SITIPE IC – Use Case

A Toolset for Integrated SAS Engineering

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Agenda

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Configuration Systems

Motivation | Challenges

SITIPE IC

SITIPE IC – A Holistic Integrated Engineering Concept

Alliander - Qirion
Substation Automation Systems

Substation Overview | Substation Automation Systems

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Totally

Integrated

Power

Engineering

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Motivation: Start “smart” and stay integrated across your entire manufacturing ecosystem

Users | Time-to-energization

- To energize the plant in a shortest period of time → start of capitalization
- Easy deployment, maintenance and extensions with less involved resources

System Integrator| Time-to-project delivery

- Overall project delivery time & quality
- Fast integration of new Engineers
- Running many projects in parallel

Time

Configuration Engineers | Time-to-configuration

Reduction of configuration, testing, commissioning time

- Automated Documentation Generation
- Efficient project data re-use
- Less manual & repetitive work
- Synchronization between Engineers

O&M Engineers | Time-to-maintenance

- Quick Parameter changes without much Training effort
- Quick access to project information, version tracking
- Proven & tested solution

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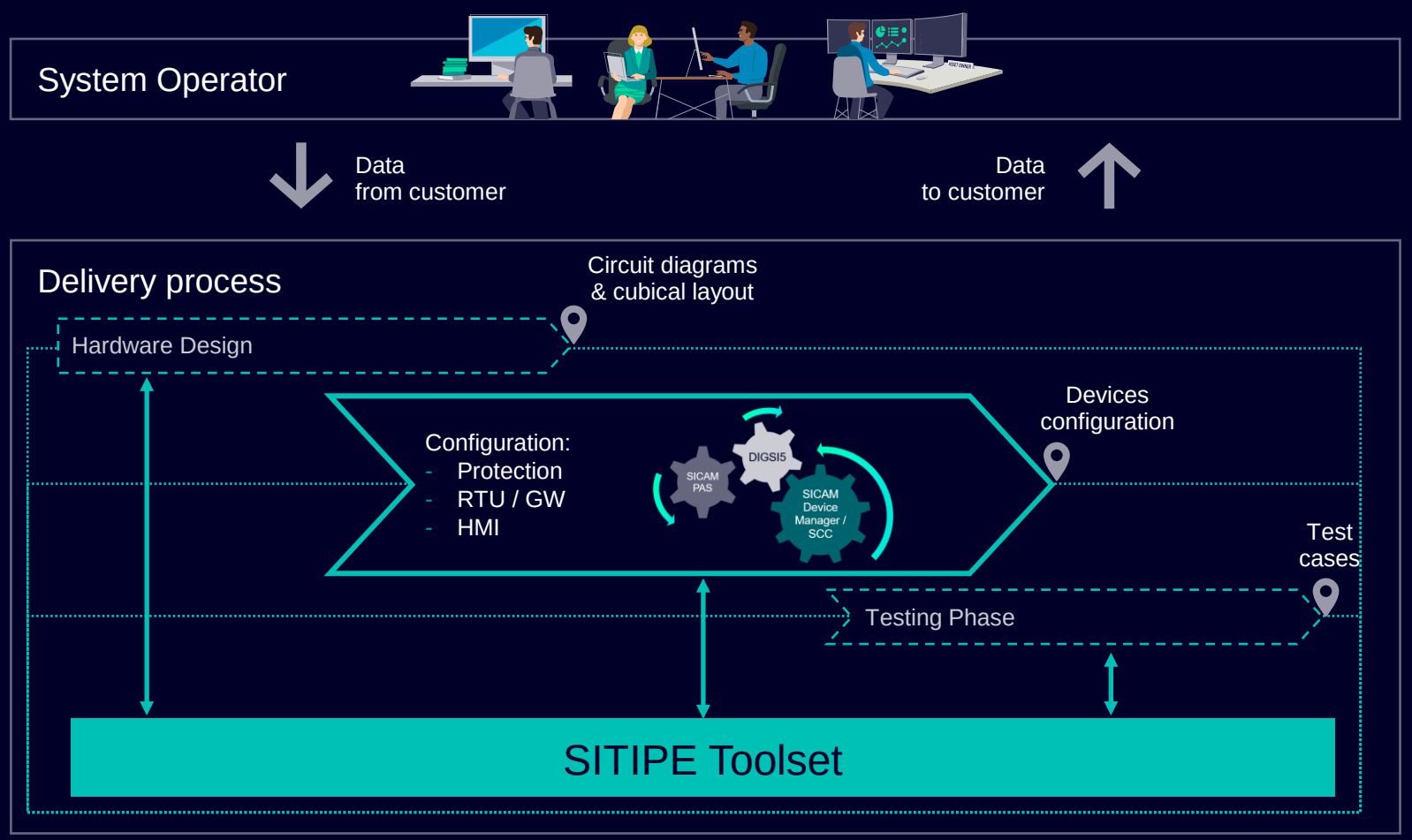
SITIPE
Toolset for integrated and automated SAS engineering



