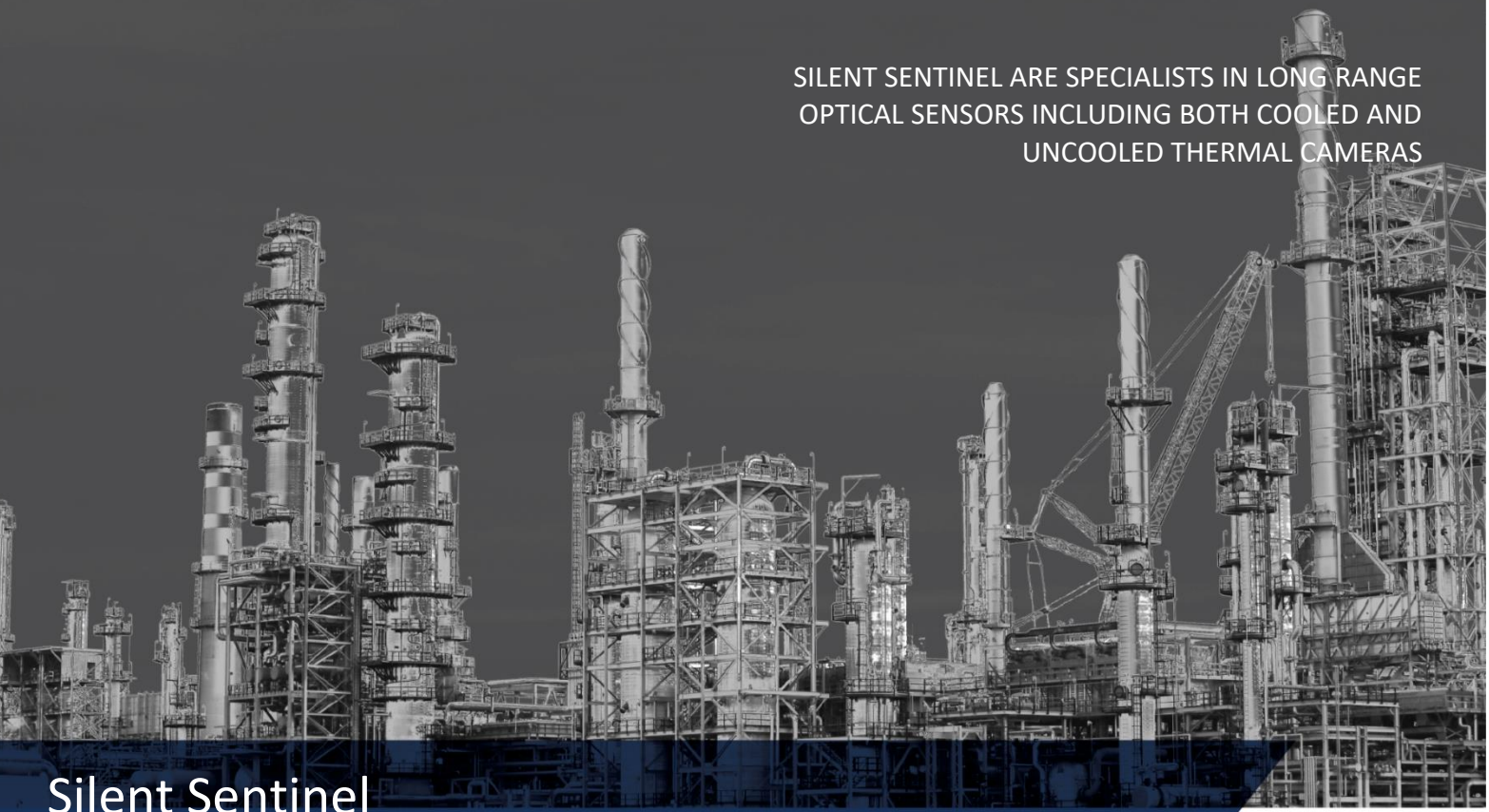


SILENT SENTINEL ARE SPECIALISTS IN LONG RANGE
OPTICAL SENSORS INCLUDING BOTH COOLED AND
UNCOOLED THERMAL CAMERAS



Silent Sentinel Jaeger Mechanical Installation Guide

Version: V1.0

Date: 06/08/2021



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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

