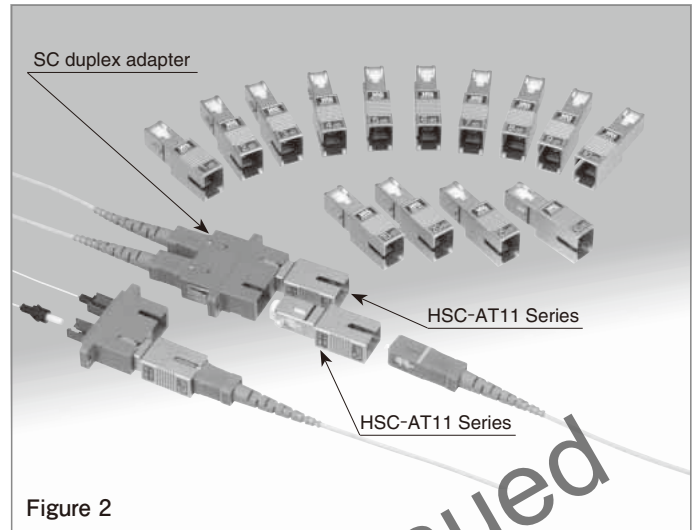
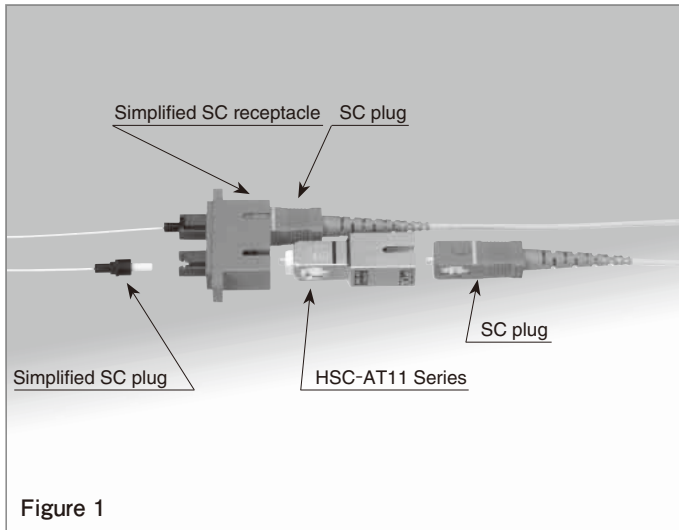


# SC Type Fixed Attenuators (for single mode)

## HSC-AT11 Series



### ■Features

1. SC Type : IEC 61754-4 (JIS C 5973)
2. For high input power : 250mW max
3. Ensure mating with simplified SC plug / receptacle. (figure 1).
4. Enables adjacently connection with horizontal duplex adapter. (figure 2)
5. AdPC, UPC and APC (Angled PC) polishing types are available.
6. Wide attenuation lineup. Both wavelength 1310nm & 1550nm are available.

### ■Applications

Power level adjustment of optical fiber communication networks.

## Product Specifications

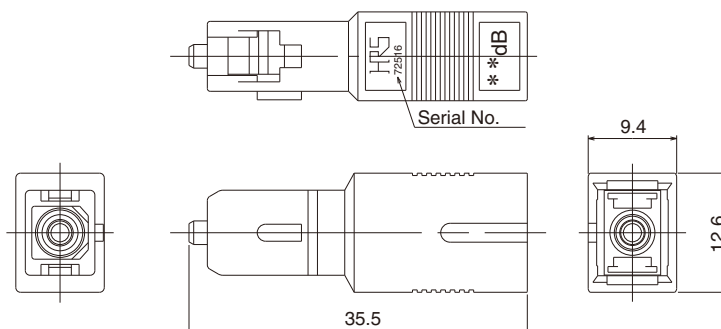
### AdPC (Advanced PC) Polishing type: Return Loss $\geq 40\text{dB}$

Ratings	Operating temperature range	-40°C to +75°C	Storage temperature range	-40°C to +85°C
	Max. Input Power	250mW	Fiber type	SM

