

# Panasonic®

- This product is eligible for the P2HD 5 Year Warranty Repair Program. For details, see page 8.

## Operating Instructions **Vol.1**

Memory Card Camera-Recorder

Model No. **AG-HPX250P**  
**AG-HPX250EN**

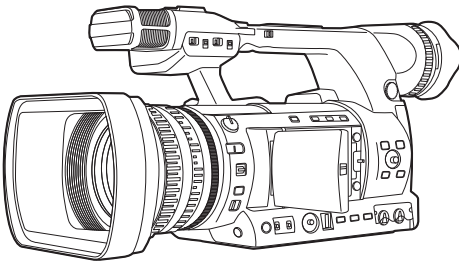
### Volume **1**

Note that Operation Instructions Vol. 1 describes basic operations of the Memory Card Camera-Recorder.

For instructions on advanced operations of the Memory Card Camera-Recorder, refer to Operating Instructions Vol. 2 (pdf file) contained in the supplied CD-ROM.

# P2HD

# AVC INTRA



# DVCPROHD

# DVCPRO 50

# DVCPRO

# DN

# SD<sup>TM</sup> HC

Before operating this product, please read the instructions carefully and save this manual for future use.

# Read this first! (For AG-HPX250P)

 indicates safety information.



**CAUTION**  
**RISK OF ELECTRIC SHOCK**  
**DO NOT OPEN**



**CAUTION:** TO REDUCE THE RISK OF ELECTRIC SHOCK,  
DO NOT REMOVE COVER (OR BACK).  
NO USER-SERVICABLE PARTS INSIDE.  
REFER TO SERVICING TO QUALIFIED SERVICE  
PERSONNEL.



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

## WARNING:

This equipment must be grounded.  
To ensure safe operation, the three-pin plug must be inserted only into a standard three-pin power outlet which is effectively grounded through normal household wiring.  
Extension cords used with the equipment must have three cores and be correctly wired to provide connection to the ground. Wrongly wired extension cords are a major cause of fatalities.  
The fact that the equipment operates satisfactorily does not imply that the power outlet is grounded or that the installation is completely safe. For your safety, if you are in any doubt about the effective grounding of the power outlet, please consult a qualified electrician.

## WARNING:

- To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.
- To reduce the risk of fire or electric shock hazard, keep this equipment away from all liquids. Use and store only in locations which are not exposed to the risk of dripping or splashing liquids, and do not place any liquid containers on top of the equipment.

## WARNING:

Always keep memory cards (optional accessory) or accessories (coin battery, microphone holder screws, microphone holder adapter, INPUT terminal covers) out of the reach of babies and small children.

## CAUTION:

To reduce the risk of fire or electric shock and annoying interference, use the recommended accessories only.

## CAUTION:

Do not jar, swing, or shake the unit by its handle. Any strong jolt to the handle may damage the unit or result in personal injury.

## CAUTION:

The mains plug of the power supply cord shall remain readily operable.  
The AC receptacle (mains socket outlet) shall be installed near the equipment and shall be easily accessible.  
To completely disconnect this equipment from the AC mains, disconnect the power cord plug from the AC receptacle.

## CAUTION:

Danger of explosion or fire if battery is incorrectly replaced or mistreated.

- Do not disassemble the battery or dispose of it in fire.
- Do not store in temperatures over 60°C (140°F).
- Do not expose the battery to excessive heat such as sunshine, fire or the like.

**For Battery Pack**

- Use specified charger.
- Replace only with same or specified type.

**For Battery of Remote Controller**

- Replace battery with part No. CR2025 only.
- Do not recharge the battery.

## CAUTION:

In order to maintain adequate ventilation, do not install or place this unit in a bookcase, built-in cabinet or any other confined space.  
To prevent risk of electric shock or fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.

## CAUTION:

Do not lift the unit by its handle while the tripod is attached. When the tripod is attached, its weight will also affect the unit's handle, possibly causing the handle to break and hurting the user. To carry the unit while the tripod is attached, take hold of the tripod.

## CAUTION:

Excessive sound pressure from earphones and headphones can cause hearing loss.

## CAUTION:

Do not leave the unit in direct contact with the skin for long periods of time when in use.  
Low temperature burn injuries may be suffered if the high temperature parts of this unit are in direct contact with the skin for long periods of time. When using the equipment for long periods of time, make use of the tripod.



indicates safety information.

**CAUTION:**

This apparatus can be operated at a voltage in the range of 100 – 240 V AC. Voltages other than 120 V are not intended for U.S.A. and Canada. Operation at a voltage other than 120 V AC may require the use of a different AC plug. Please contact either a local or foreign Panasonic authorized service center for assistance in selecting an alternate AC plug.

**FCC NOTICE (USA)**

**Declaration of Conformity**

Model Number: AG-HPX250P

Trade Name: Panasonic

Responsible Party: Panasonic Corporation of North America One Panasonic Way, Secaucus, NJ 07094

Support contact: 1-800-524-1448

This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

To assure continued compliance, follow the attached installation instructions and do not make any unauthorized modifications.

**CAUTION:**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the booklet "Something About Interference" available from FCC local regional offices helpful.

**FCC Warning:**

To assure continued FCC emission limit compliance, follow the attached installation instructions and the user must use only shielded interface cables when connecting to host computer or peripheral devices. Also any unauthorized changes or modifications to this equipment could void the user's authority to operate this device.

**NOTIFICATION (Canada)**

This class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

**Note:**

**Battery Charger / AC Adaptor**

The rating plate is on the underside of the Battery Charger and AC Adaptor. Disconnect the AC mains plug from the AC mains socket when not in use.

# IMPORTANT SAFETY INSTRUCTIONS

- 1) Read these instructions.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
- 10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- 11) Only use attachments/accessories specified by the manufacturer.
- 12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
- 13) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



A lithium ion/polymer battery that is recyclable powers the product you have purchased. Please call 1-800-8-BATTERY for information on how to recycle this battery.

## For USA-California Only

This product contains a CR Coin Cell Lithium Battery which contains Perchlorate Material – special handling may apply.

See [www.dtsc.ca.gov/hazardouswaste/perchlorate](http://www.dtsc.ca.gov/hazardouswaste/perchlorate).

## Brazil Only Brasil Apenas

### ■Manuseio de baterias usadas



#### BRASIL

Após o uso, as pilhas e /ou baterias poderão ser entregues ao estabelecimento comercial ou rede de assistência técnica autorizada.

Cobrir os terminais positivo (+) e negativo (-) com uma fita isolante adesiva, antes de depositar numa caixa destinada para o recolhimento. O contato entre partes metálicas pode causar vazamentos, gerar calor, romper a blindagem e produzir fogo.

Não desmonte, não remova o invólucro, nem amasse a bateria. O gás liberado pela bateria pode irritar a garganta, danificar o lacre do invólucro ou o vazamento provocar calor, ruptura da blindagem e produzir fogo devido ao curto circuito dos terminais. Não incinere nem aqueça as baterias, elas não podem ficar expostas a temperaturas superiores a 100°C (212°F). O gás liberado pela bateria pode irritar a garganta, danificar o lacre do invólucro ou o vazamento provocar calor, ruptura da blindagem e produzir fogo devido ao curto circuito dos terminais provocado internamente.

Evite o contato com o líquido que vazar das baterias. Caso isto ocorra, lave bem a parte afetada com bastante água. Caso haja irritação, consulte um médico.

#### To remove the battery

#### Para remover a bateria

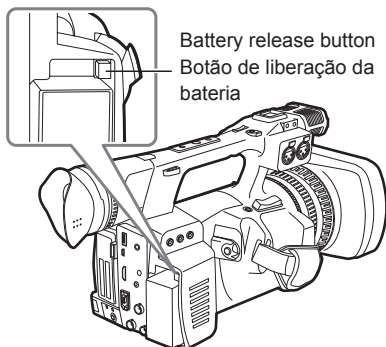
##### Main Power Battery (Lithium ion Battery)

##### Bateria Principal de Energia

(Refer to page 21 for the detail.)

Press the battery release button.

Pressione o botão para liberar a bateria.



##### Back-up Battery (Lithium Battery)

- For the removal of the battery for disposal at the end of its service life, please consult your dealer.

##### Remote Control Battery (Lithium Battery)

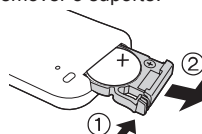
##### Bateria do Controle Remoto

- 1) Push the catch in the direction shown by arrow

① to remove the holder.

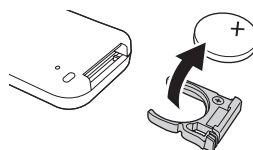
Empurre a trava na direção exibida pela seta

① para remover o suporte.

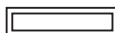


- 2) Remove the button-type battery from the battery holder.

Remova a bateria tipo botão do suporte da bateria.



# Read this first! (For AG-HPX250EN)



indicates safety information.

## WARNING:

This equipment must be earthed.

To ensure safe operation, the three-pin plug must be inserted only into a standard three-pin power point which is effectively earthed through normal household wiring.

Extension cords used with the equipment must have three cores and be correctly wired to provide connection to the earth. Wrongly wired extension cords are a major cause of fatalities. The fact that the equipment operates satisfactorily does not imply that the power point is earthed or that the installation is completely safe. For your safety, if you are in any doubt about the effective earthing of the power point, please consult a qualified electrician.

## WARNING:

- To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.
- To reduce the risk of fire or electric shock hazard, keep this equipment away from all liquids. Use and store only in locations which are not exposed to the risk of dripping or splashing liquids, and do not place any liquid containers on top of the equipment.

## WARNING:

Always keep memory cards (optional accessory) or accessories (coin battery, microphone holder screws, microphone holder adapter, INPUT terminal covers) out of the reach of babies and small children.

## CAUTION:

Do not remove panel covers by unscrewing them.

To reduce the risk of electric shock, do not remove the covers. No user serviceable parts inside. Refer servicing to qualified service personnel.

