

Pipe Inspection Camera System

TS3040

Specification

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TOSHIBA TELI CORPORATION

CAUTION

●Operation and handling

This product is able to be used only for industrial.

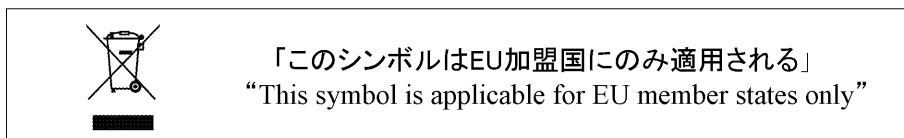
This product has to be operated and handled by operator who has special knowledge.

●Export Control

If you wish to export this product, check the Japanese Foreign Exchange and Foreign Trade Law as well as export-related regulations for destinations subject to the U.S. Export Administration Regulations, and take necessary procedures.

●Disposal

This product may not be disposable as domestic waste. Dispose of the product according to local regulations. For details, contact the local government.



●Product Lifetime

Do not use this product within ambient temperature or humidity exceeding the product specifications. Doing so will significantly reduce the product lifetime.

●Image Quality

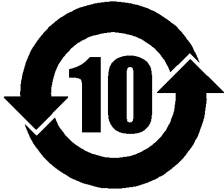
- ・ Display unevenness may occur on the screen. This is due to the characteristics of liquid crystal, and is not a failure.
- ・ Light vertical stripes may appear on the screen. This is due to the characteristics of liquid crystal, and is not a failure.
- ・ When a checkered pattern with one dot spacing is displayed with intermediate colors and intermediate brightness, flickering may occur. This is not a failure.
- ・ Some dots may remain red, green, blue, or unlit on the screen. This is not a failure.
- ・ When input image signals or synchronizing signals contain noise or fluctuations, they may appear on the screen. This is not a failure.

●Burn-In

If the same image is displayed on the screen for a long time, an afterimage may remain on the screen. While this phenomenon will be resolved gradually by displaying various images, avoid displaying the same image for a prolonged duration, as the burn-in (afterimage) may become permanent.

Caution

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The contents of this manual are subject to change without notice.



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<产品中有毒有害物质或元素的名称及含量>

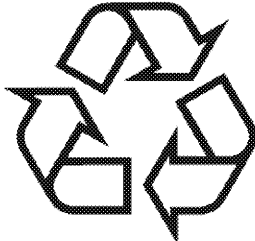

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
产品主机	×	×	×	×	○	○
相机头部	×	○	×	○	○	○
镜头	○	○	○	○	○	○
相机线缆	×	○	×	○	○	○
滑环	×	○	○	○	○	○
操控主板组件	×	○	○	○	○	○
监视器及收纳组件	×	○	×	×	○	○
电源适配器箱及收纳组件	×	○	○	○	○	○

○：表示该有毒有害物质在该部件所有均质材料中的含量均在电子信息产品中有毒有害物质的限量要求标准规定的限量要求(SJ/T11363-2006)以下
 ×：表示该有毒有害物质至少在该部件的某一均质材料中的含量超出电子信息产品中有毒有害物质的限量要求标准规定的限量要求(SJ/T11363-2006)
 This information is applicable for People's Republic of China only.

リサイクルに関する情報 (包装物)

有关再利用的信息 (包装物)

Information on recycling of wrapping composition

箱/箱子/Box	内部緩衝材料・袋 内部缓冲材料・袋 Internal buffer materials · Bag
	
段ボール 瓦楞纸板 Corrugated cardboard	PE-LD

Disclaimer

TOSHIBA TELI shall be exempt from taking responsibility for damage or losses incurred by the user in the following cases:

- In the case damage or losses are caused by fire, earthquake, or other acts of God, acts by a third party, deliberate or accidental misuse by the user, or use under extreme operating conditions.
- In the case incidental damage (loss of business interests, suspension of business activities, deformation or loss of data) or serious events (accidents involving loss of human life, fire, environmental pollution) are caused by use or non-use of the product.
- In the case problems pertaining to industrial property rights of third parties occur for which the structure and manufacturing process of the product are not direct causes.
- In the case damage or losses are caused by failure to observe the information contained in this instruction manual and specifications.
- In the case damage or losses are caused by use not described in this instruction manual and specifications.
- In the case damage or losses are caused by a malfunction or other problems due to combination with connected devices.
- In the case damage or losses are caused by malfunction or other problems resulting from use of equipment or software that is not specified.
- In the case damage or losses are caused by repair or modification conducted by the customer or an unauthorized third party.
- TOSHIBA TELI shall bear no expenses greater than the individual price of the product.
- Items that are not explicitly accounted for in the specifications or instruction manual of this product are outside the scope of the warranty.

