DCS800 CraneDrive

PDC5 EN REVA 2008

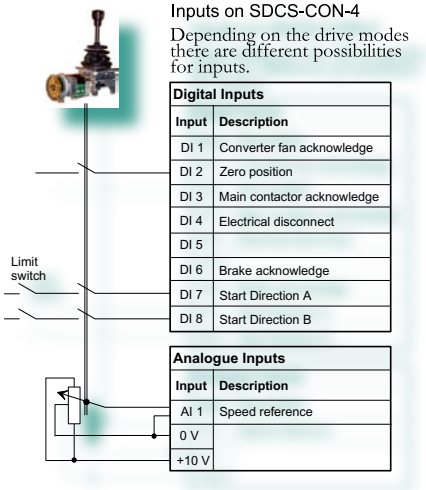
Product notes

DCS800 Crane Drive

ABB's dedicated crane drive offers a full range of functions which ensure safer and faster crane operation. In addition to new systems, the crane drive can be used to upgrade existing systems with new proven crane drive modules. It is suitable for crane systems, including STS and RTG container cranes and GSU cranes, as well as stand alone crane operation.

Flexible user interface

Many cranes are controlled without using a PLC. In these cases, the joystick and limit switches are directly connected to the drive. Various joystick interfaces can be used, including analog, radio, and step.



Inputs on SDCS-CON-4

Depending on the drive modes there are different possibilities for inputs.

Digital Inputs	
Input	**Description**
DI 1	Converter fan acknowledge
DI 2	Zero position
DI 3	Main contactor acknowledge
DI 4	Electrical disconnect
DI 5	
DI 6	Brake acknowledge
DI 7	Start Direction A
DI 8	Start Direction B

Analogue Inputs	
Input	**Description**
AI 1	Speed reference
0 V	
+10 V	

Systems that have a PLC typically control the drive by serial fieldbus. DCS800 supports a variety of fieldbus interfaces, including Profibus, ControlNet, DeviceNet, CANbus, and ABB DDCS.

Optimal operational safety mechanical brake control

DCS800's superior brake control provides smooth crane operation and is the base for all other crane functions. The brake control operates as a handshake between the speed controller and the motor shaft. All mechanical brake delay times and brake fault monitor functions can be easily set up and adjusted by the user through crane drive software.

Torque proving

The torque proving function applies torque against the closed brake to verify that the converter is functioning. This is done each time before the brake is released. If no motor current is detected, the brake will not release. This function prevents dropping the driven machinery when brake is released.

Torque memory

The torque memory is preloading the speed controller before opening the brakes. This function provide accurate stand still in speed control during brake opening. The reference can be given manual (analog or PLC) or automatic called memory of last load.

Torque monitor

The torque monitor verifies that the actual motor speed is within preset limits. Together with the overspeed monitor and the zero speed interlocks, a very precise monitoring of motor toeque is provided.

Shared motion

Classic installation of big container cranes are built on shared motion, which means trolley and boom share one armature converter, and hoist and gantry share another one. The switching is handled by contactors in the DC circuit. Even with this arrangement, each motor still has its own field exciter, thus one armature converter is equipped to control two field exciters.

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The converter firmware includes a complete set of parameters for each motor. Changing between motors is done very quickly by switching a single control bit.

Power optimization

This function optimizes the hoist speed based on the weight of the load. Without load, the drive operates deep into field weakening. When load is added, the maximum speed is automatically reduced, always ensuring that there is available torque to stop the load at any point if necessary. With this function, the operator will be able to utilize the highest physical operating speed of the machine under any load condition.

Master follower macro

The master-follower macro will configure the communication channel between two or more drives when using master follower configuration. Two different structures can be configured:

1. peer to peer between two drives working on one drum using DCSLINK
2. broadcast communication of SDCS-COM-8 MF channel

Additional DCC800 hardware inputs

- Limit switch supervision
- Acceleration with Max torque (bypass ramp)
- Slow down input
- Fast stop (three different modes are available)
- Watchdog output

Customer benefits CraneDrive

- Wide power range
- Ready-to-use with proven modular crane functionality
- Easy installation and start-up reduces total project costs
- Smooth crane operation reduces damage
- Rapid torque response increases operational productivity
- Compact and lightweight converter modules
- Small size and weight of the DC motor
- Low inertia of the DC motor
- Cost effective refurbishment of existing DC-based installations

Ready programmed SDCS-MEM-8 DCC800

Order code:

- Id code 3ADT200007R03 (separate memory module) or
- ready programmed drive pluscode (+S204, +S205)

The DCC800 function is handled by the additional parameter groups 60-69 and DriveWindow standard PC-tool (SDCS-COM-8 required for commissioning). The DCC800 manual, publication no. 3AST004539, provides information about DCC800 function and commissioning information. Small functions can be added by adaptive program.

Requirements

DCS800 training
DCC800 training
Drive Window PC tool + DWL assistant

DCC800 drive parameters

- 60 Digital Inputs
- 61 Pos Measure
- 62 Torque Monitor
- 63 Fast Stop
- 64 Crane
- 65 Logic Handler
- 66 Torque Proving
- 68 Power Optimize
- 69 ReferenceHandler
- 72 Master Follower
- 80 SharedMotion2
- 81 Events

STS container crane

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