

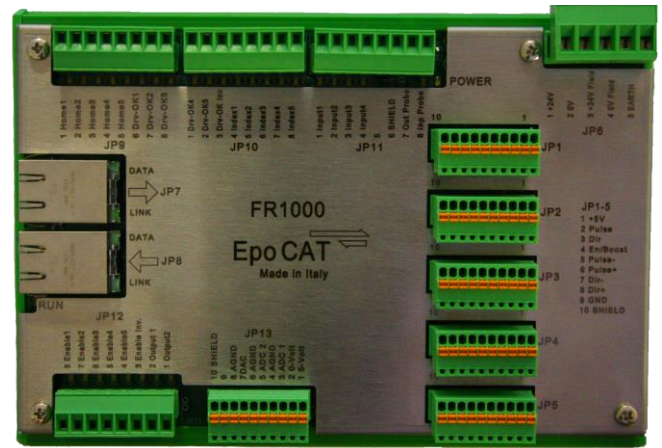
Features:

The EpoCAT FR4000 is a "slave" device to control in frequency / direction mode up to a maximum of 5 motors / drives, 1 analog output for inverter, 2 analog inputs, 20 digital inputs, 8 digital outputs.

The connection to the master is made with a RJ45 Ethernet cable Cat 5, the communication protocol is compatible to EtherCAT ®.

The maximum frequency in differential mode is 4MHz. This mode is ideal for the control of drives for brushless motors. The maximum frequency in "single-ended" is 250KHz. This mode is ideal for controlling stepper motor drives.

The EpoCAT FR4000 module allows the "MASTER" to interpolate motors / drives controlled in frequency, together, if necessary, to other motors / drives connected directly to the fieldbus EtherCAT ®.



5 Volt digital output signals

- 5-CH 5Volt for frequency signals pulse. 5-CH 5Volt for direction signals
The frequency and direction signals can be in:
 - 1 differential mode (4MHz)
 - 2 single ended positive mode (250KHz)
 - 3 single ended negative mode (250KHz)
- 5-CH 5Volt for enable/boost signals

24 Volt NPN digital output signals

- 5-CH DO 24Volt-200mA to enable motor servodrive
- 1-CH DO 24Volt-200mA to enable inverter servodrive
- 2-CH DO 24Volt-200mA for general output

All 8 output signals 24Volt can be use for general pourpose.

24 Volt active low digital input signals

- 5-CH DI 24Volt for motor drives OK
- 1-CH DI 24Volt for inverter drive OK
- 5-CH DI 24Volt for home microswitch
- 4-CH DI 24Volt for general pourpose
- 5-CH DI fast input for motor index (Z)

All 20 input signals 24Volt can be use for general pourpose.

Analog output signal

- 1-CH 12 bit analog-output +- 10Volt

Analog input signal

- 2-CH 12 bit analog-input 0+10Volt, input impedance 1Mohm, high precision for **measuring device**

5 Volt low power probe interface

- 1 source output 5V for **precision Switch**
- 1 receive low current, high speed signal from **precision Switch**

Sotfware tested

- LinuxCNC-RTAI-EtherLab
- AxesBrain -EtherCAT Master
- **EtherCAT®** Configurator
- **EtherCAT®** Conformance Test Tool (ET 9400 Ver 1.20.80)

Application examples

- CNC 5-axes also with RTCP solution
- CNC for laser cutting
- Measure equipment
- Motion control in automation applications
- Machines for special processes

A EtherCAT® solution for motors/drives controlled in frequency together other motors/drives

We can build a solution on the same field-bus with some **motors/drives controlled in frequency** by **EpoCAT FR4000** module, together a **motors / drives/ inverters controlled in speed/torque with analog reference** and **motors/drives directly connected to the EtherCAT®,** together with I / O and other devices.

