

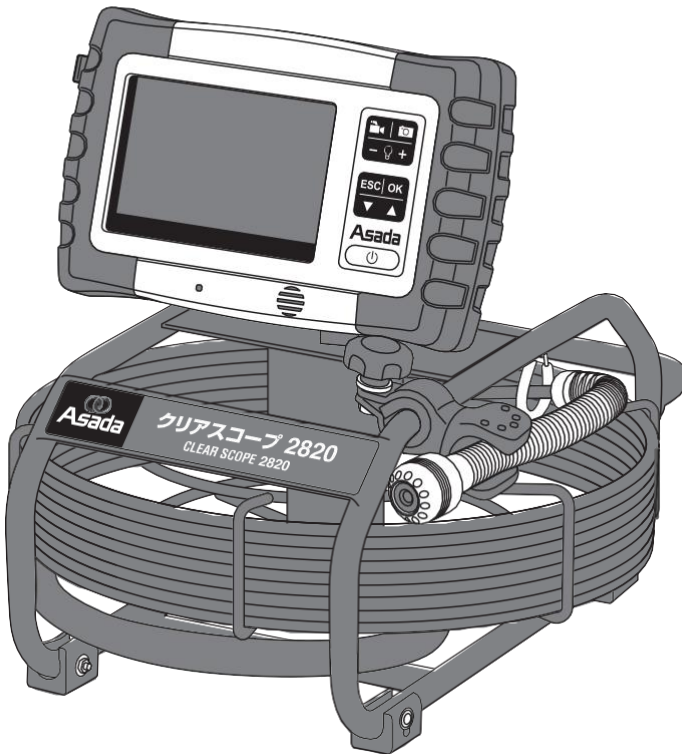
Asada

環境を守る親切ツール

PIPE INSPECTION ENDOSCOPE

CLEAR SCOPE 2820

INSTRUCTION MANUAL



【Read through this manual carefully before using the device.】

CLEAR SCOPE 2820

SAFETY PRECAUTIONS

Thank you for choosing our CLEAR SCOPE 2820.

- This Instruction Manual must be retained by the user of this device.
- Read this Instruction Manual carefully and completely before use and thoroughly understand the usage, capacity, cautions and easy repairs for correct operation.
- After reading the instructions, save this manual so that you can read it when necessary.
- Use the device for the intended application only. It will do a better job and be safer at the rate for which it was designed.
- Upon receiving the device, check the following.
 - Check that the device is built conforming to the specifications stated in your order.
 - Check the overall device for any damage or deformation caused in transit due to accidents or other reasons.
 - Check that all items and accessories delivered.

In case any discrepancy is found, immediately report the fact to the shop you purchased or our sale office.
(The contents of this manual are subject to change without prior notice.)

CLASSIFICATION OF CAUTIONS

Precautionary signs are classified into the following 3 levels.

DANGER

Indicates an immediately hazardous situation which, if not avoided, will result in death or serious injury.



WARNING

Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.



Explosion



Electric
Shock



Do not
Disassemble



Fire



Burn



Handling of
Wire



Working
Condition



User's
Manual



Others

INDEX

SAFETY PRECAUTIONS.....	2	Checking Image & Video.....	15
COMPONENTS OF THE DEVICE.....	5	Deleting Image & Video.....	15
Main Parts.....	5	SETTING.....	16
Specifications.....	6	Deleting all files.....	16
Standard Accessories.....	6	Video Output.....	16
Button Operation List.....	7	Setting Date/Time.....	16
PREPARATION.....	9	Language.....	17
Transportation in Clear Scope Case.....	9	Video Output Scheme.....	17
Charging Battery.....	10	Auto Power Off.....	17
Connection of Clear Scope and Camera Cable.....	11	Distance Counter.....	18
Installation & Removal of SD Card.....	12	Image Rotation.....	18
HOW TO USE.....	13	Digital Zoom.....	19
Installation of Monitor & Adjusting Angle.....	13	CONNECTING WITH OTHER DIVICES.....	20
Inserting Camera.....	13	Connect to PC (Windows7/10).....	20
RECORD VIDEO.....	15	Connect to TV.....	20
Taking Image.....	15	MAINTENANCE & INSPECTION.....	21
Taking Video.....	15	BEFORE ASKING FOR REPAIRS.....	22

CLEAR SCOPE 2820

SAFETY PRECAUTIONS

- Basic cautions to use the device safely are listed in this section.
- The detailed cautions in operation are described in each chapter.

DANGER



- ◆ Only qualified persons are allowed to disassemble the device.
- ◆ Do not modify the device.



- ◆ Use the device for the intended application only.

