

## BRANCH OF INDUSTRY

Electrical and automation design, PC-controls, PLC programming, electrical and automation installations:

*Siemens:* S5, S7, TIA, Safety, HMI, WinCC, WinCC flexible

*Control Software:* Gred

*Wonderware:* InTouch

*ABB:* Advant AC70

*Mitsubishi:* Melsec

*Allen & Bradley:* Logix5000, PLC-5, SLC100, SLC150, SLC500

*Omron:* SCS, CV-2000, CV-1000, CQM, C200

*Schneider:* TSX, Micro, Modicon Quantum

*Beckhoff:* TwinCAT

*Metso:* Damatic

*Honeywell:* Alcont

*Company and Personal Rating SETI Oy: Electrical competence S1*

## Projects:

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| 2019 | Co-operation with Algol Oy, Meyer Turku. Control of 2 automatic overhead cranes, Siemens S7-1500, Siemens TP1200.         |
| 2019 | Co-operation with Algol Oy, Biosairila Mikkeli. Control of automatic overhead crane, Siemens S7-1500, Siemens TP900.      |
| 2019 | Co-operation with Algol Oy, Boliden Kokkola. Control of automatic overhead crane, Siemens S7-1500, Siemens TP1200.        |
| 2018 | Co-operation with Algol Oy, SSAB Oy Raahe. Control of overhead crane, Siemens S7-1500, Siemens TP1200.                    |
| 2018 | Co-operation with Algol Oy, Boliden Oy Kokkola. Control of semiautomatic overhead crane, Siemens S7-1500, Siemens TP1200. |
| 2017 | Co-operation with Algol Oy, Fresh Servant Edsevö. Control of conveyors, Siemens S7, Siemens drives, Siemens TP1200.       |

- 2017 Co-operation with Algol Oy, Sary Arka, Riga. Control of process crane, Siemens S7.
- 2017 Co-operation with AS-Elektra Oy, Valmet Automotive Uusikaupunki. Control of engine assembly crane-conveyors, Siemens S7-1500, Siemens drives, Siemens TP1200.
- 2016 Co-operation with Algol Oy, BioGTS Oy Jyväskylä, automation of grab crane in waste handling plant, Siemens S7, Siemens KTP1000.
- 2016 Co-operation with Algol Oy, Oriola Oy Espoo, automation of loading-unloading conveyors for medicine stock, Siemens S7, Siemens TP700.
- 2016 Co-operation with Algol Oy, Fazer Oy Vantaa, automation of chocolate candy conveyor line, ABB drives, Siemens S7, Siemens WinCC.
- 2015 Co-operation with Algol Oy, SSAB Oy Pulkkila, process crane controls, ABB drives, Allen & Bradley Logix5000/1756, Allen & Bradley panels, Beckhoff PC.
- 2015 Co-operation with Algol Oy, Nokian Heavy Tyres Oy Nokia, safety system for process cranes, Demag drives, Siemens S7 Safety, Siemens KTP600.
- 2014 Co-operation with Weldsys Oy, Ravintorengas Oy Siikainen, automation of pine tincture manufacturing system, Omron drives, Siemens S7, Siemens KTP600.
- 2014 Co-operation with Weldsys Oy, Atria Oy Nurmo, marinade distribution system, Vacon drives, Siemens S7, Siemens KTP600, KTP1000.
- 2013 Co-operation with Algol Oy, Finnsementti Oy Lappeenranta, process crane controls, ABB drives, Siemens S7, Siemens KTP1000, Siemens KTP1500, Beckhoff PC.
- 2013 Co-operation with Algol Oy, Metso Minerals Oyj Tampere, data collection system for process crane, ABB drives, Siemens S7, Beckhoff PC.
- 2013 Co-operation with Algol Oy, Ruukki Oyj Hämeenlinna, process crane automation, Vacon AFE drives, Siemens S7, Siemens KTP600, Siemens KTP1000, Beckhoff PC.
- 2012 Co-operation with Weldsys Oy, Kuusamon Juusto Oy Kuusamo, machine for emulsifying, Vacon drives, Siemens S7, Siemens KTP600.
- 2012 Co-operation with Ilves Metalli Oy, Savon Laatikopesu Oy Kuopio, box stacker, SEW drives, Siemens S7.