Restrictions for Use

- If the equipment is to be used in the following conditions or environments, make considerations for safety measures and inform TOSHIBA TELI of such usage:
 1. Use of the equipment under conditions or environment contrary to those specified.
 2. Use of the equipment in applications expected to cause potential hazard to people or property, which require special safety measures to be adopted.
- This product can be used under diverse operating conditions. Determination of applicability of equipment or devices concerned shall be determined after analysis or testing as needed by the designer of such equipment or devices, or personnel related to the specifications. Such designer or personnel shall assure the performance and safety of the equipment or devices.
- This product is not designed or manufactured to be used for control of equipment directly concerned with human life ^{(*)1} or equipment relating to maintenance of public services/functions involving factors of safety ^{(*)2}. Do not use the product for such applications.
 - (*)1 : Equipment directly concerned with human life refers to:
 - Exhaust control equipment for exhaust gases such as toxic fumes and smoke.
 - Equipment for which installation is mandated by various laws and regulations such as the Fire Act and Building Standard Law.
 - Equipment related to the above.
 - (*)2 : Equipment relating to maintenance of public services/functions involving factors of safety refers to:
 - Traffic control systems for air transportation, railways, roads, or marine transportation.
 - Equipment for nuclear power generation.
 - Equipment related to the above.
- When using this product in an environment or applications with strong impact or vibration, take preventive measures to avoid failure and extend the product lifetime.

Notes on using this product

● Handle with care

- Do not drop the equipment or allow it to be subject to strong impact or vibration. Otherwise, failure may result.

Do not damage the connection cable. Otherwise, wire breakage may occur in the cable.

● Use of the equipment

- Use the equipment only for a single purpose. Do not inspect both water pipes and drain pipes with a single equipment.

The filth or dirt attached in another use may enter the water pipe.

● Connecting the equipment

- Be sure to power off the equipment before connecting any part or device to the equipment.
- Connect the plug firmly. Otherwise, failure may occur.

● Ambient temperature and humidity

- Do not use the product in locations where the ambient temperature or humidity exceeds the specifications. Otherwise, image quality may be degraded or internal components may be adversely affected. In particular, do not use the product in areas exposed to direct sunlight.

● About the power supply

- Please use this product within the limit which is accepted for the input power supply voltage.

● Power cord

- Use a power cord compliant with the requirements and standard of the power supply for each region.

● Handling the camera head

- Do not direct the lens of the camera head toward sunlight or intense light.
The entry of direct light may damage the image sensor element and cause failure.
- The camera head is waterproof against immersion. Do not disassemble, as it may result in loss of waterproof performance.
- The camera head is not maintenance-free.
When inserting the camera head into a pipe, be careful not to damage the camera head by hitting it against obstacles. If the camera head becomes scratched or damaged, contact your dealer.
- The camera head is equipped with an automatic leveling system. Avoid strong impact.
Otherwise, the automatic leveling system may not work properly.
- The LED cover is made of resin (polycarbonate).
Do not use the equipment in an atmosphere (of toluene or thinner) that may affect the resin.

● Handling the camera cable

- Hold the camera cable firmly when working.
The resilience of the camera cable may cause personal injuries and equipment damage.
- Apply the drum stopper when not rewinding the camera cable drawn out from the drum.
Otherwise, the camera cable may be drawn out further due to the resilience of the camera cable, and an unexpected accident may occur.

● Sharply bent camera cable

- Bending the camera cable sharply exceeding the minimum bending radius may break the cable.
If the camera cable is broken, stop working with it immediately.

● Image recording unit

- The LCD monitor on the image recording unit may be dark when used at a low temperature. This is not a failure.
- If an intense magnetic field or radio wave is generated near the equipment, noise may appear on the screen. This is not a failure of the equipment.
- A button cell battery is used for the clock and will need to be replaced once in about five years (at 25°C).
If you feel that the battery has weakened, contact our sales staff or your dealer.

● Backing up the recorded data

- Powering off the equipment or performing a different operation during recording, or applying strong impact or static electricity from the outside may cause data to be destroyed. Back up the data recorded on the SD/SDHC cards onto a PC or other media to prevent accidental data loss. TOSHIBA TELI will not be liable for any loss or damage to the recorded data.
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● SD/SDHC cards

- Proper operation is not guaranteed if cards other than those recommended are used. Use other cards strictly at your own risk. Also, note that TOSHIBA TELI will not be liable for any loss or damage to the recorded data.
-

● Avoid direct sunlight

- Do not leave this product under direct sunlight or in a car. Doing so may cause deformation and failure of the equipment.
When leaving the equipment in a car, cover the equipment with a plastic sheet or cloth to protect it from direct sunlight.
-

