TSN-82SV

TSN-82SV

TSN-82SV

MC WP

This sophisticated scope with outstanding light gathering power and a bright field of view is the dream instrument of every bird watcher, hunter, or target shooter.

＊ Eyepieces are sold separately.

Eyepieces

TE-9Z
82SV
21～63×ZOOM

TE-14WD
82SV
32×WIDE

TE-17HD
82SV
27×LER

Large 82mm Objective Lens Fully Multicoated Optics

All Lenses, prism, and dustproof glass are fully multicoated, ensuring sharp images and a clear visual range.

Waterproof and Filled with Dry Nitrogen Gas

The housing waterproof to JIS* Protection Class 7** and filled with dry nitrogen gas to prevent the lens from fogging.

＊ JIS=Japanese Industrial Standard
＊＊ The scope is not intended for use underwater.

Selection of 3 Eyepieces

A lineup of 3 eyepieces is available for the TSN-82SV as shown on the left.

TSN-AR42T
SLR Camera Adapter Ring for TSN-82SV, TSN-660 & TSN-600. This is used between the TSN-DA1 and TSN-CM2.

Accessories

Digital Camera Adapter

TSN-DA1

660 600 825V

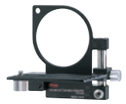
Digital camera adapter for the TSN-660/600 series scopes. It should be used in combination with the universal camera adapter and the adapter rings.

TSN-DA10

880 770 556

Digital camera adapter for the TSN-880/770 series and Telephoto Lens/Scope. It should be used in combination with the universal camera adapter and the adapter rings.

Universal Camera Adapter



TSN-DA4

Universal camera adapter that allows the mounting of various digital cameras. It has an opening and closing type configuration that enables easy switching between viewing and photographing. (For details of cameras that can be used, please refer to p.22.)

Adapter Rings

TSN-AR28/30/305/37/43/46/52/55/58/62/72

The appropriate adapter ring should be selected according to the camera filter thread. (11 types)

Photo & Video Adapter

880 770 556 660 600

TSN-VA2B

Photo & video adapter that supports use for up to large-sized video cameras. Compared to the TSN-VA3, it is possible to carry out imaging without vignetting even with large-aperture cameras. (The TSN-CR3 will be required for mounting on TSN-660/600 series.)

880 770 556

TSN-VA3

High resolution adapter that suppresses distortion up to the edge of the lens, while also thoroughly reducing chromatic aberration on the axis. Due to the wide apparent field of view, photographing will be possible without vignetting from the wide side of the camera.

Short Sleeve

TSN-SS1

Extends the outer tube of the TSN-DA1/DA10. (Approx. 7mm)

Sleeve

TSN-LS2

Should be used when carrying out digiscoping using the TE-9Z. Zoom operation is possible with the adapter still mounted.

Eyepiece Converter

TSN-EC2

Required when using a previous model TSN-820/820M series eyepiece with a TSN-880/770 series.

TSN-EC1A

Required when using a TSN-82SV/660/600 series eyepiece with a TSN-820/820M series.

TSN-EC3

Required when using a TSN-660/600 series eyepiece with a TSN-880/770 series.

When other model eyepieces are used with TSN-880/770 Series scopes, not only will the specifications including the magnification change, but there may be cases where an adequate optical performance cannot be obtained.

Converter Ring

TSN-CR3

Should be used when mounting TSN-VA2B/TSN-PZ on TSN-660/600 series.

TSN-VA2-CR

Should be used when mounting TSN-VA1 on TSN-880/770 series.

Camera Mount System

TSN-880/770 Series
Exclusively for straight spotting scopes

TSN-PS1

Fixes the scope, photo attachment, and adapter for use, and reduces blurring due to movement during digiscoping and when connecting a digital SLR camera. Adjustment of the weight balance is also possible.

TSN-880/770/660 Series
Exclusively for straight spotting scopes

TSN-PS2

Using the TSN-PS2 together with the TSN-PS2-SP allows use as a mount system for digital SLR cameras. It can also be used for digiscoping with the CASIO EX-F1.

