Sperantus
Make data speak to you

pack® &trace edge

Assembly Guide

Updated to September 23 2024

For more information and the latest version go to www.packandtrace.tech/help

Table of Contents

Introduction

This guide is designed to assist you in the installation of the various hardware components that make Pack&Trace Edge an integrated and secure system.

It also serves as an indispensable resource for maintenance staff, providing essential diagrams and materials regarding the installation and configuration of the system. This will help improve production line operations and serve as an effective source of knowledge and support for troubleshooting common maintenance issues.

While this guide serves as a foundation, remember that our dedicated Sperantus team is ready to provide additional assistance whenever you need it. Contact us through our support email at support@packandtrace.tech .

Hardware Components

13.3-inch Industrial Touch Computer

Pack&Trace Edge version

- All versions

Specifications and General Information

- Architecture: x64-based system
- Processor: Intel i5-1135G7
- RAM: 8GB
- Screen: 1366x768, 10-finger capacitive touch.
- Storage: mSATA 256GB SSD
- Mounting: VESA
- Power supply: Input AC 100-260V 1.6A / Output: DC 12V 7.5A.

High-speed Barcode and Digimarc Scanner

Pack&Trace Edge version

- OCR+, Validator only, Barcode

Specifications and General Information

High-speed DataLogic Camera Matrix 220 322-01A STD[1]

- IP65, IP67
- Connected directly to the PC and the Control Box.
- Configured to read UPC, QR and Digimarc.
- Programmed to read top and bottom labels on a single shot.

Matrix Control Box CBX100

- IP65 (NEMA 4)
- Connected to the Camera and power supply.
- Power supply: Input AC 120V / Output: DC 10-30V.

DataLogic Trigger Sensor

- Connected to the Camera Control Box.
- It has the transmitter on the cable side, and the receiver on the LED side.
- The operating distance when using the provided reflector ranges from 3.9 inches to 6.56 feet. However, please note that reflecting tape does not function effectively in this setup.
- The trigger can be set up both vertically and horizontally. However, for horizontal setup, a somewhat noticeable offset angle of approximately 5 degrees is required.

[1]https://www.datalogic.com/eng/manufacturing-transportation-logistics-healthcare/stationary-industrial-scanners/matrix-220-pd-841.html

OCR Camera

Pack&Trace Edge version

- OCR+, Validator only, OCR Only

Specifications and General Information

GigE Vision V2.0 and GenICam Standards

- 5 MP 2592 × 1944@23FPS
- Sensor CMOS 1/2.5"
- 12-24V DC
- Operating temperature: -30 °C ... +50 °C
- 6mm lens
- CE, FCC, RoHS Certifications
- Placement should be on the top label dispatch device, at a height of 4-5 inches (10-12.7 cm) from the label roll, measured from the start of the lens.
- The lens comes with 2 adjustment screws, one for the aperture (which should always be fixed at the lowest number, f2.8, to allow the most light in), and the other screw is for focus, which you can adjust using the maintenance screen on the computer.

Sick Trigger Sensor

- Photoelectric retro-reflective sensor.
- IP67
- Operating temperature: –25 °C ... +55 °C
- 650nm wavelength
- 10-30V DC
- Sensing range <= 5m

Camera Lights

- Bar-shaped light.
- 24V DC
- Ip 33
- 80mm
- Light source: LED
- Operating temperature: –10 °C ... +60 °C
- Color temp: 6500K
- Lifetime: 30,000 hrs

Hand Scanner QuickScan QD2590[2]

Pack&Trace Edge version

- OCR+, OCR Only, Barcode, Lite

Specifications and General Information

- Connected to the PC using USB.
- Ability to read Barcodes, QR codes and Digimarc.
- It offers omnidirectional scanning, which means it can read barcodes from different angles.
- Designed for short to medium-range scanning (~5 inches / ~12.5 cm or less works best).
- Can be used in both handheld mode and with an optional stand for hands-free operation.

2 https://www.datalogic.com/eng/retail-manufacturing-healthcare/handheld-scanners/quickscan-2500-series-pd-898.html