This device is designed to inspect inside various pipes. Do not use this device for medical purposes or for inspection of aircraft and so on.

WARNING



- ◆Wear rubber (leather) gloves when you handle the Camera Cable.

You may have injuries on your hands as foreign material can adhere to the Camera Cable during operation.



- ◆Do not operate the device in rain or with wet hands.

Operation in rain or with wet hands may lead to electric shock.



- ◆Do not use the device in an area where gasoline, thinner or any other combustible gas may exist.

- ◆Do not use the device in a dusty area.

It may lead to explosion, heating or mechanical failure.



- ◆When unattended, blackout or servicing, switch off and unplug the device.



- ◆During thunder, stop the operation and do not touch the device.

It may lead to electric shock.



- ◆Do not touch the Camera Head.

It is hot and you may get burned.

CLEAR SCOPE 2820

CAUTION



- ◆ Do not let visitors touch the device.
- ◆ Do not use the device when the result is unpredictable.
- ◆ Do not overload the device.

It will lead to mechanical failure or an accident.



- ◆ Keep your work bench and area tidy and well lit.

Bad working conditions invite an accident.

- ◆ This device is a precision instrument.

Do not use or store in hot and humid conditions, in direct sunshine or in vibrating conditions.

It may lead to mechanical failure.

- ◆ Do not use the device near equipment which generate magnetism or electromagnetic wave (such as microwave, TV, game machine and so on).

Strong magnetism from a digital circuit of TV, speaker, large motor, and microcomputer may damage the record or may distort the picture image.

- ◆ Do not operate the device when you cannot concentrate on your work due to fatigue, drinking, medication and so on.
- ◆ When not in use, the device should be stored in dry or locked up place – out of reach of children.

- ◆ Do not use the device for inspection of pipes for gasoline or chemicals.

It may lead to an accident or mechanical failure.

- ◆ When cleaning, unplug the device and wipe it with a dry soft cloth.

If it is very dirty, wipe it with a tightly wrung out wet cloth and then wipe it again with a dry cloth.



Do not use solvents such as thinner, alcohol or kitchen detergent which may deform the external case or may remove the paint.



- ◆ Depending on the object and/or the environment, the color on the display may be different from the real one. It is due to the performance of the device and not a trouble.

- ◆ Use only the accessories or attachments given in this manual and our catalogs. Otherwise it will lead to an accident or mechanical failure.

CLEAR SCOPE 2820

CAUTION



◆Be careful not to drop or hit the device. Do not press the device hard.
If the device is subject to impact, stop operation and ask for repairs.
Otherwise, accident or injury can result.

◆Always check for deformation, corrosion and so on in each part of the device.



◆Immediately stop the device if something is wrong with the device (unusual smell, vibration, sound) and refer to “page 22 BEFORE ASKING FOR REPAIRS”. Do not disassemble the device without reason and ask for repairs.



Contact our authorized distributors for repairs.



◆Do not look straight at the LED.
It may damage your eyes.



◆When the Display Unit is cold, the monitor may be darker than usual. It will be improved once the Display Unit is warmed up.



◆The contents of the recording are not compensable.
Even if any failure in recording due to a trouble of the device or the SD card is found, we are free from responsibility.



