COMPISO Four-Quadrant Power Amplifiers

WORLDWIDE
AUSTRIAN
POWER

Contents

Overview

FOUNDED

2017

SPIN-OFF EGSTON SYSTEM ELECTRONICS

TEAM

24+

12 NATIONS

HEAD OFFICE

KLOSTERNEUBURG

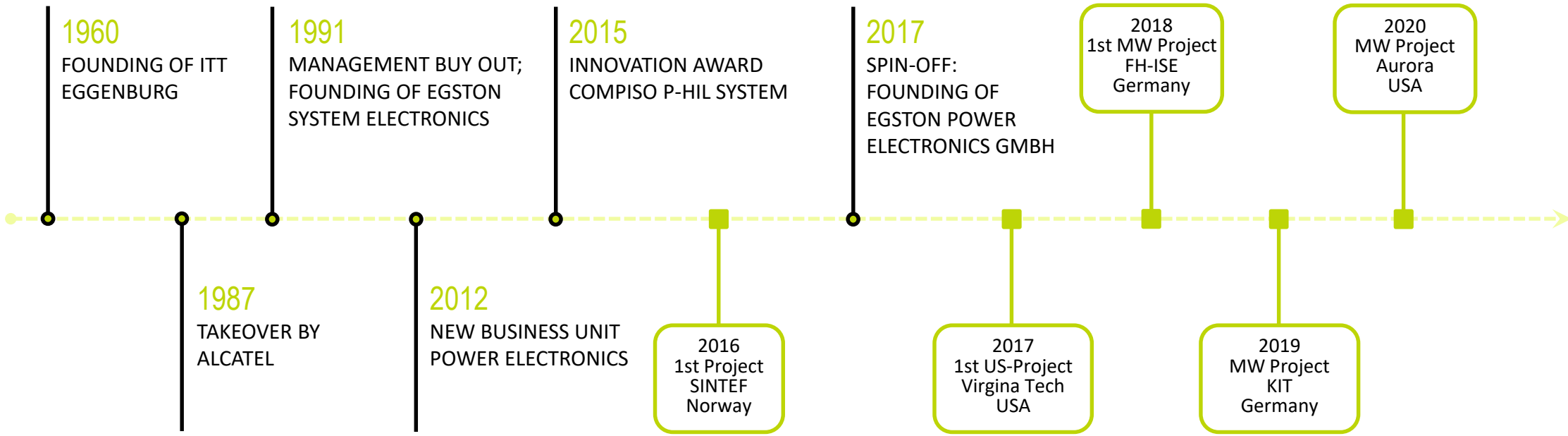
AUSTRIA

OWNER

Privatstiftung Wunderer

FAMILY OWNED BUSINESS

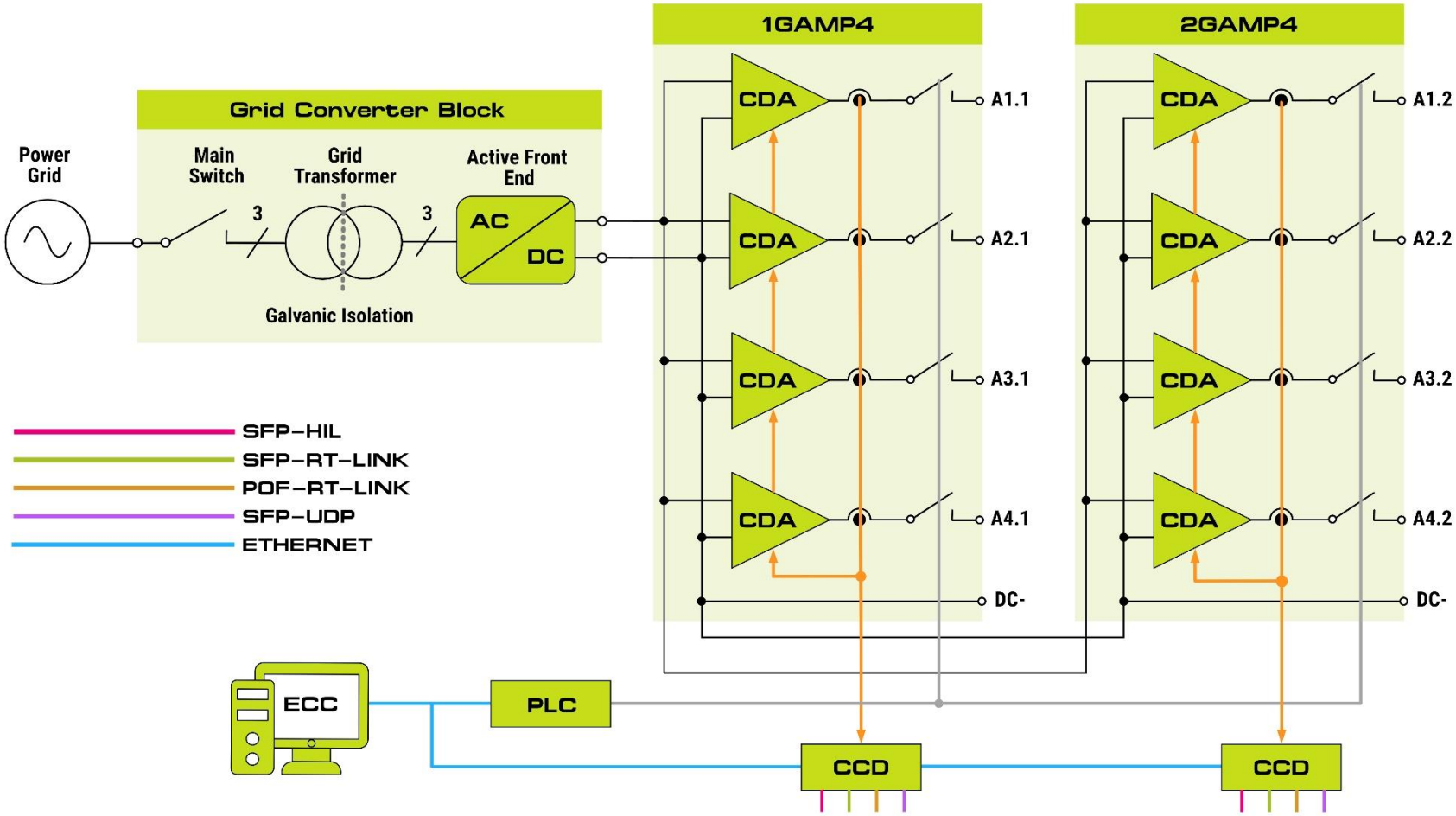
History


1960
FOUNDING OF ITT EGGENBURG
1987
TAKEOVER BY ALCATEL
1991
MANAGEMENT BUY OUT; FOUNDING OF EGSTON SYSTEM ELECTRONICS
2012
NEW BUSINESS UNIT POWER ELECTRONICS
2015
INNOVATION AWARD COMPISO P-HIL SYSTEM
2016
1st Project
SINTEF
Norway
2017
SPIN-OFF: FOUNDING OF EGSTON POWER ELECTRONICS GMBH
2017
1st US-Project
Virgina Tech
USA
2018
1st MW Project
FH-ISE
Germany
2019
MW Project
KIT
Germany
2020
MW Project
Aurora
USA