Version	Author	Approver	Date
0.1	Matthew Short	Matthew Short	21/07/2021
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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. The central PT unit should be installed by itself with no payloads attached. The camera/sensor and Radar payloads fitted individually, after it has been secured.
9. Take care to allow space around the unit for Pan and Tilt motion.
10. Take care to avoid striking persons or objects when the camera is in motion.
11. Not fitting the provided sun shields will invalidate the systems warranty.
12. This guide only concerns itself with the Mechanical Installation of the System.

System Overview

Overview

The Jaeger PT system generally comprises of;

1. The Jaeger PT Unit
2. QTY1 EO (Daylight Camera)
3. QTY1 Ti (Thermal Camera)

However, as the Jaeger is a highly modular platform the number and nature of payloads 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 payloads then Silent Sentinel should be consulted prior to any installation efforts.

Power / Interface Requirements

Voltage Input: 48 VDC
 Power Draw (PT Only): 100W (Max 150W)

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. Please consult Silent Sentinel for further guidance.

Top mounted (fixed) payloads are powered separately from the PTZ system.

System Orientation

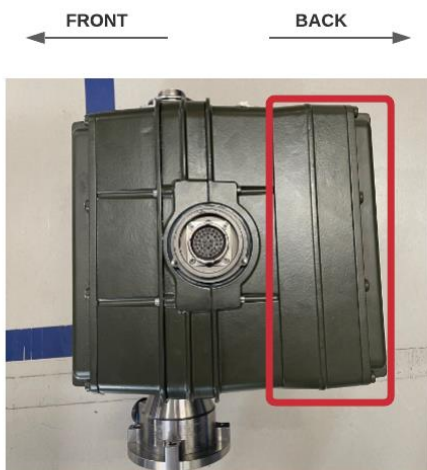


Figure 1

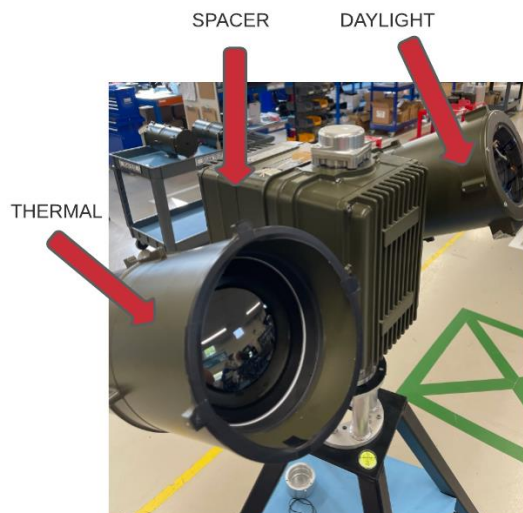


Figure 2

The image on the top left (Figure 1) shows a 'MK2' Jaeger with the additional spacer fitted. This spacer can be used to identify the 'Back' and 'Front' of the PT Unit. If you face the rear of the unit,

the Daylight attachment point is on the left, the thermal on the right. Therefore, the side connector shown in this image is the Daylight Connector. This is demonstrated further in Figure 2.

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. DEPENDING ON THE MODULES PROVIDED THE INSTALLATION LOCATIONS MAY ALSO VARY. IF THE SYSTEM HAS MORE THAN TWO PAYLOADS PLEASE REFER TO SILENT SENTINEL FOR GUIDANCE.

Mechanical Installation

Overview

The system should be installed in the following order;

1. Pan / Tilt securely mounted to the Mast / Installation Location
2. RADAR / Top Mount Device securely installed
3. Side Payloads
4. Cable / PSU

Note: The system should not be powered on when any of the payloads / top mounts are attached.

Fixtures and Fittings;

The followings fittings are providing with the Jaeger System.



