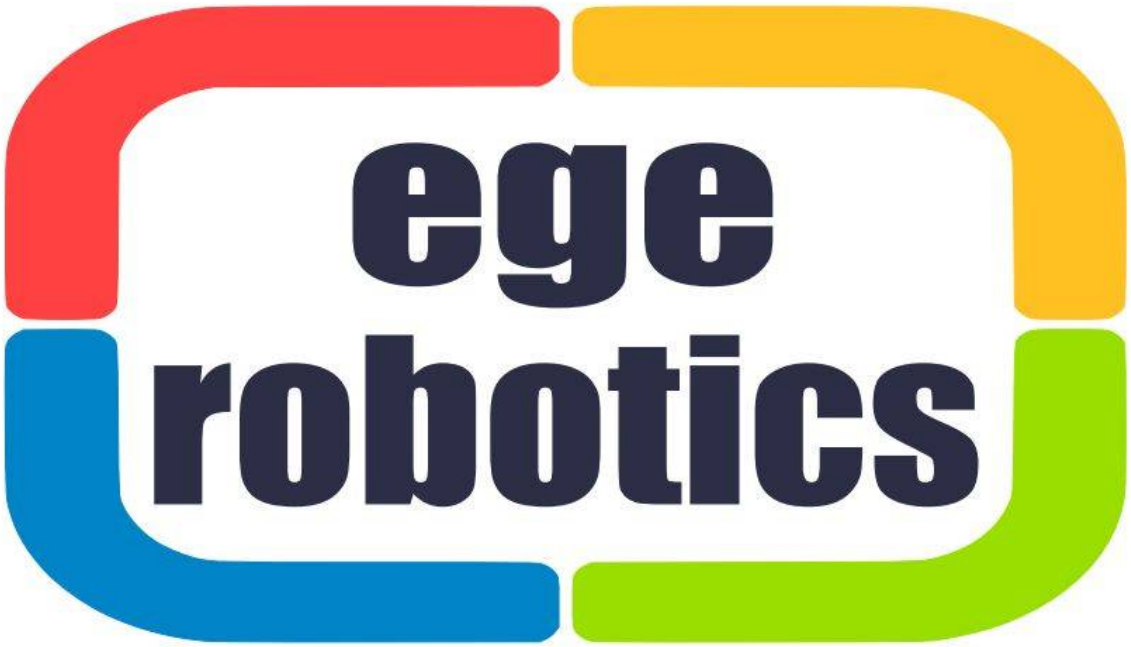

USER MANUAL

ETHERCAT RC SERVO MOTOR INTERFACE

DocumentHistory

Version	Date	Author	Comment
V1.0	17.08.2025	Emre Şensoy	First Release.

