

## 4.7 CONTROLLING TURNTABLES

This control panel allows the control of one or two turntables. Using two turntables it is possible to measure the loudspeaker response in three dimensions, i.e. the software can send commands to the turntables to aim the loudspeaker under test in a given direction.

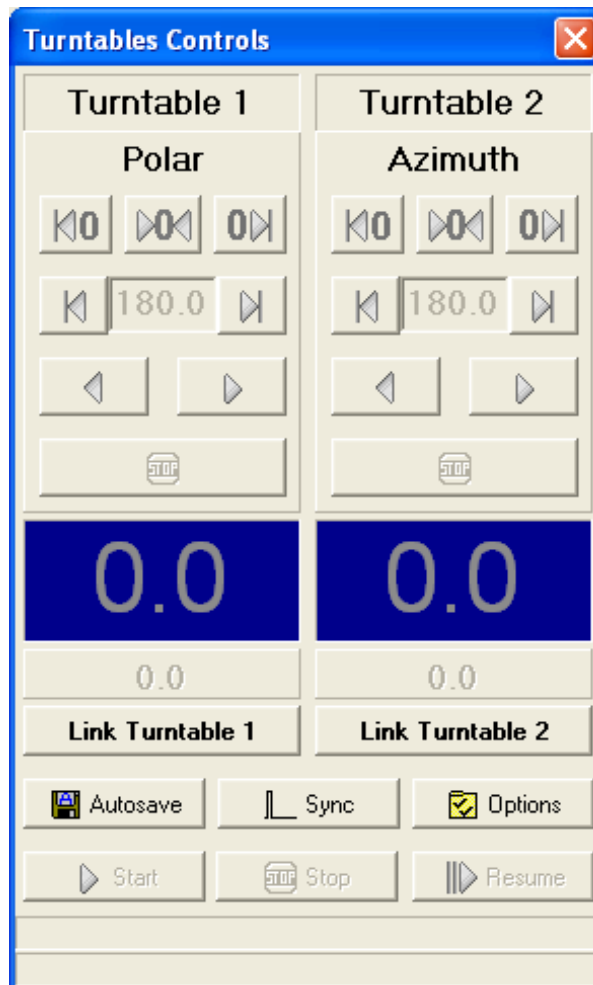










Fig.4.8 Turntables control panel

-  Reset turntable position to angle 0 by clockwise rotation (degrees up)
-  Reset turntable position to angle 0 by counterclockwise rotation (degrees down)
-  Set turntable reference angle (0 degrees)
-  Goto angle by clockwise rotation (degrees up)
-  Goto angle by counterclockwise rotation (degrees down)
-  Step angle by clockwise rotation (degrees up), note that the step size is a turntable setting that cannot be accessed from CLIO
-  Step angle by counterclockwise rotation (degrees down)
-  Stop the turntable rotation

**Link Turntable 1**


and

**Link Turntable 2**


connect turntables and link the turntable positions to the measurements



Displays turntable current angle (top) and next angle (bottom), while the turntable is rotating the bottom background is highlighted in red.

 Autosave Open the Autosave Settings dialog

 Sync Reset turntable angles according to Autosave Settings

 Options Open the Turntables Option dialog

 Start Start an MLS Autosave measurement set

 Stop Halt an MLS Autosave measurement set

 Continue Resume an MLS Autosave measurement set

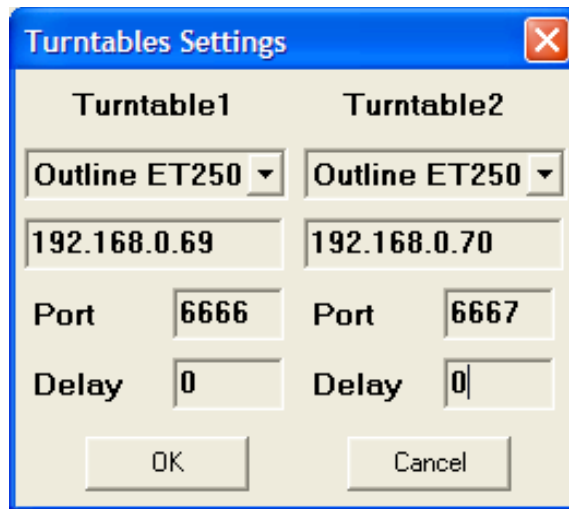
#### 4.7.1 TURNTABLES OPTIONS DIALOG

With this dialog it is possible to choose which model of turntable to use for each rotating axis (polar and azimuth). The software can take full control of the Outline ET250-3D and the LinearX LT360 turntables. It support also (limited to the polar rotation) a TTL pulse control using the PC parallel port which can be used to trigger the Outline ET/ST turntable or any other device.

Using the combo box it is possible to choose which turntable model to use for the polar and azimuth angles (for a definition of polar and azimuth angles please refer to chapter 12).

## Outline ET250-3D

The Outline ET250-3D uses an ethernet connection, please refer to the manufacturer documentation to setup the device. In the option dialog it is necessary to input the **turntable IP** and **TCP/IP port**.



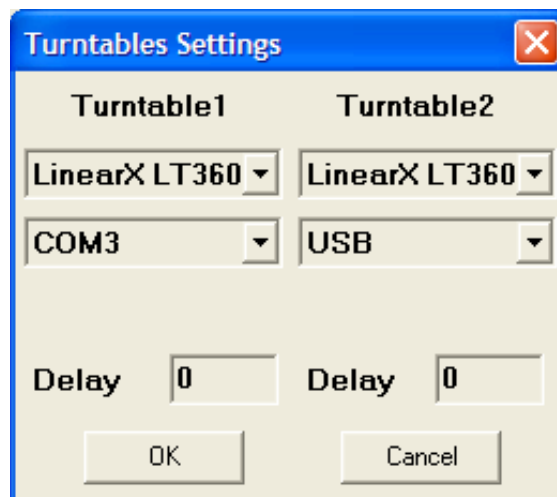
The screenshot shows a dialog box titled "Turntables Settings" with a close button (X) in the top right corner. It is divided into two columns: "Turntable1" and "Turntable2".