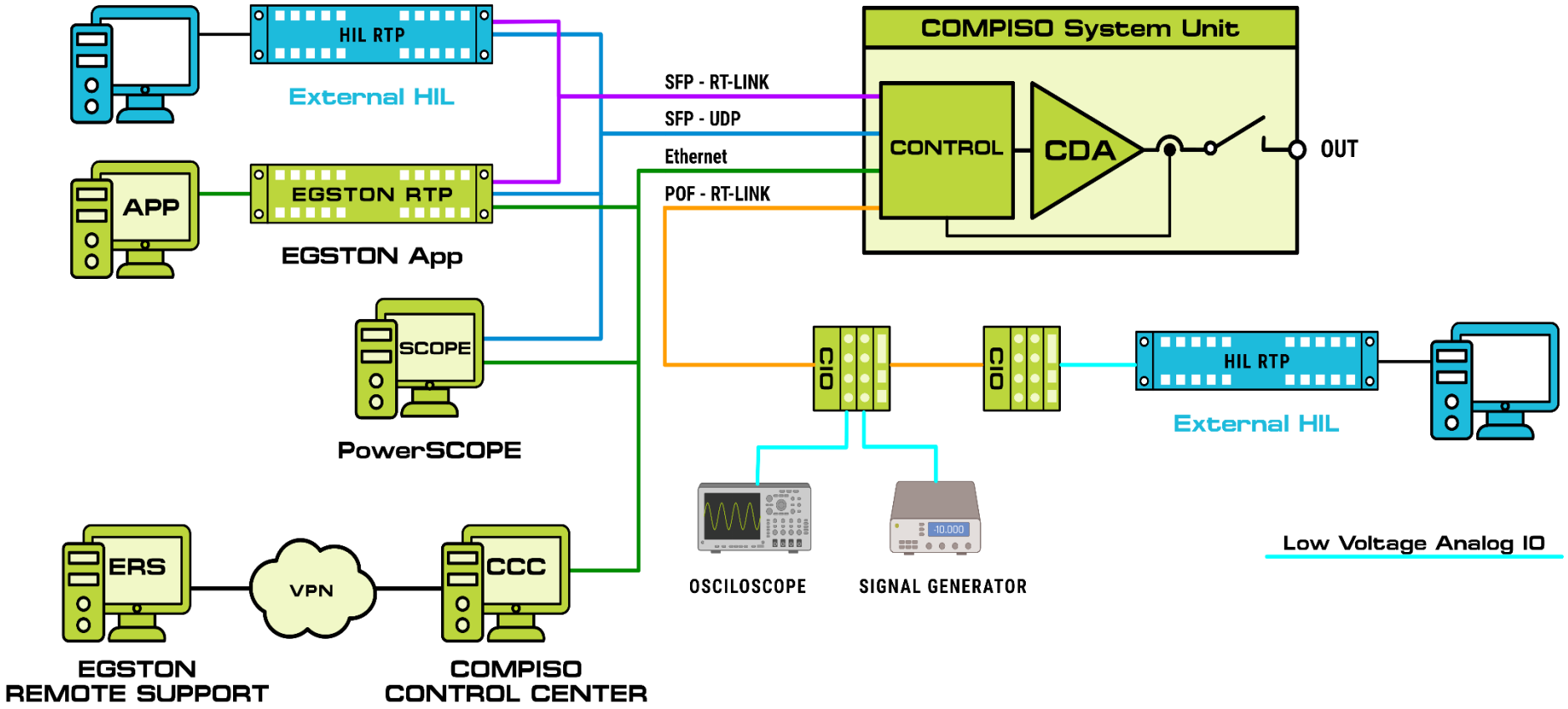
COMPISO System - Overview

- Power: 100 kVA up to 1.2 MVA
- Output: DC to 5 kHz full span voltage
- Ultra High Bandwidth: 15 kHz
- Galvanic Isolation
- Bidirectional Powerflow (4Q)
- Recirculation of Power
- Group(s) of 4 or 6 Amplifiers
- Flexible operation modes and configurations
- Onboard Measurement & Safety equipment