## CAUTION:

To reduce the risk of fire or electric shock and annoying interference, use the recommended accessories only.

## CAUTION:

Do not jar, swing, or shake the unit by its handle. Any strong jolt to the handle may damage the unit or result in personal injury.

## CAUTION:

The mains plug of the power supply cord shall remain readily operable.

The AC receptacle (mains socket outlet) shall be installed near the equipment and shall be easily accessible.

To completely disconnect this equipment from the AC mains, disconnect the power cord plug from the AC receptacle.

## CAUTION:

Danger of explosion or fire if battery is incorrectly replaced or mistreated.

- Do not disassemble the battery or dispose of it in fire.
- Do not store in temperatures over 60°C (140°F).
- Do not expose the battery to excessive heat such as sunshine, fire or the like.

### For Battery Pack

- Use specified charger.
- Replace only with same or specified type.

### For Battery of Remote Controller

- Replace battery with part No. CR2025 only.
- Do not recharge the battery.

## CAUTION:

In order to maintain adequate ventilation, do not install or place this unit in a bookcase, built-in cabinet or any other confined space.

To prevent risk of electric shock or fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.

## CAUTION:

Do not lift the unit by its handle while the tripod is attached. When the tripod is attached, its weight will also affect the unit's handle, possibly causing the handle to break and hurting the user. To carry the unit while the tripod is attached, take hold of the tripod.

## CAUTION:

Excessive sound pressure from earphones and headphones can cause hearing loss.

## CAUTION:

Do not leave the unit in direct contact with the skin for long periods of time when in use. Low temperature burn injuries may be suffered if the high temperature parts of this unit are in direct contact with the skin for long periods of time. When using the equipment for long periods of time, make use of the tripod.

## Note:

### Battery Charger / AC Adaptor

The rating plate is on the underside of the Battery Charger and AC Adaptor. Disconnect the AC mains plug from the AC mains socket when not in use.

## **EMC NOTICE FOR THE PURCHASER/USER OF THE APPARATUS**

### **1. Applicable standards and operating environment**

**The apparatus is compliant with:**

- standards EN55103-1 and EN55103-2 2009, and
- electromagnetic environments E1, E2, E3 and E4.

### **2. Pre-requisite conditions to achieving compliance with the above standards**

#### **<1> Peripheral equipment to be connected to the apparatus and special connecting cables**

- The purchaser/user is urged to use only equipment which has been recommended by us as peripheral equipment to be connected to the apparatus.
- The purchaser/user is urged to use only the connecting cables described below.

#### **<2> For the connecting cables, use shielded cables which suit the intended purpose of the apparatus.**

- Video signal connecting cables  
Use double shielded coaxial cables, which are designed for 75-ohm type high-frequency applications, for SDI (Serial Digital Interface).  
Coaxial cables, which are designed for 75-ohm type high-frequency applications, are recommended for analog video signals.
- Audio signal connecting cables  
If your apparatus supports AES/EBU serial digital audio signals, use cables designed for AES/EBU. Use shielded cables, which provide quality performance for high-frequency transmission applications, for analog audio signals.
- Other connecting cables (IEEE1394, USB)  
Use double shielded cables, which provide quality performance for high-frequency applications, as connecting cables.
- When connecting to the DVI signal terminal, use a cable with a ferrite core.
- If your apparatus is supplied with ferrite core(s), they must be attached on cable(s) following instructions in this manual.

### **3. Performance level**

The performance level of the apparatus is equivalent to or better than the performance level required by these standards.

However, the apparatus may be adversely affected by interference if it is being used in an EMC environment, such as an area where strong electromagnetic fields are generated (by the presence of signal transmission towers, cellular phones, etc.). In order to minimize the adverse effects of the interference on the apparatus in cases like this, it is recommended that the following steps be taken with the apparatus being affected and with its operating environment:

1. Place the apparatus at a distance from the source of the interference.
2. Change the direction of the apparatus.
3. Change the connection method used for the apparatus.
4. Connect the apparatus to another power outlet where the power is not shared by any other appliances.

## **Read this first! (For AG-HPX250P/AG-HPX250EN)**

### **■ Batteries that may be used with this product (Correct as of September 2011)**

Panasonic CGA-D54 batteries may be used with the AG-HPX250P.

Panasonic CGA-D54s batteries may be used with the AG-HPX250EN.

### **Recommendation for Use of Genuine Panasonic Battery (Rechargeable Battery)**

Thank you for using a Panasonic product.

It has been found that counterfeit battery packs which look very similar to the genuine product are made available to purchase in some markets. Some of these battery packs are not adequately protected with internal protection to meet the requirements of appropriate safety standards. There is a possibility that these battery packs may lead to fire or explosion. Please be advised that we are not liable for any accident or failure occurring as a result of use of a counterfeit battery pack. To ensure that safe products are used we would recommend that a genuine Panasonic battery pack is used.

- Be aware that many batteries sold at extremely cheap prices or in situations where it is difficult to verify the actual products before purchase have proven to be counterfeit.

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- HDMI, the HDMI logo, and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.
- Microsoft®, Windows®, and Windows Vista® are either registered trademarks or trademarks of Microsoft Corporation in the United States and/ or other countries.
- Screenshots are used in accordance with Microsoft Corporation guidelines.
- Apple®, Macintosh®, and Mac OS® are trademarks of Apple Inc., registered in the United States and other countries.
- Other model names, company names, and product names listed in these operating instructions are trademarks or registered trademarks of their respective companies.
- This product is licensed under the AVC Patent Portfolio License for the personal and non-commercial use of a consumer, and no license is granted or shall be implied for any use other than the personal uses detailed below.
  - To encode video in compliance with the AVC standard ("AVC Video")
  - To decode AVC Video that was encoded by a consumer engaged in a personal and non-commercial activity
  - To decode AVC Video that was obtained from a video provider licensed to provide AVC Video
 Additional information may be obtained from MPEG LA, LLC (<http://www.mpegla.com>).

### Note concerning illustrations in these instructions


- Illustrations (camera-recorder, menu screens, etc.) in these operating instructions differ slightly from the actual camera-recorder.
- In order to display the position of terminals on the camera-recorder, the protective caps included with the camera-recorder are not noted except in "Description of parts" (Page 16).

### References

- References are shown as (Page 00).

### Terminology

- Both SD Memory Cards and SDHC Memory Cards as referred to as "SD Memory Cards" in these operating instructions.
- Memory cards that have the "P2" logo (e.g., AJ-P2C064AG, an optional accessory) are referred to as "P2 cards" in these operating instructions.
- Video that is created during a single recording operation is referred to as a "clip" in these operating instructions.




## P2HD 5 Year Warranty Repair Program<sup>\*1</sup>

Thank you for purchasing this Panasonic P2HD device.  
Register as a user for this device to receive a special service warranty up to five years of free warranty repairs.


Customers who register as users on the website will receive an extended warranty repair valid for up to five years.

	1 <sup>st</sup> year	2 <sup>nd</sup> year	3 <sup>rd</sup> year	4 <sup>th</sup> year	5 <sup>th</sup> year <sup>*5</sup>
P2HD device <sup>*2</sup>	Basic warranty <sup>*3</sup>	Extended warranty repair <sup>*4</sup>			


<sup>\*1</sup>: Please note that this extended warranty is not available in some countries/regions. <sup>\*2</sup>: Not all models eligible for extended warranty coverage. <sup>\*3</sup>: The basic warranty period may vary depending on the country/region. <sup>\*4</sup>: Not all repair work is covered by this extended warranty. <sup>\*5</sup>: The maximum warranty period may be adjusted depending on the number of hours the device has been used.



Purchase P2 product



Register online within 1 month



"Registration Notice" e-mail sent

Free 5 years of Warranty Repairs

Make sure to save the "Registration Notice" e-mail during the warranty period.

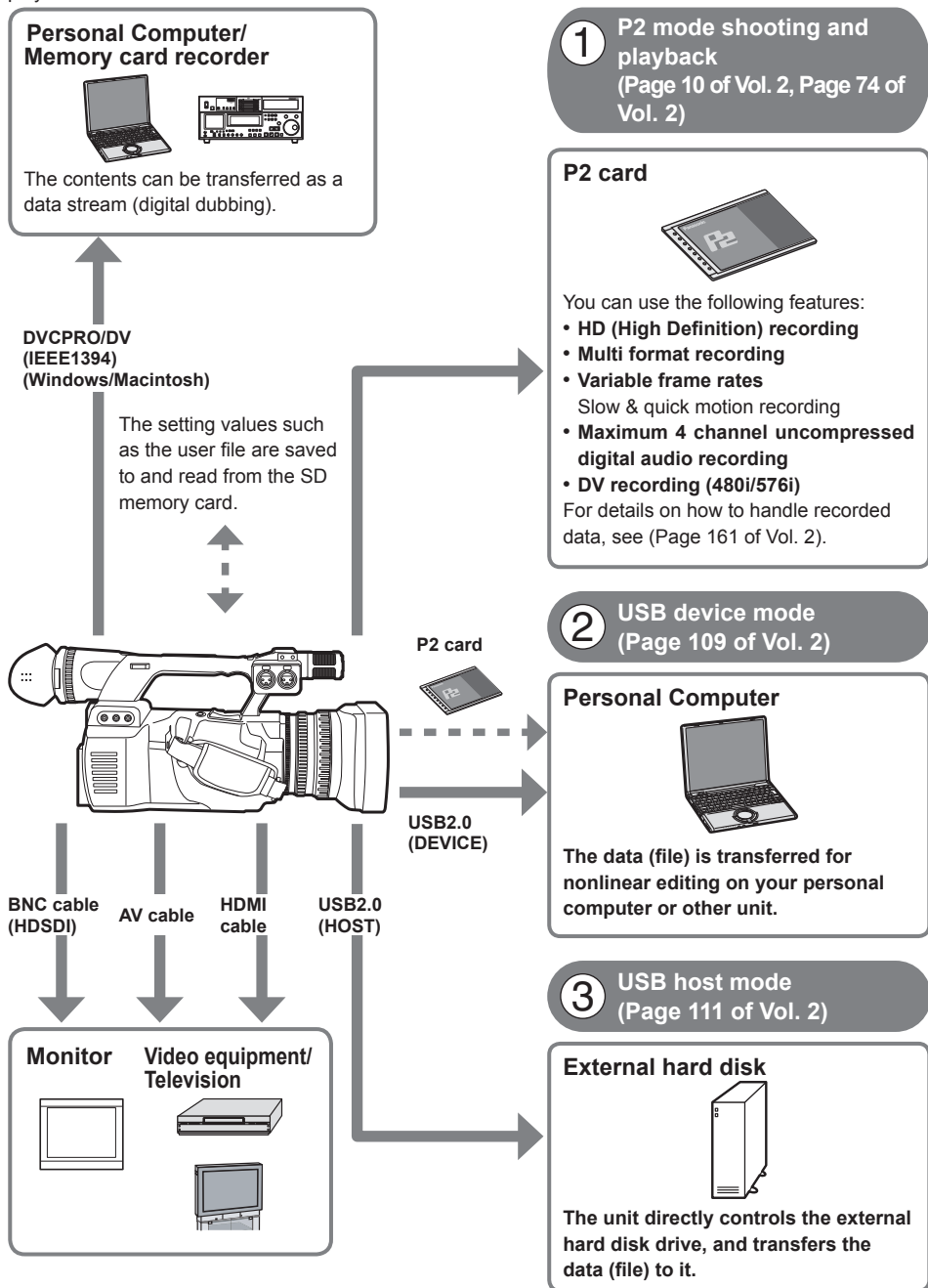
Details about user registration and the extended warranty: [http://panasonic.biz/sav/pass\\_e](http://panasonic.biz/sav/pass_e)