Turntable1		Turntable2	
Model	Outline ET250	Model	Outline ET250
IP	192.168.0.69	IP	192.168.0.70
Port	6666	Port	6667
Delay	0	Delay	0
OK		Cancel	

**Note:** In order to work properly the basert.dll must be present into the CLIO installation directory.

## LinearX LT360

The LinearX LT360 turntable uses an USB or COM connection, please refer to the manufacturer documentation to the setup of the device. In the option dialog it is needed to input the **communication port** to be used.



The screenshot shows a dialog box titled "Turntables Settings" with a close button (X) in the top right corner. It is divided into two columns: "Turntable1" and "Turntable2".

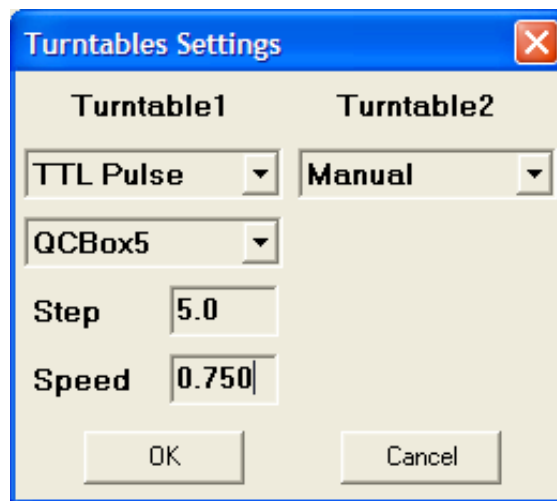
Turntable1		Turntable2	
Model	LinearX LT360	Model	LinearX LT360
Port	COM3	Port	USB
Delay	0	Delay	0
OK		Cancel	

**Note:** In order to work properly the lt360lib.dll must be present into the CLIO installation directory.

The **delay** parameter (in milliseconds) put the software in a wait state after the completion of the turntable rotation, this can be useful in a non anechoic space to let the energy in the room to decay between measurements.

## TTL pulse control

Selecting TTL pulse it is possible to control a turntable using a TTL signal from the PC parallel port. **This is valid only for the polar angle and with this selection it is not possible to use two turntables.**



The TTL pulse control uses the PC parallel port or the output port of a QC Box model V.

The information given here apply to the control of the **Outline ET/ST Turntable**; they can be adapted to any other device.

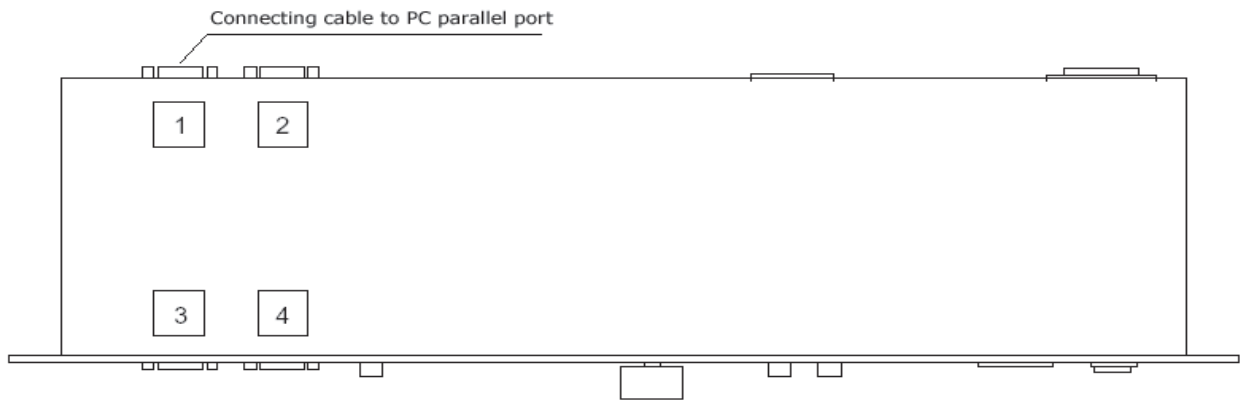
The control is achieved with **Bit 7** of the **parallel port output** bits, as shown in Fig.4.6. The turntable should be connected to the parallel port of the computer by means of a cable defined as follows:

```
PC side DB25 male                ET/ST side DB9 male
Pin 9  <-----> Pin 2
Pin 22 <-----> Pin 4
All other pins unconnected
```

With the **QCBox5** selected the control is achieved with **Bit 0** of the QC Box output port, the turntable should be connected to the QC Box V output port by means of a cable defined as follows:

```
QCBox5 side DB25 male            ET/ST side DB9 male
Pin 1  <-----> Pin 2
Pin 14 <-----> Pin 4
All other pins unconnected
```

The cable should be connected as in the following figure.



*Fig.4.9 Outline ET/ST Turntable connections*

Inside the Turntable Option panel it is possible to set its **Resolution** (in degrees) and **Speed** (in rotations per minute); the combination of these settings give the software an indication about how much time to wait after the controlling pulse is output.

### **Manual**

For the azimuth angle only is it possible to choose the Manual turntable. This means that the azimuth rotation of the loudspeaker under test must be managed manually. Instead of automatically move the turntable the software display a popup message to the operator and wait for the completion of the manual rotation.

Please refer to chapter 12 for further information on polar measurement sets.