● When carrying from a cold place to a warm place

- Condensation may occur on the equipment surface or the LCD monitor screen.
In such a case, let the equipment dry for one hour or longer before use.
-

● Waterproof performance

- The cable drum, image recording unit, and main unit are not waterproof. Be careful not to get them wet. If the equipment gets wet, immediately wipe off the water with a dry cloth.
 - If the equipment gets wet with rain due to sudden change of the weather, immediately cover the equipment with a plastic sheet or the likes.
-

● Storing the equipment

- Unplug the power cord from the adapter box and power outlet, and store indoors with this product. Take care to protect the main unit from direct sunlight and water.
 - Clean the camera head, camera cable, and main unit before storage.
-

● In case of a failure

- If a failure occurs, unplug the power cord from the adapter box and power outlet, and contact your dealer.
-

CAUTION

The instruction manual of accessories describes precautions and other important information for using this product.

Please read the instruction manual carefully prior to the use of TS3040.

I . Overview

TS3040 is an insertion-type TV camera system with a hard cable developed for inspecting the internal conditions of various pipes.

II . Features

- Camera head equipped with an automatic leveling system
The camera head is equipped with an automatic leveling feature, which ensures that the top of the camera image always points to the ceiling. This allows you to easily identify the direction of pipe ceilings.
- Camera head connection mechanism with good maintainability
The camera head is connected to the camera cable with a special connector, making the camera head detachable. By bringing a backup camera head to your job site, you will be able to quickly replace the camera head in case of trouble.
- Waterproof structure (high pressure resistant)
The camera head and camera connector are of an underwater waterproof structure (Designed to meet IP68¹⁾, Only when connected to the camera cable, water tightness 1.0MPa), which allows you to use this device for inspection inside water pipes and other pipelines where the water pressure is high.
- Super-wide-angle lens
A compact super wide angle lens (aerial angle of view: approx. 160°, underwater angle of view: approx. 96°) is used, which makes it easier to examine the pipe wall. It also has a high optical depth that allows you to capture clear images.
- Super-high-intensity white LED
The device is equipped with super bright white LEDs that are energy efficient and long-life as a light source of a camera; a sufficient brightness can be secured even in a dark interior of a pipe. It also prevents the troubles ome loss of light in the middle of inspection, and is likely to make your inspection more efficient.
- Camera cable that can be easily pushed in
Utilizing a FRP (glass fiber-reinforced plastic) rod running in the center and a resin coating with excellent slip properties, this camera cable is an ideal insertion-type camera cable. The cable length is 40m, which is sufficient for field operations. For easy replacement in case of failure, the cable on the cable drum side is designed to connect via a connector, which makes it detachable.
- Light-weight main unit for better portability
Utilizing tube frames, the cable drum is lightweight and highly portable.
- Function for approximating the draw-out length of the camera cable
You can use the simplified measurement feature to measure the length of camera cable that is reel out, and display it on the monitor screen.
- Image recording
The device is equipped with an LCD monitor with a recording function, which allows you to take still images while recording. Image files are saved on an SD/SDHC card, which is convenient for transferring the data to a computer; you can use the image files in your reports, etc.

1) Environmental rating: IP rating designed to meet the standards of the Ingress Protection (IP) rating IP68 per IEC 60529 (Degrees of Protection provided by enclosures - IP Code). The product design was confirmed to meet the IP rating by means of construction design verification process only.

III. Components

【Items already attached to the equipment】

1. Camera head (ϕ 30 mm)	. . . . .	1 piece
2. Camera cable (40 m)	. . . . .	1 piece
3. Cable drum and control unit	. . . . .	1 set
4. Adapter box	. . . . .	1 piece

【Accessories】

1. Spare camera cable (40 m)	. . . . .	1 piece
2. Accessory storage case	. . . . .	1 set
①Focus adjustment too	. . . . .	1 piece
②Spring holding tool	. . . . .	1 piece
③Camera cap	. . . . .	1 piece
④Hex wrench (for M2)	. . . . .	1 piece
⑤Hex wrench (for M3)	. . . . .	1 piece
⑥Hex socket head bolt (M2x4, for attaching the camera head)	. . . . .	6 pieces
⑦ ϕ 40 mm skid	. . . . .	1 piece
⑧Hex socket head bolt (M2x6, for attaching the ϕ 40 mm skid)	. . . . .	8 pieces
⑨ ϕ 50 mm skid	. . . . .	1 piece
⑩Hex socket head bolt (M3x6, for attaching the ϕ 50 mm skid)	. . . . .	8 pieces
⑪SD card (2GB, with an SD card case)	. . . . .	1 piece
3. Instruction manual (TS3040)	. . . . .	1 copy

