

**Vinten**

**RADAMEC**  
BROADCAST ROBOTICS

# HS-102P Pan and Tilt Head

AM-HS-102P  
AM-HS-102PE  
AM-HS-102-IT  
AM-HS-102-ITE

**EN**

Operators Guide  
V3956-4980/1

# **HS-102P, PE, IT, ITE**

**Pan & Tilt Head**

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# Safety - read this first

## Understanding these instructions

### English

**EN**

The original instructions presented in this operators guide were written in English, and subsequently translated into other languages. If you are unable to understand these instructions, contact Vinten or your distributor to obtain a translation of the original instructions (EU Countries).

### БЪЛГАРСКИ

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Оригиналните инструкции, представени в настоящото ръководство на производителя, бяха написани на английски език, а след това - преведени на други езици. Ако не разбирате тези езици, свържете се с Vinten или с Вашия дистрибутор, за да получите оригиналните инструкции (за страните от Европейския съюз).

### Česky

**CS**

Pokyny uvedené v této operátorské příručce byly původně napsány anglicky a následně byly přeloženy do ostatních jazyků. Nerozumíte-li těmto pokynům, kontaktujte společnost Vinten nebo svého distributora, abyste získali překlad originálních pokynů (členské státy EU).

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**DA**

De originale instruktioner, der præsenteres i denne betjeningsvejledning, er skrevet på engelsk og derefter oversat til andre sprog. Hvis du ikke forstår disse instruktioner bedes du kontakte Vinten eller vor forhandler for at få en oversættelse af de originale instruktioner (EU-lande).

### Deutsch

**DE**

Die Originalanleitung in diesem Bedienungshandbuch wurde auf Englisch verfasst und anschließend in andere Sprachen übersetzt. Bei Verständnisproblemen in einer der übersetzten Sprachen kontaktieren Sie bitte Vinten oder Ihren Fachhändler; dort erhalten Sie eine Übersetzung der ursprünglichen Anleitung (EU-Staaten).

### Eesti

**ET**

Käesoleva kasutajjuhendi algtekst on koostatud inglise keeles ning seejärel tõlgitud teistesse keeltesse. Kui juhend osutub teie jaoks arusaamatuks, võtke juhendi emakeelse tõlke hankimiseks ühendust Vinteni või kohaliku esindajaga (Euroopa Liidu riigid).

### Ελληνικά

**EL**

Οι αρχικές οδηγίες αυτού του οδηγού για το χειριστή συντάχθηκαν στα Αγγλικά και μεταφράστηκαν στη συνέχεια σε άλλες γλώσσες. Εάν δυσκολεύεστε να καταλάβετε αυτές τις οδηγίες, επικοινωνήστε με τη Vinten ή το διανομέα σας για να λάβετε μια μετάφραση των αρχικών οδηγιών (Χώρες ΕΕ).

### Español

**ES**

Las instrucciones originales que se indican en esta guía del operador se han redactado en inglés y posteriormente se han traducido a otros idiomas. Si no entiendes estas instrucciones, póngase en contacto con Vinten o con su distribuidor para obtener una traducción de las instrucciones originales (para países de la UE).

### Français

**FR**

Les instructions originales présentées dans ce guide d'utilisation ont été écrites en anglais puis traduites dans d'autres langues. Si vous ne comprenez pas ces instructions, contactez Vinten ou votre revendeur pour obtenir une traduction des instructions originales (pour les pays de l'UE).

### Gaeilge

**GA**

Scríobhadh na treoracha bunaidh don treoirleabhar oibritheora seo as Béarla, agus aistríodh iad go teangacha eile ina dhiaid sin. Mura bhfuil tú in ann na treoracha seo a thuiscint, téigh i dteagmháil le Vinten nó le do dháileoir, chun aistriúchán de na treoracha bunaidh a fháil (Tíortha an AE).

### Italiano

**IT**

Le istruzioni originali presentate in questa guida per l'operatore sono in lingua inglese e successivamente tradotte nelle altre lingue. Qualora le istruzioni non fossero disponibili nella lingua desiderata, potete contattare Vinten o il vostro distributore per ricevere la traduzione delle istruzioni originali (Paesi UE).

### Latviešu

**LV**

Šajā operatora rokasgrāmatā iekļautie norādījumi sākotnēji tika sarakstīti angļu valodā un pēc tam pārtulkoti citās valodās. Ja nesaprotat šos norādījumus svešvalodā, sazinieties ar Vinten vai tirgotāju, lai saņemtu norādījumu tulkojumu (kādā no ES dalībvalstu valodām).

### Lietuvių

**LT**

Šiame operatoriaus vadove pristatomos pirminės instrukcijos parašytos anglų kalba ir vėliau išverstos į kitas kalbas. Jei šių instrukcijų nesuprantate, susisiekitė su „Vinten“ arba savo platintoju ir gaukite pirminių instrukcijų vertimą (ES šalies kalba).

### Magyar

**HU**

A kezelői útmutatóban található utasítások angol nyelven íródtak, és utólag fordították azokat más nyelvekre. Ha nem érti ezen utasításokat, kérjük, vegye fel a kapcsolatot a Vintennel vagy a helyi képviselővel, és igényelje az eredeti utasítások fordítását (EU országok).

