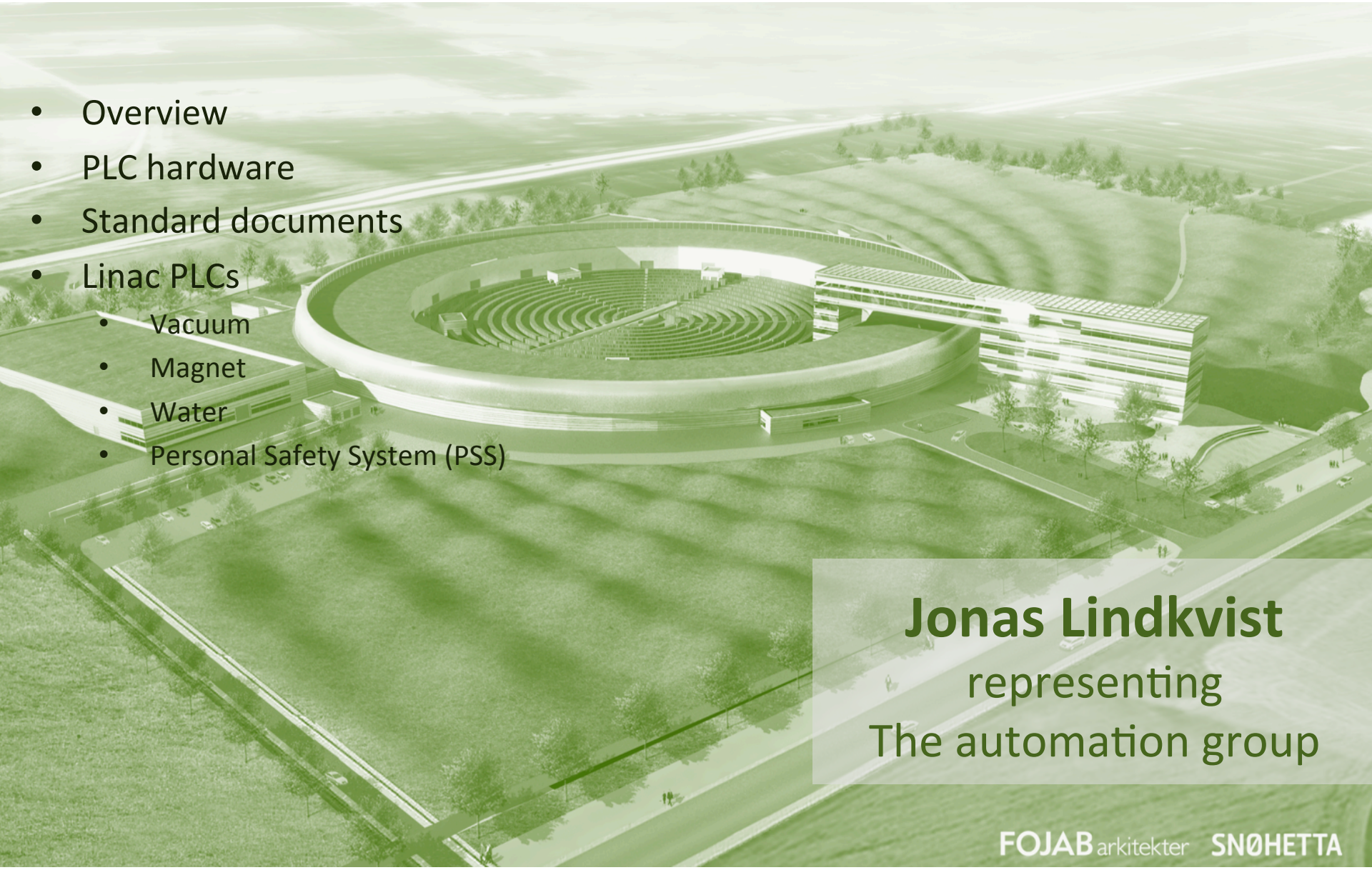
