

Endoscope for Industry

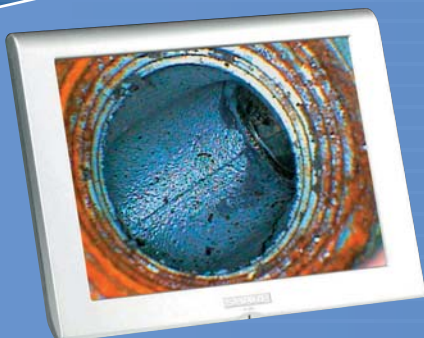
Image fiber type

Lightscope



Endoscope for industry

Borescope



CCD Camera Type

CCD Video
Endoscope



Image fiber type

Lightscope

Internal light source type

Uses a white LED

Interlock
Flexible

Diameter of endoscope end

5 mm

6 mm

8 mm

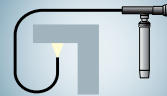
Flexible type

Interlock type

Dual type

Interlock

Interlock type



Maintains its flexible position

Flexible

Flexible type



Flexible so it can be inserted into pipes

Improved resolution!

Resolution of 7,400 to 10,000 pixels

NEW

For a clearer image!

Portable so it can be used anywhere.

- More pixels and greater resolution than the previous MSPS, MSPI Series. (Previous model: 3,500 pixels → New model: 7,400 pixels)
- A long-life white LED is used as the light source. Batteries also last longer.
- A clear image is obtained by using white light with a high color temperature.
- The tip and cord areas are waterproof (from 1 to 1.3 atmospheres).
- Camera photography is possible with a digital camera adapter (sold separately).
- The distance from the object can be any distance greater than 10 mm.
- If a right angle adapter (sold separately) is attached and the endoscope is rotated, a 360° view can be obtained.

The ideal endoscope for studying and making observations within tight areas and deep spaces.

The distance from the object can be adjusted from any distance greater than 10 mm, and with a waterproof cable, there is no possibility of water leakage. An interlocking type and flexible type is available, offering clear viewing, photographing and recording of clear image data.



★ Comparison of images with previous models (company comparison)

MSPS-1000IV
7,400 pixels
(white LED)



MSPS-1000III
3,500 pixels
(halogen lamp)



SUS flexible pipe (internal diameter ø10)

Accessory

For the Lightscope

■ Standard set (supplied with the Lightscope)

Battery handle



Lightscope hard carry case

Protects the scope and makes carrying the Lightscope easy



■ Optional extras

90° right angle adapter

Allows observation of internal walls of pipes.



Dimensions: Small ø7.5 mm
Large ø10 mm

CCD Camera Type

CCD Video Endoscope

Internal light source type

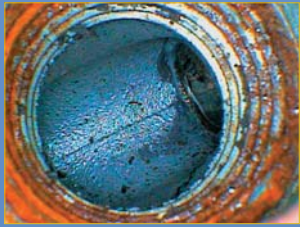
Interlock

Diameter of endoscope end

9.8 mm

Interlock type

Allows the clear images displayed on a TV monitor to be studied further.

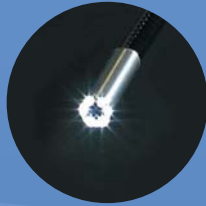


Rusting pipe



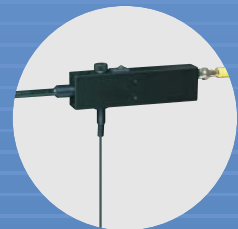
Car muffler

The ideal endoscope for studying and making observations within tight areas and deep spaces. This CCD camera type industrial video endoscope allows clear images to be displayed and studied on a TV monitor.



With the battery case attached

- Clear images obtained from the CCD camera.
- Bright images obtained using 6 chip type LEDs.
- A group of people can study the image displayed on a TV monitor.
- Video data can be recorded and used for a variety of purposes.
- The distance from the object can be any distance greater than 40 mm.
- If a right angle adapter (sold separately) is attached and the endoscope is rotated, a 360° view can be obtained.
- The image can be inverted by using the selector switch on the endoscope. (a normal view can be obtained when the right angle adapter is attached)



With the AC adapter attached

Accessory

For the CCD Video Endoscope

■ Standard set (supplied with the CCD Video Endoscope)

CCD Video Endoscope hard carry case

Protects the scope and makes carrying the CCD Video Endoscope easy



Accessories

AC adapter



Battery case
*Battery is sold separately.



Connector cord



■ Optional extras

90° right angle adapter

Allows observation of internal walls of pipes.



Dimensions: ø11 mm

LCD monitor

Small LCD monitor that is easy to carry around.

