

## **A Modular Approach to Subsea Production Controls**

- 800 Series Control System**
- Control System building blocks**

2022 Subsea Controls Downunder Conference

Content by John Løvås



# Modularization of Subsea Control Module

## 600 SERIES



## 800 SERIES



Standard Electronics, ready for all-electric

### > ELECTRIC CHOKES

For speed and positioning accuracy

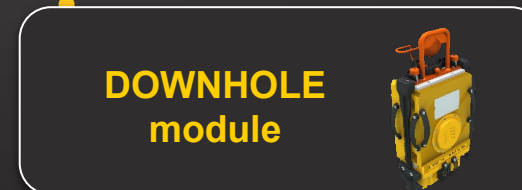
### > SENSORS

Multiplexed Sensor Interface (CanBus, Ethernet, etc.) configured in software - enables hardware standardization, late changes and retrofit



Selection of LP or HP function via configuration plates

### > HYDRAULIC ACTUATORS

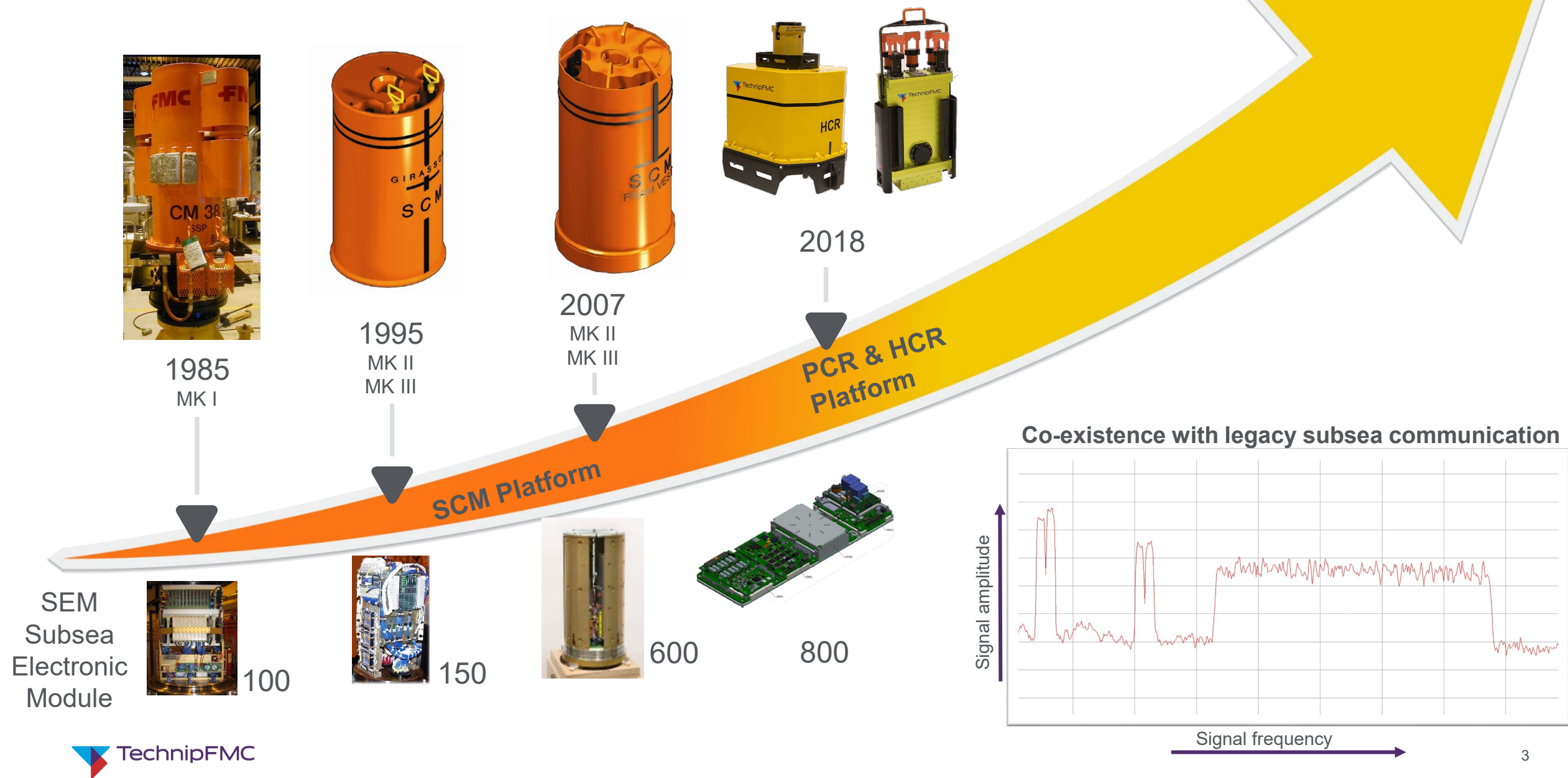


Selectable downhole interface cards

### > DOWNHOLE SENSORS

Plug and play downhole interface with redundancy handling

# Backwards Compatibility

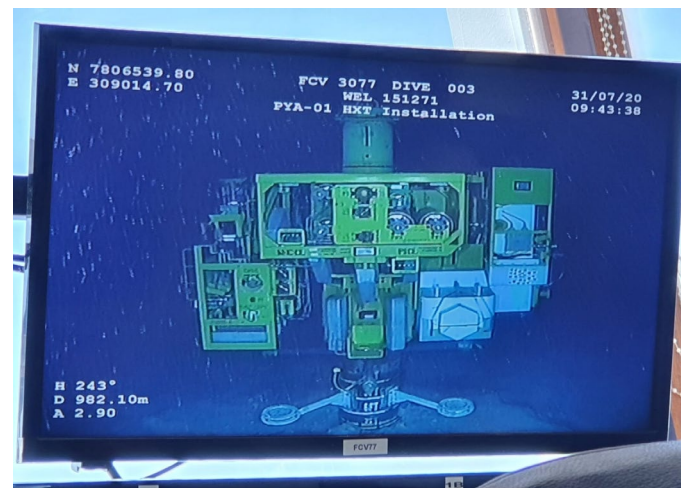
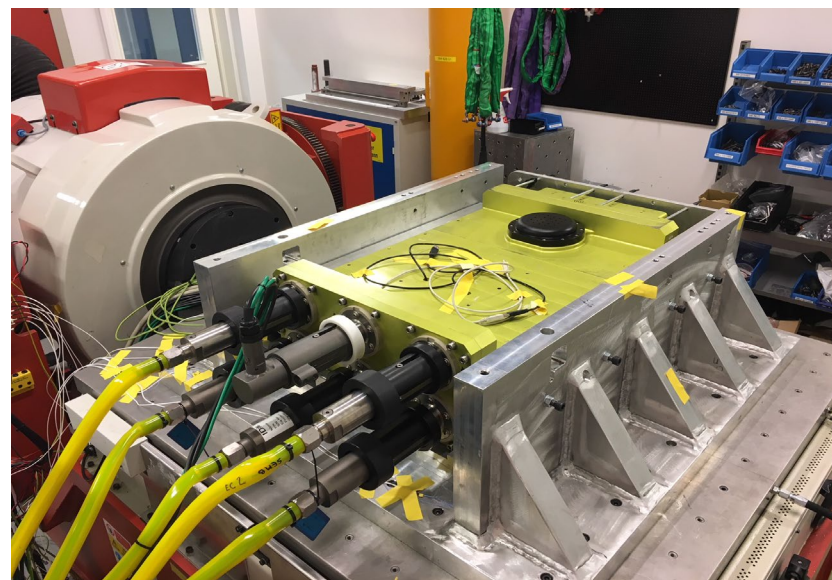