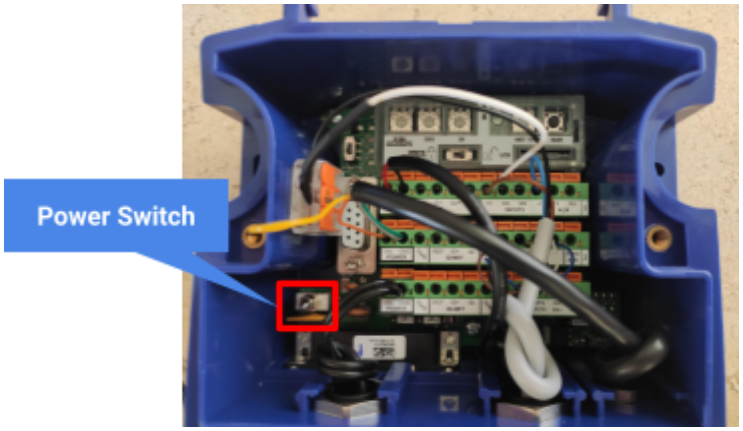
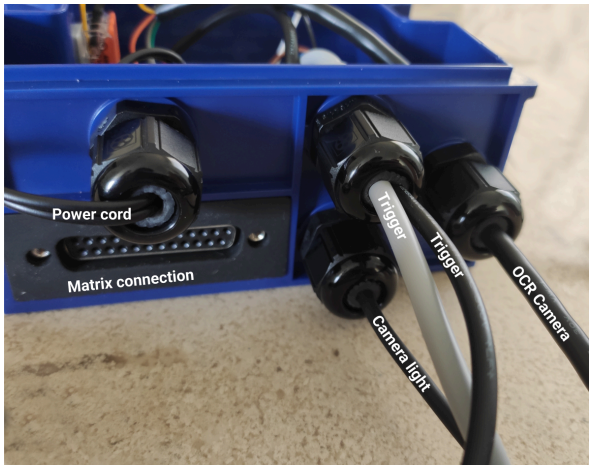
Assembly References

Utilize these diagrams and photographs as tools to ensure the proper assembly of the hardware that the Pack&Trace Edge system operates with. If you need a more detailed explanation, please contact our support team or refer to the instructional videos.

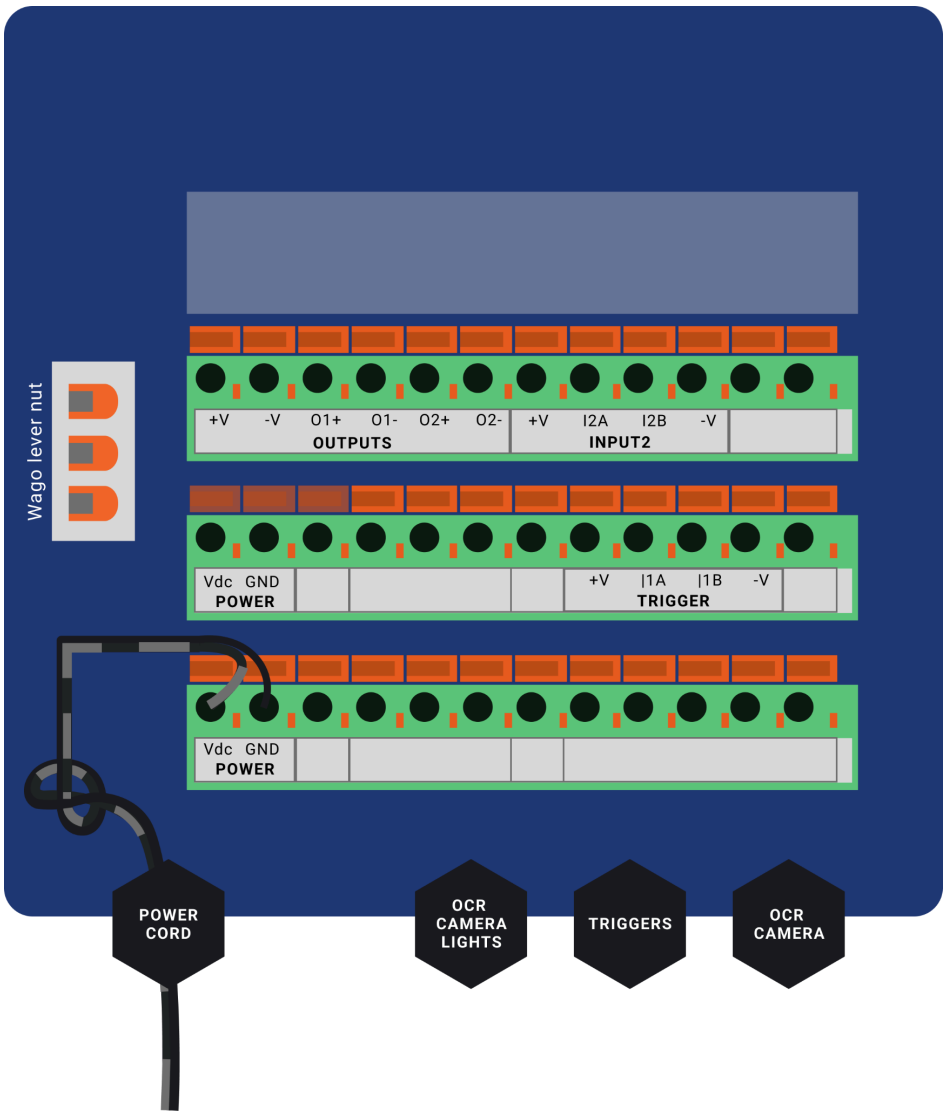
CBX100 Wire Connections

The pictures below illustrate the proper connections for the various elements that complete the high-speed scanning system. This setup involves utilizing the camera for reading the bottom label and the OCR camera for text detection on the top label. Following the suggested order will simplify the wiring process and result in a neater configuration.

