

1 Synchronising Xsens MTw system with Vicon Nexus

The steps described below show how to configure the Xsens MTw system to trigger a recording in Vicon Nexus, using the Xsens Awinda Station, and MT Manager, a recording can be triggered in Vicon Nexus using the Vicon MX hardware.

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.

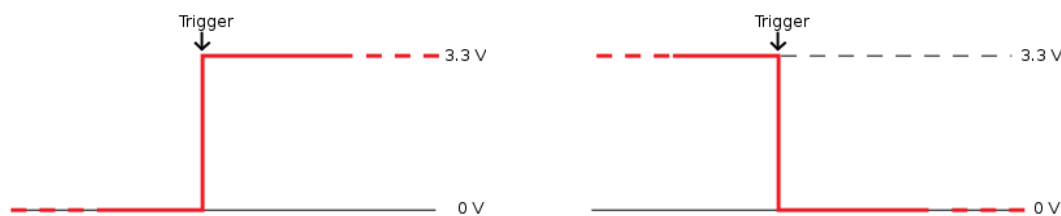




Figure 2: Polarity: Rising / falling edge (Sync IN) or positive / negative pulse (Sync OUT)

1.2 Hardware requirements:

Vicon Hardware	Xsens Hardware
<ul style="list-style-type: none"> Vicon system (Vicon MX hardware) 15-pin D-Sub connector to BNC 	<ul style="list-style-type: none"> MTw(s), Awinda Station BNC connection to Vicon's D-Sub 

It is necessary to create a synchronization cable with a 15-pin D-Sub connector and one or more BNC connectors on the other end. The pin descriptions can be found in the Vicon MX user manual.

To permit the software instructions described below, ensure that the following hardware connections are made:

- Connect Pin 4 (Start remote control) to Awinda Sync Out 1
- Connect Pin 11 (Stop remote control) to Awinda Sync Out 2

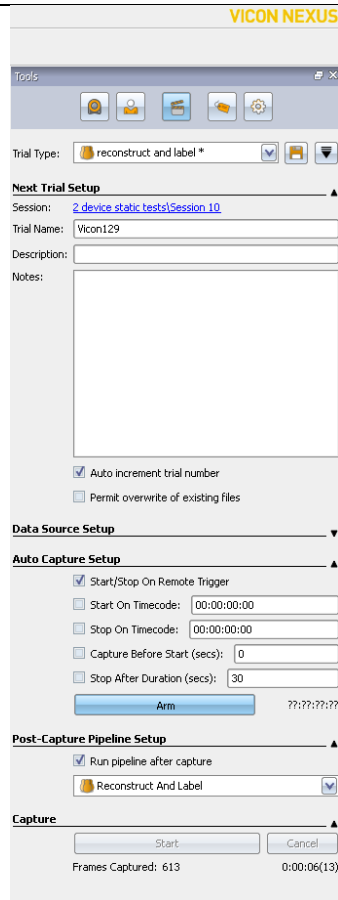
1.3 Software Setup: MT Manager

Sync Out	
<ul style="list-style-type: none"> Select Start Recording Check the check box for Line 1 Polarity: Negative Pulse Trigger Once: Uncheck Skip first = 0 Skip factor = 0 Pulse width = 10 ms 	<ul style="list-style-type: none"> Select Stop Recording Check the check box for Line 2 Polarity: Negative Pulse Trigger Once: Uncheck Skip First = 0 Skip Factor = 0 Pulse width = 10 ms

Set up the wireless configuration in MT Manager.

1.4 Software Setup: Vicon Nexus Software

- Open Auto Capture Setup
- Activate Start/Stop On Remote Trigger
- Click “Arm”



The screenshot displays the Vicon Nexus software interface. At the top, the title bar reads "VICON NEXUS". Below it, a "Tools" menu is visible with icons for Home, Recent, Capture, Settings, and Help. The main window shows the "Trial Type" set to "reconstruct and label". Under "Next Trial Setup", the "Session" is "2.device static tests\Session 10", "Trial Name" is "Vicon129", and "Description" and "Notes" fields are empty. There are checkboxes for "Auto increment trial number" (checked) and "Permit overwrite of existing files" (unchecked). The "Data Source Setup" section is collapsed. The "Auto Capture Setup" section is expanded, showing a checked "Start/Stop On Remote Trigger" checkbox. Below it are input fields for "Start On Timecode" (00:00:00:00), "Stop On Timecode" (00:00:00:00), "Capture Before Start (secs)" (0), and "Stop After Duration (secs)" (30). A blue "Arm" button is present, with a status indicator "???:??:???" to its right. The "Post-Capture Pipeline Setup" section is expanded, showing a checked "Run pipeline after capture" checkbox and a dropdown menu set to "Reconstruct And Label". The "Capture" section at the bottom has "Start" and "Cancel" buttons, and a status bar showing "Frames Captured: 613" and a timer "0:00:06(13)".

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

Note: the first start/stop recording in MT Manager is not recognized in Vicon Nexus.

The second start recording will trigger the recording of the Vicon Nexus software.