

SILENT SENTINEL ARE SPECIALISTS IN LONG RANGE  
OPTICAL SENSORS INCLUDING BOTH COOLED AND  
UNCOOLED THERMAL CAMERAS



# Silent Sentinel Aeron Mechanical Installation Guide

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This manual is used as a guide. The photos, graphics, diagrams, and illustrations provided in the manual are only used for explanation, which may be different from the specific product. Please refer to the actual product. We try our best to make sure all the contents in this manual are accurate. We do not provide any representations or warranties in this manual.

If you need the latest version of this manual, please contact us. Silent Sentinel recommends that you use this manual under the guidance of professionals.

## Version Control

<b>Version</b>	<b>Author</b>	<b>Approver</b>	<b>Date</b>
0.1	James Carlton-Long	James Carlton-Long	29/07/2021
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**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.**

### Safety Information

**Before installing the equipment, please read this guide carefully.**

Installation of this product should only be carried out by a competent and suitably qualified engineer. If you are in doubt, you should refer the installation to a suitably qualified person.

To prevent electrical shock hazards, disconnect the power from electrical sources **before** working on the equipment.

Make all connections with the power turned off. Do not make or remove connections when the power is turned on. Before using the product ensure that all cables are correctly connected and that the power cables are not damaged.

Ensure that the product is secured correctly in all situations. Do not place the equipment on to a trolley, table desk or other platform that is not stable; to avoid the product from falling over.

Ensure that the power supply to be used is correct for the equipment and the correct input voltage for your region. If unsure, contact your local power supply company. If the power supply or cables are broken, do not use them. Contact a qualified electrical services technician or your retailer.

1. Do not use any equipment that appears damaged or incomplete. If you detect damage, contact your dealer immediately.
2. Do not allow connectors to be exposed to long-term water immersion.
3. Do not allow electrical contacts or leads to be exposed to dust, humidity or moisture. Do not allow electrical contacts or cable-ends to become wet.
4. The equipment must be firmly secured using appropriate fixings and fastening as appropriate to the mounting surface that the unit is being affixed to.

### Notes:

1. Do not open the camera unit, doing so invalidates the unit's warranty.
2. 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.
3. Do not use caustic or abrasive cleaning products on the unit.
4. 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.
5. Use only the power source types indicated in this user guide or provided with the unit.
6. All power supplies should be appropriately fused.
7. Take extra care lifting or moving units due to their weight.
8. Take care to allow space around the unit for Pan and Tilt motion.
9. Take care to avoid striking persons or objects when the camera is in motion.
10. This guide only concerns itself with the Mechanical Installation of the System.

## System Overview

### Overview

The Aeron PT system generally comprises of;

- The Aeron PT Unit with both daylight and thermal modules built in.

However, as the Aeron is a modular platform the number and nature of modules may vary from unit to unit. This Installation Documentation only considers the standard system as noted above. If there is ANY uncertainty brought about by other combinations of modules then Silent Sentinel should be consulted prior to any installation efforts.

The Aeron can be delivered with either IP, Analogue (Pal / NTSC) or HDSDI Outputs. You can identify which the unit has by reviewing the Aeron Part Number (which is printed on the underside of the unit).

Example;

Part Number: RC4-51IYJ30X\*\*\*\*\*

The letter highlighted in red in the example part number denotes the output type;

1. I – IP
2. P – Analogue (PAL)
3. N – Analogue (NTSC)
4. H - HDSDI

### Power / Interface Requirements

Voltage Input:       Nominal 28VDC (24-32VDC)  
Power Draw:         60W (Peak 100W with heater)

These figures do not include the requirements of any extra modules that stray from the original Aeron setup, optional heating or cooling devices added within the camera enclosures, optional infra-red lighting systems nor laser range finders.