> **For all the connections it's recommended to tie a knot at the junction to prevent accidental disconnections that could be caused by pulling on the cable.**
> **In order to insert the wires into the slots, use a small flathead screwdriver to push down the orange lever above the slot to open it up.**

	CBX Inside view For the power switch, left is off, right is on.
	CBX Outside view

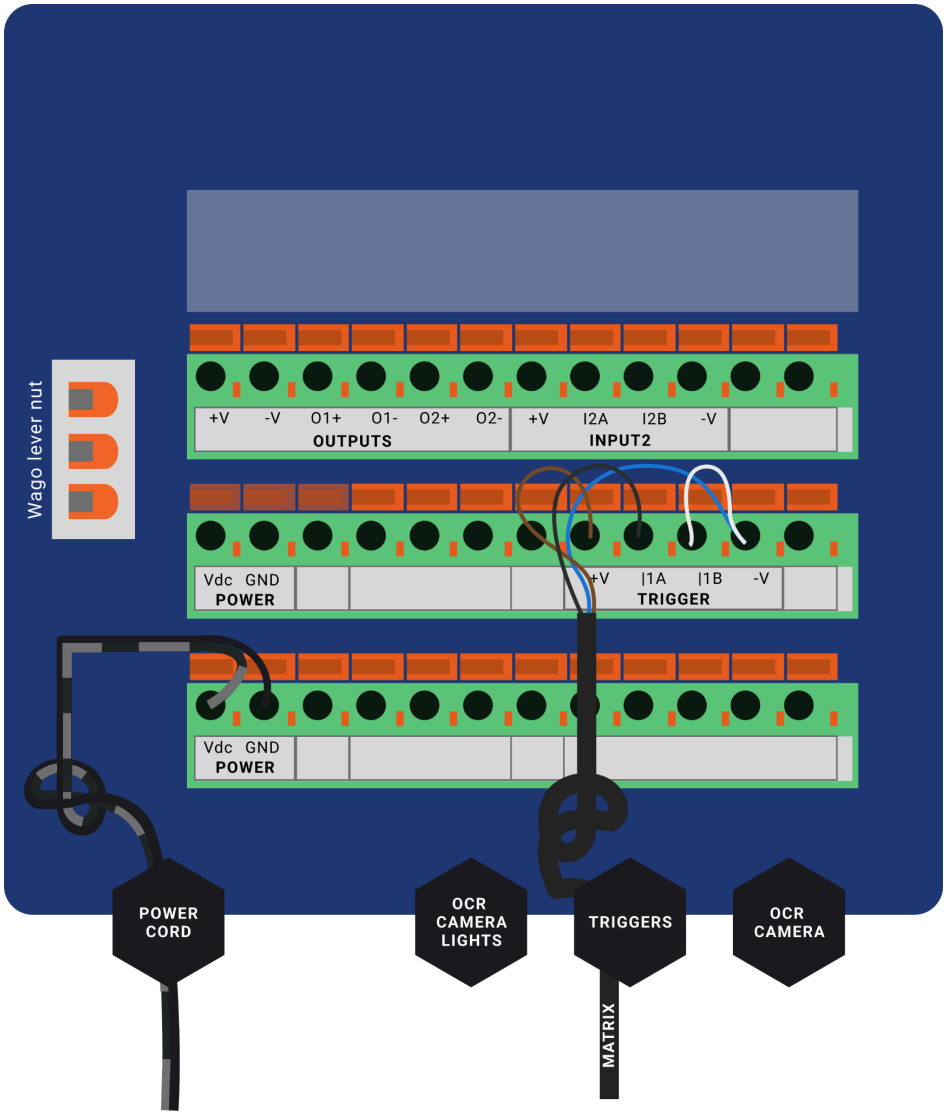
Power Cord



The power supply cable, which has the 2 metallic ends. The terminals must be connected to the bottom left POWER input in the following way:

- Cable with white Stripe: Vdc
- Black: GND

Matrix Trigger

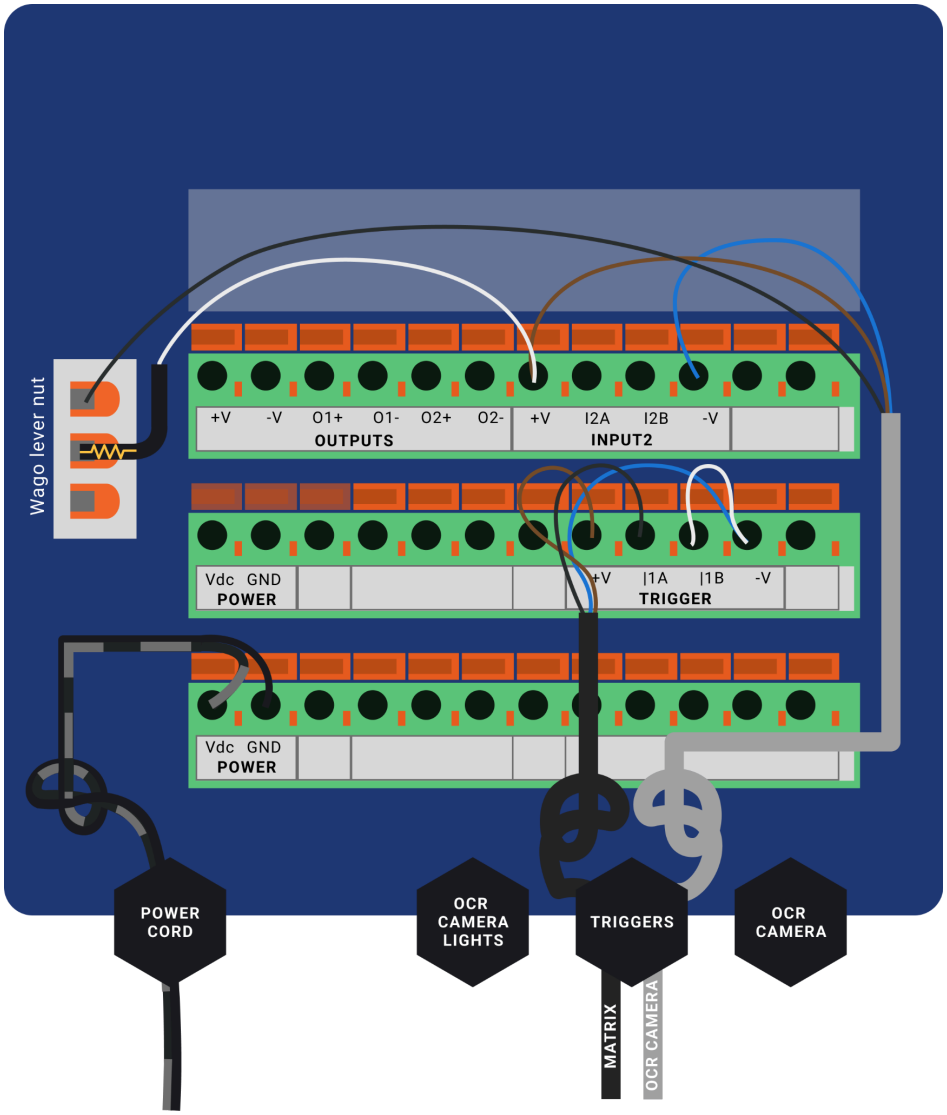


The trigger's cable is divided into four wires: black, brown, blue, and white.

The white wire needs to be cut from the cable as it will be used to create a bridge with the blue wire.