### Malti

**MT**

L-istruzzjonijiet originali ipprezentati f'din il-gwida ta' operaturi kienu miktuba bi-Ingliż, u sussegwentement maqluba fl-lingwi oħra. Jekk ma tistax tifhem dawn l-istruzzjonijiet, ikkuntattja lil Vinten jew id-distributur tiegħek biex tikseb traduzzjoni ta' l-istruzzjonijiet originali (Pajjiżi ta' UE).

### Nederlands

**NL**

De oorspronkelijke instructies in deze bedieningshandleiding zijn geschreven in het Engels en vervolgens in andere talen vertaald. Als het onmogelijk is deze instructies te begrijpen, neemt u contact op met Vinten of met uw distributeur om een vertaling te bemachtigen van de oorspronkelijke instructies (EG-landen).

### Polski

**PL**

Oryginalne instrukcje zamieszczone w niniejszym podręczniku operatora zostały napisane w języku angielskim, a następnie przetłumaczone na inne języki. Jeśli nie rozumieją Państwo tych instrukcji, prosimy skontaktować się z siedzibą lub dystrybutorem Vinten, aby uzyskać tłumaczenie oryginalnych instrukcji (kraje UE).

### Português

**PT**

As instruções originais apresentadas no guia do operador foram escritas em Inglês e traduzidas para outros idiomas. Se não conseguir compreender estas instruções contacte a Vinten ou o seu distribuidor para obter a tradução das instruções originais (Países da UE).

### Română

**RO**

Instrucțiunile originale prezentate în acest ghid pentru operatorii au fost scrise în limba engleză, și traduse ulterior în alte limbi. În cazul în care nu înțelegeți aceste instrucțiuni, contactați Vinten sau distribuitorul dumneavoastră pentru a obține o traducere a instrucțiunilor originale (Țările UE).

### Slovensky

**SK**

Pôvodné pokyny, uvedené v tomto návode na obsluhu, boli napísané v angličtine a následne preložené do iných jazykov. Ak nerozumiete týmto pokynom, obráťte sa na spoločnosť Vinten alebo vášho distribútora, aby vám zaslal preklad originálnych pokynov (krajinu EU).

### Slovenščina

**SL**

Originalno besedilo teh navodil za uporabo je bilo napisano v angleščini in prevedeno v ostale jezike. Če ne razumete teh navodil, se obrnite na podjetje Vinten ali lokalnega zastopnika, ki vam bo posredoval originalna navodila (velja za dr\_ave EU).

### Suomi

**FI**

Tähän käyttäjän oppaaseen sisältyvät ohjeet on kirjoitettu alun perin englanniksi ja käännetty sitten muille kielille. Ellei ymmärrä näitä ohjeita, ota yhteyttä Vinteniin tai jälleenmyyjään ja pyydä alkuperäisten ohjeiden käännöstä (EU-maat).

### Svenska

**SV**

Instruktionerna i denna handbok skrevs ursprungligen på engelska och har sedan översatts till flera språk. Om du inte förstår dessa instruktioner, kontakta Vinten eller din återförsäljare för en ny översättning av originalinstruktionerna (EU-länder).

## Safety Instructions

Please read this Operators Guide carefully before attempting to operate the product. Retain this guide for future reference.

### Safety when working with the product



#### Take heed of warnings and instructions

You should read all of the safety instructions in this Operators Guide before attempting to operate the equipment. Adhere to all warnings in this guide and on the equipment. Do not attempt to operate this equipment if you do not understand how to operate it.



#### Power sources

Connect the product to a power supply of the type and voltage rating described in the Technical Data section of this Operators Guide or as marked on the product.

For an emergency power-down, ensure all personnel are aware of the location of the power switch on the product and associated equipment and power supplies.



#### Servicing

Do not attempt to service this product. Opening and removing covers may expose you to dangerous voltages or other hazards. Refer all servicing to trained and competent personnel. Contact Vinten Radamec to arrange servicing of this product.



#### Water, moisture and dust

Protect the product from water, moisture and dust. The presence of electricity near water can be dangerous. Do not use the product near water and take care that liquids are not spilled onto the equipment.

For external installations the environmental weather proof versions of the product (HS-102PE and HS-102ITE) must be installed. Environmental housings and cabling must be used where appropriate. Contact Vinten Radamec for further information on external installations.

#### Operating environment

The product should not be used outside the operating temperature limits. To prevent risk of overheating, ventilate the product correctly. Refer to the Technical Data section of this guide for the operating limits for the product.



#### Connections

Turn OFF before connecting or disconnecting any equipment or making any adjustments to the camera or associated equipment.

### Warning symbols



#### WARNING!

Where there is a risk of personal injury or injury to others, comments appear supported by the warning triangle symbol. Where there is a risk of damage to the product, associated equipment, process or surroundings, comments appear supported by the word 'caution'.



#### ELECTRIC SHOCK

Where there is a risk of electric shock, comments appear supported by the hazardous voltage warning triangle symbol.



#### FINGER TRAP

Where there is a risk of trapping fingers within parts of the product or other equipment mounted to the product, comments appear supported by the finger trap symbol.



#### READ INSTRUCTIONS

On encountering the warning triangle and open book symbols it is important that you read this operators guide before using this product or attempting any adjustment or repair.