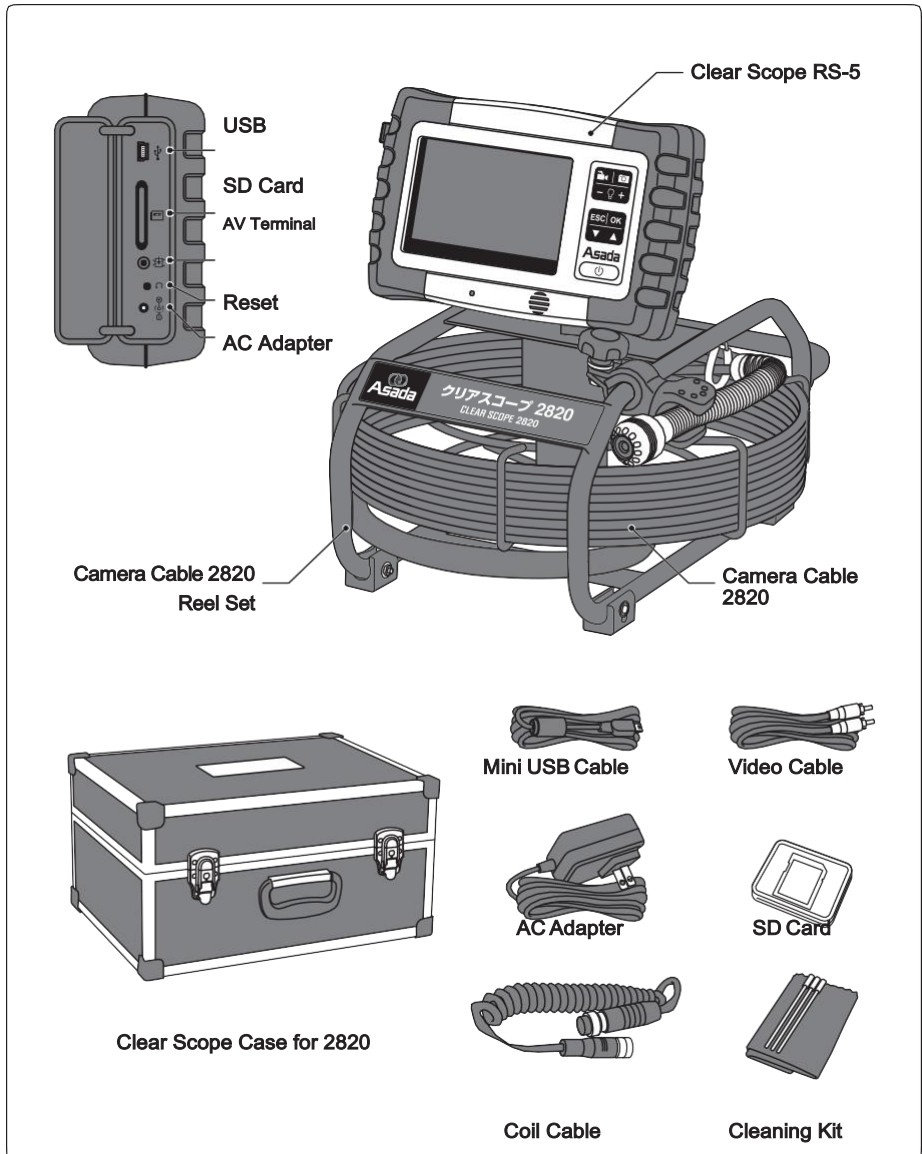
◆Keep the Display Unit away from sand, dirt, water and so on.
The Display Unit may be damaged when they enter inside.

CLEAR SCOPE 2820

COMPONENTS OF THE DEVICE

Main Parts

If any label applied to the device has come off or has got dirty, always ask for a new label and apply it in the original position.



CLEAR SCOPE 2820

Specifications

Item		CLEAR SCOPE 2820
Code No.		TH2820
Monitor	Size	5" colour LCD Monitor
	Media	SD Card (Max 32GB)
	Resolution	Image : 307,200 Pixel (640 × 480) Video : Mpeg 4 (ASF : 640 × 480)
	Interface	AV output (NTSC/PAL) USB (Mass Storage)
	Power	Li-polymer battery (internal) AC Adapter (input: AC100V, output:DC5V)
Camera Head	Applicable diameter	φ 40mm ~ φ 100mm (For φ100mm, Centering Guide is necessary)
	Applicable bent pipe diameter	φ 40mm ~ φ 100mm
	Outside diameter	φ 28mm
	Illumination	12 High Brightness LED
	Visible angle	150°(Diagonal)
	Focus area	5cm ~ 60cm
	Waterproof performance	Depth 10m
Camera	Outside diameter ×Length	φ 5.5mm × 20m
Cable	Minimum bent radius	110mm
	Waterproof performance	Depth 10m
Distance Counter		○(Accuracy± (10cm+20%rd))
Temperature	Use · Storage	- 20°C ~ + 60°C (No Condensation)
	Charging	0°C ~ +40°C (No Condensation)
Size		L350 × W300 × H380mm
Weight		5.5kg

*Only the Camera and the Camera Cable are waterproof. The connecting part is not waterproof.

Standard Accessories

Item	Code No.	PCE	Item	Code No.	PCE
Clear Scope RS-5	TH811	1	Mini USB Cable	TH002	1
Camera Cable 2820 Reel Set	TH820	1	Video Cable	TH003	1
			AC Adapter	TH755	1
※Camera Cable 2820	TH812	1	SD Card	-	1
※Clear Scope Case for 2820	TH814	1	Coil Cable	TH813	1
			Cleaning Kit	TH005	1
			Instruction Manual	IM0504	1

*Camera Cable 2820 & Clear Scope Case for 2820 are included in Camera Cable 2820 Reel Set.