Figure 3 Jaeger Fittings

1. Sun Shield Fixings;
 - a. QTY4 – M4x10
 - b. QTY4 – M4 Nylon Washers
2. Top Mount Fittings;
 - a. QTY4 – M6x35
3. Side Payload Fittings;
 - a. QTY8 – M5x10
 - i. QTY4 for each Payload
4. Main Jaeger Fittings
 - a. QTY4 – M8x60
 - b. QTY4 – Spring Washers
 - c. QTY4 – M8 Nyloc Nuts
5. Duralac
 - a. To be used on all threads

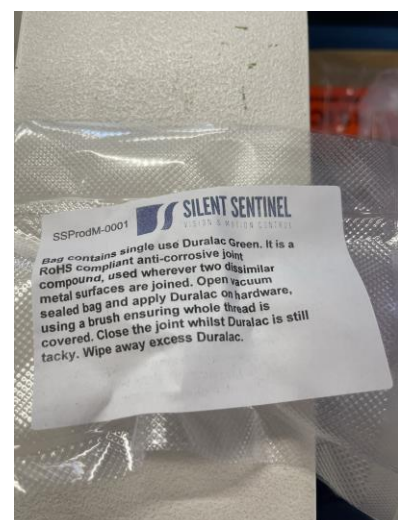
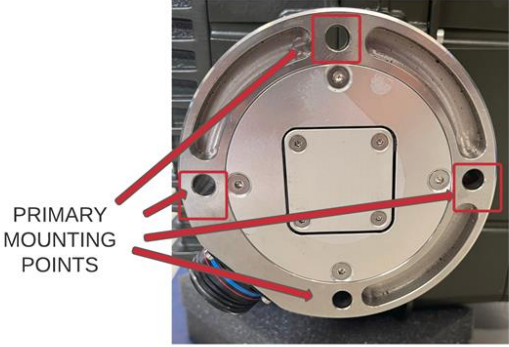
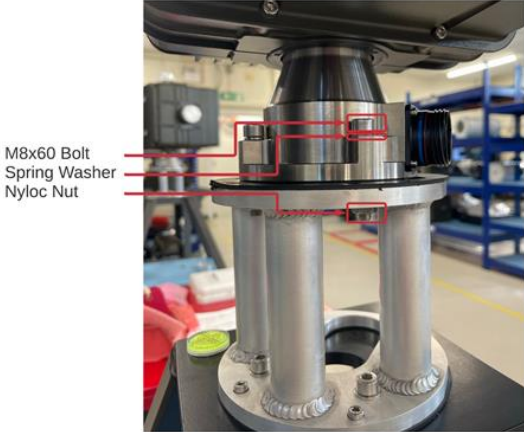




Figure 4 - Duralac

Mouting the Jaeger PTU



Step	Detail	
1	<p>The image on the right shows the Jaeger mouting points.</p>	
2	<p>Line up the Jaeger Pedestal with the mast.</p> <p>Attached using the provided Fixings.</p>	


Attaching the Top Mount

Step	Detail	
1	<p>The image on the right shows the Jaeger Top Mount connector and highlights the locating pins.</p>	
2	<p>Line up the provided top mount with the locating pins and attach using the provided fixings.</p>	

Attaching the Side Payloads

Note: please ensure you are attaching the payloads to the correct side. Please refer to the Ssystem Overview section for further information.

Step	Detail	
1	<p>Protective caps are fitted to the ends of the shafts to prevent moisture and impact damage to the electrical connections.</p> <p>Remove the three securing screws from the tilt cover cap and remove the cap from the tilt shaft.</p> <p>Note: The IP67 protection of the unit is compromised whilst this cap is removed and the payload is unattached.</p>	
2	<p>Securely hold the tube and offer it up so that the alignment holes engage on the ends of the rods.</p> <p>Level the tube so that the connector faces are parallel with no leaning in any direction. Push the tube inwards, along the alignment rods such that the connector assembly engages.</p> <p>Care should be taken to keep the tube level so as to reduce the risk of damage to the electrical plug assembly.</p>	

<p>3</p>	<p>Once the tube is fully located on the shaft the top securing screw should be inserted and partially tightened – not all the way.</p> <p>The remaining two screws should be inserted in to their respective holes and, once in place, all three tightened fully.</p>	
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Wiper Assembly Installation

Overview





This guide details the steps involved to install the wiper assembly onto a RHT camera housing.


