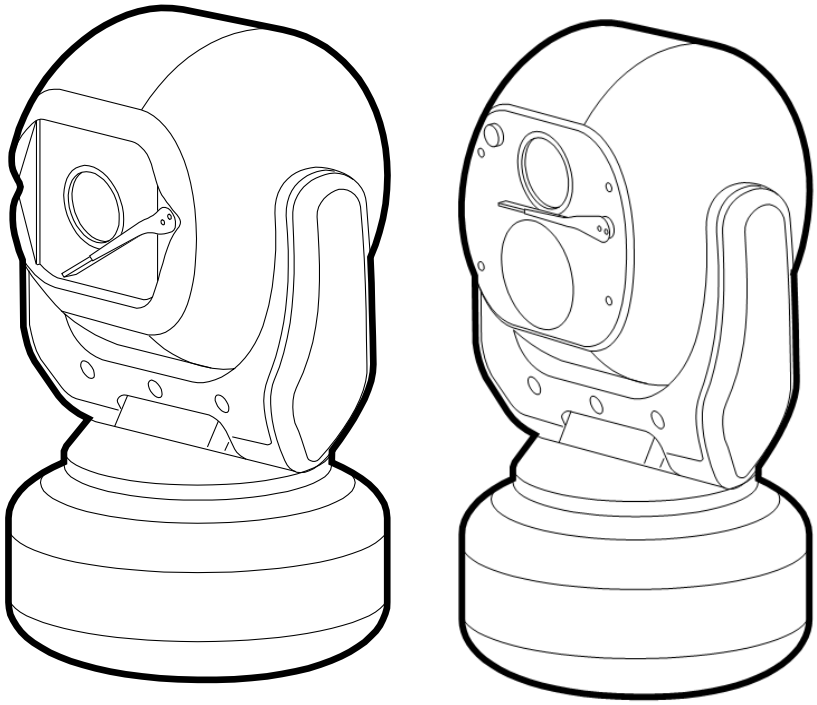
Oculus,
Oculus Ti,
Aeron.

Pan & Tilt Camera

General Guide



Safety.

INSTALLATION SHOULD BE CARRIED OUT BY QUALIFIED PERSONNEL ONLY IN ACCORDANCE WITH THE APPLICABLE LOCAL CODES.
THE MANUFACTURER CAN ACCEPT NO LIABILITY FOR ANY DAMAGES OR LOSSES CAUSED DUE TO INCORRECT OR IMPROPER INSTALLATION

Read these instructions , Keep these instructions.

Follow all instructions and warnings.

Install according to manufacturer's instructions.

Do not open the camera unit, doing so invalidates the unit's warranty.

Do not back-drive the pan or tilt axis of the camera. To do so will damage the motor drive mechanism and will invalidate the warranty.

Do not use caustic or abrasive cleaning products on the unit.

In situations where there could be a risk of injury should any part of the assembly become detached for any reason and fall, normal safety precautions should be employed.
A strong safety chain between the camera pan shaft base and the mounting surface is recommended.

Use only the power source types indicated in this user guide and ensure that the current rating of the supply cable is adequate for the product.

All power supplies should be appropriately fused.

Take extra care lifting or moving camera units due to their weight.

Take care to allow space around the unit for Pan and Tilt motion.

Take care to avoid striking persons or objects when the camera is in motion.

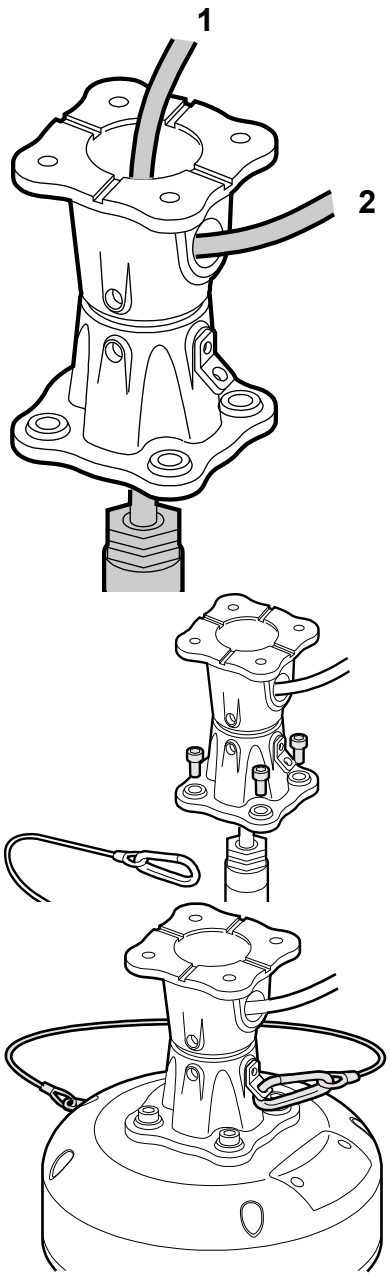
Introduction.

These are no ordinary cameras. Thanks to careful development and rigorous testing, these cameras are equipped to survive in harsh environments and provide enhanced features. Two main models are available to offer optical only or optical plus thermal imaging abilities.
The numerous benefits of both camera types include:

- Flat toughened glass window – scratch resistant, maintenance-free and optically correct,
- Integral Wiper – to clean away rain and deposits caused by wind, sea spray and road traffic,
- Anodised aluminium castings, with powder coating to resist corrosion in the harshness of marine environments,
- Stainless steel case fastenings,
- Optional washer system interface,
- Optional infra-red LED illumination system,
- Multiple native control protocols: RS-485 (Simplex/Half-duplex)

Installation

Camera mounting



The camera is designed to be mounted upright or hanging. By nature of its rugged construction the camera is a heavy item and thus requires a substantial and stable mounting. The camera can be supplied with an optional mount adaptor to allow fixing to industry standard brackets, towers or columns.
The mount adaptor has two cable entry points:

- (1) A pass-through hole in the end plate to allow the composite cable to enter unseen from a column, tube or bracket type mounting, plus
- (2) A conduit thread (M25) in the side wall to permit composite cable entry via a flexible conduit attached to the adaptor.

To mount the camera

1 Thread the composite cable through the appropriate entry hole into the mount adaptor before it is fixed to the column or bracket.
2 To avoid placing strain upon the electrical connections, arrange the composite cable such that approximately 120mm of the weatherproof connector protrudes out from the smaller plate that will connect to the camera.
3 Secure the mount adaptor to the supporting structure using M8 bolts, washers and Nyloc® type nuts where appropriate.
4 Remove the four hex head bolts from the camera base and push the connector back into the mount adaptor.
5 Offer the camera to the mount adaptor and clip the lanyard onto the lug of the mount adaptor. In addition to being an essential safety device during operation, the lanyard is useful as a temporary hanging point when the camera is being mounted in the inverted position.
6 Carefully note the orientation notches of cable connector and camera socket. Align the notches accordingly and insert the connector onto the socket of the camera base. Twist the connector's retaining ring until it fully locks into place.
7 Align the four holes of the mount adaptors with those on the camera base and insert the four hex head bolts.
8 Tighten the bolts to approximately 1.6Kg/m. Do not over tighten bolts.

