

SIMOCRANE Drive-Based Sway Control

V1.0 SP1

Siemen Cranes, February 2016

Siemens Cranes

Our product portfolio

High Performance

Mid Performance

SIMOCRANE

Crane Technology

Crane Management System



(Remote) CMS



CMS Lean

Advanced Technology



Sway Control



Skew Control



2D-Trajectory



Drive-Based Sway Control



Truck Position System



ECO Technology

Basic Technology



Basic Technology



Drive-Based Technology

Platform

Motion Controller



SIMOTION D435-2

Drive Controller



CU320-2



CU310-2

Drives



Crane Cabinet Modules



Chassis



Book-size



PM340/
PM Chassis



PM250
PM240-2
(FSA-FSC)

Motors



1LA8/
1LL8



1PH8



1LG4/6

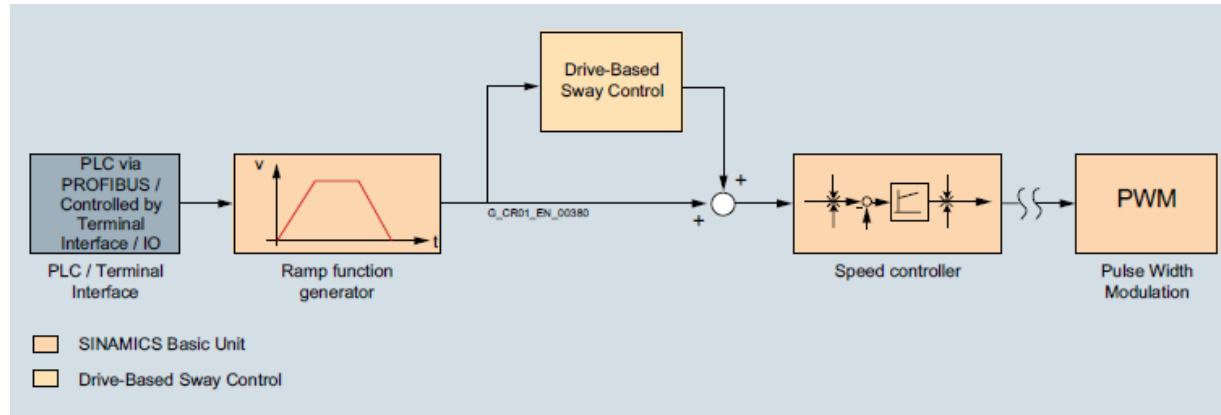


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Product Introduction

SIMOCRANE Drive-Based Sway Control V1.0 SP1 – Functional scope

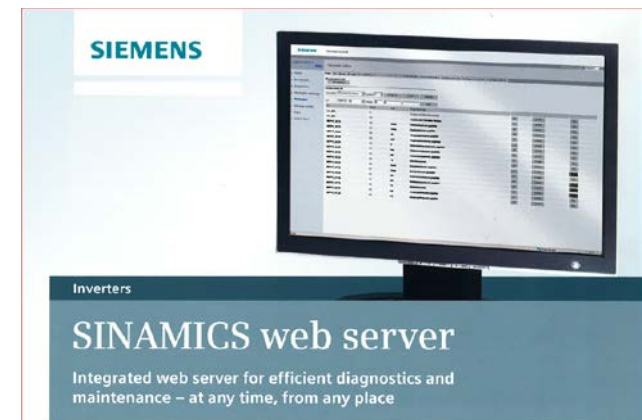
- **Sway Control Technology in Sinamics OA (Open Architecture)**
 - Single axis solution for AC/AC drive
 - Used for Trolley (cross travel) or Gantry (long travel) with/without encoder
 - Embedded in Sinamics drives
 - Tailored functions for mid-performance market
 - ✓ Sway damping in Manual operation
 - ✓ Changeable damping factor by operator
 - ✓ Disable sway damping at any time
 - ✓ Specified behavior in pre-limit switch or limit switch area



SIMOCRANE Drive-Based Sway Control Solution 1 – ready to run

1. 'Ready to Run' solution on memory card (CF-card)

- Pre-configured project on CF-card
 - ✓ Controlled via onboard-I/O
 - ✓ Digital Master-switch up to 4 speed-levels
 - ✓ Use of Drive-Based Technology
 - ✓ Without encoder
- No engineering necessary
- Start commissioning immediately after crane installation
- Simple commissioning via onboard Basic Operator Panel BOP20
- Optional commissioning via Sinamics web server on PC or Tablet



