Automatic Tracking Module User Manual

Automated PTZ Motion Tracking Device

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Document History

Version	Date	Change Summary	Author
v1.0	28/3/2016	Initial Draft	RE
v1.1	16/5/2016	Additions for Expanded Features	RE
v1.2	11/09/2020	Document Format Update	RE

About the User Manual

This user manual describes the operation of the Automatic Tracking Module.

Initially, the user manual introduces the reader to the camera's operation. This includes a description of the various components in the camera kit and a guide to their use.

As part of this, hardware interfacing, camera connections, viewing video and configuration of the camera's functions are all described in detail.

Additionally the use of software tools to control the camera are explained.

The guide follows a step by step approach, describing the simple initialisation sequence to get the user up and running in the shortest possible time.

This is followed up with a description of technical specifications, connector interfaces and component dimensions.

The VE part number for this manual is **110-8681**

Warranty and Support

All Visual Engineering products are supplied as standard with a 12 month 'Return to Base' warranty.

In the event of a suspected product failure, users should contact the Visual Engineering support team on the telephone number +44 (0) 1206 211842 or please email us at:

support@visualengineering.co.uk

Should the fault persist or if the support team are unable to resolve the fault, it may be necessary to return the equipment.

Equipment should only be returned using the RMA (Returns Management Authorisation) process. Users should contact the support team on the above number and request an RMA number.

Introduction to the Automatic Tracking Module

The ATM is designed to provide the functionality of a mechanical pan, tilt and zoom camera for close surveillance. This comes in the form of a tiny maintenance free unit, which has a silent operation.

Whilst the HD sensor monitors a wide field of view, the output is a standard definition windowed version of the video. Thereby offering a 3x lossless digital zoom.

The automatic motion tracking feature constantly monitors the entire field of view. Any movement detected at the camera sensor is output in the form of SD video.

This allows the camera to be unattended whilst it effectively captures any movement in its field of view from its multi mega pixel sensor.

Since the output video feed is SD the system only requires standard definition recording and transmission equipment to support it.

The ATM features an integrated mini joystick controller, which enables the user to change a wide range of camera parameters.

The ATM is supplied with a fitted 2.5mm lens. In addition to this there are two M12 pinhole lenses supplied in the kit, as well as a long lens adaptor. C and CS Mount adaptors are also included. This range of lens options allows users to select the lens that is most appropriate for a particular scenario.

It is controlled using the PelcoD, PelcoP and Sony Visca command protocols on either RS232 or RS485 comms interfaces. The baudrate is user selectable via the camera's on-screen display menu. The initial factory default setting for the serial port is RS232 at 9600 baud.

The ATM Kit
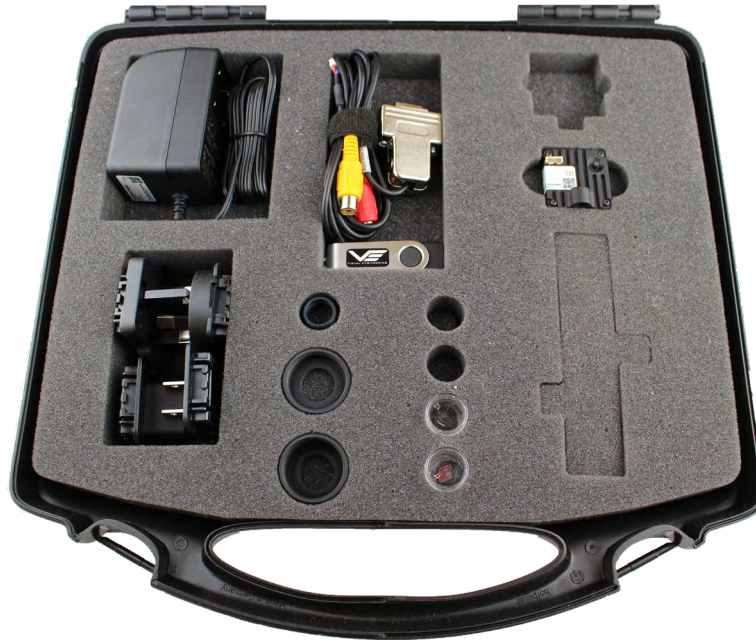
Kit Contents

In addition to the ATM camera, the kit also contains the interconnect cable, a range of lenses and a mains power supply with a range of wall connectors. All this is housed in a foam lined case.

The kit contents are listed below, along with their part numbers.