TSN-880/770/660 Series
Exclusively for straight spotting scopes

TSN-PS2-SP

Used as a digital SLR camera plate for the TSN-PS2.

Universal Mount System

TSN-DA3
(For straight/angled type spotting scopes)

Accessory that allows secure fixing of spotting scope and video camera.
* When used with angled spotting scope, the TSN-DA3-88A is required.

TSN-DA3st
(Only for straight type spotting scopes)

With a more compact structure than the TSN-DA3, this is convenient for carrying and storage.
* Cannot be used with angled spotting scopes.

TSN-DA3-88A

*TSN-DA3-88A is necessary to use the TSN-DA3 with the TSN-881/883/771/773.

Universal Shoe

TSN-DA3-40

Use the Universal Shoe for mounting video camera that have their lens in a high position, such as vertical format video cameras. Height: 40mm

Balance Plate

TSN-BP

Can be used for forward and backward balance adjustment during digiscoping use. It should be used by mounting it on a tripod head (1/4 inch screw).

Photo Attachment

TSN-PZ

Zoom-type photo attachment that allows use of a 680-1000mm focal length. (TSN-660/600 is 560-840mm.) It is exclusively for use with digital SLR cameras, and allows brighter, higher resolution photographing than before.
* Attachment supporting APS-C and Four Thirds formats. The 35mm format converted focal length will be approximately 1.5 times the situation in APS-C format, and approximately 2 times the situation in Four Thirds format.
* In the case of using a 35mm full size digital SLR camera, this can only be used at 1000mm.

880 770 556 660 600

Camera Mount (T-Ring)

TSN-CM2-CE/N/K/MA

Find the appropriate mount by matching it to the camera manufacturer.

* CE (Canon EOS), N (Nikon F), K (Pentax K), and MA (Sony A)

SLR Camera Adapter Ring

TSN-AR42T

SLR Camera Adapter Ring for TSN-82SV, TSN-660/600 series.
This is used between the TSN-DA1 and TSN-CM2.

825V

Protect Filter

TP-95FT

Filter Thread: 95mm
Protective filter that has had water repellent and oil repellent processing applied.
Even if fingerprints or water droplets become attached to the filter, they can be easily wiped off.

880 556

Carrying Cases

for TSN-880 Series
C-881 (for angled type scopes)
C-882 (for straight type scopes)

for TSN-770 Series
C-771 (for angled type scopes)
C-772 (for straight type scopes)

for TSN-82SV
C-821 (for angled type scopes)

for TSN-660 Series
C-661 (for angled type scopes)
C-662 (for straight type scopes)

for TSN-600 Series
C-601 (for angled type scopes)
C-602 (for straight type scopes)

Only for U.S.A. market

for TSN-880 Series
CNW-12 straight type
CNW-11 angled type

for TSN-770 Series
CNW-14 straight type
CNW-13 angled type

straight type

angled type

TSN-82 SV
CNW-5 angled type

TSN-660 Series
CNW-10 straight type
CNW-9 angled type

TSN-600 Series
CNW-4 straight type
CNW-3 angled type

• **Eyepeice Protection Cover**

TSN-CV88
TSN-CV66

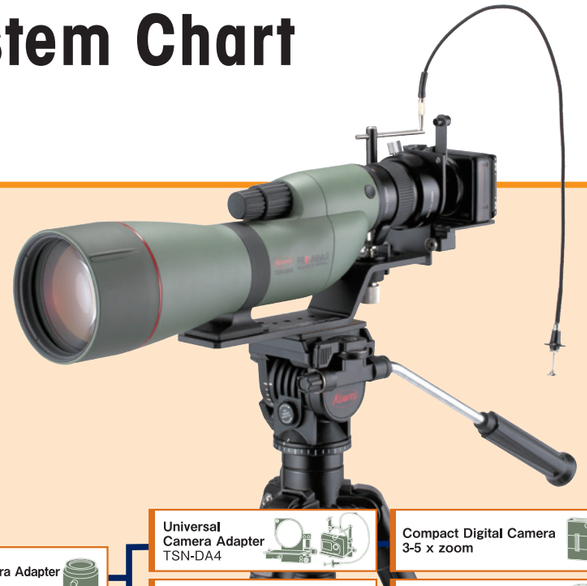
• **Protect Filter**

TSE-FL
TSN-82SV

TSE-FL66
TSN-660 Series

Accessories

Digiscoping System Chart



Compact Digital Camera Digiscoping System Diagram

Attach a compact digital camera to a Kowa spotting scope for Super-telephotography.