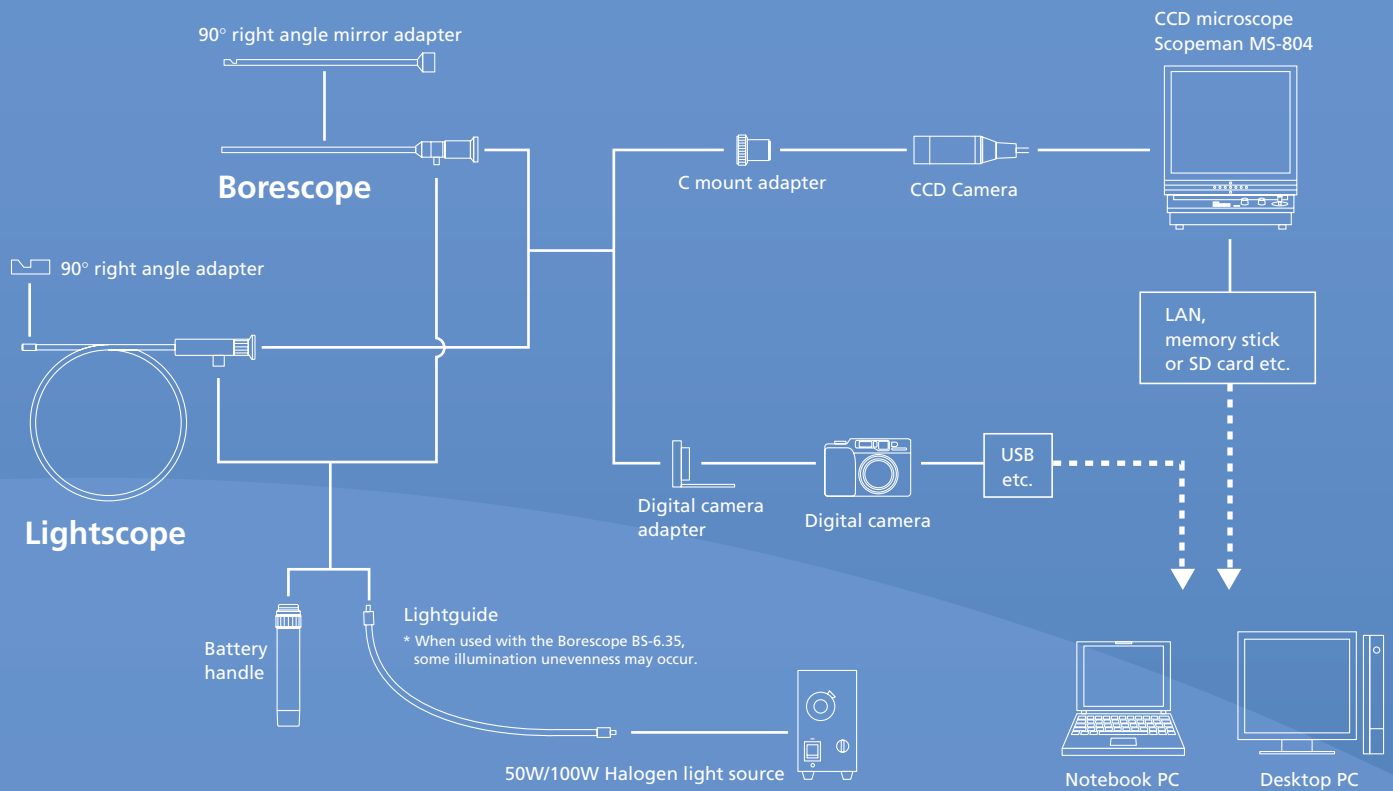


Uses of the Endoscope for industry

- Automobiles** Engines, Transmissions, Differentials, Air conditioners
- Building Inspections** Observation of asbestos, Water pipes, Condition of rust, Condition of defects
- Gas** Inside pipes and exhaust openings
- Aero/space** Turbine blades, Combustion chamber interiors, Rocket engines
- Sewage pipes** Inside pipes, Toilet clogs, Other plumbing problems
- Petrochemical Plants** Process pipes, Pressure storage tanks, Heat exchangers, Boilers
- Vessels** Boiler internals, Turbine internals, Diesel engine