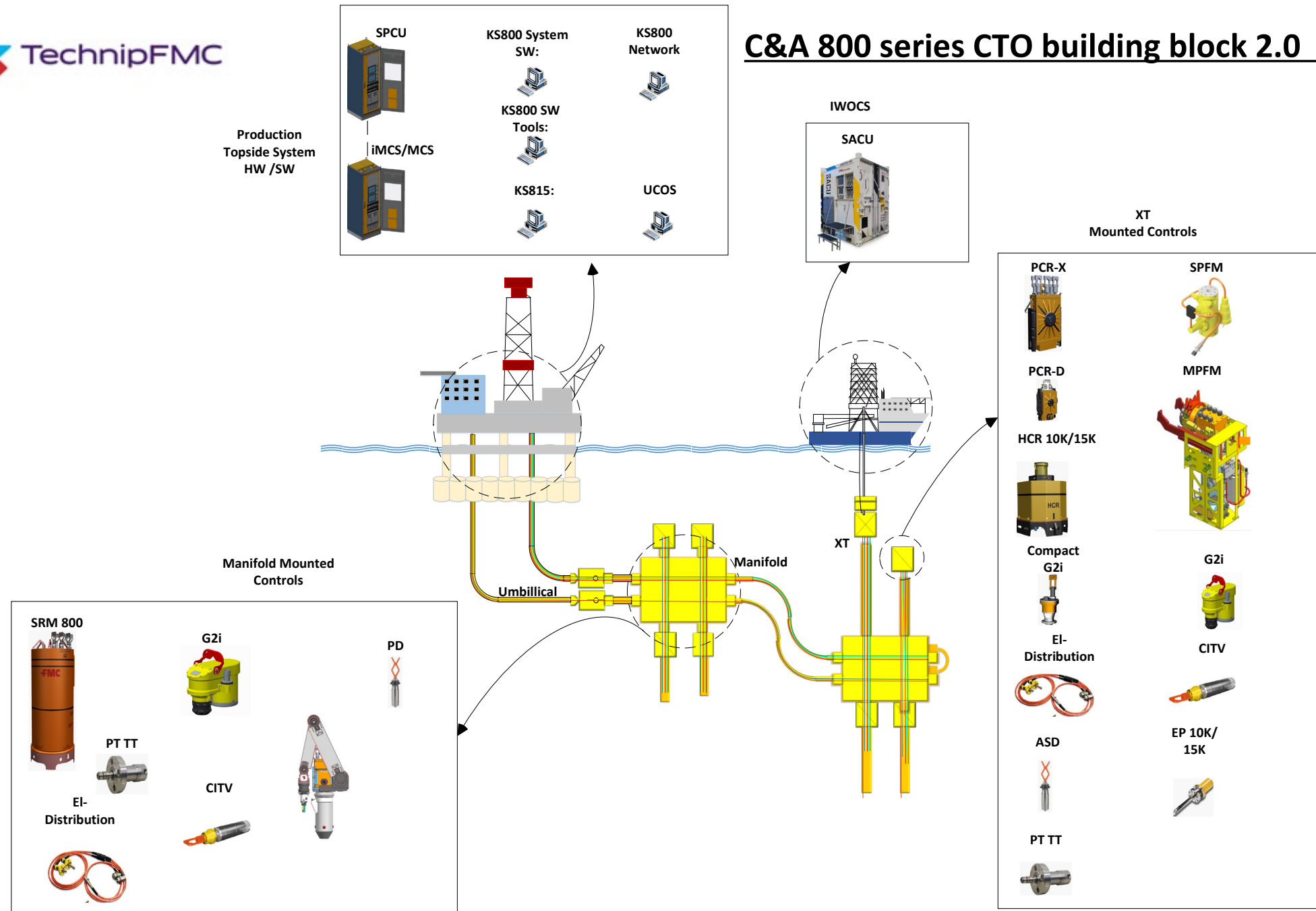
First Tree system  
installed in June  
2020

