



# IRIS<sup>®</sup>



# 116

USER GUIDE

SERIES: 116/117/118

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## 1.01 Introduction

IRIS 116, 117 and 118 cameras have been especially designed for practical and extreme operating environments such as marine, military and emergency service vehicles.

In addition to its remarkably compact and sleek design, the PTZ is water-resistant and has anti-vibration and anti-corrosion properties.

## 1.02 Features

Some of the key features of the 116 series device are as follows:

- Sleek, compact housing measuring only 16cm high
- Extremely simple installation
- High Speed Pan and Tilt movement
- Continuous 360° Pan Rotation
- Auto-Flip Tilt Feature
- Proportional Pan and Tilt Speed in accordance with Zoom level
- Auto Focus
- 100 User Definable Preset Positions
- Extremely Sensitive Image Processing for Low Light Operation.

### Day/Night Function

The PTZ-16 features a true mechanical Day / Night filter that switches the camera from colour to monochrome in low light conditions for added clarity. The camera can produce clear pictures even in extremely low-light conditions, as low as 0.01 Lux.

### Proportional Speed Control

Proportional pan automatically reduces or increases the pan and tilt speeds in proportion to the degree of zoom. When zoomed in (telephoto) the pan and tilt speeds will be significantly slower for a given amount of joystick movement than at wide zoom position. This prevents the image from moving too fast on the monitor when zoomed in.

### Lens Control (Auto Focus)

Users can adjust zoom wide and zoom telephoto to a ratio of either 28 times or 36 times zoom (depending on the model). Focus is set to auto-focus as standard. Autofocus can be overridden with certain control interfaces. Similarly, the camera Iris defaults to automatically but can be overridden with certain control interfaces.

The following factors may affect autofocus operation:

- Target not central within field of view
- Multiple targets are near and far simultaneously in the field of view.
- Target object extremely bright, causing lens flare.
- Target moving too fast.
- Target is too dark or too vague.

### User Presets (Save / Call)

The PTZ-16 has the facility to learn 100 positions (including zoom and focus values). Users can then send the camera automatically to a position by simply selecting the desired preset position number, or by hitting a dedicated key. Please note, presets are not available on the KBD-16 v1.

### Auto White Balance

The camera automatically adjusts white balance (WB) according to the amount of background light to provide a true colour representation of the field of view.

### Back Light Compensation (BLC)

If the field of view has a bright background the target subject may appear dark or as a silhouette as the iris struggles with the variance of light. Backlight compensation enhances the target objects in the center of the picture. The camera processor uses the center of the picture as a focal point from which to adjust the iris.

### Auto Cruise

The camera has the facility to store 39 preset positions into a 'cruise list' which when actioned will cycle through each position in the list.

### Tours and Scans

The camera has four built in, user definable Tours that allow the user to set 10 positions per-tour and trigger the camera to automatically step between each position in sequence with a pre-determined dwell time between each position.

4 automatic Scan modes are also provided, each with a slow medium or fast speed level.

## 1.03 Manual Validity

This manual covers the installation and operation of Iris Innovations 116, 117 and 118 series Low Light PTZ cameras, covering the following models: IRIS116-28, 116-36, 117-28, 117-36, 118-28, 118-36 - Both PAL and NTSC variant.

## 1.04 Important Warranty Information.

This product is covered by a 1 year return to base warranty valid from date of purchase. To qualify for an additional year warranty free of charge beginning at the end of the original warranty period and learn more about the terms and conditions of the warranty, register your product at [www.boat-cameras.com](http://www.boat-cameras.com)

## 1.05 Conventions:

At various points within this guide, the following icons will be used to illustrate important or potentially dangerous information:



### WARNING

This symbol indicates a risk of damaging the camera or other items or an important issue that may affect the operation of the camera.



### INFORMATION

This symbol points out important information pertaining to the installation, operation and maintenance of the camera.



### DANGER

This symbol alerts the user of a serious risk of damage or personal injury or death.

## 2.01 Warnings & Important Product Information

### WARNING: Installation and Operation

This product must be installed and operated in accordance with these instructions. Failure to do so may result in poor product performance, damage to the product or vessel and or personal injury. Installation should only be carried out by qualified personnel or by persons competent in electrical systems.

### WARNING: Power Supply and Grounding



Ensure the boats power supply is switched off during installation. Ensure suitably rated circuit breakers / fuses are used in the installation of the product in accordance with the electrical values shown in the technical specifications of the product. Never switch on power until the power connections are correctly terminated in accordance with the information provided in this document. Do not connect or disconnect the product with the power supply switched on. Never disconnect the DC ground with the power supply on.

### WARNING: Wiring terminations



Where the products video, power and data terminations are extended, ensure that suitable connectors are used and that the point of termination for each cable is adequately protected against moisture ingress. Ensure correct polarity is strictly observed. Do not cut or remove cable connectors without prior permission from Iris Innovations Limited.

### WARNING: Do Not Open the Unit



There are no user serviceable parts within the product so there is no need to open the device other than temporarily removing the Camera Address DIP Switch window whilst setting addresses. Ensure the DIP switch window is correctly replaced and that the rubber seal is not lost, pinched or damaged. The product has been certified to IP66 standards, however, submersion or the product or exposure to high pressure washing will invalidate the warranty.