[TSN-880 Series, Telephoto Lens/Scope Digiscoping System Diagram]

- TSN-880/770 Telephoto Lens/Scope* (* When TP-88EC1 is connected)
  - Eyepiece TE-11WZ/TE-17W/TE-20H → Digital Camera Adapter TSN-DA10
    - Universal Camera Adapter TSN-DA4 → Compact Digital Camera 3-5 x zoom
    - Adapter Ring TSN-AR → Compact Digital Camera 3-5 x zoom (Type with accessory mounting screw)
  - Photo & Video Adapter TSN-VA2B/TSN-VA3 → Adapter Ring TSN-AR → High Magnification Zoom Digital Camera 7- x zoom

[TSN-82SV]

- TSN-82SV
  - Eyepiece+Sleeve TE-9Z+TSN-LS2
  - Eyepiece+Sleeve TE-14WD/TE-17HD +TSN-SS1
  - → Digital Camera Adapter TSN-DA1
    - Universal Camera Adapte TSN-DA4 → Compact Digital Camera 3-5 x zoom
    - Adapter Ring TSN-AR → Compact Digital Camera 3-5 x zoom (Type with accessory mounting screw)

[TSN-660/600 Series Digiscoping System Diagram]

- TSN-660/600
  - Eyepiece+Sleeve TE-9Z+TSN-LS2
  - Eyepiece+Sleeve TE-14WD/TE-17HD +TSN-SS1
  - → Digital Camera Adapter TSN-DA1
    - Universal Camera Adapte TSN-DA4 → Compact Digital Camera 3-5 x zoom
    - Adapter Ring TSN-AR → Compact Digital Camera 3-5 x zoom (Type with accessory mounting screw)
  - Converter Ring TSN-CR3 → Photo & Video Adapter TSN-VA2B → Adapter Ring TSN-AR → High Magnification Zoom Digital Camera 7- x zoom

"SLR Digiscoping" and "Videoscoping" System Chart

Super-Telephotography with a Single Lens Reflex Camera

Attach a 35mm film single lens reflex camera or digital single lens reflex camera to a Kowa spotting scope for super-telephotography.

- TSN-880/770 → Photo Attachment TSN-PZ → Camera Mount TSN-CM2 → Camera Mount System TSN-PS1 → Digital SLR Camera (without camera lens)
- TSN-82SV → Eyepiece+Sleeve TE-9Z+TSN-LS2 / Eyepiece+Sleeve TE-14WD/TE-17HD +TSN-SS1 → Digital Camera Adapter+Adapter Ring TSN-DA1/TSN-AR42T → Camera Mount TSN-CM2 → Digital SLR Camera (without camera lens)
- TSN-660/600 → Converter Ring TSN-CR3 → Photo Attachment TSN-PZ → Camera Mount TSN-CM2 → Digital SLR Camera (without camera lens)

Collimation method

Attach a digital single lens reflex camera to a Kowa TSN-880/770 series spotting scope using the TSN-VA3 to enjoy super-telephotography using the collimation method.

- TSN-880/770 → Photo & Video Adapter TSN-VA3 → Adapter Ring TSN-AR*1 → Camera Mount System TSN-PS2 / TSN-PS2-SP *2 → Digital SLR Camera (with camera lens)

*1 In some cases, step-up or step-down rings may be necessary.
*2 The TSN-DA3 or TSN-DA3st may also be used instead of the TSN-PS2/PS2-SP.
* For carrying out collimation photographing using digital SLR cameras, inner focusing camera lenses should be used. Further, care will be required depending on the model since in some cases the auto-focus function may not be used or vignetting may occur.