Item		Test Method	Requirements
Optical Characteristics	Attenuation	Measurement at a point within wavelength of $1310\pm30$ nm and a point within wavelength of $1550\pm30$ nm.	See the attenuation table on the next page
	Return Loss		$\geq 40\text{dB}$
Mechanical Characteristics	Engagement and Separation forces	Engagement and separation forces at 50mm/s.	Engagement force $\leq 19.6\text{N}$ Separation force $\leq 19.6\text{N}$
	Gauge retention force	Zirconia gauge at $\phi 2.499 \pm 0.0005\text{mm}$ .	2.0N to 3.9N
	Durability	500 times	1)Attenuation and return loss shall be satisfied before and after the test. 2)No breakage, crack or looseness on components.
	Flex test	8.82N load, 100 cycles Telcordia GR-910-CORE	
	Twist test	13.23N load, 10 cycles Telcordia GR-910-CORE	
	Side test	12.25 N load, 90° angle Telcordia GR-910-CORE	
	Vibration	Frequency: 10 to 55 Hz, single amplitude of 0.75 mm, 3 hours in each of the 3 axis.	
	Impact test	Acceleration of 981 m/s <sup>2</sup> , 6 ms duration, half sine shock pulse, 3 cycles in each of the 3 axis.	
Environmental Characteristics	Heat/humidity cycles	Humidity : 90% to 96% Temperature : -10°C to 65°C Time : 480 hours(20 Cycles)	1)Attenuation and return loss shall be satisfied before and after the test. 2)No breakage, crack or looseness on components.
	Heat cycles	Temperature : -40°C to +80°C, 100 cycles	
	Dray heat	500 hours at 85°C.	
	Cold	500 hours at -40°C.	No significant corrosion.
	Salt mist	48 hours in a 5% concentration of salt mist	

## Materials

Part	Material
Body	Zinc alloy
Ferrule	Zirconia
Split sleeve	Zirconia



Part Number	CL No.	Attenuation	Attenuation Tolerance	Return Loss	Wavelength	Split Sleeve	Fiber type	Label color
HSC-AT11K-A00	820-6001-6	0dB	+0.4dB	$\geq 40\text{dB}$	1310nm 1550nm	Zirconia	SM	mauve
HSC-AT11K-A01	820-6002-9	1dB	$\pm 0.5\text{dB}$					
HSC-AT11K-A02	820-6003-1	2dB	$\pm 0.5\text{dB}$					
HSC-AT11K-A03	820-6004-4	3dB	$\pm 0.6\text{dB}$					
HSC-AT11K-A04	820-6005-7	4dB	$\pm 0.6\text{dB}$					
HSC-AT11K-A05	820-6006-0	5dB	$\pm 0.6\text{dB}$					
HSC-AT11K-A06	820-6007-2	6dB	$\pm 0.6\text{dB}$					
HSC-AT11K-A07	820-6013-5	7dB	$\pm 0.7\text{dB}$					
HSC-AT11K-A08	820-6014-8	8dB	$\pm 0.8\text{dB}$					
HSC-AT11K-A09	820-6015-0	9dB	$\pm 0.9\text{dB}$					
HSC-AT11K-A10	820-6008-5	10dB	$\pm 1.0\text{dB}$					
HSC-AT11K-A11	820-6016-3	11dB	$\pm 1.1\text{dB}$					
HSC-AT11K-A12	820-6017-6	12dB	$\pm 1.2\text{dB}$					
HSC-AT11K-A13	820-6018-9	13dB	$\pm 1.3\text{dB}$					
HSC-AT11K-A14	820-6019-1	14dB	$\pm 1.4\text{dB}$					
HSC-AT11K-A15	820-6009-8	15dB	$\pm 1.5\text{dB}$					
HSC-AT11K-A16	820-6020-0	16dB	$\pm 1.5\text{dB}$					
HSC-AT11K-A20	820-6010-7	20dB	$\pm 1.5\text{dB}$					
HSC-AT11K-A25	820-6011-0	25dB	$\pm 1.5\text{dB}$					
HSC-AT11K-A30	820-6012-2	30dB	$\pm 2.5\text{dB}$					