### WARNING: Disclaimer



This product is intended to be used only as an aid to navigation and must never be used as an alternative to correct navigational practices and judgements made on the basis of approved navigation methods. It is the users responsibility to observe correct and proper navigational skill when using this product. Only officially approved charts and notices to mariners contain the current information required for safe navigation.

Operating the camera or viewing the video input whilst the vessel is moving could cause a distraction and result in accidental collision resulting in property damage, injury or death. Iris Innovations cannot be held liable for any incidental, special, indirect or consequential damages whether resulting from the use, misuse or inability to use this product.

### CAUTION: Service and Maintenance

This product contains no user serviceable parts. Please refer all maintenance and repair issues to your authorized Iris Innovations dealer. Any unauthorized work to the product may affect the warranty.

### CAUTION: Care and Cleaning

This product is a sensitive piece of electronic, imaging equipment and must be handled and treated accordingly. Do not drop or shake the unit during installation. Never manually alter the pan or tilt position whilst the power to the unit is on as this may permanently damage the motors. Avoid exposure of the imager to direct sunlight where possible as this may degrade the cameras performance over time.

When cleaning the device, ensure power is switched off to avoid unintentional movement of the cameras motors. Clean the camera housing with a soft cloth. Moisten the cloth and use a mild detergent if required but take care not to get detergent on the lens window. The lens window has a protective coating which may suffer damage as a result of improper cleaning. To clean the lens window use a soft cotton cloth. Moisten with clean water if necessary. For further advice on cleaning the lens window, contact Iris Innovations.



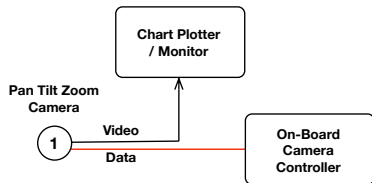
### INFORMATION: Product Disposal and Recycling

Dispose of this product in accordance with the WEEE Directive. The Waste Electrical and Electronic Equipment (WEEE) Directive requires the recycling of waste electronic and electrical equipment. Iris Innovations supports the WEEE policy and politely request you observe correct disposal methods. For further information on how to correctly dispose of this product please contact Iris Innovations.

Please recycle unwanted packaging and documentation. The cardboard carton, all paper manuals and documents and the protective plastic bag in which the camera is shipped are widely recyclable. Please check with your local recycling plant for confirmation.

### 3.01 Examples of Typical Systems

A basic configuration will consist of a single camera, a camera controller and a viewing medium (either a dedicated video monitor or a multi-functional display (MFD)). The video feed from the camera is routed directly into the MFD, and the control data from the joystick is sent directly to the camera.



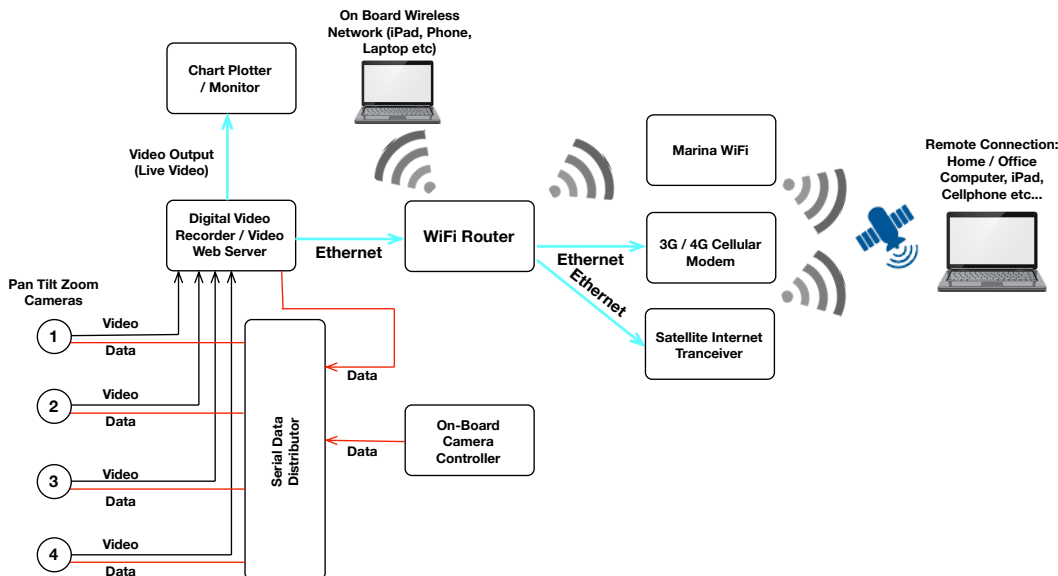
**Simple Camera to Monitor (Chart-Plotter) Set Up**

Systems become more complicated where there are multiple cameras, monitors and/or controllers and where more complex video and data transmission methods are employed such as wireless or Internet Protocol (IP) conversions. The diagrams below detail a number of different connection configurations.

In theory it is possible to have up to 255 controllable devices in a system (cameras or controllers) and unlimited fixed cameras, but this is obviously dependent on the video switching equipment installed, the camera control data management and/or the vessels on board LAN - and of course the size of the vessel!