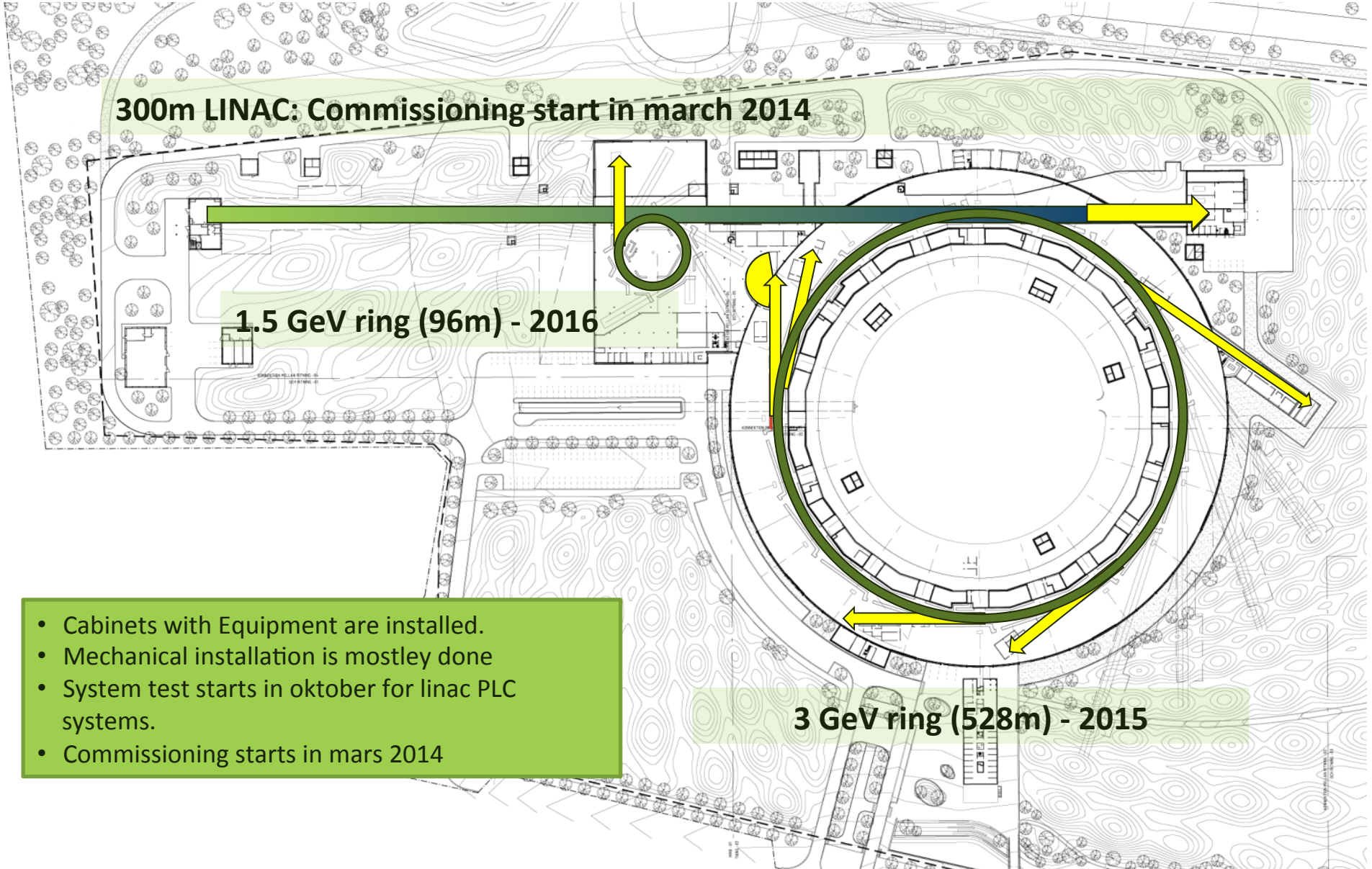