Super-Telephoto Video

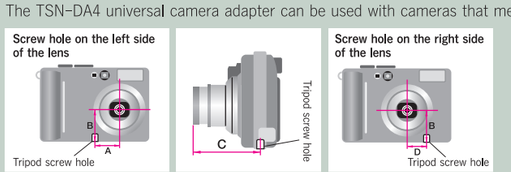
Super-telephoto video by connecting a video camera to a spotting scope.

[Video Camera Mounting System Diagram]

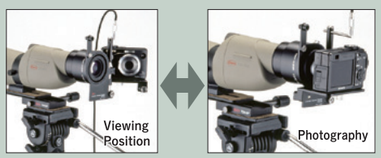
- TSN-880 TSN-770 Telephoto Lens/Scope* (* When TP-88EC1 is connected)
  - → Photo & Video Adapter TSN-VA2B/TSN-VA3
  - TSN-660 TSN-600 → Converter Ring TSN-CR3 → Photo & Video Adapter TSN-VA2B
  - → Adapter Ring TSN-AR (* Select the adapter ring to match the mounting diameter.) → Universal Mount System TSN-DA3/TSN-DA3st → Video Camera

TSN-DA4 Compatibility

The TSN-DA4 universal camera adapter can be used with cameras that meet the following criteria.



A	0~44mm
B	21~40mm
C	~56mm (When the power is switched on and the lens is fully extended)
D	0~28mm
B	21~40mm
C	~56mm (When the power is switched on and the lens is fully extended)



- The TSN-DA4 allows a compact digital camera without filter threads to be used for digiscoping.
- Quickly change between photographing and viewing through the scope.
- The camera is attached to the adapter with the camera's tripod mount. Locking mechanisms ensure safe operation.

For cameras with the tripod mount to the left of the lens (facing the lens).

A. The distance between the center of the tripod mount and the center of the lens.
B. The distance between the center of the lens and the base of the camera.
C. The distance between the center of the tripod mount and the front of the lens.

For cameras with the tripod mount to the right of the lens (facing the lens).

D. The distance between the center of the tripod mount and the center of the lens. B and C are the same as above.

TSN-DA3/TSN-DA3st Mounting a Digital Camera/Video Camera

The TSN-DA3/TSN-DA3st can be used with cameras that meet the following criteria:

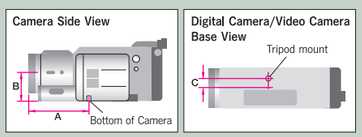
【TSN-DA3】 This cannot be mounted on TSN-880/770 Series angled type spotting scopes.

Spotting Scopes	TSN-884 TSN-774			TSN-662/664		TSN-602/604		TSN-661/663				TSN-601/603			
	Straight type spotting scope			Straight type spotting scope		Straight type spotting scope		Angled type spotting scope				Angled type spotting scope			
	TSN-VA1	TSN-VA2B	TSN-VA3	TSN-VA1	TSN-VA2B	TSN-VA1	TSN-VA2B	TSN-VA1		TSN-VA2B		TSN-VA1		TSN-VA2B	
A	to 160mm	to 135mm	to 135mm	to 155mm	to 130mm	to 200mm	to 175mm	to 160mm*1	to 55mm*1	to 135mm*1	to 30mm*1	to 190mm*1	to 85mm*1	to 165mm*1	to 60mm*1
B	to 85mm(to 125mm)*2			to 75mm(to 115mm)*2		to 70mm(to 110mm)*2		to 100mm*1	to 205mm*1	to 100mm*1	to 205mm*1	to 120mm*1	to 225mm*1	to 120mm*1	to 225mm*1
C	55mm (right and left)			55mm (right and left)		55mm (right and left)		55mm (right and left)				55mm (right and left)			

【TSN-DA3st】

Spotting Scopes	TSN-884 TSN-774			TSN-662/664		TSN-602/604	
	Straight type spotting scope			Straight type spotting scope		Straight type spotting scope	
	TSN-VA1	TSN-VA2B	TSN-VA3	TSN-VA1	TSN-VA2B	TSN-VA1	TSN-VA2B
A	to 170mm	to 145mm	to 145mm	to 165mm	to 140mm	to 210mm	to 185mm
B	to 85mm(to 125mm)*2			to 73mm(to 113mm)*2		to 68mm(to 108mm)*2	
C	55mm (right and left)			55mm (right and left)		55mm (right and left)	

*1 As the value for A increases, the value for B decreases. The maximum values for A and B are shown.
*2 The values in () apply when the TSN-DA3-40 (sold separately) is used.



