ERN1387 Encoder Interface Board

1 Introduction

The Heidenhain ERN1387 and ERN487 encoders are absolute sincos encoders providing 2048 sine and cosine signals per revolution with an additional absolute track consisting of one sine and one cosine signal per revolution. The encoder also provides a once per revolution reference marker signal. The absolute track and marker signal make the encoder suitable for use with permanent magnet servo motors. The ERN1387 Encoder Interface is designed to interface the ERN1387 or ERN487 encoder to Unidrive SP, Unidrive ES and Digitax ST drives in conjunction with an additional SM-Universal Encoder Plus solutions module.

The ERN1387 Encoder Interface is designed to connect directly to the 15-way D-type port on the SM-Universal Encoder Plus module. User inputs to the interface board are provided via the female 15-way D-type socket mounted on the interface board. A small connector on the interface board allows the short connecting cable to link the interface board to the 15-way D-type encoder port on the host drive. The interface board takes its power from the encoder power supply on the SM-Universal Encoder Plus, which also supplies power to the encoder.

NOTE The encoder power supply from the SM-Universal Encoder Plus module must be set to 5V.

NOTE SM-Universal Encoder Plus software version V04.00.06 or later must be used when using the ERN1387 Encoder Interface Board.

Figure 1-1 Interface board

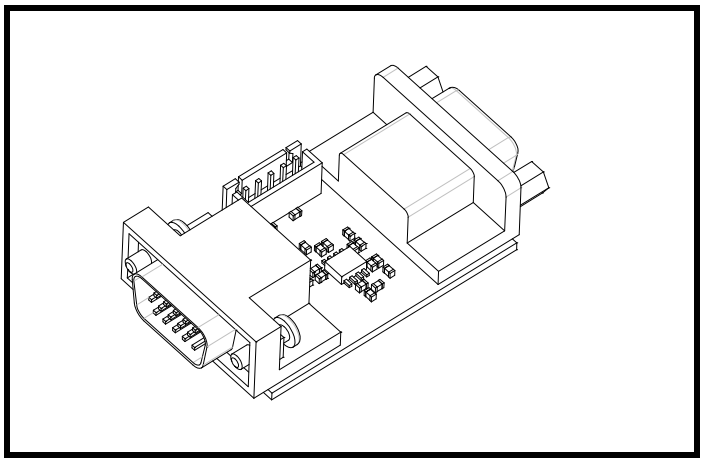
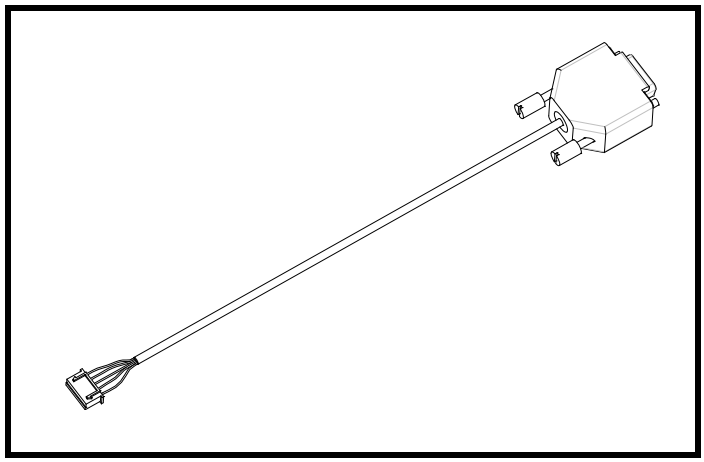