- Overview
- PLC hardware
- Standard documents
- Linac PLCs
  - Vacuum
  - Magnet
  - Water
  - Personal Safety System (PSS)

Jonas Lindkvist
representing
The automation group

MAX IV – Overview



- Cabinets with Equipment are installed.
- Mechanical installation is mostley done
- System test starts in oktober for linac PLC systems.
- Commissioning starts in mars 2014

PLC Hardware Rockwell

- **AB, 1756 ControlLogix**
- **1756-en2t Ethernet card**

- Best price and performance in Procurement
- In house Knowledge
- Support from supplier
- Easy to configure HW and SW develop

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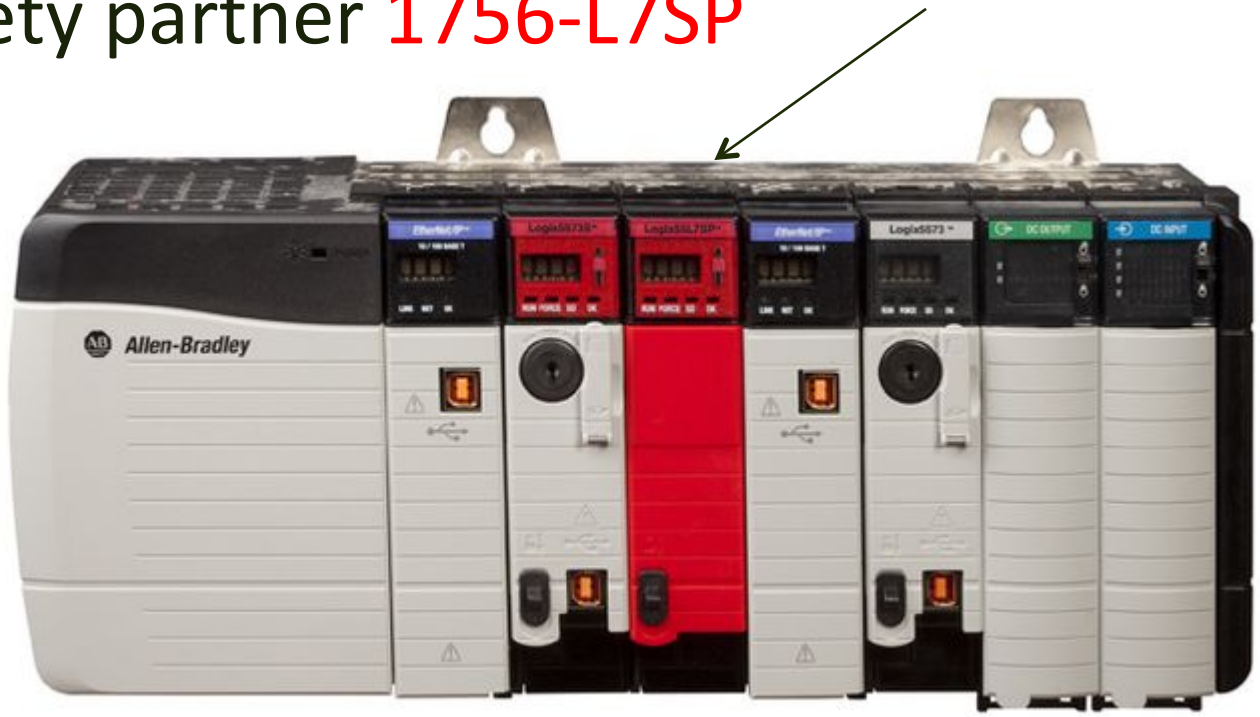
Safety PLC and partner

- Safety partner 1756-L7SP



- To reach safety level SIL3
- Same software tool for the safetyprogram

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Distributed I/O

- **Ethernet Adapter, 1734 AENT**
- **Point I/O**

- **Ethernet Adapter, 1734 AENT**
- **Safety Point I/O**

- Ethernet comunication bus
- Machine protection and for PSS

- Easy to install and configure,
- Lot of card options,
- Little space in cabinet
- Long term production,

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Point I/O Combination

- Combination with regular and safe IO

Standard for software development

- Naming-convention(unique shortname)
  - System, Location, Subsystem, Type
  - I _K01CAB02_VAC_IPCUA01
- Naming-standard for TAGs
  - IS_I_K01JB05_PSS_SES_NC

IS, means that there is a physical safety rated input
I, indicates that the signal belongs Injection System
K01JB05, specify location by merging location K01 and group affiliation JB05
PSS, indicates the subsystem
SES, indicates the type of equipment
NC, indicates the signal type

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Communication between the PLCs and TANGO

- Tango
  - B_xx_A alarms
  - B_xx_C command
  - N_xx_R read
  - N_xx_W write
  - N_xx_S state