CLEAR SCOPE 2820

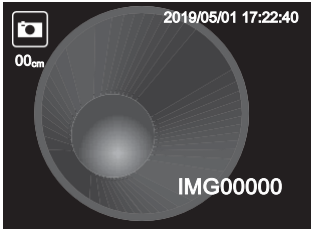
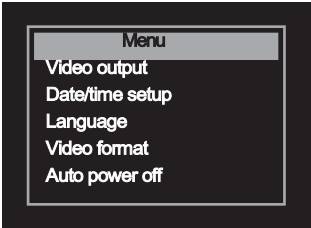
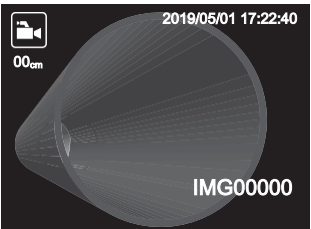
Button Operation List

Below is a list of Button operation on each screen. (Monitor, Preview, Menu)



		Monitor
Button		
		Can check and take an image, or record a video.
▲		Display Preview
▼		When an image is rotatable : rotate by ▼
OK		Display Menu
ESC		Long press : Counter reset
Image		Take an image
Video		Start / Stop recording a video
-		Dim the LED light
+		Brighten the LED light

CLEAR SCOPE 2820

Preview	Menu
<p>Image</p> 	
<p>Video</p> 	
<p>Can check and play back images and videos.</p>	<p>Can change settings such as the date</p>
<p>Select and display the previous image</p>	<p>Proceed to the previous selection</p>
<p>Select and display the next image</p>	<p>Proceed to the next selection</p>
<p>Enlarge the selected image.</p>	<p>Select</p>
<p>Return to Monitor</p>	<p>Return to Monitor</p>
<p>Image : Display the next image When a video is paused : take an image</p>	<p>Show the software version</p>
<p>Video : Play and stop</p>	
	<p>When setting date/time : Decrease a number</p>
	<p>When setting date/time : Increase a number</p>

※The pictures are image.

CLEAR SCOPE 2820

PREPARATION

⚠ WARNING



◆ Do not use the device in rain or in a location where water can enter inside the device. Also do not use the device with wet hands.

It may lead to short circuit or electric shock.



◆ Do not use the device in a dusty area.

It may lead to explosion, heating or mechanical failure.

Transportation in CLEAR SCOPE Case

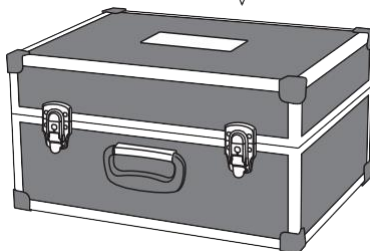
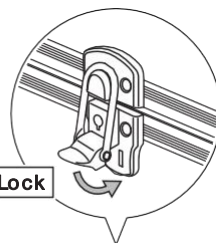
- ① Put the device and the accessories properly in the case.
- ② Close the lid and lock it securely.

⚠ CAUTION



◆ Lock it securely.

Otherwise, the lid may open during transportation and the device may



CLEAR SCOPE 2820

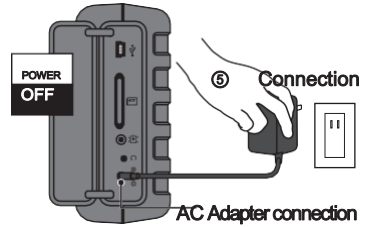
Charging Battery

- Use the attached AC adapter for charging.
- The battery is not charged at the beginning. Charge the battery before using.
- It can be used for about 2 hours by charging for 3 hours. However, it depends on usage.
- If you leave the battery for a long time after fully charged, the battery might be damaged.
- The usage time of the battery becomes shorter as a charging frequency increases.
- Avoid frequent recharging for using the battery long time.
- If the battery lasts a short time despite being charged properly, it's considered to have reached the end of its life span. Replace the battery with a new one.

- ① Make sure that CLEAR SCOPE 2820 is turned off.

⚠ CAUTION

⚠ Do not connect while the power is on.
It may cause a damage.



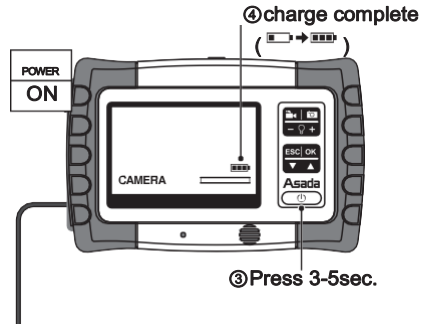
- ② Charging will start when the unit is connected to the outlet with AC adapter.
- ③ Press the power button for 3-5 seconds to turn on the power.
- ④ Charging is complete when the three battery marks don't move.

The battery marks move while charging.



