

Connecting GW Sensor's GIS-series Dual Encoders with RS485 interface to Servosila SC-120 Servo Drives

Technical Note

Revision A

www.servosila.com/en/motion-control

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Overview

This technical note is written in regards to a GW Sensor GIS-series dual (17bit & 20bit) **inductive** absolute rotary encoder with an RS485 interface. The dual encoders generate readings for both motor-side and load-side (gearbox output) shaft positions via a single digital interface.

The tests were conducted using Servosila SC-120R Servo Drive.

RELEVANT PART NUMBER:

GW Sensor GIS-D085-R-01-A

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-120 Servo Drives have been found to work well with the given model of GW Sensor's dual absolute encoder:

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

▼ Features

Feature: Use Servo Encoder for Speed Measurements	0	0 or 1
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▼ Encoder Peripherals

▸ Peripheral: SSI/BISS-C Encoder

▸ Peripheral: SPI Encoder

▼ Peripheral: RS485 Encoder			
counts per revolution	131072	counts	Power Cycle
encoder bias vs. electrical position	0	counts	
inverted installation	0	0 or 1	
RS485: baudrate	5000000	bps	Power Cycle
RS485: request packet	26	array	
RS485: request packet's size	1	bytes	
RS485: request frequency (divider)	3	-	
RS485: field endianness	1	0 or 1	
RS485: total number of bits in packet	88	1-64	Power Cycle
POSITION field (count): start bit	16	-	
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	77	-	
ERROR bit: bit inversion	0	0 or 1	
WARN bit: enable	0	0 or 1	
WARN bit: bit position	49	-	
WARN bit: bit inversion	0	0 or 1	

▼ Peripheral: Dual Encoder

counts per revolution	1048576	counts	Power Cycle
encoder bias vs. electrical position	0	counts	
inverted installation	0	0 or 1	
total number of bits in packet	88	1-64	Power Cycle
POSITION field (count): start bit	48	-	
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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