Goals

- Reduced engineering time
- Consistent data
- Optimized substation extension
- Central engineering data repository

Quality ↑ Project execution time ↓

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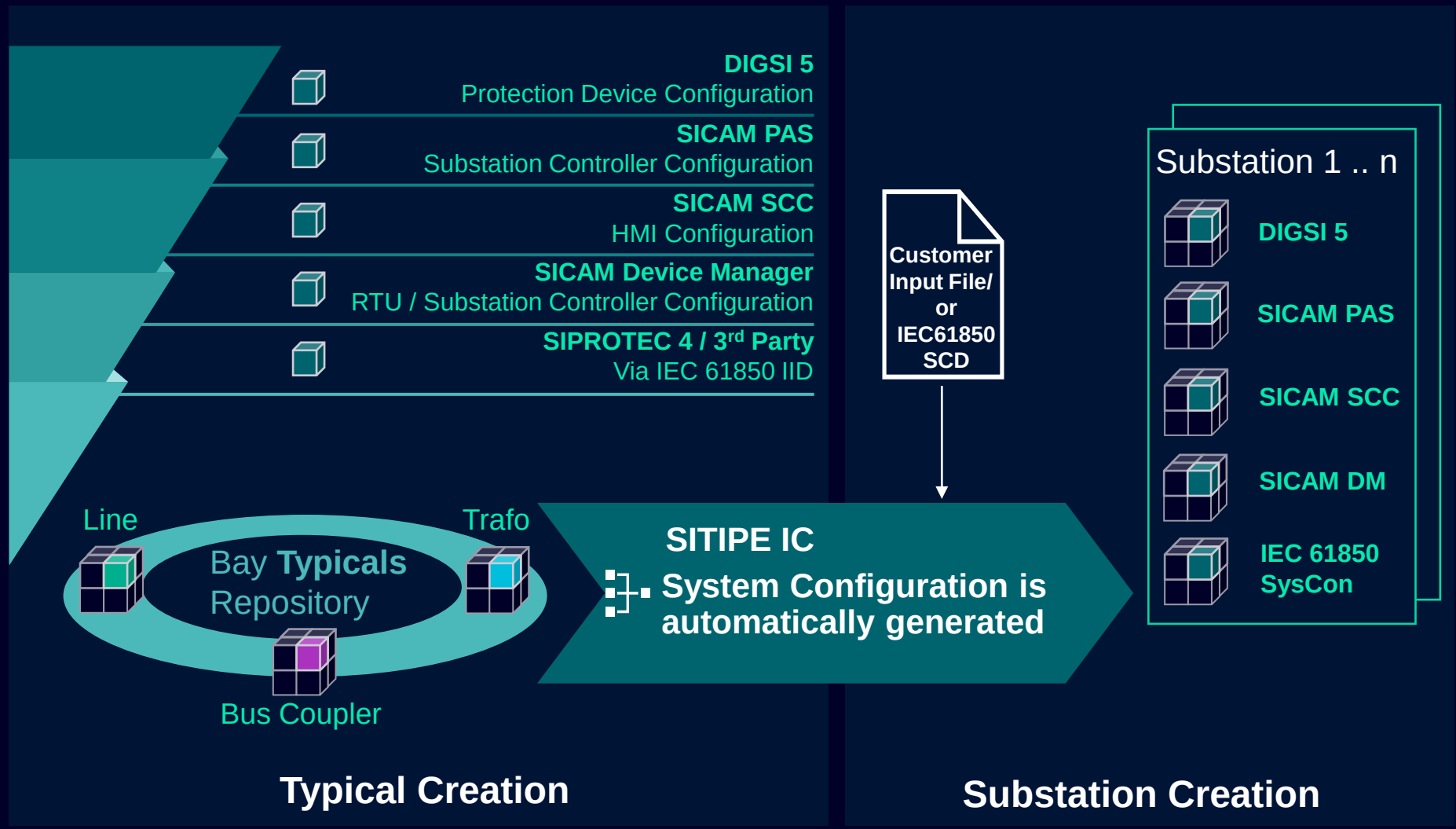
Template based substation configuration