- ※ The battery mark disappears after being displayed for a few seconds.

To display the battery mark again, press ESC button.



CLEAR SCOPE 2820

Connection of CLEAR SCOPE and Camera Cable

- ① Make sure CLEAR SCOPE is switched off.

⚠ CAUTION

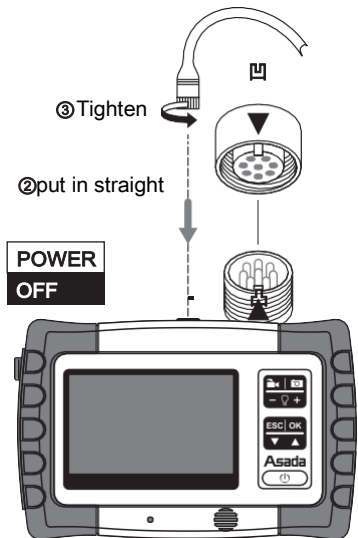
⚠ ♦ Do not connect Coil Cable when the device is switched on.
It may lead to mechanical failure.

- ② Connect Coil Cable.
Align the marks on the connectors and put in straight.
- ③ Tighten the screw.
- ④ For disconnecting Coil Cable, loosen the screw and pull out straight.

⚠ CAUTION

⚠ ♦ Do not put in or remove the connectors by force.
The connectors may be damaged.

♦ Make sure the pins on the connector are not deformed.
Ask for repairs when they are deformed.



CLEAR SCOPE 2820

Insert and Pull out SD Card

- ① Check that the power is switched off.

⚠ CAUTION



- ◆ **Insert and pull out SD card when the power is switched off.**

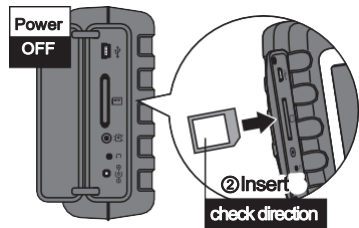
There is possibility to damage SD card and lose saved data.

- ◆ **Do not insert other than SD card.**

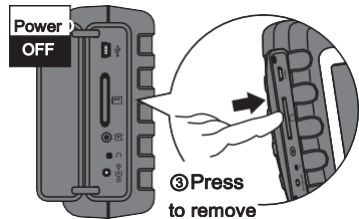
Insert mini SD and micro SD card to the unit after putting in special adaptor.
Contamination may cause of damage.

- ② Check direction of SD card and insert it fully till hearing a sound.

*Without inserting fully, this may cause of damaging SD card.



- ③ When pulling out SD card, push the card till hearing sound and remove the card straightly.



Caution for SD card



- ◆ **Do not power off when recoding and reading data.**

There is possibility to damage SD card and lose saved data.

- ◆ **Avoid place SD card in high temperature and place where exposed by direct sunlight and generate electromagnetic wave and static electricity.**

- ◆ **Do not soak SD card in water and touch SD card in wet hands.**

- ◆ **Avoid contamination, water and other particles on terminal point on back of SD card. Do not touch this terminal by hands.**

- ◆ **When disposing and transferring SD card, it is recommended that break SD card physically or delete data completely by software of deleting data for PC.**

Format or delete function in this unit or PC cannot delete all the data.

- ◆ **Managing data in SD card is responsibility for customers.**

CLEAR SCOPE 2820

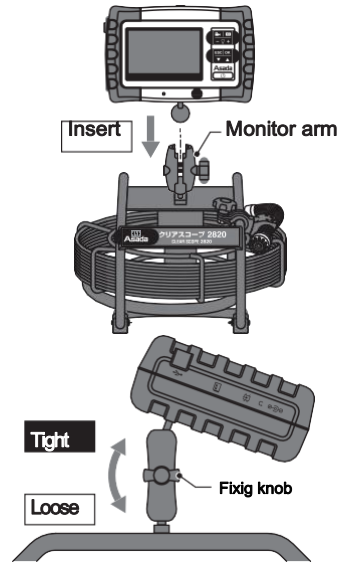
HOW TO USE

Inserting Monitor / adjustment

- Up on using, adjust the angle of the monitor to watch well.

- ① Loosen the fixing knob and insert a ball on back of the unit to the monitor arm of the cable drum.
- ② Adjust the angle and tighten the fixing knob.
- ③ Take off the unit from the monitor arm and pack in the case after use.

*The unit cannot be packed into the case with the cable drum.



Inserting Camera

- ① Insert Camera slowly into the pipe to be inspected.
- ② When taking out Camera, pull out Camera Cable slowly. After operation, rewind in Cable Reel wiping off water and dirt on it.

