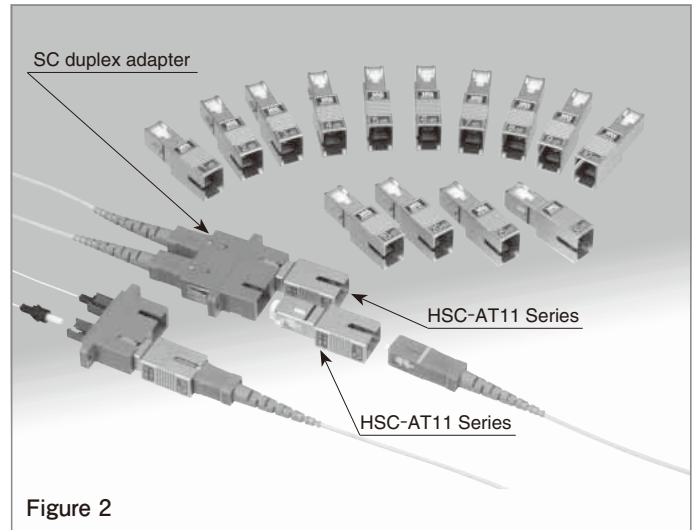
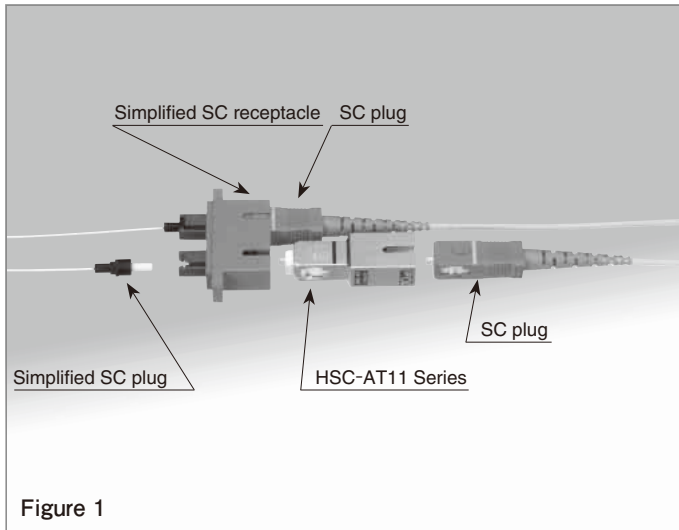


SC Type Fixed Attenuators (for single mode)

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

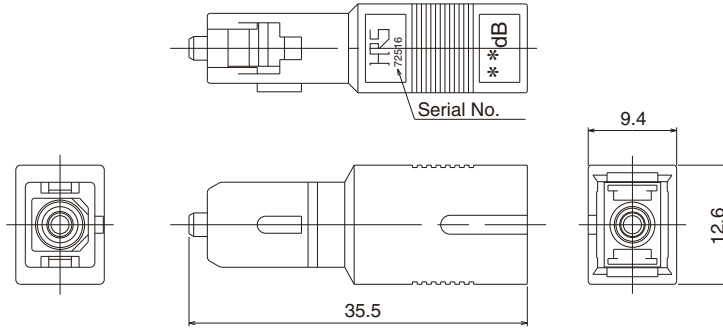
● AdPC (Advanced PC) Polishing type: Return Loss ≥ 40 dB

| | | | | |
|---------|-----------------------------|----------------|---------------------------|----------------|
| 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±30 nm and a point within wavelength of 1550±30 nm. | See the attenuation table on the next page |
| | Return Loss | | ≥ 40 dB |
| Mechanical Characteristics | Engagement and Separation forces | Engagement and separation forces at 50mm/s. | Engagement force ≤ 19.6 N Separation force ≤ 19.6 N |
| | Gauge retention force | Zirconia gauge at $\phi 2.499 \pm 0.0005$ 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 ² , 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. | |
| | Salt mist | 48 hours in a 5% concentration of salt mist | No significant corrosion. |