- 2011 Co-operation with Ilves Metalli Oy, Snellman Kokkikartano Oy Kerava, conveyor system, box stacker, box stacker, box filling manipulator, SEW drives, Siemens S7, Siemens KTP600.
- 2010 Vacon Oyj Vaasa. Lightning optimization for production lines. PLC's located in control cabinets: Siemens LOGO.
- 2009 Vacon Oyj China. Vessel Crane application for NXP drives. Synchronized drives, power optimization function, RMS protection, mechanical brake control, load calculation etc. Made by NC 61131-3 programming tool.
- 2009 Co-operation with Algol Technics Oy, Ruukki Oyj Raahe, bundler system to cold rolling mill. Automation turnkey delivery. Siemens S7, MP277, MP277 Mobile etc.
- 2008 Co-operation with Algol Technics Oy, Ovako Steel Oy Koverhar, Changes to process crane software. Siemens S7
- 2008 Co-operation with Sesca Oy, Vacon Oyj Vaasa, liquid system to testing furnaces for liquid cooled frequency converters, Siemens S7
- 2008 Co-operation with Sesca Oy, Vacon Oyj Vaasa, air system to testing furnaces for liquid cooled frequency converters, Siemens S7
- 2008 Co-operation with Citec Oy, Elkem Solar Norway, electrical planning for movable platforms
- 2008 Co-operation with Algol Technics Oy, Ruukki Oyj Raahe, plate manipulator to cold rolling mill. Automation turnkey delivery. Siemens S7, MP277, MP277 Mobile etc.
- 2007 Co-operation with Ilves Metalli Oy, Juustokaira Oy Kuusamo, cheese cutting line. Siemens S7, MP277
- 2007 Co-operation with Northern Automation Oy, Päijät-Häme Central Hospital Lahti, rebuilding of black start units. Siemens S7, WinCC, MP277
- 2007 Co-operation with HL-Engineering AG, Red Dog Mine Alaska, AVR change from Brush to ABB UNITROL 1000, Electrical design and parameters for AVR
- 2007 Co-operation with HL-Engineering AG, Rakvere Lihakombinaat Rakvere Estonia, PC-sofwares for production lines, Intouch, Siemens S7
- 2006 Vacon Vaasa, application developing with NC61131-3 programming software

- 2006 Co-operation with Avecon Oy, Componenta Virsbo Sweden. Software changes to tempering furnace, Siemens S7, Intouch, PID-controllers in PLC
- 2006 Co-operation with Avecon Oy, Valio Lapinlahti cheese packing line, Siemens S7, Siemens WinCC, SEW Eurodrive servo drives and frequency converters
- 2005 Dublin waste water plant, Ireland. Problem solving from CAN-bus and Allen & Bradley PLC. Commissioning in Dublin Ireland, Vacon frequency converters
- 2005 On duty for Citec Oy, Power plant Baden in Germany and Power plant Trollhättan in Sweden. Electrical design.
- 2005 On duty for Citec Oy, KWH Pipe Vaasa. Mobile Extruder. Electrical and automation design and PLC programming. Siemens LOGO. Vacon frequency converters.
- 2004 On duty for New Project Oy, AWA Oy, Vantaa  
Loading and unloading stations in steelroll stock for steel rolls in steel factory of Avesta Polarit Oy Tornio, 2 x Siemens S7 + 2 x OP27  
- Programming and commissioning in Tornio
- 2004 On duty for New Project Oy, MetsäBotnia Kaskinen, SO<sub>2</sub>-discharging sequences, Honeywell Alcont  
- electrical- and automation design, programming and commissioning in Kaskinen
- 2003 On duty for New Project Oy, Ekokem Oy Ab, Riihimäki  
Waste plant / programming (Siemens S5)  
- automation design, programming and commissioning in Riihimäki
- 2003 On duty for New Project Oy, Ekokem Oy Ab, Riihimäki  
Waste plant / burning line 2, hose filter  
(Damatic XDi, Siemens S7)  
- automation design in Riihimäki
- 2002 On duty for New Project Oy, Ekokem Oy Ab, Riihimäki  
Waste plant / burning line 1, electric filter  
(Damatic XDi, Siemens S7)  
- automation design in Riihimäki
- 2002 On duty for New Project Oy, Ekokem Oy Ab, Riihimäki  
Waste plant / enlargements, basic design  
(Damatic XD, Siemens S7)  
- automation design in Riihimäki