⚠ CAUTION

⚠ Do not insert Camera while charging.
It may cause a trouble.



CLEAR SCOPE 2820

⚠ CAUTION



◆ Do not pull the Camera Cable by force. The Camera Cable may be broken or bent.

◆ Do not hold the Camera Cable at far distance from the insertion opening when inserting Camera Cable.

If the Camera Cable is bent too much, it may be broken



◆ The minimum bent radius of the Camera Cable is

110mm. It will be broken when the bent radius is less than 110mm.

As the Camera Cable cannot be repaired, the broken cable should be replaced with a new one which is charged. Pay much attention for its handling.



◆ Do not push the lens hard.

◆ Do not leave the device keeping the lens pointed towards the sun.

It may be damaged due to light condensing. Be careful when the device is placed outside or by the window.

◆ Depending on the object and/or the environment, the color on the monitor may be different from the real one or the image may not be clear.

It is due to the performance of the device and not a trouble.

◆ The image may not be clear due to mist on the lens when used under the conditions of different temperature.

◆ The image may not be clear when the Camera is in water or liquid.

◆ The image of the object is not clear when it is out of the focus area.

◆ The image may be brighter or darker due to the automatic exposure function.

◆ The image may be noisy to keep the brightness of the LCD Monitor under low light condition or when the LED is dark.

◆ Keep CLEAR SCOPE away from sand, dirt, water and so on.

The device may be damaged when they enter inside.

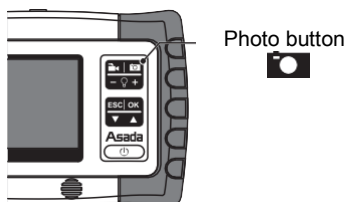
◆ After use, remove the dirt and water on the Camera Cable and then close the case in dry conditions.

CLEAR SCOPE 2820

RECORD

Take a photo

- ① Press the photo button to take a photo.
- ② Camera mark appears on the screen and a photo is taken.



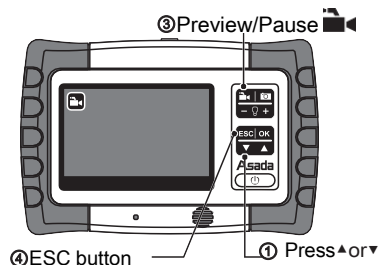
Record Video

- ① Press the video record button to record a video. On the screen, "REC" shows at the upper-left and recording time at the lower-left.
- ② Press the video record button again to finish recording and save a video.



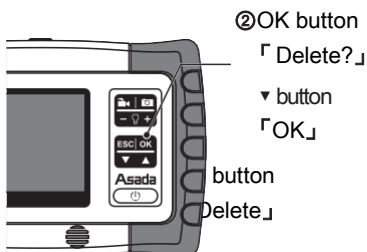
Check Recorded Photos and Videos

- ① Press ▲ or ▼ mark on menu screen to show.
- ② Press ▲ or ▼ again to select data and press OK.
- ③ Video mark on the upper-left on the screen indicates video data. Press the video record button to preview. Press again the video record button to pause the video. Press the photo button at the paused video to record the screen as a photo.
- ④ Press ESC to back to monitor screen.



Delete Photos and Videos

- ① Press ▲ or ▼ mark on in order to show preview screen and show a data to be deleted.
- ② Press OK and confirm to a data to be deleted, then press OK again to choose a data to be deleted.
- ③ Press OK to delete a data.



CLEAR SCOPE 2820

SETTING

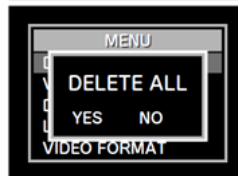
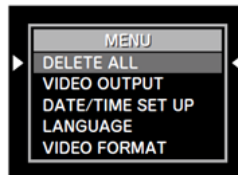
- Press OK on monitor screen to show menu screen.

Delete all of the Data

Delete all of the recorded data.

- ① Choose "DELETE ALL" and press OK.

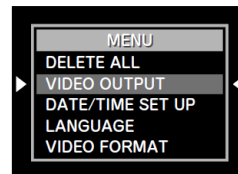
- ② Select YES or NO for confirmation, then press OK.



Video Output

Press video output to show a data on TV or other device.

*When showing data on TV or other device, no data shows on the unit monitor.



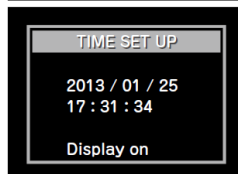
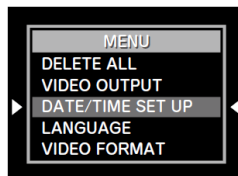
Date Time Setup

Set date and time on the screen.