Windows XP/Widows XPe/Windows 7

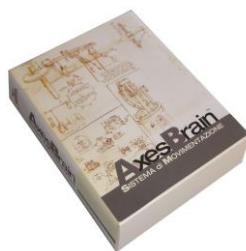
AxesBrain™ EtherCATMaster

Up to 64 axes, multiprocess CNC, multitask PLC

Linux

RTAI+EtherLAB+LinuxCNC

Up to 9 axes, 1 process CNC, 1 task PLC

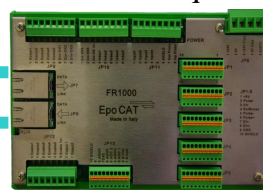


Ethernet LAN Port

EtherCAT®

1-5 Assi in frequenza

FR4000

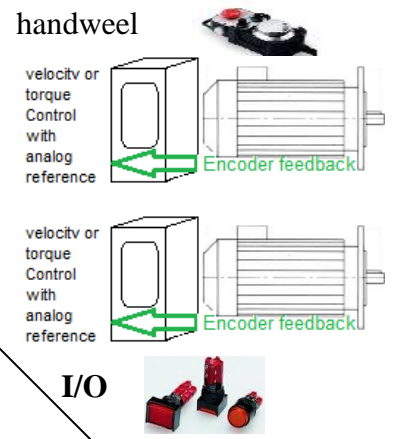
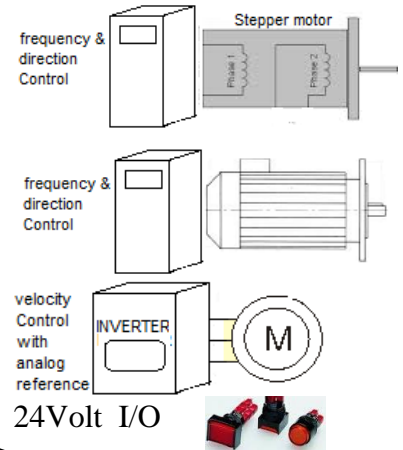