Contents

List of figures

1 - Product Overview

1-1 Dimensions

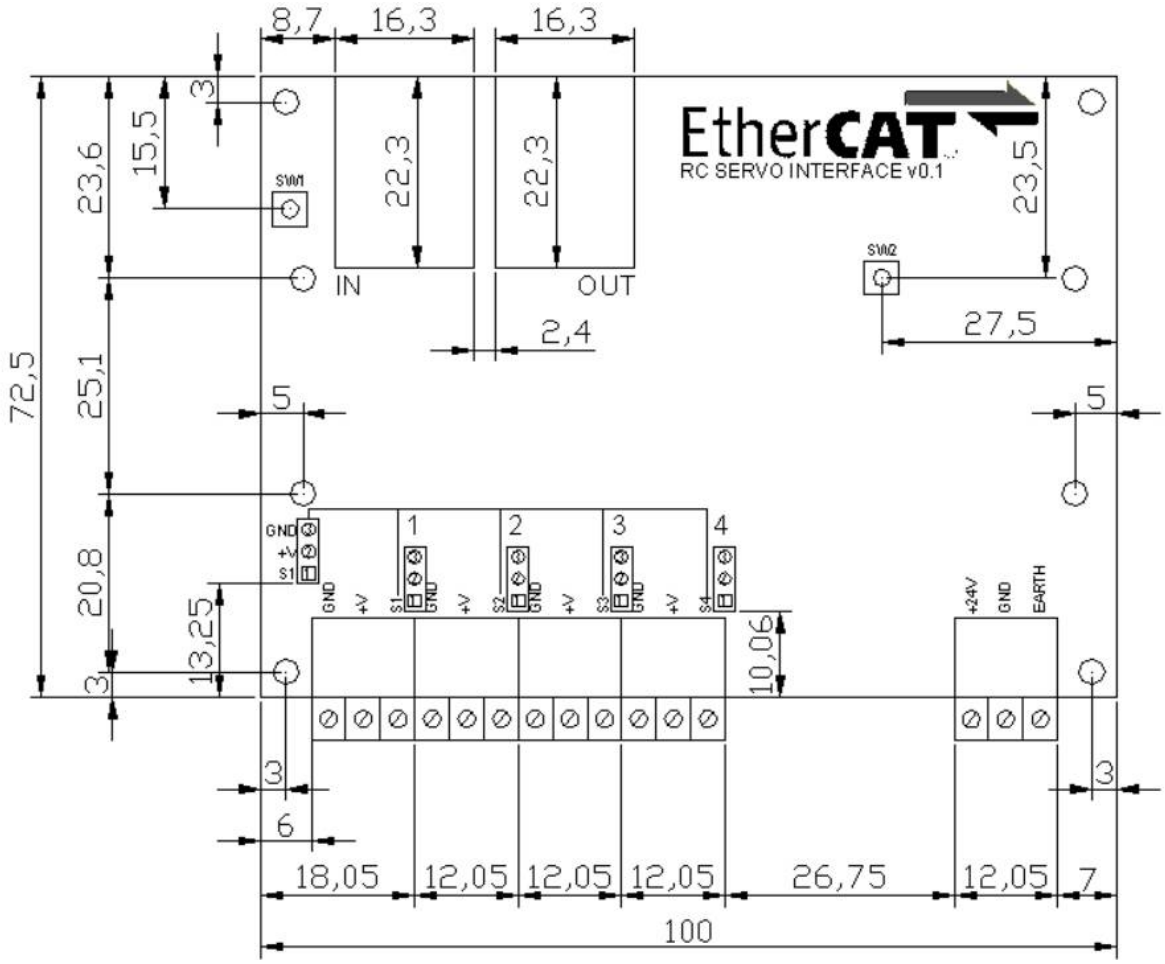

Figure1 Outline dimensions in mm (alltolerances : +-0.5mm)

