

# Trigger Converter Module

## Manual

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## 1 Functionality Overview

The trigger converter module is intended for simultaneously triggering a pattern projector and a stereo camera or stereo camera pair. It is intended for use with the EFFI-Lase V2 projector and Nerian's Karmin2 or Karmin3 stereo cameras, or two separate Basler or FLIR cameras. In a typical setup, the trigger source is Nerian's SceneScan or SceneScan Pro system, but using a different trigger source is possible if needed.

The converter module connects to the trigger source (SceneScan) and forwards the trigger signal unmodified to the stereo camera or stereo camera pair. The trigger signal is also sent to the projector after a voltage conversion and inversion.

In addition to the trigger conversion, the converter module supplies the projector with power. A 24V power supply is included in Nerian's projector bundle.

## 2 General Specifications

<b>Dimensions</b>	50 × 40 × 25 mm without connectors and mounting points
<b>Weight</b>	65 g
<b>Power supply</b>	24 V DC
<b>Input trigger</b>	3.3 V, active high
<b>Projector output trigger</b>	24 V (VCC), active low

## 3 Dimensions and Mounting Holes

The dimensions of the trigger converter module are shown in Figure 1. The figure also includes the spacing of the available mounting holes. All measurements are provided in millimeters.

## 4 Connecting to SceneScan and Projector

In a typical configuration, the trigger converter module should be connected as follows

- The power port should be connected to the included 24V power supply.
- The trigger input port shall be connected to the trigger output port of SceneScan / SceneScan Pro, or an equivalent trigger source.
- The trigger output port shall be connected to the stereo camera or stereo camera pair.
- The projector port shall be connected to the EFFI-Lase V2 projector.

#### 4. CONNECTING TO SCENESCAN AND PROJECTOR

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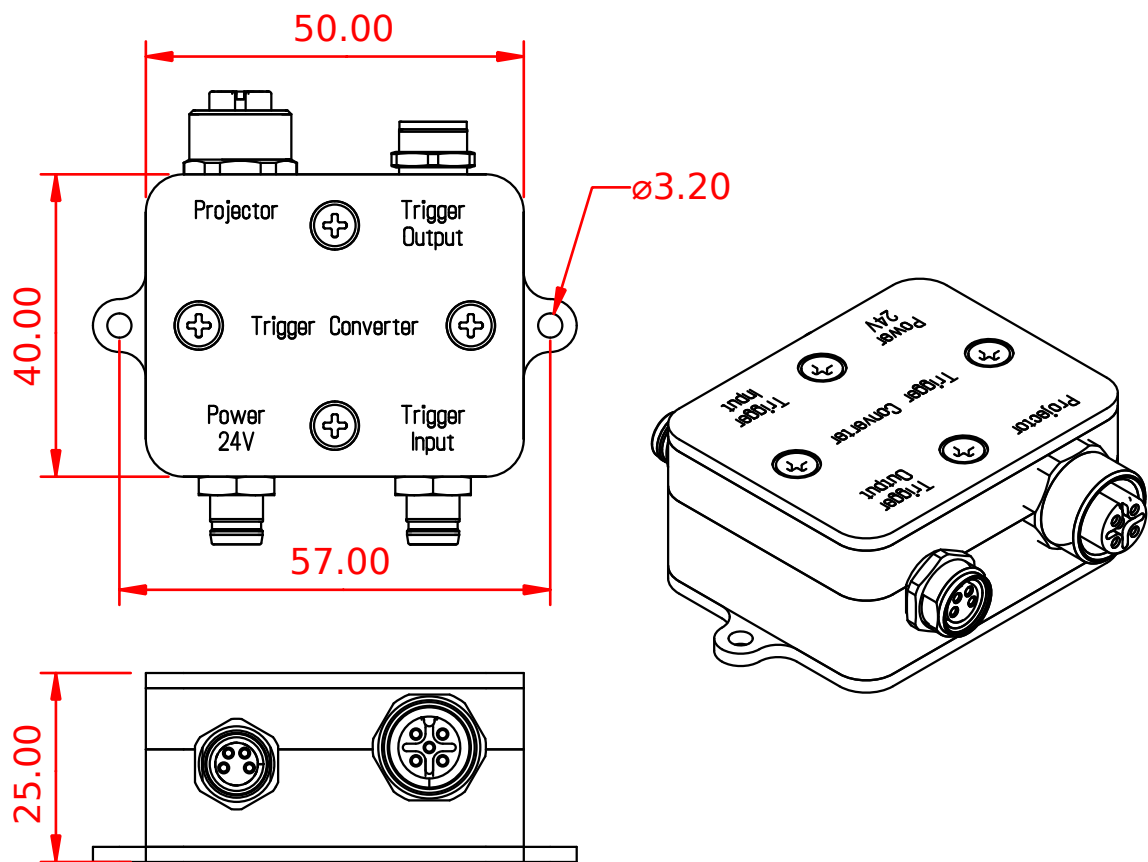