The key issue when installing multiple controllable cameras is that they have individual addresses (see below). A popular configuration would be something along the lines of 2 x controllable cameras, 4 x fixed (static) cameras and 2 x controllers. This would mean that the number of video inputs required would exceed the amount of inputs offered by most chart plotters and so a video switcher (such as the IRIS606 c Camera switcher) would be required. Video from each camera is routed into the video switcher and the output from the switcher is then routed into a single input of the chart plotter. Switching is controlled by a dedicated waterproof keypad connected to the switcher. The data wires from each of the controllable cameras, along with the data wires from the two controllers would then need to be routed into a Serial Data Distributor (also known as an Expander), such as the IRIS EXP0204. This simplifies installation and prevents 'cross-talk' and 'reflections' and the data line that can result in poor camera control and 'over-runs'. Full specifications for ancillary equipment such as video switchers and data expanders can be found at [www.boat-cameras.com](http://www.boat-cameras.com)

**Complex Setup Depicting Local (On Board) Functionality & Remote Functionality**



## 4.01 Camera Control Data

IRIS116 series cameras are controlled via an RS485 serial data connection, using a variant of the Pelco-D CCTV camera control protocol. The Pelco-D protocol was designed to provide accurate controls for a wide range of standard CCTV features, such as pan, tilt, user preset features etc, but do not include certain extended features supported by Iris cameras. Because of this, Iris have mapped their product specific features to certain user preset commands and to other modified Pelco-D commands. This means that Iris PTZ cameras can be controlled either by a dedicated Iris joystick controller such as the IRIS516 or IRIS506, as well as other control devices, such as compatible chart-plotters, multi-functional displays and third party joysticks. For further information on compatible third party control interfacing please contact Iris Innovations. For certain third party interfacing, additional serial protocol convertors may be required where NMEA0183 or NMEA2000 connections are used.

## 4.02 Cabling Requirements

The camera has a 3 meter tail into which a 50cm breakout cable is connected. The breakout tail has the following connections: Video (female 75Ω BNC connector), Data (2 x bare wires: RS485+ (RED wire) and RS485- (Black wire)) and Power (2.5mm DC Barrel Jack connector). Individual video, data and power cables can be run back to the control position and power distribution position or a combination cable (such as IRIS-COMBPTZ-xx) can be used. Alternatively, an Active Video Balun set can be used to allow a single CAT5 cable to be run. Please note however that although Baluns facilitate the use of CAT5 cables, these should on no account be routed through ethernet routing and switching hardware as this will cause permanent damage. If Baluns are used, ensure the CAT5 cables are managed completely separately from your IP network. Contact Iris Innovations for further details.

Video cables need to be coaxial with an impedance of 75Ω such as RG59, URM70 or similar.

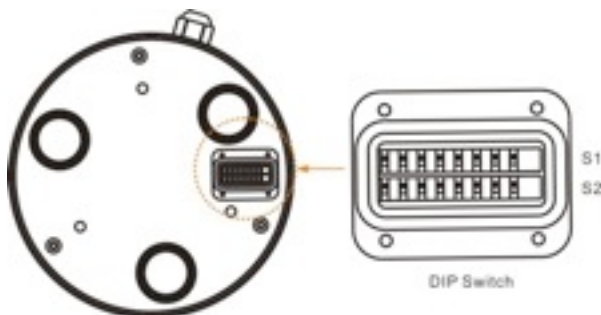
Power cables need to be 2 core DC cable rated at 5A (maximum voltage 36VDC)

Data Cables need to be twisted pair Belden style data cables (0.5mm) or equivalent.

## 4.03 Setting Camera Address

Each camera must have it's own unique address so that only control data intended for that camera is received and processed by the camera. If multiple cameras had the same address, they would all move together when pan and tilt commands are transmitted.

To set the camera address, remove the DIP switch cover plate on the base of the camera with a small cross-head screw driver, taking care not to loose the 4 screws or the rubber 'O' seal, and set the DIP switches on switch bank 1 accordingly. A table detailing the switch settings can be found at the end of this document.



Once the desired address has been set, carefully replace the DIP switch cover plate.

## 4.04 Installation Considerations



It's important to fully consider the intended position of the camera and the desired fields of view prior to installation, in terms of how you are going to get cables to the position, will the camera be able to see the appropriate areas, will the camera interfere with any other fixture such as a doorway or walkway once it's fixed in place, or are there any obstructions behind the surface onto which the camera is to be installed. It's strongly recommended that if possible the camera should be temporarily powered up prior to final installation and offered into position so that these factors can be considered and any possible issue can be addressed before holes are drilled and difficult, time consuming and costly cable runs are attempted. Check third party hardware to ensure it doesn't effect the operation of the camera and vice versa.

