

1 Synchronisation between Awinda Station and Cometa Wave EMG

The steps described below show how to configure the Xsens Awinda Station to send an output trigger signal (Sync Out) to the Cometa Wave EMG system and to configure the Cometa Wave EMG system to send a trigger pulse to the Xsens Awinda Station to synchronise start and stop recordings.

1.1 Sync hardware options on the Xsens Awinda Station



Figure 1: Xsens Awinda Station showing the four BNC connections for synchronisation purposes

The Xsens Awinda Station has four BNC connectors, with two Sync IN and two Sync OUT possibilities. These hardware connections are shown in Figure 1.

1.1.1 Sync IN

The Sync IN ports are for a third party device to send a signal to the Awinda Station. The Awinda station can detect polarity changes on the input lines. When a trigger is detected on one of the input lines, the Awinda station can be configured to perform a specific action.

1.1.2 Sync OUT

Sync OUT enables the Xsens system to send a trigger pulse via the Awinda Station, from MT Manager to third party hardware. As with Sync IN, a combination of events are possible, based on a number of parameters.

1.1.3 Pulse polarity

A trigger may be a rising or falling edge as illustrated in Figure 2 below.

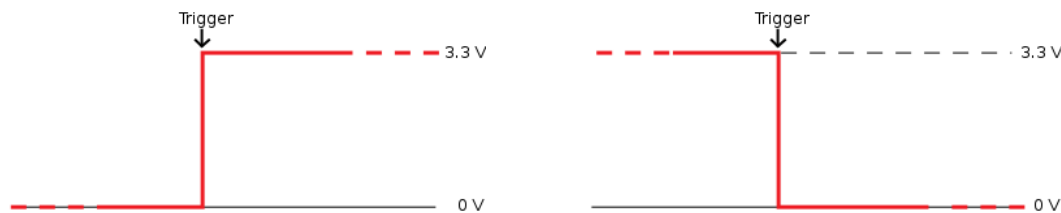


Figure 2: Polarity: Rising / falling edge (Sync IN) or positive / negative pulse (Sync OUT)



2 Sync OUT: Awinda Station

2.1.1 Hardware requirements:

Wave Hardware	Xsens Hardware
<ul style="list-style-type: none">Cometa Wave EMG system	<ul style="list-style-type: none">MTw(s),Awinda Station

An easy solution in this case is to use a cable with two BNC coax connectors at each end, and a BNC to Jack convertor for connecting the BNC to the Cometa hardware.

2.2 Awinda Station Sends Sync Signal (Wave Receives Sync Signal)

2.2.1 Software Setup: MT Manager

Sync Out	
<ul style="list-style-type: none">Select Start RecordingCheck the box for Line 1Polarity: Positive PulseTrigger Once: UncheckSkip first = 0Skip factor = 0Pulse width = 10 ms	<ul style="list-style-type: none">Select Stop RecordingCheck the box for Line 1Polarity: Negative PulseTrigger Once: UncheckSkip First = 0Skip Factor = 0Pulse width = 10 ms

Set up the wireless configuration in MT Manager.

2.2.2 Software Setup: Cometa Wave Software:

- Wave EMG system
- Trigger-In Options: Enable
- Active High: Enable

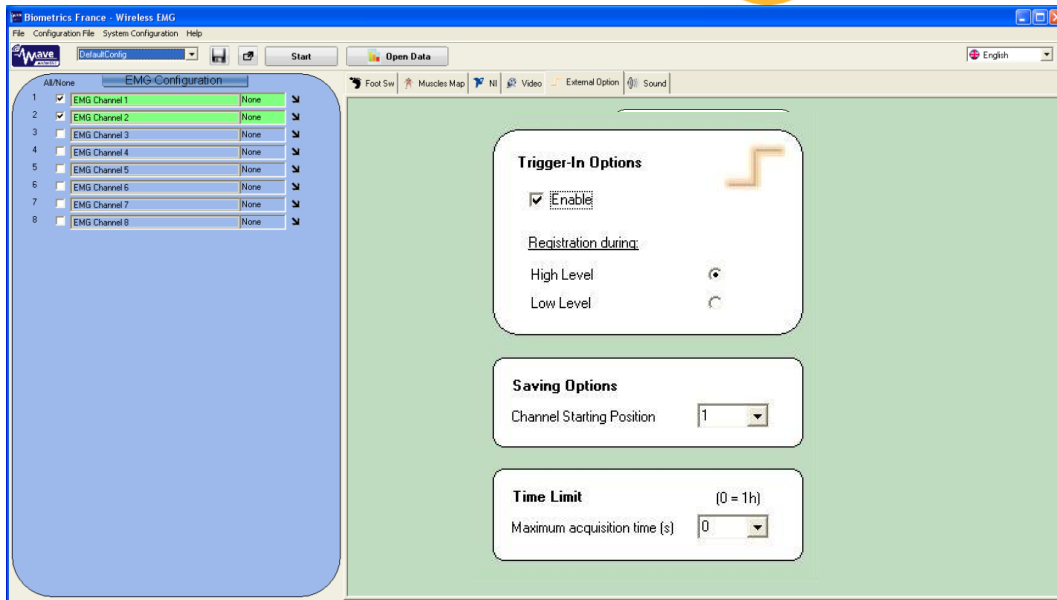


Figure 3: Screenshot of Cometa Wave EMG software settings

Each time the record button in MT Manager is clicked, a recording in both systems will start or stop.

2.3 Sync IN: Awinda Station

2.3.1 Hardware requirements

The hardware requirements are exactly the same as described above.

Wave Hardware	Xsens Hardware
<ul style="list-style-type: none"> Cometa Wave EMG system 	<ul style="list-style-type: none"> MTw(s), Awinda Station

An easy solution in this case is to use a cable with two BNC coax connectors at each end, and a BNC to Jack convertor for connecting the BNC to the Cometa hardware.

2.3.2 Software Setup: MT Manager

Sync In	
<ul style="list-style-type: none"> Select Start Recording Check the check box for Line 1 Polarity: Rising and Falling Edge Trigger Once: Uncheck Skip first = 0 Skip factor = 1 	<ul style="list-style-type: none"> Select Stop Recording Check the check box for Line 1 Polarity: Rising and Falling Edge Trigger Once: Uncheck Skip First = 1 Skip Factor = 1

- Set up the wireless configuration in MT Manager.

- To initialise the recording in MT Manager, click the Record button. The normal red dot icon will change to a pause symbol, indicating that the MT Manger is waiting for an external pulse.



Figure 4: Record button in MT Manager. a) before clicking b) after clicking, with sync-in activated.

2.3.3 Software Setup: Cometa Wave Software

Simply recording in Cometa Wave EMG will generate an active high in both systems, so no additional settings are needed in Wave software.