TRIGGER (mid right)
Brown: +V
Black: I1A
Blue: -V
White: -V to I1B

Sick OCR Trigger

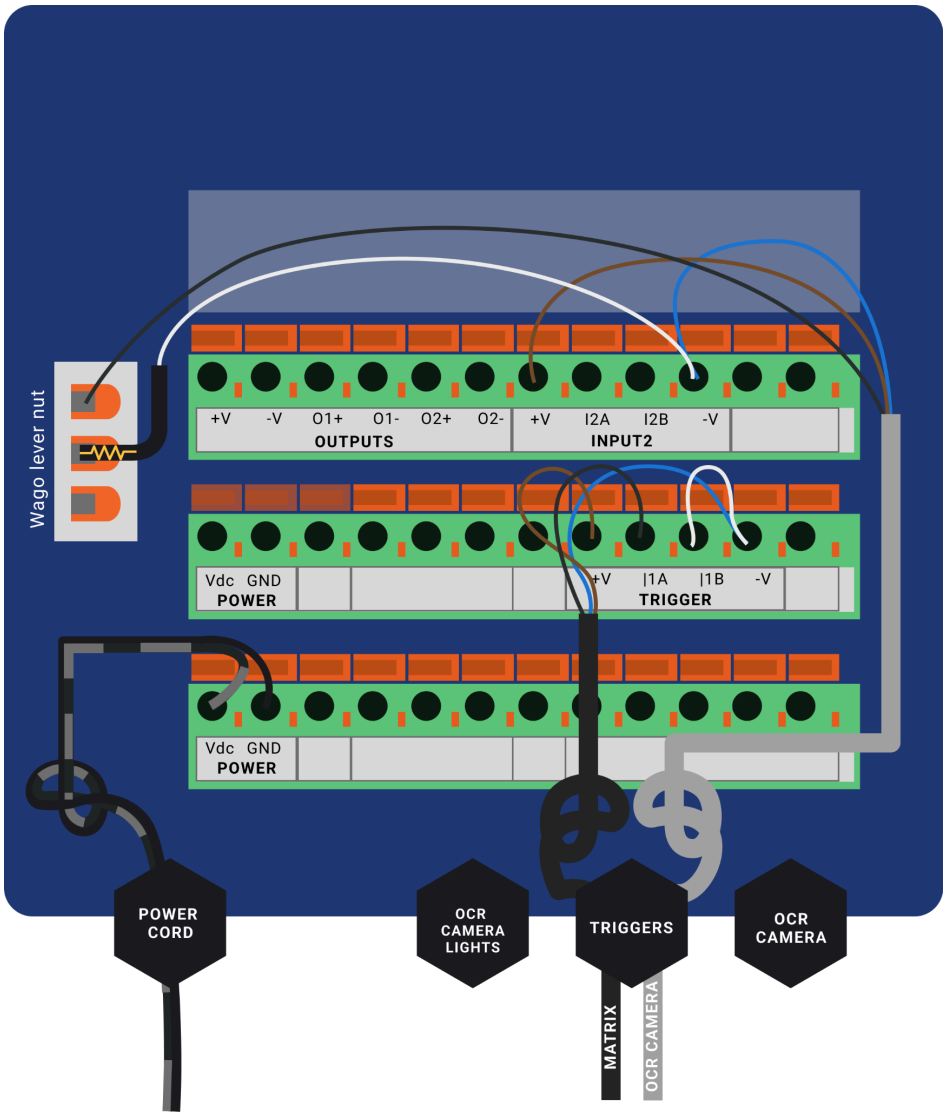


The trigger's cable is also divided into four wires: black, brown, blue, and white.

Sperantus supplies the white cable with an inline resistor of 4.7kOhms (½ watt) beneath the black end (which is thermofit used to protect it, already fitted to it). You will need to cut the white cable at the base (where it exits from the gray sleeve), and peel off a bit of the protective white plastic from that end, to insert it into the +V slot.

INPUT2 (top right)
Brown: +V
Blue: -V
Black: Wago lever nut
White: +V to Wago lever nut