Use cases

Internal engineering optimization

Customer usage of SITIPE IC

Simplify customer operations workflow, by hiding tools involved

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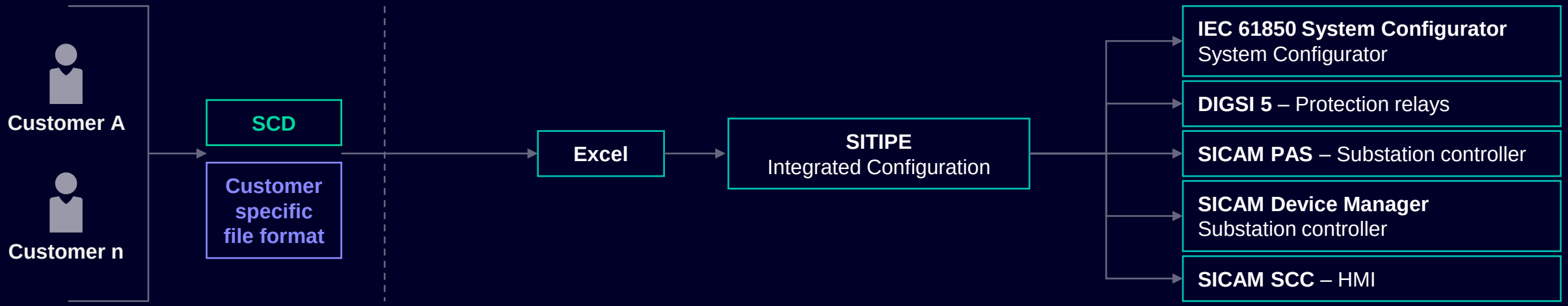
TopDown approach with SITIPE Integrated Configuration

IEC 61850 or customer specific file



01

One interface

for customer

02

Automatic configuration

without configuring in engineering tools

- Save engineering time for customer and SIEMENS
- Reduce human mistakes

03

No deep knowledge

for configuration tools needed

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SITIPE IC saves major effort by automating substation configuration