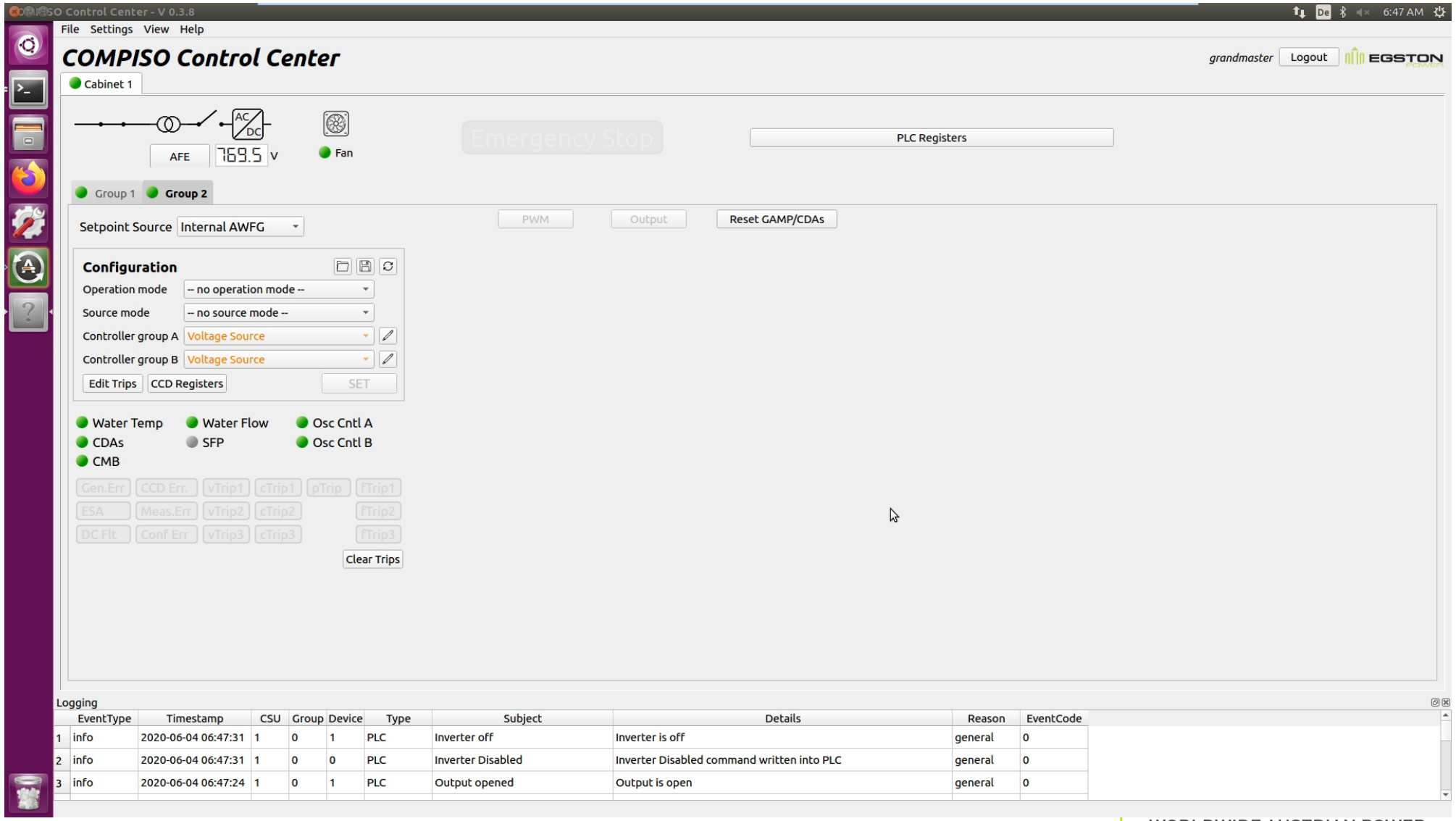
COMPISO System – Structure (example: 2GAMP4)