### Usage

The HS-102P and HS-102IT pan and tilt heads are designed for use within television studios to support and balance camera and accessory equipment, allowing Operators to remotely control camera zoom and focus, and movements about the pan and tilt axis. The HS-102PE and HS-102ITE pan and tilt heads are environmental weather proof versions designed for external installations.

The total payload must not be exceeded. The product is intended for use by television camera operators, trained to use Vinten Radamec robotic equipment. Do not use this

product for any other purpose other than that specified in this usage statement.



#### Warning!

1. Do NOT attempt to use this product if you do not understand how to operate it.
  2. Do NOT use this product for any other purpose than that specified in this Usage statement.
  3. Maintenance beyond that detailed in this Operators Guide must be performed only by competent personnel.
- 
- 

### Disposing of old electrical and electronic equipment



When you see this symbol on a Vinten Radamec product it indicates that this product must not be disposed of with household waste. In some countries or European Community regions, separate collection systems have been set up to handle electrical and electronic waste products. This product must be disposed of at a collection point for the recycling of electrical and electronic equipment. For more information about disposing of this product, visit [www.vintenradamec.com/support/WEEE](http://www.vintenradamec.com/support/WEEE). By ensuring this product is disposed of correctly, you will help protect human health and conserve natural resources and the environment.

## Declaration of Conformity



In respect of the following equipment manufactured by Camera Dynamics Ltd:

Model Part Numbers:

AM-HS-102P, AM-HS-102PE, AM-HS-102-IT

are manufactured in accordance with:

89/336/EEC - The Electromagnetic Compatibility Directive

By application of the following Harmonised Standards:

- |                |  |
|----------------|--|
| EN55103-1:1996 | Electromagnetic compatibility - Part 1 - Emission - Product family standard for audio, video, audio visual and entertainment and lighting control apparatus for professional use. Environments E3 & E5.        |
| EN55103-2:1997 | Electromagnetic compatibility - Part 2- Immunity - Product family standard for audio, video, audio visual and entertainment and lighting control apparatus for professional use. Environments E1, E2, E3 & E4. |

### FCC

This product conforms to the following:

FCC Part 15 Class A for radiated emissions.



## **Technical data**

Maximum payload .....	16 kg (35.3 lbs)
Weight .....	7.7 kg (17 lbs)
Height .....	225 mm (8.9 in.)
Width (including cradle) .....	371 mm (14.6 in.)
Depth .....	161.8 mm (6.4 in.)
Angular range (pan) .....	359°
Angular range (tilt) .....	± 179°
Accuracy (pan and tilt) .....	.60 arc seconds
Angular acceleration .....	180°/second
Angular velocity (maximum) .....	.60°/second
Angular velocity (minimum) .....	0.01°/second
Power supply requirement .....	100-240 VAC / 50-60 Hz
Power supply consumption (peak) .....	150W
Operating temperature range* .....	-20°C to +50°C (-4°F to +122°F)

\* applies to HS-102PE and HS-102P-ITE

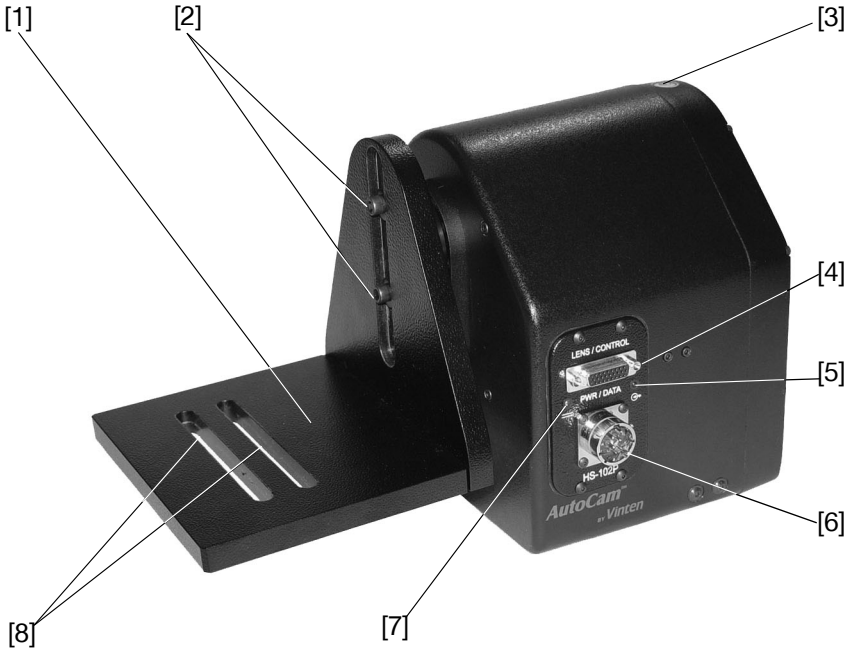
Technical specifications are  
subject to change without notice.