## 4.05 Protocol Information



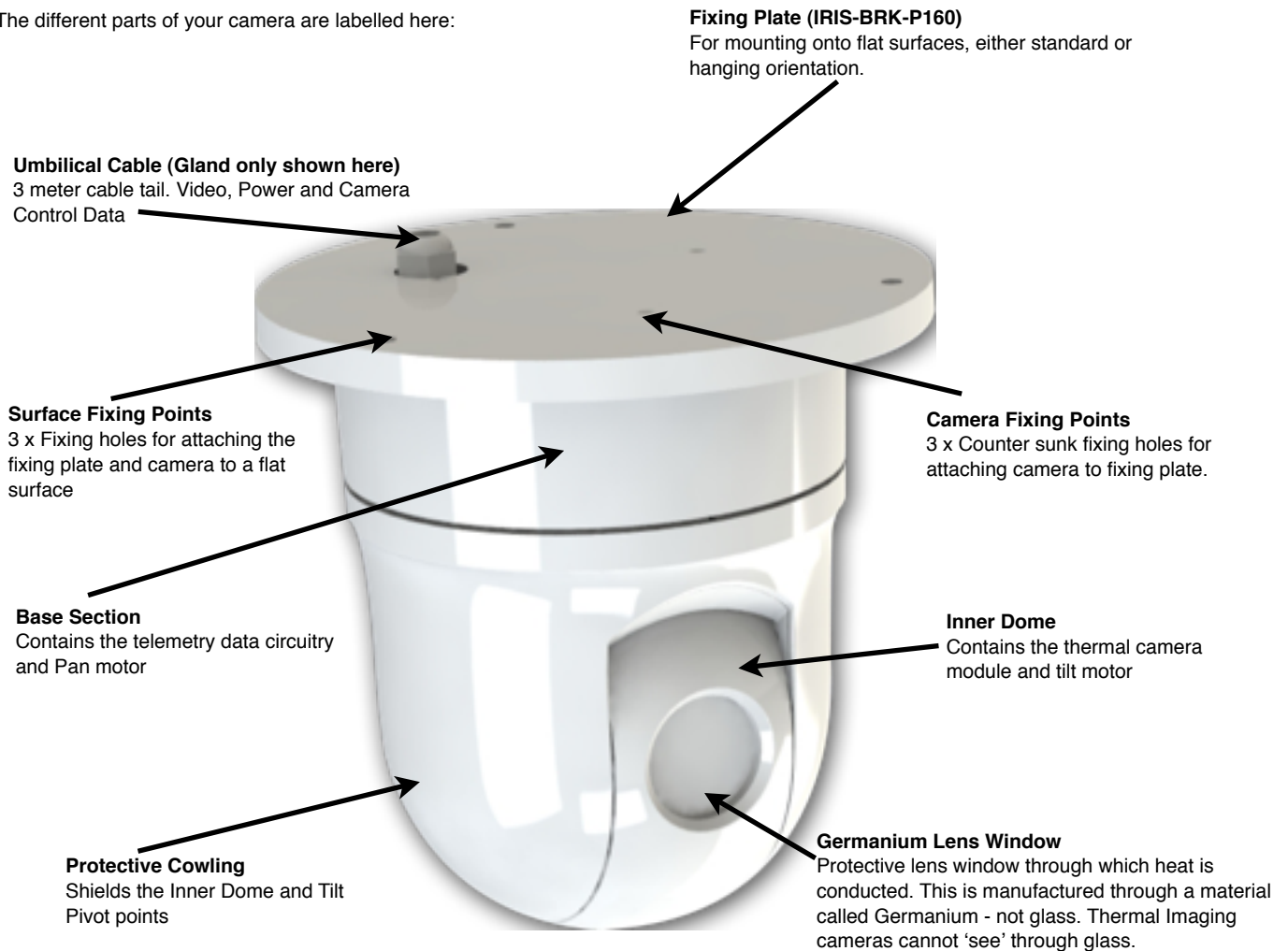
DIP switch bank 2 is reserved for setting the baud rate and protocol details. This is factory set to 9600 Baud, Pelco-D Protocol, N-8-1 (No Parity Bits, 8 Data Bits, 1 Stop Bit). Do not attempt to change these settings as they are locked. Changing the settings of Switch bank 2 could result in the camera not responding to data commands.

Full details of the Pelco-D control protocol can be found at [www.pelco.com](http://www.pelco.com).

As well as the standard Pelco-D command set, Iris cameras use their own commands based on the Pelco protocol to call features that are specific to the model or are not covered by the Pelco command set. For further details contact Iris Innovations.

## 5.01 Hardware Installation

The different parts of your camera are labelled here:



### IRIS216 / 316 Thermal Imaging PTZ (Shown with BRK-P160 Fixing Plate in 'Hanging' Orientation).

This style of housing from Iris is known as the 116 Series housing.

Once you've established a suitable fixing position, use the fixing plate as a template to mark off the three Surface Fixing Positions and the cable clearance position.

The camera is supplied with 3 x Stainless Steel, anti-tamper, self tapping screws. Drill pilot holes accordingly and use a 14mm hole saw to create the cable entry hole.

Attach the camera to it's base plate using the M5 x 10mm Countersunk screws supplied. Iris recommend that a screw fixing agent is used to strengthen the fit (see diagram below).

When the cables are correctly terminated (see next section), offer the camera up into the fixing position and firmly screw into place.