SIMOCRANE Drive-Based Sway Control Solution 2 – ready to apply

2. Standard application for ready-to-apply

- Scripting for configuration
- selectable via Onboard-I/O or via Profibus
- Use in standalone or combined with DBT

Application for the SIMOCRANE Drive-Based Sway Control - Windows Internet Explorer

The script file is a help for the application Drive-Based Sway Control to connect the BICO - parameters by using Profibus OR I/O - communication automatically. Optional the Crane DCC-blocks will also be connected. If I/O - communication is selected only the digital master switch can be used. The Script File can be extended by the user. Since variance cannot be precluded entirely, we cannot guarantee full consistency.

Path and Name for Logfile
C:\logfile.txt

Please confirm that the listed steps below were done before the script was started

- FREE FUNCTION BLOCKS ARE ACTIVATED
- TECHNOLOGY PACKAGE SWAY CONTROL IS ACTIVATED
- EXTENDED BRAKE CONTROL IS ACTIVATED

Select whether project with DBT is used or not:

- DBT is used in drive unit
- DBT is NOT used in drive unit

Select the used communication method:

- PROFIBUS DP
- ONBOARD I/O

OK CANCEL

SIMOCRANE Drive-Based Sway Control Solution 3 – Upgrading cranes

3. Easily upgrading for existing cranes

- Few steps for installation
- Simply parameterizing for integration in existing cranes

SIEMENS	<u>Preface</u>
	Fundamental safety instructions 1
SIMOCRANE	System description 2
Drive-Based Sway Control	Hardware interfaces 3
Operating Instructions	Function description 4
	Installation/uninstallation 5
	Commissioning 6
	Parameters 7
	Function diagram 8
	Spare parts, accessories, and maintenance 9
	Appendix A

valid for:
SIMOCRANE Drive-Based Sway Control
as of Version 1.0 SP1

11/2015

SIEMENS	<u>Vorwort</u>
	Grundlegende Sicherheitshinweise 1
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Betriebsanleitung	Funktionsbeschreibung 4
	Installation/Deinstallation 5
	Inbetriebnahme 6
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	Ersatzteile, Zubehör und Wartung 9
	Anhang A

gültig für:
SIMOCRANE Drive-Based Sway Control,
ab Version 1.0 SP1

11/2015

SIMOCRANE Drive-Based Sway Control Scope of Supply

SIEMENS

V1.0 SP1
release in
01.2016

Order number (MLFB) of the package
6GA7280-1AA10-0AB0



- Memory card (CF card)

- SINAMICS FW V4.7 HF11 for Cranes
- Application with Drive-Based Sway Control and Drive-Based Technology
- Required license key

- DVD with

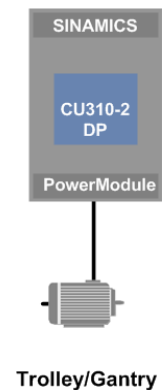
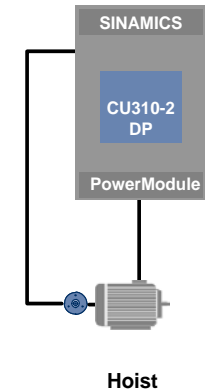
- Installation for DBSC
- Standard applications
- Documentation

- License Certificate

SIMOCRANE Solution for Mid-performance Cranes (1)

- **Crane midrange solution includes**
 - A Sinamics AC/AC Single axis drive (power module),
 - Control Unit CU310-2 DP,
 - A special Sinamics FW V4.7 HF11 for Cranes
 - Simocrane Drive-Based Technology V1.0 SP1 HF2
 - Simocrane Drive-Based Sway Control V1.0 SP1

- **Sinamics Firmware for Cranes can operate**
 - with PM340
 - with PM Chassis
 - with PM250
 - With PM240-2 (FSA-FSC)
 - with Safety functions
 - with Vector-control only (not Servo-Control).

