

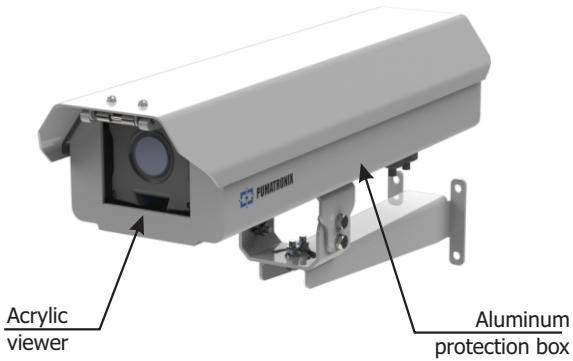
ITSCAM FF 450

HIGH PROCESSING, CONNECTIVITY AND EMBEDDED SOFTWARE

| Installation



ITSCAM FF 450 MODEL



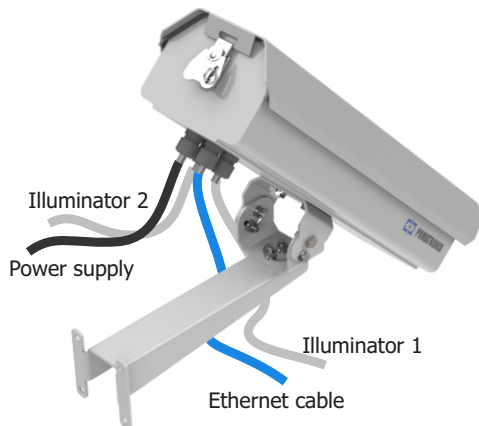
The ITSCAM FF 450 comes with lenses, which are sensitive to mechanical impacts such as falls and extreme vibrations.



Risk of oxidation: The electrical and signal connections made to the ITSCAM FF 450 harness and data network cable must be protected in a junction box or similar structure to prevent oxidation of the connections and unwanted infiltration of liquids into the harness.

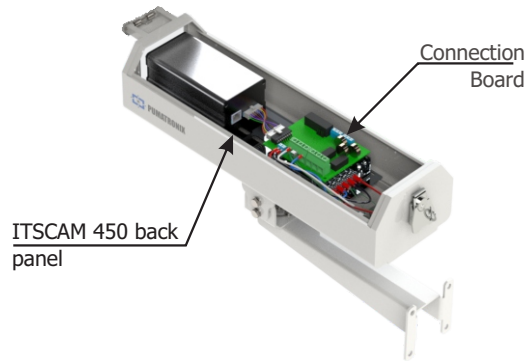
CONNECTING THE ITSCAM FF 450

1. Pass the connection cables through the PG9 cables, considering the preferred use of each cable:

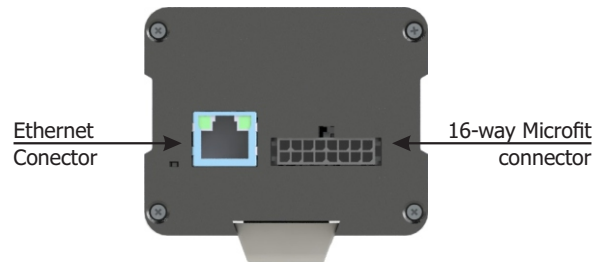


2. Tighten the cable gland until the cable is completely fixed.

3. Access the available interfaces on the Connection Board or on the rear panel of the ITSCAM 450 device to connect the cables:



4. Use the Ethernet connector available on the rear panel of the ITSCAM 450 device to connect the ITSCAM FF 450 to the local network:

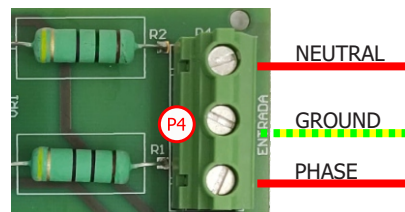


The 16-way Microfit connector on the ITSCAM 450 is connected to the Connection Board at the factory. This connection must not be changed. If you have any questions, please contact Technical Support for advice.