  - B_VGMB01_C valve command

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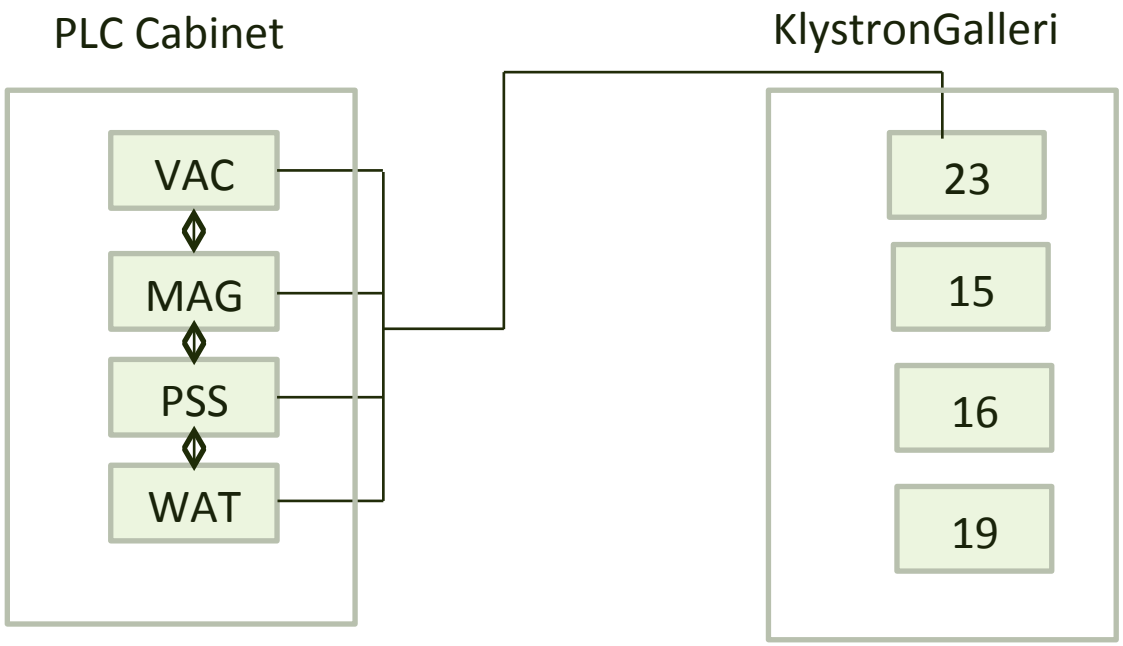
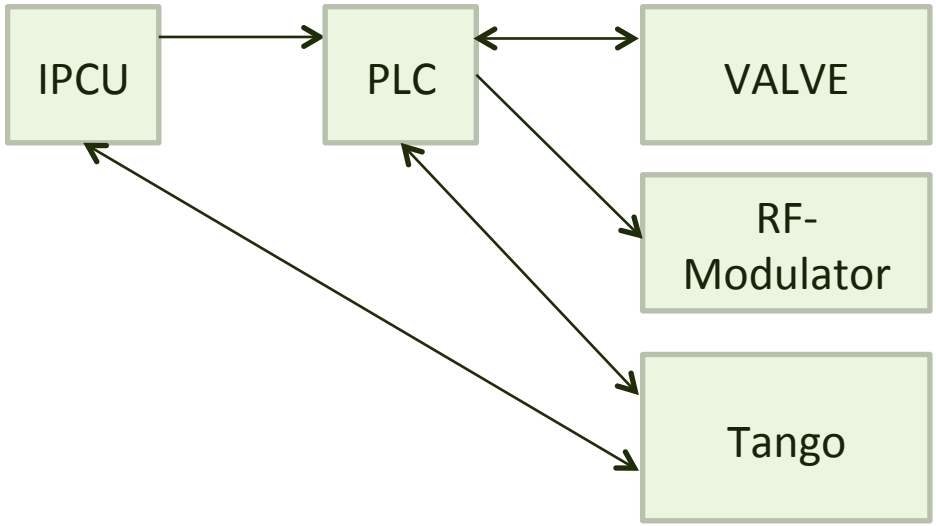
PLC System in Linac



