

# GPI/TALLY INTERFACE FOR AUTOMATIC LIP SYNC CORRECTION WITH PRODUCTION SWITCHERS & DVES

# DG-1200



## The Problem

Today's production switchers are often equipped with internal digital video effects processors to produce "over the shoulder", "double box" and other multi-source effects. These effects add one or more frames of delay to the video resulting in a lip sync error. By itself, this lip sync error may or may not be noticeable. However, when cascaded with other lip sync errors that accumulate from the original acquisition point to the viewer, the end result can often be objectionable.

## The Solution

The DG-1200 interprets GPI and/or Tally outputs that are programmed in the effects memory of the switcher. The video delay through the switcher depends on the effects in use and is usually predictable. Therefore, the DG-1200 can be configured to generate the required steering commands to

control up to five audio synchronizers and automatically eliminate the lip sync errors.

Up to twelve inputs from the switcher can control any one of the five output timers. Each output timer can have a different time delay and can be turned on and off independently. Inputs can be configured to respond to Tally only, GPIs only, or Tally gated by GPIs for immunity to false delay insertion.

## Pre-Delayed Audio Application

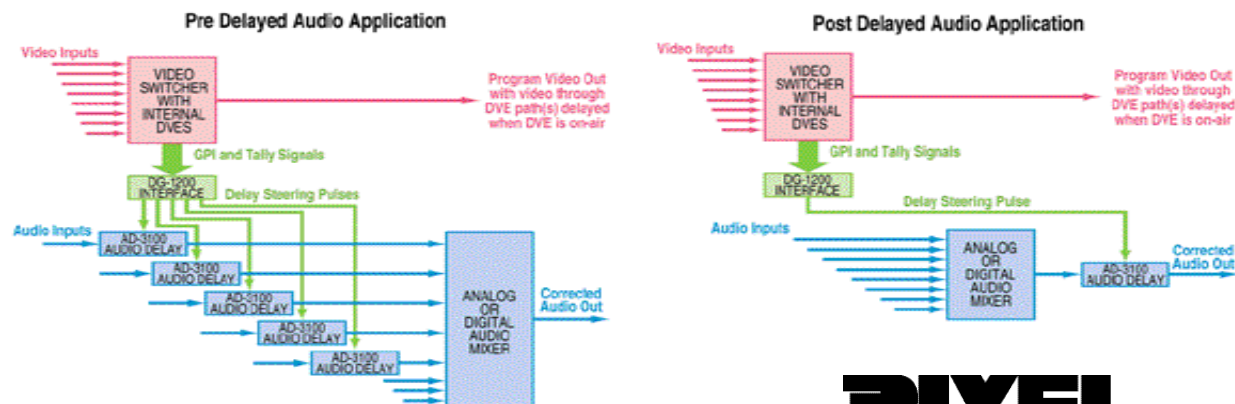
The most comprehensive solution is to add AD-3100 Audio Synchronizers ahead of the audio mixer. This configuration ensures that all sources contributing to the program output have the correct lip sync.

For applications that require more than 5 audio inputs to be delayed, this solution is scalable with additional DG-1200s and AD-3100s.

## Post-Delayed Audio Application

In this simpler configuration, a single AD-3100 Audio Synchronizer is added at the output of the Audio Mixer. The amount of delay added to the audio path is chosen as a compromise for the sources contributing to the program output in any given effect.

For example, in a typical over the shoulder shot, the studio anchor has zero video delay and the remote reporter (in the box) has 1 frame of video delay. Setting the AD-3100 delay to between 0.5 and 1 frame is generally the best compromise for both sources. The studio anchor's audio will be slightly late and the remote reporter's audio slightly early. The residual lip sync errors are reduced compared to doing nothing at all.