A. The distance between the center of the tripod mount and the front of the lens.
B. The distance between the center of the lens and the base of the camera.
C. The distance between the center of the tripod mount and the center of the lens.

Specifications

Spotting Scope Specifications

Model	TSN-880 Series		TSN-770 Series		TSN-660 Series				TSN-600 Series		TSN-82SV
	TSN-883	TSN-884	TSN-773	TSN-774	TSN-661	TSN-662	TSN-663	TSN-664	TSN-601	TSN-602	
	Angled type	Straight type	Angled type	Straight type	Angled type	Straight type	Angled type	Straight type	Angled type	Straight type	Angled type
Objective Lens Effective Diameter	88mm	88mm	77mm	77mm	66mm	66mm	66mm	66mm	60mm	60mm	82mm
Objective Lens	Fluorite Crystal Lens		XD Lens		Normal Lens		XD Lens		Normal Lens		Normal Lens
Minimum Focusing Distance	5 m	5 m	5 m	5 m	6 m	6 m	6 m	6 m	6 m	6 m	6 m
Length	343mm	329mm	318mm	304mm	311mm	312mm	311mm	312mm	299mm	299mm	383m
Weight	1520g	1520g	1330g	1330g	1010g	990g	1040g	1020g	735g	720g	1490g
Filter Thread	95mm	95mm	82mm	82mm	72mm	72mm	72mm	72mm	67mm	67mm	86mm

* Mounting of commercially available filters is possible.

Telephoto Lens/Scope Specifications

Model	500mm F5.6 (with TX10)	350mm F4 (with TX07)	850mm F9.6 (with TX17)
Focal Length	500mm	350mm	850mm
Maximum Aperture	F5.6	F4	F9.6
Lens Construction	7 Elements in 7 Groups	10 Elements in 10 Groups	14 Elements in 13 Groups
Fluorite Crystal Lens	1	1	1
XD Lens	2	3	3
Field of View (Full Size)	4.9°	7.0°	2.9°
F-Number	F5.6 ~ 11	F4 ~ 8	F9.6 ~ 19
Iris Blades	9	9	9
Minimum Focusing Distance	3m	3m	3m
Maximum Reprojection Ratio	0.17x	0.12x	0.29x
Filter Thread	95mm	95mm	95mm
Weight*	1970g	2025g	2270g
Maximum Diameter x Length*	φ 104x341mm (φ 4x13.4in)	φ 104x296mm (φ 4x11.7in)	φ 104x396mm (φ 4x15.6in)

* Using the Nikon mount, excluding the lens hood

Standard Package

① Master Lens
② Mount Adapter「TX10」
Available Mounts: Nikon, Canon, Pentax, Micro Four-Thirds ,SONY "A"
③ Lens Hood「TP-100LH」
④ Objective Cap
⑤ Mount Adapter Cover
⑥ Mount Lens Cover
⑦ Camera Mount Cover
⑧ Sights(S/M/L)
・ Manual

