

DTI RESOLVER INTERFACE USER MANUAL

BETA VERSION



www.drivetraininnovation.com

V1.0

CONTENTS

Overview	3
Main features	3
Specifications.....	3
Connections.....	4
Resolver connector pinout	4
Communication connector pinout	5
Led indicators	6
Status LEDs	6
Error LEDs	6

OVERVIEW

To make our system more universal, you can use a resolver interface which is directly connected to the inverter. The interface is a complete 12-bit resolution tracking resolver-to-digital converter. There are applications where you have to use a resolver to measure the correct position.

Read the manual carefully and thoroughly before using the controller. If you have any questions, please contact us. info@drivetraininnovation.com

MAIN FEATURES

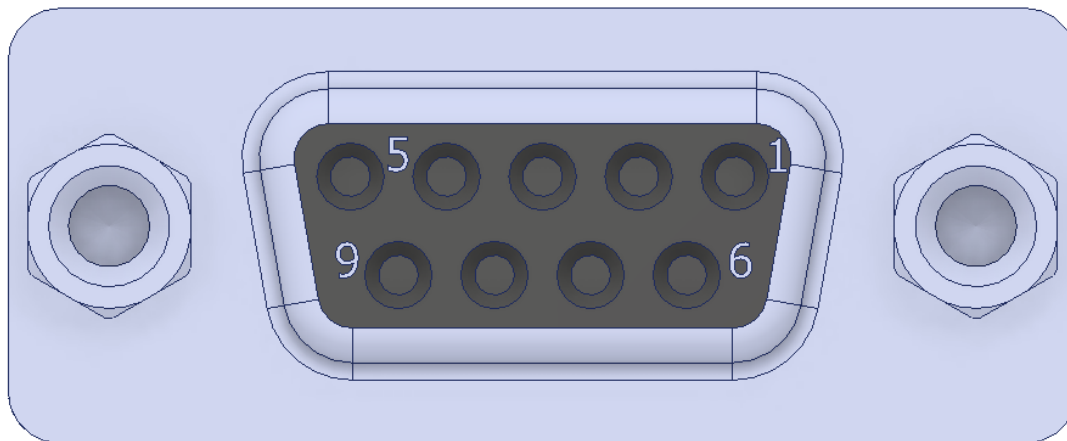
- Incremental encoder emulation outputs is in standard A-quad-B format.
- UART communication interface for absolute position measurement
- System fault detection
- All digital I/O is differential (I/O + and - signals)

SPECIFICATIONS

- Supply:
 - Voltage: 5V (4.75 V to 5.25 V)
 - Maximum current: 300mA
- Excitation Frequency: 20 kHz (optional on request 10, 12, 15 kHz)
- Absolute 12-bit angular position
- Input Signal Range: 3.15 V p-p $\pm$ 27% (Sin and Cos)
- Maximum speed rating: 60,000 rpm
- Digital I/O voltage range: 5V

CONNECTIONS

Resolver connector pinout



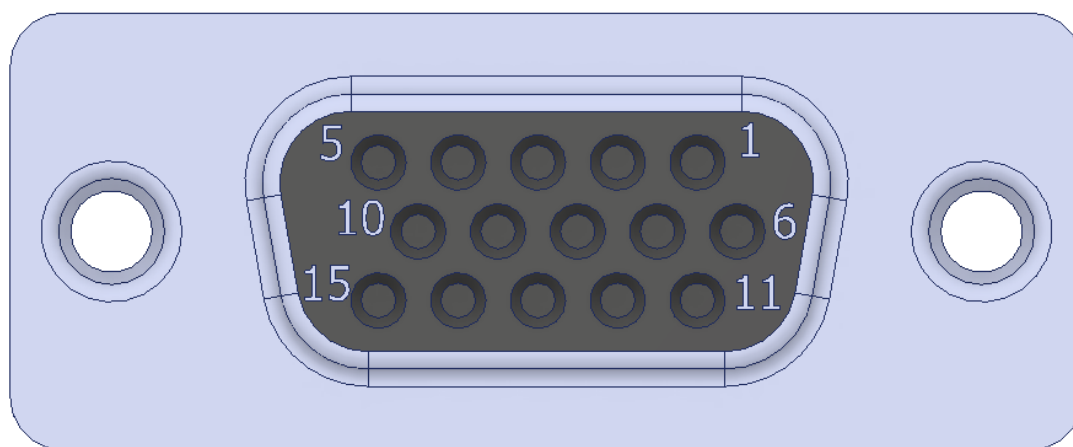
Interface side resolver connector (D-sub 9)

Harness side connector type: HARTING **09670095604**

D-Sub Backshells: HARTING **09670090442**

1	TEMP	Motor temperature sensor
2	COS	Positive analog input of differential Cos/CosLO pair
3	COS_LO	Negative analog input of differential Cos/CosLO pair
4	SIN	Positive analog input of differential Sin/SinLO pair
5	SIN_LO	Negative analog input of differential Sin/SinLO pair
6	TEMP_GND	Motor temperature sensor ground
7	GND	Ground
8	EXC_LO	Excitation frequency complement, analog output
9	EXC	Excitation frequency, analog output

Communication connector pinout



Interface side communication connector (D-sub 15 high density)

Harness side connector type: HARTING **09561005615050**

D-Sub Backshells: HARTING **09670090442**

1	DATA-	ABI encoder „DATA” differential signal negative
2	CLK-	ABI encoder „CLK” differential signal negative
3	A-	ABI encoder „A” differential signal negative
4	B-	ABI encoder „B” differential signal negative
5	NM-	ABI encoder „NM” differential signal negative
6	DATA+	ABI encoder „DATA” differential signal positive
7	CLK+	ABI encoder „CLK” differential signal positive
8	A+	ABI encoder „A” differential signal positive
9	B+	ABI encoder „B” differential signal positive
10	NM+	ABI encoder „Z” differential signal positive
11	GND	Ground
12	GND	Ground
13	5V_IN	5V input, max 750 mW
14	TEMP_GND	Temperature sensor ground
15	TEMP	Temperature sensor

LED INDICATORS

There are 4 LEDs on the interface surface. Two status LEDs and two error LEDs.

Status LEDs



PWR	This indicator should illuminate when the device is working. If this LED is not light, please check the communication connector.
DIR	This LED indicate the resolver rotation direction. If this led does not clearly indicate the direction, please check the resolver connector. If everything fine with the connector or wiring, please check the resolver.

Error LEDs



	LOT LED	DOS LED
Loss of signal Loss of signal (LOS) is detected when either resolver input (Sin or Cos) falls below 2.24 V p-p	ON	ON
Degradation of signal Degradation of signal is detected when either resolver input (Sin or Cos) exceeds 4.09 V p-p	ON	OFF
Loss of tracking Loss of tracking is detected when the internal error signal exceeds 5° or the input signal exceeds the maximum tracking rate (1250 rps)	OFF	ON
No fault	OFF	OFF