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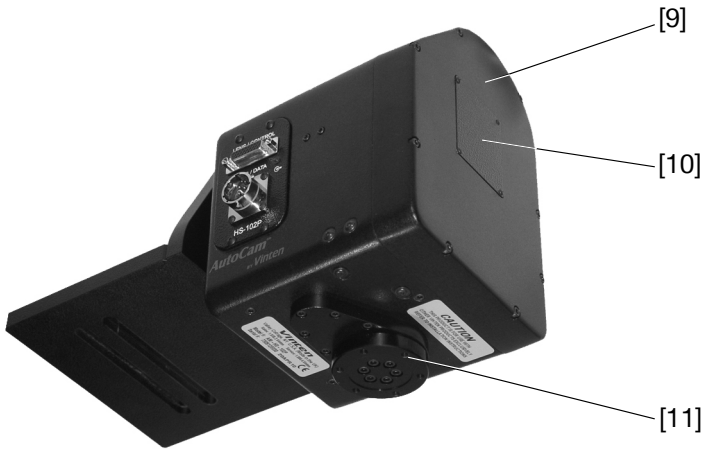
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# Components



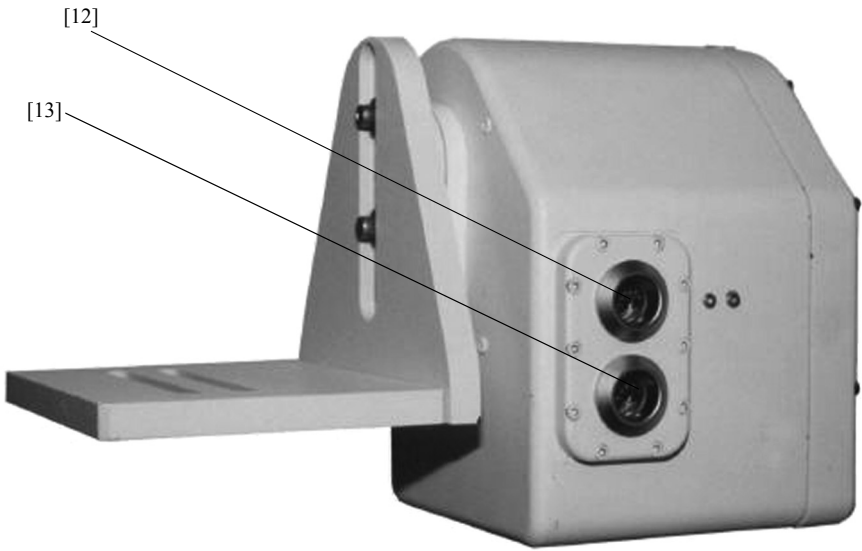
**Fig. 1 HS-102P pan and tilt head (left-hand-side)**

- [1] ..... Camera cradle
- [2] ..... Camera cradle screws
- [3] ..... Bubble level
- [4] ..... Lens control connector
- [5] ..... Data LED
- [6] ..... Power and data connector
- [7] ..... Power indicator LED
- [8] ..... Camera mounting slots



**Fig. 2 HS-102P pan and tilt head (left-hand underside)**

- [9] ..... Main cover
- [10] ..... Cover plate
- [11] ..... 6 hole mounting plate



**Fig. 3 HS-102PE weatherproof connectors**

- [12] ..... Lens control connector
- [13] ..... Power and data connector



Fig. 4 HS-102P-IT virtual studio head with Image Tracker

- [14] ..... Image Tracker
- [15] ..... Image Tracker cover plate
- [16] ..... Vinten 4 bolt adaptor (AM-VMA-105)

# Introduction and description

The HS-102P is a small profile versatile remote pan and tilt head that can be wall mounted, hung from a ceiling bracket or mounted on to a pedestal or tripod. The head is designed to support a wide range of camera and lens combinations, weighing up to 16 kg (35 lbs). The head delivers high speed and accuracy in very tight spaces and is ideally suited for use in government proceedings, delivering distance learning between campuses and documenting scientific meetings.

The extremely rigid mechanical design and high precision servo technology ensures that the head provides broadcast quality smooth movement at all times, while still achieving outstanding acceleration, working seamlessly with the Vinten Radamec Control system (VRC), Legislative Control System or the MultiController II.

## HS-102PE

The head is available in a weatherproof version (HS-102PE) designed to operate over an extended temperature range of -20°C to +50°C / -4°F to 122°F. The head has weatherproof connectors [12] and [13] for power and data. Note that the LEDs are removed. The standard cover plate [10] on the studio head is replaced by a small housing that contains a desiccant capsule.

## HS-102P-IT

For Virtual Studios there is a version of the head (HS-102P-IT) that has a factory fitted Image Tracker that fits to the head cover plate [10]. The head and Image Tracker combines Autocam robotics with electronic positioning encoders and data capture and transmission electronics. Providing real-time digital electronic positioning of pan and tilt movement as well as lens zoom and focus, the HS-102P-IT is especially suitable for interfacing with any virtual set.

## HS-102P-ITE

The virtual studio head (HS-102P-IT) is available in a weatherproof version. The Image Tracker cover plate [15] is replaced by a small housing that contains a desiccant capsule.

## Native Lens Drive options

The Native Lens Drive (NLD) is suitable for operation with current full-servo broadcast Canon and Fujinon lenses. The NLD provides analogue and digital lens drive outputs for the control of modern full-servo Superbox and ENG lenses through plug-in cables rather than a fitted lens bracket. The cables can be easily unplugged when the camera is required for use elsewhere, and then reconnected within seconds.

The NLD communicates with the lens software allowing for easy interchangeability. Lens calibration for zoom and Focus control starts automatically at power up and takes less than a second for serial for serial control or up to 40 seconds for analogue control. No further manual intervention is required once the NLD is installed and configured.

