MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ABB

FEN-31 68978840

HTL ENCODER INTERFACE MODULE

Used with the applicable ABB FEN-31 HTL Feedback configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: ABB FEN-31 User manual 3AUA0000031044 Rev D, pp.34 to 35

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Installation

Contents of this chapter

This chapter contains instructions on installing the HTL Encoder Interface module.



WARNING!
Follow the safety instructions given in this guide and in the drive *Hardware manual*.

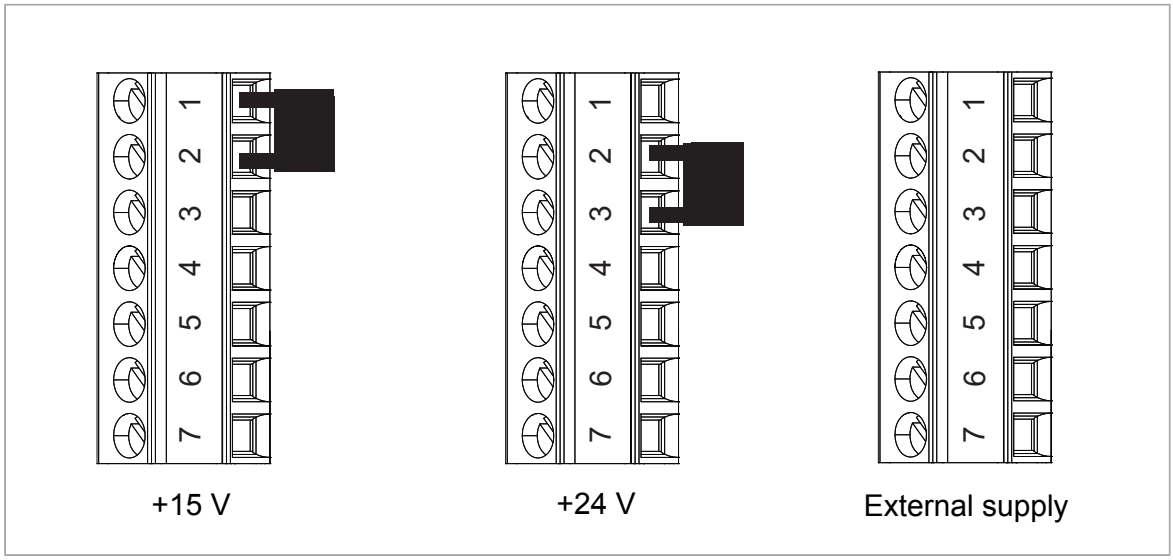
Setting the supply voltage

WARNING!
Selecting the wrong supply voltage may damage or break the encoder.

Two supply voltages are available on pins 4 and 5 in connector X81. Only one of them can be used to supply an encoder. The supply voltage is selected by placing a jumper on connector X81 as described in the figure below. The following supply voltages can be selected:

- +15 V DC ± 20% 200mA (max.)
- +24 V DC ± 20% 200mA (max.)

You can also connect an external 10 - 24 V DC power supply to pins 4 and 5 in connector X81. In that case, the jumper must be removed.



Encoder supply voltage available on pins X81-4 and X81-5 with different jumper settings