IV. Product Specifications

1. Camera Head

- Model name : HSH030
- Appropriate pipe diameter : $\phi 50$ to $\phi 800$ mm ¹⁾
- TV system : Compliant with the NTSC standard
- Image sensor : 1/4 inch 300,000 pixels C-MOS sensor
- Scanning method : 525 lines, 2:1 interlace (RS-170A equivalent)
- Sync. system : Internal synchronization
- Scanning frequency : Horizontal 15.734 kHz, vertical 59.94 Hz
- Minimum illumination : 10 lx or less (for AGC MAX, approx. 50% image level)
- Video output : VBS 1.0 V (p-p) 75 Ω
- Lens : F2.8 f = 2 mm
- Angle of view (diagonal) : Approx. 96 degrees in water, approx. 160 degrees in air
- S/N ratio : 40 db or greater (AGC OFF equivalent)
- White balance : Auto
- ALC : Auto
 - Gain 0 to +18 dB
 - Shutter 1/30 sec to 1/15,750 sec
- Illumination : Four white LEDs
- Waterproof structure : At a water pressure of 1.0 MPa
(Designed to meet IP68 ²⁾, Only when connected to the camera cable)
- Explosion-proof structure : **This equipment is not explosion-proof.**
- External dimensions : Shown in external views
- Main material : Stainless steel
- Weight : Approx. 90 g

Caution 1) For pipes with a diameter of 300 mm or greater, you must be able to check joint sections with a skid attached to the camera head.

2. Camera Cable

- Model name : HSC040
- Outer diameter and length : $\phi 8$ mm x 40 m
- Number of core wires : Three composite cores
- Rod : FRP (fiber reinforced plastics)
- Outer sheath : ETFE (Blue)
- Bending strength : 980 MPa or greater (compliant with JISK6911 article 5.17)
- Minimum bending radius : R140 mm (at room temperature)
- Waterproof structure : At a water pressure of 1.0 MPa
(Designed to meet IP68 ²⁾, Only when connected to the camera head)
* The performance is in accordance with the specifications of the camera head.
- Explosion-proof structure : **This equipment is not explosion-proof.**
- Weight : Approx. 4 kg

2) Environmental rating: IP rating designed to meet the standards of the Ingress Protection (IP) rating IP68 per IEC 60529 (Degrees of Protection provided by enclosures - IP Code).
The product design was confirmed to meet the IP rating by means of construction design verification process only.

3. Cable Drum and Control Unit

- Wound cable length : ϕ 8 mm x 40 m
- Cable distance counter : Number of reel rotations detection system
- Cable distance display function
 - ① Display range : -99.9 m to 99.9 m
 - ② Display position : Monitor screen (Possible to set whether or not to display the distance)
- Image recording unit
 - ① Model name : VR570
 - ② LCD screen size : 5.6 inch TFT color LCD monitor
 - ③ Display color : Full color
 - ④ Viewing angle : Top 40 degrees, bottom 20 degrees, left 50 degrees, right 50 degrees (typ.)
 - ⑤ Number of pixels : 320 dots (H) x RGB x 234 dots (V)
 - ⑥ Illumination : Internal light (with a CCFL fluorescent tube)
 - ⑦ Picture : Format JPEG file
 - Size Full 640 x 480 (NTSC)
 - Small 320 x 240 (NTSC)
 - File extension .jpg
 - ⑧ Movie : Format H.264 High Profile
 - Size Full 720 x 480, 30 fps (NTSC)
 - Small 360 x 240, 30 fps (NTSC)
 - File extension .mp4
 - Quality High: 5 Mbps (Full), 1.5 Mbps (Small)
 - Normal: 3 Mbps (Full), 1 Mbps (Small)
 - Low: 1.5 Mbps (Full), 0.5 Mbps (Small)
 - ⑨ Recording media
 - Recording media : SD card 1 GB, 2 GB
 - SDHC card 4 GB, 8 GB, 16 GB, 32 GB
 - Format type : SD card FAT16
 - SDHC card FAT32
 - Speed class : Class 2, Class 4, Class 6
 - Recommended SD/SDHC cards
 - Toshiba : SD-C series
 - Transcend : TS1GSDC, TS2GSDC, TS4GSDHC6, ..., TS16GSDHC6

Caution SD/SDHC cards other than those recommended may not work properly.

⑩ Movie recording time length (approx., condition: Full size)

Quality	SD Card Capacity		SDHC Card Capacity			
	1 GB	2 GB	4 GB	8 GB	16 GB	32 GB
High	26 min	52 min	1 h 45 min	3 h 32 min	7 h 13 min	14 h 29 min
Normal	44 min	1 h 27 min	2 h 55 min	5 h 54 min	12 h 01 min	24 h 09 min
Low	1 h 28 min	2 h 55 min	5 h 52 min	11 h 48 min	24 h 03 min	48 h 18 min

- Caution**
- The maximum file size is 4 GB and the maximum recording time is 180 minutes for each file.
 - The memory capacities were calculated using 1,048,576 bytes as 1 MB.