## Applications

The head is typically installed as part of a robotic system and can be remotely controlled by the Vinten Radamec Control System (VRC), Legislative Control System (LCS) or the MultiController II. Refer to the appropriate user guide or operating instructions provided with the control system for information on operating the head remotely.

### VRC and LCS installations

The VRC system and LCS can control multiple HS-102P heads. A typical system includes the controller with joystick control panel, head power supply, EPI interface and remotely operated heads (Fig. 5). Each head has its own dedicated power supply that provides power to the head and data connection between the head and controller.

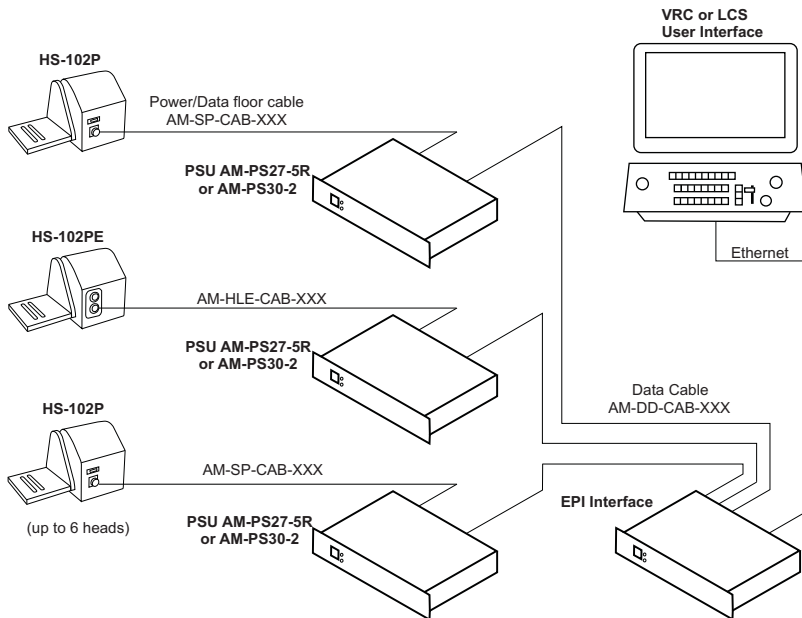


Fig. 5 Typical VRC/LCS system



## Multicontroller II

The Multicontroller II can control up to six HS-102P heads. A typical system includes the controller with joystick control panel, head power supply, EPI interface and remotely operated heads (Fig. 6). Each head has its own dedicated power supply that provides power to the head and data connection between the head and controller.

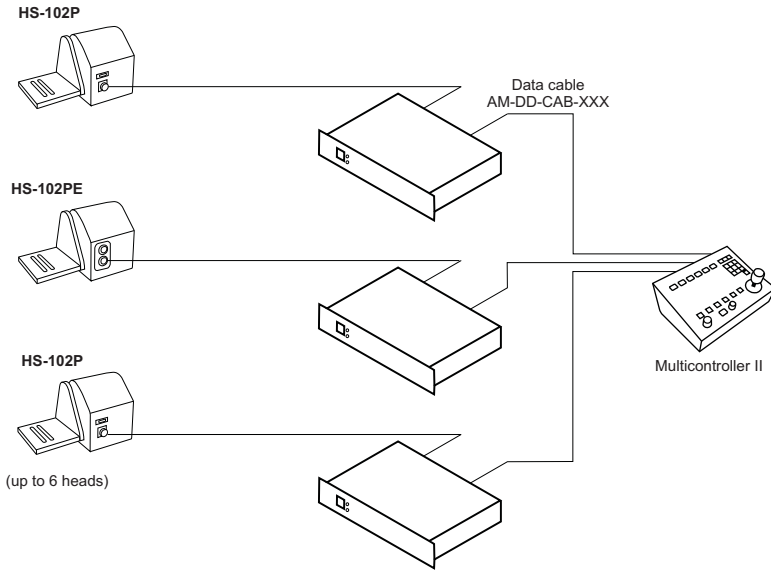


Fig. 6 Typical Multicontroller II system

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# Installation

## Mounting the head

The head can be mounted onto a tripod or pedestal, post, wall bracket or ceiling mount.

**CAUTION!**

**The installation of the head must be performed by competent and trained personnel.**

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Attach the head to its mount using the six screws provided and tighten securely. To ensure a secure mounting, the screws must protrude at least 5/16" (8mm) into the mounting plate [11] at the base of the head. For upright mounts, use the bubble level on the top of the head to verify that the head is mounted horizontally.

### Vinten tripod mount

When mounting the head on to a standard Vinten tripod or pedestal, the Vinten 4 bolt adaptor (AM-VMA-105) must be used.

1. Attach the Vinten adaptor [16] to the mounting plate [11] on the head using 6 screws through the mounting holes and tighten securely.
2. Align the four bolts in the Vinten tripod or supplied with the pedestal with the threaded holes in the adaptor plate [16] and tighten securely.

### Wall bracket

**CAUTION!**

**For installations requiring overhead mounting, the head, camera and accessories must be fitted with fall arresters that comply with all local legislative requirements.**

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**CAUTION!**

**The attachment of the wall bracket to a wall or other structure must be capable of supporting the total weight of the head, camera and accessories and must comply with all local legislative requirements.**

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1. Attach the wall bracket (AM-WBKT-102) to a solid structure using 4 suitable screws through the 4 mounting holes [18].
2. Attach the head to the wall bracket using 6 screws through the mounting holes [17] and tighten them securely.