## Product Specifications

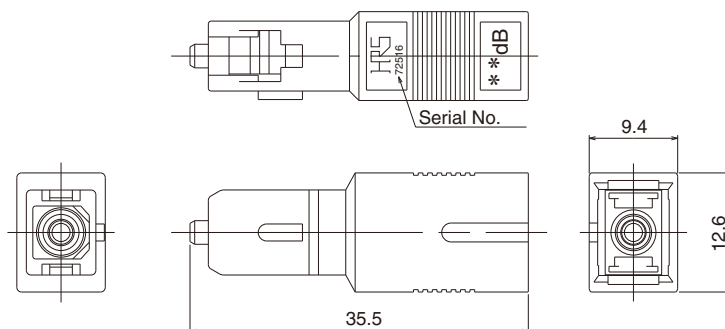
●UPC Polishing type : Return Loss  $\geq 50\text{dB}$

●APC Polishing type : Return Loss  $\geq 60\text{dB}$

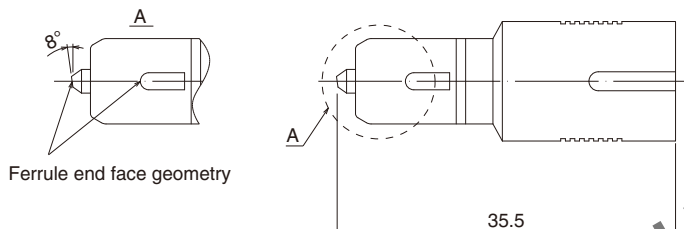
Ratings	Operating temperature range	-40°C to +75°C	Storage temperature range	-40°C to +85°C
	Max. Input Power	250mW	Fiber type	SMF

Item		Test Method (Telcordia GR-910-CORE)	Specifications	
	Polishing type		UPC	APC
			$\geq 50\text{dB}$	$\geq 60\text{dB}$
Optical characteristics	Attenuation	Measurement at a point within wavelength of $1310\pm 30\text{ nm}$ and a point within wavelength of $1550\pm 30\text{ nm}$ .	See the attenuation table on the next page	
	Return Loss		$\geq 50\text{dB}$	$\geq 60\text{dB}$
Environmental characteristics	Input power	Input power : 250mW(LD) Wavelength : 1470nm Time : 100 hours	1)After test, change in attenuation (fluctuation) and return loss shall be as follows. attenuation : $\leq 0.5\text{dB}$ return loss $\geq 50\text{dB}$  2)No distortion, package cracks, hardening or softening of materials, and also no damage to the attenuation element.	
	Controlled Operating Environment	Temperature : -5 to 50 °C Time : 182.5 hours Humidity : 15 to 90 %		
	Uncontrolled Operating Environment	Temperature : -40 to 75 °C Cycles : 21 cycles ( 8h/cycle)		
	Non-Operating Environment	Low-Temperature Exposure and Thermal Shock Temperature : 23 → -40 → -40 → 23 Time : 2.1h 72h 4min		
		High-Temperature Exposure and Thermal Shock Temperature : 23 → 70 → 70 → 23 Time : 1.6h 72h 5min		
		High Relative Humidity Exposure Temperature : 23 → 40 → 40 → 23 Time : 0.6h 96h 0.6h Humidity : 90 to 95 %		
	Humidity/Condensation Cycling Test	Temperature : -10 to 65 °C Humidity : 90 to 100 % Cycles : 12 cycles( 2h/cycle)		
	Water Immersion	Temperature : 43 °C Time : 168 h Water : PH 5.5		
	Vibration Test	Frequency range : 10 to 55 Hz Amplitude : 1.52mm Time : 2 hours in each 3 axis		
	Side Pull Load	Angle : 90 ° Load : 12.25 N		
Mechanical characteristics	Cable Retention	Load : 19.6N	1)During, after test, change in attenuation (fluctuation) and return loss shall be as follows. attenuation : $\leq 0.5\text{dB}$ return loss $\geq 50\text{dB}$  2)No distortion, package cracks, hardening or softening of materials, and also no damage to the attenuation element.	
	Durability	200 times		
	Impact Test	Drop the tested components from 1.8 m high to the concrete floor. 8 times in each 3 axis		

Note) APC polishing type isn't compatible with UPC polishing type.