Fixtures and Fittings



1. Wiper Assembly
2. Wiper Blade
3. O-Ring
4. Fixings

Step	Detail	
1	Power down the camera unit and remove the bottom cover at the front of the camera housing.	

<p>2</p>	<p>Insert the supplied O-Ring into the groove on the wiper box.</p>	
<p>3</p>	<p>Align the wiper assembly holes with camera house jack plug holes</p>	
<p>3</p>	<p>Screw the supplied M4x 50 screws into the QTY4 fixing holes. Ensure that the O'ring is seated properly when screwing together</p>	
<p>3</p>	<p>Insert the spring into the wiper assembly shaft.</p>	

<p>3</p>	<p>Fit the wiper onto the shaft, locate the wiper at the desired park position and tighten.</p> <p>Note: the wiper 'wipes' anti-clockwise as you look at the face of the tube. Therefore, the park position should be to the right of the window and outside of the FOV of the camera.</p>	
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Boresight Guide




Overview

As standard Silent Sentinel factory boresights the cameras 'parallel' at full tele. Therefore, the separate between FOV should never be any greater than the seperation of the payloads. However, should it be desired the boresight postion can be adjusted externally as detailed below.




Please note, boresight adjsutment is carried out on the Daylight camera. The Thermal is fixed relative to the camera housing.

It is recommended that the boresight adjustment is carried out at full zoom (full tele).

Horizontal Adjustment

Step	Detail	
1	<p>Remove the cover plate from the rear (Horizontal) adjustment mechanism to reveal the adjustment wheel and locking screws.</p> <p>The cover is secured by four screws requiring an M3 Allen key tool.</p>	
2	<p>Using an M2.5 Allen key, loosen (do not remove) the two locking grub screws that are located in the recess holes either side of the adjustment wheel.</p>	
3	<p>The horizontal action can now be made by turning the adjustment wheel using a chisel-tip (slot) screw driver.</p> <p>Turn the wheel until the centre-line of the picture corresponds to the centre of the target.</p>	