**PLEASE NOTE: THE ACTUAL INPUT VOLTAGE OF THE UNIT MAY VARY SHOULD ADDITIONAL / DIFFERING MODULES BE USED. ALWAYS CONSULT THE TEST REPORTS DELIVERED WITH THE UNIT.**

## System Orientation



Figure 1



Figure 1



Figure 3

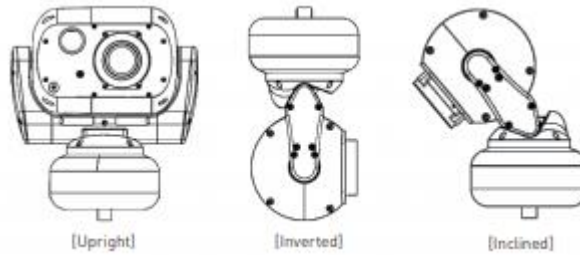


Figure 4

The image on the top left (Figure 1) shows a Aeron ranger with the thermal and daylight modules in together and a wiper over the visible glass. The Aeron is a 360 degree unit it does not have a front or back. However, it does have a fall arrest lanyard, you will want to position the unit so that you can clip the lanyard to the desired safety mechanism. The Aeron can be mounted upright or hanging shown in figure 2 and 3 respectively (Note: if you are hanging the unit the settings need to be adjusted accordingly). Figure 4 also demonstrates the option of mounting the Aeron on an incline.



## Mechanical Installation

### Overview

The system should be installed in the following order;

1. Aeron securely mounted to the Mast / Installation Location
2. Cable / PSU

Note: Connect cable first before supplying any power from the PSU to the unit.

### Fixtures and Fittings;

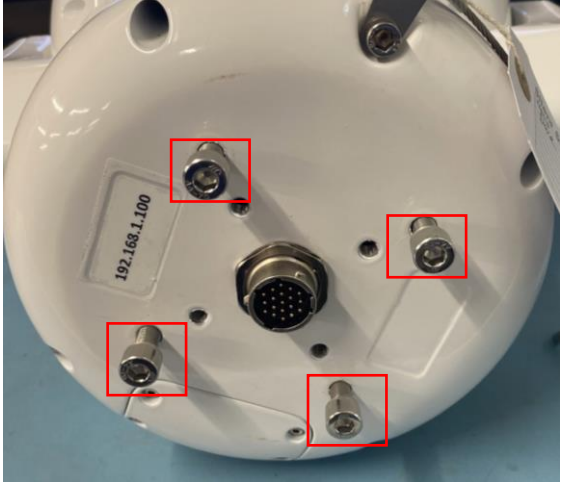
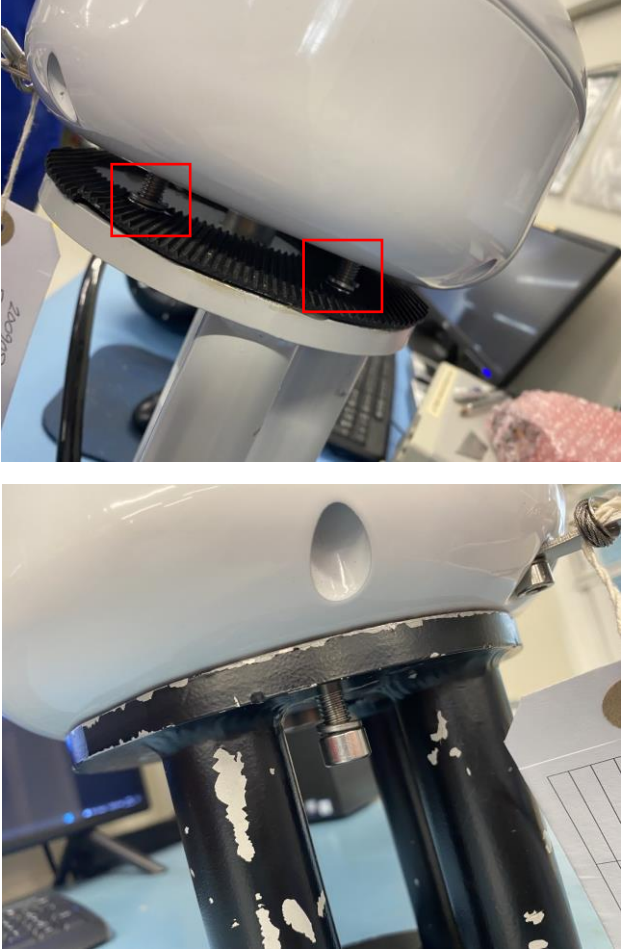
The followings fittings are providing with the Aeron Unit.