• Miniature Automatic Tracking Module	110-8659
• Interconnect Cable	110-8660
• Power Supply	110-8661
• Lens M12 – 2.1mm pinhole	110-2497
• Lens M12 – 4.3mm pinhole	110-2498
• M12 Long Lens Adaptor	110-8667
• CS Mount Adaptor	110-8668
• C Mount Adaptor	110-8679
• USB Memory Stick	

Support Documentation and Software

The kit includes a USB memory stick. This contains software applications and documentation to support the ATM camera.
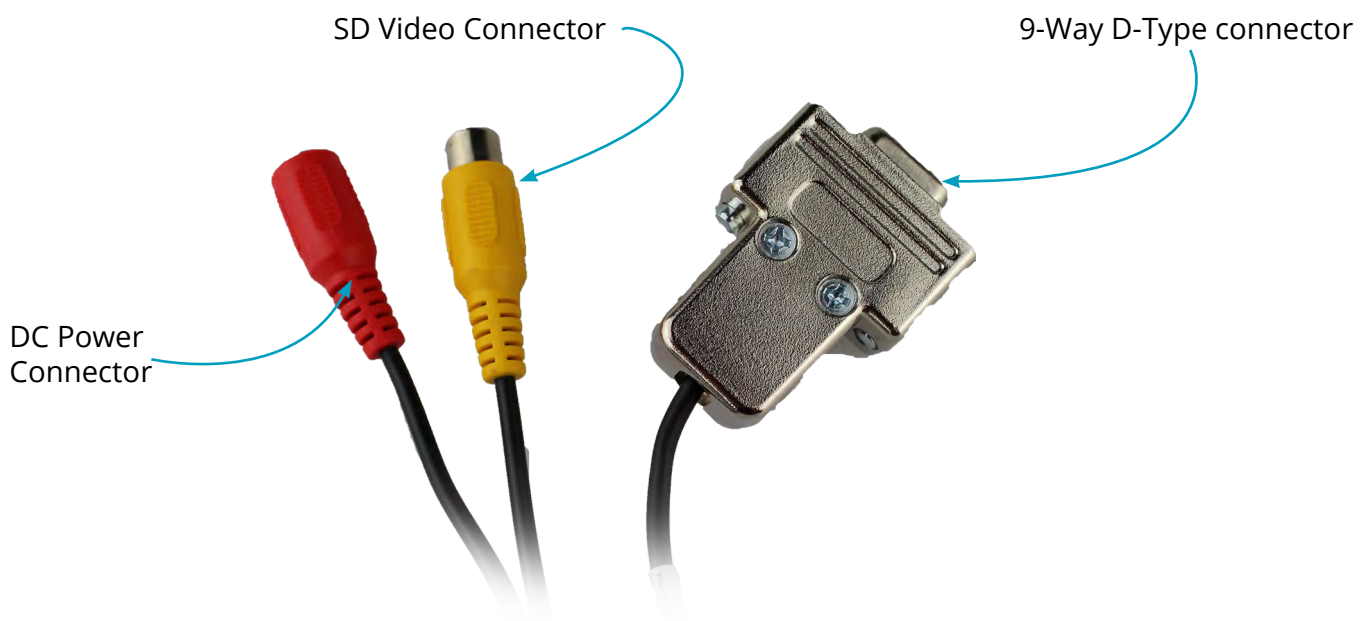
Connections

The ATM kit is supplied with an interconnect cable. There are four connectors on the cable, these are:

- 9-way D-Type Serial Communications Connector
- Red RCA connector for DC power
- Yellow RCA connector for Composite Video Out
- 5-Way female Molex Picoblade connects to the ATM camera

SD Video Connector   9-Way D-Type connector

DC Power
Connector

The 9-way D-Type connector can be connected to a serial to USB adaptor, the other end of the USB adaptor is then connected to a PC to allow for software control of the ATM.

The red RCA connector should be connected to the DC mains power supply.

The yellow RCA connector is the SD video output from the camera. This should be connected to the recording or video transmission equipment of choice.

The 5-Way female Molex connector should be connected to the 5-Way Molex male connector on the ATM camera body.

Joystick Control

On the rear of the ATM camera there is a mini joystick which allows the user to control a range of functions within the camera.

5 Way Molex male
Connector

Mini Joystick

Joystick Functions

The mini joystick allows the user to control and configure the ATM camera. The list below details what movement controls which features.

