CC320 Machine Timing Controller

Optimised Vision System sequencing & control

When combining lighting, cameras, proximity sensors and encoders to generate an automated solution, the CC320 Trigger Timing Controller is the single component for fast affordable integration.

- Complete working solution
- Save days of project design time
- Encoder compatible
- Integrates with GigE™ Systems

Sensor, Camera and Reject Gate timing

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 saves days of engineering effort, solving 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 to 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 operates on a remote PC. Timing of Ethernet messages can vary and the CC320 Timing Controller allows local digital signals to be accurately controlled by the remote PC.

Three ways to configure

The CC320 contains a Web Server allowing the devices to be controlled by image processing software on a remote PC. Another option is a configuration program for the CC320 so that all parameters can be configured from a PC. The Gardasoft website, www.gardasoft.com, has a free download of a configuration program (with fully commented source). Alternatively, simple string commands can be sent from an application program using TCP/IP or UDP.

The configuration is stored in non-volatile memory.

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.

Two types of encoder input are supported. One wire systems have distance information only. Two wire systems have distance and belt direction information.

SPECIFICATIONS

Parameter	CC320 specifications
Digital inputs	8
Digital outputs	8
Configuration interface	Ethernet – TCP/IP or web browser or pushbutton and display
Digital input format	Common cathode opto input 5V to 24V at 3mA to 20mA
Digital output format	Open collector, switching 24V and 20mA
Supply voltage	Regulated 12V to 24V
Dimensions (excluding DIN rail fixing)	146mm by 49mm by 24mm
Weight	200g
Mounting	DIN rail or panel mounting

Other Gardasoft Lighting Controllers are available to cover all applications. See www.gardasoft.com