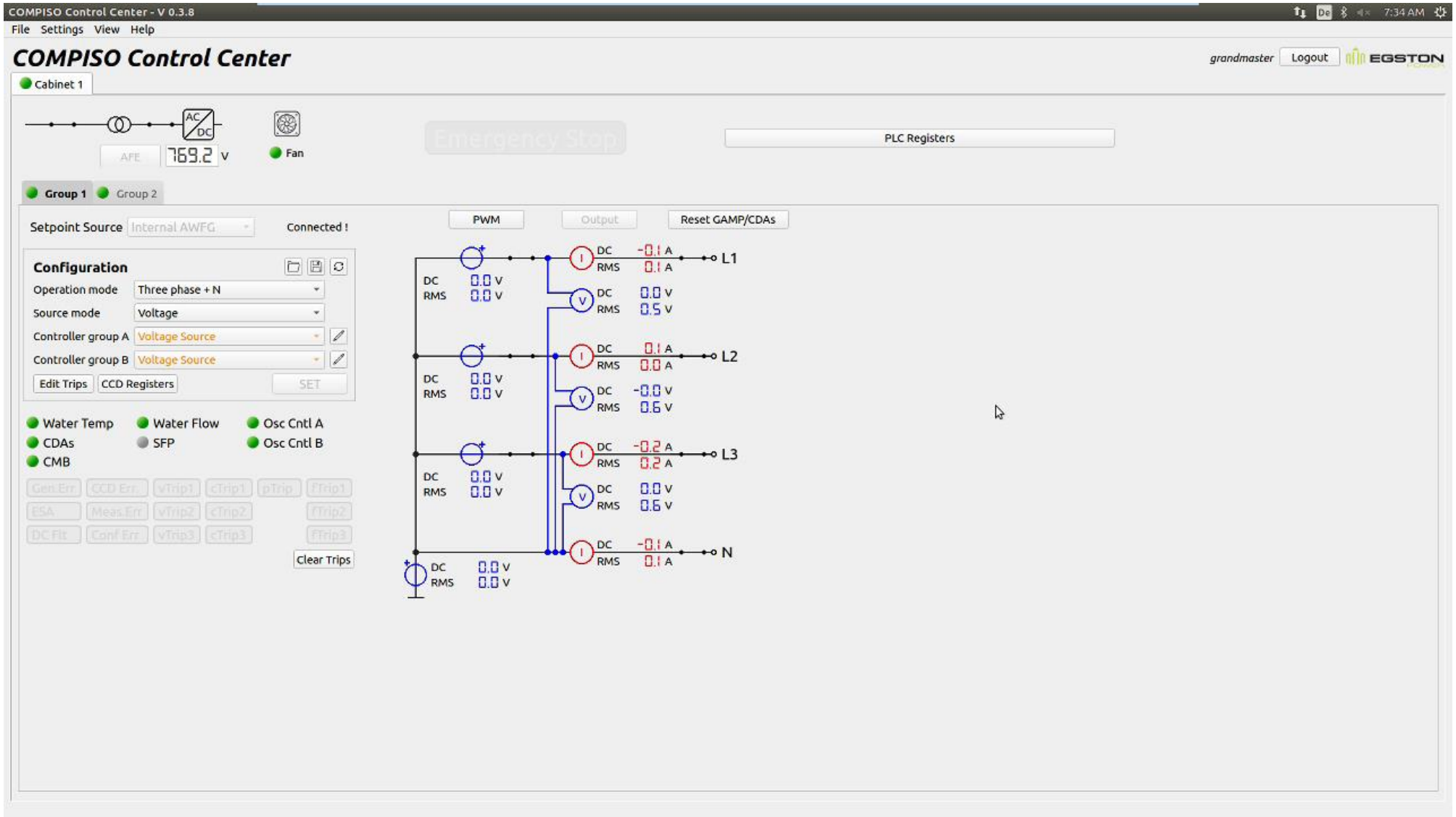
COMPISO System - Communication



COMPISO Control Center (CCC)