- 2001 On duty for New Project Oy, Algol Oy Ab, Helsinki/  
Sulzer Pumps Finland Oy, Karhula  
Different software and electrical maintenance works  
- automation design, Siemens S7, programming and commissioning in Karhula
- 2001 On duty for New Project Oy, Planar Systems Oy, Espoo  
Mt. Fuji, flat screens, ALE-reactors, machine controls (Omron)  
- electrical-, automation- and hardware -design
- 2000 On duty for Sarlin Automation Oy, Mustola Timber Oy, Lappeenranta  
Gap of beams optimization system (2 pcs.)  
- Telemecanique TSX, Red Lion -control panel, programming and commissioning in Lappeenranta
- 2000 On duty for Sarlin Automation Oy, Sieväsisuste Oy, Lahti  
Height adjustment of grinding machine conversion to line controlled  
- Modicon Micro, Telemecanique TSX  
- programming and commissioning in Lahti
- 1999 On duty for Algol Oy, Ahlström Pumpput Oy, Karhula (Schulzer)  
Changes to conveyor- and stock lift softwares  
- Siemens S7  
- programming and commissioning in Karhula
- 1999 On duty for Algol Oy, Nokian Renkaat Oy, Nokia  
Changes to conveyor- and stock lift softwares  
- Siemens S7  
- programming and commissioning in Nokia
- 1999 On duty for Algol Oy, Hobby Hall Oy, Vantaa  
Changes to conveyor softwares  
- Siemens S5, Siemens S7, Interbus-S  
- programming and commissioning in Vantaa
- 1998 On duty for Algol Oy, Rautaruukki Oy, Raahe  
Changes to overhead crane softwares, automation of 2 old crane  
- Siemens S5, Siemens S7, ABB frequency converters, swing blocking made in PLC  
- programming and commissioning in Raahe
- 1998 On duty for Algol Oy, Suomen Posti Oy, Pasila, Tampere ja Seinäjoki  
Changes to conveyor softwares  
- OMRON CV-1000, C200, SCS, Gred, NT-control panels, Omron frequency converters  
- programming and commissioning in Helsinki, Tampere and Seinäjoki

- 1998 On duty for Algol Oy, Magnum Promed, Tallin, Estonia  
Conveyor system  
- OMRON C200HS, Omron frequency converters  
- programming and commissioning in Tallin Estonia
- 1997 On duty for Avecon Oy, Jot Components Ab, Virsbo, Sweden  
Tempering furnace delivered by Sarlin Furnaces Oy  
- Simatic S7-CPU315, Intouch, SEW frequency converters, PID-  
controllers in PLC  
- recipe handling, report handling (Excel / Visual Basic )  
- programming and commissioning in Virsbo Sweden
- 1997 On duty for Avecon Oy, Pharmacia & UpJohn, Belgium  
Destillers delivered by Steris Finn-Aquan (2 pcs.),  
- Simatic S7-CPU414 2DP, CP 443-1 for WinCC, PID-controllers in  
PLC, commissioning in Kerava
- 1996 On duty for Avecon Oy, Rautaruukki Oy, Raahe  
Overhead cranes (2pcs.) delivered by Oy Algol Ab  
- Simatic S5-115U and OP27 (4 pcs.), ABB frequency converters  
- programming and commissioning in Raahe
- 1996 On duty for Avecon Oy, MASA-YARDS, Helsinki  
Sealing oil system for azimuthing propellers delivered by ABB-Azipod Oy  
- ABB Advant AC70 (6 pcs.)  
programming and commissioning in Helsinki
- 1996 On duty for Control Software Oy, Ovako Steel Ab, Hofors, Sweden  
Hardening furnace delivered by Sarlin Furnaces Oy  
- Mitsubishi Melsec A2, Intouch, Eurotherm heat controllers, PID-  
controllers in PLC  
  
