



TSN-660M/600 Series

Eyepieces



TE-9Z
82SV 660M 600
20~60xZOOM



TE-14WD
82SV 660M 600
30xWIDE



TE-17HD
82SV 660M 600
25xLER



TSN-664M PROMINAR
XD Lens Straight Type

TSN-663M PROMINAR
XD Lens Angled Type

TSN-664M PROMINAR
XD Lens Straight Type

XD MC WP KR

XD MC WP KR

These high performance models are the perfect fusion of compactness and high optical performance. This series satisfies the needs of a wide range of users from beginning bird watchers to scientists and professional researchers.

* Eyepieces are sold separately.



TSN-602
Normal Lens Straight Type

TSN-601
Normal Lens Angled Type

TSN-602
Normal Lens Straight Type

MC WP KR

MC WP KR

These 60mm class scopes boast an unprecedented light weight. Since carrying and handling is so easy, anyone can enjoy viewing and observation.

* Eyepieces are sold separately.

Digital Camera Adapter



TSN-DA1
550 660M
600 82SV

Digital camera adapter for the TSN-82SV/660/600 and TSN-550 series. 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.



TSN-DA20 **NEW**
550 660M
600 82SV

Digital camera adapter for the TSN-82SV/660/600 and TSN-550 series. It should be used in combination with the universal camera adapter and the adapter rings.



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.26.)

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 Attachment



TSN-PA7A 880 770 556

TSN-PA8 82SV 660M 600

This photo adapter slides directly over the spotting scope eyepiece and secures onto the supplied inner collar at the scope body. A T2 mount attaches D-SLR Camera to TSN-PA7A/PA8.



TSN-PZ

880 770 556 660M 600

Zoom-type photo attachment that allows use of a 680-1000mm focal length. (TSN-660M/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.

Eyepiece Converter



TSN-EC1A

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



TSN-EC2

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



TSN-EC3

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



TSN-CR3

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

Converter Ring

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

Universal Shoe



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).

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.

Camera Mount(T-Ring)



TSN-CM2-CE/N/K/SE/M4/3

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

* CE (Canon EOS), N (Nikon F), K (Pentax K), SE (Sony E), and M4/3(Micro Four Thirds)

SLR Camera Adapter Ring



TSN-AR42GT

550 82SV 660M 600

SLR Camera Adapter Ring for TSN-82SV, TSN-660M/600 and TSN-550 series.

This is used between the TSN-DA1 and TSN-CM2.

Protection Filter



TP-95FT

880 556

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.

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-660M 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)



for TSN-82SV

C-821 (for angled type scopes)

