Connecting KingKong DPT Dual Encoders with RS485 interface to Servosila SC-series Servo Drives

Technical Note

Revision A

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Overview

This technical note is written in regards to a KingKong DPT **dual** magnetic 24-bit absolute rotary encoder with a RS485 interface. Dual encoders generate readings for both motor-side and load-side (gearbox output) shaft positions via a single digital interface.

The tests were conducted with Servosila SC-120 Servo Drive that come with an RS484 interface. Note that Servosila SC-60 and SC-25 Servo Drives do not have an RS485 interface. Use KingKong encoders with BISS-C interfaces with Servosila SC-60 and SC-25 Servo Drives.

RELEVANT PART NUMBER:
KingKong DPT-10-15-25-A-24-24-R

The dual encoder's output rate has been found sufficient to be used for servo control, direct drive control, torque control and field-oriented control (brushless motor commutation) purposes. The encoder was successfully tested in those test scenarios.

RS485 interface: settings

The following configuration settings of the RS485 interface of Servosila SC-120R Servo Drives have been found to work well with the given model of KingKong dual absolute encoder:

Motor Encoder (Direct Drive)	5	-	Power Cycle
Servo Encoder (Load Side)	6	-	Power Cycle

▾ Encoder Peripherals			
▸ Peripheral: SSI/BISS-C Encoder			
▸ Peripheral: SPI Encoder			
▾ Peripheral: RS485 Encoder			
counts per revolution	16777216	counts	Power Cycle
encoder bias vs. electrical position	0	counts	
inverted installation	0	0 or 1	
baudrate	2500000	bps	Power Cycle
request	67	array	Power Cycle
request size	1	bytes	
request frequency: divider	3	-	Power Cycle
field endianness	1	0 or 1	
total number of bits in packet	64	1-64	Power Cycle
POSITION field (count): start bit	24	-	
POSITION field (count): length	24	-	
POSITION field (count): bit inversion	0	0 or 1	
MULTI-TURN field (count): enable	0	0 or 1	
MULTI-TURN field (count): start bit	0	-	
MULTI-TURN field (count): length	6	-	
MULTI-TURN field (count): bit inversion	0	0 or 1	
MULTI-TURN Count Limit (count)	256	turns	
ERROR bit: enable	1	0 or 1	
ERROR bit: bit position	48	-	
ERROR bit: bit inversion	0	0 or 1	
WARN bit: enable	1	0 or 1	
WARN bit: bit position	49	-	
WARN bit: bit inversion	0	0 or 1	

▾ Peripheral: Dual Encoder			
counts per revolution	16777216	counts	Power Cycle
encoder bias vs. electrical position	0	counts	
inverted installation	0	0 or 1	
total number of bits in packet	64	1-64	Power Cycle
POSITION field (count): start bit	0	-	
POSITION field (count): length	24	-	
POSITION field (count): bit inversion	0	0 or 1	
MULTI-TURN field (count): enable	0	0 or 1	
MULTI-TURN field (count): start bit	0	-	
MULTI-TURN field (count): length	6	-	
MULTI-TURN field (count): bit inversion	0	0 or 1	
MULTI-TURN Count Limit (count)	256	turns	
ERROR bit: enable	0	0 or 1	
ERROR bit: bit position	0	-	
ERROR bit: bit inversion	1	0 or 1	
WARN bit: enable	0	0 or 1	
WARN bit: bit position	0	-	
WARN bit: bit inversion	1	0 or 1	

Servo Actuators designed around Servosila SC-series Servo Drives

YouTube: http://www.youtube.com/user/servosila

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