- Up Movement   Image Tilts Up
- Down Movement   Image Tilts Down
- Left Movement   Image Pans Left
- Right Movement   Image Pans Right
- Centre Short Press   **Zoom Function**
- Centre Long Press (5 secs) Enters on-screen Display Menu

Zoom Function

There are six preset zoom positions available, each short press on the centre of the joystick steps the zoom position in once until the last position is reached, another click returns the image to fully wide.

Motion Detection

If motion detection is enabled the camera will automatically Pan, Tilt, and Zoom in on the motion area, while there is no motion detected the camera will return to wide.

Presets

The ATM supports user presets, these can be saved and recalled via the serial comms link. The last PTZ position the device was at before power down will be recalled on boot up.

OSD - On-Screen Display Menu

The camera supports an OSD. To enter this feature press the centre of the mini joystick in for about five seconds, the mini joystick can be found on the rear of the ATM camera.
Once the OSD has been activated the user will observe the camera parameters that can be altered. An example of the OSD screen is shown below.
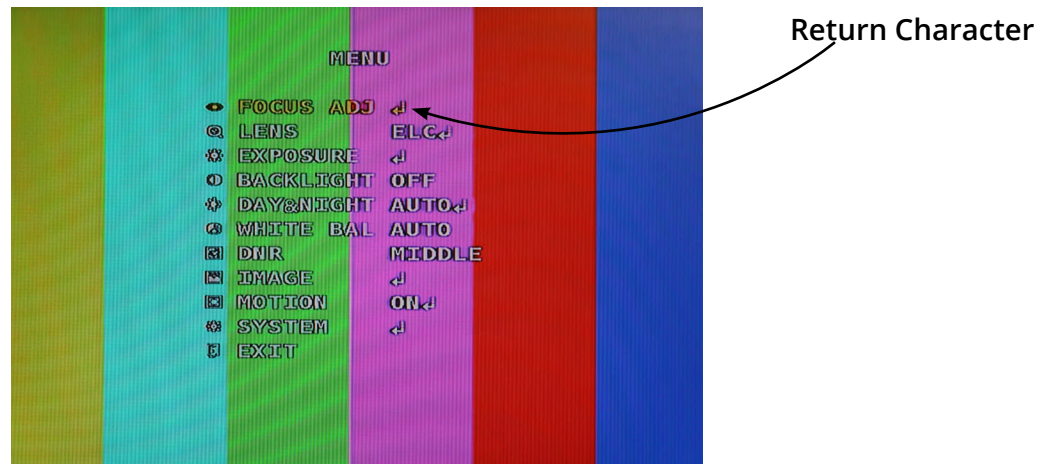
Return Character

In the above example the OSD is pointing towards the FOCUS ADJ menu, since this is the highlighted parameter. Since this parameter has a **Return Character** next to it there are more options available within this sub-menu. Pressing the mini joystick in will select this option and the OSD will enter the sub-menu for FOCUS ADJ.

Moving the joystick up and down or left and right, as applicable whilst in the parameter sub-menus will allow the user to change any of the many parameters the ATM camera supports.

If the current example FOCUS ADJ menu is selected it will bring up an overlay on the current video image. The overlay aids the user to get the camera to the optimal focus. An example screen showing this is below.
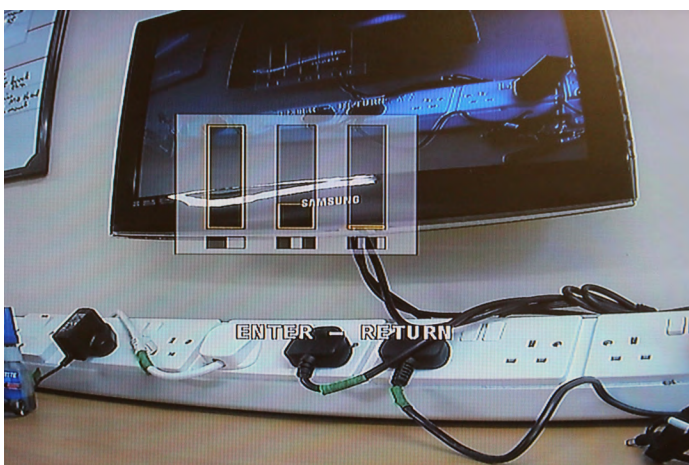
Address Selection and OSD Remote Control

The Camera Address can be set via the OSD menu, the allowed range is between 1 and 6.

If the address is set to 7 the OSD menu can be controlled using PTZ commands on any of the supported protocols via the serial comms connection.