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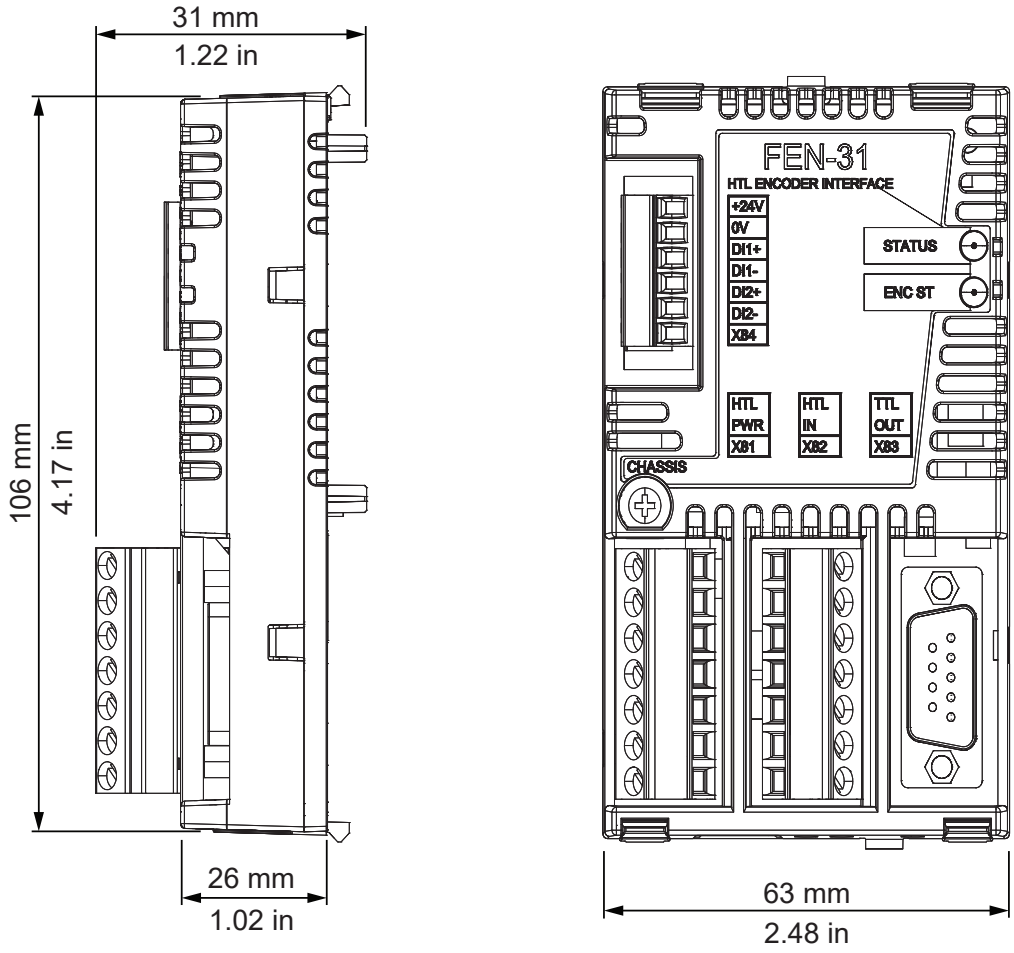
Technical data

Contents of this chapter

This chapter contains the technical data of the HTL Encoder Interface module.

Dimensions



General

Max. power consumption	350 mA at 24 V (Max. combined power consumption of encoders, latches and cabling 5W)
Degree of protection	IP20
Ambient conditions	The applicable ambient conditions specified for the drive in its Hardware manual are in effect.

Connectors:

- 20-pin socket
- 2 x 7-pin detachable plugs, max 2.5 mm^2 wire, tightening torque 0.5 N·m (5 lbf·in)
- 9-pin D-Sub
- 6-pin detachable plug, max 1.5 mm^2 wire, tightening torque 0.3 N·m (3 lbf·in)

HTL encoder input (X81 and X82)

Supply voltages	+15 V DC ± 20% 200mA (max.) - HTL encoders
	+24 V DC ± 20% 200mA (max.) - HTL encoders
	External power supply, if connected, has to be in the range of 10-24 V DC
Channels A, B, and Z supported	Signal frequencies up to 300kHz can be detected by the HTL encoder input.
	With long cables and/or single-ended encoders it may be difficult to convey high signal frequencies reliably.
	Signal levels: “0” < 3.5 V and “1” > 7.5 V
Supported encoder types	Differential Push-Pull HTL encoders, supply voltage 10 - 24 V
	Single-ended Push-Pull HTL encoders, supply voltage 15 - 24 V
	Open collector HTL encoders, supply voltage 15 - 24 V
	Open emitter HTL encoders, supply voltage 15 - 24 V
Supported cable lengths	300 m for differential push-pull HTL encoders
	200 m for single-ended push-pull HTL encoders
	100 m for open collector/open emitter HTL encoders
Performance	Speed range: -32768...32767 rpm
	Speed resolution: 0.04 RPM (24 bits)
	Position resolution: 16 M/rev (24 bits)
	Position accuracy: 4x pulse count/rev
Isolation	Isolated together with digital inputs

TTL encoder emulation output (X83)

Emulation	Supports emulation of TTL incremental encoder, 1...65535 pulses/rev, reference mark
CH A, CH B, CH Z	RS-422/485, 500 kHz (max)
Maximum cable length	100 m
Performance	Speed range: -32768...32767 rpm
	Position resolution: 4x pulse count/rev
Isolation	Electrically isolated from the HTL input and control board

Digital inputs for position latch (X84)

Output voltage	+24 V DC ±15%, short-circuit proof
Signal levels	< 5 V = 0, > 15 V = 1
Isolation	Isolated together with TTL encoder input