Please note, this is a site that is not maintained by Panasonic Canada Inc. The Panasonic Canada Inc. privacy policy does not apply and is not applicable in relation to any information submitted. This link is provided to you for convenience.



# Outline of operations

This unit is a handheld P2 memory card camera-recorder that achieves the high quality images provided by full HD through the incorporation of a cam-type 22x optical zoom and a 1/3-type 2.2-megapixel 3MOS sensor in the camera unit, and including AVC-Intra100 compression as standard in the recording and playback unit.



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# Operating precautions

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**Do not allow any water to get into the camera-recorder when using it in the rain or snow or at the beach.**

- Failure to heed this precaution will cause the camera-recorder or P2 card to malfunction (and may result in irreparable damage).

**Keep the camera-recorder away from equipment (such as TV sets and video game machines) that generate magnetic fields.**

- Using the camera-recorder on top of or near a TV set may cause distortion in the images and/or sound due to the electromagnetic waves that the set emits.
- The powerful magnetic fields generated by speakers or large motors may damage your recordings or distort the images.
- The electromagnetic waves emitted from a microcomputer will adversely affect the camera-recorder, causing the images and/or sound to be distorted.
- If the camera-recorder is so adversely affected by products that generate magnetic fields that it no longer operates properly, turn it off and remove the battery or unplug the AC adaptor from the power outlet. Then install the battery again or reconnect the AC adaptor. After this, turn the camera-recorder back on.

**Do not use the camera-recorder near radio transmitters or high-voltage equipment.**

- Using the camera-recorder near a radio transmitter or high-voltage equipment may adversely affect the recorded images and/or sound.

**Do not allow any sand or dust to get into the camera-recorder when using it at the beach and other similar places.**

- Sand and dust can damage the camera-recorder or a card. (Be especially careful when inserting or removing a card.)

**Battery charger and battery**

- If the CHARGE lamp continues to blink even when the battery temperature is normal, there may be something wrong with the battery or battery charger. Contact your dealer.
- The battery takes longer to charge when it is warm.
- The battery charger can interfere with radio reception so keep radios at least 1 m away from it.
- The battery charger may make some noise when you are using it, but this is normal.

**Take precautions not to drop the camera-recorder when moving it.**

- Strong impacts may damage the camera-recorder and cause it to stop working.
- Handle the camera-recorder with care, using the hand strap or shoulder strap to carry it.

**Do not spray the camera-recorder with insect sprays or other volatile substances.**

- These can warp the camera-recorder or cause the finish to come off.
- Do not leave the camera-recorder in contact with rubber or PVC products for extended periods of time.

**After use, remove the battery and disconnect the AC power supply cord.**

**Battery characteristics**

This camera-recorder uses a rechargeable lithiumion battery that uses its internal chemical reaction to generate electrical energy. This reaction is easily influenced by the ambient temperature and humidity, and the battery's effective operating time is reduced as the temperature rises or falls. In very low temperatures, the battery may last about 5 minutes.

Protective circuitry functions if you use the battery where it is very hot and you will have to wait before you can use it again.

**Remove the battery after use.**

Completely remove the battery. (The battery continues to be used even if you have turned the camera-recorder off.)

The battery can over discharge if you leave it in the camera-recorder and it may become impossible to recharge it.

Do not remove the battery when the power is on. If the battery is removed, make sure that the power is off and the mode lamp completely lights off.

**Keep dust and other foreign objects away from the battery terminal.**

If the battery is dropped, make sure that the body and terminal portion of the battery are not deformed.

If a deformed battery is inserted into the camera-recorder or placed on the AC adaptor, the camera-recorder or AC adaptor may be damaged.

**What to remember when throwing memory cards away or transferring them to others**

Formatting memory cards or deleting data using the functions of the unit or a computer will merely change the file management information: it will not completely erase the data on the cards. When throwing these cards away or transferring them to others, either physically destroy them or use a data deletion program for computers (commercially available) to completely erase the data. Users are responsible for managing the data on their memory cards.

**Liquid crystal displays**

- Images or letters can get burned onto the screen of the LCD or viewfinder if they are displayed for a long time, but you can fix this by leaving the camera-recorder off for several hours.
- The liquid crystal parts are highly precise with 99.99% of the pixels effective. This leaves less than 0.01% of pixels that may not light or may remain on all the time. These phenomena are normal and will have no effect on the images you shoot.
- Condensation may form if you use the camera-recorder where temperatures fluctuate. Wipe dry with a soft, dry cloth.
- The LCD may appear dim after immediately turning on a cold camera-recorder, but will brighten as the camera-recorder warms up.

**Do not point the lens or viewfinder at the sun.**

Doing so may damage the parts inside.

**Protective caps for the connectors**

Keep the protective caps fitted over any connectors that are not being used.

# Precaution for use

---

## **Always take some trial shots before actual shooting.**

- When shooting important events (such as weddings), always take some trial shots and check that the sound and images have been recorded properly before actual shooting.

## **Be sure to check and set the calendar and time zone.**

- These settings affect the control and playback sequence of the recorded contents. Before making a recording, set and check the calendar and time zone. (Page 26)

## **Panasonic makes no guarantees for your recordings.**

- Please understand that Panasonic cannot provide compensation for images and/or sound not recorded because of problems with the camera-recorder or P2 card.

## **Respect copyrights**

- Video and audio you have recorded with this camera-recorder is for your own personal enjoyment. In accordance with the copyright laws, it may not be used for other purposes without permission from the copyright holder.

## **Caution regarding laser beams**

- The MOS sensor may suffer damage if the lens is subjected to light from a laser beam. When using the camera-recorder in locations where laser irradiation equipment is used, be careful not to allow the laser beam to shine directly on the lens.

## **Notes when connecting a 1394 cable**

- Before connecting, turn off the main unit power, and check the shape and orientation of the terminal. (Page 103 of Vol. 2)

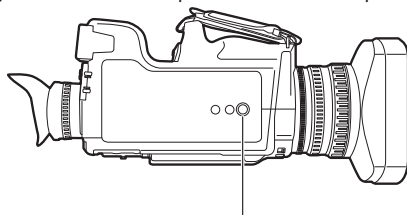
## **Media that can be used in this unit**

The following media can be used in this unit. For details, refer to the respective pages.

- P2 card (Page 14 of Vol. 2, Page 161 of Vol. 2)
- SD/SDHC memory cards (Page 16 of Vol. 2, Page 162 of Vol. 2)

## **Mounting the camera-recorder on a tripod**

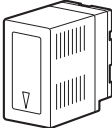
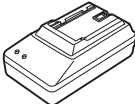
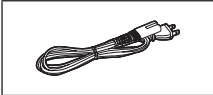

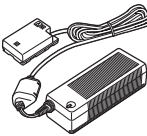
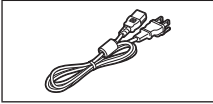





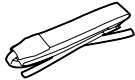

- There are tripod mounting holes that are compatible with 1/4-20UNC and 3/8-16UNC screws. Use the size that matches the diameter of the tripod's fixing screw.
- The tripod mounting hole is 5.5 mm deep. Do not force the tripod screw beyond this depth.







Attach the tripod to the tripod hole on the bottom.

For other usage notes, see (Page 12).

# Accessories

Battery *1 <div>  </div>	Battery charger/AC power supply cord <div>   </div>		
Wireless remote control and battery (CR2025) (Page 24) <div>  </div>	AC Adaptor/AC cord <div>   </div>		
Eye cup (Page 23) <div>  </div>	Microphone holder (Page 101 of Vol. 2) <div>  </div>	Screws for microphone holder (Page 101 of Vol. 2) 6-mm screws (2)  12-mm screws (2) <div>   </div>	Microphone holder adaptor (Page 101 of Vol. 2) <div>  </div>
Shoulder belt (Page 22) <div>  </div>	CD-ROM <div>  </div>		

The following accessories are attached to the camera-recorder.