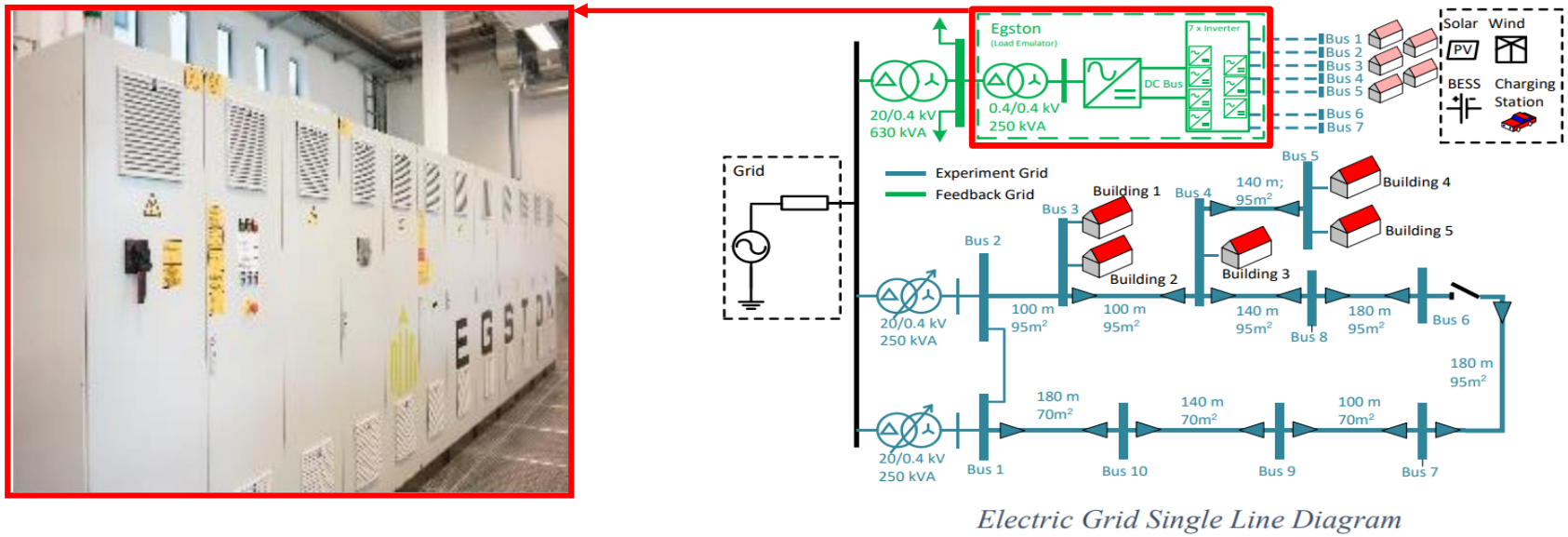


Arbitrary Wavefom Generator (AWFG)



Reference Application – Prosumer & DER Emulation

Five Compiso's group of amplifiers are used to emulate 5 buildings prosumers. The other 2 groups of amplifiers are used as additional load/generation that can be connected to arbitrary LV bus, normally used to emulate additional renewable resources located outside of the buildings.



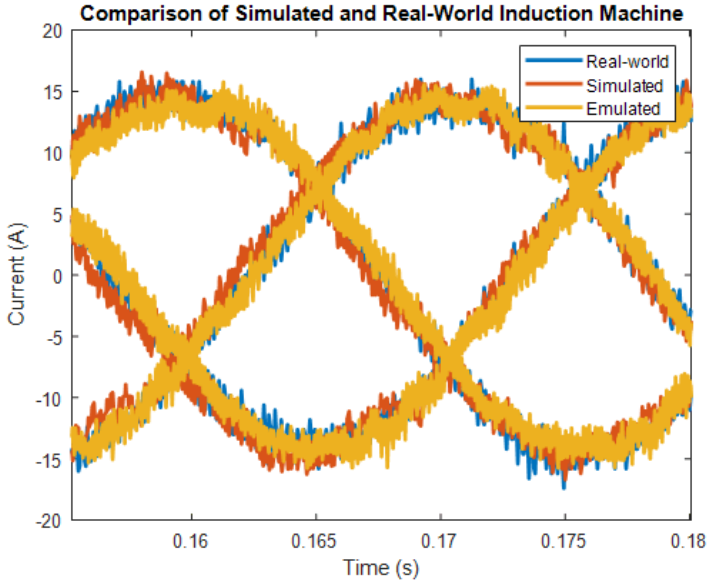
Electric Grid Single Line Diagram

Source: Link
Peric, Vedran & Hamacher, Thomas & Mohapatra, Anurag & Christiange, Franz & Zinsmeister, Daniel & Tzscheutschler, Peter & Wagner, Ulrich & Aigner, Christian & Witzmann, Rolf. (2019). CoSES Laboratory for Combined Energy Systems At TU Munich.