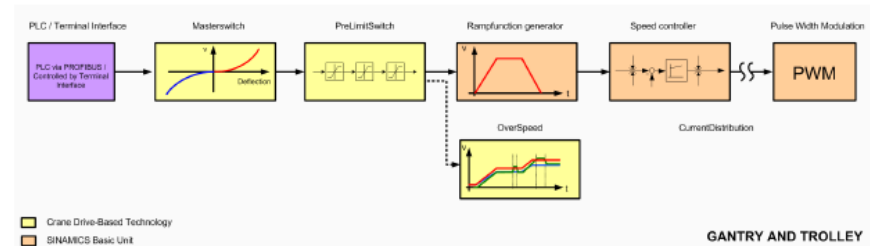


SIMOCRANE Solution for Mid-performance Cranes (2)

- **Drive-Based Technology in Sinamics DCC (Drive Control Chart)**

- For Hoist, Trolley (cross travel) and Gantry (long travel)
- Crane specified technologies

- ✓ Master-Switch (Digital or Analogue)
- ✓ Pre-limit switch
- ✓ Start Pulse
- ✓ Load depending field weakening
- ✓ Monitoring of over-speed
- ✓ Monitoring of current distribution



- **Sway Control Technology in Sinamics OA (Open Architecture)**

- For Trolley (cross travel) or Gantry (long travel)
- Easily integrated in Sinamics drives
- Sway damping in Manual Mode
- Pre-configured solution on CF-card
- Simple commissioning via BOP20 or web browser