54 Delivered  
16 installed

As of September 2022



# C&A 800 series CTO building block 2.0 Overview



# CTO SS2.0 800 series Controls Product Catalog

## Instruments / El. distribution



Doc No: SPC60166969  
Rev: E Page 1 of 30

**SPECIFICATION, SUBSEA - CONTROLS, CTO CONFIGURATIONS  
AND RELATED EQUIPMENT**

Rev	ECN No.	Date	Reviewed By	Approved By	Status
E	6280272	18-FEB-2022	Nilsen, Simen	Lovas, John Stener	RELEASED

### Summary:

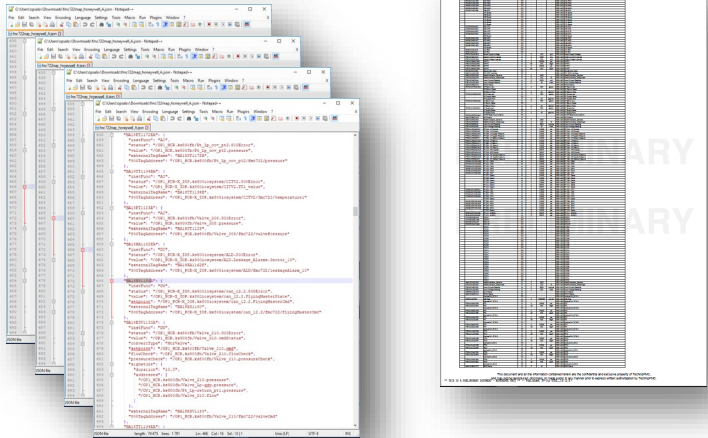
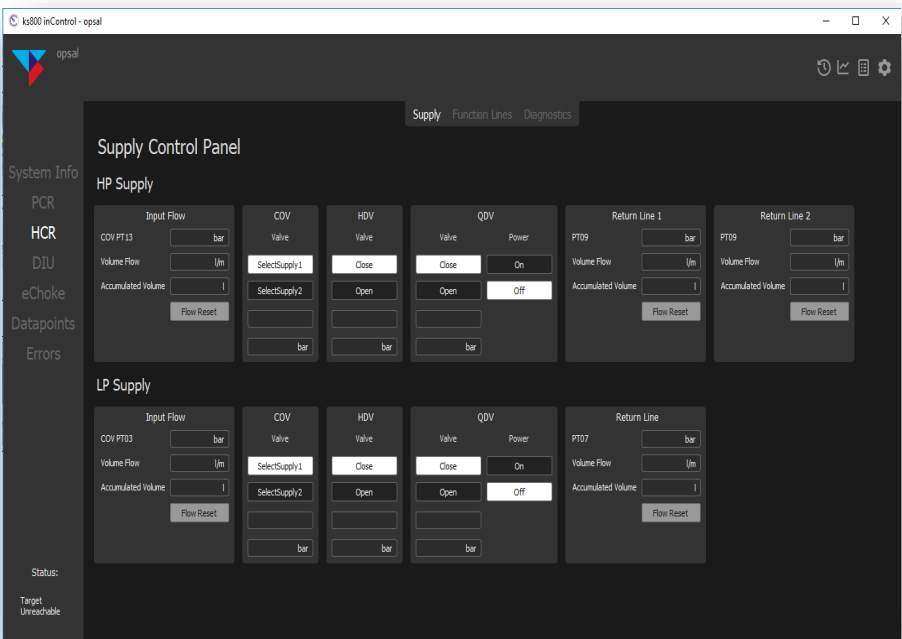
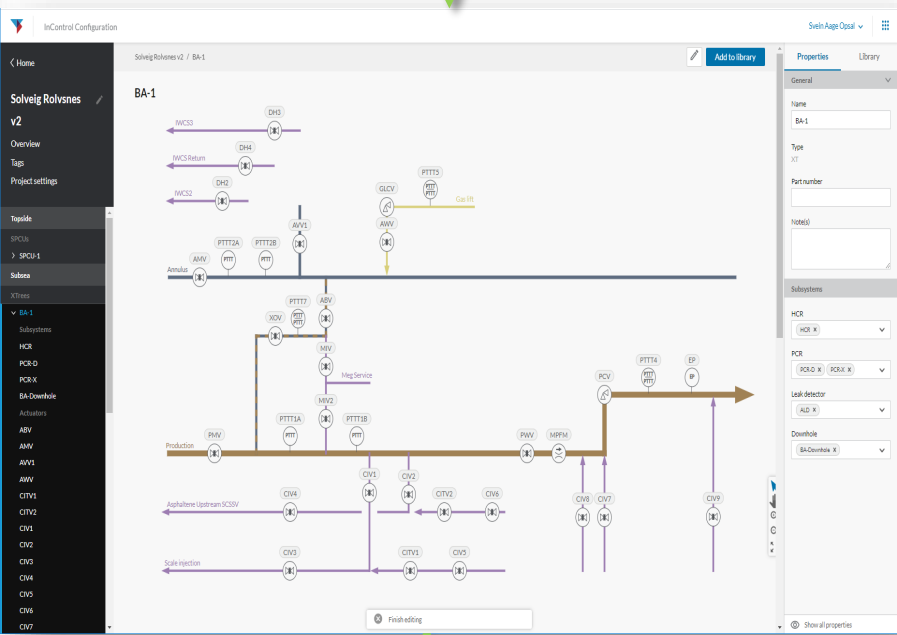
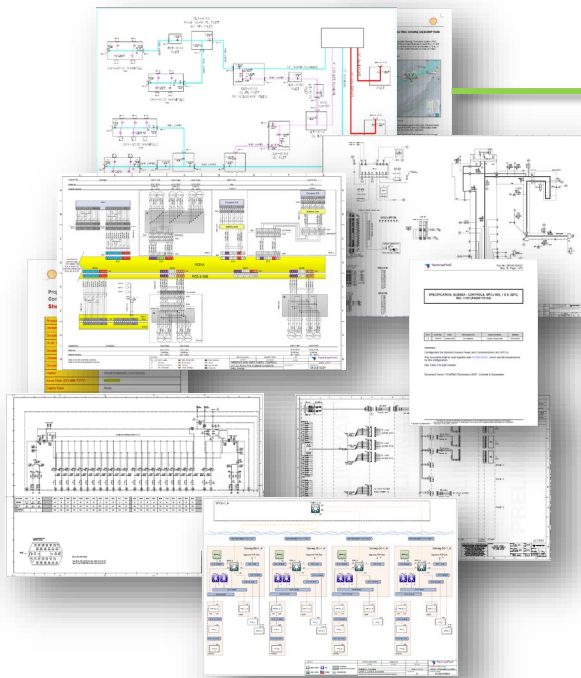
Document to provide an overview of all available standard CTO mounted subsea controls product and related test equipment.