IMPORTANT: Always use sprung washers and Nyloc® nuts in order to significantly reduce the possibility of bolts working loose due to vibration during operation.
Cable entry path must be watertight to avoid ingress and build-up of water around the connector.

To tilt the camera head

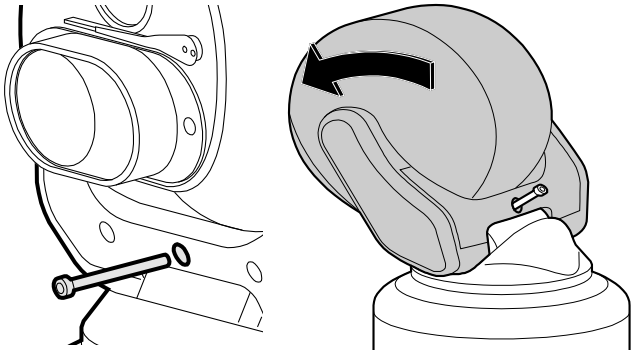
When mounting upright, the camera head can be cantered to allow it a field of view clear of the pan motor section of the housing.

1 Unscrew and withdraw the M5 socket head retaining bolt from the middle of the front of the yoke.

2 Carefully tip the yoke assembly forward.

3 Re-insert the bolt from the rear of the yoke and tighten to approximately 0.97Kg/m. **Do not over tighten the bolt.**

The camer's Setup > Configuration menu should be adjusted to indicate that the head has been cantered, in order to ensure appropriate operation.

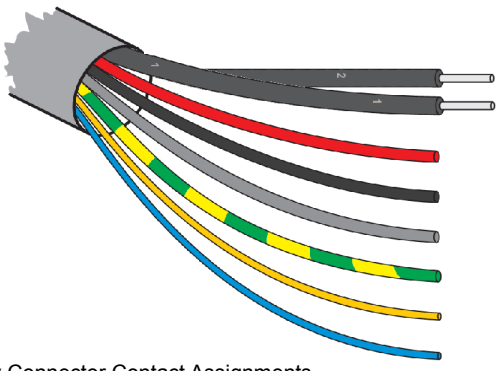


Camera power requirements.

Input voltages	28VDC (24-30 VDC) / 24VAC (RMS)
Power	70W (150W peak) Standard payloads.
	100W (150W peak) Large / Dual payloads.

These figures do not include the requirements of any large payloads, optional heating or cooling devices added within the camera enclosures, nor optional infra-red lighting systems.

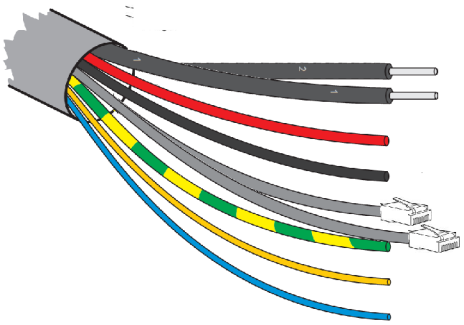
CA-RCM Installation Cable.



Multiway Connector Contact Assignments,

Pin	Function	Conductor			Pin	Function	Conductor	
A	Power + (Pos)	Red			M	Earth (Chassis)	Green/Yellow	
B	Power - (Neg)	Black			||	Cable screen	Grey (Drain wire)	Common to pin M
F	Video 1 Ground	Coax 1 Screen			N	Aux / Washer Relay Pos	Orange	Closing Contact
G	Video 1 Signal	Cox 1 Core			P	Aux / Washer Relay Neg	White	Closing Contact
H	Video 2 Ground	Coax 2 Screen			S	Video 2 Signal	Coax 2 Core	
K	RS485 (Data +)	UTP Yellow						
L	RS485 (Data -)	UTP Blue						

CA-UCM Installation Cable.



Netwok connection leads.
Cat5/8P8C pinout configuration – 10/100BASET
(TIA568B)

Network connectors.

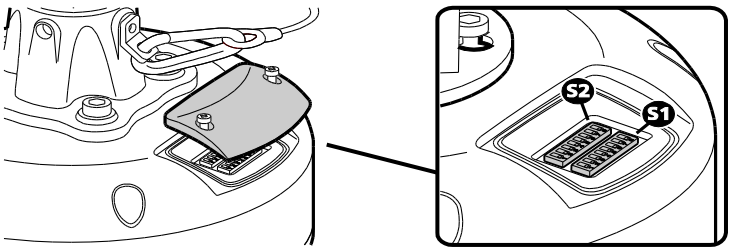
Pin	Function
1	Tx D+
2	Tx D -
3	Rx D+
6	Rx D -

Multiway Cable Conductor Assignments.

Conductor	Function		Conductor	Function
Red	PTZ Power + (Pos) [26-32VDC]		Green/Yellow	Earth (Chassis)
Black	PTZ Power - (Neg)		Grey (Drain wire)	Cable screen – overall multicore shield.
			Orange	Aux / Washer Relay Pos – (Specific models only)
Coaxial 1	Composite Video 1 - miniRG59		White	Aux / Washer Relay Neg – (Specific models only)
Coaxial 2	Composite Video 2 - miniRG59		Brown	Pass-through Power Pos
			Blue	Pass-through Power Neg
Yellow (UTP)	UTP - RS485 (Data +)		Cat5e - Grey	Net 1 (A) – Ethernet network – PTZ/Side camera payloads
Blue (UTP)	UTP - RS485 (Data -)		Cat5e - Blue	Net 2 (B) – Ethernet network – Passthrough to top payload

Configuration switches

These switches set the address and protocol of the camera. If all switches are off then the address is taken from the camera's internal memory and can be set using the menu. The default for the internal memory is 1. Settings related to telemetry control can be configured using two banks of switches (S1 and S2) located behind a removable panel within the hub of the camera. To access the switches, remove the two retaining screws and remove the panel:



Device ID address (block S1, switches 1 to 8)
The 8 switches are the binary code of the address so switch 1-1 is equal to 1, switch 1-2 to 2, switch 1-3 to 4, etc. (powers of 2).
For instance, an address of 65 would be 1+64, requiring switches 1 and 7 to be on.
Some sample values are in the table below.

Camera address	S1-1 (1)	S1-2 (2)	S1-3 (4)	S1-4 (8)	S1-5 (16)	S1-6 (32)	S1-7 (64)	S1-8 (128)
0	Off	Off	Off	Off	Off	Off	Off	Off
1	On	Off	Off	Off	Off	Off	Off	Off
2	Off	On	Off	Off	Off	Off	Off	Off
3	On	On	Off	Off	Off	Off	Off	Off
4	Off	Off	On	Off	Off	Off	Off	Off
5	On	Off	On	Off	Off	Off	Off	Off
-								
100	Off	Off	On	Off	Off	On	On	Off
101	On	Off	On	Off	Off	On	On	Off
-								
255	On	On	On	On	On	On	On	On

If all switches are off then the address is taken from the internal memory and can be set using the communications menu. The default setting for the internal memory is device No.1.
The boot screen will indicate which address is selected and whether it was set by the switches or by the firmware. [S] - Selected on Switches or [F] - Selected in Firmware/Menu.