Lens cap (Page 23) <div>  </div>	Lens hood (Page 22) <div>  </div>	INPUT terminal cover (2) <div>  </div>	Grip belt (Page 22) <div>  </div>
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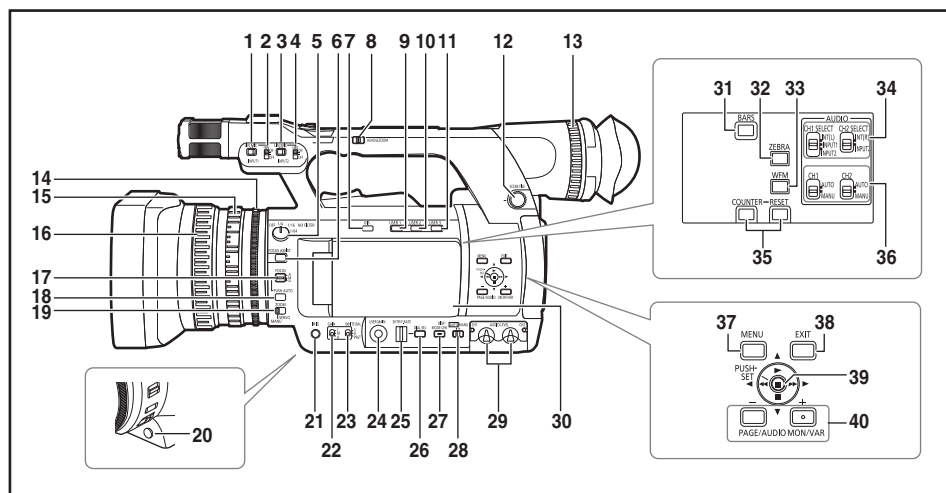
- \*1: For part numbers for the battery, see “Optional units” (see below).
- After unpacking, dispose of the AC power supply cable caps and packing materials properly.
  - Please consult a retailer when purchasing additional accessories.

## Optional units

- **XLR microphone**  
AG-MC200G
- **Battery**  
CGA-D54 (7.2 V, 5400 mAh: equivalent to accessory battery for the AG-HPX250P)  
CGA-D54s (7.2 V, 5400 mAh: equivalent to accessory battery for the AG-HPX250EN)

# Description of parts

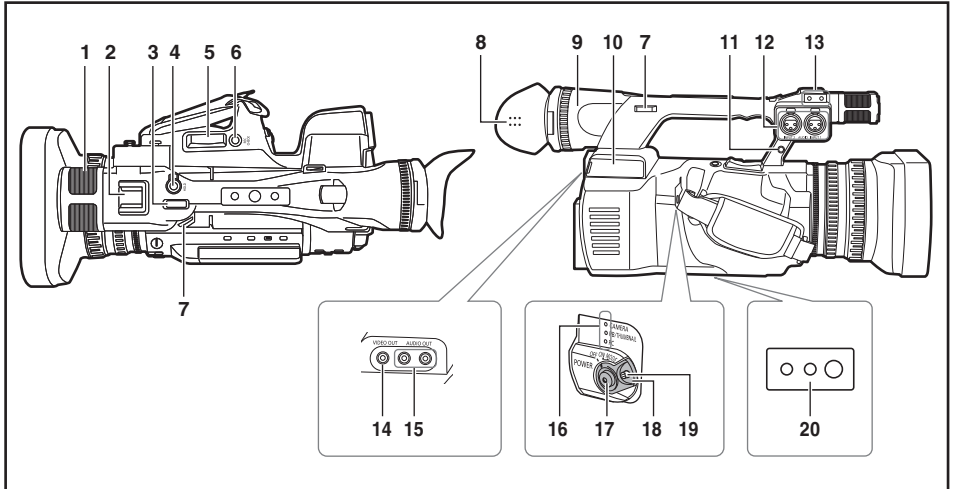
## Left side



- |  |   |
|--|---|
| <b>1 INPUT1 LINE/MIC switch</b> (Page 52 of Vol. 2)  | <b>21 IRIS button</b> (Page 30 of Vol. 2)                                     |
| <b>2 INPUT1 switch (MIC POWER +48 V)</b><br>(Page 52 of Vol. 2)  | <b>22 GAIN switch</b> (Page 32 of Vol. 2)                                     |
| <b>3 INPUT2 LINE/MIC switch</b> (Page 52 of Vol. 2)  | <b>23 WHITE BAL switch</b> (Page 32 of Vol. 2)                                |
| <b>4 INPUT2 switch (MIC POWER +48 V)</b><br>(Page 52 of Vol. 2)  | <b>24 USER MAIN button</b> (Page 39 of Vol. 2)                                |
| <b>5 ND FILTER dial</b> (Page 32 of Vol. 2)  | <b>25 SHTR/F.RATE dial</b> (Page 49 of Vol. 2)                                |
| <b>6 FOCUS ASSIST button</b> (Page 29 of Vol. 2)   | <b>26 DIAL SEL button</b> (Page 49 of Vol. 2)                                 |
| <b>7 OIS button</b> (Page 37 of Vol. 2)  | <b>27 DISP/MODE CHK button</b> (Page 36 of Vol. 2)                            |
| <b>8 HANDLE ZOOM switch</b> (Page 18 of Vol. 2)  | <b>28 AUTO/MANUAL switch</b> (Page 10 of Vol. 2)                              |
| <b>9 USER1 button</b> (Page 39 of Vol. 2)  | <b>29 AUDIO LEVEL knobs (CH1, CH2)</b><br>(Page 54 of Vol. 2)                 |
| <b>10 USER2 button</b> (Page 39 of Vol. 2)   | <b>30 LCD monitor</b> (Page 7 of Vol. 2)                                      |
| <b>11 USER3 button</b> (Page 39 of Vol. 2)   | <b>31 BARS button</b> (Page 40 of Vol. 2)                                     |
| <b>12 SCENE FILE dial</b> (Page 56 of Vol. 2)  | <b>32 ZEBRA button</b> (Page 35 of Vol. 2)                                    |
| <b>13 Diopter adjustment dial</b> (Page 6 of Vol. 2)   | <b>33 WFM button</b> (Page 40 of Vol. 2)                                      |
| <b>14 IRIS ring</b> (Page 30 of Vol. 2)  | <b>34 AUDIO CH1, CH2 SELECT switch</b><br>(Page 52 of Vol. 2)                 |
| <b>15 Zoom ring</b> (Page 18 of Vol. 2)<br>If the zoom ring pin is not necessary, attach it to the pin holder (page 17, No. 11) and ensure that it is not misplaced. | <b>35 COUNTER – RESET button</b> (Page 63 of Vol. 2)                          |
| <b>16 Focus ring</b> (Page 28 of Vol. 2)   | <b>36 AUDIO AUTO/MANU CH1, CH2 switch</b><br>(Page 54 of Vol. 2)              |
| <b>17 FOCUS switch</b> (Page 28 of Vol. 2)   | <b>37 MENU button</b> (Page 28)   |
| <b>18 PUSH AUTO button</b> (Page 28 of Vol. 2)   | <b>38 EXIT button</b> (Page 112 of Vol. 2)                                    |
| <b>19 ZOOM switch (MANUAL/SERVO)</b><br>(Page 18 of Vol. 2)  | <b>39 Operation lever</b> (Page 28)   |
| <b>20 AWB button</b> (Page 32 of Vol. 2)   | <b>40 PAGE/AUDIO MON/VAR button</b><br>(Page 40 of Vol. 2, Page 99 of Vol. 2) |



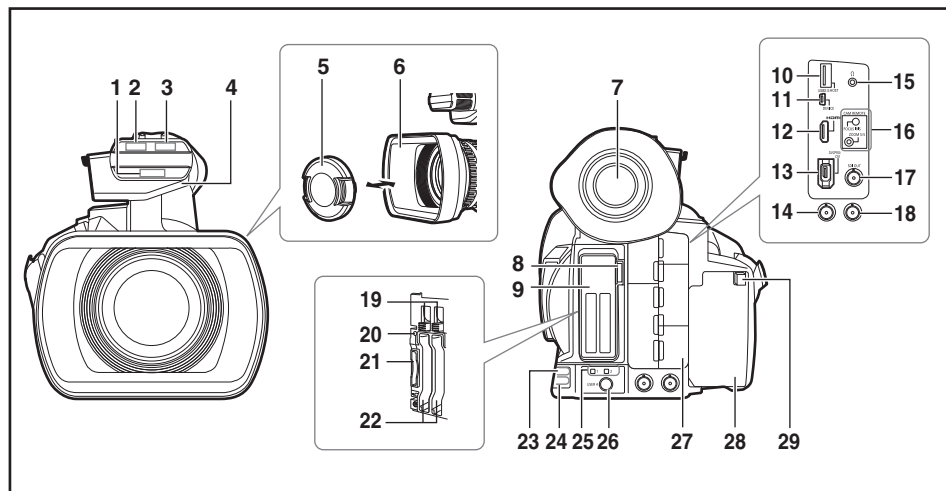
## Top and right side



Description of parts

- |  |  |  |
|--|--|--|
| <p><b>1 Built-in microphone</b> (Page 52 of Vol. 2)</p> <p><b>2 Light shoe</b></p> <p><b>3 Zoom lever (handle side)</b> (Page 18 of Vol. 2)</p> <p><b>4 START/STOP button (handle, includes hold mechanism)</b> (Page 10 of Vol. 2)</p> <p><b>5 Zoom lever</b> (Page 18 of Vol. 2)</p> <p><b>6 REC CHECK button</b> (Page 12 of Vol. 2)</p> <p><b>7 Shoulder belt attachment</b><br/>(Page 22)</p> | <p><b>8 Eye cup</b> (Page 23)</p> <p><b>9 Eye piece</b> (Page 6 of Vol. 2)</p> <p><b>10 Protective caps</b><br/>Keep the protective caps fitted over any connectors that are not being used.</p> <p><b>11 Zoom ring pin hole</b><br/>(page 16, No. 15)</p> <p><b>12 AUDIO INPUT 1/2 terminal (XLR, 3 pin)</b><br/>(Page 52 of Vol. 2)</p> <p><b>13 Microphone shoe</b> (Page 101 of Vol. 2)</p> <p><b>14 VIDEO OUT terminal</b> (Page 104 of Vol. 2)</p> <p><b>15 AUDIO OUT CH1/CH2 terminal</b><br/>(Page 104 of Vol. 2)</p> <p><b>16 Mode lamps</b> (Page 21)</p> <p><b>17 START/STOP button</b> (Page 10 of Vol. 2)</p> <p><b>18 POWER/MODE switch</b> (Page 25)</p> <p><b>19 Lock release button</b> (Page 25)</p> | <p><b>20 Tripod hole</b> (Page 14)</p> |
|--|--|--|