Author: Simen Nilsen

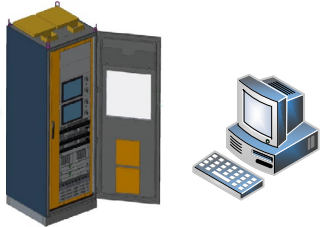
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\*\* RELEASED FOR SUBSEA CONTROL \*\* -- Published: 20-Feb-2022\_10:36:42



# InControl 800 SW Tool's



MCS / DCS Interface



# Main lessons learned during introduction



## GREEN & BROWNFIELD APPLICATIONS

- Successfully introduced into legacy 150 for first application
- Utilizing existing topsides, communication protocols and infrastructure



## SYSTEM EFFECT

Improved modularity, flexibility and increased functionality results in higher power demand

- Active power management via software configuration



## PRODUCT INTRODUCTION

- Moved from software development (tools, libraries etc.) to project configuration
- Software configuration of about 3 weeks duration on latest projects



# Summary

## TRULY STANDARDIZED

- Flexibility: configure your equipment
- Quality, stability, automated testing
- Spares shared among licences



## STATE-OF-THE ART ELECTRONICS

- Newest generation of electronics available on the market
- Backwards compatible options



## FLEXIBILITY FOR FUTURE

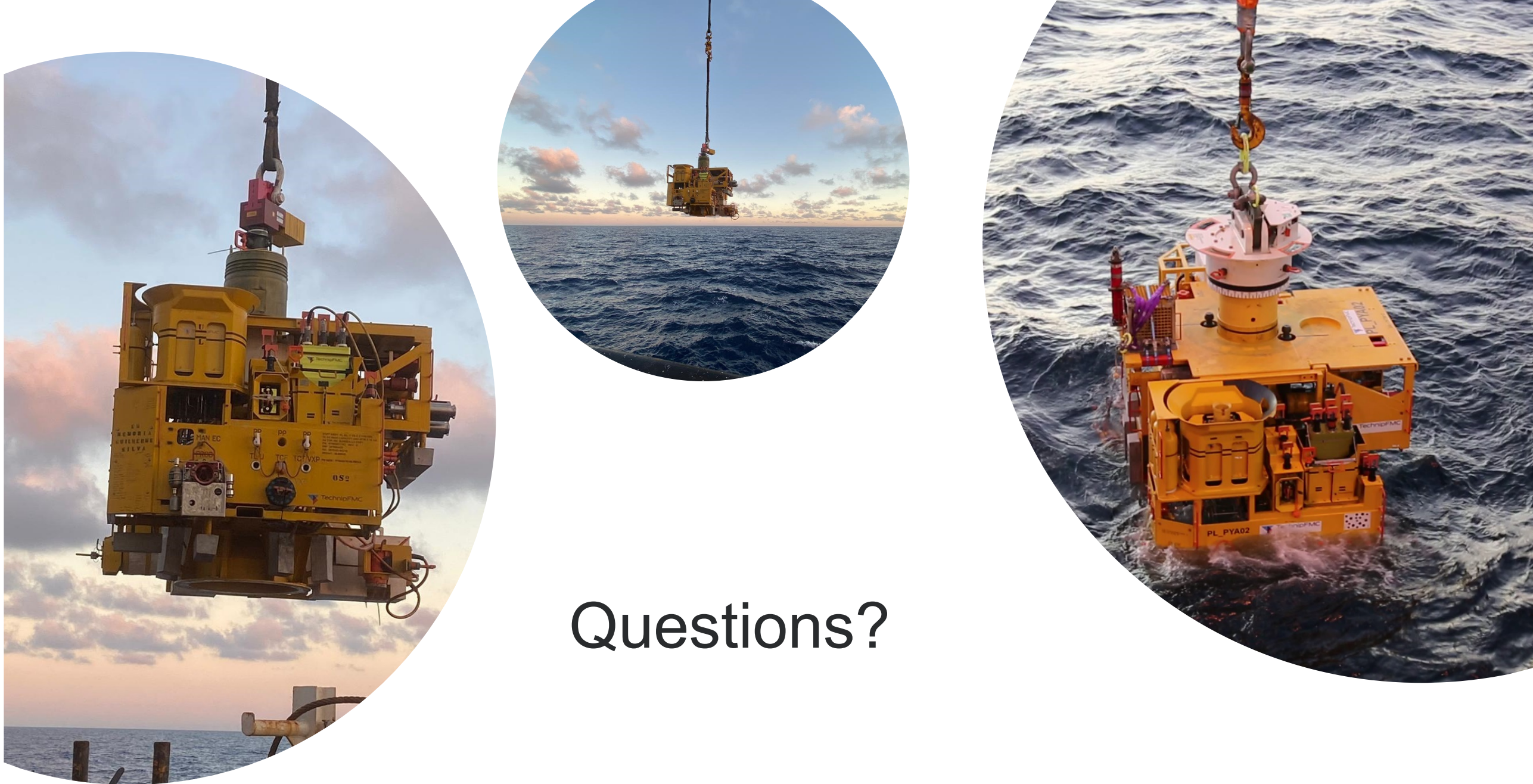
- High power and processing capacity
- All-electric ready, electronic and hydraulic parts segregated



## ENHANCED SERVICEABILITY

- Modularity: Pre-tested sub-modules can easily be replaced
- Power & communication routers installable & recoverable by ROV





Questions?