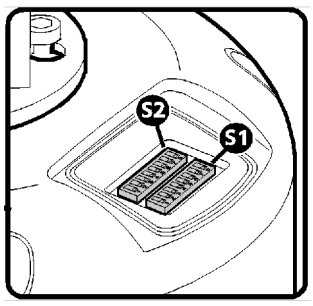
Protocol (block S2, switches 1 to 5)
Sets the protocol and communication parameters.
The protocols that can be selected using the protocol switches are:

Protocol	S2-1	S2-2	S2-3	S2-4	S2-5	#
Set using camera menu	Off	Off	Off	Off	Off	0
FV300, 9600, 8, Odd, 1	On	Off	On	On	Off	13
Pelco-D, 9600, 8, N, 1	Off	On	On	Off	On	22
Pelco-D, 2400, 8, N, 1	Off	On	Off	On	Off	10
Pelco-P, 9600, 8, N, 1	On	Off	Off	Off	Off	1
Pelco-P, 4800, 8, N, 1	Off	On	Off	Off	Off	2
Philips, 9600, 8, N, 1	On	On	Off	Off	Off	3
Philips, 2400, 8, N, 1	Off	Off	On	Off	Off	4
Vicon, 4800, 8, N, 1	On	Off	On	Off	On	21
Vicon, 9600, 8, N, 1	Off	Off	On	Off	On	20
OCP, 9600, 8, N, 1	On	On	On	On	On	31

Unsupported switch settings default the protocol to that which is set in the camera menu.
If all protocol switches are off then the protocol is taken from the internal memory and can be set using the menu. The default setting for the internal memory is Pelco-D, 9600 baud, 8 data bits, no parity and 1 stop bit.
The boot screen will indicate which protocol is selected and whether it was set by the switches or by the firmware. [S] Selected on Switches or [F] Selected in Firmware/menu.

Termination (block S2, switch 8)
Sets the termination for the RS485 interface. For protocols which use RS485 control signals via the twisted pair link within the camera's composite cable, you can determine whether or not the camera is terminated. The camera should be terminated whenever it is situated as either the only device connected to a controller or the last device within a chain of similar devices.

Termination	S2-8
Termination off	Off
Termination on	On



Note: Switches 6 and 7 on block S2 are unused and should remain off.

Start-up POST information display.
Power On Self Test

```
Open Platform
Version n.nnn (xxxx) C1
SN:FFFFFFFF Cam:001  E0000
P:PelcoD,9600,8N1    M:002




bqhept
Pan:00000000 Til:00000000
```

Example values shown.

Version : Firmware version number and check code.
C1 : Firmware security code - {*Factory use only}*
SN: Main board serial number
Cam: Selected Camera/Device address number.
Exxxx : Extended functions selection - {*Factory use only}*
P: Pre-selected Protocol information;
(Protocol Name, Baud, Data/Parity/Stop bits)
M: Menu access Preset number, (EXT-POS).
Bqhept : Firmware status codes {*Factory use only}*
Pan: Til: Encoder power-on test count values – {*For servicing use*}

Oculus Camera Menus.

OSD Menu navigation.
To allow interaction with the On Screen Display menus from a variety of third-party control equipment the menu navigation uses basic Pan/Tilt and Preset-Position recall controls that are widely supported.

These are Tilt (Up/Down), Pan (Right/Left), Recall/Goto Preset-1 and Recall/Goto Preset-2*.
The Zoom+ (Tele) and Zoom- (Wide) controls may also be used.

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Navigation Controls.

Recall Preset-2	To open the OSD Menu screen
Recall Preset-1 (or Zoom+)	To SELECT a highlighted item (or toggle value).
Tilt (Up/Down)	To move between items within the menus.
Pan (Right/Left)	To Increase/Decrease values within a list.
Zoom- (Wide)	To exit a menu (or Select **Exit** from menu list)

Menu items that start with the greater-than (>) character provide access to sub-menus.

The base preset number (OSD Menu) can be set in the Configuration menu.
The default is 2, for use with controllers of limited preset numbering.
Alternative Recall Preset-199 for systems with 3-digit recall.

(*) The use of Preset-2 to access the OSD Menus may be changed within the SETUP menus to allow a different value to be used if desired, (Ref. SETUP > CONFIGURATION menu, EXT-POS value).

==========

Configuration of the camera takes place using the internal menu. There are two versions:

- A quick menu that contains only the most commonly used settings;
- A comprehensive main menu where all settings are accessible.
Default password: **AAAAAA**.

The two menus are accessed in slightly different ways.

The Quick Installation menu.
To access the quick installation menu you need to issue a Go To Preset-198 command to the camera. The menu contains only the most common settings that may need to be changed during installation or service:

Note: The Quick menu does not require a password to gain access to key camera settings (and also provides a backdoor entrance to the main Setup menu. Therefore you are recommended to disable the quick menu (Hide quick menu option) once all configuration settings have been made.

The menu contains only the most common settings that may need to be changed during installation or service:

```
Open Platform
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000

>Communications
Orientation       Upright
Disable OSD       Off
Hide quick menu   Off
Setup menu
Reboot camera
Exit menu
```

Default values shown.

- **>Communications** accesses the settings for the camera ID, the protocol and the communications parameters such as baud rate and parity. See the section ‘Communications’ within the Main menu chapter for details about each option.
- **Orientation** – sets the installation orientation for the camera. Cameras may be mounted in a hanging, upright or upright tilted position. Setting the correct orientation will allow the camera to set the horizon level. This setting requires a re-boot of the camera to take effect.
- **Disable OSD** – disables display of optional OSD telemetry messages such as the camera text, the compass data and the date and time. Individual items can be controlled from the Telemetry menu accessed through the full setup menu. This option does not hide messages that are shown in response to user actions.
- **Hide quick menu** – disables the access to this menu from preset 198. If this menu is enabled then it is possible for a user to access the full setup menu without recourse to the password. If this menu is hidden it can be re-enabled from the Miscellaneous menu via the full setup menu.
- **Setup menu** – provides access to the full setup menu where all of the camera options can be controlled. No password is required. See the section ‘Setup’ within the Main menu chapter for details about each option.
- **Reboot camera** – reboots the camera. This is required by some configuration changes and is also useful if you suspect there may be a camera error as the Power-On Self Test (POST) is run.

Main Root Menu

```
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000
>Lens options
>Goto preset
>Run tour
Pan/Tilt Control        Normal
>Setup (protected)
Using SSUTILITY         Off
CAM2 control            Timed
Minimum zoom            Off
Reboot camera
Exit menu
```

Send a Preset-2* command (or Preset-199) to access the Main Root Menu.
Preset-2 is the Factory default value which may be adjusted via the CONFIGURATION sub-menu, change the value of EXT-POS (Ref. Pag.10).

Lens Options is only displayed if a lens with enhanced functions is installed.

Lens Options Provides access to enhanced lens functions sub-menu where this is supported .

Goto Preset - Shows a list of the presets. Selecting a preset will apply it. Presets that are defined are marked with an '@' symbol. Tjhose allocated to Preset Functions are marked with an 'f' and cannot be recalled.