Observe extreme caution when siting the camera. Ensure the act of drilling the pilot holes and cable entry hole does not infringe any cables, equipment or fixtures behind the panel onto which the camera is to be installed.

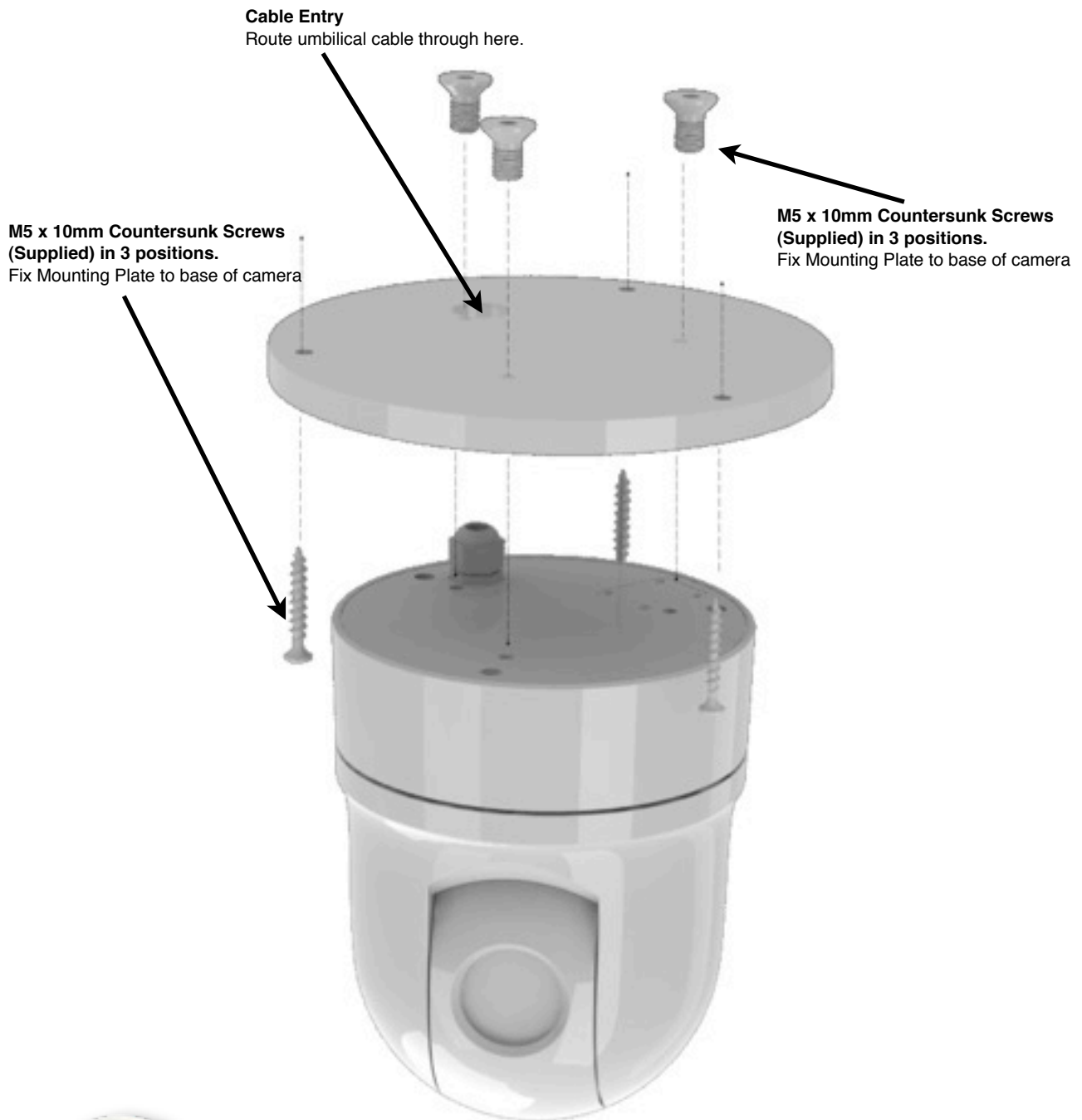


To avoid moisture ingress between the bottom of the BRK-P160 fixing plate and the surface onto which the camera is to be attached, apply a bead of suitable silicone sealant around the edge of the plate to create a seal.



## Hardware Installation

Fix camera to mounting plate, routing umbilical cable through cable entry, then fix mounting plate to surface. Camera can be installed either in the hanging orientation as shown below, or in the 'desktop' orientation as shown in the inset.



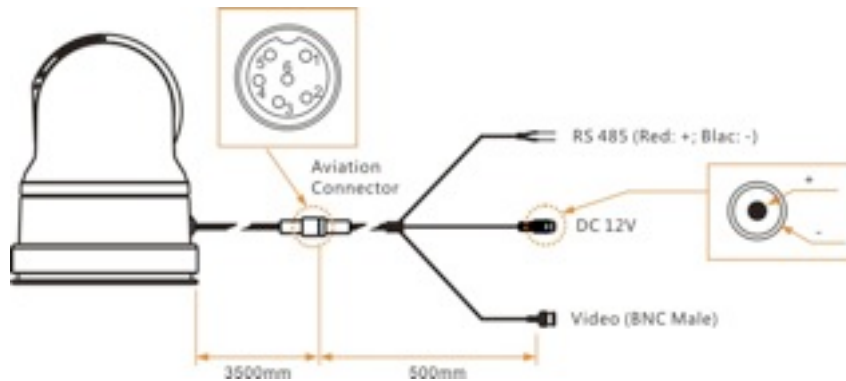
### Standard (or 'Desktop') Orientation

The camera is factory set for installation in the 'Standard' orientation as shown here. To install in the hanging orientation as shown in the main image above, ensure the camera's video output has been set to vertical flip. This can either be done via your controller or via the DIP switches. Details are provided later in this document.