## Front and rear side



- 1 **Tally lamp (Front)** (Page 9 of Vol. 2)
- 2 **Remote control sensor (Front)** (Page 24)
- 3 **White balance sensor** (Page 32 of Vol. 2)
- 4 **Built-in speaker**
- 5 **Lens cap** (Page 23)
- 6 **Lens hood** (Page 22)
- 7 **Viewfinder** (Page 6 of Vol. 2)
- 8 **OPEN lever of P2 card/SD memory card slot cover**  
(Page 10 of Vol. 2, Page 15 of Vol. 2)
- 9 **P2 card/SD memory card slot cover**  
(Page 10 of Vol. 2, Page 16 of Vol. 2)
- 10 **USB terminal (HOST)** (Page 102 of Vol. 2)
- 11 **USB terminal (Mini-B) (DEVICE)**  
(Page 102 of Vol. 2)
- 12 **HDMI OUT terminal** (Page 104 of Vol. 2)
- 13 **DVCPRO/DV terminal** (Page 105 of Vol. 2)
- 14 **TC IN/OUT terminal** (Page 67 of Vol. 2)
- 15 **Headphone jack (3.5 mm stereo mini jack)**  
(Page 101 of Vol. 2)
- 16 **CAM REMOTE jack\***  
**FOCUS/IRIS** (3.5 mm mini jack)  
You can connect a remote control unit to control the FOCUS and IRIS (aperture).  
**ZOOM S/S** (2.5 mm super mini jack)  
You can connect a remote control unit to control zoom and start/stop of recording.

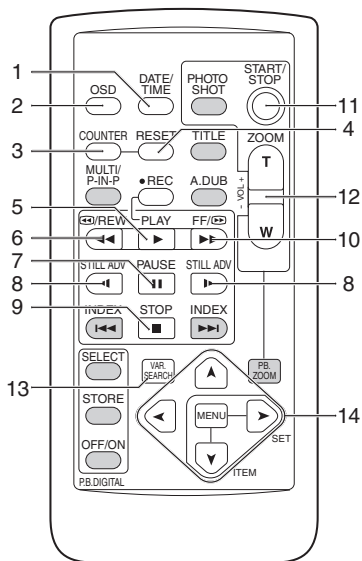
\* Do not connect any equipment except the remote controller to the CAM REMOTE jack. Connecting any equipment other than the remote control may cause the image brightness to change and/or the images to appear out of focus.

- 17 **SDI OUT terminal** (Page 103 of Vol. 2)
- 18 **GENLOCK IN terminal** (Page 67 of Vol. 2)
- 19 **P2 card eject button** (Page 10 of Vol. 2)
- 20 **SD memory card access lamp**  
(Page 16 of Vol. 2)
- 21 **SD memory card slot** (Page 16 of Vol. 2)
- 22 **P2 card slot** (Page 10 of Vol. 2)
- 23 **Tally lamp (Rear)** (Page 9 of Vol. 2)
- 24 **Remote control sensor (Rear)** (Page 24)
- 25 **P2 card access lamp (x 2)**  
(Page 15 of Vol. 2)
- 26 **USER4 button** (Page 39 of Vol. 2)
- 27 **Protective caps**  
Keep the protective caps fitted over any connectors that are not being used.
- 28 **Battery compartment** (Page 21)
- 29 **Battery release button** (Page 21)

## Remote control

The following buttons are for functions that cannot be executed on the camera-recorder.

- PHOTO SHOT      • TITLE      • A.DUB
- MULTI/P-IN-P      • SELECT      • REC
- STORE      • OFF/ON
- PB.ZOOM      • INDEX



For examples of remote control setup, see "Remote control setup" (Page 24).

- 1 **DATE/TIME button** (Page 100 of Vol. 2)
- 2 **OSD button** (Page 100 of Vol. 2)
- 3 **COUNTER button** (Page 63 of Vol. 2)  
Same function as the COUNTER button on the main unit.
- 4 **COUNTER RESET button** (Page 63 of Vol. 2)  
Same function as the COUNTER RESET button on the main unit.

### Operation buttons

- 5 **PLAY button** (▶) (Page 74 of Vol. 2)
- 6 **◀/REW button** (◀◀) (Page 74 of Vol. 2)
- 7 **PAUSE button** (||) (Page 74 of Vol. 2)  
Like the operation buttons of the camera-recorder, MENU operations are performed using SET button.
- 8 **STILL ADV button** (◀||, ||▶) (Page 24)
- 9 **STOP button** (■) (Page 74 of Vol. 2)
- 10 **FF/▶▶ button** (▶▶) (Page 74 of Vol. 2)

### Buttons for shooting and volume control

- 11 **START/STOP button** (Page 10 of Vol. 2)  
Same function as the START/STOP button on the main unit.
- 12 **ZOOM/VOL button** (Page 18 of Vol. 2)
- 13 **VAR. SEARCH button** (Page 99 of Vol. 2)
- 14 **MENU button** (Page 28)  
Functions the same as the MENU button on the camera-recorder.


### [◀], [▶], [▲], [▼] buttons

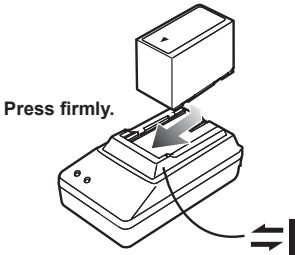
Function the same as the Operation lever on the camera-recorder.

# Charging the battery

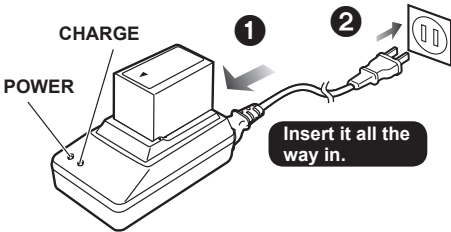
## Charging

Before using the battery, fully charge it with the AC adaptor.  
Keep a spare battery with you.

- 1** Align the battery with the  marking on the battery charger, place it flat, slide it in the direction shown below and press firmly.

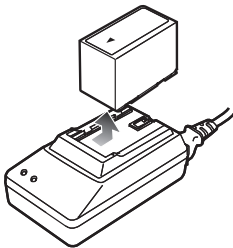


- 2** Connect the AC power supply cable. Connect the AC power supply cable in the order **1** and **2**.
- The POWER lamp and CHARGE lamp on the battery charger light, and charging begins.
  - If the CHARGE lamp does not light when attached, detach the battery and then attach it again.



- When the battery is charged, the CHARGE lamp on the AC adaptor goes out.

- 3** Slide the battery and remove it.



### ■ Recording time of included battery

Battery model (included)	Voltage/ capacity	Charging time	Maximum continuous recording time
CGA-D54 (AG-HPX250P) CGA-D54s (AG-HPX250EN)	7.2 V/ 5400 mAh	Approx. 330 minutes	Approx. 150 minutes

- The times apply when the ambient operating temperature is 20 °C (68 °F) and humidity is 60 %. Charging may take longer at other temperatures and humidity levels.
- For details of the battery remaining indicator, see (Page 124 of Vol. 2).

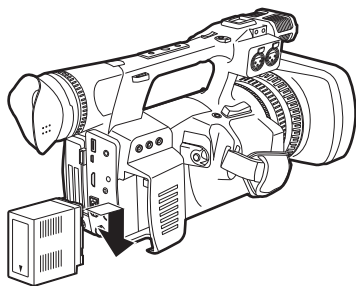
- **Keep metal objects (such as necklaces and hairpins) away from the battery. Shortcircuiting may occur across the terminals, causing the battery to heat up, and you may seriously burn yourself if you touch the battery in this state.**
- The battery becomes hot while it is being used or charged. The camera-recorder itself also becomes hot during use.
- Discharge the battery before storing it.
- When storing it for an extended time, charge it at least once a year, use up its charge in the camera-recorder, and then store it again.
- If the battery is extremely hot or cold, the CHARGE lamp will blink several times before charging starts.
- If the CHARGE lamp continues to blink even when the battery temperature is normal, there may be something wrong with the battery or battery charger. Contact your dealer.
- The battery takes longer to charge when it is warm.
- The battery charger can interfere with radio reception so keep radios at least 1 m away from it.
- The battery charger may make some noise when you are using it, but this is normal.

# Power sources

## Using the battery

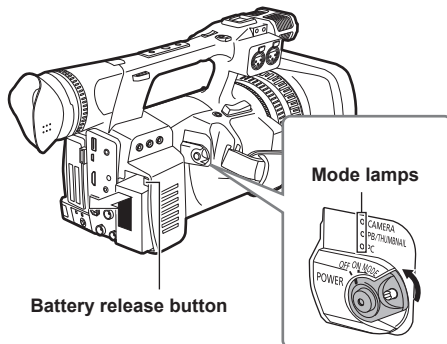
### Installation

Insert the battery until it clicks into place.



### Removal

- 1 Set the **POWER/MODE** switch to **OFF**, and check that the mode lamp is off. (Page 25)
- 2 While pressing the battery release button, raise up the battery to remove it.
  - Support the battery with your hand to ensure that it will not fall.