⑪)Functions	: a) Picture recording	Pictures can be recorded during recording or playback.
	b) Playback	Normal, 4x, 8x, 1/4x
	c) Reverse playback	Normal, 4x, 8x, 1/4x (frame-by-frame reverse playback)
	d) Counter display	Either playback time or clock display can be selected.
	e) Chapter	Playback can be started from an image recorded for a chapter or be skipped to a chapter.

- Explosion-proof structure : **This equipment is not explosion-proof.**
- External dimensions : Shown in external views
- Weight : Approx. 8 kg (without including the camera head and camera cable)
- Environmental consideration : Conforming to RoHS directive

4. Input Power Supply Unit

- Input voltage : 100 to 240 ACV \pm 10%
- Frequency : 50 / 60 Hz
- Number of phases : Single phase
- Consumption current : 0.4 A (typ.)
- Input connector : 3P-Inlet (compliant with IEC60320-1 C14)
- Transient over-voltage range : Category II

5. Environmental Requirements

1) Operating

- Operating site : Indoor and outdoor sites (no water and dust)
- Ambient temperature : 0 ~ +40 °C
- Ambient humidity : 10 to 80% (No condensation)
- Ambient pressure : 70 kPa to 106 kPa
- Altitude : 2,000 m or less
- Pollution degree : 2

2) Storage

- Storage temperature : -10 ~ +60 °C
- Storage humidity : 10 to 80 % (No condensation)
- Storage pressure : 70 kPa to 106 kPa

3) Transportation

- Transportation temperature : -10 ~ +60 °C
- Transportation humidity : 10 to 80 % (No condensation)
- Transportation pressure : 0 kPa to 106 kPa

6. Weight

- Approx. 12 kg (with the camera head and camera cable connected)

7. Applicable Standards

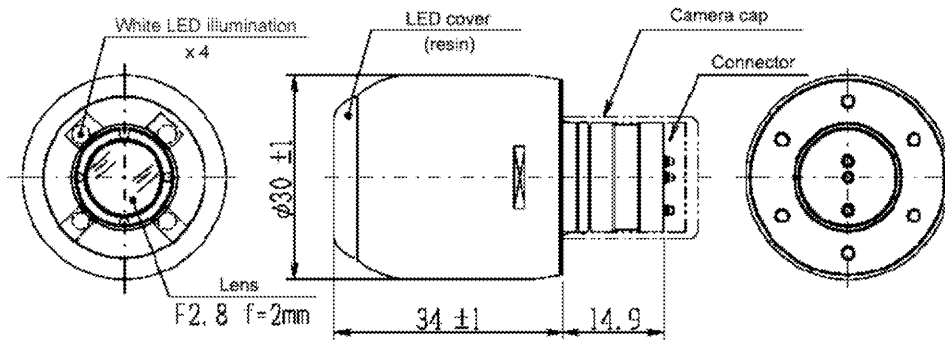
- 1) Safety standard (for measuring instruments) : IEC61010-1
- 2) EMC standard : IEC61326-1, CISPR11 Class A
- 3) Ingress protection code : IP-21

8. External Views

1) Camera head

Main material : Stainless steel

Waterproof : Waterproof structure (Designed to meet IP68¹⁾, Only when connected to the camera cable)