## 6.01 Connections

As shown in the diagram below, a 3.5 meter 'umbilical' cable tail extends from the base of the camera and is terminated with a water resistant circular 'Aviation' connector. Into this connects a 500mm 'Breakout' lead, which has three separate tails as shown. One for Video, one for DC 12V Power, and a third for RS485 Serial Data connection.



Even if the cable connections are made in an internal location or in an area that wouldn't usually be exposed to moisture, it is recommended that the connections are protected from any possible erosion or salt water / salt atmosphere conditions by wrapping the terminations in a suitable tape of covering.

Pin Definition	
Pin #	Definition
1	Video +
2	Power -
3	Power +
4	RS485 -
5	RS485 +
6	Video -

## 6.02 Video Connections

The camera breakout tail features a male BNC connector for the video signal. When using coaxial video extension cables that are usually also supplied with a male BNC connector, a BNC 'Thru-piece' adapter can be used to connect the two cables together. The camera has a composite video output (1VP~P / 75Ω). Ensure appropriate extension cables are used for this specification. Contact Iris Innovations for further information if you are unsure which cable to use.

Many Multifunctional Displays (MFD's) / Chart Plotters use RCA (Phono) jacks for video inputs. In this case use a female BNC to Phone Jack (Male) adapter. These are available from Iris Innovations and can also be sourced from any good home electronics / AV suppliers.

Video from Iris cameras can be viewed on most leading manufacturers MFD / Chart Plotter products.

## 6.03 Data Connections



Ensure correct polarity is observed when connecting the RS485 serial data wires that provide control of the camera. Wires are labelled RS485+ (Red) and RS485- (Black) for convenience. The Transmit line (RS485+) should be connected to the Receive line (RS485-) and vice versa. If, once connected you have no control, reverse the polarity of the data wires as this is a common error made during installations. Never connect the RS485 wires to a power source as this could permanently damage the camera or controller. Observe care when connecting as the RS485 wires are coloured red and black and could be confused for DC power lines.

## 6.04 Powering Up



Upon switching on the circuit breaker that isolates the camera, the unit will perform an initialization routine. During this routine, which lasts approximately 30 seconds, the camera will pan and tilt automatically in order to calibrate itself. You will notice the mechanical shutter 'wiping' the image frequently for the first few minutes as the unit warms up. This will eventually settle into an automatic interval of wiping approximately every 15 minutes. This only lasts for a fraction of a second and allows the camera to calibrate itself for the best possible image in accordance with the ambient temperature.



**Never apply power to the camera unless all connections are terminated correctly. Never disconnect the DC ground for any reason whilst the camera is powered up as this could result in damage to the electronics circuitry.**

When the camera has completed its boot-up routine, a text overlay table will appear in the screen displaying the camera address, protocol, baud rate and current firmware version. You will also notice the positional indicator icon in the bottom left hand corner of the screen and the zoom bar at the center bottom of the screen. When this message appears the camera is ready to use and you are able to control the device.

## 7.01 Controlling the Camera

Your camera features positional controls and extended features. Positional features such as Pan, Tilt and Zoom are usually controlled via a compatible joystick controller, such as the IRIS516 or IRIS507 controllers or via a compatible MFD / Chart-Plotter - sometimes via touch-screen controls depending on the make and model. Third party control methods may differ from Iris controllers. For details of compatible third party control interfaces please contact Iris Innovations. Control of extended features depends on the type of controller you are using, but is usually accessed via a menu system on the controller or third party device (MFD / Chart-plotter etc). If using a third party control interface consult the relevant user documentation for the specific equipment for details.

A list of feature commands is included at the end of this document.

### Set-Up Features

The following features will only usually be called during the initial set-up of the camera following installation.

- **Video Orientation**  
UP / DOWN / UP+MIRROR / DOWN+MIRROR

Setting the vertical orientation (UP or DOWN) is determined by the orientation of the camera (Standard = UP / Hanging (also known as Ball Down) = DOWN). The mirror option is usually only used when the camera is facing aft, and is usually only applied to fixed cameras, as with a PTZ camera such as the 216 or 316, the camera pan position is frequently changing. Video orientation can however easily be 'flipped' as required with the IRIS516 controller.

- **Set Home Position**

This feature lets you set the home position of the camera following install. Usually this is aligned with the bow of the boat. This calibrates the positional indicator with the direction of the camera.