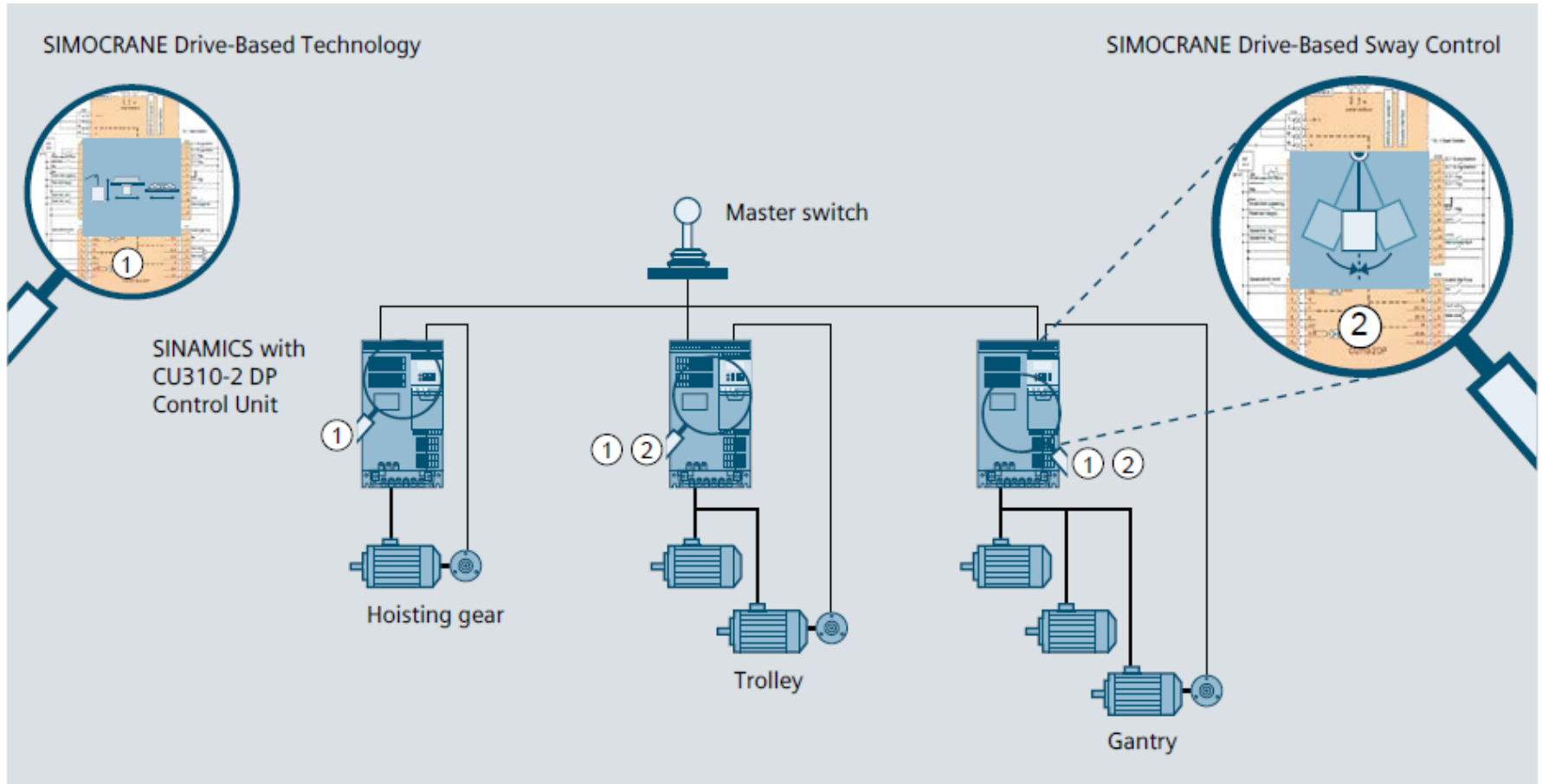


Use Case 1

Simple OHBC with hanging key button

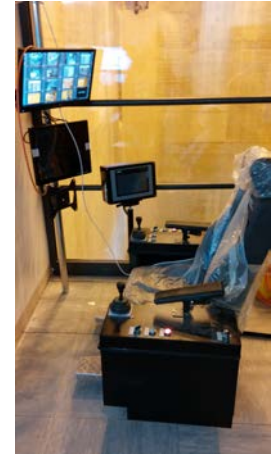
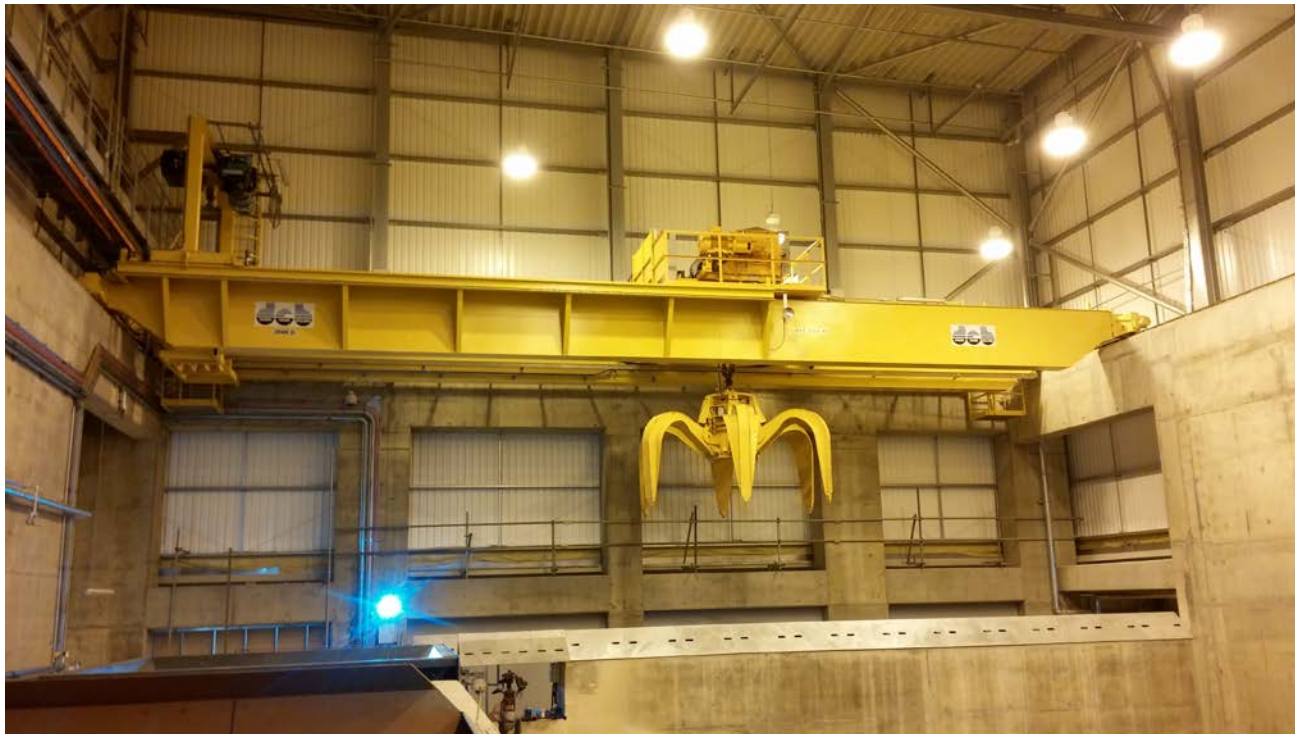