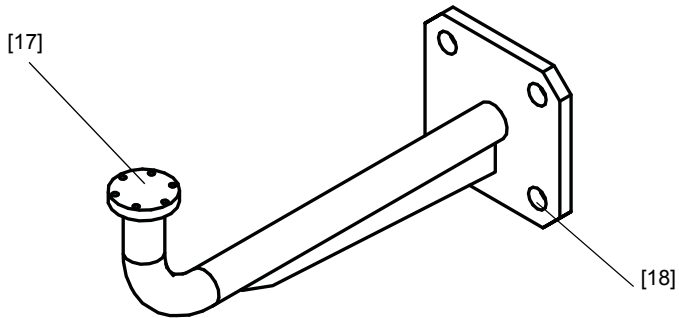


Fig. 7 Wall bracket (AM-WBKT-102)

- [17] ..... HS-102P mounting holes (6)  
[18] ..... Bracket mounting holes (4)

### Ceiling mount



**CAUTION!**

For installations requiring overhead mounting, the head, camera and accessories must be fitted with fall arresters that comply with all local legislative requirements.

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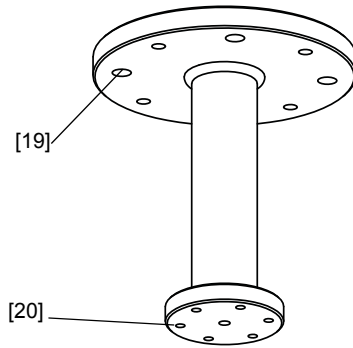
**CAUTION!**

The attachment of the ceiling mount to an overhead grid or other structure must be capable of supporting the total weight of the head, camera and accessories and must comply with local legislative requirements.

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1. Attach the ceiling mount (AM-CEIL-102) to a solid structural member using any suitable combination of the mounting holes [19].
2. Attach the head to the ceiling mount using six screws through the mounting holes [20] and tighten securely.



**Fig. 8 HS-102P ceiling mount**

- [19] .....HS-102P mounting holes (6 off)
- [20] .....Ceiling mounting holes (8 off)

## Electrical Connections

### Power supply connection

The head is powered by either a rack mounted power supply (AM-PS27-5R) or a modular power supply (AM-PS30-2). A combined power/data floor cable (AM-SP-CAB-XXX) connects between the power supply and the Power/data connector on the head. The floor cable supplies the head with power and data communications (to/from) the controller. Note that the environmental heads (HS-102PE and HS-102-ITE) are supplied with an environmental floor cable (AM-HLE-CAB-XXX) suitable for external installations.

1. Connect the appropriate floor cable from the HS-102P power supply to the head.
2. Connect AC power to the power supply.

### Controller connection

The data connection between the controller and the head power supply is RS-422 data. The VRC and LCS controller systems use data cable part number AM-LDD-CAB-XXX, and the Multicontroller II system uses data cable part number AM-DD-CAB-XXX.

1. Connect the appropriate data cable from the controller to the HS-102P power supply.

### Lens drive connection

The lens drive used with the head depends on the type of lens being used. The head can be supplied with either the generic AutoCam servo lens drives (AM-SLD-102OE), the Vinten Radamec native lens drives (AM-NLD-FED or AM-NLD-CED) or the video conference lens interface (AM-VCL-IF).

### Autocam servo lens drive

The servo lens drive can be mounted onto Fujinon or Canon lens. Connect the servo lens drive cable to the lens connector on the head. If the lens drive requires adjustment, contact Vinten Radamec for advise on setup and configuration.

### Native lens drive

When using the head with the Vinten Radamec native lens drive, the floor cable is connected to the NLD adaptor cable (V3990-5005) that provides connection between the head and the native lens drive assembly (Fig. 9).

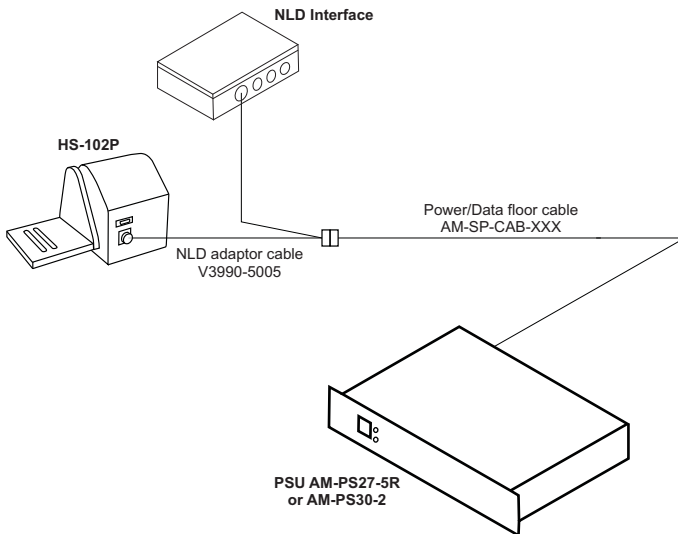


Fig. 9 NLD Connection

### NLD connection

The NLD interface is usually attached with heavy duty velcro to the main cover or to another convenient location on the head. For installation and configuration of the NLD, refer to the Operator Guide for the Native Lens Drive (Publication part no. V3977-4980).