Engineering tools

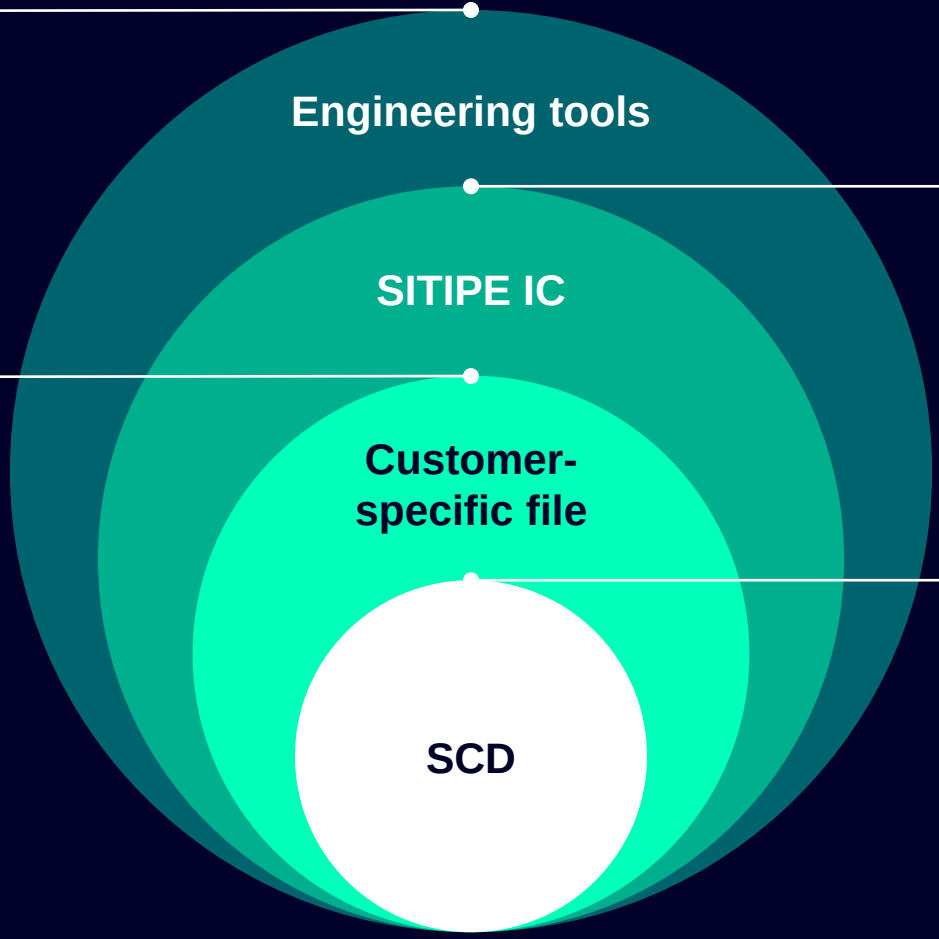
All expert settings available

- IEC 61850 System Configurator
- DIGSI 5
- SICAM PAS
- SICAM Device Manager
- SICAM SCC

Customer-specific file

Any machine-readable file format can be used for substation configuration

- Signals, communication and protection settings
- Documentation items can be used, e.g., Panel name,...
- Signal parameter which are not part of any standard



SITIPE Integrated Configuration

Supports automation of the major effort drivers

- Configuration of complete substation
- Upload configuration to devices
- Support versioning of substation configuration
- Generate substation documentation including signal list
- Customer view of signals and settings

IEC 61850 SCD

Standardized substation description – limited to settings supported by the standard

- SITIPE IC supports SCD file generated by vendor independent Station Configuration Tool, e.g., Helinks, Kalkitech, …

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SITIPE Integrated configuration

The effective way to manage your substations

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Alliander – Qirion Operational Technology
introduction

Alliander

Alliander N.V. is a network company comprising a group of companies that employ about 7800 people. Alliander possesses high-quality expertise in the field of energy networks, invests in the development of these networks and explores and implements innovative solution.