Run Tour - Shows a list of the tours and mimic tours. Selecting a tour will run it.

Pan/Tilt Control - Sets the type of response to manual (Joystick) speed inputs for Pan and Tilt motion.
Normal sets a linear response, proportional to the input value.
For systems where Pelco D is the selected protocol:
Linear255 allows for a higher reolution of 255 speed values (non-standard).
Quad and **Quad255** apply a quadratic response for finer slow-speed control.

Setup (Protected) - Accesses the setup and configuration menu (see below for details). The setup password will be requested before access to the menu is allowed.
The default setting for the password is **AAAAAA** (6 characters).

Using SSUtility – Allows specific functionality if the SSUtility computer programme is being used.

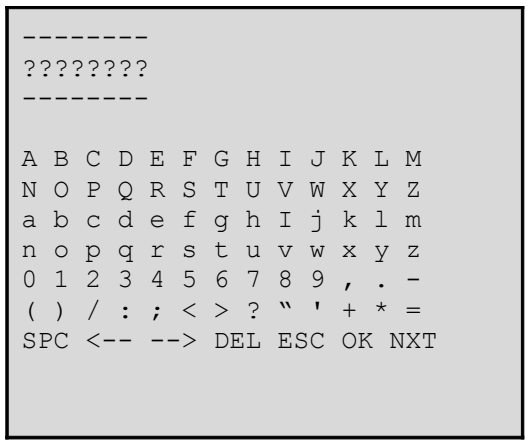
CAM2 Controlled – Sets the control method for the secondary camera and lens if they are fitted.
Timed: uses Secondary Imager Control to direct controls to the secondary camera. If control is not toggled back to the Primary camera by the operator the function will time-out automatically.
Sticky: will cause the change of control to the Secondary camera to remain until the operator changes it – no time-out is applied.
FollowV: will cause the control to be applied to whichever camera image is being displayed on the principle, video output No.1.

Minimum Zoom – Sets zoom limit for Front Mounted Magnifier lenses – Applies to specific models only.

Reboot Camera – Resets the PT unit as though it has just been powered on. This is required by some configuration changes and is also useful if you suspect there may be a camera error as the POST is run.

The Setup (Protected) menus.

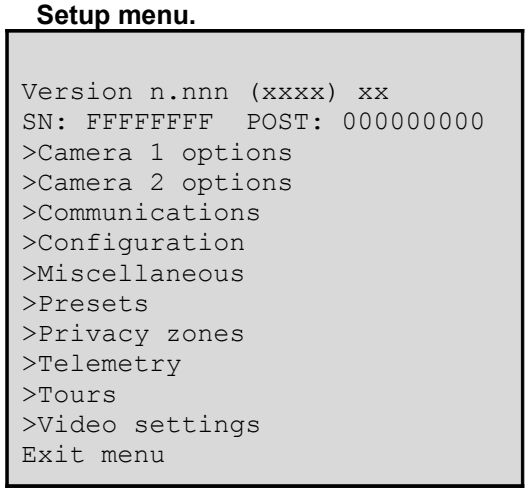
Password Screen.



The setup menu is protected by a password.

Move and select the highlighted character in the text grid to add it to the password.
Next, highlight and select **OK** to submit the password and open the SETUP menu.
Additional punctuation characters can be displayed by selecting the NXT caption to change those shown in that row.
The default setting for the password is **AAAAAA** (6 characters).
The password can be changed within the Miscellaneous section of the Setup menus.

Setup menu.



The SETUP menu contains sub-menus that allow the settings of the camera operating parameters, preset positions, tours, telemetry (on-screen display items) and privacy zones.

Camera 1 Options - Provides access to the module specific options for the optical camera.

Camera 2 Options - Shown only if a thermal imaging or second video module is fitted.

Communications - To access the sub-menu for serial telemetry settings

Configuration - To access the sub-menu for motion and control settings#

Miscellaneous - To access the sub-menu for ancillary functions.

Presets - To access the sub-menu for storing and recalling Preset Positions.

Privacy Zones - To access the sub-menu for setting-up privacy zones – {where applicable}.

Telemetry - To access the sub-menu for Ons Screen Display messages and captions.

Tours - To access the sub-menu for configuration of Preset and Mimic Tours.

Video Settings - To access the sub-menu for video output signals.

Exit Menu - To return to previous menu level.

Camera 1 options

```
Open Platform
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000

Hdout resolution  1080       HDout
frame rate  p25     Picture mode
      COL/MON
AE Mode           Auto
AE response (sec) 1
Shutter           1/1
Iris              F1.6
Backlight comp    Off
WDR mode          Off
White balance     Auto
ICR threshold     28
Digital zoom      On
Mirror Image      Off
Flip Image        On
Module number     1097
Reset (on reboot)
Exit menu
```

Default values shown.

HDout resolution – If the system is an HD type, selects if camera shows a 180 or 720 pixel image.
Only applies to HD models

HDout frame rate – selects ithe frame rate and frame scan mode of output.
Only applies to HD models

Picture mode – selects if camera shows a colour or monochrome (IR/low light sensitive) image.
COL/MON will automatically select colour or monochrome dependent on image brightness

AE mode – determines if camera image settings are set automatically or biased to manually selected values (set within this menu).

AE response – determines the delay time for the Auto-exposure to react – to avoid responses to short-term, transient changes in the scene..

Shutter – If AE Mode is Manual or Shutter the shutter speed is held to this value.

Iris – If AE Mode is Manual or Iris the Iris position is held to this value.

Shutter and Iris may show arbitary valus when AE Mode is set to Auto.

Backlight comp. – enables the Backlight compensation facility of the camera.

WDR mode – enables the Wide Dynamic range function of the camera.

White balance – sets if the picture colour balance is Automatic of biased to a selected ambient lighting type.

ICR threshold – sets the image/scene brightness level that the camera will automatically change between colour and monochrome pictures, (if picture mode is COL/MON) .

Digital zoom – enables digital enlargement of the image. This is operated as an extension of the optical zoom function – beyond the maximum optical telephoto.

Mirror image – enables horizontal reversing of the picture – does not re-orientate PT operation.

Flip Image. – enables vertical reversing of the picture – does not re-orientate PT operation.

Module number – displays the video module's identity code – for factory/servicing use.

Reset (on reboot|) – will cause the video module to be reset when the Oculus is next rebooted. **Factory and servicing use only.**

Communications menu.

```
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000

Camera number     1
Dualed Camera     Off
Protocol          PelcoD
Auto-protocol     On
PelcoD mode       Traditional
Baud rate         9600
Data-bits         8-bits
Parity            None
Stop-bits         1
Exit menu
```

Camera number **Camera number** sets the protocol address for the camera. Default is Camera 1 – selected in firmware menu. (Range 1 – 255)

Dualed Camera Allocates Camera Number+1 to second camera sensor functions.

Protocol **Protocol** sets the RS485 protocol. The protocol will not be changed until the camera is rebooted.

Auto-protocol The Auto-protocol at POST option sets whether the camera will automatically select a protocol to match the incoming control commands once the self test is completed.. The camera can detect Pelco-D, Pelco-P, Philips and Vicon formats.