### HS-102PE with NLD

The NLD interface is not weatherproof. When used with the environmental version of the head HS-102PE, the NLD must be installed inside an environmental enclosure. A NLD adaptor cable with environmental connectors is supplied specifically for external installations. The connector on the adaptor cable that connects with the floor cable may need to be removed and reinstalled to permit installation of the NLD inside the environmental housing.



#### CAUTION!

The installation of the HS-102PE head with NLD should only be performed by competent and trained personnel.

### Video conference lens interface

The video conference lens drive interface (AM-VCL-IF) is mounted onto the camera lens. Connect the cable from the lens interface to the lens connector on the head. If the lens drive requires adjustment, contact Vinten Radamec for advise on setup and configuration.

## **Mounting and balancing the payload**

For proper operation it is very important that the load is properly balanced mechanically with the centre of gravity (C of G) set exactly on the tilt axis.

1. Start with the camera cradle level.
2. Position the camera on the camera cradle and attach using bolts through the camera cradle into the base of the camera. Leave the bolts just loose enough to be able to slide the camera backwards and forwards.
3. Mount the lens (with the lens drive assembly installed) on the camera (if it was not already installed).
4. Mount any other ancillary equipment such as tally lights etc.
5. Slide the camera back and forth until the overall payload feels balanced horizontally about the tilt axis of the head. Tighten the bolts in the base of the camera and recheck the horizontal balance. Readjust if necessary.
6. Tilt the camera approximately 30° upward and release it. If the camera stays in the same position when released, the payload is properly balanced with the C of G on the tilt axis.

However, if the camera continues to move upwards after releasing the camera cradle, the payload is mounted too high - lower the camera cradle. If the camera moves back towards the horizontal position when released, the payload is mounted too low - raise the camera cradle.

7. Mark the fore and aft position of the camera on the camera cradle so that it can be re-installed in the same position. Remove the camera from the camera cradle.
8. Note or mark the vertical position of the camera cradle to make sure that you move it in the desired direction. Loosen the two camera cradle screws and raise or lower the cradle as necessary. Tighten the screws securely.
9. Remount the payload and repeat step 6 to check the balance. Move the camera cradle again if necessary until balance is achieved.

# Configuration

## Range limits

The factory default settings for the head clip (range limit) parameters for pan, tilt, zoom and focus are stored in non-volatile memory in the head. If the range limits require adjustment, contact Vinten Radamec or advise on setting the range limits.

## Pan/Tilt direction

When the head is ceiling mounted, the pan and/or tilt senses can be reversed. Contact Vinten Radamec for advise on changing the pan and tilt senses.



# Operation

The head has no external switches or controls. The head is operated remotely from the controller using the joystick control panel or controller software. Always refer to the operating instructions supplied with the controller for information on panning and tilting the head, and operating the camera lens zoom and focus.

## Joystick control

When the head is operated using the control joystick panel (Fig. 10):

Push the joystick left and right to pan the head. Depending on your preference, the joystick sense can be configured so that pushing the joystick left causes the head to pan to the left or to the right.

Push the joystick up and down to tilt the camera cradle on the head. Depending on your preference, the joystick sense can be configured so that pushing the joystick up causes the camera cradle to tilt up or tilt down.

Twist the joystick knob to zoom the lens in or out. Depending on your preference, the sense of the zoom knob can be configured so that twisting clockwise causes the lens to zoom in or zoom out.

Note that a separate Focus knob is provided on the control joystick panel to adjust the camera lens focus.

## Indicators

Two indicator LEDs are located on the connector plate of the HS-102P and HS-102P-IT. The environmental versions HS-102PE and HS-102P-ITE do not have indicators. The power LED [7] illuminates when DC power is supplied to the head from the power supply. The data LED [5] illuminates when control data is supplied to the head from the controller.