Datalogic OCR Trigger

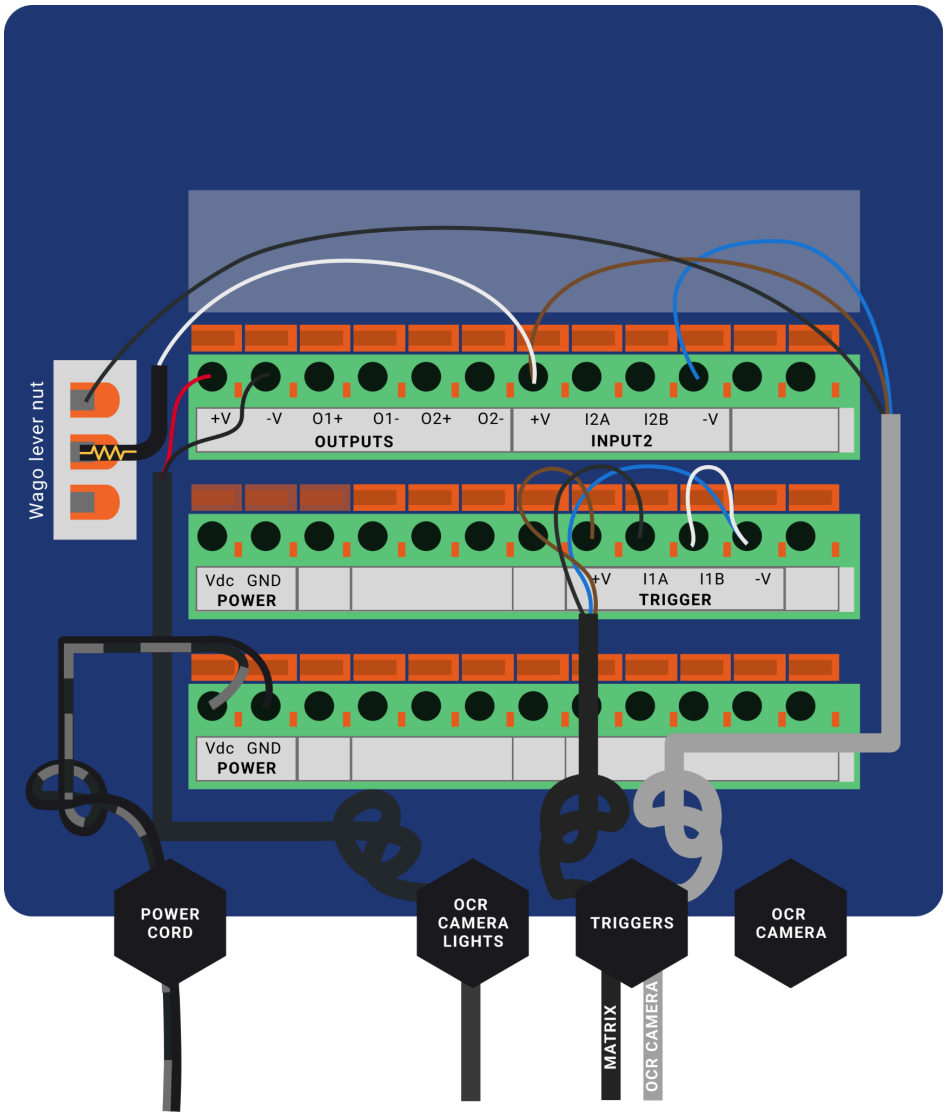


The trigger's cable is also divided into four wires: black, brown, blue, and white.

Sperantus supplies the white cable with an inline resistor of 4.7kOhms (½ watt) beneath the black end (which is thermofit used to protect it, already fitted to it). You will need to cut the white cable at the base (where it exits from the gray sleeve), and peel off a bit of the protective white plastic from that end, to insert it into the -V slot.

INPUT2 (top right)
Brown: +V
Blue: -V
Black: Wago lever nut
White: -V to Wago lever nut