### Proportional Speed Control (Pan / Tilt / Zoom)

IRIS116 series Cameras feature extremely accurate multi-speed control with a Proportional Speed function that acts like a gear in order to automatically control speed ratios in accordance with the current level of zoom. The further the camera is zoomed in, the slower it will pan and tilt when commanded and vice versa. This greatly improves control accuracy when zoomed in.

### Auto-Flip

When the camera is tilted past its azimuth the Auto-Flip feature is triggered. This automatically pans the camera through 180° at full speed (Proportional Control is disabled during this procedure) to the original pan position and continues the tilt movement as long as the camera is still being tilted. This corrects the orientation of the camera module as if the unit kept tilting past the azimuth without the automatic correction, the module would be upside down.

## Extended Features

### Video Pause

Freezes / Unfreezes the image in order to study an on screen artifact.

### User Presets

The camera has a built in memory that can be used to store up to 100 user 'preset' positions. A preset allows you to move the camera to a favourite or important position and learn that position so that the camera can be instructed to move at top speed to that position at the touch of a button. For example, you may want to point the camera so that it's facing directly aft so you can take a look at what's coming up behind you. By saving this position as a Preset, you can send the camera back to this position immediately by recalling the preset. Presets can also be used to form 'Tours', where the camera can be instructed to step through each preset within the Tour in sequence with a pre-determined dwell time between each position.

User presets are numbered 100-199. Usually the controller you are using will have the ability to SET a Preset to learn the position and then CALL a Preset to send the camera to that position. This will depend on the model of controller you are using. Consult the user guide of your controller for details.

### System Presets

Certain functions of the camera that are not defined by the Pelco-D Protocol are called by using Presets. A list of System Presets can be found later in this document.

### Scan Modes

The camera supports 4 different Scan Modes. Once activated, tilt and zoom commands are still accepted by the camera but you will not be able to pan the camera until the Scan has been Stopped:

- **45° Auto Scan**  
Camera pans back and forth 22.5° either side of the centre point (the position the camera is facing when the scan is activated).
- **90° Auto Scan**  
Camera pans back and forth 45° either side of the centre point (the position the camera is facing when the scan is activated).
- **180° Auto Scan**  
Camera pans back and forth 90° either side of the centre point (the position the camera is facing when the scan is activated).
- **360° Auto Scan**  
Camera pans continuously through 360°, pausing every 108°.

There are three speed controls for each Scan. Slow, Medium and Fast.

A command is also available to 'Re-Centre' the scan. This can be found in the command list.

## **Tours**

A tour is a group of 10 user preset positions that are linked together so that when activated, the camera will sequence to each position with a 5 second dwell time between each preset. There are 4 Tour patterns available. Each tour uses a range of dedicated presets which must be set. Any unused presets won't be included in the tour. Reserved Tour presets are listed here:

### **Tour 1**

Preset Range 40 ~ 49

(Preset 84 Activates Tour 1)

### **Tour 2**

Preset Range 50 ~ 59

(Preset 85 Activates Tour 2)

### **Tour 3**

Preset Range 60 ~ 69

(Preset 86 Activates Tour 3)

### **Tour 4**

Preset Range 70 ~ 79

(Preset 87 Activates Tour 4)

## 8.01 Protocol Command List

The table below lists features specific to IRIS116 Series (116,117,118) Cameras that are not covered by the standard Pelco-D protocol and the commands that have been mapped in IRIS camera software to operate those features. Values are shown in hexadecimal. The checksum for all Pelco-D commands is the 8 bit (modulo 256) sum of the payload bytes (bytes 2 ~ 6) within the message. Refer to the Pelco-D protocol document for further information.

For more in depth information on Iris Protocol mapping please contact Iris Innovations.

Function	Value	Command	H	Add	C1	C2	D1		CHK
Day / Night Model Manual Toggle		Preset 21	FF	AD	00	07	00	15	CHK
Day / Night Mode Auto		Preset 22	FF	AD	00	07	00	16	CHK
WDR Toggle On/Off		Preset 23	FF	AD	00	07	00	17	CHK
Auto WDR		Preset 24	FF	AD	00	07	00	18	CHK
BLC Manual Toggle		Preset 25	FF	AD	00	07	00	19	CHK
Image Flip Toggle (Vertical)		Preset 26	FF	AD	00	07	00	1A	CHK
DNR Toggle		Preset 27	FF	AD	00	07	00	1B	CHK
Video Freeze Toggle (117 & 118)		Preset 28	FF	AD	00	07	00	1C	CHK
Video Freeze (116)		Preset 234	FF	AD	00	07	00	EA	CHK
Video Resume (116)		Preset 235	FF	AD	00	07	00	EB	CHK
Defogger ON (117 & 118)		Preset 37	FF	AD	00	07	00	25	CHK
Defogger OFF (117 & 118)		Preset 38	FF	AD	00	07	00	26	CHK
Digital Zoom Toggle (117 & 118)		Preset 39	FF	AD	00	07	00	27	CHK
OSD Toggle (117 & 118)		Preset 40	FF	AD	00	07	00	28	CHK
Frame Scan Boundary LEFT		Preset 42	FF	AD	00	07	00	2A	CHK
Frame Scan Boundary RIGHT		Preset 43	FF	AD	00	07	00	2B	CHK
Random Scan ON		Preset 48	FF	AD	00	07	00	30	CHK
Frame Scan ON (117 & 118)		Preset 49	FF	AD	00	07	00	31	CHK
IR LED's ON (118)		Preset 32	FF	AD	00	07	00	20	CHK
IR LED's OFF (118)		Preset 33	FF	AD	00	07	00	21	CHK
White LED's ON (117)		Preset 72	FF	AD	00	07	00	48	CHK
White LED's OFF (117)		Preset 73	FF	AD	00	07	00	49	CHK
Image Flip UP (116)		Preset 236	FF	AD	00	07	00	EC	CHK
Image Flip Down (116)		Preset 237	FF	AD	00	07	00	ED	CHK
45° Auto Scan (116)	Slow		FF	AD	00	39	01	01	CHK
	Medium		FF	AD	00	39	01	02	CHK
	Fast		FF	AD	00	39	01	03	CHK
90° Auto Scan (116)	Slow		FF	AD	00	39	02	01	CHK
	Medium		FF	AD	00	39	02	02	CHK