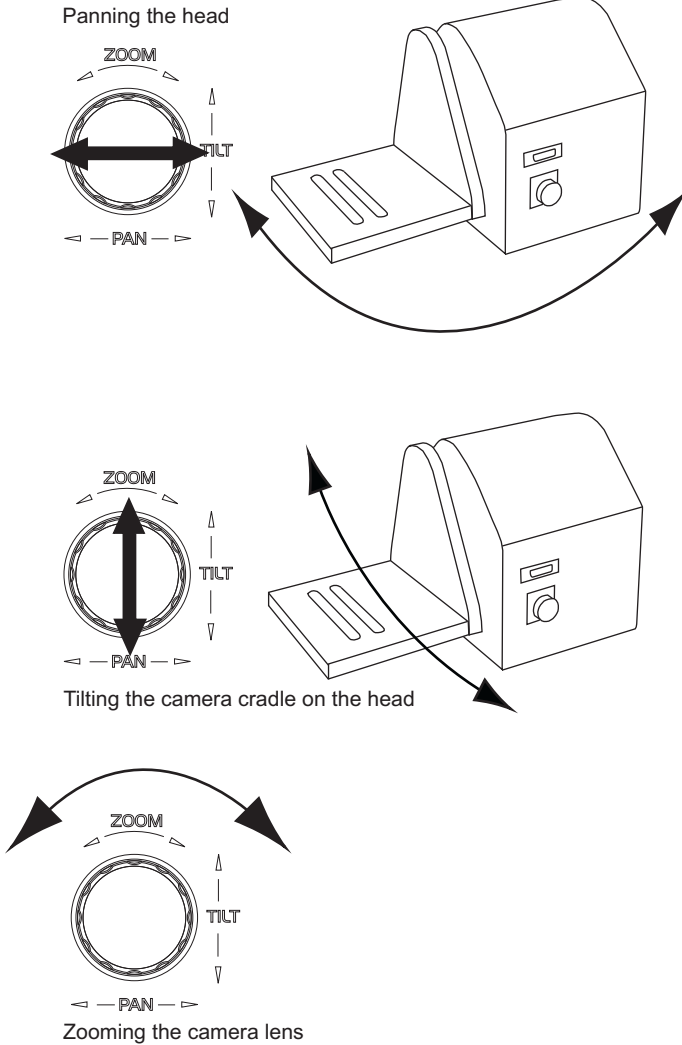


Fig. 10 Joystick control of the HS-102P head and camera lens

# Maintenance

## Routine maintenance

The head is a highly reliable and stable product that requires minimal routine maintenance. Apart from checking balance and overall operation periodically, the head requires no other routine maintenance.

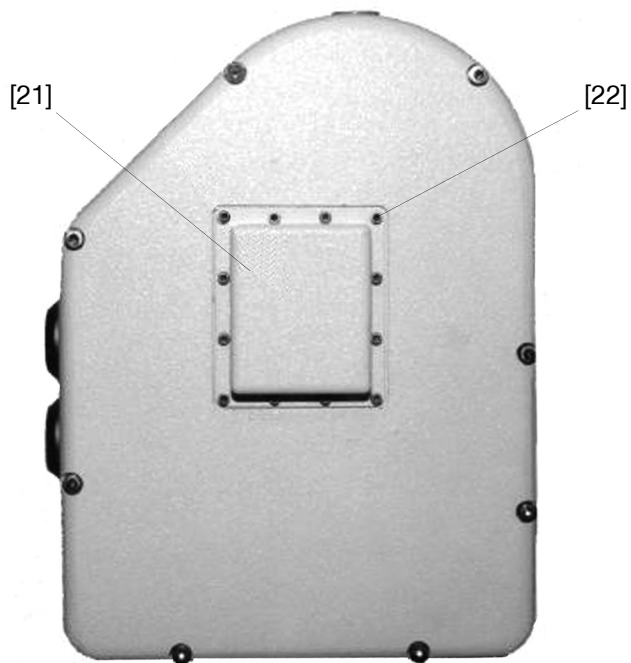
## Checking balance

It is recommended that balance is checked at least once a month to ensure proper operation and to reduce excessive wear on the drive train and potential overheating. An unbalanced load may also affect servo operation and responsiveness. Unless the mounting screws are loose, the balance should only change if the camera is moved back and forth, or if the payload has been changed.

## Checking the desiccant (PE and ITE versions)

The desiccant capsule should be periodically inspected and changed (if necessary) on the environmental versions of the head (HS-102PE and HS-102-ITE).

1. Locate the desiccant housing [21] on the main cover ([10] Fig. 2) of the HS-102PE or on the cover ([15] Fig.4) of the Image Tracker assembly on the HS102P-ITE.
2. Remove the twelve screws [22] securing the desiccant housing.
3. Remove the housing [21] and place to one side.
4. Inspect the desiccant capsule. If the capsule is blue in colour, the capsule does not require replacement. If it is violet in colour, the capsule must be replaced.
5. Refit the desiccant housing [21] and secure into position using the twelve screws [22].



**Fig. 11 Desiccant housing**

- [21] ..... Desiccant housing
- [22] ..... Desiccant housing screws (12 off)

## **Parts list**

### **Main Assemblies**

HS-102P pan & tilt head (Studio version)	AM-HS-102P
HS-102PE pan & tilt head (Environmental version)	AM-HS-102PE
HS-102P-IT pan & tilt head (Studio version with VR output)	AM-HS-102-IT
HS-102P-ITE pan & tilt head (Environmental version with VR output)	AM-HS-102-ITE

### **Power Supplies**

Power supply (modular)	AM-PS30-2
Power supply (rack mount)	AM-PS27-5R

### **Lens Drives (and cables)**

Servo lens drive (generic)	AM-SLD-102OE
NLD for Fujinon digital lens	AM-NLD-FED
NLD for Canon digital lens	AM-NLD-CED
Video conference lens interface	AM-VCL-IF

### **Adaptors and mounting brackets**

Adapter plate for Vinten tripods	AM-VMA-105
Wall mount bracket	AM-WBKT-102
Ceiling/grid mount	AM-CEIL-102

### **User replacement spares**

Replacement desiccant capsule	AB-070169
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### **Cables**

Floor cable (power/data to HS-102P head)	AM-SP-CAB-XXX
Floor cable (power/data to HS-102PE head)	AM-HLE-CAB-XXX
Data cable (Multicontroller II to power supply)	AM-DD-CAB-XXX
Data cable (EPI controller to power supply)	AM-LDD-CAB-XXX

Note: For all cables XXX = length in ft. or XXXm = length in m.

# HS-102P Pan and Tilt Head

Operators Guide

V3956-4980/1

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