S devices Communication: ISP ⁹ (Profibus)

⁸ Four wire devices use two wires for the power supply and two wires for the measuring signal and/or digital comms. The restriction of resources is less problematic with these devices.

⁹ Interoperable Systems Project

1993-1995	Training courses under contract of ISP in USA, Japan and Europe
1994	Development of a configuration program for a temperature transmitter Operating system: DOS
1993-1994	Development of a HART driver for Windows
1992-1994	Contribution and consultancy for the international fieldbus standardization Introduction of the so called 'Delegated Token' into the FF comms
1993	Development: Driver for the communication in a 19" system (RACKBUS)
1993	Development of configuration program COMMUWIN I Communication: Specific (RACKBUS)
1992	Publication of the book, „The Fieldbus in Factory and Plant Automation“
1991-1992	Contribution to the international project FICIM ¹⁰ to build a completely automated process by using Profibus and WorldFIP (the EUREKA Fieldbus)
1991-1992	Study of the usage of Fuzzy Logic in ultrasonic level meters
1986-1992	Development and production introduction of the gateways ZA672, ZA673 (RS232, PROFIBUS, MODBUS und FIP ¹¹) for the RACKBUS system
1990-1991	Contribution to IFG ¹² Design and specification of the Device Description Language, which was mainly based on the work of Craig Tielens(Rosemount) and Walter Borst(Endress+Hauser)
1988-1989	Project management, system design and development: "Multivendor-Demonstration ¹³ " on Interkama 1989
1986-1987	Design, development and production introduction: Hand held configurator COMMUTEC VU160 for RACKBUS and INTENSOR
1985-1987	Design: Consistent and uniform configuration interfaces for hand helds, gateways, 19" units and PCs. The solution is called 'the Matrix'
1985-1986	Basics development: INTAU ¹⁴ with 4..20 mA two wire technique. Later the communication protocol was named INTENSOR.

¹⁰ Fieldbus Integration into Computer Integrated Manufacturing

¹¹ At that time Factory Instrumentation Protocol

¹² International Fieldbus Group

¹³ The companies Eckardt AG, Endress+Hauser, Esters Elektronik, Krohne, Neles-Jamesbury, Rosemount, Samson and Valmet Automation showed a completely equipped application with fieldbus. At this demo it was 802.4.

¹⁴ Intelligenter Aufnehmer(Converter)

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|------------------|---|
| 1985-1986 | System design: Common hard- and software platform for 19" (7 RU) measurement devices. Today this platform is called COMMUTEC
Introduction of gate arrays for microcomputer systems |
| 1983-1984 | System design: Common hard- and software platform for microprocessor devices in a 19" system(28 RU) |
| 1983-1984 | Project management and development: Measurement device WMY770 for ultra low humidity |
| 1982-1983 | Project management and development: Humidity measurement device based on microwave |