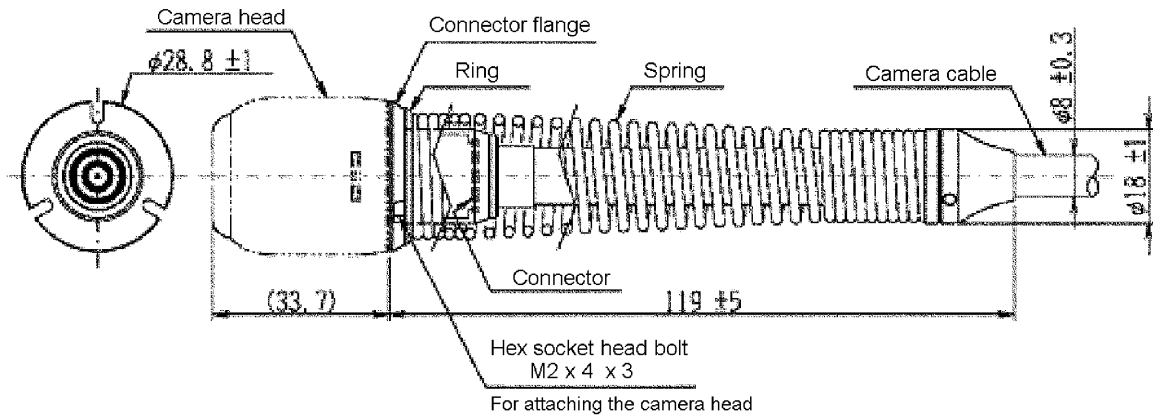


Unit: mm

2) Camera cable connector

Main material : Stainless steel

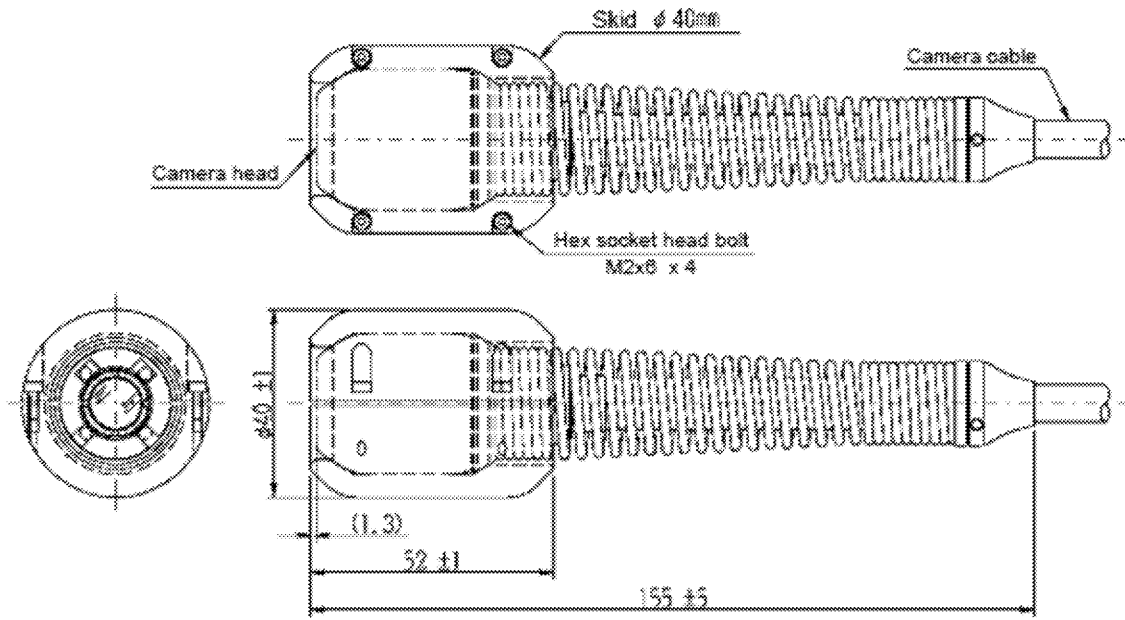
Waterproof : Waterproof structure (Designed to meet IP68¹⁾, Only when connected to the camera cable)



Unit: mm

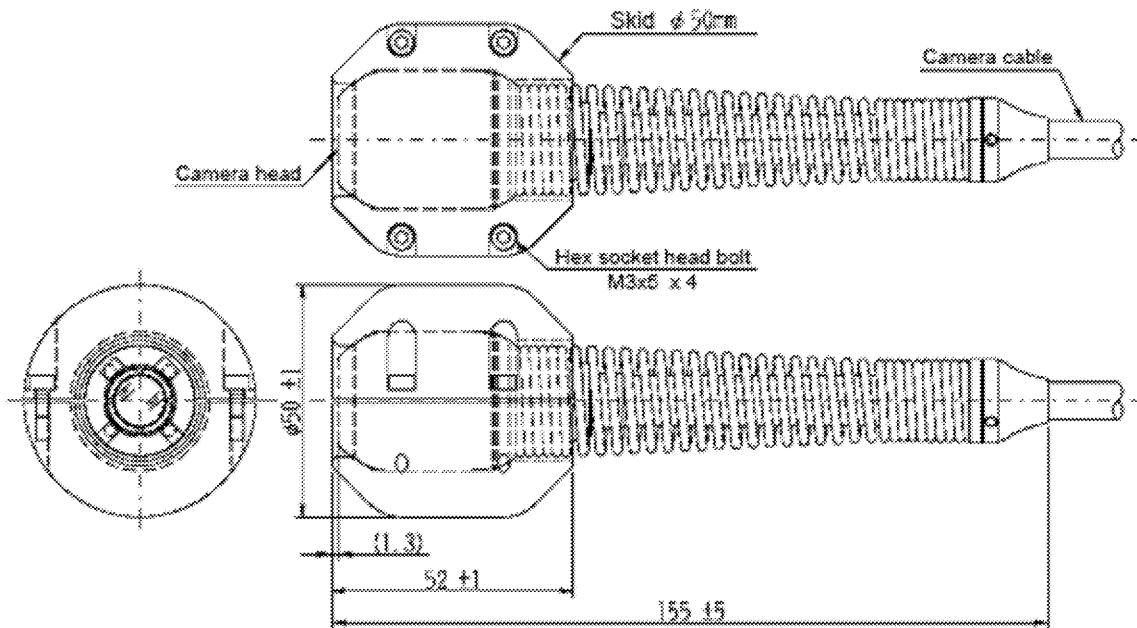
- 1) Environmental rating: IP rating designed to meet the standards of the Ingress Protection (IP) rating IP68 per IEC 60529 (Degrees of Protection provided by enclosures - IP Code). The product design was confirmed to meet the IP rating by means of construction design verification process only.