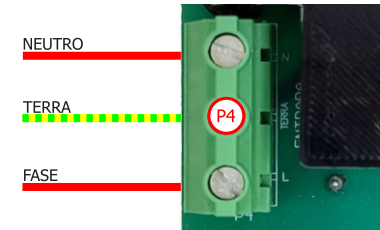
POWER CONNECTION

5. Make the power connections with the Connection Board, considering the P4 connector interfaces and their respective colors:

POWER CONNECTION ON THE MODEL ITSCAM FF 450 (CP117)



POWER CONNECTION ON THE MODEL ITSCAM FF 450 (CP617)



* Colors according to NBR 5410 and the user can choose 110 VAC or 220 VAC for the installation.



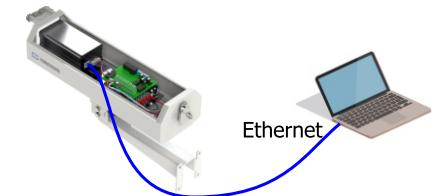
Grounding is required at the installation site.



Electric shock: Handle the ITSCAM FF 450 with care, "Q" of the ITSCAM 450 as it operates with 127 or 220Volts (AC) and during the installation of the external power conductor on the product's Connections Board, it must always be carried out with the power switched off to prevent the risk of shock.

SETTING THE NETWORK INTERFACE

6. Connect the ITSCAM FF 450 to an auxiliary device disconnected from the local network where the equipment will be installed, using an Ethernet cable:



7. Access the ITSCAM FF 450 interface in a Google Chrome browser (version 85 or higher) with the default factory data:

IP	192.168.0.254
User	admin
Password	1234

8. Access the Equipment > Network menu, under the Ethernet tab.

9. Modify the default IP address 192.168.0.254 with netmask 255.255.255.0, considering values other than those that cause conflicts on the existing network:

Values that cause conflict	
IP address	Netmask
192.168.254.x	255.255.255.0
192.168.x.x	255.255.0.0
192.x.x.x	255.0.0.0
	0.0.0.0



The ITSCAM FF 450's maintenance IP (192.168.254.254) is used to recover the connection in extraordinary situations when the primary IP is lost. For this reason, when manually configuring the device's network interface (Ethernet), values other than the maintenance IP must be applied.

10. Click Apply to validate the changes and wait for the device to reboot.



11. Check the connection and network settings after restarting the ITSCAM FF 450 device.

12. Disconnect the ITSCAM FF 450 from the auxiliary device and connect the device to the final installation network.

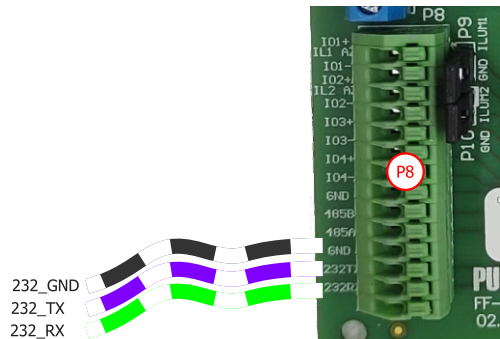
13. Repeat steps 6 to 12 in case of connection loss or IP conflict.

14. Access with the maintenance IP address 192.168.254.254 in the event of a network conflict.

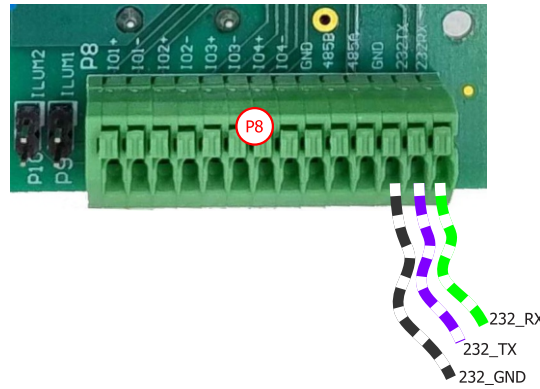
CONNECTING THE RS-232 SERIAL INTERFACE

15. Make the RS-232 data connection with the Connector Board, considering the P8 connector interface and the respective colors:

RS-232 CONNECTION ON THE MODEL ITSCAM FF 450 (CP117)



RS-232 CONNECTION ON THE MODEL ITSCAM FF 450 (CP617)



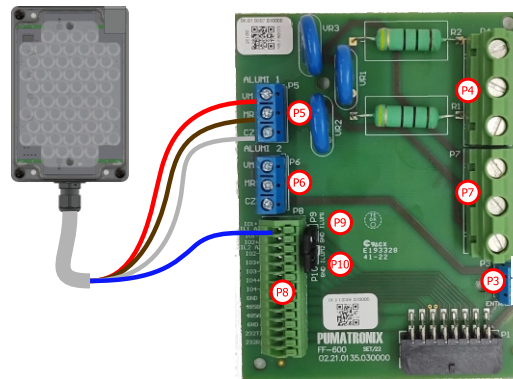
CONNECTING ILLUMINATORS



When using an illuminator in conjunction with ITSCAM FF, check the product specifications for the minimum and maximum distance that must be observed in relation to the position of the object to be illuminated.

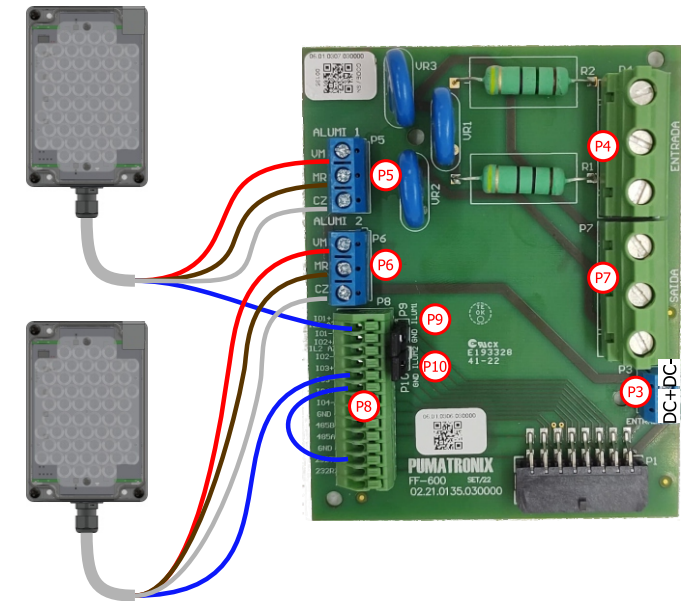
CONNECTING ILLUMINATORS TO THE MODEL ITSCAM FF 450 (CP117)

16. Connect the wires of 1 ITSLUX cable to connector P5 and to the Io1+ port of the connector P8, following the colors indicated on the Connections Plate:



17. Check that jumpers P9 are closed when connecting to Io1+ of Illuminator 1.

18. Connect the wires of the 2 ITSLUX cables to connectors P5, P6 and to the Io1+ and Io3+ ports of connector P8, following the colors indicated on the Connections Plate:



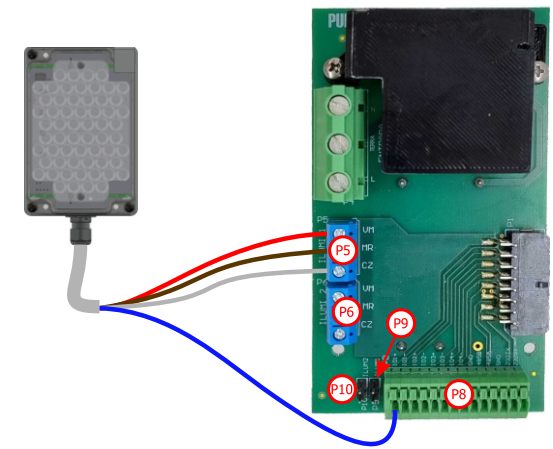
19. Check that jumpers P9 are closed when connecting to Io1+ of Illuminator 1.