*Figure 5 Aeron Fittings*

- 4 x M8x20 Bolts.
- 4 x M8 Spring Washers.

## Mounting the Aeron PTU

Step	Detail	
1	<p>The image on the right shows the Aeron mounting points on the base.</p>	
2	<p>Line up the Aeron base with the mast. Align the holes on the base with those of the mast and insert bolts. Tighten until spring washers are flat and flush against mast.</p> <p>Attach using the provided Fixings.</p>	



<p>3</p>	<p>Hanging orientation works very similar to upright, line up Aeron base holes with the mast holes insert bolts and tighten.</p>	
<p>4</p>	<p>Clip metal lanyard to desired safety mechanism.</p>	

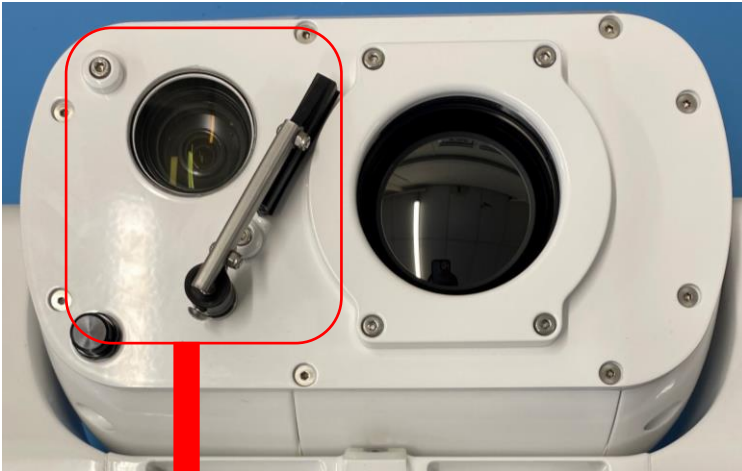
5

(Optional) Inclining the unit.

1. Unscrew bolt from arm.
2. Tilt arm and head forward.
3. Insert bolt in hole and screw tight

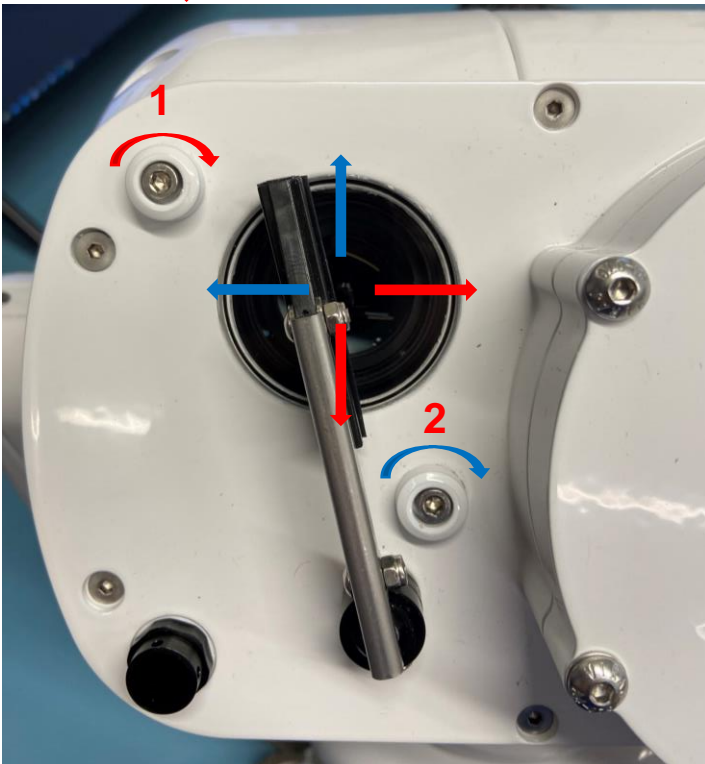


## Boresight & Wiper Aeron



The Aeron has a boresight mechanism on the faceplate. There are two screws in which control the position of HD visible camera to line up with the thermal camera.