- programming and commissioning in Hofors Sweden
- 1996 On duty for Control Software Oy, Avesta Sheffield Ab, Avesta, Sweden  
Hardening furnace delivered by Sarlin Furnaces Oy  
- Mitsubishi Melsec A2, Intouch, Eurotherm heat controllers, PID-  
controllers in PLC  
  
- programming and commissioning in Avesta Sweden
- 1996 On duty for Control Software Oy, Hydro Aluminium, Karmoy, Norway  
Preheating furnace delivered by Sarlin Furnaces Oy  
- Allen & Bradley PLC-5, Intouch, IGA gas controllers  
- programming and commissioning in Karmoy Norway

- 1996 On duty for Control Software Oy, Volvo Floby Ab, Floby, Sweden  
Tempering furnace delivered by Sarnin Furnaces Oy
- Simatic 100U, Intouch, reports (Excel / Visual Basic), SEW frequency converters, PID-controllers in PLC
  - programming and commissioning in Floby Sweden
- 1995 On duty for Control Software Oy, Rautaruukki Oy, Raahe  
Overhead crane delivered by Algol Oy
- Simatic S5-115U, Coros OP25, ABB frequency converters
  - programming and commissioning in Raahe
- 1995 On duty for Control Software Oy, Lujabetoni Oy, Siilinjärvi  
Railway sleeper production line to Siilinjärvi delivered by Algol Oy
- Simatic S5-115U, OP25
  - programming and commissioning in Siilinjärvi
- 1995 On duty for Control Software Oy, Jot Components Ab, Främmestad, Sweden. Hardening furnace delivered by Sarlin Furnaces Oy
- recipe handling, report handling, software for portal robot, data transfer following the batch on the process
  - Mitsubishi Melsec A2, Intouch, Excel / Visual Basic, SEW frequency converters
  - programming and commissioning in Främmestad Sweden
- 1995 On duty for Control Software Oy, Helvar Oy, Helsinki  
Servo-driven loading machine for palettes, thorn machine, ferrite machine, necklace machine 1, necklace machine 2, necklace machine 3, manipulator for circuit boards, measuring machine for chokers with tailor made serial interface, procession memory system for palettes
- Omron CV-2000, CV-1000, CQM1, C200HS, Omron servo drives
  - touch screens NT600S ja NT600M
  - programming and commissioning in Helsinki
- 1995 On duty for Control Software Oy, Nokian Renkaat Oy, Nokia  
Scales system for rubber extrusion line with MS Access human interface
- MS Access data base, MS Access interface, Simatic S5-100U
  - programming and commissioning in Nokia
- 1994 On duty for Control Software Oy, Valmet Automotive, Uusikaupunki  
Infrared dryer for paintin line of Opel Calibra and Saab Cabriolet
- (Simatic 115U / InTouch / L2 fieldbus / H1 fieldbus / ET-200 fieldbus), PID-controllers in PLC
  - programming and commissioning in Uusikaupunki

- 1994 On duty for Control Software Oy, Wärtsilä Diesel Oy & Vaasa Engineering Oy, Vaasa  
Diesel power plant Cerestar in Krefeld, Germany  
- Programming (Simatic 155U, Simatic 115U, TELEPERM M) and commissioning in Krefeld Germany, PID-controllers in PLC
- 1994 On duty for Control Software Oy, Amsco Finn-Aqua, Vantaa  
Steril water prehandling plant in Rouen, France  
- Simatic S5-115U, Coros OP35 + Intouch, PID-controllers in PLC  
- programming and commissioning in Rouen France
- 1993 On duty for Avecon Oy, Wärtsilä Diesel & ABB, Vaasa  
Gas power plants Eskisehir and Cayirova(Istanbul) Turkey  
- commissioning (Simatic S5-135U, COROS-LSB) in Eskisehir and Cayirova Turkey, PID-controllers in PLC  
- Programming
- 1993 On duty for Avecon Oy, Wärtsilä Diesel, Vaasa  
LNG-Low pressure system  
- ABB Procontic CS31, PID-controllers in PLC  
- Electrical design, programming and commissioning in Vaasa
- 1993 On duty for Avecon Oy, ABB, Vaasa  
Testing machine for disconnectors  
- ABB Procontic CS31, GRED, PID-controllers in PLC  
- electrical design, programming and commissioning in Vaasa
- 1992 On duty for Avecon Oy, ABB, Vaasa  
Testing machine for MV-breakers  
- ABB Procontic CS31  
- electrical design, programming and commissioning in Vaasa
- 1992 On duty for Avecon Oy, T-Drill Ltd, Laihia  
T-junction drill (T-850 Japan)  
- electrical design and commissioning in Laihia
- 1992 On duty for Avecon Oy, ABB, Vaasa  
1260 kVA:n diesel black start plant  
- electrical design, automation design  
- programming and commissioning (ABB-Procontic T-200, GRED-SCADA) in Tervola
- 1991 On duty for Avecon Oy, Vaasa Town, Vaasa  
Pump station for waste water JVP10, prethickening plant Kalliolampi, Lye feeding system for Kyrö river raw water pump station  
- electrical design, programming and commissioning in Vaasa (ABB-Master, Allen & Bradley SLC-500)