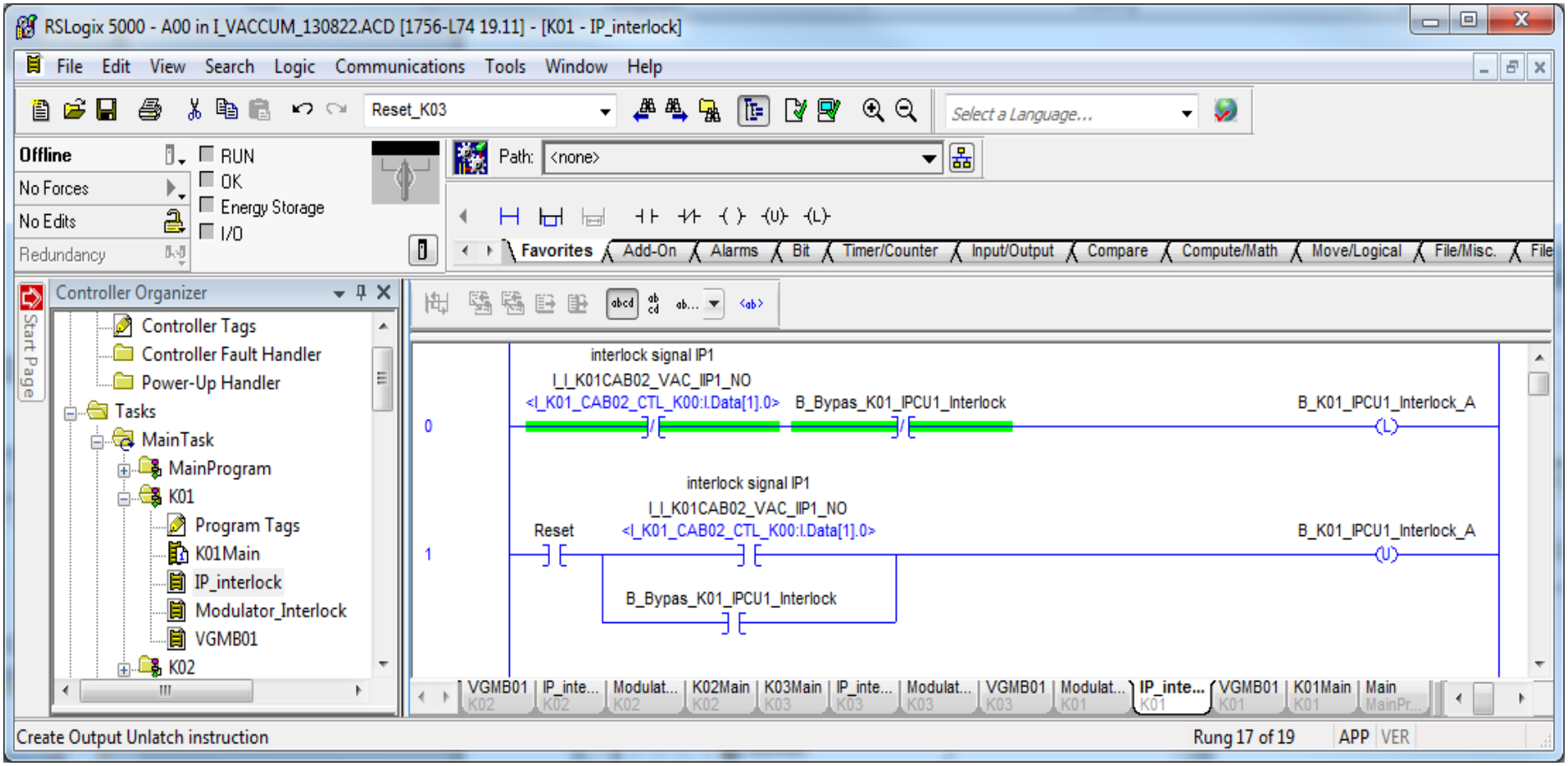
- Four seperate controllers
- Will be Placed together in a PLC cabinet.
- Distributed IO over ethernet, adapter

