

MANUFACTURER DOCUMENT PACKAGE

Manufacturer's Manual

Reference package for procurement and maintenance review

ACS 850

FEN-21 68679303

RESOLVER INTERFACE MODULE

Used with the applicable ABB drive feedback interfaces configuration.

REFERENCE PACKAGE

OFFICIAL DOCUMENT

Selected official manufacturer pages follow this cover.

Source: ABB official manufacturer documentation

Quick guide - FEN-21

Introduction

This manual contains the very basic information about installing the FEN-21 Resolver Interface. For complete documentation see [FEN-21 Resolver Interface User's Manual \(3AFE68784859 \[English\]\)](#).

Safety instructions



WARNING! All electrical installation and maintenance work on the drive must be carried out by qualified electricians.

The drive and adjoining equipment must be properly earthed.

Do not attempt any work on a powered drive. After switching off the mains, always allow the intermediate circuit capacitors 5 minutes to discharge before working on the frequency converter, the motor or the motor cable. Lock out and tag out. Check (with a voltage tester) that the drive is in fact discharged before beginning work.

These warnings are intended for all who work on the drive. Ignoring the instructions can cause physical injury or death, or damage the equipment.

For complete safety instructions see the drive manuals.

Compatibility

Resolvers

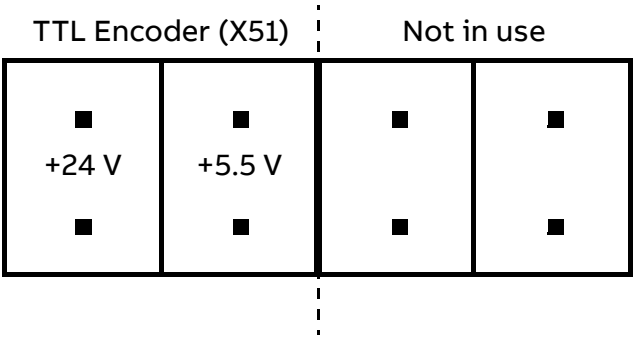
The FEN-21 is compatible with resolvers, which are excited by sinusoidal voltage (to the rotor winding), and which generate sine and cosine signals proportional to the rotor angle (to stator windings). Amplitude and frequency of the excitation signal can be adjusted in range 4...12 V_{rms} , 1...20 kHz. Transformation ratio of the resolver must be such that sine and cosine signals remains in range 2...7 V_{rms} .

TTL Encoders

The FEN-21 is compatible with TTL incremental encoders with 1...65535 pulses / rev and supports reference mark.

Setting the supply voltage X301

The supply voltage for the TTL encoder can be selected by vertically mounted jumper as described by the following figure



Note: If an external power supply is used, the appropriate jumper must be removed.

Note: If another FEN interface’s TTL emulation output is connected to TTL input, the appropriate jumper must be removed.

Mounting



WARNING! Before installation, do the electrical safety precautions given in section [Safety instructions \(Page 2\)](#).

Note: Before mounting the module, set the supply voltage jumpers as described above.

Numbers in brackets refer to the layout drawing in section [Layout and connections \(Page 5\)](#).

1. Pull out the locking tab (8).
2. Insert the module carefully into the option slot until the retaining clips lock the module into position. Option slots are located on the drive control unit.
3. Push in the locking tab (8).
4. Fasten the screw (included) to the stand-off.

If you need to remove the adapter module after it has been installed into the drive, use a suitable tool (e.g. small pliers) to carefully pull out the locking tab.

Note: Correct installation of the screw is essential for fulfilling the EMC requirements and for proper operation of the module.

Wiring



WARNING! You can connect a motor temperature sensor to the encoder module only if there is double or reinforced insulation between the live parts of the motor and the sensor. The module does not provide a safe isolation from the drive. Refer to the drive manuals for more information.

The encoder and resolver should be connected to the FEN-21 with a shielded instrumentation cable, preferably with twisted pairs. See also the encoder and resolver manual for additional requirements.

TTL encoder maximum cable length:

- 30 m with a 5 V encoder (0.5 mm² cable for power supply)
- 60 m with a 5 V encoder (two parallel 0.5 mm² cables for power supply)
- 100 m with a 10...30 V TTL incremental encoder

Resolver maximum cable length: 100 m

TTL encoder emulation maximum cable length: 100 m

Tightening torque is 0.3 Nm (2.7 lbf·in.).

Note: Do not route the encoder cables parallel to power (e.g. motor) cables.

Programming

The FEN-21 is programmed through drive parameters. These parameters must be checked and adjusted according to the encoder and resolver data sheet. For further information, see the drive Firmware manual.