PelcoD mode - Selects the format used for Pelco D telemetry.
Traditional mode suppresses responses to General commands and uses modified Zoom and Tilt coordinate data values.
Strict mode uses ACK responses and standard Pelco defined co-ordinates.

Baud rate, Data-bits, Parity and Stop-bits Configure the RS485 serial port and should be adjusted only if necessary.

Default settings are Pelco-D, 9600. 8 bit data, No parity, 1 Stop-bit.

Configuration

```
      Open Platform
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000

Orientation             Upright
Positioning speed       4
Low voltage PSU         Off
Pan limit left          0
Pan limit right         0
Tilt limit down         0
Tilt limit up           0
Set Zero                Store
Set North               Store
Simple wash             Off
Wash duration           15
Wiper duration          7
Ancillary function      Off
Heat Threshhold         0
Ext-pos functions       2
Exit menu
```

Orientation – Sets the installation orientation for the camera. Cameras may be mounted in a Hanging, Upright or upright-Tilted position. Setting the correct orientation will allow the camera to set the horizon level. This setting requires a re-boot of the camera to take effect.

Position Speed – Controls the rate the camera moves under operator control and when moving to preset positions. This is the peak rate. Slower rates are available through the zoom dependant speed control and via the settings for the preset positions and tours.

Low voltage PSU – Allows for smooth motion correction at lower input voltage levels – Applies to some models only (14-18VDC).

Pan Limit Left and **Right** – Set limits for the camera travel. The figures are in degrees and the zero point of the camera needs to be included in the sweep of the travel (although it can be the left or right limit). When these values are both set to 0 (zero) then the camera travel is unlimited. The new limits will not be changed until the camera is rebooted.

Tilt Limit Down and **Tilt Limit Up** – Can be used to limit the tilt travel range. The zero point needs to be included in the range; although it can be the top or bottom limit. The new limits will not be changed until the camera is rebooted.

Set Zero Allows the co-ordinate Zero position be re-aligned away from the homing sensor.

Set North Allows the North sector of the Cardinal sectors to be re-aligned.

For both **Set Zero** and **Set North**;
Clear : Highlight and Select this to remove the offsets.
Store : Highlight and Select to store the present Pan position as the Zero / North sector. Always clear the value before storing a new offset position.

Simple wash – Turns off full wash cycle actions. Start position storing and wiper actions not enabled.

Wash duration – Sets the period for the wash cycle. This is in seconds.

Wiper duration –Sets the period for the wiper cycle. This is in seconds. Requires external interface device.

Ancillary function – Selects the action of the Ancilliary circuit. Heater, Cooling fan of White LED lamp. Applies only to models fitted with Ancillary equipment.

Heat Threshhold – Not enabled in current models.

Ext-pos functions – Sets the base preset number for first of the extended functions that are available as presets – Menu preset override – The preset value that will open the OSD Menu. Default value is **2**.

Miscellaneous

```
       Open Platform
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000
>Date and time
Debug messages          Off
>Diagnostics
Hide quick menu         Off
Idle func (tour)        0
Idle timeout            5
IR Lamp Auto-On         Auto
POST                    2
Return to Off-pos       On
PTZF Timeout            30
Z-dependent speed       On
Focus speed             60
Change password
Exit menu
```

Date and time **>Date and time** sets the date and time for the cameras real-time-clock display.

Debug messages Enables the display of additional information on the OSD which can help to diagnose camera problems.

Diagnostics **>Diagnostics** displays hardware diagnostic information for factory and servicing purposes.

Hide quick menu **Hide quick menu** allows you to prevent access to the Quick Menu using Preset 198.

IR lamp aouto-on **IR Lamp Auto-on**, when set to Auto, allows an optionally fitted LED illuminator to be switched on automatically in low light conditions. When set to On or Off the lamp is in a permanent state.

Idle func (tour) - Selects which tour will be initiated if the idle time-out period elapses. Selecting Zero disables the function.

Idle Timeout - Is the wait period from the last operator input (PTZ command) until the Idle function is automatically started.

POST - Determins whether a power-on-self-test is performed at start-up. If turned off, some functions will no longer be available. The speed of the test can be selected (for reading messages) with values 1 - 3.

Return to Off-pos **-** Controls the camera behaviour after a power-on.If this option is on then the camera will automatically return to the position it was at when the power was turned off.

PTZF timeout - sets a time period (seconds) after which, if no telemetry is received, any Pan, Tilt, Zoom or Focus actions will be stopped. This is to reduce runaway when telemetry messages may be lost in transmission.

Z-dependent speed - Zoom dependent speed enables the pan and tilt speed to be dynamically adjusted to match the zoom setting of the lens – the camera will pan and tilt slower when zoomed in and faster when zoomed out.
CAM1 sets the speed by the Primary camera's zoom value.
FollowV sets the speed by the camera that is selected on the principle, video output No.1.
FollowC sets the speed by the zoom of the camera that the camera control (Primary/Secondary) has selected at that given time.
(In some configurations this will be the same as FollowV)

Focus speed - Sets the nominal rate of focus movement, (applies to specific lens versions only).

Change password - Allows you to alter the six digit password used to protect the setup menu.
(The default password: **AAAAAA** (6 characters)

Presets.

```
Edit preset…
001@  002f  003f  004f  005f
006f  007f  008f  009f  010f
011f  012f  013f  014f  015f
016f  017f  018f  019@  020@
021p  022x  023   024   025
026   027   028   029   030
031   032   033   034   035
036   037   038   039   040
041   042   043   044   045
```

Each preset allows you to define a camera pan and tilt position as well as a zoom setting.

You can define up to 128 presets which can then be either accessed using a Goto command, selected from the Goto Preset menu or can be linked together within one or more camera Preset Tours.

When you choose the Presets option within the Setup menu, the list of presets will be shown.

The '@' suffix indicates that the corresponding preset has position data stored within it.

If the Preset value is assigned to a function (Ref. Appendix 5) this will be indicated with an "f" suffix.

If the set position is beyond a user limit for Pan, Tilt, (or both) it will be indicated with a suffix "p", "t" or "b".

If the Preset value is assigned to execute another Preset or Tour this will be indicated with an "x" suffix.

Highlight the required preset number and select it to view the available options:

```
       Open Platform
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000
Preset               1
Store preset
Erase preset
Label
Label Display        Default
Erase Label
Execute Tour         0
Execute Preset       0
Exit menu
```

Store preset Saves the current camera pan/tilt/zoom position in the selected preset.

Erase preset Clears the location stored within the selected preset.

Label Allows a label text to be assigned to the Preset.

Label Display **Special Feature Presets.**
For installations of PAIR2 enhanced lenses preset positions 130c – 139c are assigned for lens functions.
These presets are masked to record the PAIR2 enhancement settings that are active at the time of recording and not other parameters such as the position of the PT unit.
Recalling these presets will cause the lens enhancement settings to adjust to the recorded values whilst not initiating any PTZ actions.

Erase Label

Causes a defined label to be removed from the preset. The captioning will revert to the default type.