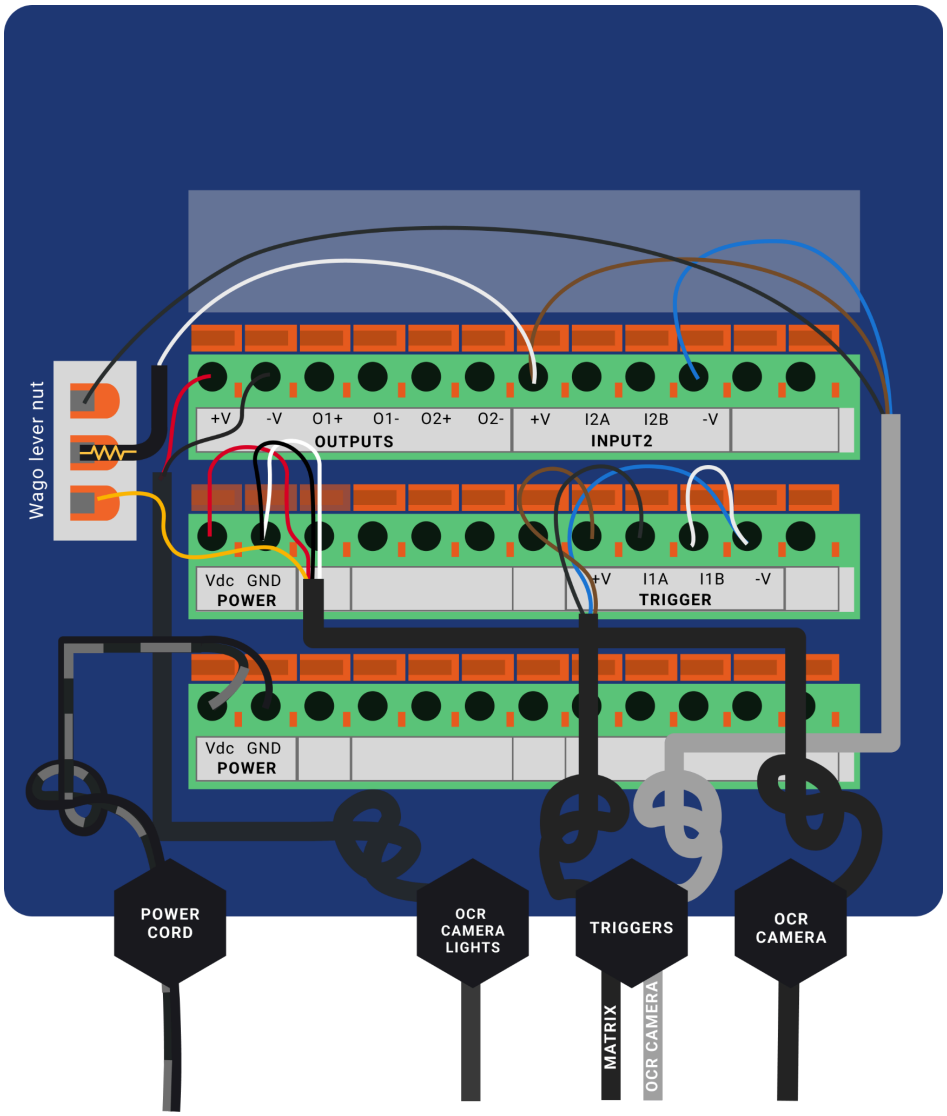
OCR Camera lights



The light's cable consists only of two wires: black and red.

OUTPUTS (top left)
Red: +V
Black: -V

OCR Camera - Version 1

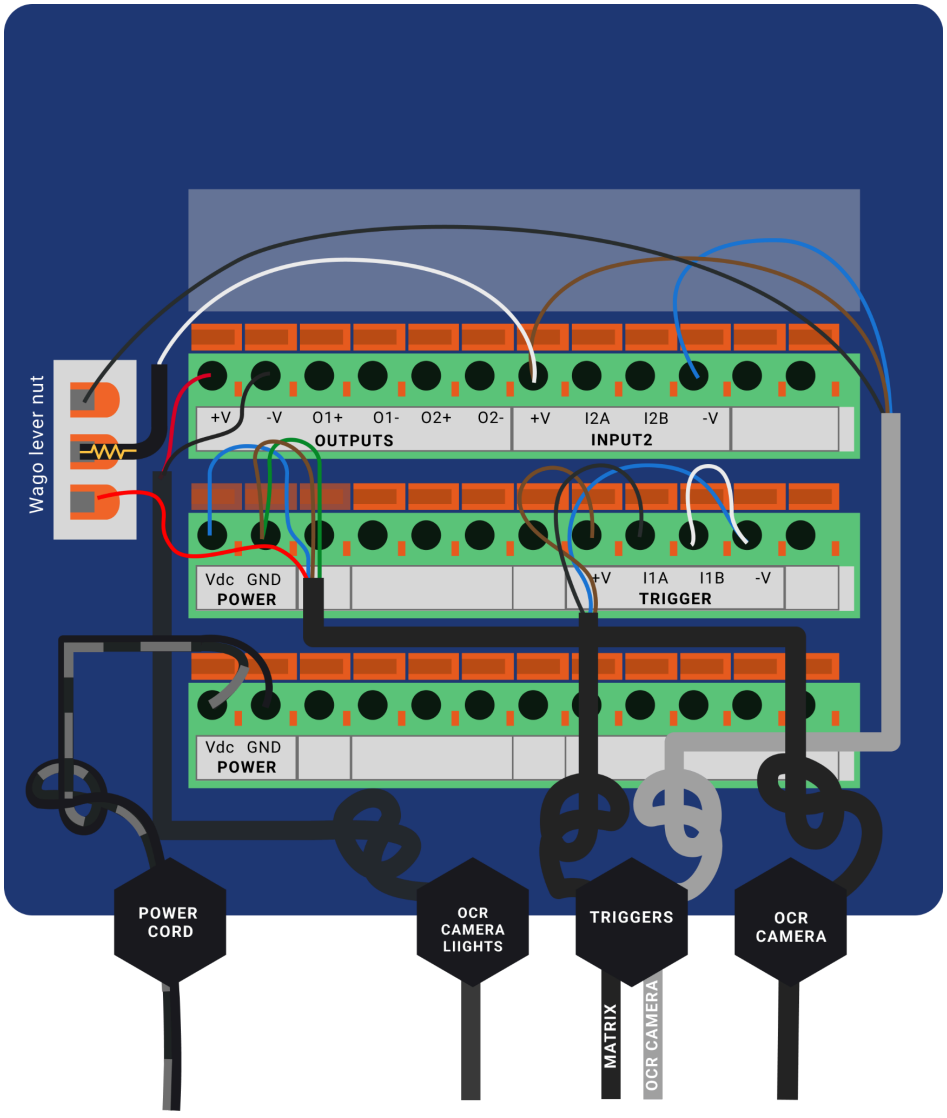


The cable comes originally divided into 6 wires: red, yellow, blue, green, white and black.

The green and blue wires are not needed, so they should be cut.