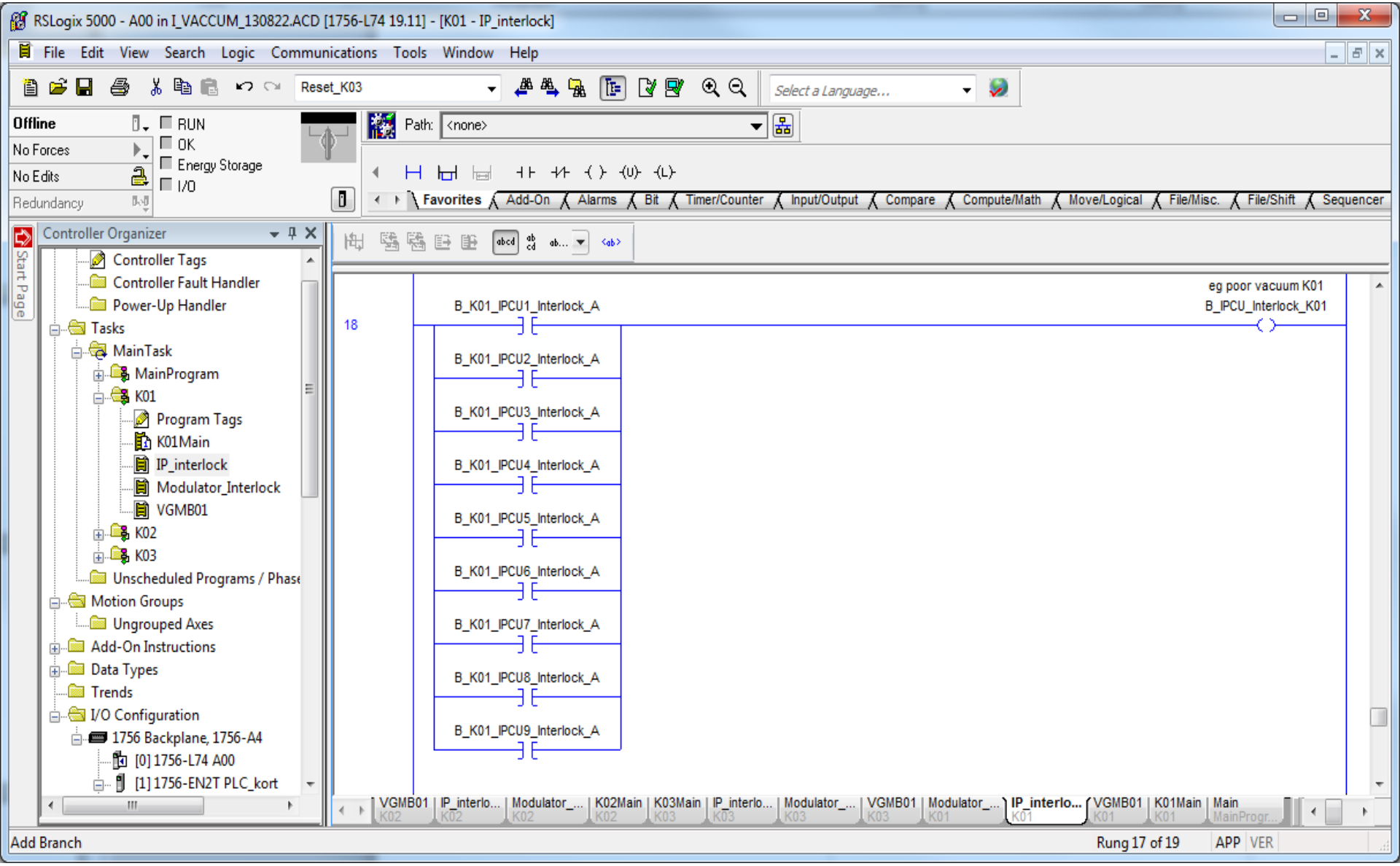
Vacuum plc sytem

- Normaly open contact in the IPCU input
- Valve
- Modulator



PLC system for Max IV