Only for U.S.A. market



for TSN-880 Series

CNW-12 straight type

CNW-11 angled type

straight type



TSN-82SV

CNW-5 angled type

TSN-660M Series

CNW-10 straight type

CNW-9 angled type

angled type



TSN-600 Series

CNW-4 straight type

CNW-3 angled type

Eyepiece Protection Cover



TSN-CV88
TSN-CV66

Protect Filter



TSE-FL
TSN-82SV

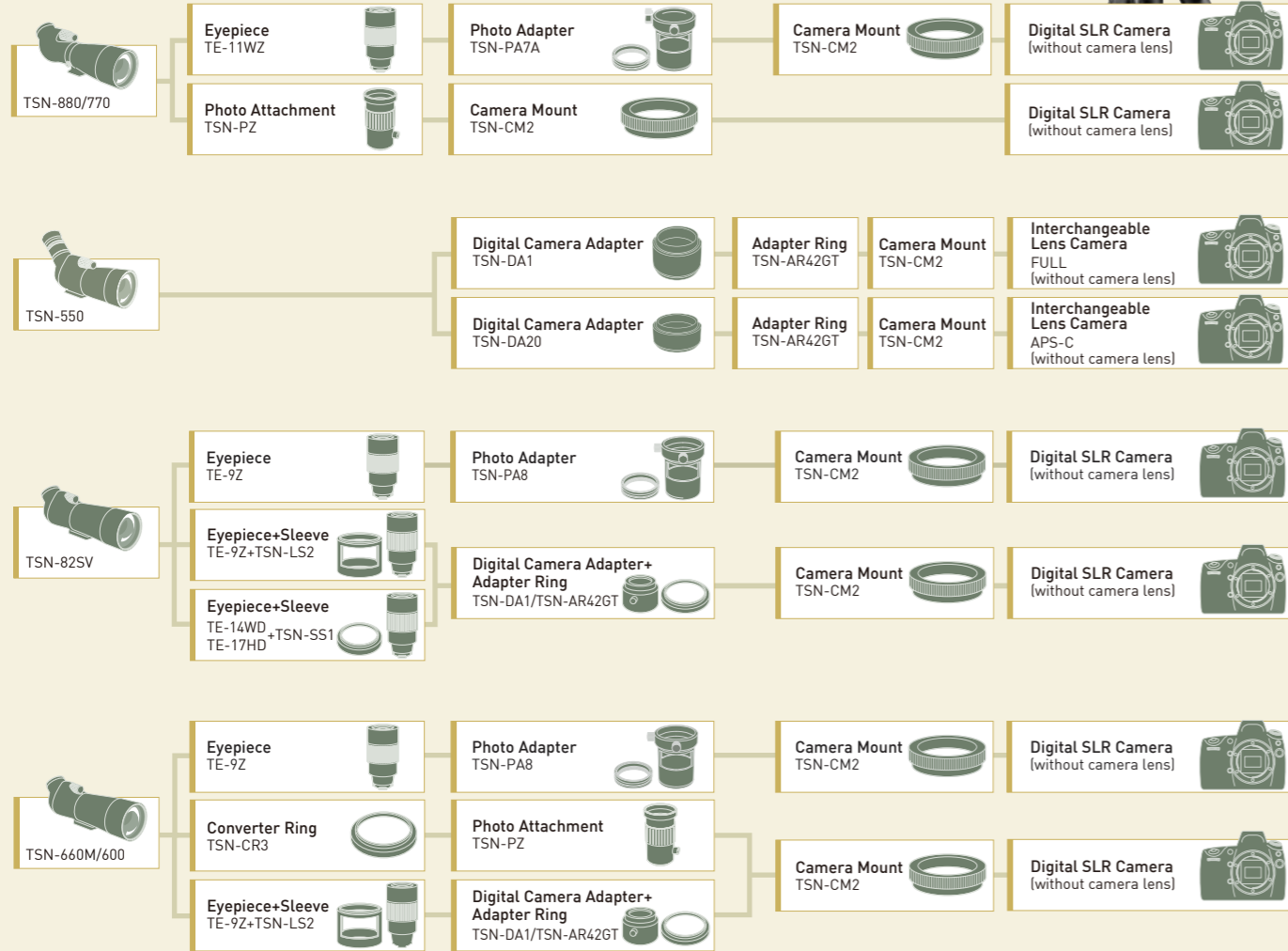
TSE-FL66
TSN-660M Series

Digiscoping/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.

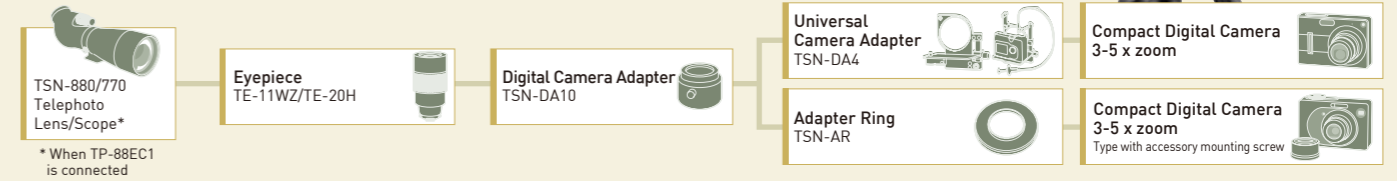


Compact Digital Camera Digiscoping System Diagram

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



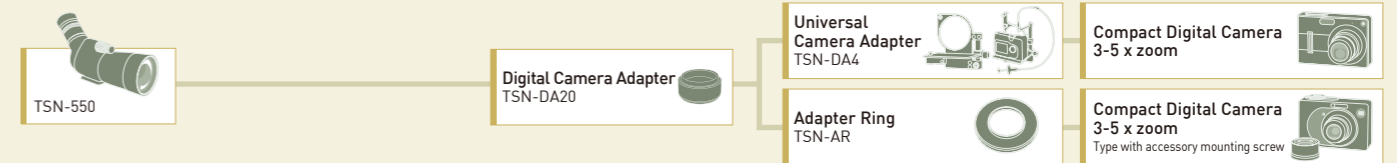
[TSN-880 Series, Telephoto Lens/Scope Digiscoping System Diagram]



[TSN-82SV]



[TSN-550 Series]

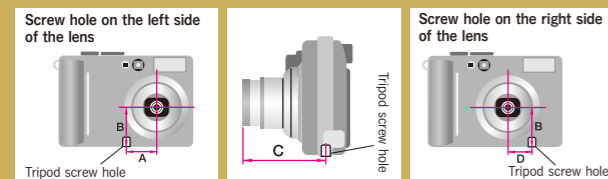


[TSN-660M/600 Series Digiscoping System Diagram]



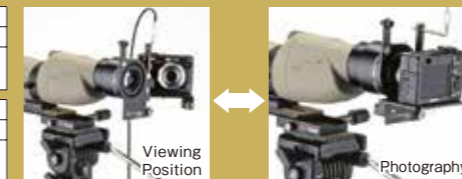
TSN-DA4 Compatibility

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



- 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.