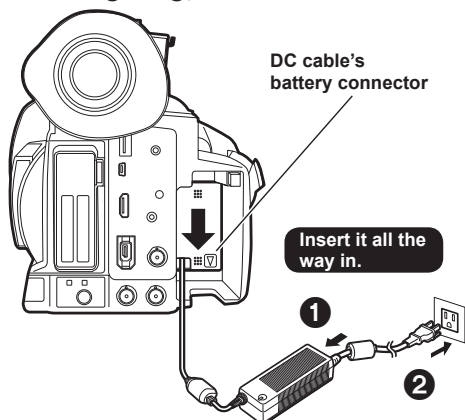


Preparation

## Using the AC adaptor

### Installation

- 1 Insert the DC cable's battery connector until it clicks into place.
- 2 Connect the AC power supply cable. Connect the AC power supply cable in the order ① and ②.



### Removal

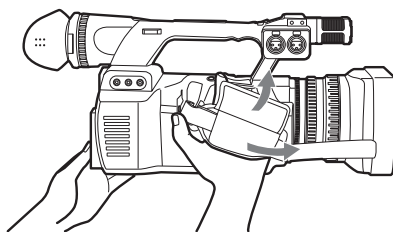
- 1 Set the **POWER/MODE** switch to **OFF**, and check that the mode lamp is off. (Page 25)
- 2 Remove the DC cable's battery connector while pressing the battery release button.
- 3 Disconnect the AC power supply cord from the power outlet.

- Disconnect the AC power supply cable from the power outlet when the unit is not going to be used.
- When the AC power supply cable is disconnected from the power outlet, the power lamp on the AC adaptor remains lit for a while then shuts off. This is not a malfunction.

## Adjusting the hand strap

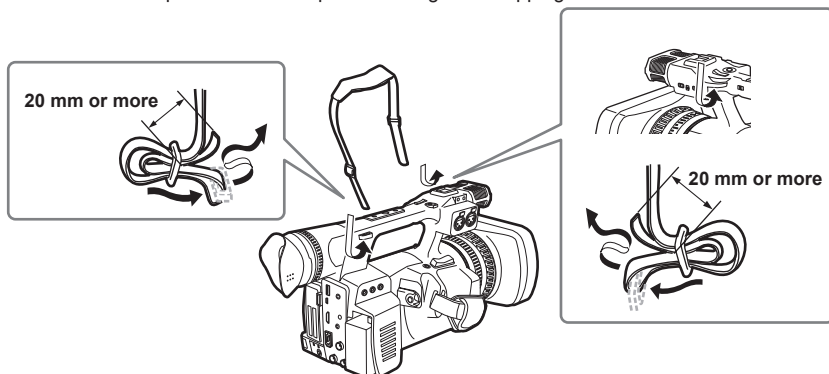
Adjust the hand strap to suit your hand.

- 1 Open the cover and adjust the length.
- 2 Close the cover.
  - Make sure the cover is fully closed.



## Attaching the shoulder strap

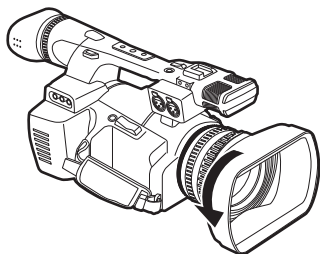
Attach the shoulder strap and use it as a precaution against dropping the camera-recorder.



## Detaching and attaching the lens hood

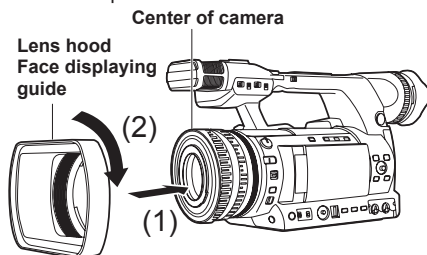
### Detaching the lens hood

- Turn the lens hood counterclockwise to detach it.



### Attaching the lens hood

- With the face on the lens hood displaying the guide pointing upward, align the guide with the center of the camera and attach the lens hood.
- Turn the lens hood clockwise until it clicks to secure it in position.



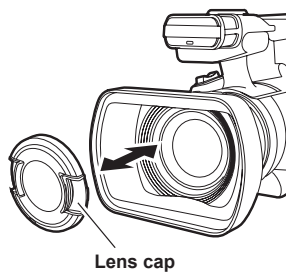
# Detaching and attaching the lens cap

## Detaching the lens cap

- Pinch the lens cap and remove.

## Attaching the lens cap

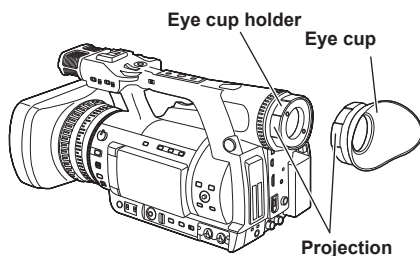
- Pinch the lens cap and attach.
- Be sure to attach the lens cap to protect the lens when not in use.



# Fitting the eye cup

Attach the eye cup by aligning the projections on the eye cup holder and eye cup and fitting them together.

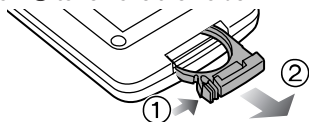
- Turning the eye cup after attaching it may cause the eye cup holder to come off. If the eyecup holder does come off, see (Page 159 of Vol. 2) for details on how to refit it.



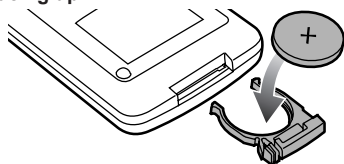
# The remote control

## Insert the battery

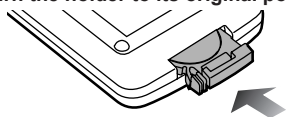
- 1 Push the catch in the direction shown by arrow ① to remove the holder.



- 2 Insert the battery with the "+" marked side facing up.



- 3 Return the holder to its original position.



- When the battery (CR2025) has run out, replace it with a new one. (The battery lasts about one year, depending on the frequency of use.) If the remote control unit fails to work even when it is operated near the camera-recorder's remote control sensor, the battery has run out.
- Keep the battery out of the reach of children.

## Remote control setup

When using two camera-recorders simultaneously, set this camera-recorder and the remote control to either "operation mode 1" or "operation mode 2" so the remote control does not operate the wrong camera-recorder by mistake.

### Setting

#### • Wireless remote control

Press the operation buttons STOP (■) and STILL ADV (▶▶) at the same time to set the remote control unit for use in "operation mode 1".

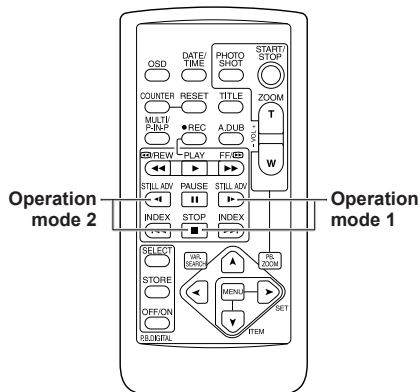
Alternatively, press the STOP (■) and STILL ADV (◀◀) buttons at the same time to set the remote control unit for use in "operation mode 2".

When the battery in the remote control unit is replaced, the remote control unit is set for use in "operation mode 1".

#### • Camera-recorder

In the setup menus, OTHER FUNCTIONS screen, REMOTE, set to 1 or 2. (Page 151 of Vol. 2)

If different settings are used for the camera-recorder and remote control unit, "REMOTE" lights in red on the viewfinder and LCD monitor.





# Turn on/off the camera-recorder

While holding down the lock release button, turn the POWER/MODE switch to the ON or OFF position.

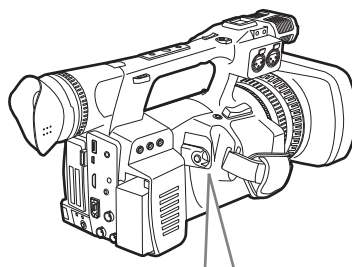
## Turn on the camera-recorder:

The mode lamp (CAMERA) lights red (CAMERA mode) and the camera-recorder is now in the shooting standby mode.

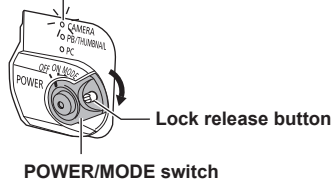
- When turning the POWER/MODE switch to the MODE position, the mode lamp (PB/THUMBNAIL) lights green and is PB/THUMBNAIL mode. (Page 74 of Vol. 2)
- Each time turning the POWER/MODE switch to the MODE position, the mode changes CAMERA or PB/THUMBNAIL.

## Turn off the camera-recorder:

The mode lamp (CAMERA or PB/THUMBNAIL) goes out.



### Mode lamp (CAMERA)



# Setting the calendar

The CLOCK SETTING value is recorded in the contents (clip), and affects the sequence of playback of the thumbnails. Before carrying out recording, be sure to check and set CLOCK SETTING and TIME ZONE.

This shows you how to adjust the calendar to 17:20 on September 25, 2011.

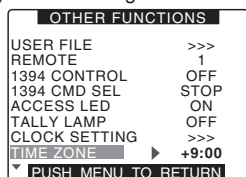
## 1 Set the POWER/MODE switch to ON.

(Page 25)

## 2 Press the MENU button.

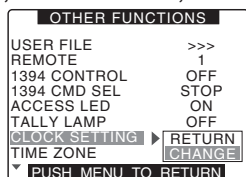
## 3 Push the Operation lever in the ▲ ▼ direction to set the time difference from Greenwich Mean Time under TIME ZONE on the setting menu OTHER FUNCTIONS screen. (Page 152 of Vol. 2)

Factory default setting is +00:00.

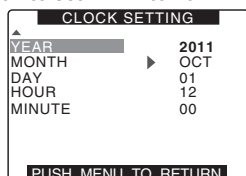


- For details on menu operation, refer to “Using the setup menus” (Page 28)
- You can also use the corresponding buttons on the remote control. For details, see “Description of parts” (Remote control). (Page 19)

## 4 In the setup menus, OTHER FUNCTIONS screen, CLOCK SETTING, select CHANGE.

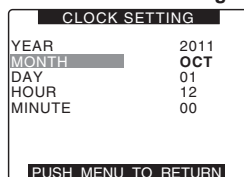


## 5 Push the Operation lever in the ◀ ▶ direction to set YEAR to 2011.

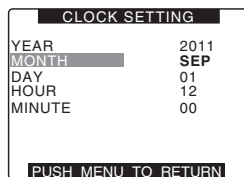


Choose the calendar from January 1st, 2000 to December 31, 2037.