Preset No.			Extended Functions
1		Fixed 1	**Select** - when in menus and preset 1 otherwise.
2	(Default) Base Value	Fixed 199	**Menu**
3	(Default) Base+1	Fixed 200	**Night** Mode Colour/Mono toggle
4	(Default) Base+2	Fixed 201	**Wiper** function (Do not wipe when window is dry.)
5	(Default) Base+3	Fixed 202	**Wash cycle** (Auxiliary 1)
6	(Default) Base+4	Fixed 203	**Shutter** speed toggle (Auxiliary 2)
7	(Default) Base+5	Fixed 204	**Video Swap –** toggle between output channel 1 & 2. (Only for twin camera modules)
8	(Default) Base+6	Fixed 205	**Thermal Polarity** – White-hot / Black-hot (Only for Thermal Image models.)
9	(Default) Base+7	Fixed 206	**Secondary Imager Control** [SIC] Cam2 / Cam1 select for lens control. (Only for twin camera modules)
10	(Default) Base+8	Fixed 207	**BLC** – Toggle back-Light Compensation (BLC)
11	(Default) Base+9	Fixed 208	**Wide Dynamic Range** – On/Off toggle. (Applicable models only)
12	(Default) Base+10	Fixed 209	**Auto-focus** – On / Off. (for keyboard without AF key)
13	(Default) Base+11	Fixed 210	**Auto-Iris** – On / Off. (for keyboards without AI key)
14	(Default) Base+12		**White LED** - On/Off toggle. (Only applicable to White LED models.)
15	(Default) Base+13		**End Mimic Recording** (Only if during Mimic recording session.)
16	(Default) Base+14		**ICE On/Off** (Only for Thermal Image models.)
17	(Default) Base+15		**ICE Level Increase** (Only for Thermal Image models.)
18	(Default) Base+16		**ICE Level Decrease** (Only for Thermal Image models.)
19	(Default) Base+17		**Image Stabiliser Toggle** (On / Off) (Only applicable to particular models)
-		Fixed 197	Re-enters the boot screen to show protocol and switch settings
-		Fixed 198	Quick Installation Menu

Functional Presets

To allow simple access to some functionality of the PT unit (and payloads), operating functions are assigned to Preset values. Recalling these Presets will not initiate a PTZ move but will activate the associated function.

The lower range values can be re-assigned via the Configuration menu to suit the installation requirements.

==

If CAM2 Control [Secondary Imager Control] is to the Secondary (Thermal) camera, the Iris controls will be assigned to alternative functions:-

Iris open(+) – Digital Enlargment – cycles through values.

Iris close(-) – Thermal Polarity – Toggles White-as-hot / Black-as-hot.

Privacy patches
Privacy patches can be used to obscure objects from view. Eight privacy patches can be configured and the state for each patch is shown as either ‘Enabled’, ‘Disab’ or ‘Empty’.

```
Open Platform
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000

Patch 1          Enabled
Patch 2          Enabled
Patch 3          Enabled
Patch 4          Enabled
Patch 5          Enabled
Patch 6          Enabled
Patch 7          Empty
```

- **Enabled** patches are both defined and active - the camera will not be able to view them.
- **Disabled** patches are defined but are currently inactive.
- **Empty** patches are undefined.

When a patch is selected, you will see a status screen for that patch, as shown below.

```
Open Platform
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000

Patch Status           Empty
Set at current pos
Recall position
Clear patch
Exit menu
```

- **Patch Status** is used to select whether the patch is active or not.
- **Set at current pos** configures the patch to obscure the current view. The view is calculated from the current pan, tilt and zoom positions and it will be obscured immediately so you can verify if the privacy patch setting is correct.
- **Recall position** moves the camera to the position used to define the privacy patch.
- **Clear patch** disables the patch and clears the data from the camera memory.

To create a new privacy patch

1 Place the camera into the required pan/tilt/zoom position such that the area to be obscured lies well within the borders of the video screen.
2 Enter the **Setup** menu, choose **Privacy patches** and then the required **Patch** number.
3 Choose the **Set at current pos** option.

.

Telemetry

```
Open Platform
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000
Disable OSD             Off
Camera text             Text1
Camera text X           2
Camera text Y           1
>Cardinal text
Cardinal text X         12
Cardinal text Y         0
Compass display         TILT
Compass text X          15
Compass text Y          0
Datetime display        TIME
Datetime X              0
Datetime Y              0
Prepos text             Prepos
Prepos text X           15
Prepos text Y           0
Environmental X         24
Environmental Y         14
Which Camera            PRIMARY
Exit menu
```

The Telemetry section allows configuration of the on screen text information and captions that can be overlaid on to the video display in order to assist the operator.

Disable OSD – Disables display of fixed OSD telemetry messages such as the camera text and date/time. This option does not hide messages that are shown in response to user actions.

Camera text – This allows the camera-name text to be edited, (20 characters max).

Camera text X and **Camera text Y** – These control the position of the camera-name text on the screen. Setting the X value to 0 will hide the camera text.

Cardinal text – This opens a submenu for editing the cardinal position texts. There are 8 text strings associated with the North, North-East, East, South-East, South, South-West, West and North-West compass sectors.

Cardinal text X and **Cardinal text Y** – These control the position of the cardinal text labels on the screen. Setting the X value to 0 will hide the text.

Compass Display – The compass display shows the camera's Pan/Tilt co-ordinate or rate values. These can be displayed as either ‘PAN’, ‘TILT’, ‘BOTH’; PRATE, TRATE, RATES.

Compass text X and **Compass text Y** – These control the position of the co-ordinate text on the screen. Setting the X value to 0 will hide the display.

DateTime display – The time can be displayed as ‘TIME’ or ‘DATE’. The ‘DATE’ display includes the time.

Datetime text X and **Datetime text Y** – These control the position of the time text on the screen. Setting the X value to 0 will hide the text.

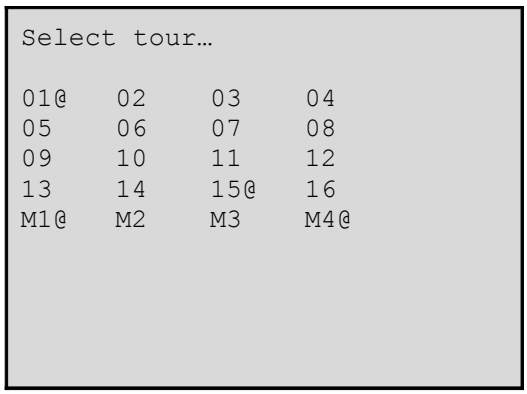
Prepos text – This allows the text label shown beside the Preset position numbers to be edited, (default: Prepos *n*).

Prepos text X and **Prepos text Y** – These control the position of the Preset position text on the screen. Setting the X value to 0 will hide the text.

Environmental X and **Environmental Y** – These control the position of the internal (PCB) Temperature/Humidity information on the screen. Setting the X value to 0 will hide the text.

Which camera X and **Which camera Y** – These set the position of the indicator of when Primary or Secondary camera control is selected. When this is display, the CAM2 caption (Preset-9) is not shown when camera control is changed. Setting the X value to 0 will hide the text, (CAM2 caption will be enabled).