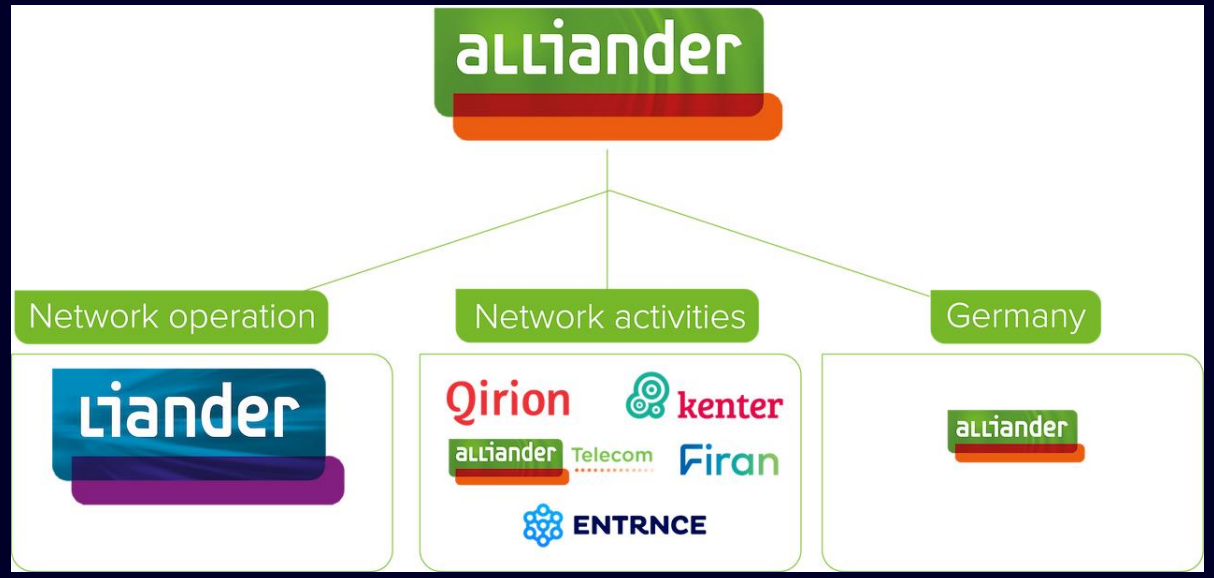
Qirion

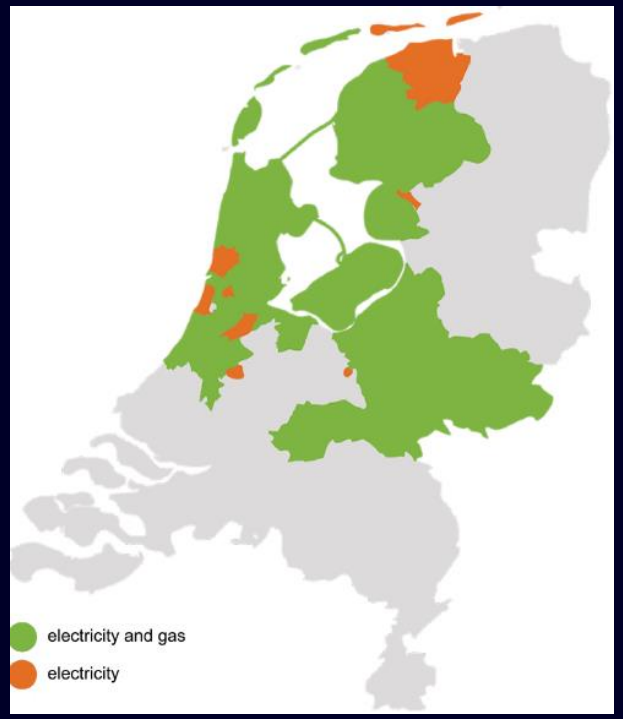
Qirion maintains the high and medium voltage grid in part of the Netherlands and creates sustainable and innovative solutions for new and existing energy grids.

Robbert Koenderman

Sr. PAC Engineer at Qirion OT

Experience in; Protection & Control, substation automation. Standardization of automation systems. Working in the high voltage transport for about 20 years