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)



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.

Specifications

Spotting Scope

Model	TSN-880 Series		TSN-550 Series		TSN-770 Series		TSN-660M Series	
	TSN-883	TSN-884	TSN-553	TSN-554	TSN-773	TSN-774	TSN-663M	TSN-664M
Objective Lens Effective Diameter	88mm	88mm	55mm	55mm	77mm	77mm	66mm	66mm
Objective Lens	Fluorite Crystal Lens		Fluorite Crystal Lens		XD Lens		XD Lens	
Minimum Focusing Distance	5 m	5 m	3 m	3 m	5 m	5 m	6 m	6 m
Length	343mm	329mm	271mm	288mm	318mm	304mm	311mm	311mm
Weight	1520g	1520g	810g	800g	1330g	1330g	1040g	1020g
Filter Thread	95mm	95mm	58mm	58mm	82mm	82mm	72mm	72mm

Model	TSN-600 Series		TSN-500 Series		TSN-82SV
	TSN-601	TSN-602	TSN-501	TSN-502	
Objective Lens Effective Diameter	60mm	60mm	50mm	50mm	82mm
Objective Lens	Normal Lens		Normal Lens		Normal Lens
Minimum Focusing Distance	6 m	6 m	2.5 m	2.5 m	6 m
Length	299mm	298mm	241mm	259mm	383mm
Weight	735g	720g	400g	400g	1490g
Filter Thread	67mm	67mm	55mm	55mm	86mm

* Mounting of commercially available filters is possible.

Telephoto Lens/Scope

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 104x296.5mm (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]

Model	TSN-880/770 Series				TSN-660M/600 Series						TSN-82SV		
	TE-11WZ		TE-20H		TE-9Z		TE-14WD		TE-17HD		TE-9Z	TE-14WD	TE-17HD
TSN-880	TSN-770	TSN-880	TSN-770	TSN-660M	TSN-600	TSN-660M	TSN-600	TSN-660M	TSN-600				
Magnification	25~60x WIDE ZOOM		25xLER		20~60xZOOM		30xWIDE		25xLER		21~63xZOOM	32xWIDE	27xLER
Field of View	2.4° ~1.32°		2.1°		1.9° ~1.0°		2.4°		2.1°		1.8° ~0.95°	2.2°	2.0°
Exit Pupil	3.5~1.5mm	3.1~1.3mm	3.5mm	3.1mm	3.3~1.1mm	3.0~1.0mm	2.2mm	2.0mm	2.6mm	2.4mm	3.9~1.3mm	2.6mm	3.0mm
Relative Brightness	12.3~2.3	9.6~1.7	12.3	9.6	10.9~1.2	9.0~1.0	4.8	4.0	6.8	5.8	6.8~1.7	6.8	9.0
Twilight Factor	46.9~72.7	43.9~68.0	46.1	43.9	36.3~62.9	34.6~60.0	44.5	42.4	40.6	38.7	41.5~71.9	51.2	47.1
Eye Relief	17mm		32.0mm		16.5~16.0mm		20.0mm		32.0mm		16.5~16mm	20mm	32mm
Field of View at 1000m	42~23m		37m		33~17m		42m		37m		31~17m	38m	35m

[Eyepiece]

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

* Mounting will be possible using the TSN-EC3.

[Photo Attachment]

Model	TSN-PZ				TSN-PA7A		TSN-PA8		
	TSN-880	TSN-770	TSN-660M	TSN-600	TSN-880/770	Telephoto Lens	TSN82SV	TSN660	TSN600
Supported Scopes	TSN-880	TSN-770	TSN-660M	TSN-600	TSN-880/770	Telephoto Lens	TSN82SV	TSN660	TSN600
Focal Length	680~1000mm	560~840mm	560~840mm	560~840mm	1000~2450mm	1100~2700mm	1150~3300mm	1050~2950mm	1050~2950mm
F Value	7.7~11.4	8.8~13.0	8.5~12.7	9.3~14.0	12.4~27.8 (880)	12.5~30.7	14~40.2	15.9~44.7	17.5~49.2
Minimum Focusing Distance	5m		6m		6m	5m	6m	6m	6m
Total Length	105mm				100mm		95mm		
Weight	350g				210g		200g		

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



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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