【Eyepiece Specifications】

Model	TSN-880/770 Series						TSN-660/600 Series							
	TE-11WZ		TE-17W		TE-20H		TE-9Z		TE-14WD		TE-9WD		TE-17HD	
	TSN-880	TSN-770	TSN-880	TSN-770	TSN-880	TSN-770	TSN-660	TSN-600	TSN-660	TSN-600	TSN-660	TSN-600	TSN-660	TSN-600
Magnification	25 ~ 60x WIDE ZOOM		30xWIDE		25xLER		20 ~ 60xZOOM		30xWIDE		45xWIDE		25xLER	
Field of View	2.4° ~ 1.32°		2.4°		2.1°		1.9° ~ 1.0°		2.4°		1.43°		2.1°	
Exit Pupil	3.5 ~ 1.5mm	3.1 ~ 1.3mm	2.9mm	2.6mm	3.5mm	3.1mm	3.3 ~ 1.1mm	3.0 ~ 1.0mm	2.2mm	2.0mm	1.5mm	1.3m	2.6mm	2.4mm
Relative Brightness	12.3 ~ 2.3	9.6 ~ 1.7	8.4	6.8	12.3	9.6	10.9 ~ 1.2	9.0 ~ 1.0	4.8	4.0	2.3	1.7	6.8	5.8
Twilight Factor	46.9 ~ 72.7	43.9 ~ 68.0	51.4	48.1	46.9	43.9	36.3 ~ 62.9	34.6 ~ 60.0	44.5	42.4	54.5	52.0	40.6	38.7
Eye Relief	17mm		20.0mm		32.0mm		16.5 ~ 16.0mm		20.0mm		15.0mm		32.0mm	
Field of View at 1000m	42 ~ 23m		41.9m		36.7m		33.2 ~ 17.5m		41.9m		25.0m		36.7m	

【Eyepiece Specifications TSN-82SV】

Model	TE-9Z	TE-14WD	TE-17HD
Magnification	21 ~ 63xZOOM	32xWIDE	27xLER
Field of View	1.8° ~ 0.95°	2.2°	2.0°
Exit Pupil	3.9 ~ 1.3mm	2.6mm	3.0mm
Relative Brightness	15.2 ~ 1.7	6.8	9.0
Twilight Factor	41.5 ~ 71.9	51.2	47.1
Eye Relief	16.5 ~ 16mm	20mm	32mm
Field of View at 1000m	31 ~ 17m	38m	35m

【Eyepiece Specifications Telephoto Lens/Scope】

Model	Telephoto Lens/Scope						
	TE-11WZ PROMINAR	TE-17W	TE-20H	TE-9Z*	TE-14WD*	TE-9WD*	TE-17HD*
Magnification	28 ~ 66xZOOM	33xWIDE	28xLER	26 ~ 78xZOOM	40xWIDE	60xWIDE	32xLER
Field of View	2.2° ~ 1.2°	2.2°	1.9°	1.45° ~ 0.75°	1.8°	1.1°	1.6°
Exit Pupil	3.2 ~ 1.3mm	2.7mm	3.2mm	3.4 ~ 1.1mm	2.2mm	1.5mm	2.7mm
Relative Brightness	10.2 ~ 1.8	7.1	10.2	11.3 ~ 1.3	4.8	2.2	7.4
Twilight Factor	49.2 ~ 76.2	53.9	49.2	48.0 ~ 82.8	59.3	72.7	53.4
Eye Relief	17mm	20.0mm	32.0mm	16.5 ~ 16.0mm	20.0mm	15.0mm	32.0mm
Field of View at 1000m	38 ~ 21m	38m	33m	25 ~ 13m	31m	19m	28m

* Mounting will be possible using the TSN-EC3.

【Photo Attachment Specifications】

Model	TSN-PZ				TSN-PA6	
Supported Scopes	TSN-880	TSN-770	TSN-660	TSN-600	TSN-880	TSN-770
Focal Length	680 ~ 1000mm		560 ~ 840mm		600mm	
F Value	7.7 ~ 11.4	8.8 ~ 13.0	8.5 ~ 12.7	9.3 ~ 14.0	6.8	7.8
Minimum Focusing Distance	5m		6m		5m	
Total Length	105mm				110mm	
Weight	350g				285g	

* In the case of mounting a digital SLR camera, the focal length will change according to the image sensor size.

【Photo & Video Adapter Specifications】

Model	TSN-VA2B					TSN-VA3		
Supported Scopes and Lenses	TSN-880	TSN-770	TSN-660	TSN-600	PROMINAR 500mm	TSN-880	TSN-770	PROMINAR 500mm
Magnification	14x		12x		15.5x	14x		15.5x
Field of View	1.97°		2.3°		1.8°	3.0°		2.7°
Eye Relief	100mm					60mm		

Precautions for Use | **For correct and safe use of this product:**

Before using the product, be certain to carefully read the instruction manual.
Do not under any circumstances use this product to look at the sun, since this may result in loss of eyesight.

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