1-2 Top view

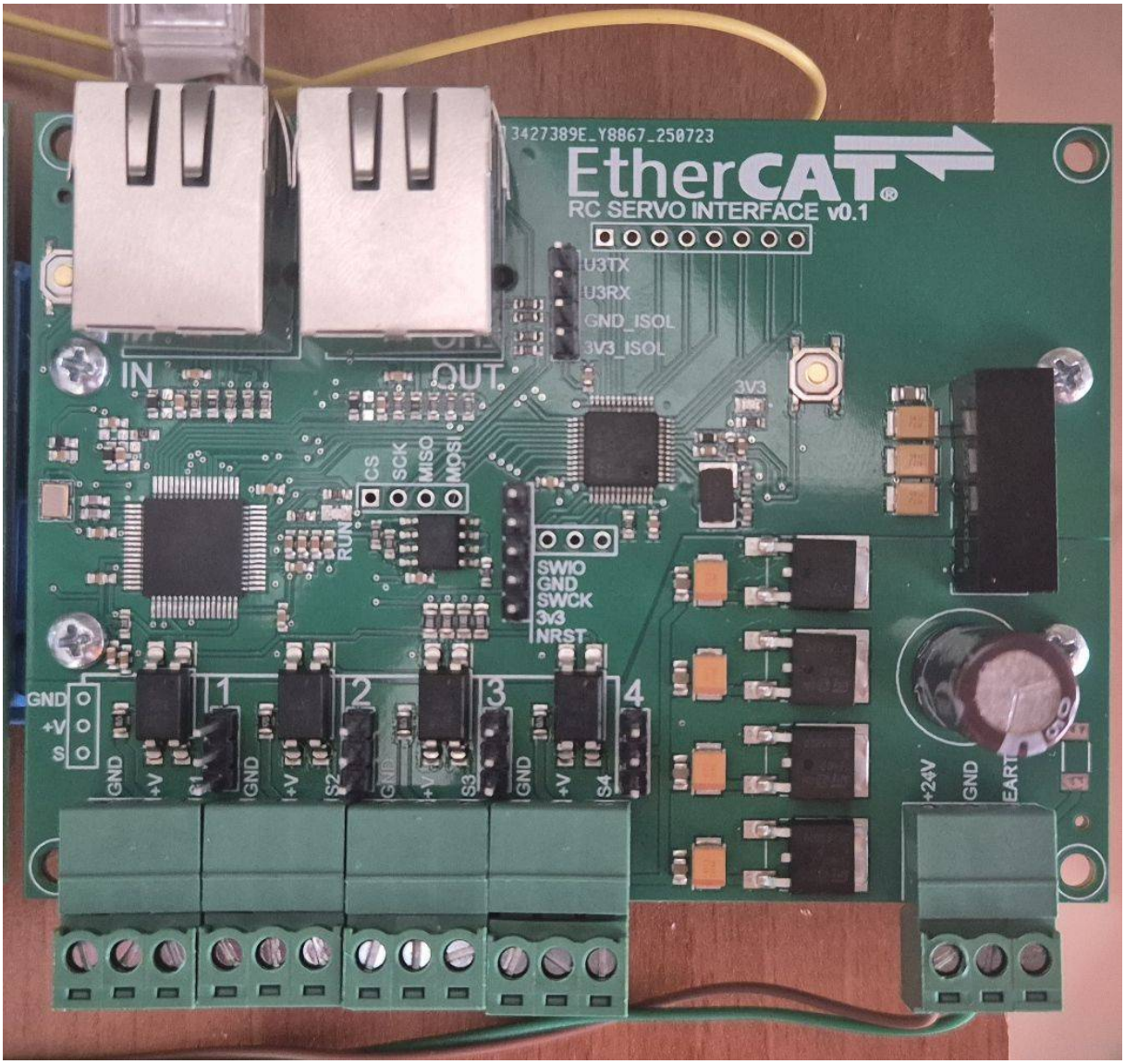

Figure 2 Top view of EtherCAT RC Servo Interface Interface

2 -Connections

2-1 IN & OUT ports

IN : A connection must be made to the IN port from the previous ethercat device. A standard Ethernet cable should be used.

OUT : If there is another EtherCAT device after this device, a connection must be made from the OUT port to the IN port of the other device. A standard Ethernet cable should be used.

2-1-1 Standart Ethernet Cable

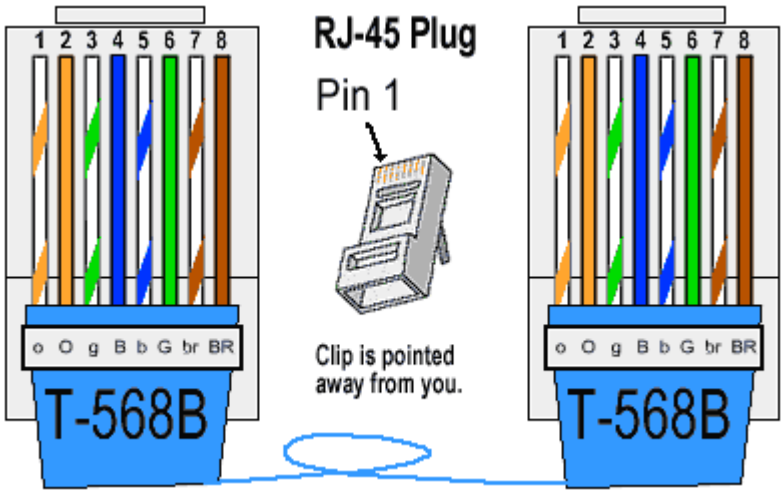

Figure 3 Standart ethernet cablepinout

2-2 4x RC SERVO MOTOR OUTPUTS

This board has 4 isolated digital transistor optocoupler output (S1, S2, S3, S4) (50mA) as shown in figure 4. Everyoptocoupler's 3. Pin collectedandconnectedtoOUT COM. MCU GND and board GND_24 is isolated. 5V GND and GND_24 is same.

Every S output pulled up via 4k7 resistor to 5V. If you need different voltage level of open collector output, please tie a 4k7 resistor to that voltage (ex : 24V).