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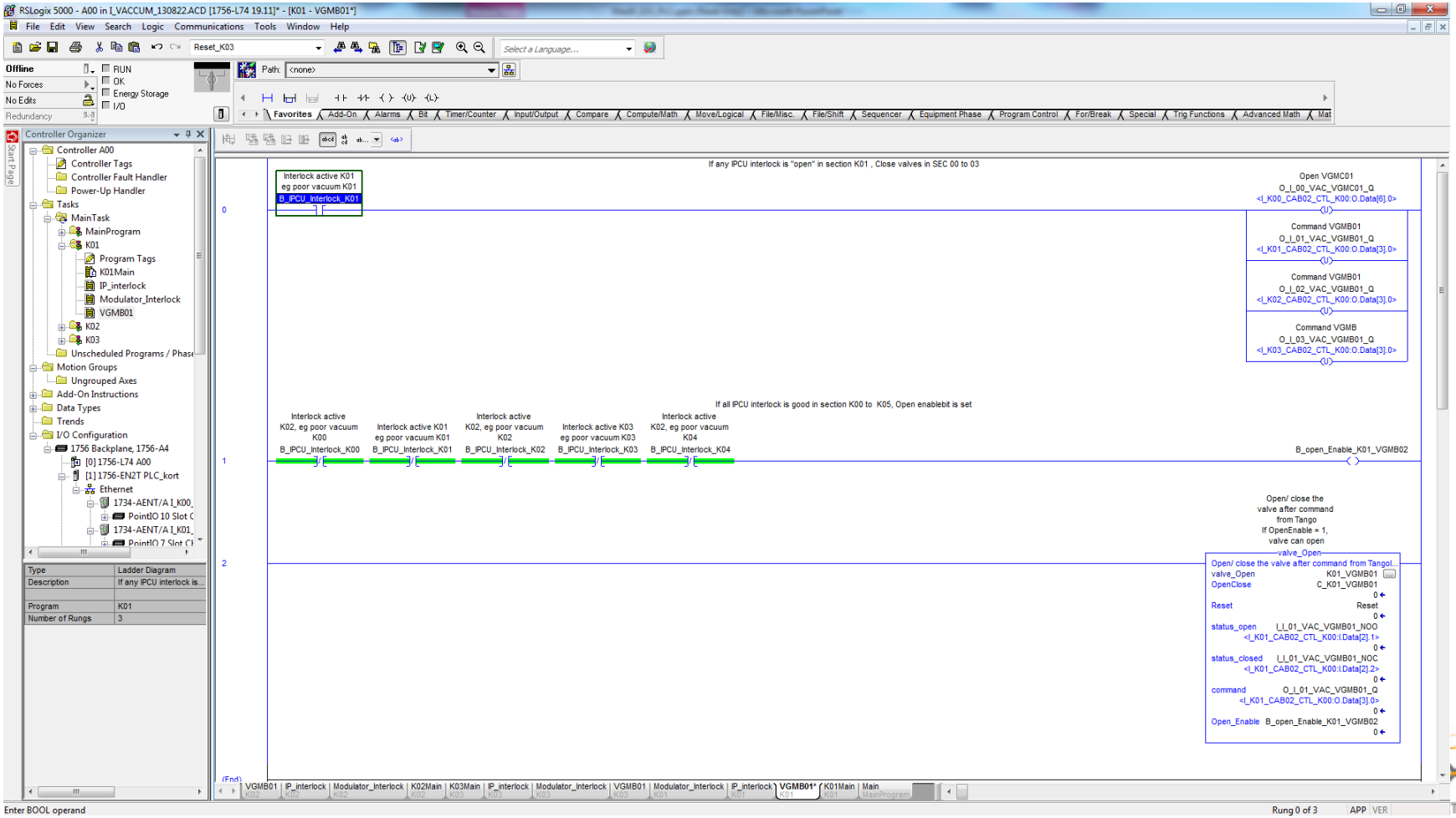
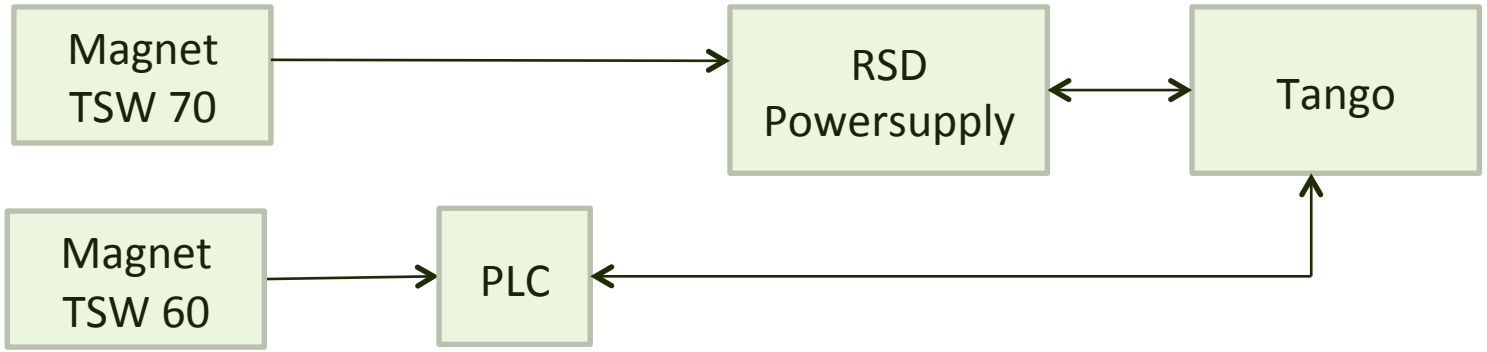
PLC system for Max IV