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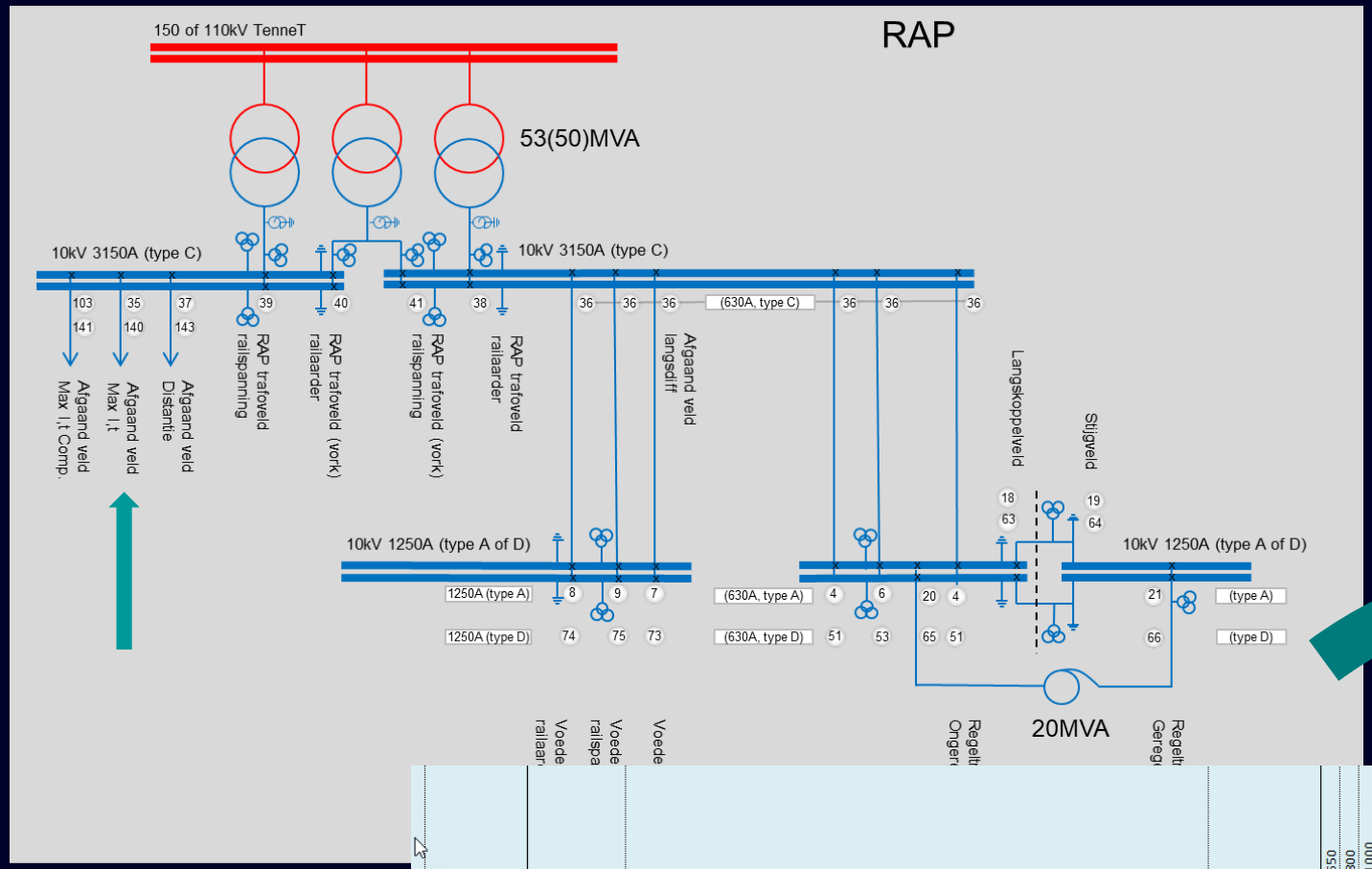
Alliander – Qirion Operational Technology
Modular building of substations



For example #35,140

- Outgoing bay
- Nominal current 630A
- Dubbel PTOC protection + baycontroller
- Configuration SA typical “A1-M1”