## 6 Push the Operation lever in the ▼ direction to move to the MONTH setting.

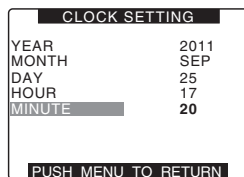


## 7 Push the Operation lever in the ◀ ▶ direction to set MONTH to SEP.



## 8 Set DAY, HOUR, and MINUTE using the method shown in steps 6 and 7.

- This is a 24-hour clock.



## 9 Press MENU three times to exit the menus.

- The clock can vary in accuracy so check that the time is correct before shooting.
- When using the camera-recorder overseas, do not set the CLOCK SETTING option to the local time, but instead enter the time difference from Greenwich mean time according to TIME ZONE.

# Charging the built-in battery

---

The camera-recorder's internal battery saves the date and time. "⚡" appears on the screen of the viewfinder or LCD when the internal battery is running low on charge.

Do the following to recharge it.

Reset the date and time when fully recharged.

## **1** Connect the AC adaptor. (Page 21)

- Leave the POWER/MODE switch at OFF.

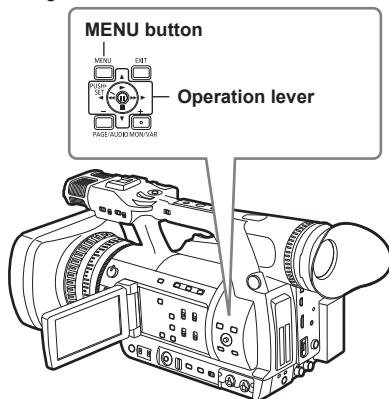
## **2** Leave the camera-recorder like this for about 4 hours.

- The internal battery charges during this time.
- Recharge the battery regularly to ensure correct TC and menu operations.

If "⚡" appears even after charging, it means that the internal battery must be replaced. Ask your dealer to do this.

# Using the setup menus

Use the setup menus to change the settings to suit the scenes you are shooting or what you are recording.

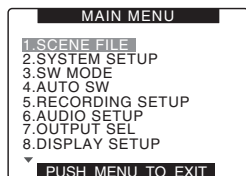


## Using the menus

- Set to CAMERA mode if the camera is operating in another mode. (Page 74 of Vol. 2)
- The menu items indicated in the blue characters cannot be used.

### 1 Press the MENU button when not recording in CAMERA mode.

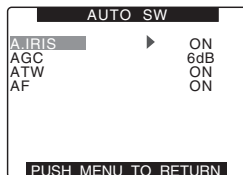
The following is displayed on the viewfinder and LCD screen.



### 2 Push the Operation lever in the ▲ or ▼ direction to move the highlight to the setting you want.

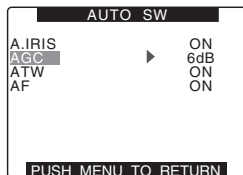
### 3 Press SET on the Operation lever (or push it in the ► direction) to display the items.

Example:



### 4 Push the Operation lever in the ▲ or ▼ direction to move to the setting you want.

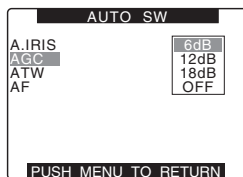
Example:



### 5 Press SET on the Operation lever to confirm the setting.

To change a value, push the Operation lever in the ▲ or ▼ direction to change as necessary.

Example:



### 6 To change other settings, repeat steps 4 and 5.

When you finish, press the MENU button to return to the function screen.

### 7 To change other functions, repeat steps 2 to 5.

When you exit the menu mode, press the MENU button again to return to the normal screen.

---

## Initializing the menu settings

The menu settings contain both the user file settings and the scene file settings. You can initialize them separately.

### **To initialize the user file (i.e. all the settings other than the scene file settings)**

Select INITIAL in USER FILE of the OTHER FUNCTIONS screen. The current menu settings of user file will return to the factory settings.

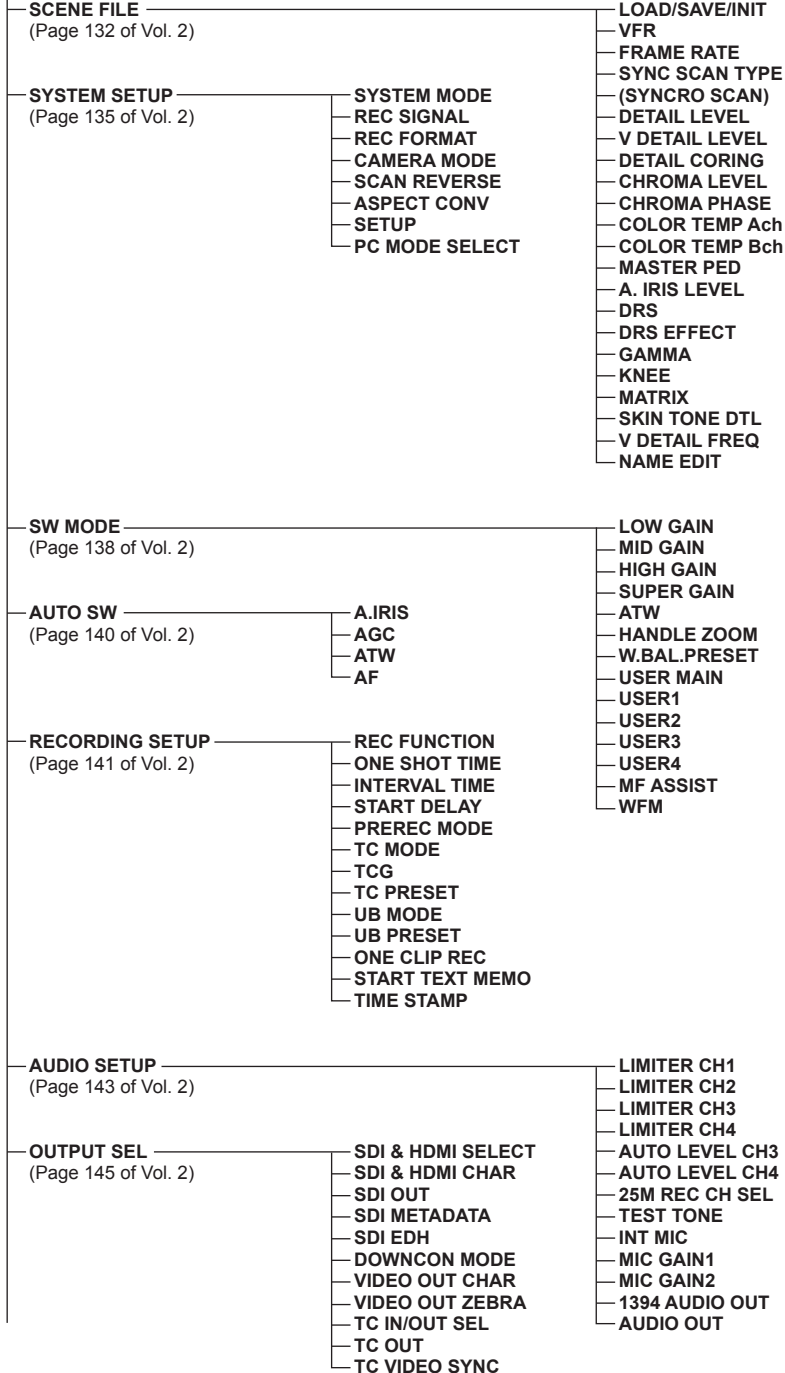
### **To initialize the scene file**

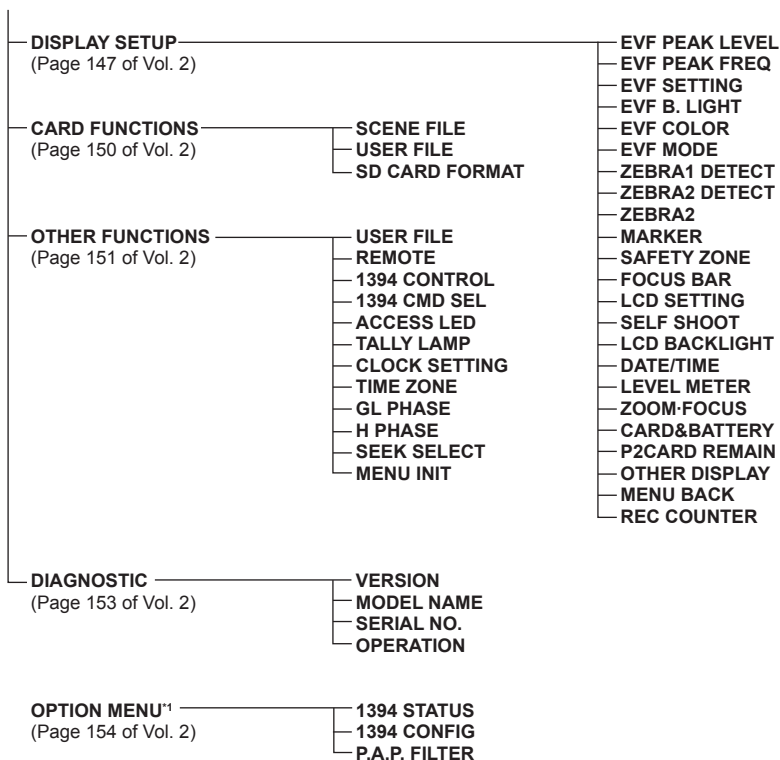
From the 6 scene files, select the one you want to initialize with the scene dial. Then in the SCENE FILE screen, LOAD/SAVE/INIT, select INITIAL. The settings for only the selected scene file are returned to the factory settings.

- This does not effect the other scene files.