- 1991 On duty for Avecon Oy, Wisaforest Oy Ab, Pietarsaari  
Ozone generators 3 (from France) and 4 (from Germany)  
- electrical design and installation supervision in Pietarsaari
- 1991 On duty for Avecon Oy, ABB Motors, Vaasa  
Testing cabinet for squirrel cage induction motors  
- electrical design, programming and commissioning in Vaasa (ABB-Procontic T-200, RS232 –communication processor KP62)
- 1991 On duty for Avecon Oy, Ekorosk Oy, Pietarsaari  
Automation for waste handling plant  
- automation design (ABB-Procontic CS31)
- 1991 On duty for Avecon Oy, FLS-Miljö, Denmark  
Desulphuration plant, IVO -Naantali  
- electrical and instrumentation installation supervision in Naantali
- 1991 On duty for Avecon Oy, Wärtsilä Diesel, Vaasa  
Natural gas feeding system for LNG-engine testing  
- electrical design, instrumentation design, programming and commissioning in Vaasa (Ex-area), ABB-Procontic PCZB
- 1990 On duty for Avecon Oy, Esko Salo Ky, Kauhajoki  
Valio Pitäjämäki  
- Conveyor system for Valio, programming and commissioning in Kauhajoki (Siemens Simatic S5-115U)
- 1990 On duty for Avecon Oy, Esko Salo Ky, Kauhajoki  
Veitsiluoto Oy, Kemi  
Conveyor system of XEROX –paper boxes  
- programming and commissioning in Kemi (Siemens Simatic S5-100U)
- 1990 On duty for Avecon Oy, T-Drill Ltd, Laihia  
T-junction drill (TCC-45)  
- electrical design, installation supervision and commissioning in Laihia
- On duty for Avecon Oy, Different tube machining machines:  
GRUND2 Denmark, ETANCO France, STORCK Spain  
- electrical design, instrumentation design, programming and commissioning in Laihia (Mitsubishi Melsec, Allen & Bradley SLC-500)
- 1990 On duty for Avecon Oy, Wisaforest Oy Ab, Pietarsaari  
Lime sludge furnace, lime sludge conveyors  
- electrical design, instrumentation design, programming and commissioning in Pietarsaari (Siemens Simatic S5-115U)
- 1990 On duty for Avecon Oy, Kemi Oy, Kemi  
Bale line  
- programming and commissioning in Kemi (Siemens Simatic S5-110S)

- 1990                      On duty for Avecon Oy, Wisaforest Oy Ab, Pietarsaari  
Break control system for drying machine  
- electrical design, instrumentation design, programming and  
comissioning in Pietarsaari (Siemens Simatic S5-115U)
- 1990                      On duty for Avecon Oy, Wärtsilä Diesel, Vaasa  
Emission Control –development project  
- electrical design, instrumentation design, programming and  
comissioning in Vaasa (ABB-Procontic K200)
- 1989                      On duty for Avecon Oy, T-Drill Ltd, Laihia  
Collaring machine for steel tubes (T-400 Moscow)  
- electrical design, instrumentation design, programming and  
comissioning in Moscow Soviet Union (Allen & Bradley SLC-150)