

# TR-RC120 LED Lighting Controllers

Triniti technology for easy and precise Machine Vision illumination

The Gardasoft TR-RC120 is a single channel LED Controller with triniti™ technology providing easy, precise control of LED lighting for Machine Vision applications. It includes the power regulation, intensity control, timing and triggering functions required for the highest performance vision systems.

Utilising Gardasoft's SafePower™, SafeSense™ and Triniti™ patented technology, the TR-RC120 is an entry level to industry's most powerful LED Lighting Controllers.

- Single channel LED control
- Compatible with triniti Intelligent lighting platform
- GigE Vision compliant
- Pulsing up to 2A
- Continuous output to 1.25A
- 25 W maximum output
- Pulse timing to 100us



## TR-RC120 LED LIGHTING CONTROLLERS

### Unique flexibility with SafePower™

Single channel LED controller with SafePower™ which allows much greater flexibility in the DC power supply used. The advantages of SafePower™ are that thermal dissipation is minimised and the output voltage is not limited to the supply voltage.

### No Heatsinking required

SafePower™ supply removes the need to mount the controller onto a heat-sink, making the installation process much simpler and easier. SafePower™ automatically minimises the heat generated for continuous, pulsed and switched operation.

### Voltage Step-up

SafePower™ removes the usual restriction on the output voltage. It will step-up the output voltage as needed to drive or Overdrive the lighting, up to a limit of 32V.

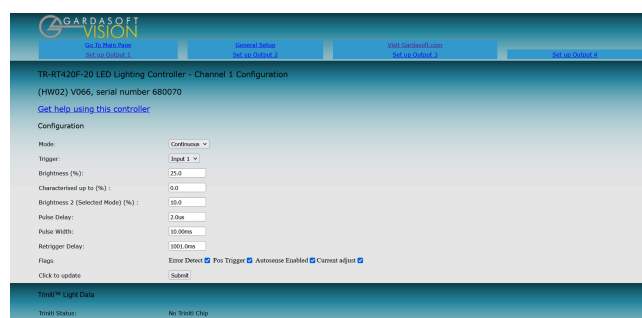
SafePower™ works automatically without needing any configuration or user input. For example, the RC range can run from 24VDC, regardless of the lighting connected, heat generation or Overdriving required.

### Extra LED Brightness

Patented SafeSense™ technology creates a safe working environment for overdriving LED lights. Driving the LEDs with a highly accurate current source allows for very precise Overdriving, and SafeSense™ ensures that the pulse width and duty cycle are kept within safe working limits. The end result is that much more light is gained from the LED lighting for your machine vision application.

### Miniature Web Server

The Ethernet option within the TR-RC120 controller enables the device to act as a miniature Web Server and can be controlled by image processing software on a remote PC. With the introduction of GigE cameras, the Machine Vision market is moving towards Ethernet - with the inherent Ethernet advantages of high speed, long distance, standardisation worldwide, and inexpensive implementation.



DATA SHEET  
TR-RC120

[www.gardasoft.com](http://www.gardasoft.com)



## Software and configuration

### Triniti™ as standard (GigE Vision integration)

The TR-RC120 controller is GigE Vision compliant and is part of the Gardasoft Triniti machine vision platform; this enables expert control, operational intelligence and full integration of machine vision lighting - within a 'plug and play' environment.

### Vision timing utilities

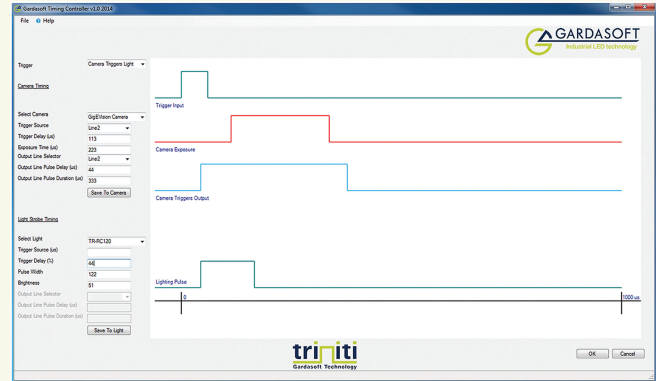
Triniti application utilities are available for many of the leading image processing software packages such as as Cognex VisionPro, National Instruments LabVIEW, Teledyne Dalsa Sherlock and Stemmer Imaging CVB.

### Triniti SDK

For OEM implementations, applications can be written in any .NET language, including C#, VB and C++, giving full access to all Triniti light and control data.

### Configuration options

TR-RC120 controllers have options to be configured via 100base-T Ethernet or RS232. With the Ethernet options, a Web browser can be used to access the TR-RC120 controllers' internal Web pages allowing status to be viewed and parameters to be changed.



The TR-RC120 can also be configured using simple string commands sent from within its application program using RS232, TCP/IP or UDP, and the Triniti SDK (which is a free download from the Gardasoft website). The configuration is stored in non-volatile memory providing turnkey operation.



## SPECIFICATIONS – TR-RC SERIES

PARAMETER	TR-RC120
USER INTERFACE	Ethernet and Pushbutton/Display
OUTPUT CHANNEL	One constant current output with SafeSense™ and SafePower™
OUTPUT CURRENT (continuous)	Up to 1.2A continuous or 2.0A pulsed
OUTPUT POWER	Max 25W
TRIGGER INPUT	One Smart input compatible with 3V-24V, TTL, NPN, and PNP Input impedance (nominal): 8Kohm
PULSE TIMING	From 100µs to 100ms in steps of 100µs
DELAY FROM TRIGGER TO PULSE	From 2µs to 100ms in steps of 100µs
TIMING REPEATABILITY (DELAY)	± 5µs (Delay + Pulse up to 60ms) Otherwise ± 50µs
TIMING REPEATABILITY (PULSE WIDTH)	±0.1µs (Delay + Pulse up to 1ms) ±5µs (Delay + Pulse from > 1ms to 60ms) Otherwise ±50µs
SWITCH MODE LATENCY	Maximum 100µs
TRIGGER RATE	Maximum 100Hz
OUTPUT VOLTAGE	0V to 32V
TRINITI INTERFACE	Gardasoft 4-wire Triniti lighting interface (LED+, LED-, TRIN+, TRIN-)
TRINITI COMMUNICATIONS INTERFACE	GigE Vision V2.0, GeniCam, UDP/TCP, Third party protocols
SUPPLY VOLTAGE	Regulated 24V DC (±10%). A SELV power supply is required
DIMENSIONS	101mm long by 35mm wide by 120mm high
WEIGHT	175g
MOUNTING	DIN rail mount
OPERATING TEMPERATURE	5 to 50°C
HUMIDITY	Up to 95% non-condensing

1. Reduced output power for long pulse widths. 2. This is the minimum incremental adjustment that may be applied to pulse width or trigger delay settings. 3. Maximum power output (lighting power) is de-rated linearly in this supply voltage range with 50% output power at 10.8V to full power at 21.6V.

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