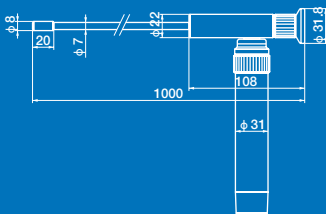


SYSTEM FLOW

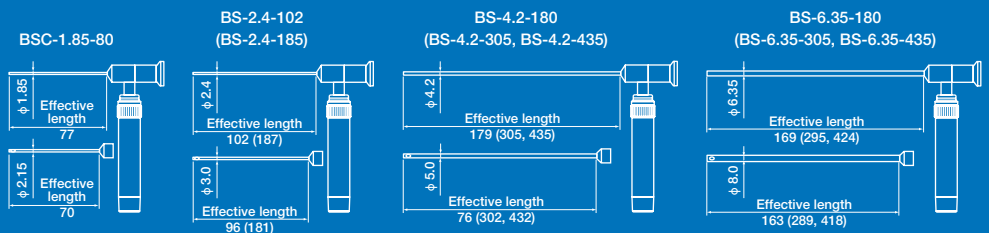


Dimensions

Lightscope (MSPI / MSPS-1000IV)



Borescope



Common accessories for the Lightscope and Borescope

Optional extras

Digital camera adapter



MDA-M1

A digital camera adapter is available for optimum photography at client locations or work sites. This adapter allows a large range of different digital cameras to be attached. The adapter allows groups of people on site to check images, take photographs, record data and file images on computers.

C mount adapter



Attachment adapter for a CCD camera. Allows a camera to be attached to the Lightscope to view images.

Light source unit



A compact and lightweight, high luminance and highly reliable illumination device.

LSSG-1000V Video Endoscope Light Guide



Delivers light effectively from the light source unit to the endoscope.

(flexible type)

Endoscope for industry

Borescope

Diameter of endoscope end

○ 1.85 mm

○ 2.4 mm

④ 4.2 mm

⑥ 6.35 mm

Internal light source type

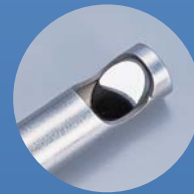
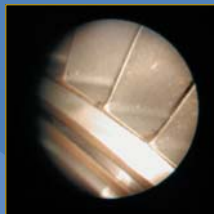
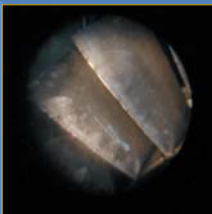
Uses a white LED

NEW



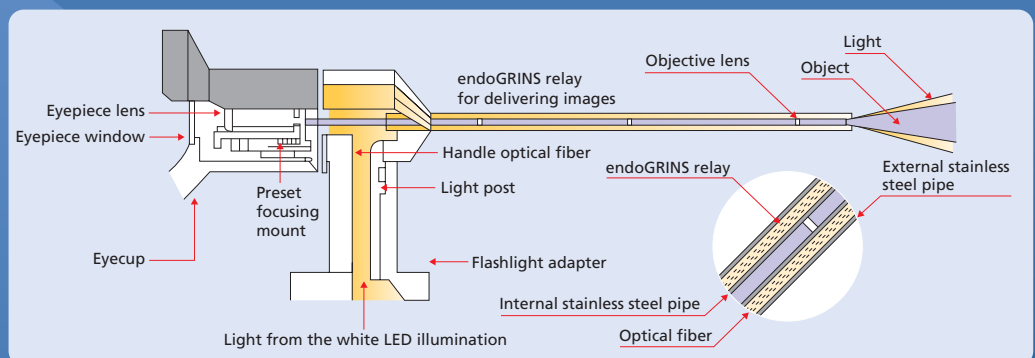
For studying and observing inside spaces with no light or direct view.
Non-destructive endoscope that makes visual inspections so simple.

- Instead of using an expensive and compact lens, multiple glass rod lenses are used to keep costs down.
- The special construction means reduced distortion or blurring due to lens aberration.
- Focus adjustments mean the object can be at any distance from the tip of the endoscope.
- Camera photography is possible with a digital camera adapter (sold separately).
- If a right angle adapter (sold separately) is attached and the endoscope is rotated, a 360° view can be obtained.



Construction

Construction of the Borescope is extremely simple. An optical fiber tube is passed through a thin stainless steel pipe to illuminate the object, delivering clear images of the object to the eyepiece. The Borescope offers easy access to observations within tight areas and deep spaces at an unprecedented cost performance.



For the Borescope

■ Standard set (supplied with the Borescope)

Battery handle



90° right angle adapter

Allows observation of internal walls of pipes.



Borescope hard carry case

Aluminum hard carry case that protects the scope and makes carrying the scope easy.