Software Control

The ATM camera supports serial communication control over RS232 and RS485.
It supports PelcoD, PelcoP and Sony Visca protocols.
The user may choose to use a software controller of their choice or use the VE Camera Controller.
This software application is included on the USB memory stick in the kit. The user should install the Software application on a PC. The image below shows the software application.
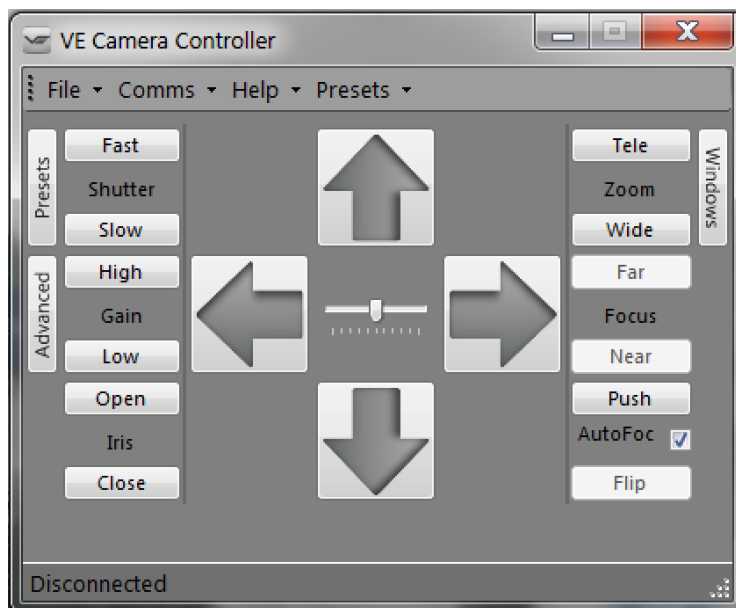