19.1. Disconnect jumper P10.

19.2. Make a jumper connecting the Io3- port to the GND port, on connector P8.

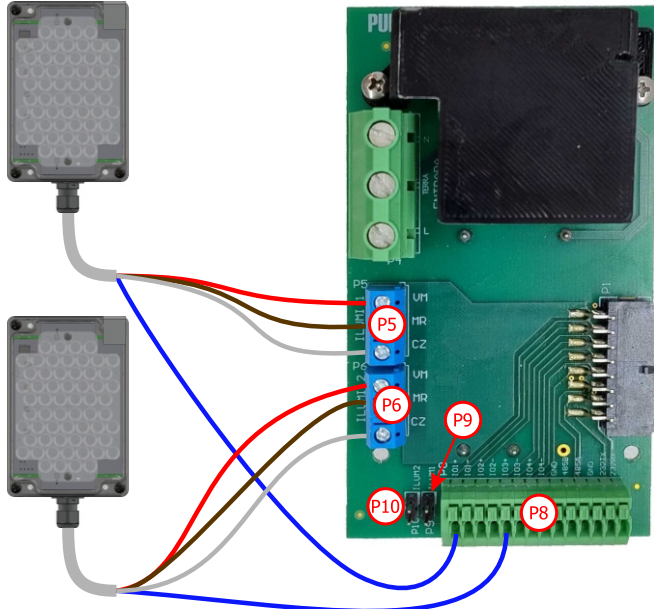
CONNECTING ILLUMINATORS TO THE MODEL ITSCAM FF 450 (CP617)

16. Connect the wires of 1 ITSLUX cable to connector P5 and to the Io1+ port of the connector P8, following the colors indicated on the Connections Plate:



17. Check that jumpers P9 and P10 are closed when connecting to Io1+ of Illuminator 1.

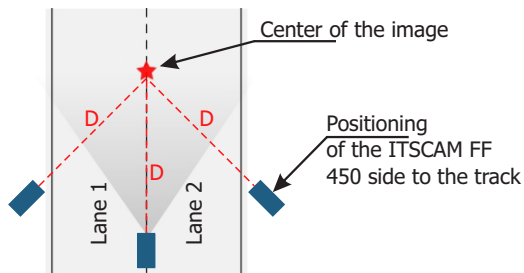
18. Connect the wires of the 2 ITSLUX cables to connectors P5, P6 and to the Io1+ and Io3+ ports of connector P8, following the colors indicated on the Connections Plate:



19. Check that jumpers P9 and P10 are closed when connecting to Io1+ and Io3+ of Illuminators 1 and 2.

ITSCAM FF450 POSITIONING ON THE ROAD

20. Select an existing pole or gantry that allows you to position the ITSCAM FF 450 preferably centered on the road, with the aim of capturing images of up to three lanes of the road, considering the linear distance between the equipment and the center of the image:



When using an Illuminator in conjunction with the ITSCAM FF 450, check the product specifications to determine the minimum and maximum distance that must be observed in relation to the position of the object to be illuminated.

21. Secure the ITSCAM FF 450 considering the minimum height limits specified for the location. The linear distance **D** from the vehicle crossing point varies depending on the estimated range of the lens model. See the Product Manual for more information.

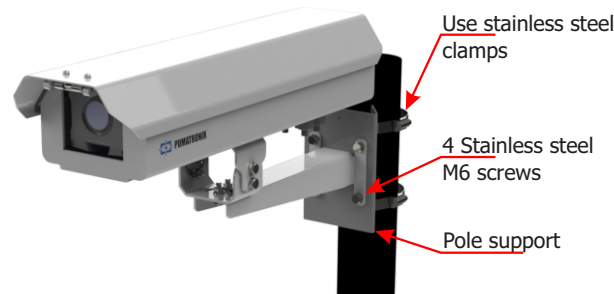


Installation Location: In cases where it's not possible to meet the installation specifications, it is recommended to consult Pumatronix's Technical Support.

FIXING THE ITSCAM FF 450

22. Attach the ITSCAM FF 450, with cables routed through and cable glands, to the pole bracket using the 4 M6 x 25 screws.