To boresight zoom in on an object and centre it on the thermal picture. Then boresight the HD via the screws to get the same object centered in the HD picture.



**Bolt 1:** Turning right and tightening moves the HD camera right and down. Loosening will undo the movement.

**Bolt 2:** Turning right and tightening bolt 2 will cause the HD camera to move left and up

The colour coded arrow demonstrate the directions that the HD camera moves when tightening bolts.



## ANNEX 1 - Sunshield


### Sunshield Fitting and Fixings

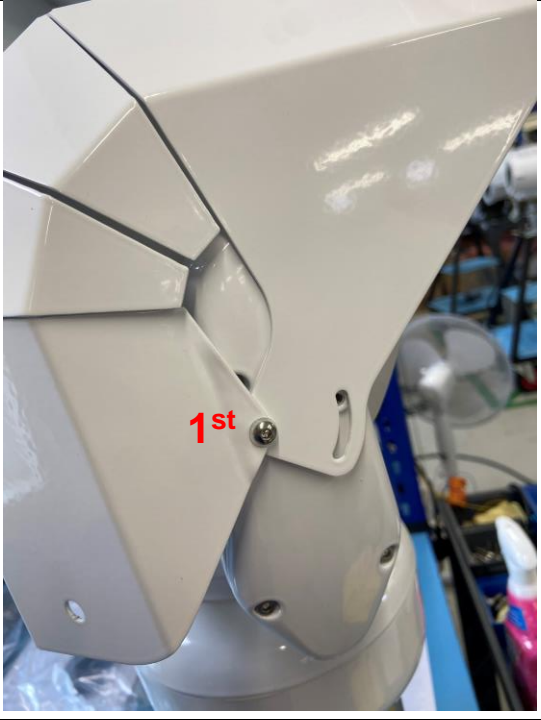
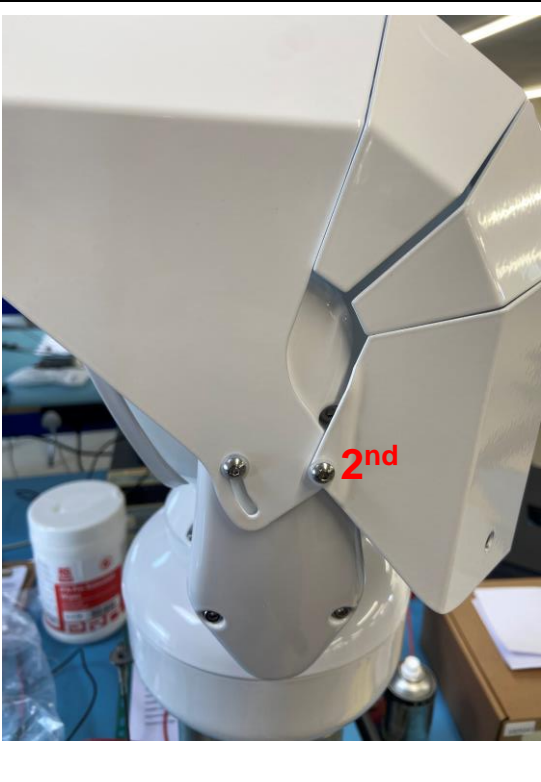
The following fixings are provided with sunshield:



- 4 x M4x10 Bolts
- 4 x M4 Plastic Spacers

Please follow the step-by-step fitting guide below:

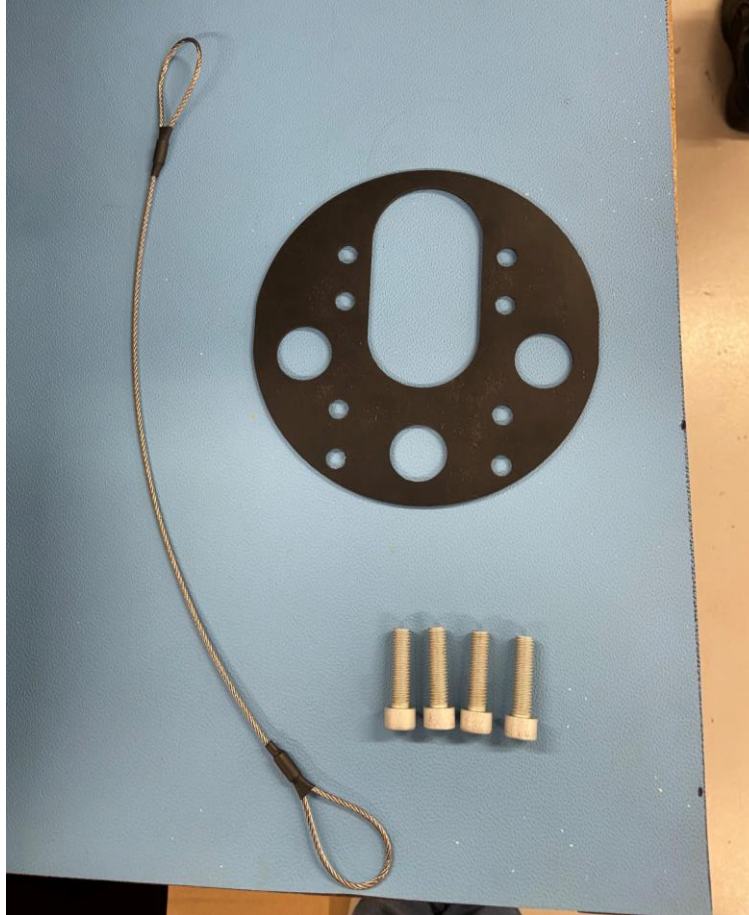
Step 1	Undo the bolts on the arm of the Aeron	
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<p>Step 2</p>	<p>Place the sunshield over the head of the Aeron lining up the holes according the following picture.</p> <p>Line up the first bolt and screw back into the corresponding hole in the arm.</p>	 <p>A close-up photograph of the white sunshield being attached to the robot arm. A red '1st' label points to a silver bolt being inserted into a hole in the sunshield's base.</p>
<p>Step 3</p>	<p>Place the second bolt in the slider hole but only tighten once the sunshield is in the desired angular position.</p>	 <p>A close-up photograph showing the sunshield now partially attached. A red '2nd' label points to a second silver bolt being inserted into a hole on the side of the sunshield's base.</p>
<p>Step 4</p>	<p>Repeat process on the opposite arm.</p>	

## ANNEX 2 – Galvanic Kit

### Galvanic Kit

Provided with the Galvanic Kit:



1. 4 x M8x20 aluminium bolts
2. Rubber matting for underneath base
3. Aluminium lanyard
4. 4x Plastic through hole spacers

The galvanic kit prevents galvanic corrosion from happening on the base of the unit. It isolates the metal of the unit from the metal of the mast or platform it's secured on.



## ANNEX 3 - Cable Information

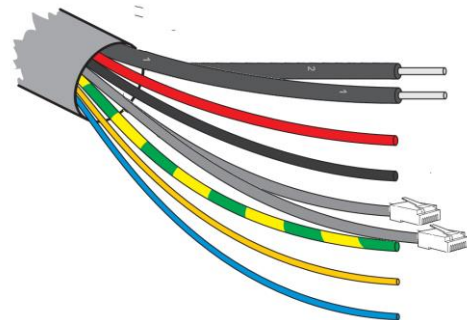
### Cable Overview

The UCM cable supplied with the Aeron can come in various lengths (up to 50m) and in two different formats;

1. Double ended;
  - a. Each end of the Aeron cable is terminated with a UTS6JC14E19S Connector
    - i. This is typically the case if a pre-terminated PSU is purchased.
2. Bare Ended
  - a. The Aeron end is terminated with UTS6JC14E19S the Connector
  - b. The PSU end of the Cable is left as 'flying leads' with only the RJ45 and BNC conductors terminated.