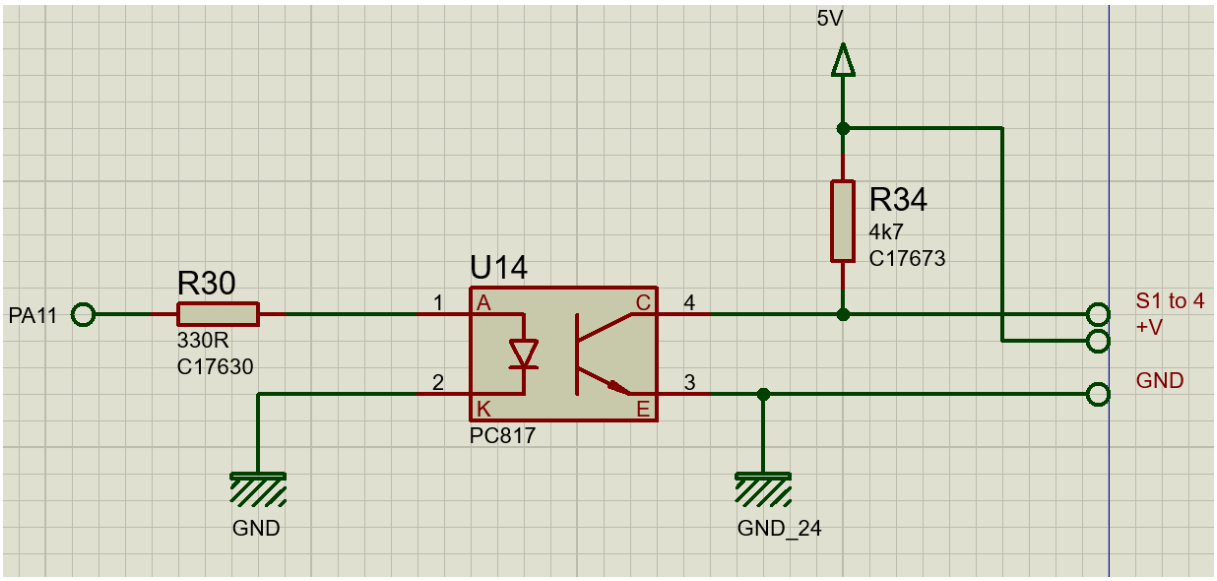

Figure 4 RC SERVO MOTOR OUTPUTS

2-3 4x 5V OUTPUTS

This IO board has 4 paralleled 24 to 5V output for RC Servo Motor's power supply. Every LM7805ABDT can supply 500mA, so you can draw 2A max at same time.

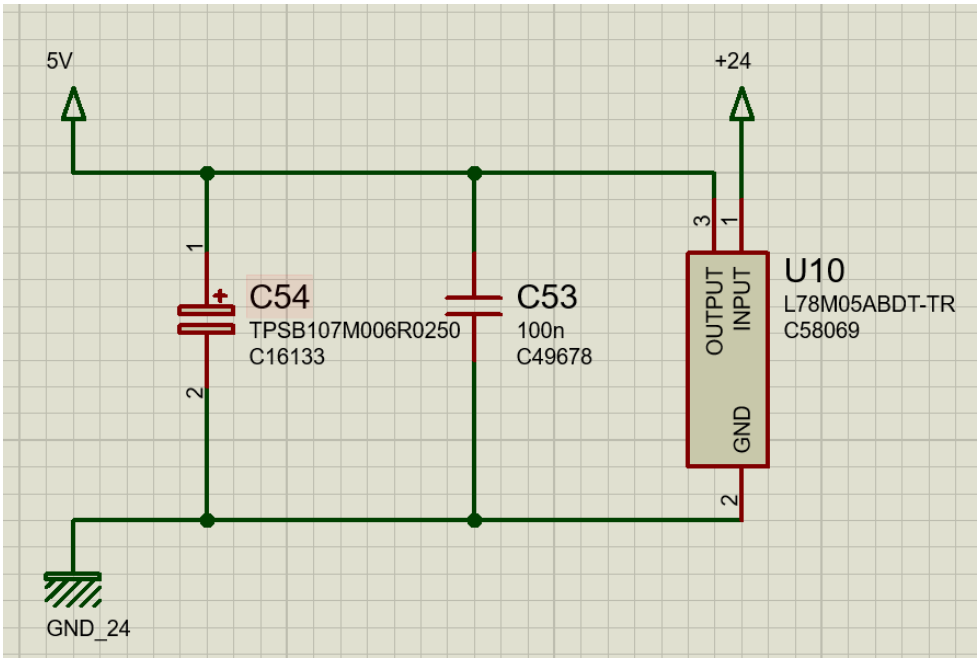

Figure 5 4x 5V outputs for RC Servo Motor Supply

2-4 24V SUPPLY INPUTS

Figure 6 24V Supply Connector

Board must supply with clean 24V DC 2A power supply. Left most connector is +24V, middle one is GND, and right most connector is boards earth ground pin.