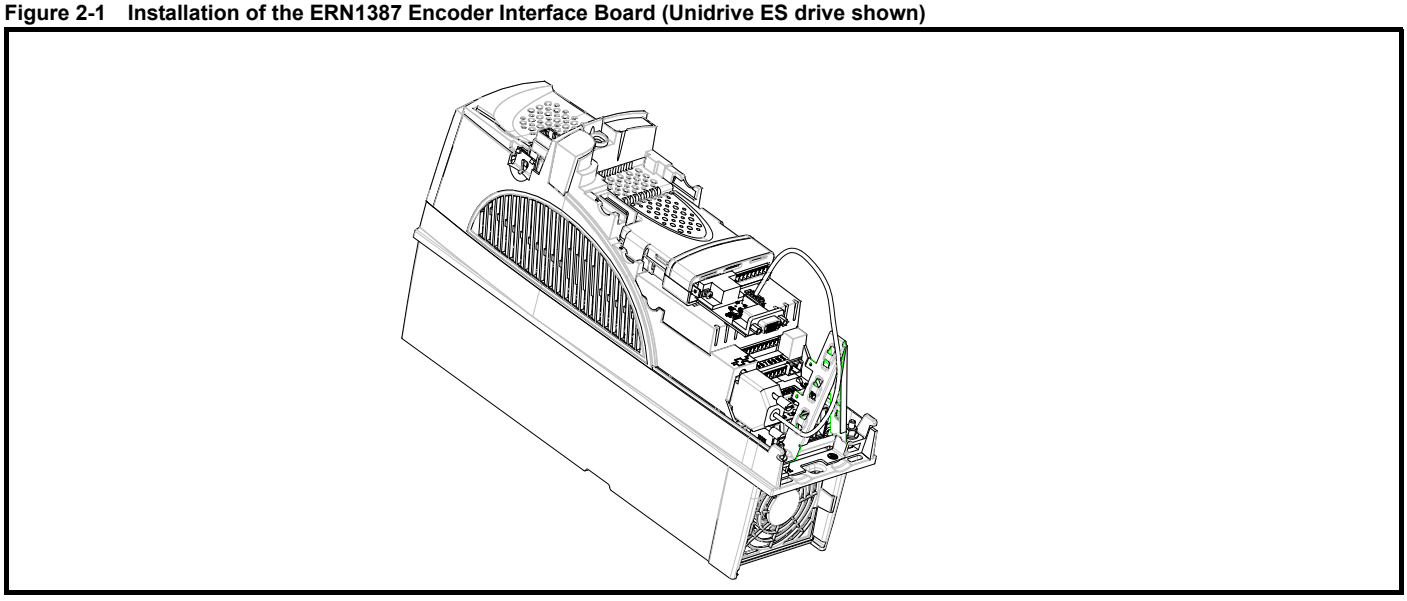
Figure 1-2 Connecting cable



2 Installation

The ERN1387 Encoder Interface must be fitted to the 15-way D-type connector on the SM-Universal Encoder Plus module. The connecting cable must be connected between the interface board and the 15-way D-type connector on the drive. The interface board should not be used with a SM-Universal Encoder Plus module installed in slot 3 of a Unidrive SP when the EMC bracket is fitted to the drive.

Figure 2-1 Installation of the ERN1387 Encoder Interface Board (Unidrive ES drive shown)



NOTE The ERN1387 Encoder Interface Board must not be installed on the drive encoder port.

3 Terminal Connections

Table 3-1 15 way D-type female connections to the ERN1387 encoder

Pin Number	Signal name
1	C\
2	D\
3	A\
4	B\
5	Not connected
6	C
7	D
8	A
9	B
10	Not connected
11	Not connected
12	+VC (+5V)
13	0 V
14	R\
15	R

4 Parameter setup

The following parameters must be set in the drive to enable ERN1387 encoder support.

Table 4-1 Parameter setup

Parameter		Value
Pr **3.26**	Speed feedback selector	Slot (1), Slot (2) or Slot (3)
Pr **3.34**	Drive encoder lines per revolution	1
Pr **3.38**	Drive encoder type	SC (6)
Pr **15/16/17.10**	Equivalent lines per revolution	2048
Pr **15/16/17.13**	Encoder supply voltage	5V (0)
Pr **15/16/17.15**	Encoder type	SC (6)

The ERN1387 Encoder Interface Board passes the incremental signals (i.e. 2048 sine wave per revolution signals) to the SM-Universal Encoder Plus modules encoder port, and passes the absolute signals (i.e. 1 sine wave per revolution signals) to the drives encoder port. The SM-Universal Encoder Plus module synchronizes both positions to create an internal control position that the drive uses to control the motor. In addition the SM-Universal Encoder Plus module monitors the marker input to produce a marker position and set the marker flag. The marker position is used to modify the internal control position but does not alter Pr **x.04**, Pr **x.05** and Pr **x.06**.

Due to the absolute nature of the encoder position, an encoder phasing autotune is only required once during commissioning and is not required at every power-up or encoder trip.

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