When date appears on screen, the data is also indicated on a photo.

- ① Select "DATE/TIME SET TIME" and press OK.
- ② Press ▲ or ▼ to select year/ month / day or hour / minute/ second and press (+) / (-) to increase and decrease the value.
- ③ Press OK to confirm.

* Press ESC to exit without setting.

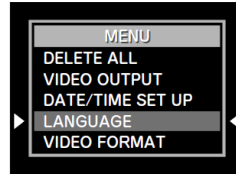


CLEAR SCOPE 2820

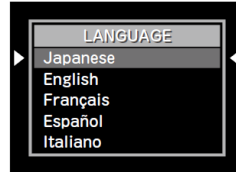
Language

Set language (Japanese, English, German, French, Spanish, Italy and so on)

① Select "Language" and press OK.



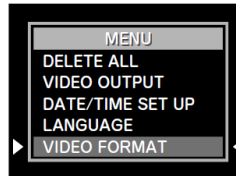
② Press ▲ or ▼ to select language and press OK.



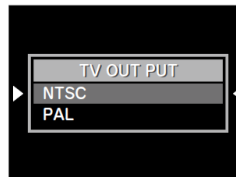
Video Format

When showing data on TV or video, select video format (NTSC/PAL)

① Select "Video format" and press OK.



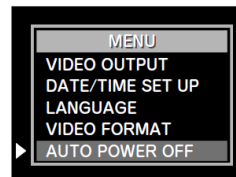
② Press ▲ or ▼ to select and press OK to confirm.



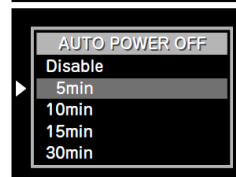
Auto Power Off

Set a time of auto power off.

① Select "Auto power off" and press OK.



② Press ▲ or ▼ to select and press OK to confirm.



CLEAR SCOPE 2820

Length measure

Show the distance of pulled camera cable.

- ① Select "Length measure", press OK.
- ② Press "Reset" to clear the count to ZERO.

* Can be reset by keep pressing ESC button for a few second.

- ③ Select "Unit" to change the unit of distance from CM, INCHI, M and FT.
- ⑤ Select "Disable" or "Enable" to show the distance on the monitor or not.

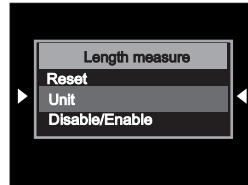
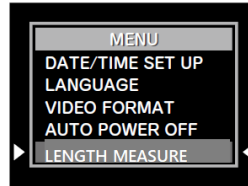
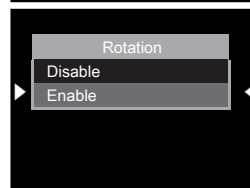
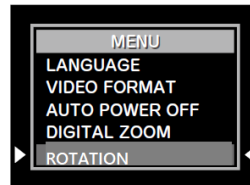


Photo Inversion

Invert a photo in monitor screen to see images easier.

- ① Select "Rotation" and press OK.
- ② Select "Enable" and press OK.
- ③ Back to monitor screen and press ▼ to turn image by 90degrees.



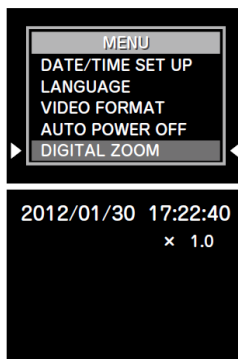
CLEAR SCOPE 2820

Digital Zoom

When setting digital zoom, Photo is zoomed
(× 1.0 ~ 2.0) on the monitor screen.

- ① Select digital zoom and press OK.

- ② Press ▲ or ▼ to change magnification ratio.
See a zoomed photo in this condition.

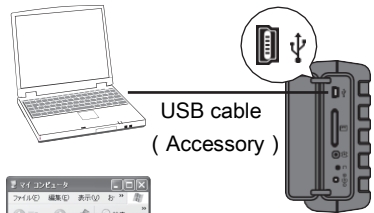


CONNECT TO OTHER DEVICES

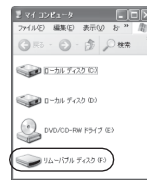
Connect to PC (Windows 7/ 10)

- Connect the unit to PC to transfer data from the unit to PC.

- ① Turn on the unit and a PC.
- ② Connect the unit and PC with mini USB cable. (accessory)
- ③ Double click“ removable disc” in“ my computer”.



- ④ Double click “DCIM folder”.
- ⑤ Drag and drop folders and files to the folder in PC.