Figure 1: Dimensions and mounting holes. All measurements are provided in millimeters.

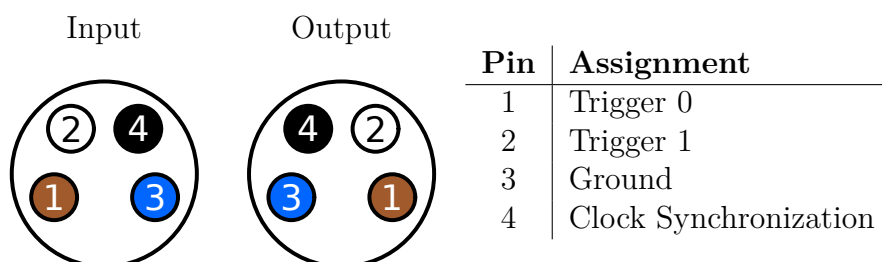


Figure 2: Pin assignment of trigger input and output connector.

## 5 Trigger Input Port

The trigger input port uses a male 4 pin Binder 718/768 series connector. This connector matches the female trigger connector on SceneScan and SceneScan Pro.

The following manufacturer part numbers correspond to matching connectors that are recommended when manufacturing custom trigger cables. As Binder manufactures many variations of this connector, the list is not exhaustive and other connector models might be preferred for specific needs.

<b>99 3376 00 04</b>	Matching connector with solder termination, not shielded.
<b>99 3362 00 04</b>	Matching connector with solder termination for 3.5 - 5 mm <sup>2</sup> cable cross section, shielded.
<b>99 3362 25 04</b>	Matching connector with solder termination for 2 - 3.5 mm <sup>2</sup> cable cross section, shielded.
<b>79 3382 52 04</b>	Matching connector with cable, 2m.
<b>79 3382 55 04</b>	Matching connector with cable, 5m.

The pin assignment of the input trigger port is shown on the left of Figure 2. The clock synchronization pin is not used and only passed through to the trigger output. The converter module only reacts to one trigger line. By default, this is Trigger 1, but if required Trigger 0 can be selected (see Section 9).

## 6 Trigger Output Port

The pin assignment of the output trigger port is shown on the right of Figure 2. The trigger output port uses a female 4 pin Binder 718/768 series connector, which matches the trigger output connector on SceneScan. All signals from the input trigger connector are directly connected to the output trigger connector.

The following manufacturer part numbers correspond to matching connectors that are recommended when manufacturing custom trigger cables. As Binder manufactures many variations of this connector, the list is not exhaustive and other connector models might be preferred for specific needs:

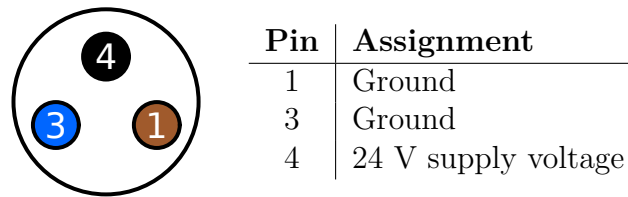


Figure 3: Pin assignment of power connector.

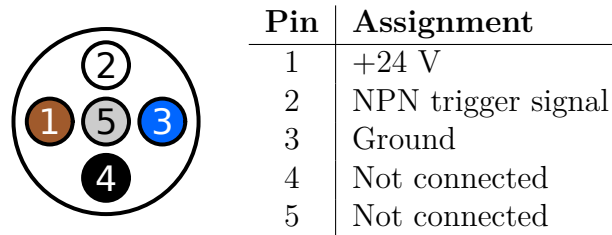


Figure 4: Pin assignment of projector connector.