3) $\phi 40$ mm skid (accessory), when attached



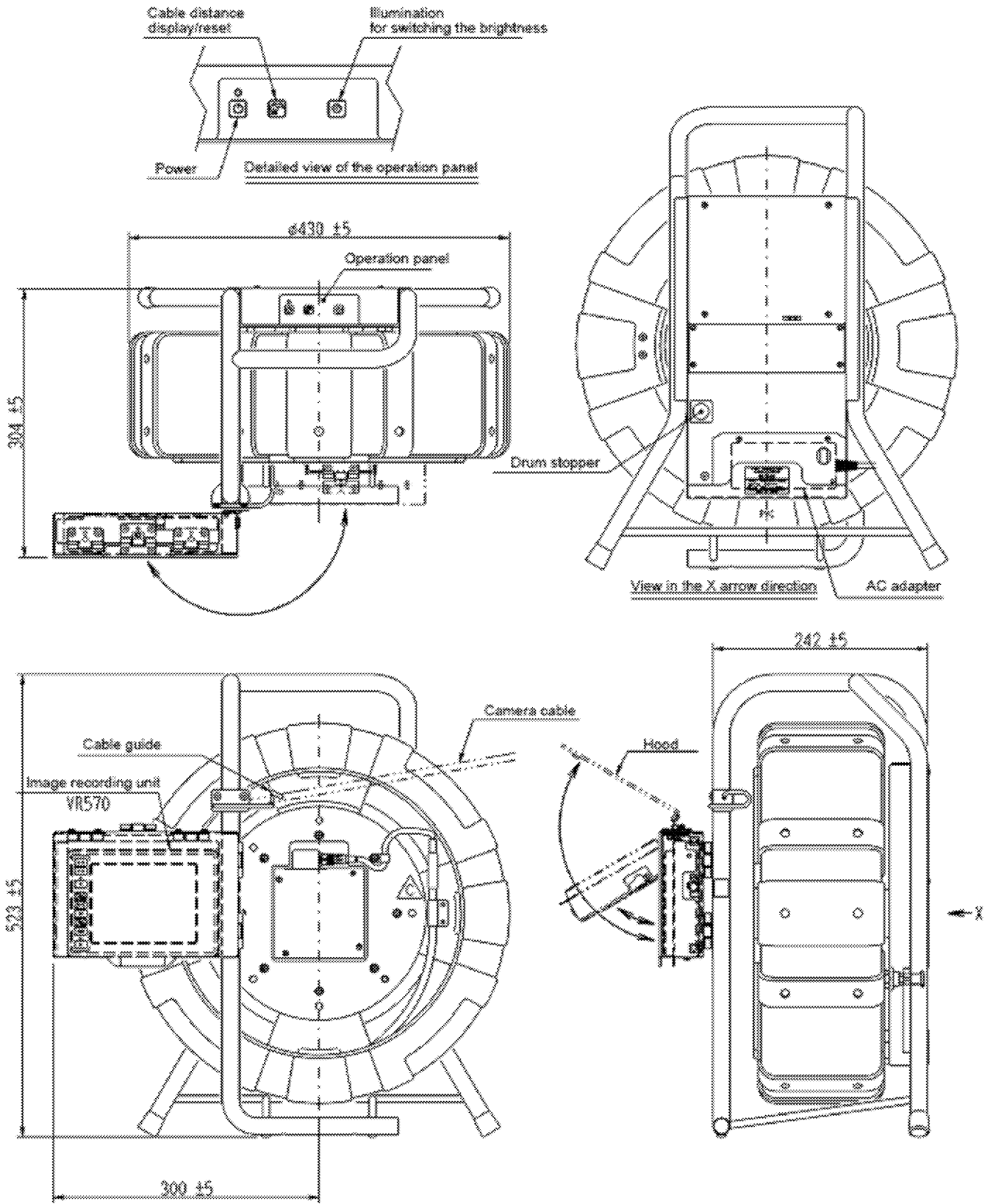
Unit: mm

4) $\phi 50$ mm skid (accessory), when attached



Unit: mm

5) Cable drum and control unit



Unit: mm

V. Maintenance

This product uses consumable parts and limited-life parts.