To load in the correct preferences for the ATM camera the user should load the configuration file "MicroATM.ccc", which is included on the USB memory stick. Use the File menu to Load the Configuration as shown below.
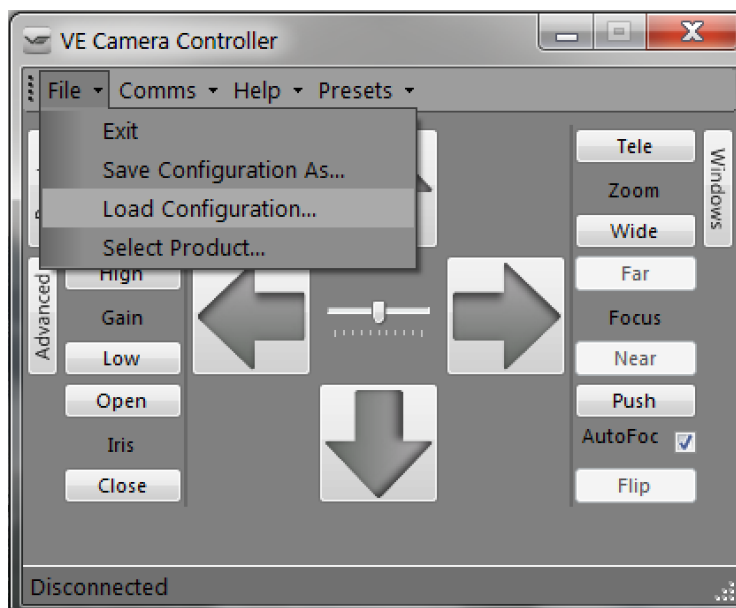
Once the USB to serial comms lead is connected to the PC the operating system of the computer will allocate this a COM port number. The user can proceed and connect the application to the COM port. In the example below the port COM3 has been selected.
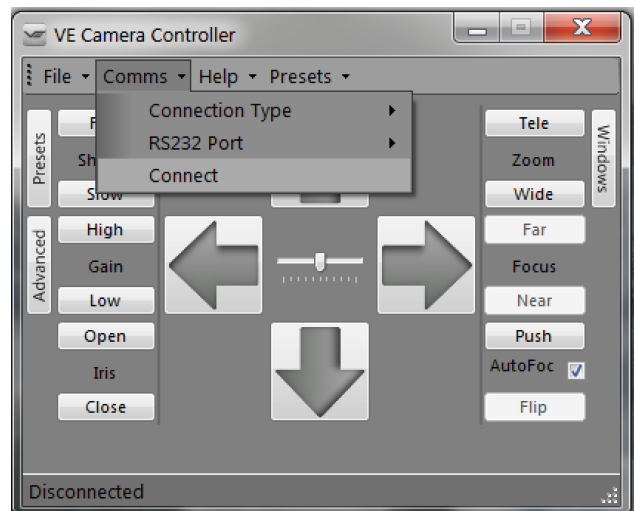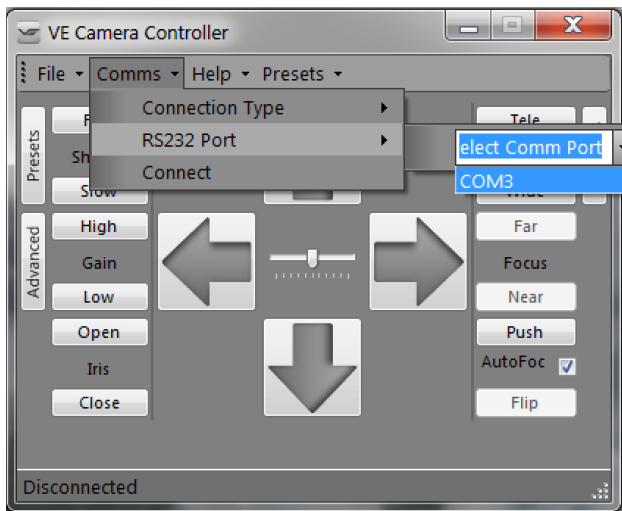
Once the software application is connected to the comms lead the functions of the software can be used. In the example below the pan right command has been selected. This will cause the ATM camera to digitally pan right. Similar commands for pan left, tilt up & down and zoom functions can also be tried out using the intuitive software user interface.
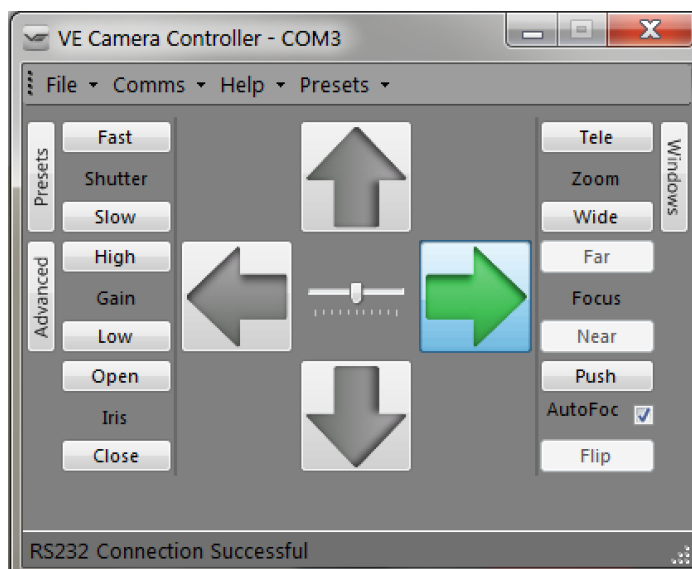
Changing the Lens

The ATM camera can be fitted with different lenses according to the field of view required for a particular scenario.

The lenses can be swapped out by simply unscrewing which ever lens is currently fitted to the camera and screwing in the new one.

The standard lens fitted is 2.5mm offering a 85° x 64° field of view.

In the kit, are replacement 2.1mm (120° field of view) and 4.3mm (60° field of view) lenses.

Lens options can be simply swapped out by screwing a new lens into the front thread of the ATM Camera
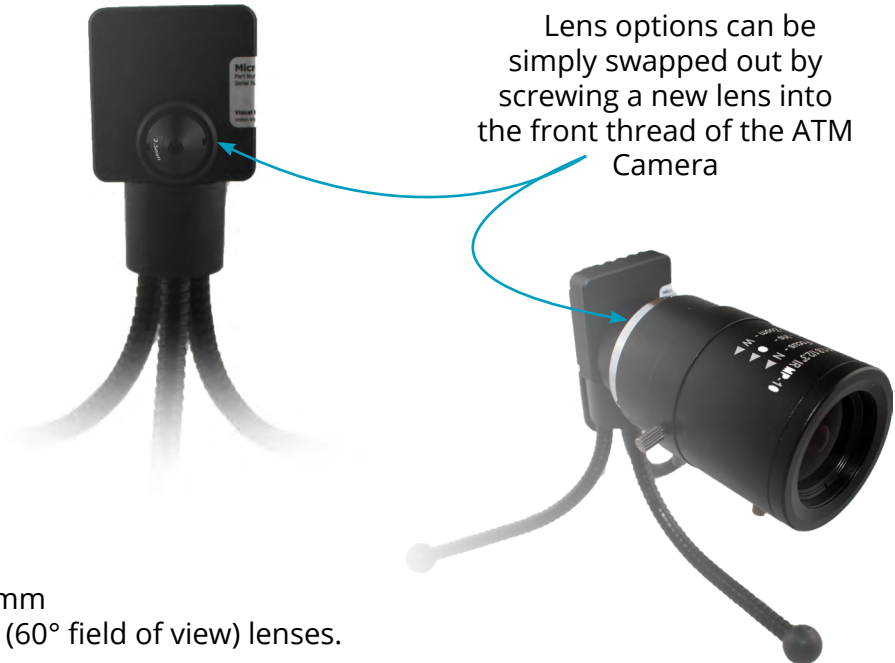
Long Lens Adaptor