- 99 3383 00 04** Matching connector with solder termination, not shielded.
- 99 3363 00 04** Matching connector with solder termination, shielded.
- 79 3381 52 04** Matching connector with cable, 2m.
- 79 3381 55 04** Matching connector with cable, 5m.

## 7 Power Supply Port

The power connector uses a male 3 pin Binder 718/768 series connector. The pin assignment is shown in Figure 3. The following manufacturer part numbers correspond to matching connectors, and should be used for custom power supplies:

- 99 3400 00 03** Matching connector with solder termination.
- 99 3400 100 03** Matching connector with screw termination.
- 99 3400 550 03** Matching connector with cutting clamps termination.

## 8 Projector Port

The projector port uses a female 5-pin Binder 713 series connector. This connector mates with the connector on the EFFI-Lase V2 projector. Through this connector the projector is supplied with power and the converted trigger signal. The pin assignment is shown in Figure 4.

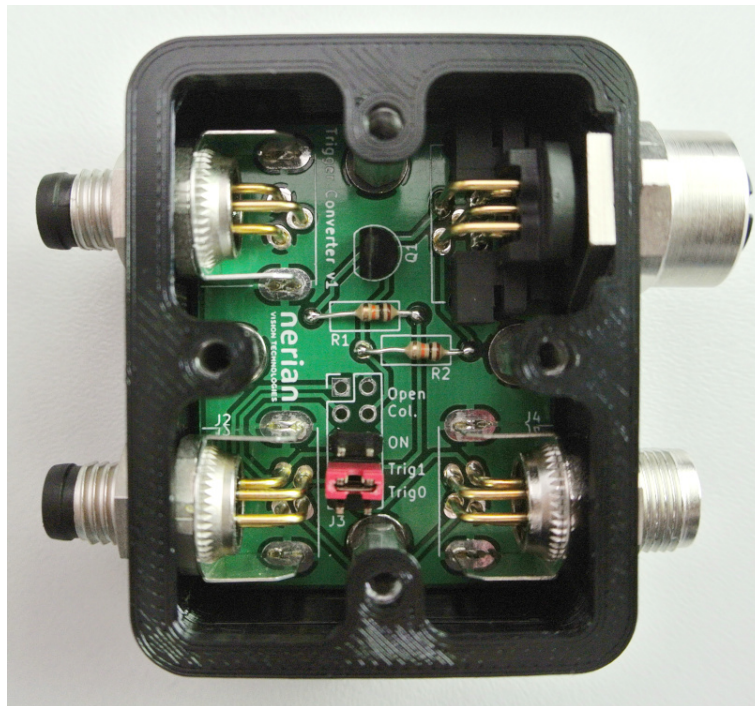


Figure 5: Trigger converter with removed top cover.

## 9 Trigger Signal Selection

By default, the projector forwards trigger signal 1 to the projector. If desired, trigger signal 0 can be forwarded instead, or the projector can be set to a constant on state. To change the configuration, a jumper inside the module needs to be set. **The module must be disconnected from power when changing the jumper setting. Otherwise damages to the module or to the attached devices might occur!**

In order to change the setting, please unscrew the top cover from the module. Figure 5 shows the module without the top cover. Close to the trigger input port there is a jumper with three possible positions for constant on (*ON*), trigger signal 1 (*Trig1*) and trigger signal 0 (*Trig0*). Please move the jumper to the desired position.

There are also two jumper positions that are normally not populated. These positions are intended for use with open-collector signals and should not be used with SceneScan.

## 10 Support

If you require support or if you have other inquiries that are related to this product, please contact:

## *11. WARRANTY INFORMATION*

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## **11 Warranty Information**

The device is provided with a 2-year warranty according to German federal law (BGB). Warranty is lost if the housing is opened by others than official Nerian Vision Technologies service staff. In case of warranty please contact our support staff.



## **Revision History**

<b>Revision</b>	<b>Date</b>	<b>Author(s)</b>	<b>Description</b>
v1.0	July, 2020	KS	Initial revision