

# Machine Vision Timing Controller

## **Sensor, Camera and Reject Gate Timing**

Complete Working Solution

Saves Days of Design Time

Encoder Compatible

Integrates with GigE™ Systems



Now there is an easy and complete working solution for accurate timing of component sensing, camera triggering and reject gates. Timing can be based on precise delays or on exact conveyor belt travel using an encoder. This controller will save days of engineers' effort, solving all the following time consuming problems often faced with machine vision systems:

- **Delay from product sensor to camera trigger**
- **Delay from pass/fail result to reject gate**
- **Synchronising multiple cameras to trigger at different times**
- **Resynchronise the product result to the original trigger time**
- **Tracking product position on a belt that stops, reverses or has varying speed**
- **Handle multiple products with overlapping results**
- **Handling fast encoder pulses**
- **Producing timing with microsecond accuracy**

### **Camera Trigger Timing**

A sensor detects that a product is present. After a delay, based on time or belt distance, a camera is triggered. Multiple cameras can be triggered at different times. The width of the trigger signal can be used for controlling the camera exposure time.

### **Reject Gate Timing**

A pass/fail reject signal is received. After a delay an output fires a reject gate. Using an encoder, it is possible to ensure that the reject gate is open for the whole time the product is at the reject position.

### **Resynchronise Result**

Image processing generally takes a variable time to complete. If the reject gate is timed from the completion of image processing, then the gate timing will vary. The solution is when the pass/fail result is obtained, the timing for the reject is synchronised back to the original component present sensor.

### **Remote Digital Input and Output**

With the increasing use of GigE™ (Ethernet) cameras, image processing software can be running on PC which is remote from the vision system. The timing of Ethernet messages can vary. The Timing Controller allows all the local digital signals to be accurately controlled by the remote PC.





## Encoder Distance or Timed Output

Some systems have fixed-speed mechanics and the time from the camera trigger to the reject gate is well known. For other systems, an encoder may be used to determine belt movement. This has the advantage that the belt can be stopped or can even run backwards (maybe to clear a blockage in another part of the system) and the reject timing will still be preserved.

Three types of encoder input are supported. One wire systems have distance information only, two wire systems have distance and belt direction information, three wire systems also have an index pulse for position information.

## Three Ways to Configure

The controllers with an Ethernet connection can also be set up from a Web Browser, which displays HTML pages allowing status to be viewed and parameters to be changed. Alternatively, simple string commands can be sent from an application program using TCP/IP or UDP. The Gardasoft Vision website [www.gardasoft.com](http://www.gardasoft.com) has a free download of a demonstration program (with fully commented source).

Other controllers can be configured using the front panel display and buttons. This is a very popular and easy to use interface which has been proven on many of Gardasoft's products.

Configuration is stored in non-volatile memory.

## Specification

	CC220	CC320
Digital Inputs	4	8
Digital Outputs	4	8
Configuration Interface	Ethernet - TCP/IP or web browser	Ethernet - TCP/IP or web browser or pushbutton and display.
Digital Input Format	Opto input, compatible with 5V to 24V signals, TTL drivers, open collector transistors	
Digital Output Format	Open collector transistors, switches up to 24V output. Also compatible with TTL and opto inputs.	
Supply voltage	Regulated 12V to 24V.	
Dimensions (excluding DIN rail fixing)	77mm by 49mm by 24mm	146mm by 49mm by 24mm
Weight	140g	200g
Mounting	DIN rail or panel mounting.	

Other Timing Controller and LED Lighting Controller products are available. For further information see [www.gardasoft.com](http://www.gardasoft.com).

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