Also, the gasket and adhesive used in the camera head may become degraded due to the operation environment, causing the product quality to lower significantly.

Maintenance should be performed annually to use the product in a good condition.

* For details on regular maintenance, please contact your dealer.

1. Consumable Parts

The following parts are regarded as **consumable parts**, and should be replaced when damaged or degraded.

Using damaged or degraded parts may cause a failure. Replace them as soon as possible.

Be aware that these parts must be repaired or replaced at your cost, even if within the warranty period.

- | | |
|------------------|---|
| (1) Camera head | Depending on the operating environment and frequency of use, this part will become worn or scratched, and will require early replacement. |
| (2) Lens | Depending on the operating environment and frequency of use, this part will become worn or scratched, and will require early replacement. |
| (3) Camera cable | Depending on the operating environment and frequency of use, this part will become worn or scratched, and will require early replacement. |
| (4) Skid | Contact TOSHIBA TELI when replacement is needed. |
| (5) Adapter box | Contact TOSHIBA TELI when replacement is needed. |

2. Limited-Life Parts

The following parts are regarded as limited-life parts, and may degrade significantly after being used for a certain period of time.

These parts should be replaced when you notice their deterioration.

Contact your dealer for replacement.

Because these parts are internal parts, they must be replaced by a certified staff. Also, be aware that these parts must be replaced at your cost, even if within the warranty period.

Camera head

- | | |
|---------------|--------------------|
| (1) Slip ring | Approx. five years |
| (2) Desiccant | Approx. one year |

Image recording unit

- | | |
|--|---|
| (3) Button battery (CR2032, for the clock) | Approx. five years (when used at 25°C) |
| (4) LCD monitor | Approx. 5,000 hours (when used at 25°C) |

Cable drum

- | | |
|---------------|--------------------|
| (5) Encoder | Approx. two years |
| (6) Slip ring | Approx. five years |

- Water vapor will penetrate the camera head through molecular gaps in the gasket, and water droplets will be formed within the camera head.
Maintenance should be performed annually to replace the desiccant for preventing the formation of such water droplets.
- The slip rings used in this product are limited-life parts.
Maintenance should be performed annually to keep the equipment in the best condition.

VI. Warranty

The warranty period of this product is one year.

- Free-of-charge repair for this product shall be available for one year after delivery.
- Free-of-charge repair for the replaced parts shall be available for six months after repair.
- Repair for this product shall be available at your cost for five years after the end of manufacturing. However, repair for this product shall be no longer available when manufacturing of key parts such as the camera sensor is terminated.
- In principle, failed products must be sent in to a TOSHIBA TELI factory or a partner factory. All removal and installation costs shall not be covered by the warranty. Also, shipping cost for the failed products shall be paid by the sender.
- In principle, products to be repaired must be sent in to a TOSHIBA TELI factory or a partner factory. All removal and installation costs shall not be covered by the warranty. Also, all overhead costs (such as travel expenses) of the customer and end users as well as the return shipping cost shall be paid by the customer.

Even during the warranty period, a charge will be incurred for repair in the following cases.

- Failure or damage due to maintenance or repair performed by third parties not specified by TOSHIBA TELI.
- Failure or damage caused by dropping the product or during transportation after purchase.
- Failure or damage to the product caused by third-party products not delivered by TOSHIBA TELI.
- Failure or damage due to maintenance or repair performed with non-genuine repair parts.
- Failure or damage caused by failing to observe precautions or instructions in the instruction manual provided with the product.
- Failure or damage caused by ambient conditions beyond the operating conditions including the power supply specification and installation environment described in the instruction manual provided with the product.
- Failure or damage caused by fire, natural disaster (e.g., earthquake, windstorm, flood, lightning strike), salt damage, gas damage, or abnormal voltage.
- Repair or replacement of consumable parts or limited-life parts.

The camera head and camera cable become worn relatively easily, and are hence regarded as consumable parts. Note that their replacement will incur a charge, even if during the warranty period.

CAUTION TOSHIBA TELI is not liable for any loss or damage to the data recorded onto an SD card or other media.

CAUTION TOSHIBA TELI will not repair equipment that has been contaminated with toxic or radioactive substances.

CAUTION TOSHIBA TELI is not liable for any personal accidents, damage, or failure caused by repair or inspection performed by third parties not specified by TOSHIBA TELI.

For details on repair after the warranty period and the availability period of replacement parts, contact your dealer or a TOSHIBA TELI service staff.

Where possible, products may be repaired, upon your request, and at your cost.

TOSHIBA TELI CORPORATION

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