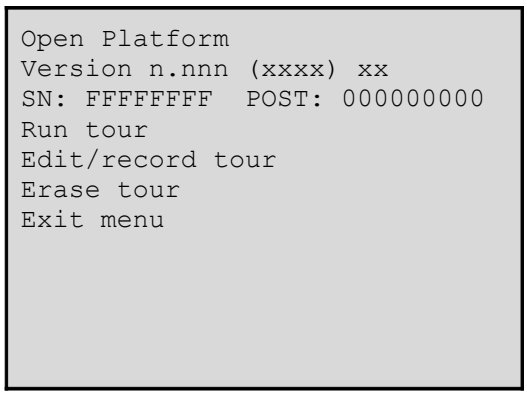
Tours



Two types of tour are available.
A total of 16 position tours plus Learn/Mimic (4 available) tours.

Highlight and Select the tour that is wished to be programmed.

Position Tours



A Position tour is a collection of one or more preset positions that the camera will be instructed to visit in sequential order. Up to 16 tours can be defined and each can contain up to 60 preset positions, placed in any order.

Run Tour Runs the current tour.
Edit/record tour – Allows a tour to be edited in a sub-menu - see below.
Erase Tour – Removes the tour from the camera memory.

To Edit/Create a Preset Tour.

- Choose the **Edit/record tour** option for the Tour you wish to adjust.
- Choose the **Add** option to display the list of available positions.
- The '@' indicates where a preset position is programmed with PTZ values.
- Highlight and select the required preset.
  See below for details about adjusting speed and dwell time.
- Repeat steps 3 and 4 until all of the required presets have been added to the tour.

```
Open Platform
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000
Select preset          1
Speed                  Med
Dwell (secs)           3
Remove preset
Exit menu
```

For each preset within the tour you can adjust the positioning speed and dwell time.
To edit a specific step in the tour, highlight the preset number within the **Edit/Record Tour** screen and select it to see the menu values specific to it.

Select preset – Indicates the position that this step in the tour is set to.
Speed – Sets the speed of PTZ movement Towards the selected position of the tour.
Dwell – Determins the time that the unit remains static at this position
Remove preset – Removes the position from the tour memory.

Mimic Tours

A Mimic tour (4 available) stores a record of the camera's pattern of movements for a period of up to 5 minutes each.
This requires the facility to send and use the Goto Preset-15 function command to store a recorded action.

To Create/replace a Mimic Tour.
The '@' suffix indicates that the corresponding tour has been programmed. When you select a tour number, you will see an options screen for that tour:
To create/replace a Mimic tour.

- Position the camera to where you wish to start the tour.
- Enter the **Setup** menu, choose **Tours** and then the required Mimic Tour number (M1 – M4).

- Choose the **Edit/record tour** option. The tour will start to record immediately, displaying a count-down of the available time.

- Pan, Tilt, Zoom the camera as required for the tour pattern to be recorded.

- To end and store the recording, select the Goto Preset 15 command.

Video Settings

```
Open Platform
Version n.nnn (xxxx) xx
SN: FFFFFFFF  POST: 000000000
Video feed 0            0
Video feed 1            0
Video level 0           36
Video gain 0            128
Video level 1           36
Video gain 1            128
Alt video switch        Off
Exit menu
```

This section deals with the default video feed at power on and allows the level and gain to be adjusted for the video outputs.

Video feed 0 – Selects the default video feed at power on (0 - optical or 1 – thermal (if applicable)).

Video Level 0 – Allows you to adjust the signal amplitude for the optical camera feed, (Default 36).

Video Gain 0 – Allows you to adjust the signal gain for the optical camera feed, (Default 128).

Video Level 1 – Allows you to adjust the signal amplitude for the thermal camera feed, (Default 36).

Video Gain 1 – Allows you to adjust the signal gain for the thermal camera feed, (Default 128).

Alt video switch – Enables picture switching method for models with secondary cameras (Thermal) This is normally factory set and should not be adjusted.

Appendix – Fault Finding.

Checks to undertake.

Camera does not power-up.

Power correctly connected. Check for able faults, breaks or poor connections. Fuses may be missing. Blown fuses/breakers should be checked for other causes.

Voltage at camera. Voltage loss in cables or supply droop under load may result in too low a voltage at the camera input. Measurements at the PSU may not show voltage at camera. Measurements should be taken as close to camera as possible both open circuit and under load.

Insufficient available current. PSU may not be providing enough current at a given voltage or PSU may be tripping if the demanded current exceeds its limits.

Camera movement is incorrect

Orientation. Is camera orientation correctly set in menus to match the real-world orientation of camera? [SETUP > CONFIGURATION > ORIENTATION]

Ensure unit rebooted after orientation changed. The PTZ unit must be rebooted (or power Off/On) for this change to take effect.

Controller reverse. Some controllers have the facility to reverse the PT telemetry sent when controls are moved (e.g. Send LEFT commands when the joystick is moved to right).

Limited or no Pan-Tilt.

Check if Pan or Tilt limits have been set. Non-Zero values apply movement restrictions which, if small, can appear as no-movement. [SETUP > CONFIGURATION > PAN LIMIT LEFT (PAN LIMIT RIGHT, TILT LIMIT DOWN, TILT LIMIT UP)]

Jumpy movement, irregular PT.

Is Position Speed too high. Check Position speed value – Default is 4. The position speed should be reduced if the unit is inclined, the location is exposed to wind, the mounting is not absolutely level or other site conditions could cause resistance to movements. [SETUP > CONFIGURATION > POSITIONING SPEED]

Mounted level and stable Confirm if mounting position is level and stable. Angled fittings and movement (sway) may cause motor skipping or prevent the Pan motion.

Is telemetry from controller steady Check that the controller (Joystick, Matrix, VMS) is sending steady, not irregular, commands.
Intermittent command transmission. Dropped messages may result in irregular or apparently random movement and loss of control depending on the protocols in use. Problems in telemetry transmission (cables, fibre, Ethernet, radio) can cause intermittent messages to reach the camera and result in incorrect operation.

Picture up side down / (Pan tilt reversed).
Check if picture flip is set. If only the picture is the wrong way (movement is correct) the video image may have been flipped.
[SETUP > CAMERA OPTION > FLIP IMAGE] (Normal value is ON).
Check Orientation is correct.

No Picture
Check physical connections. Broken or incorrectly configured video cables, damages plugs and faulty transmission equipment will prevent pictures being displayed.
Is correct coax output in use. The standard cable has two coax conductors, labelled **1** and **2.** No picture is present on Coax No.**2** for single camera models, this is used only on two-camera types. Only Coax No.**1** should be connected on single camera models.
Thermal camera switching
Thermal imager models can switch images between the two coax outputs, both showing at all times. If one output is missing a picture, check if switching-over the cameras results in a change. The camera switching is operated by preset override Call Preset No.204 (or No.7 if overrides in default state – Refer Appendix 1).