POWER (mid left)
White: GND
Black: GND
Red: Vdc
Yellow: Wago lever nut

OCR Camera - Version 2

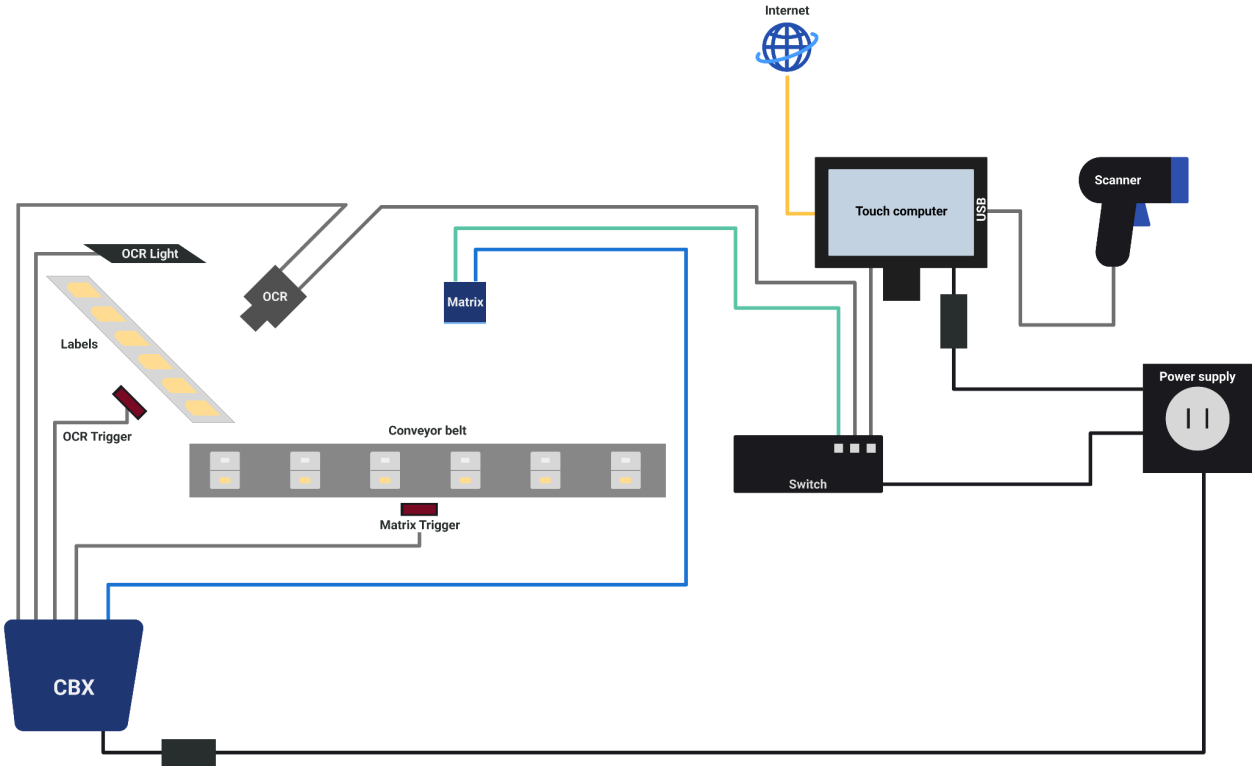


The cable comes originally divided into 6 wires: blue, red, gray, black, green and brown.

The gray and black wires are not needed, so they should be cut.

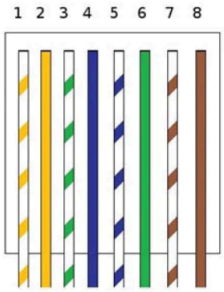
POWER (mid left)
Green: GND
Brown: GND
Blue: Vdc
Red: Wago lever nut

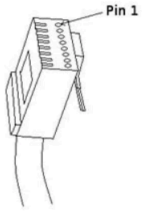
Connection Diagrams



Notes

- Both cameras are equipped with ethernet-like connectors (RJ-45) designed for connection to the touch computer. However, due to the limited number of Ethernet ports on the computer, a Gigabit switch is provided to allow simultaneous connections for both cameras.
- **The ethernet cable from the Matrix Camera to the computer/switch should never be cut**. If additional length is needed, use the connector supplied to add an extra ethernet cable (direct configuration like the diagram below). As for the cable for the OCR camera to the switch, simply make an ethernet cable for the needed length (again, using a direct configuration, just like the diagram).





T-568B

- The ethernet cable that provides the internet connection should be connected directly to the PC (it doesn't matter if on the first or second PC Ethernet port as long as it is not changed once the computer is turned on). The other port should be connected to the Gigabit switch.
- The hand scanner is the only device that will directly connect to the computer through USB.
- Please **DO NOT** connect any other device (ex: external monitor via HDMI) to the computer, because this can cause inappropriate behavior of the system.

Wiring Diagram