■ 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 | ≥40dB | 1310nm 1550nm | Zirconia | SM | mauve |
| HSC-AT11K-A01 | 820-6002-9 | 1dB | ±0.5dB | | | | | |
| HSC-AT11K-A02 | 820-6003-1 | 2dB | ±0.5dB | | | | | |
| HSC-AT11K-A03 | 820-6004-4 | 3dB | ±0.6dB | | | | | |
| HSC-AT11K-A04 | 820-6005-7 | 4dB | ±0.6dB | | | | | |
| HSC-AT11K-A05 | 820-6006-0 | 5dB | ±0.6dB | | | | | |
| HSC-AT11K-A06 | 820-6007-2 | 6dB | ±0.6dB | | | | | |
| HSC-AT11K-A07 | 820-6013-5 | 7dB | ±0.7dB | | | | | |
| HSC-AT11K-A08 | 820-6014-8 | 8dB | ±0.8dB | | | | | |
| HSC-AT11K-A09 | 820-6015-0 | 9dB | ±0.9dB | | | | | |
| HSC-AT11K-A10 | 820-6008-5 | 10dB | ±1.0dB | | | | | |
| HSC-AT11K-A11 | 820-6016-3 | 11dB | ±1.1dB | | | | | |
| HSC-AT11K-A12 | 820-6017-6 | 12dB | ±1.2dB | | | | | |
| HSC-AT11K-A13 | 820-6018-9 | 13dB | ±1.3dB | | | | | |
| HSC-AT11K-A14 | 820-6019-1 | 14dB | ±1.4dB | | | | | |
| HSC-AT11K-A15 | 820-6009-8 | 15dB | ±1.5dB | | | | | |
| HSC-AT11K-A16 | 820-6020-0 | 16dB | ±1.5dB | | | | | |
| HSC-AT11K-A20 | 820-6010-7 | 20dB | ±1.5dB | | | | | |
| HSC-AT11K-A25 | 820-6011-0 | 25dB | ±1.5dB | | | | | |
| HSC-AT11K-A30 | 820-6012-2 | 30dB | ±2.5dB | | | | | |

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Product Specifications

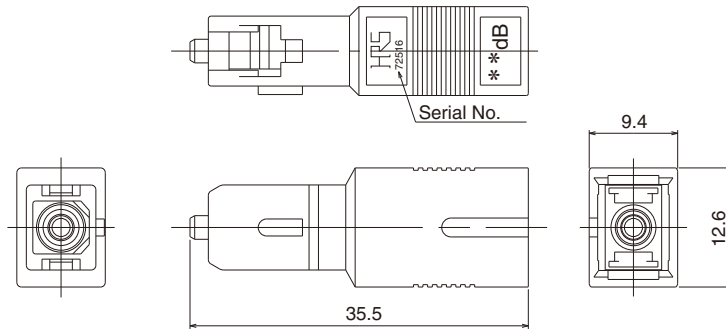
● UPC Polishing type : Return Loss \geq 50dB

● APC Polishing type : Return Loss \geq 60dB

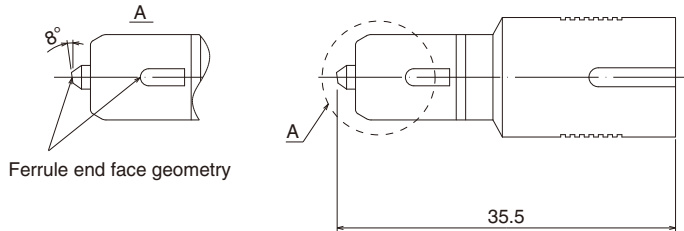
| | | | | |
|---------|-----------------------------|----------------|---------------------------|----------------|
| Ratings | Operating temperature range | -40°C to +75°C | Storage temperature range | -40°C to +85°C |
| | Max. Input Power | 250mW | Fiber type | SMF |

| Item | | Test Method (Telcordia GR-910-CORE) | Specifications | |
|------------------------------------|---|---|--|-------------|
| | Polishing type | | UPC | APC |
| Optical characteristics | Attenuation | Measurement at a point within wavelength of 1310±30 nm and a point within wavelength of 1550±30 nm. | See the attenuation table on the next page | |
| | Return Loss | | \geq 50dB | \geq 60dB |
| | Input power | Input power : 250mW(LD) Wavelength : 1470nm Time : 100 hours | <p>1) After test, change in attenuation (fluctuation) and return loss shall be as follows. attenuation : \leq0.5dB return loss \geq50dB</p> <p>2) No distortion, package cracks, hardening or softening of materials, and also no damage to the attenuation element.</p> | |
| Environmental characteristics | 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 | | |
| Humidity/Condensation Cycling Test | High Relative Humidity Exposure Temperature : 23 → 40 → 40 → 23 Time : 0.6h 96h 0.6h Humidity : 90 to 95 % | | | |
| Water Immersion | Temperature : -10 to 65 °C Humidity : 90 to 100 % Cycles : 14 cycles(12h/cycle) | | | |
| Mechanical characteristics | Vibration Test | Temperature : 43 °C Time : 168 h Water : PH 5.5 | | |
| | Side Pull Load | Frequency range : 10 to 55 Hz Amplitude : 1.52mm Time : 2 hours in each 3 axis | | |
| | Cable Retention | Angle : 90 ° Load : 12.25 N | | |
| | Durability | Load : 19.6N | | |
| | Impact Test | 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 50dB