Configuration Example for Use Case 1 OHBC with Onboard I/O and Drive-Based Technology



Use Case 2

OHBC crane with remote control

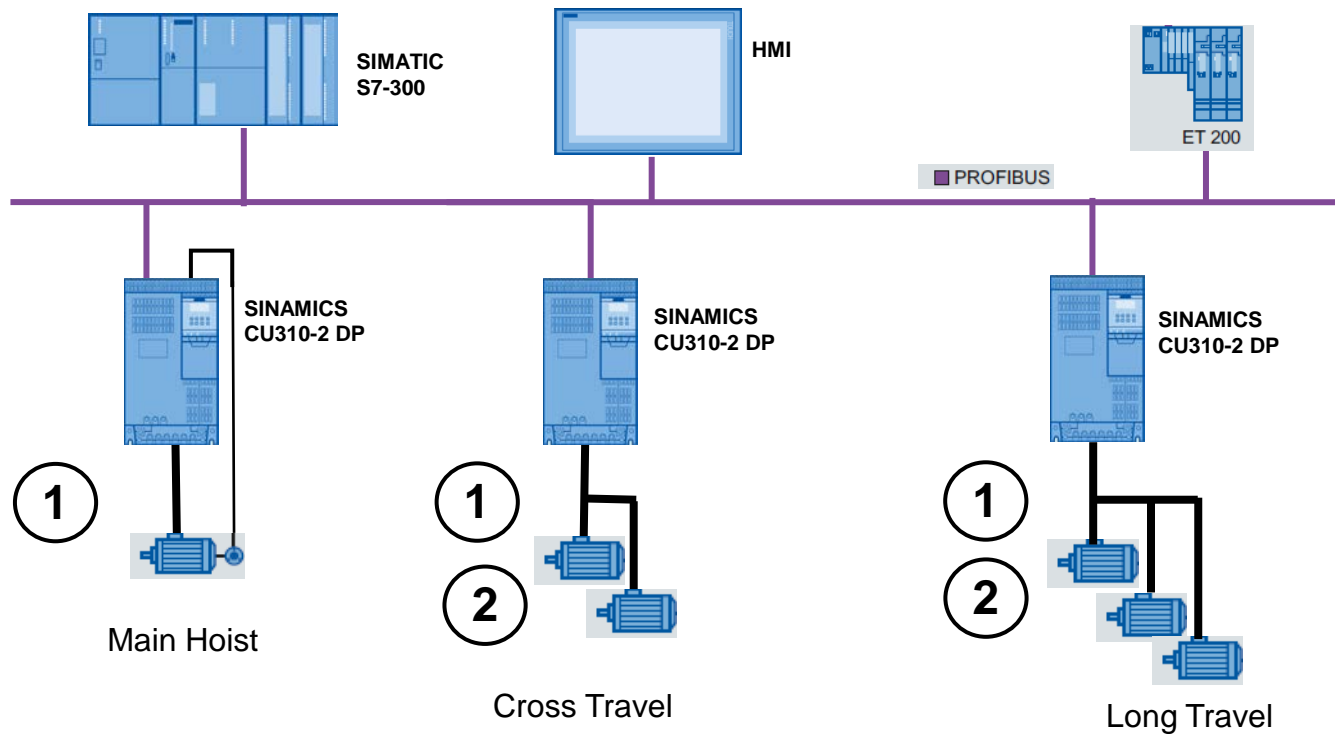


Configuration Example for Use Case 2 OHBC with PLC via Profibus

1

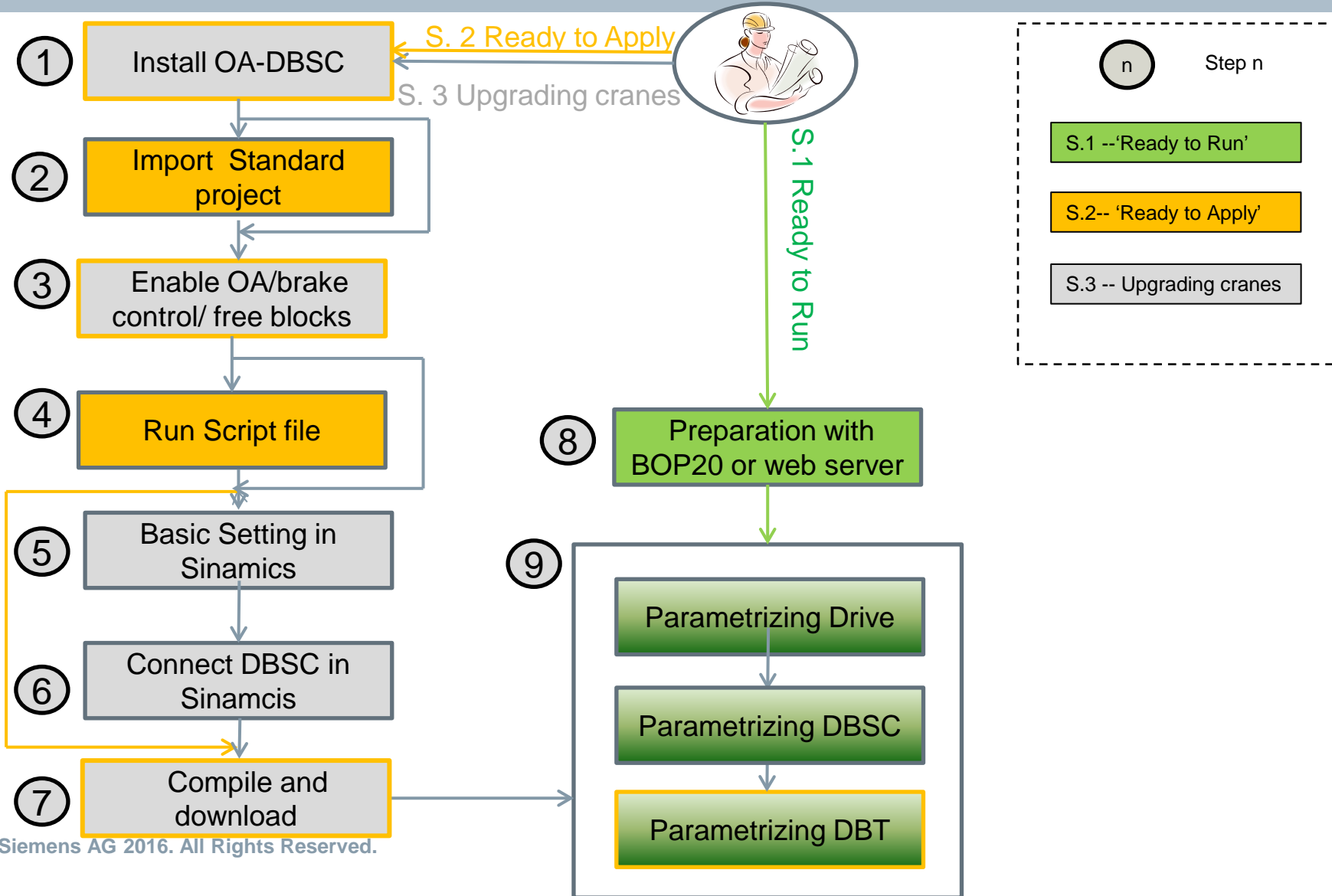


2



Commissioning Guideline

SIMOCRANE Drive-Based Sway Control Overview of Commissioning Guideline



SIMOCRANE Drive-Based Sway Control

Commissioning Guideline to Solution 1 for 'Ready to Run' on CF-card

1. Prepare with Basic Operator Panel BOP20 or Sinamics web server
2. Parameterization
 - a. for Drive
 - b. for Drive-Based Sway Control
 - c. for Drive-Based Technology (optional)