Function	Value	Command	H	Add	C1	C2	D1		CHK
	Fast		FF	AD	00	39	02	03	CHK
180° Auto Scan (116)	Slow		FF	AD	00	39	03	01	CHK
	Medium		FF	AD	00	39	03	02	CHK
	Fast		FF	AD	00	39	03	03	CHK
360° Auto Scan (116)	Slow		FF	AD	00	39	04	01	CHK
	Medium		FF	AD	00	39	04	02	CHK
	Fast		FF	AD	00	39	04	03	CHK
Stop Scan (116)		Preset 97	FF	AD	00	07	00	61	CHK
Tour 1 (116)		Preset 84	FF	AD	00	07	00	54	CHK
Tour 2 (116)		Preset 85	FF	AD	00	07	00	55	CHK
Tour 3 (116)		Preset 86	FF	AD	00	07	00	56	CHK
Tour 4 (116)		Preset 87	FF	AD	00	07	00	57	CHK

## 9.01 Camera Address Table

The cameras unique device address is set using DIP switch Bank 1. The following table lists switch positions for each address from 0~38. There are a total of 255 address positions available. For address settings above 38 please contact Iris Innovations technical support.

Do not use address 0 as this is rarely used by control equipment.

ADDRESS	1	2	3	4	5	6	7	8
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
6	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
7	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
8	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
9	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
10	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
11	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
12	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
13	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
14	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
15	ON	ON	ON	ON	OFF	OFF	OFF	OFF
16	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
17	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
18	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
19	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
20	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
21	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
22	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
23	ON	ON	ON	OFF	ON	OFF	OFF	OFF
24	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
25	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
26	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
27	ON	ON	OFF	ON	ON	OFF	OFF	OFF
28	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
29	ON	OFF	ON	ON	ON	OFF	OFF	OFF
30	OFF	ON	ON	ON	ON	OFF	OFF	OFF
31	ON	ON	ON	ON	ON	OFF	OFF	OFF
32	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF
33	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
34	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
35	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
36	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
37	ON	OFF	ON	OFF	OFF	ON	OFF	OFF
38	OFF	ON	ON	OFF	OFF	ON	OFF	OFF

## Specifications

Feature	116	117	118
Camera Module	Sony FCB-EX985E		
Video System	PAL / NTSC (not interchangeable - specify at order)		
Sensitivity	0.0004 Lux@ f1.2) 25IRE	0.0 Lux (White LED's ON)	0.0 Lux (IR LED's ON)
Resolution	PAL: 752x582 / NTSC: 768x494		
TV Lines	550 Horizontal TV Lines		
Image Stabilization	Digital ON/OFF		
Lens Options	28x (Standard) or 36x Optical. 12x Digital Standard		
Horizontal Field of View	55.8°~2.1° (28x) / 57.8°~1.7° (36x)		
Digital Noise Reduction	1~5 Steps User Selectable		
Wide Dynamic Range	Yes 150x		
Video Output	1 V P~P, 75Ω Composite. BNC Connector		
Infrared Spectrum	NA	850nm / 940nm (28x) / 850nm (36x)	
S/N Ratio	More than 50db (AGC OFF)		
Infrared Range	NA	NA	30m (28x) / 60m (36x)
Lamp Range	NA	60m	NA
Illumination Switching	NA	Manual	Manual / Auto
Day / Night Filter	Mechanical Filter Colour / Mono		
Pan Speed	0.04° ~ 120° sec adjustable		
Tilt Speed	0.3° ~ 90° sec adjustable		
Environmental	IP66		
Protocol	RS485 Serial Comms, Pelco-D / Peco-D Iris Variant		
Shock & Vibe	IEC60945 2002 MIL STD 810		
Sand & Dust	MIL STD 810 E		
Power Requirement	8~36VDC		
Consumption	0.6A Idle, 1.2A Under Motor Drive, 1.8A Max Under full motor drive with LED's ON		
Dimensions	130mmø x 160mm		
Weight	1.3KG	1.6Kg	1.6Kg
Operating Temperature	-45°C ~ +65°C		

Specifications and features subject to change without prior notice. E&OE



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