				650	800	1000	SES_CD_ABB	SES_CD_ABB_a	SES_CD_ABB_b	SES_CD_ABB_c	SES_CD_ABB_d	SES_CD_ABB_e	SES_CD_ABB_f	SES_CD_ABB_g	SES_CD_ABB_h	SES_CD_ABB_j	SES_CD_ABB_k	SES_CD_ABB_m	SES_CD_ABB_n	SES_CD_ABB_o	SES_CD_ABB_p	SES_CD_ABB_q	SES_CD_ABB_r	SES_CD_ABB_s	SES_CD_ABB_t	SES_CD_ABB_u	SES_CD_ABB_v	SES_CD_ABB_x	SES_CD_ABB_y	SES_CD_ALG	SES_CD_RTU	SES_CD_TYPE_a	SES_CD_TYPE_b	SES_CD_TYPE_c	SES_CD_TYPE_d	SES_CD_TYPE_e	SES_CD_TYPE_f	SES_CD_TYPE_g	SES_CD_TYPE_h	SES_CD_TYPE_i	SES_CD_TYPE_j	SES_CD_TYPE_k	SES_CD_TYPE_l	SES_CD_TYPE_m	SES_CD_TYPE_n	SES_CD_TYPE_p	SES_CD_50_3b	SES_CD_50_3c	ALG_STAT	ALG_INST	A1-M1	A1-L1	A3	A4
10kV	n.v.t.	ABB Algemene tekening	Installatie			x																																											
10kV	35	Afgaand kabelveld 630 A met max I,t	Installatie	x				x																								x																	x		
10kV	103	Afgaand kabelveld 630 A met max I,t, comptabel	Installatie	x					x																						x																	x		
10kV	36	Afgaand kabelveld 630 A met langsdiff	Installatie	x				x																								x																		x	
10kV	140	Afgaand kabelveld 1250 A met max I,t	Installatie	x						x																						x																	x		
10kV	141	Afgaand kabelveld 1250 A met max I,t, comptabel	Installatie	x																						x						x																	x		
10kV	38	RAP voedend trafoveld 3150 A met railaarder	Kast/Inst.			x															x														x															
10kV	39	RAP voedend trafoveld 3150 A met railspanningsmeting	Kast/Inst.			x														x														x															
10kV	40	RAP voedend trafoveld 3150 A met railaarder (work spanningstrafo Inst 2 gebruikt)	Kast/Inst.			x														x														x															

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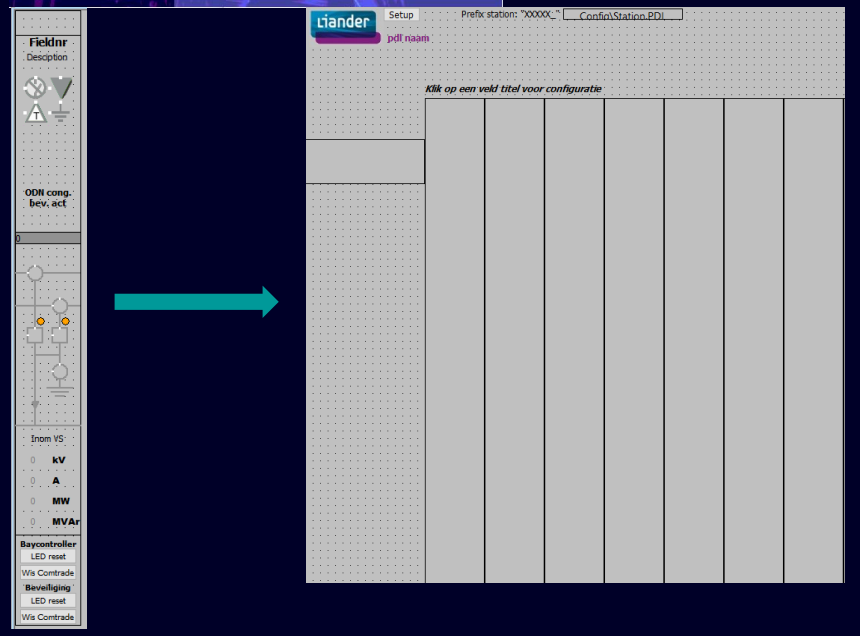
Alliander – Qirion Operational Technology
Modular building of substations