### Cable Pin Out

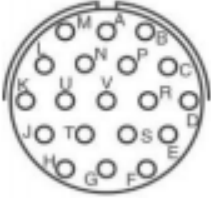
<b>Network connection leads.</b>	
<b>Cat5/8P8C pinout configuration – 10/100BASET</b> (TIA568B)	
<b><u>Network connectors.</u></b>	
<b>Pin</b>	<b>Function</b>
1	Tx D+
2	Tx D -
3	Rx D+



### 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

## ANNEX 4 - Aeron Base Connector

<p>Rear View of Connector</p>  <p>View of the socket face.</p>	<p>EATON</p> <p>Base Socket: U14EN (UCM) Cable Connector: UTS6JC14E19S</p> <p>Contact arrangement: 21-29. Contacts No.20 and No.25 are Coaxial types for Video transmission.</p>
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### Installation cable - Contact assignments and conductors (CA-UCM cable).

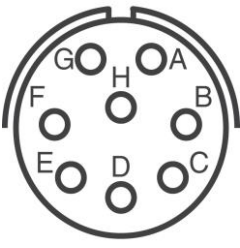
Configuration Scheme U14CN [RED]

Conn A (UTS)	Conn B (RJ45)	Conn C (RJ45)	Function	Type	Conductor (VCM4D)	Equivalent	
1	A	-	Power Pos	Power 5A	Red		
2	B	-	Power Neg	Power 5A	Black		
3	C	-	CVBS 1 Sig	Video	Coax 1 Core		
4	D	-	CVBS 1 Gnd	Video	Coax 1 Screen		
5	E	-	Aux 1	Power 1A	Orange		
6	F	-	Aux 2	Power 1A	White		
7	G	-	Telem A	RS-485 (+)	Yellow (opt. Green)		
8	H	-	Telem B	RS-485 (-)	Blue		
9	J	-	Earth	Power 5A	Green/Yellow		
10	K	-	CVBS 2 Sig	Video	Coax 2 Core		
11	L	-	CVBS 2 Gnd	Video	Coax 2 Screen		
12	M	6	Eth2 TX D2-	Ethernet	Cat5 Brown	Gm	8
13	N	3	Eth2 TX D2+	Ethernet	Cat5 White/Brown	W/Gm	7
14	P	6	Eth1 RX D2-	Ethernet	Cat5 Green		
15	R	3	Eth1 RX D2+	Ethernet	Cat5 White/Green		
16	S	1	Eth2 TX D1+	Ethernet	Cat5 Blue	W/Org	4
17	T	2	Eth1 TX D1-	Ethernet	Cat5 Orange		
18	U	1	Eth1 TX D1+	Ethernet	Cat5 White/Orange		
19	V	2	Eth2 TX D	Ethernet	Cat5 White/Blue	Org	5
-	-						

MIL-DTL-26482

Conductors to be individually heatshrink covered where entering solder buckets.  
Cable insulating sheath to be sealed (IP68) to connector.

HD-SDI models.

<p><b>MIL8H (HCM)</b></p>  <p>View in to Socket face.</p>	<p><b>Souriau UTO series.</b></p> <p>Cable Connector: UTO6128SH</p> <p>Contact arrangement: 12-8.</p>
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**Installation cable - Contact assignments and conductors.**

MIL8H [ ]

Pin	Function	Conductor			
A	Power Positive	Red			
B	Power Negative	Black			
C	Earth	Green/Yellow			
	Screen	Screen/Drain			
D	Telemetry ( + )	Yellow			
E	Telemetry ( - )	Blue			
F	CVBS 1 Signal	Coax 1 Core		Analogue feed with OSD menu text.	
G	CVBS 1 Ground	Coax 1 Screen			
H	SDI Video Signal	Coax 2 Core			