EpoCAT
Made in Italy

Third-Party :
Encoders, DAC e I/O
EtherCAT®



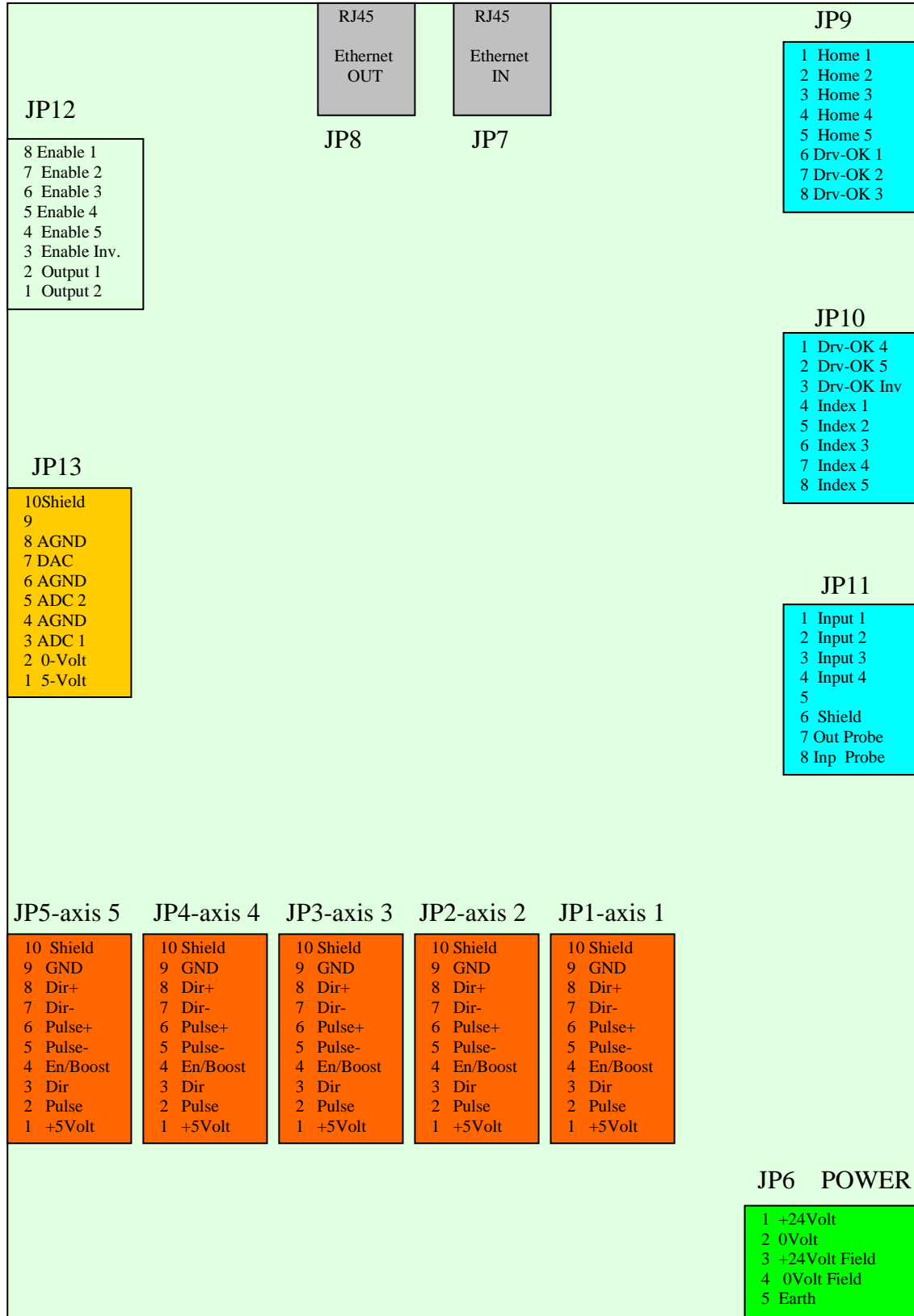
EtherCAT® communication protocol



Third-Party: servos drives EtherCAT®



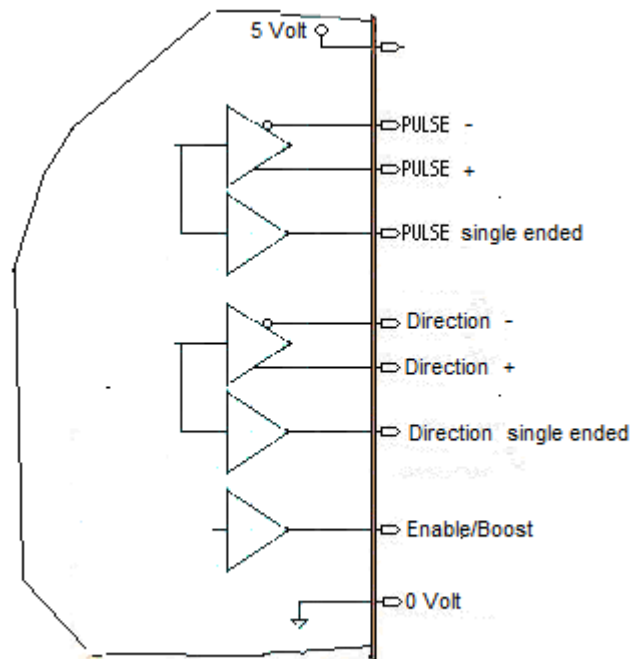
Signal configuration



Signal specifications

5 Volt digital output signals

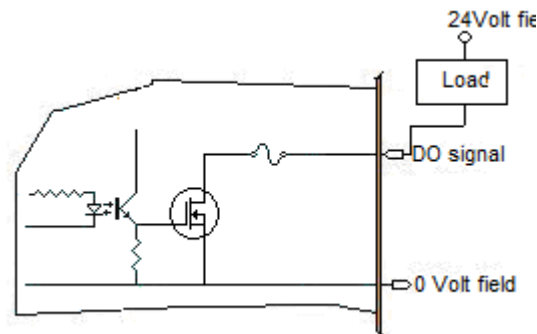
- 5-CH 5Volt for frequency signals pulse.
- 5-CH 5Volt for direction signals
The frequency and direction signals can be in:
 - 1 differential mode (4MHz)
 - 2 single ended positive mode (250KHz)
 - 3 single ended negative mode (250KHz)
- 5-CH 5Volt for enable/boost signals



24 Volt N-P-N Digital Output

8-CH DO 24Volt-200mA

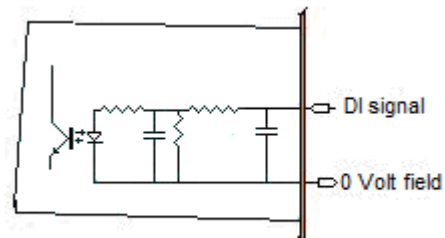
The signals are short circuit protected and are capable to drive resistive as well as inductive loads. They suitable to enable servodrive or for general poupose.



24 Volt active low Digital Input

15-CH DI active low Digital input

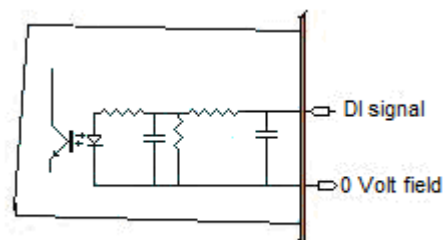
The signals are suitable for Drive OK from servodrive, Microswitch for axes homing or for general pourpose.



24 Volt active low Fast Digital Input with latch position functionality

5-CH DI active low Fast Digital input

The rising edge of these signals can be use to latch the position of the axes with high precision. They are also available for general pourpose.

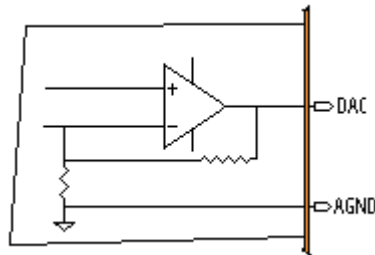


Analog output

1-CH Digital 12-bit D/A converter channel.

The output voltage range is -10 V to +10V.

The analog outputs is single ended with common ground AGND.



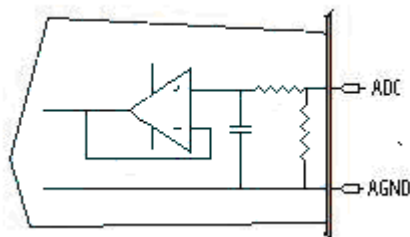
Analog input

2-CH Digital 12-bit A/D converter channels.

The input voltage range is 0 to 10 V .

The input impedance is 1Mohm .

The signals are suitable for several kinds of measuring device.



5 Volt low current probe interface

- 1 source output 5V for **precision Switch**
- 1 receive low current, high speed signal from **precision Switch**

The rising edge of this signal can be use to latch the position of the axes with high precision.