3 TWINCAT INSTALLATION

Copy ER-RC_SERVO.xml file, provided by us, to TwinCAT\3.1\Config\Io\EtherCAT directory.

Make all connections. Run Twincat. Open or create a new Project and do a right click to Ethercat device and click to SCAN as in the screen shot.

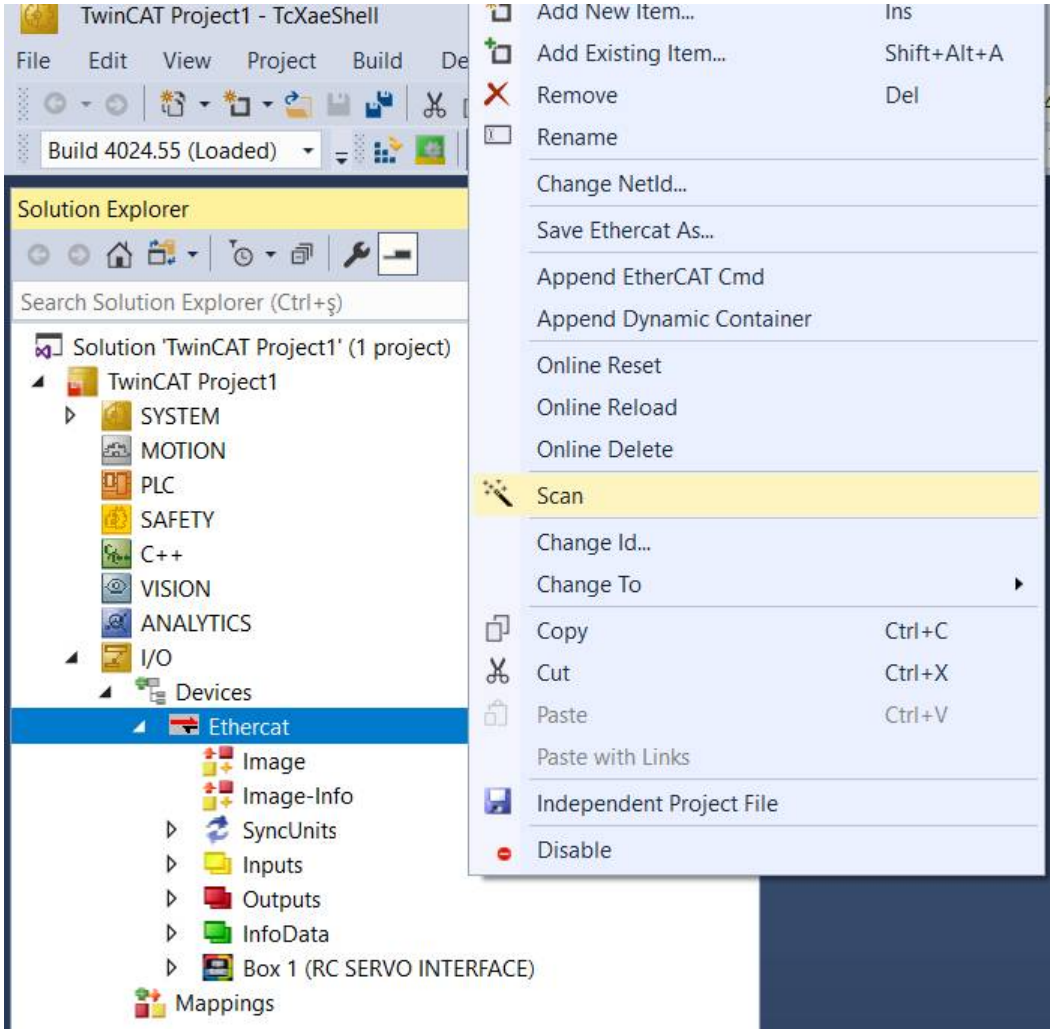

Figure 7 Twincat project tree screen shot

It will scan the network and add connected devices to tree. As you can see there is a BOX 1(RC SERVO INTERFACE).