(APC Polishing type)

**UPC Polishing type : Return Loss  $\geq 50$ dB**

Part Number	CL No.	Attenuation	Attenuation Tolerance	Return Loss	Wavelength	Split Sleeve	Fiber type	Label color
HSC-AT11U-A00	820-9500-2	0dB	+0.4dB	$\geq 50$ dB	1310nm 1550nm	Zirconia	SM	Dark blue
HSC-AT11U-A01	820-9501-5	1dB	$\pm 0.5$ dB					
HSC-AT11U-A02	820-9502-8	2dB	$\pm 0.5$ dB					
HSC-AT11U-A03	820-9503-0	3dB	$\pm 0.6$ dB					
HSC-AT11U-A04	820-9504-3	4dB	$\pm 0.6$ dB					
HSC-AT11U-A05	820-9505-6	5dB	$\pm 0.6$ dB					
HSC-AT11U-A06	820-9506-9	6dB	$\pm 0.6$ dB					
HSC-AT11U-A07	820-9507-1	7dB	$\pm 0.7$ dB					
HSC-AT11U-A08	820-9508-4	8dB	$\pm 0.8$ dB					
HSC-AT11U-A09	820-9509-7	9dB	$\pm 0.9$ dB					
HSC-AT11U-A10	820-9510-6	10dB	$\pm 1.0$ dB					
HSC-AT11U-A11	820-9511-9	11dB	$\pm 1.1$ dB					
HSC-AT11U-A12	820-9512-1	12dB	$\pm 1.2$ dB					
HSC-AT11U-A13	820-9513-4	13dB	$\pm 1.3$ dB					
HSC-AT11U-A14	820-9514-7	14dB	$\pm 1.4$ dB					
HSC-AT11U-A15	820-9515-0	15dB	$\pm 1.5$ dB					
HSC-AT11U-A16	820-9516-2	16dB	$\pm 1.5$ dB					
HSC-AT11U-A20	820-9517-5	20dB	$\pm 1.5$ dB					
HSC-AT11U-A25	820-9518-8	25dB	$\pm 1.5$ dB					
HSC-AT11U-A30	820-9519-0	30dB	$\pm 2.5$ dB					

**APC Polishing type : Return Loss  $\geq 60$ dB**

Part Number	CL No.	Attenuation	Attenuation Tolerance	Return Loss	Wavelength	Split Sleeve	Fiber type	Label color
HSC-AT11CS-A01	820-9001-2	1dB	+0.8dB	$\geq 60$ dB	1310nm 1550nm	Zirconia	SM	Green
HSC-AT11CS-A02	820-9002-5	2dB	$\pm 0.8$ dB					
HSC-AT11CS-A03	820-9003-8	3dB	$\pm 0.8$ dB					
HSC-AT11CS-A04	820-9004-0	4dB	$\pm 0.8$ dB					
HSC-AT11CS-A05	820-9005-3	5dB	$\pm 0.8$ dB					
HSC-AT11CS-A06	820-9006-6	6dB	$\pm 0.8$ dB					
HSC-AT11CS-A07	820-9007-9	7dB	$\pm 0.8$ dB					
HSC-AT11CS-A08	820-9008-1	8dB	$\pm 0.8$ dB					
HSC-AT11CS-A09	820-9009-4	9dB	$\pm 0.9$ dB					
HSC-AT11CS-A10	820-9010-3	10dB	$\pm 1.0$ dB					
HSC-AT11CS-A11	820-9011-6	11dB	$\pm 1.1$ dB					
HSC-AT11CS-A12	820-9012-9	12dB	$\pm 1.2$ dB					
HSC-AT11CS-A13	820-9013-1	13dB	$\pm 1.3$ dB					
HSC-AT11CS-A14	820-9014-4	14dB	$\pm 1.4$ dB					
HSC-AT11CS-A15	820-9015-7	15dB	$\pm 1.5$ dB					
HSC-AT11CS-A16	820-9016-0	16dB	$\pm 1.5$ dB					
HSC-AT11CS-A20	820-9017-2	20dB	$\pm 1.5$ dB					
HSC-AT11CS-A25	820-9018-5	25dB	$\pm 1.5$ dB					
HSC-AT11CS-A30	820-9019-8	30dB	$\pm 2.5$ dB					