No telemetry/control
Correct protocol set at both ends. Check that the controller and PTZ unit are both set to use the same command protocol. This is shown on the start-up screen when unit is re-powered. (e.g. Protocol: PelcoD 9600 8N1 f
Check correct Address/ID. Confirm camera is at expected address value. This is shown on the start-up screen when unit is re-powered. (e.g. Cam: 001s)
Check Correct Baud Check that the controller and PTZ unit are both set to use the same Baud rate. This is shown on the start-up screen when unit is re-powered. (e.g. 9600)
Ensure unit rebooted after Communications changed. The PTZ unit must be rebooted (or power Off/On) for these changes to take effect.
Wire orientation (Data-A/B) The RS-485 telemetry wires are the Blue/Yellow or Blue/Green (depending on cable version) twisted-pair conductors in the multicore cable.
Check and test that the correct wires are to the correct controller terminals. (Not all equipment manufacturers use the same A/B or +/- designation).

No Preset- Override Functions
Does Preset 2 recall to a position. Record a position in to Preset Position 2. Does Recall Preset Position 2 moving to a location when instigated? This indicates preset overrides have been moved to a non-default value.(Refer Appendix 1). Try Recall Preset Position 199 (if controller allows this) .
Check new value in controller range. If the preset functions have been moved to new positions, check that the new values are within the range of the controller.
Try all functions Menu, Wipe, Mono functions should all be called in case the symptom is specific to particular function(s) If the controller allows use the fixed range preset calls (199-210) (refer operator guide)

Wiper not stopping.
Check for latched controller. Check controller does not send repeated wiper instructions. Some systems latch-on their wiper controls resulting in repeated calls to the camera to start wiper actions.
2) **Confirm cycle ends.** Confirm that WIPE caption appears and clears from screen. This indicates that the cycle intends to stop and is not receiving repeated instructions.

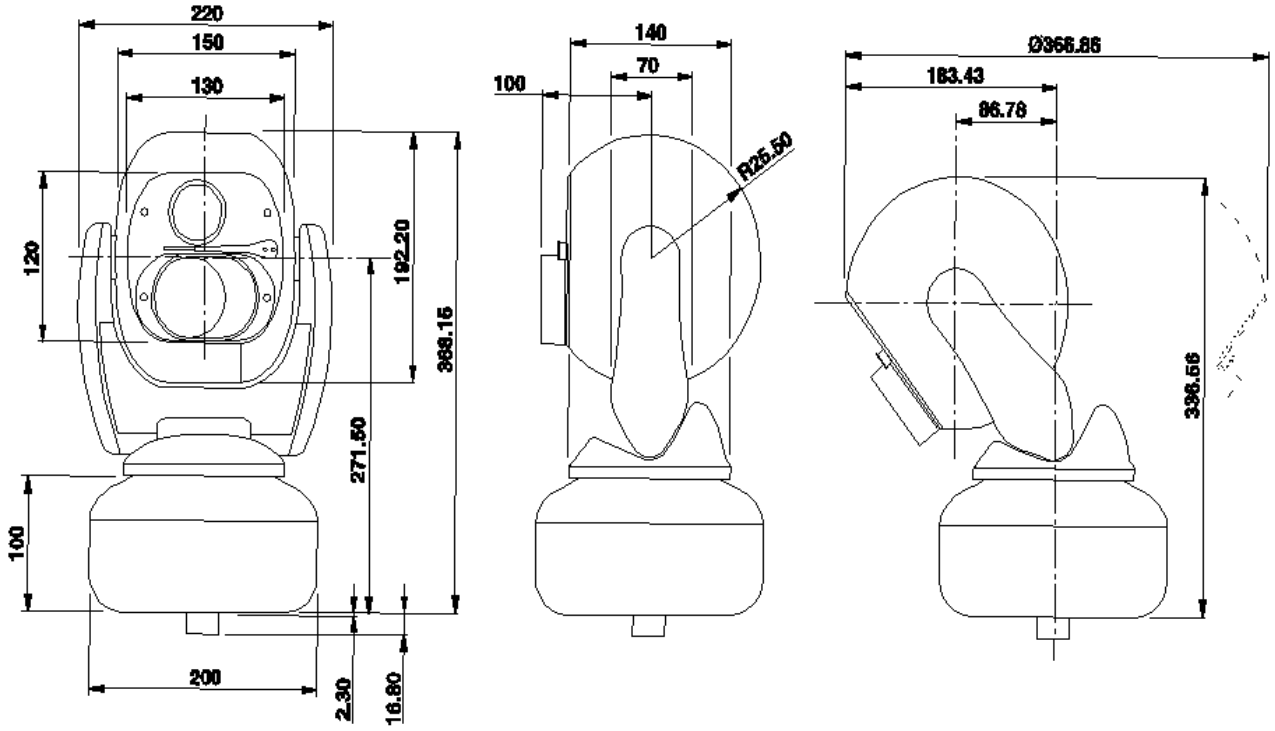
Wiper not starting.
Check wiper preset. If wiper action is being commanded with a Preset Override call – check that the Menu Preset is as expected. Wiper action is two values higher (e.g. Menu=2, Wiper=4).
Check command is received. Confirm that the instruction to start the wiper action has been received and processed. The WIPE caption will be displayed as the software starts the wiper's sequence. If no caption shows then the action has not been received and recognised.
Wiper boss depressed. Check that the wiper arm has not been pushed inwards in to the camera face-plate. If pressed inwards the boss can cause the mechanism to jam, stopping the wipe action and resulting in motor failure. Pull the wiper arm assembly forwards (hook finger under arm beside boss) to ease it away from the facepla

General Dimensions

IR model shown.

Total height:	391 mm	
Centre box		
Height:	301 mm	
Depth:	245 mm	
Width:	Oculus	247 mm
	Aeron	247 mm
Mass:	Oculus	7.5 Kg
	Aeron	Kg

Oculus IR.



Units: mm

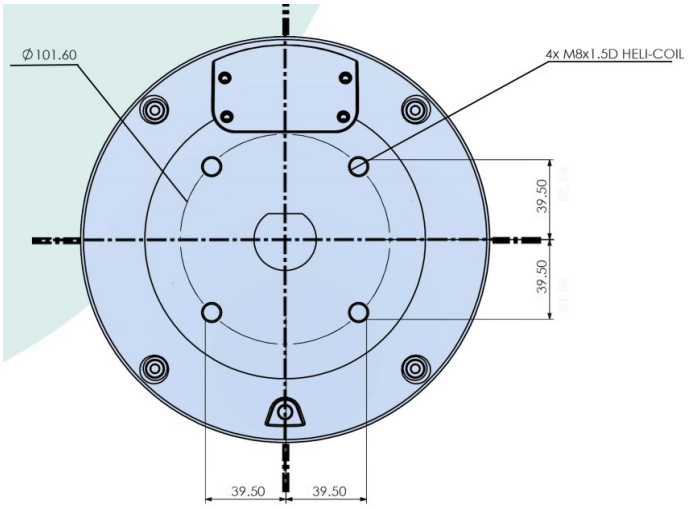
Mounting threads.

All models.

4x M8 threaded holes on
4” PCD (101.6mm) diameter.

Cable connector located at centre of bottom surface.

Allow 50mm diameter clearance for cable and connector entry.



Applicable to firmware releases of Oculus and Aeron 1.12x
Customised, bespoke and alternative firmware versions may differ in some instances