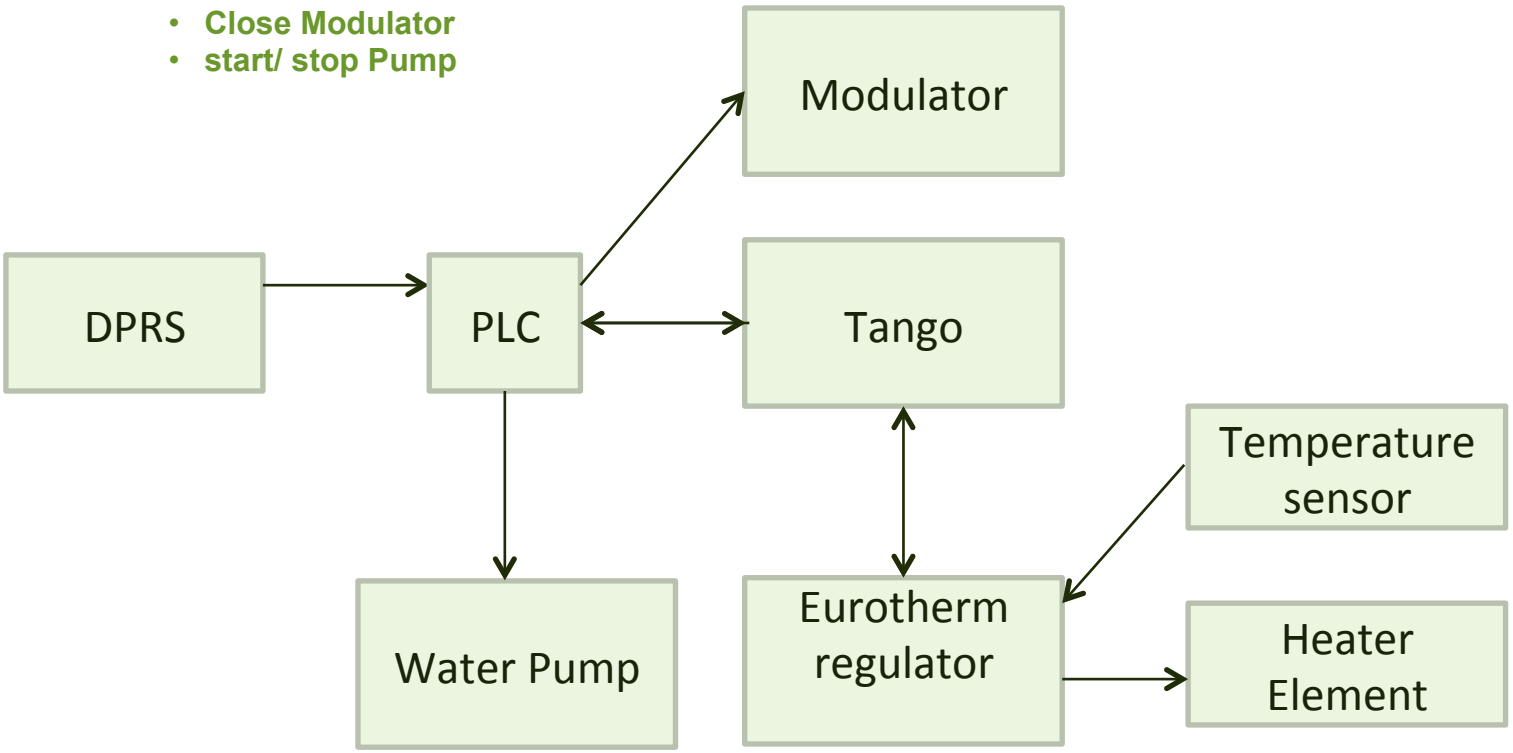
Magnet PLC system

- Normaly open contact TSW
- SET value to zero from TANGO at 60 °C
- Close PS RSD from PLC at 70 °C



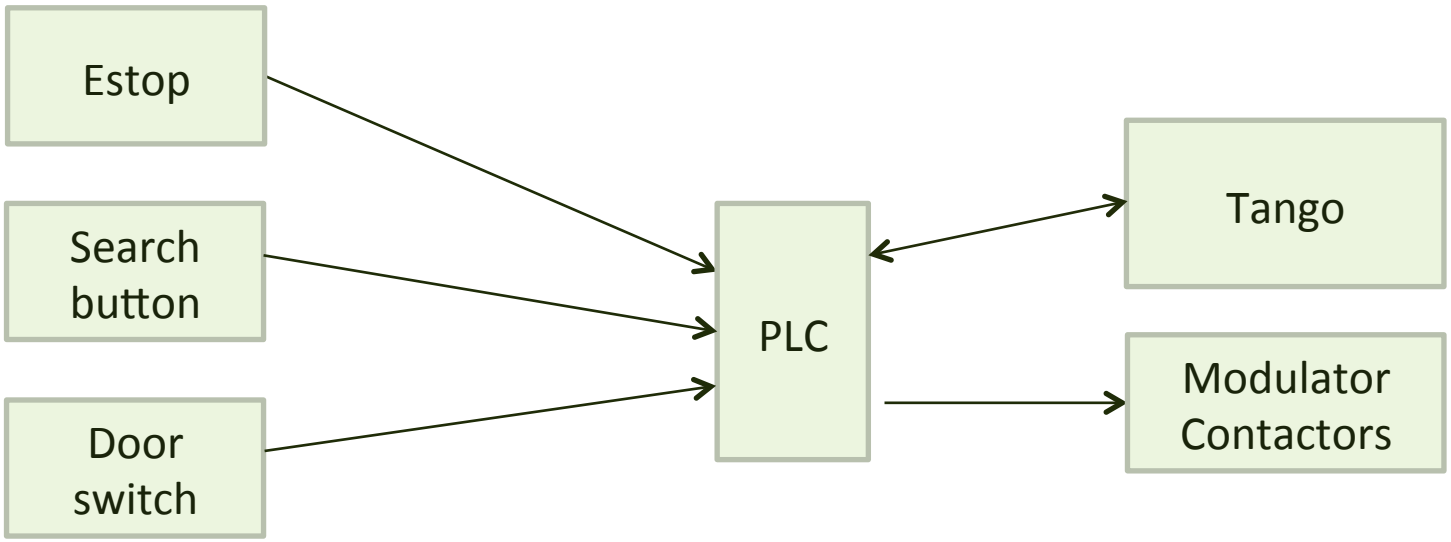
Water PLC system

- **Pressure sensor DPRS AI 0-10 V**
- **Close Modulator**
- **start/ stop Pump**



PSS plc system

- **SafeInput**
- **SafeOutput**
- **No safety output for indication lights and audiosignal**



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PLC system for Max IV

Thanks for listening

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