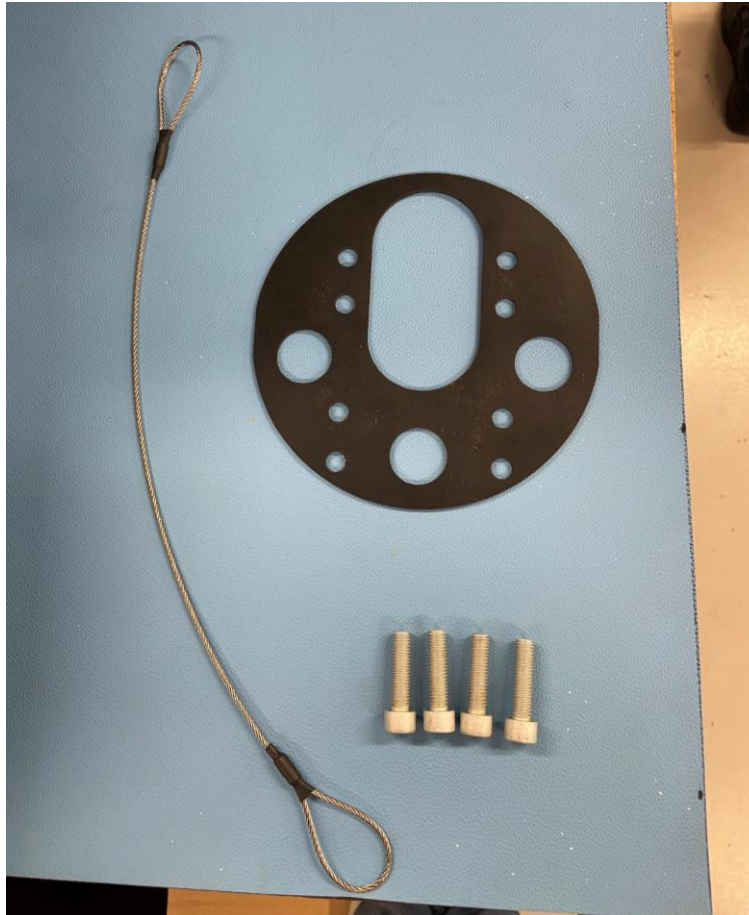
Vertical Adjustment

Step	Detail	
1	The cover is secured by four screws requiring an M3 Allen key tool.	
2	Using an M3 Allen key, loosen (do not remove) the locking screw that is located beside the adjustment wheel.	
3	The vertical action can now be made by turning the adjustment wheel using a chisel-tip (slot) screw driver. Turn the wheel until the centre-line of the picture corresponds to the centre of the target.	

ANNEX 1 – 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 Nylon Shoulder Washers

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

ANNEX 2 - Cable Information

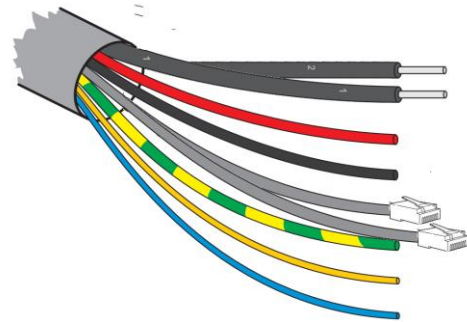
Cable Overview

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

1. Double ended;
 - a. Each end of the Jaeger cable is terminated with a MIL38K Connector
 - i. This is typically the case is a pre-terminated PSU is purchased.
2. Bare Ended
 - a. The Jaeger end is terminated with the MIL38K Connector
 - b. The PSU end of the Cable is left as 'flying leads' with only the RJ45 and BNC conductors terminated.

Cable Pin Out

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

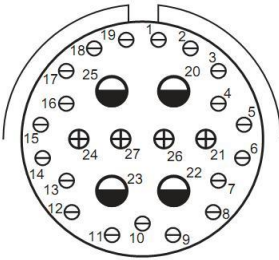


Multiway Cable Conductor Assignments.

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 3 - Physical Connectors

Jaeger Base Connector

<p>IL38K</p>  <p>View in to Socket face.</p>	<p>Amphenol TV-Series/ (D38999). Base Socket: Amphenol TVP00ZN21-29P Cable Connector: Amphenol TV06ZN-21-29SN</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-JCM cable).

(MIL38K)

Pin	Function	Conductor	Pin	Function	Conductor
1	Ethernet B 1 (Pass-thru')	(Net2 Blue) - Cat5e Brown	15	Ethernet A 4 (PTZ Data)	(Net1 Grey) - Cat5 White/Green
2	Ethernet B 2 (Pass-thru')	(Net2 Blue) - Cat5e White/Brown	16	Ethernet A 5 (PTZ Data)	(Net1 Grey) - Cat5 Blue
3	Ethernet B 3 (Pass-thru')	(Net2 Blue) - Cat5e Green	17	Ethernet A 6 (PTZ Data)	(Net1 Grey) - Cat5 White/Blue
4	Ethernet B 4 (Pass-thru')	(Net2 Blue) - Cat5e White/Green	18	Ethernet A 7 (PTZ Data)	(Net1 Grey) - Cat5 Orange
5	Ethernet B 5 (Pass-thru')	(Net2 Blue) - Cat5e Blue	19	Ethernet A 8 (PTZ Data)	(Net1 Grey) - Cat5 White/Orange
6	Ethernet B 6 (Pass-thru')	(Net2 Blue) - Cat5e White/Blue	20	Video 1 (CVBS) (Coax Contact)	Coax 1 (Black)
7	Ethernet B 7 (Pass-thru')	(Net2 Blue) - Cat5e Orange	21	Aux Power DC Positive	Orange
8	Ethernet B 8 (Pass-thru')	(Net2 Blue) - Cat5e White/Orange	22	Power DC Positive (Through)	Brown
9	Telemetry (+)	UTP Yellow	23	Power DC Negative (Through)	Blue
10	Telemetry (-)	UTP Blue	24	Aux Power DC Negative	White
11	Earth / Chassis	Green/Yellow Stripe	25	Video 2 (Coax Contact)	Coax 2
12	Ethernet A 1 (PTZ Data)	(Net1 Grey) - Cat5 Brown	26	Power Positive (PTZ) 28VDC	Red
13	Ethernet A 2 (PTZ Data)	(Net1 Grey) - Cat5 White/Brown	27	Power Negative (PTZ) 28VDC	Black
14	Ethernet A 3 (PTZ Data)	Net1 Grey) - Cat5 Green			

Indicated conductor colours applicable to CA-MIL38K / CA-JCM cable assemblies.