### **To simultaneously initialize the user file and the scene files**

Select YES under MENU INIT on the OTHER FUNCTIONS screen. This returns the user file and the 6 scene files to their factory settings.





\*1: To open the OPTION MENU, hold down the DISP/MODE CHK button and press the MENU button.

# Specifications

## [GENERAL]

<b>Supply voltage</b>	DC 7.2 V (when the battery is used) DC 7.9 V (when the AC adaptor is used)
<b>Power consumption</b>	15.0 W (when the LCD monitor is used)

 indicates safety information.

### Ambient operating temperature

0 °C to 40 °C (32 °F to 104 °F)

### Ambient operating humidity

10% to 80% (no condensation)

### Weight

Approx. 2.5 kg (5.5 lb) (excluding battery and accessories)

### Dimensions (W x H x D)

180 mm x 195 mm x 438 mm  
(7-1/8 inches x 7-11/16 inches x 17-1/4 inches)  
(excluding protrusions)

## [Camera-recorder]

### Pickup devices

1/3-type progressive, 2.2-megapixel, 3MOS sensor

### Effective pixels

1920 (H)×1080 (V)

### Lens

Optical image stabilizer lens, 22x motorized zoom, F1.6 – 3.2 (f=3.9 mm – 86 mm)

35 mm conversion: 28 mm – 616 mm (16:9)

### Filter diameter

72 mm

### Color separation optical system

Prism system

### ND filter

OFF, 1/4, 1/16, 1/64

### Minimum shooting distance

Approx. 1 m

### Hood

Large-sized lens hood with wide angle of view

### Gain settings

0/+3/+6/+9/+12/+15/+18/+24/+30 dB  
(+24, +30 dB: USER SW allocation only)

### Shutter speed settings

- 60i/60p mode:  
1/60 (OFF), 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000 sec.
- 30p mode:  
1/30 (OFF), 1/60, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000 sec.
- 24p mode:  
1/24 (OFF), 1/60, 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000 sec.
- 50i/50p mode:  
1/50 (OFF), 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000 sec.
- 25p mode:  
1/25 (OFF), 1/50, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000 sec.

### Slow shutter

- 60i/60p mode: 1/15, 1/30 sec.
- 30p mode: 1/7.5, 1/15 sec.
- 24p mode: 1/6, 1/12 sec.
- 50i/50p mode: 1/12.5, 1/25 sec.
- 25P mode: 1/6.25, 1/12.5 sec.

### Synchro shutter

- 60i/60p mode: 1/60.0 to 1/249.8 sec.
- 30p mode: 1/30.0 to 1/249.8 sec.
- 24p mode: 1/24.0 to 1/249.8 sec.
- 50i/50p mode: 1/50.0 to 1/250.0 sec.
- 25p mode: 1/25.0 to 1/250.0 sec.



**Shutter opening angle**

3 degrees to 359.5 degrees in 0.5-degree increments

**Frame rates**

- 59.94 Hz mode:  
1080p:  
1/2/4/6/9/12/15/18/20/21/22/24/25/26/27/28/  
30 fps (frames per second) 17 step
- 720p:  
1/2/4/6/9/12/15/18/20/21/22/24/25/26/27/28/  
30/32/34/36/40/44/48/54/60 fps (frames per second) 25 step
- 50 Hz mode:  
1080p:  
1/2/4/6/9/12/15/18/20/21/22/23/24/25 fps  
(frames per second) 14 step
- 720p:  
1/2/4/6/9/12/15/18/20/21/22/23/24/25/26/27/  
28/30/32/34/37/42/45/48/50 fps (frames per second) 25 step

**Sensitivity**

- 59.94 Hz mode:  
F7 (1080/59.94i, P.A.P FILTER: TYPE2)  
F10 (1080/59.94i, P.A.P FILTER: TYPE1)
- 50 Hz mode:  
F8 (1080/50i, P.A.P FILTER: TYPE2)  
F11 (1080/50i, P.A.P FILTER: TYPE1)  
(2000 lx, 3200 K, 89.9 % reflectance)

**Minimum illumination**

0.2 lx (F1.6, Gain +30 dB, shutter speed 1/30 sec., P.A.P FILTER: TYPE1)

**Digital zoom**

×2, ×5, ×10

**[Memory card recorder Unit]****Recording media**

P2 card

**Recording Formats**

AVC-Intra 100/AVC-Intra 50/DVCPRO HD/  
DVCPRO50/DVCPRO/DV formats switchable

**Recording/Playback Time**

AVC-Intra 100/DVCPRO HD:  
8 GB×1 approx. 8 min  
16 GB×1 approx. 16 min  
32 GB×1 approx. 32 min  
64 GB×1 approx. 64 min

AVC-Intra 50/DVCPRO50:  
8 GB×1 approx. 16 min  
16 GB×1 approx. 32 min  
32 GB×1 approx. 64 min  
64 GB×1 approx. 128 min

DVCPRO/DV:  
8 GB×1 approx. 32 min  
16 GB×1 approx. 64 min  
32 GB×1 approx. 128 min  
64 GB×1 approx. 256 min

- The times listed above can be continuously recorded as one clip.  
The number of recording clips will reduce the above figures somewhat.

## Specifications (continued)

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### [Digital video Unit]

#### Recorded video signals

1080/59.94i, 1080/29.97p, 1080/29.97pN,  
1080/23.98p, 1080/23.98pA, 1080/23.98pN,  
720/59.94p, 720/29.97p, 720/29.97pN,  
720/23.98p, 720/23.98pN, 480/59.94i,  
480/29.97p, 480/23.98p, 480/23.98pA, 1080/50i,  
1080/25p, 1080/25pN, 720/50p, 720/25p,  
720/25pN, 576/50i, 576/25p

#### Sampling Frequency

AVC-Intra 100/DVCPRO HD:

Y: 74.1758 MHz,

P<sub>B</sub>/P<sub>R</sub>: 37.0879 MHz (59.94 Hz)

Y: 74.2500 MHz,

P<sub>B</sub>/P<sub>R</sub>: 37.1250 MHz (50 Hz)

DVCPRO50:

Y: 13.5 MHz, P<sub>B</sub>/P<sub>R</sub>: 6.75 MHz

DVCPRO:

Y: 13.5 MHz, P<sub>B</sub>/P<sub>R</sub>: 3.375 MHz

#### Quantizing

AVC-Intra 100/AVC-Intra 50:

10 bits

DVCPRO HD/DVCPRO50/DVCPRO/DV:

8 bits

#### Video Compression Format

AVC-Intra 100/AVC-Intra 50:

MPEG-4 AVC/H.264 Intra Profile

DVCPRO HD:

DV-Based Compression (SMPTE 370M)

DVCPRO50/DVCPRO:

DV-Based Compression (SMPTE 314M)

DV:

DV Compression (IEC 61834-2)

### [Digital audio Unit]

#### Audio Recording Signal

AVC-Intra 100/AVC-Intra 50/DVCPRO HD:

48 kHz/16 bits, 4CH

DVCPRO50:

48 kHz/16 bits, 4CH

DVCPRO/DV:

48 kHz/16 bits, 2CH/4CH switchable

### [Input/Output Unit]

#### GENLOCK IN

BNC×1, 1.0 V [p-p], 75Ω

#### VIDEO OUT

Pin jack×1, 1.0 V [p-p], 75Ω

#### SDI OUT

BNC×1 (10 bits 4:2:2\*), 0.8 V [p-p], 75Ω,

HD/SD switching via menu

\* Camera through

#### HDMI OUT

HDMI TypeA

#### Built-in MIC IN

Supports stereo microphones

#### AUDIO IN

- XLR×2, 3 pin (INPUT 1, INPUT 2)

- LINE/MIC/+48 V switchable

- LINE: 0 dBu

- MIC: – 40/– 50/– 60 dBu switching via menu

#### AUDIO OUT

Pin jack ×2 (CH1/CH2),

Output: 316 mV, 600 Ω

#### Camera remote terminal

2.5 mm diameter

Super mini jack×1 (ZOOM, S/S)

3.5 mm diameter

Mini jack×1 (FOCUS, IRIS)

#### Headphone

Φ3.5 mm stereo mini jack×1

#### Internal speaker

20 mm diameter × 1

#### TC IN/OUT

BNC×1

#### IN:

0.5 V [p-p] to 8 V [p-p], 10 kΩ

#### OUT:

low impedance, 2.0±0.5 V [p-p]

#### IEEE1394

6 pins, digital input/output, compliant with

IEEE1394

**USB2.0 (DEVICE)**

Type-miniB, 4 pin USB compliant with USB ver. 2.0

**USB2.0 (HOST)**

Type-A, 4 pin USB compliant with USB ver. 2.0

**LCD monitor:**

3.45-type color LCD monitor with approx. 921,000 dots (16:9)

**EVF**

0.45-type color LCD monitor with approx. 1,226,000 dots (16:9)

**[AC adaptor]**

<b>Power</b>	100 V - 240 V AC, 50 Hz - 60 Hz
<b>Source:</b>	0.55 A
<b>Power</b>	7.9 V DC, 2.53 A
<b>Output:</b>	

 indicates safety information.

**Weight**

Approx. 220 g (0.49 lb)

**Dimensions (W x H x D)**

42 mm x 31 mm x 104.4 mm

(1-5/8 inches x 1-1/4 inches x 4-1/8 inches)

**[Battery charger]**

<b>Power</b>	100 V - 240 V AC, 50/60 Hz
<b>Source:</b>	0.4 A
<b>Power</b>	8.4 V DC, 1.2 A
<b>Output:</b>	

 indicates safety information.

**Weight**

160 g (0.35 lb)

**Dimensions (W x H x D)**

70.0 mm x 35 mm x 115 mm

(2-3/4 inches x 1-3/8 inches x 4-1/2 inches)  
(excluding protrusions)

Weight and dimensions are approximate.

Specifications are subject to change without notice.

## Information on Disposal in other Countries outside the European Union



These symbols are only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

**Panasonic Corporation**

Web Site: <http://panasonic.net>