● Lightscope

| Category | Type | Interlock type (Maintains its flexible position) | | | | | Flexible type (Flexible so it can be inserted into pipes) | | | | |
|-----------------------------|--|---|-------------|-------------|--------------|---------------|--|-------------|-------------|--------------|---------------|
| | Model Name | MSPI-1000IV | MSPI-2000IV | MSPI-3000IV | MSHI-1000IV | MSGI-1350IV | MSPS-1000IV | MSPS-2000IV | MSPS-3000IV | MSHS-1000IV | MSGS-1350IV |
| Fiber | Material | Acrylic | | | | Glass | Acrylic | | | | Glass |
| | Resolution | 7,400 pixels | | | 7,500 pixels | 10,000 pixels | 7,400 pixels | | | 7,500 pixels | 10,000 pixels |
| | End diameter | ø8 mm | | | ø6 mm | ø8 mm | ø8 mm | | | ø5 mm | ø8 mm |
| | Strand diameter | 20 μm | | | 15 μm | — | 20 μm | | | 15 μm | — |
| Tube | Material | SUS Interlock + PVC sheath | | | | | SUS Flexible + PVC sheath | | | | |
| | Maximum bending radius | 100 mm (maximum 360°) | | | | | 40 mm (maximum 360°) | | | | |
| | Effective length of standard items (waterproof type case supplied) | 1,000 mm | 2,000 mm | 3,000 mm | 1,000 mm | 1,350 mm | 1,000 mm | 2,000 mm | 3,000 mm | 1,000 mm | 1,350 mm |
| Light source | LED | White light 1W | | | | | | | | | |
| | Power source | 2 × size C batteries (sold separately) | | | | | | | | | |
| Optical system | Direction of view | Straight view, right angle view possible with an optional adapter | | | | | | | | | |
| | Angle of view | Approximately 60° | | | | | | | | | |
| | Focus length | 10 mm to infinity (fixed focus point) | | | | | | | | | |
| Waterproofing | The tip and tube are water proof (from 1 to 1.3 atmospheres (1013 to 1317 hPa)). Other parts not waterproof. | | | | | | | | | | |
| Operating temperature range | Output end: -20°C to 60°C / Battery handle: 0°C to 40°C | | | | | | | | | | |

● Borescope

| Model | BSC-1.85-80IV | BS-2.4-102IV | BS-2.4-185IV | BS-4.2-180IV | BS-4.2-305IV | BS-4.2-435IV | BS-6.35-180IV | BS-6.35-305IV | BS-6.35-435IV | |
|-----------------------------|---|--|--------------|--------------|--------------|--------------|---------------|---------------|---------------|--------|
| Main body | Diameter of endoscope end | ø1.85 mm | ø2.4 mm | | ø4.2 mm | | ø6.35 mm | | | |
| | Right angle adapter end diameter | ø2.15 mm | ø3.0 mm | | ø5.0 mm | | ø8.0 mm | | | |
| | Effective length | 77 mm | 102 mm | 187 mm | 179 mm | 305 mm | 435 mm | 169 mm | 295 mm | 424 mm |
| Light source | Lamp | White LED | | | | | | | | |
| | Power source | 2 × size C batteries (sold separately) | | | | | | | | |
| Direction of view | Straight / 90° right angle view (when using an adapter) | | | | | | | | | |
| Angle of view | 32° | | | 37° | | | 42° | | | |
| Focus length | 10 mm to infinity | | | | | | | | | |
| Waterproofing | Not waterproof | | | | | | | | | |
| Operating temperature range | Endoscope end: -40°C to 120°C / Battery handle: 0°C to 40°C | | | | | | | | | |

● CCD Video Endoscope

| Category | Type | Interlock type |
|-----------------------------|--|--|
| Category | Model | MSCI-1000 |
| | Effective length | 1000 mm |
| | Diameter of endoscope end | ø9.8 mm |
| Camera | Number of effective pixels | 1/4 inch interline 380,000 pixel CCD camera |
| | Signal type | NTSC |
| | AGC | Auto (MAX 24dB) |
| | Electronic shutter | Auto (1/60 to 1/100,000) |
| | Switching function | Left/right inversion, normal mirror switching |
| Optical system | Field of view | Straight (right angle view available as an option) |
| | Angle of view | Horizontal 68.8°, vertical 51.6°, diagonal 86° |
| | Focus length | 40 mm to infinity |
| Illumination (light source) | 6 chip type LEDs | |
| Power source | 6 × size AAA batteries or AC adapter | |
| Battery life | 3 hours of continued use (when using alkaline batteries) | |
| Waterproofing | Drip proof * | |
| Cord material | Interlock pipe PVC tube sheath | |
| Operating temperature | -10°C to + 60°C (actual operation) | |
| Weight | 700 g (including batteries) | |
| Accessories | Main unit, battery case, image cord, AC adapter, special aluminum case, instruction manual | |

*Drip proof specifications are different from complete waterproof specifications. If the unit is immersed in water it will still become damaged. Damage due to water penetration is not covered by the warranty.



Do not use for medial purposes.

Specifications and design may be improved or changed without notice.



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