Available functionality will depend on the installed PT unit and payload configurations.

Side Payload Mounting Connector.

<p>MIL-D38999 G39</p> <p>View in to Socket face.</p>	<p>Amphenol D38999 Series-III / TV.</p> <p>PTZ Hub Socket: Amphenol D38999/20FG39SN</p> <p>(Connector on payload: Amphenol D38999/26FG39PN – For attached equipment)</p> <p>Contact arrangement: G39 / 21-99 - [G39T].</p> <p>Contact “r” is a Coaxial type for Video transmission on HD-SDI models. (available on limited pan models only).</p> <p style="text-align: right;">Block 2</p>
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Pin (G39A)	Function	Note	Pin	Function	Note
A	Power Positive	12VDC (4A)	c	Ethernet 1 (Rx-)	TIA-568B Gn 6
B	Power Negative / Ground	0V (4A)	d	Ethernet 2 (Rx+)	TIA-568B W/Gn 3
C	Serial 1 (D-) (INV)	Ti side Camera (RS485) (P1)	g	Ethernet 3 (Tx-)	TIA-568B Or 2
D	Serial 1 (D+) (NON)	Ti side Camera (RS485) (P1)	h	Ethernet 4 (Tx+)	TIA-568B W/Or 1
K	Serial 4 (D+)	Aux Comms (IP RS485 +)	i	P2 Comm switcher	(Not Fitted)
L	Serial 4 (D-)	Aux Comms (IP RS485 -)	j	Return-video Signal	For IP encoder cameras
S	Serial 2 (TMU Rx)	Day side Lens/Cam (RS232) (P2)	k	Return-video Ground	For IP encoder cameras
T	Serial 2 (TMU Tx)	Day side Lens/Cam (RS232) (P2)	n	Video CVBS Signal	
X	Serial 3 (TMU Rx)	Ti side Lens (RS232) (P0)	p	Wiper Trigger	
Y	Serial 3 (TMU Tx)	Ti side Lens (RS232) (P0)	q	Video CVBS Ground	
			r*	Video HD-SDi	Coaxial contact (Not Fitted to all types)

Contact identity letters are case sensitive.

(* Wide/Coaxial contact)

Top Payload Mounting Connector.

<p>MIL-D38999 G39</p> <p>View in to Socket face.</p>	<p>Amphenol D38999 Series-III / TV.</p> <p>Top Mounting Socket: Amphenol D38999/20FG39SN (Connector on payload: Amphenol D38999/26FG39PN – For attached equipment)</p> <p>Contact arrangement: G39 / 21-99 - [G39A].</p> <p>Connections pass through directly to base connector.</p>
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Top Connector (G39T)		Function	Conductor		Base Connector (MIL38K)	RJ45 (TIA)
	Size					
A	20	Ethernet 1	Cat5e	Brown	1	8
B	20	Ethernet 2	Cat5e	White/Brown	2	7
C	20	Ethernet 3	Cat5e	Green	3	6
D	20	Ethernet 4	Cat5e	White/Green	4	3
E	20	Ethernet 5	Cat5e	Blue	5	4
F	20	Ethernet 6	Cat5e	White/Blue	6	5
G	20	Ethernet 7	Cat5e	Orange	7	2
H	20	Ethernet 8	Cat5e	White/Orange	8	1
m	16	Payload Power Positive	Power	Brown	22	-
r	16	Payload Power Negative	Power	Blue (Alternate: Black)	23	-
		Earth (Chassis)	Power	Green/yellow (Alternate: White)	11	-

Contact identity letters are case sensitive.