23. Provide stainless steel cable ties of sufficient length to match the diameter of the installation pole.



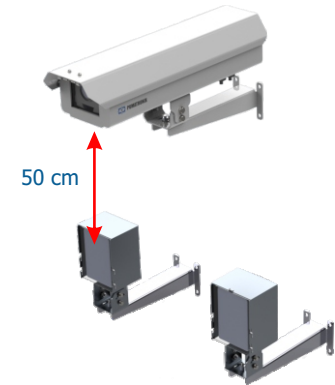
24. Position the ITSCAM FF 450 attached to the Pole Support on the road, respecting the minimum height limits specified for the location and the minimum and maximum distances indicated in POSITIONING THE ITSCAM FF 450 ON THE ROAD.

25. Avoid having parts of the image obscured by objects such as trees or vehicles in other lanes.

26. Install the ITSCAM FF 450 at a slight incline, so that the license plate is aligned with the horizontal in the image.

POSITIONING ITSLUX

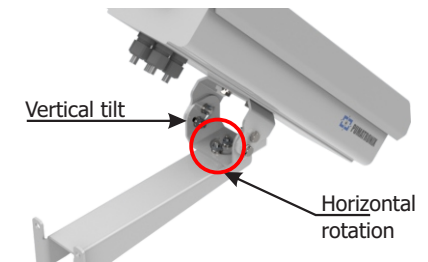
27. Attach 1 or 2 illuminators, optionally, to the same pole and just below the ITSCAM FF 450 device, keeping a minimum distance of 50 centimeters.



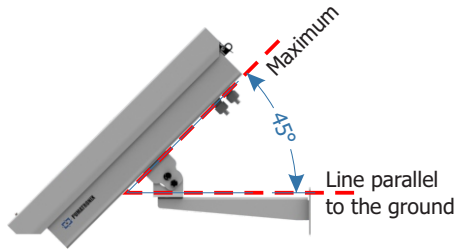
When using an Illuminator in conjunction with the ITSCAM FF 450, check the product specifications to determine the minimum and maximum distance that must be observed in relation to the position of the object to be illuminated.

FRAMEWORK ADJUSTMENTS

28. Move the joint on the base of the equipment to tilt vertically or rotate horizontally by loosening the relevant screws:



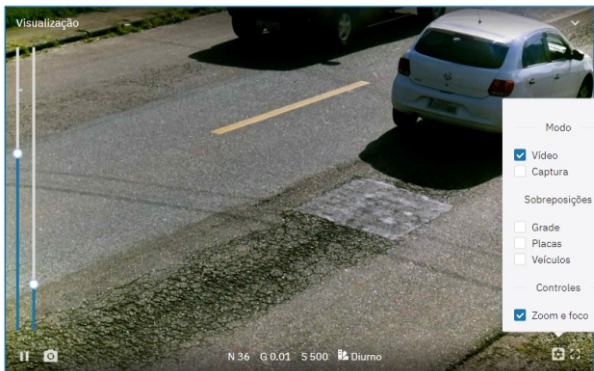
29. Tilt the equipment on the support until the frame is best adjusted, considering the maximum angle limit of 45° for vertical inclination. Higher angles of vertical inclination generate significant deformations in the images.



30. Access the device's web interface with the data in NETWORK INTERFACE PARAMETERIZATION (Steps 6 to 15).

31. Disable Auto Iris for the best result (if the ITSCAM 450 model has this functionality) in the Image > Profiles menu on the Exposure tab.

32. View the framing through the Live View floating window, which allows you to control Zoom and Focus in the scroll bars on the left by enabling the option. The suggested framing for two lanes in the image is to display the ends of the lane.



33. Use the Autofocus function or adjust Zoom and Focus by accessing the Image > Profiles menu in the Lens tab, until the characters become clear in the displayed image.

34. Select the desired Zoom and Focus position, until the characters on the vehicle license plate are legible and in capture condition (approximate height of 20 pixels) in the displayed image.



35. Consider adjusting the Perspective using the tilt and rotation angles of the image by accessing Equipment > Recognition tab Jidosha, if the tilt has reached the 45° (Step 30).