③ Double click removable disk

* When the device is not recognized in PC even connecting to PC, PC setting is necessary. Contact your PC manufacturer regarding setting.



④ Copy by drag and drop

⚠ CAUTION



- ◆ When inserting and discharging SD card, turn off the unit and disconnect USB cable. Otherwise data may be damaged.
- ◆ When disconnect USB cable from PC, click “safety software removable”



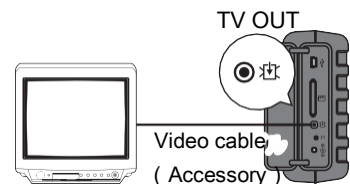
safety software removable

Connect to TV

- Show images on TV by connecting the unit to TV.

- * Read the instruction manual of your TV.
- * Monitor on the unit is off when connecting TV.

- ① Connect video cable (accessory) to the video input terminal at TV or Video device.
- ② Connect video cable (accessory) to TV OUT jack at the unit.



- ③ Turn on TV and select external input.
- ④ Turn on the unit.

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MAINTENANCE & INSPECTION

- Inspect and clean regularly as instructed below and perform correction or replacement timely.
 - * Check to see if there is no scratch or crack in any part of the device.
 - * Check to see if all moving parts move normally.
 - * Wipe the device clean with a dry soft cloth. If it is very dirty, wipe it with a tightly wrung out wet cloth and then wipe it again with a dry cloth.
 - * Clean the device after use and store in the provided Case.
 - * When the lens is not clean, wipe it carefully with a soft cloth or the provided swab impregnated with a small amount of alcohol.

DANGER



- ◆ Only qualified persons are allowed to disassemble the device. There is a high-voltage part in the Display Unit, and it is very dangerous.
- ◆ Do not modify the device.

WARNING



- ◆ When cleaning or servicing, switch off and unplug the device. Otherwise, you may get electric shocked.

CAUTION



- ◆ After use, do not leave the device stained with soil, sand, water and so on. It may lead to rusting and may damage the device.
- ◆ Do not put organic solvents such as gasoline or thinner. The device may be damaged.
- ◆ Do not expose the LCD Monitor and the switches to water. Although the Camera Head and the Camera Cable are waterproof, the LCD Monitor and the switches are not waterproof.
- ◆ The device should be stored in dry or locked-up place – out of reach of children.
- ◆ Do not store the device along the eaves where it may be exposed to rain.
- ◆ Avoid direct sunshine when stored.

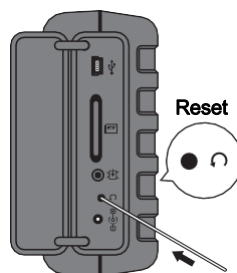
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BEFORE ASKING FOR REPAIRS

- Before asking for repairs, check the device with the following troubleshooting.
- If the problem cannot be solved, contact the shop you purchased or our sales office.
- Troubles due to misuse or improper applications are not covered by warranty.

Symptom	Possible Reason	Solution
No image	Low battery charge	Recharge battery
	Dead battery	Replace in our shop
	Poor LED lighting	Increase the LED brightness by turning the LED Intensity Adjustment clockwise.
	Loose cable connection	Connect the Camera Cable and the Display Unit properly.
	Fault in the Display Unit	Repair or replace in our shop
	Wiring disconnection in the LCD Monitor	Repair or replace in our shop
	Fault in the Camera Head	Repair or replace in our shop
	Camera Cable is broken	Repair or replace in our shop
Image is dark.	Too far to the object	Move the Camera near the object
	LEDs are out	Repair or replace in our shop
	The LCD Monitor is exposed to direct sunshine	Avoid direct sunlight
Image is unclear	The object reflects the light	Turn down the LED brightness
Image cannot be recorded	No SD card	Insert a SD card
	The SD card is full	Delete some data or insert a new SD card
Button cannot be push	Stuck with sands and so on	Remove the sands around the button.
Image noise	The lighting is not enough	Brighten the LED light
Whitish image	The lens is not clean	Wipe the lens with a soft cloth

- * When all functions freeze or fail, insert an insulated needle into the hole on the back of the LCD Monitor. The system will restart automatically.



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● Customer Memo

Please fill in for your record in the future
The information is helpful for inquiry and ordering parts.

Products Number :

Date Purchased :

Store Purchased the Unit :

Asada
ASADA CORPORATION

3-60, Kamiida, Nishi-Machi, Kita-Ku, Nagoya, Japan 462-8551

TEL +81-52-914-1062

FAX +81-52-914-1065

URL <http://www.asada.co.jp>

E-mail: trade@asada.co.jp