| 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 50dB | 1310nm 1550nm | Zirconia | SM | Dark blue |
| HSC-AT11U-A01 | 820-9501-5 | 1dB | \pm 0.5dB | | | | | |
| HSC-AT11U-A02 | 820-9502-8 | 2dB | \pm 0.5dB | | | | | |
| HSC-AT11U-A03 | 820-9503-0 | 3dB | \pm 0.6dB | | | | | |
| HSC-AT11U-A04 | 820-9504-3 | 4dB | \pm 0.6dB | | | | | |
| HSC-AT11U-A05 | 820-9505-6 | 5dB | \pm 0.6dB | | | | | |
| HSC-AT11U-A06 | 820-9506-9 | 6dB | \pm 0.6dB | | | | | |
| HSC-AT11U-A07 | 820-9507-1 | 7dB | \pm 0.7dB | | | | | |
| HSC-AT11U-A08 | 820-9508-4 | 8dB | \pm 0.8dB | | | | | |
| HSC-AT11U-A09 | 820-9509-7 | 9dB | \pm 0.9dB | | | | | |
| HSC-AT11U-A10 | 820-9510-6 | 10dB | \pm 1.0dB | | | | | |
| HSC-AT11U-A11 | 820-9511-9 | 11dB | \pm 1.1dB | | | | | |
| HSC-AT11U-A12 | 820-9512-1 | 12dB | \pm 1.2dB | | | | | |
| HSC-AT11U-A13 | 820-9513-4 | 13dB | \pm 1.3dB | | | | | |
| HSC-AT11U-A14 | 820-9514-7 | 14dB | \pm 1.4dB | | | | | |
| HSC-AT11U-A15 | 820-9515-0 | 15dB | \pm 1.5dB | | | | | |
| HSC-AT11U-A16 | 820-9516-2 | 16dB | \pm 1.5dB | | | | | |
| HSC-AT11U-A20 | 820-9517-5 | 20dB | \pm 1.5dB | | | | | |
| HSC-AT11U-A25 | 820-9518-8 | 25dB | \pm 1.5dB | | | | | |
| HSC-AT11U-A30 | 820-9519-0 | 30dB | \pm 2.5dB | | | | | |

APC Polishing type : Return Loss \geq 60dB

| 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 60dB | 1310nm 1550nm | Zirconia | SM | Green |
| HSC-AT11CS-A02 | 820-9002-5 | 2dB | \pm 0.8dB | | | | | |
| HSC-AT11CS-A03 | 820-9003-8 | 3dB | \pm 0.8dB | | | | | |
| HSC-AT11CS-A04 | 820-9004-0 | 4dB | \pm 0.8dB | | | | | |
| HSC-AT11CS-A05 | 820-9005-3 | 5dB | \pm 0.8dB | | | | | |
| HSC-AT11CS-A06 | 820-9006-6 | 6dB | \pm 0.8dB | | | | | |
| HSC-AT11CS-A07 | 820-9007-9 | 7dB | \pm 0.8dB | | | | | |
| HSC-AT11CS-A08 | 820-9008-1 | 8dB | \pm 0.8dB | | | | | |
| HSC-AT11CS-A09 | 820-9009-4 | 9dB | \pm 0.9dB | | | | | |
| HSC-AT11CS-A10 | 820-9010-3 | 10dB | \pm 1.0dB | | | | | |
| HSC-AT11CS-A11 | 820-9011-6 | 11dB | \pm 1.1dB | | | | | |
| HSC-AT11CS-A12 | 820-9012-9 | 12dB | \pm 1.2dB | | | | | |
| HSC-AT11CS-A13 | 820-9013-1 | 13dB | \pm 1.3dB | | | | | |
| HSC-AT11CS-A14 | 820-9014-4 | 14dB | \pm 1.4dB | | | | | |
| HSC-AT11CS-A15 | 820-9015-7 | 15dB | \pm 1.5dB | | | | | |
| HSC-AT11CS-A16 | 820-9016-0 | 16dB | \pm 1.5dB | | | | | |
| HSC-AT11CS-A20 | 820-9017-2 | 20dB | \pm 1.5dB | | | | | |
| HSC-AT11CS-A25 | 820-9018-5 | 25dB | \pm 1.5dB | | | | | |
| HSC-AT11CS-A30 | 820-9019-8 | 30dB | \pm 2.5dB | | | | | |

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