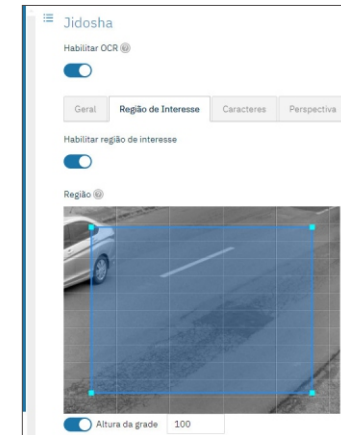


36. Adjust the device's OCR processing settings by going to Equipment > Recognition tab Jidosha, the Enable OCR option.

37. Enable the Region of Interest and drag the vertices of the polygon to delimit the region of the search for license plates in the image.



38. Enable the Grid Height display with a value of 25 for fine-tuning Zoom and Focus. The license plate characters are at the ideal reading size when they fit within this height.



39. Repeat steps 30 to 40 until you get the image of the plate with the best framing and sharpness of the characters.

FIRMWARE UPDATE

Take safety measures during the update process:

- * **Keep the ITSCAM FF 450 device inactive during the update process, ensuring that it is not requested by any service or other equipment on the network where it is installed;**
- * **Keep the ITSCAM FF 450 device always switched on while the update is running, taking the necessary steps to prevent it from being restarted or switched off.**

* Request the firmware file by filling in the form available in the Technical Support menu on the Pumatronix website.

* Access the Product Manual for step-by-step installation of firmware updates, which can be done via the web interface or the Pumatronix software.

WARRANTY

Pumatronix warrants the product against any defect in material or manufacturing process for a period of 1 year from the date of issue of the invoice, provided that, at the discretion of its authorized technicians, it is found to be defective under normal conditions of use.

The replacement of defective parts and the execution of services resulting from this Warranty will only be carried out at Pumatronix Authorized Technical Assistance or a third party expressly indicated by Pumatronix, where the product must be delivered for repair.

This Warranty will only be valid if the product is accompanied by a duly completed Maintenance Form with no erasures and an invoice.

SITUATIONS IN WHICH THE PRODUCT LOSES ITS WARRANTY

- 1) Use of software/hardware not compatible with the specifications in the Manual;
- 2) Connecting the product to the mains outside the standards set out in the product manual and installations with excessive voltage variation;
- 3) Infiltration of liquids from opening/closing the product;
- 4) Damage caused by natural agents (electric shock, flooding, salt spray, excessive exposure to climatic variations, among other factors) or excessive exposure to heat (beyond the limits established in the Manual);
- 5) Use of the product in environments subject to corrosive gases, excessive humidity and/or dust;
- 6) Showing signs of tampering with safety seals;
- 7) Signs of opening and modification made by the Customer in places of the product not authorized by Pumatronix;
- 8) Damage caused by accidents/falls/vandalism;
- 9) The serial number has been tampered with and/or removed;
- 10) Damage resulting from transportation and packaging of the product by the Customer in conditions incompatible with the product;
- 11) Misuse and non-compliance with the Instruction Manual.

PRIVACY POLICY

In compliance with the General Data Protection Law (LGPD) - Law No. 13.709, of August 14, 2018, this product has programmable functions for capturing and processing images that may infringe the LGPD when used, in conjunction with other equipment, to capture personal data.

The equipment does not collect, use or store personal information, whether sensitive or not, for its operation.

Pumatronix is not responsible for the purposes, use and processing of the images captured, and control of the information and ways of operating the product are the sole decision of the user or purchaser of the product.



Change History		
Date	Revision	Updated content
30/11/2023	1.0	Initial edition regarding Revision 1.0 of the ITSCAM FF 450 Product Manual
27/01/2023	1.1	Update of the Product model; interface updates; Reordering installation steps
09/24/2024	2.0	Update connections separated by product model
09/25/2024	2.1	Update image connection illuminators
03/18/2025	2.2	Update Protection Box material

* **For more information, visit the product manual at www.pumatronix.com.br.**

TECHNICAL SUPPORT

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Movimento em Foco.



www.pumatronix.com