**Rapid Delay Change  
With Pitch Correction**

The video delay of the DVE may be switched in and out of the program path several times in a relatively short time. Therefore, it is essential that the audio delay "catch up" quickly. The AD-3100

incorporates automatic pitch correction to allow rapid delay change without introducing pitch shifts, clicks or pops in the output. The AD-3100 can change delay at a rate of up to 25% and "catch

up" to the video in just a few frames – well before the viewer will notice. Conventional audio synchronizers on the other hand, with a rate of 0.5% or less, may take many seconds to "catch up".

**SPECIFICATIONS**

**Inputs**

All inputs are on terminal strips. 12 input channels each consisting of: Tally Input; Tally Enable On (GPI trigger); Tally Enable Off (GPI Trigger). Each input can be selected for High=True or Low=True and has a user adjustable delay time associated with it. Each input channel can be set to operate with Tally only, GPI Start and Stop triggers only, or Tally gated by GPI Start and Stop triggers. Any input channel can be selected to control any timer output.

**Outputs**

5 independent timers provide TTL level steering pulses on BNC connectors (75Ω source impedance) to control the delay of compatible audio synchronizers such as the AD-3100. The range of delay is from 20 μsec (nominally zero delay) up to 6.5 seconds in 100 μsec increments. Values can be entered and displayed in seconds, NTSC fields or PAL fields.

**Power**

External wall mount supply 110-120 VAC, 60 Hz  
or 220-240 VAC, 50 Hz  
Consumption 25W at 12 VDC

**Mechanical**

Dimensions 19" x 1.75" x 9.2" (WHD)  
(48.3 cm x 4.5 cm x 23.4 cm)  
Weight 3.5 lb (1.6 kg)

**Remote Control**

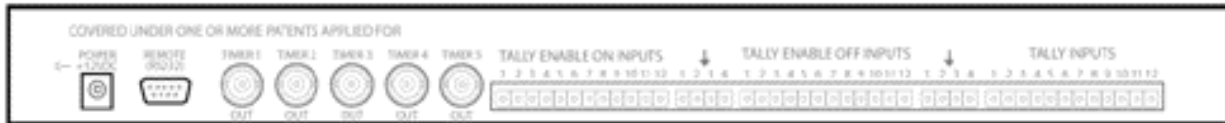
Not Used

**Environmental**

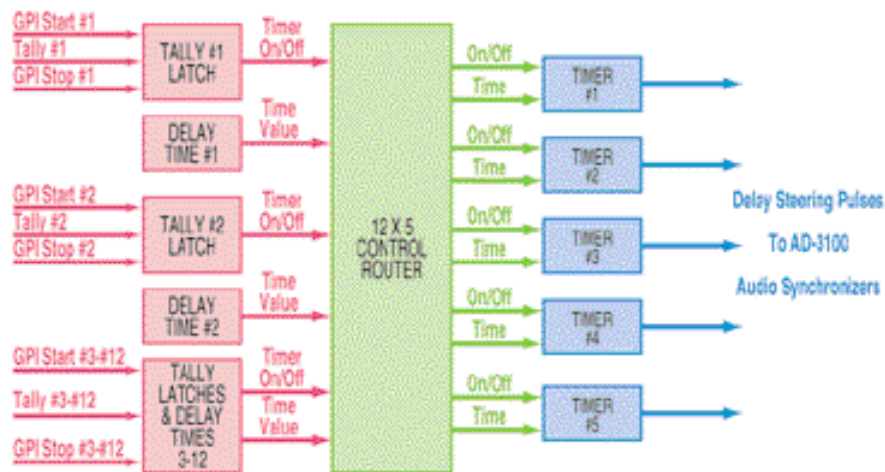
Operating temperature 0° C to 45° C  
Storage temperature -25° C to 75° C  
Humidity: 10% to 95%, non-condensing

*Features and specifications are subject to change without notice.*

DG-1200 Rear Panel



DG-1200 Functional Diagram



Pixel Instruments Corp.  
160 Albright Way, Suite B  
Los Gatos, CA 95032-1822

Phone: (408) 871-1975  
Fax: (408) 8871-1976  
Email: info@pixelinstruments.tv  
Website: www.pixelinstruments.tv