- TEMP_BCA (A1-M1)
- TEMP_BCB (J1)
- TEMP_ALG_STAT
- TEMP_ALG_INST
- TEMP_BCA (C1)
- TEMP_PTOC (A1-M1)
- TEMP_TDIFF (U1-T1)
- TEMP_LDIFF_AFG_KOP (A9-K1)
- TEMP_PTOC (A6-M1)
- TEMP_BCA (A6-M1)
- TEMP_BCA (A9-K1)
- TEMP_BCG (G2-L2)
- TEMP_ALG_INST50 (INST50-G0)
- TEMP_BCG (G4)
- TEMP_BCG (G1)
- TEMP_BCG (G3)
- TEMP_LDIFF_KOP_VV (W1-T1)
- TEMP_LDIFF_KOP_2VV (X1-T1)
- TEMP_LDIFF_AFG (A2-L1)

- MSinst
  - A1 rail
  - A1-M1
    - Beveiliging 1
    - Beveiliging 2
    - Congestie management
    - CTR
    - Fault recorder 1
    - Fault recorder 2
    - KA
    - Meetwaarden 1
    - Meetwaarden 2
    - Netwerk status 1
    - Netwerk status 2
    - Proces Data 1
    - Proces Data 2
    - SoftPLC
    - VS-A
    - VS-A kar
    - VS-B
    - VS-B kar
    - WB1
  - A2-L1
  - A3



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Alliander – Qirion Operational Technology
Modular building of substations

Input File

- Customer Input format (Excel SCF-file with customer macro's)

Output

- Complete automation project

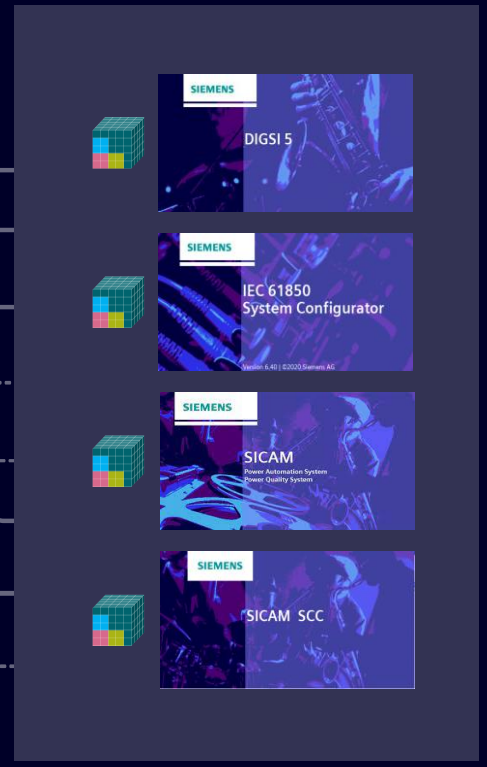
Bay templates

Name	Version	Status	Locked by	Locked on
A1-M1	4	released		
A10	3	released		
A2-L1	4	released		
A3	3	released		
A4				
A5				
A6-M1				

Bay templates > A1-M1 (Version : 4)

Components | Signals (1835) | Merge signals (133) | Inconsistent signals (0) | Settings

Name	Tool name
A1-M1	SICAM PAS
CSL-A1-M1	Customer Signal
SICAM SCC	SICAM SCC
TEMP_BCA (A1-M1)	DIGSI 5
TEMP_PTOC (A1-M1)	DIGSI 5



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Alliander – Qirion Operational Technology
Modular building of substations

Digsi project
- Complete Digsi project with all protection and baycontroller relays.
- TEAX export from project used for changing protection settings.

SICAM PAS project
- Complete automation configuration is loaded in gateway PC
- Only changing computer name and IP addresses

SICAM SCC project
- Output is a project which contains all variables.
- All installations and overview page must be set up using preconfigured pictures. All variables are automatically connected in the picture using pre-fixt names for a bay.

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Thank you

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Disclaimer

Subject to changes and errors. The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

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