Click on the right-pointing triangle to the left of BOX1. And you will see this screen.

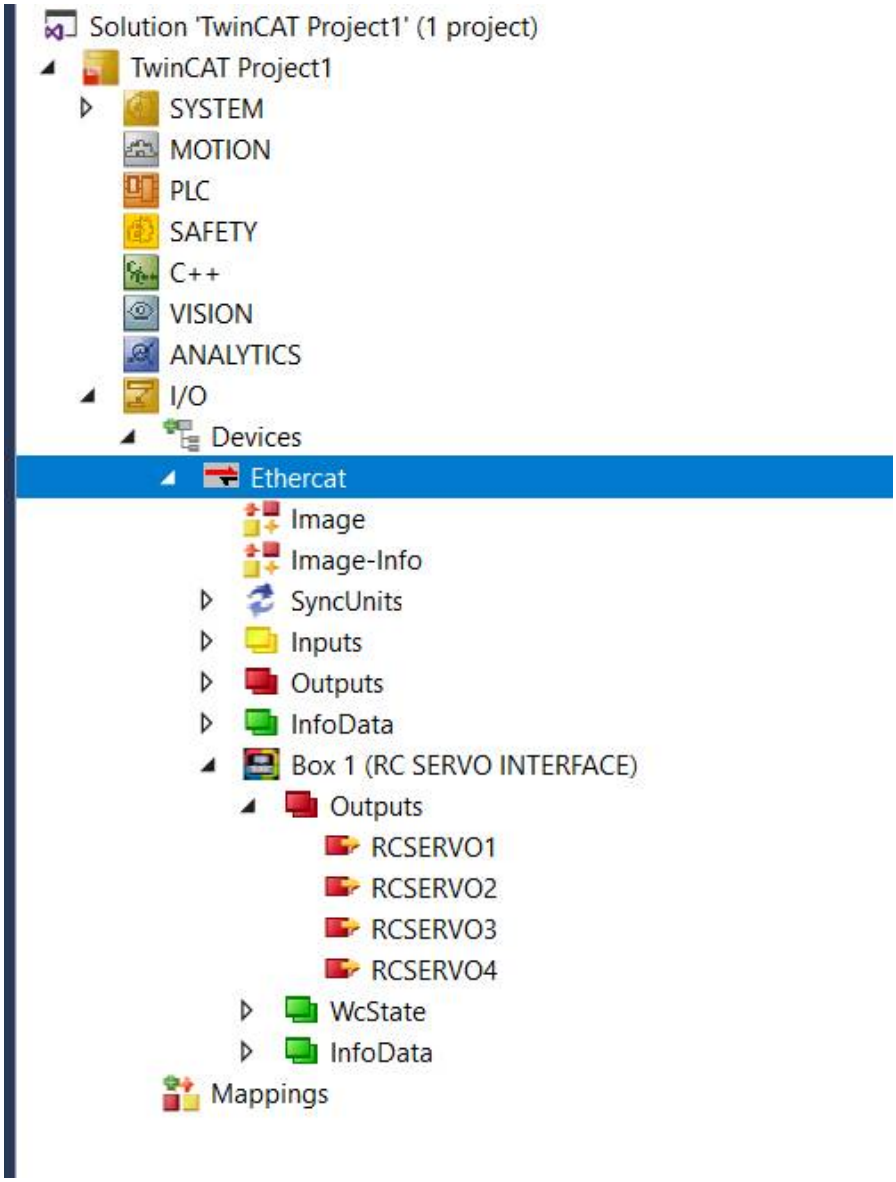

Figure 8 Twincat screenshot of Encoder Interface's Inputs & Outputs

3-1 OUTPUTS

Board has 4 RCSERVOx register to adjust output PWM duty. You can write values between 0 and 10000 for each register. You must write 1000 to RCSERVO1 register for %10 PWM duty on Channel 1. If you want %50 PWM duty you must write 5000. For %100 PWM duty you must write 10000.

Values between 250 and 1250 are meaningful for RC Servo Motors. Write 250 for left most position and 1250 for right most position of RC Servo Motor.

Every channels output frequency is 50 Hz.

4 MORE DETAILED VIDEO

https://www.youtube.com/watch?v=OpV4CmKYUdQ