SIMOCRANE Drive-Based Sway Control

Commissioning Guideline to Solution 2

for 'Ready to Apply' with standard projects

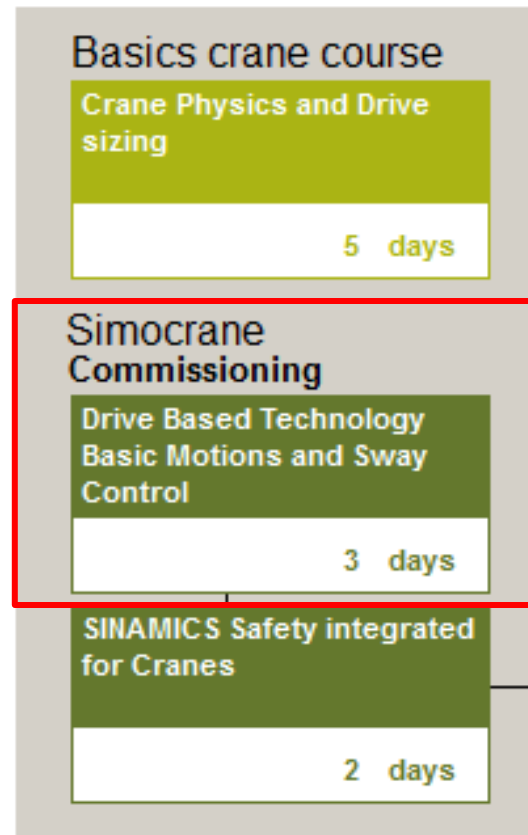
1. Install OA-DBSC in Starter
2. Import Standard project
3. Enable OA & extended brake control & free blocks in Drive Object (DO)
4. Run Script file
5. Compile and download to CF-card
6. Parameterization
 - a. for Drive
 - b. for Drive-Based Sway Control
 - c. for Drive-Based Technology (optional)

SIMOCRANE Drive-Based Sway Control

Commissioning Guideline to Solution 3 for Upgrading the existing project

1. Install OA-DBSC in Starter
2. Enable OA & extended brake control in Drive Object (DO)
3. Basic Setting in Sinamics (Cycle time, control mode, ..)
4. Connect DBSC in Sinamics (setpoint channel, input & output signals,..)
5. Compile and download to CF-card
6. Parameterization
 - a. for Drive (optional)
 - b. for Drive-Based Sway Control

SIMOCRANE Drive-Based Sway Control Training



- Three days training course with:
- Sinamics basic knowledge
 - Simocrane Drive-Based Technology
 - Simocrane Drive-Based Sway Control

In work

SIMOCRANE Drive-Based Sway Control Demo-kit

- **For training of commissioning**
 - with BOP 20
 - with Starter
 - with Sinamics web server
- **For test of customized adaptation**
- **For customer presentation**
- **Components**
 - PM340 * 1AC 230V
 - Asynchronmotor 1LA7060 -4.. with/without encoder
 - CU310-2 DP with BOP 20
 - Emergency Stop Pushbutton (Safety integrated function)
 - Switches hard-wired to CU310-2 DP



Product Support for SIMOCRANE Drive-Based Sway Control

- New Catalogue CR 1 Edition 2015

<http://w3app.siemens.com/mcms/infocenter/dokumentcenter/mc/Documentsu20Catalogs/CR1-2015-en.pdf>

- Operation instruction

<https://support.industry.siemens.com/cs/ww/en/view/109481804>

- Product News about Delivery release

<https://support.industry.siemens.com/cs/ww/de/view/109479739>

- Flyer

http://w3app.siemens.com/mcms/infocenter/content/en/Pages/order_form.aspx?nodeKey=key_9180778&infotype=brochures

- Slides

available in SharePoint (without Video)

- Internet Homepage

in plan

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	Geschichte	1
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Drive-Based Sway Control	Funktionsbeschreibung	4
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	Funktionen	8
	Erweiterung, Zubehör und	9
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SIMOCRANE Product Support

- SIMOCRANE Product-Support (news, FAQs, Manuals, application note..) in Internet

<https://support.industry.siemens.com/cs/ww/de/ps/20087>

- SIMOCRANE Training

<http://www.corporate.siemens.nl/nl/siemens-in-nederland/ons-portfolio/cross-sector-services/siemens-training/cranes.htm>

- New: Support request via Internet (Product → Simocrane)

<http://support.automation.siemens.com>

- New: Hotline EUROPA

– Telefon: +49 (0) 911 895 7 222

– Fax: +49 (0) 911 895 7 223

– Email: support.automation@siemens.com

- New: Hotline AMERICA

– Telefon: +1 423 262 5710

– Fax: +1 423 262 2231

– Email: support.america.automation@siemens.com

- New: Hotline ASIA / PACIFIC

– Telefon: +86 10 6475 7575

– Fax: +86 10 6474 7474

– Email: support.asia.automation@siemens.com

Thank you for your attention!



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