M12 lenses with a back focal length of >3.2mm will require the M12 long lens adaptor. This is supplied in the camera kit.

The M12 long lens adaptor screws into the front thread of the camera in the same way as any lens fitting.

This allows M12 lenses with a back focal length of >3.2 mm to be fitted and focused.

C and CS Mount Adaptors

For fitting larger C mount or CS mount lenses to the ATM Camera use the adaptor included in the kit. These adaptors also screw onto the front thread of the camera.

Specifications

Specifications			
Camera Sensor	3.1Megapixel, CMOS	**Protocol**	PelcoD, PelcoP, Sony Visca
Camera Sensitivity	< 0.1 Lux	**Baudrate**	Selectable via OSD
Camera Resolution	> 2000TVL	**Comms Mode**	RS232/R485 Selectable
SNR	> 50dB	**Power Requirements**	6 to 18VDC, 1.5W
Focal Length	2.5mm Standard	**Connection**	Supplied Cable
Field of View	85º x 64º with 2.5mm lens	**Weight**	20g
Aperture	f2 with 2.5mm lens	**Dimensions**	30 x 28.5 x 8mm
Lens Type	S mount M12	**Casing**	CNC Machined Aluminium

Factory Default Settings

RS232
9600 Baudrate
Address 1
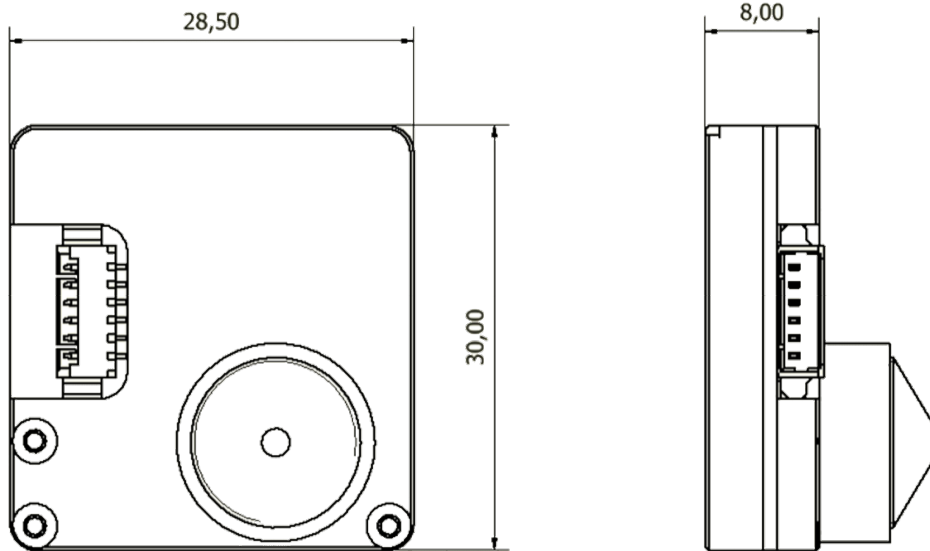
Connector Interfaces

5-Way Molex Picoblade

1. +12v
2. GND
3. CVBS composite video
4. RS232 TX / RS485 A
5. RS232 RX / RS485 B

9-Way D-Type

1. n/a
2. RS232 TX / RS485 A
3. RS232 RX / RS485 B
4. n/a
5. GND
6. n/a
7. n/a
8. n/a
9. n/a

Dimensions

28,50

30,00

8,00

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