Reference Application – P-HIL for Aerospace

“A Power Hardware-in-the-Loop Testbench for Aerospace Applications”

“The P-HIL testbench demonstrated in this paper can be run back-to-back where both the source and the load are emulated systems with real power transferred between them. This paper demonstrates the development and execution of machine and power converter emulation on the EGSTON Power Electronics' COMPISO System Unit CSU200-1GAMP6 P-HIL platform.”



Source: Link
J. Noon *et al*., "A Power Hardware-in-the-Loop Testbench for Aerospace Applications," *2020 IEEE Applied Power Electronics Conference and Exposition (APEC)*, New Orleans, LA, USA, 2020, pp. 2884-2891, doi: 10.1109/APEC39645.2020.9124299.

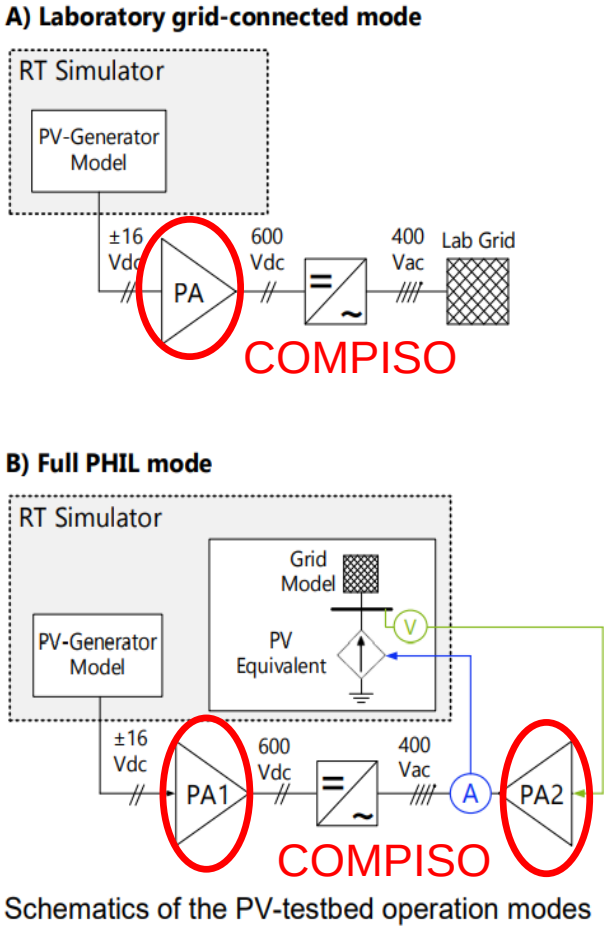
Reference Application – PV Test Bench

Implementation of a PV Test Bench

The lab carries out simulation tests that involve integration of PV generation in LV grids. The overall setup consists of three parts:

- PV-Generator Model
- Commercial PV-Inverter
- Power Amplifiers

Compiso: One group of 4 amplifiers is used for for PV Panel DC emulation. The second group plus output transformers for AC grid emulation.



Schematics of the PV-testbed operation modes

Source: Link
A. Spina, "Power hardware-in-the-loop testbed for Photovoltaic Systems Simulation"
2018 Annual Report from the Institute of Energy Systems, Energy Efficiency and Energy Economics, pags 52,53.

Reference Application – Energy Lab 2.0

“The "Power Hardware in the Loop" (PHIL) laboratory with a power of 1 MVA is the most powerful research facility and a central part of the infrastructure of the "Smart Energy System Simulation and Control Center” embedded in the project framework of the Energy Lab 2.0.”

Source: P-HIL laboratory’s webpage
www.itep.kit.edu/english/68.php

Contact Us

Mr. Daniel Skibicki

Tel.: +43 664 256 8127
Mail: daniel.skibicki@egstonpower.com

Thank you...

www.EGSTONPOWER.com

WORLDWIDE
AUSTRIAN
POWER

EGSTON POWER

WORLDWIDE
AUSTRIAN
POWER