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Singlemode Build Out Attenuators

Product Facts

- A range of fixed attenuation values. Standard values of 1 through 20 and 25dB
- UPC and APC offer Excellent Return Loss
- FC, SC, ST, and D4 styles
- Attenuation is wavelength independent and polarization insensitive
- Low PDL
- Low modal noise
- Long term reliability
- Very low reflectance
- Excellent Price/Performance
- Vibration resistant
- Single and Dual Window
- Designed to comply with Telcordia GR-910

Applications

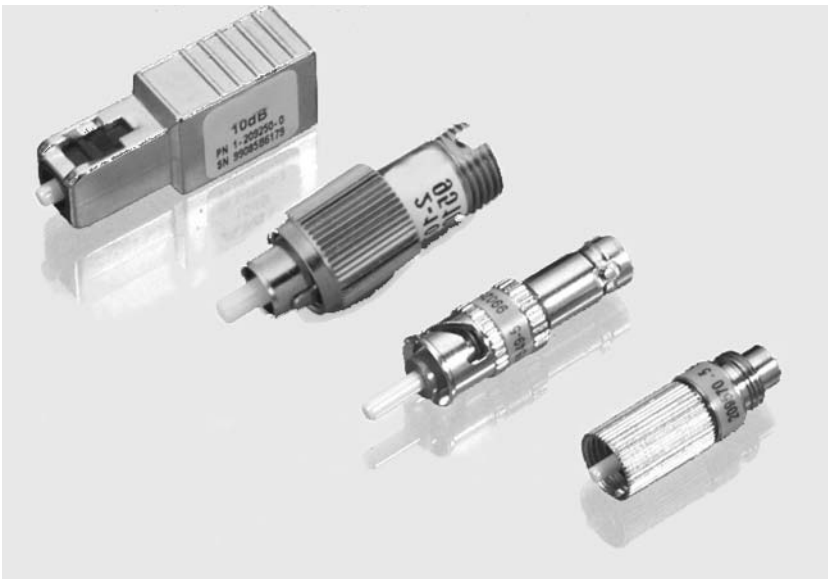
- Power leveling in DWDM transmission systems
- Test and Measurement
- Power attenuation at the receiver

Available Collateral

- Application Specification 114-13055
- Product Specification 108-2099
- Test reports qualifying product to Telcordia GR-910
- Customer Drawings

Customizable Features

- Attenuation tolerance
- Attenuation values in 1dB increments
- Labeling
- Kitting/Packaging
- Wavelength Dependent Loss
- Reflectance:
  - UPC to -55 dB max.
  - APC to -65 dB max.
- Pass Band



Tyco Electronics' high performance Build Out Attenuators utilize a unique all-fiber construction to absorb the optical signal.

By employing a Tyco Electronics' technology, the design minimizes reflectance, attenuation tolerance, and PDL while maximizing reliability, environmental stability, and power handling. There are no filters, air gaps, or core mismatches.

Specifications

Attenuation Values —
1-20dB and 25 dB (Fixed)

Reflectance —
≤ -55 and -60dB for UPC and APC polish, respectively

Operating Temperature —
-40°C to +75°C

Vibration Resistance —
< 0.1 x attenuation

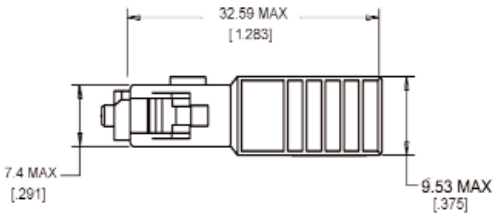
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Attenuators (Continued)

Singlemode SC Attenuators, Build Out Style, Fixed Value

SC/UPC



Note: Additional attenuation values available upon request.

Dual Window Attenuators

Operating Wavelength 1310/1550nm ±25nm

Attenuation (dB)	Part Number
0	9-209943-9
1	209943-1
2	209943-2
3	209943-3
4	209943-4
5	209943-5
6	209943-6
7	209943-7
8	209943-8
9	209943-9
10	1-209943-0
11	1-209943-1
12	1-209943-2
13	1-209943-3
14	1-209943-4
15	1-209943-5
16	1-209943-6
17	1-209943-7
18	1-209943-8
19	1-209943-9
20	2-209943-0
25	2-209943-5

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .10 x nominal attenuation value
< 5 dB: ± 0.50 dB
Reflectance ≤ -55 dB

Bandpass Attenuators

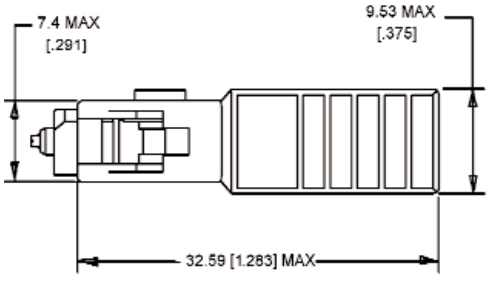
Operating Wavelength 1260-1360 nm & 1430-1625nm

Attenuation (dB)	Part Number
0	9-209250-9
1	209250-1
2	209250-2
3	209250-3
4	209250-4
5	209250-5
6	209250-6
8	209250-8
10	1-209250-0
12	1-209250-2
15	1-209250-5
18	1-209250-8
20	2-209250-0
25	2-209250-5

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .15 x nominal attenuation value
< 5 dB: ± 0.75 dB
Reflectance ≤ -55 dB

Singlemode SC Attenuators, Build Out Style Fixed Value

SC/APC 8°



Note: Additional attenuation values available upon request.

* 9° APC Available (417496-X)

Dual Window Attenuators

Operating Wavelength 1310/1550nm ±25nm

Attenuation (dB)	Part Number
1	209597-1
2	209597-2
3	209597-3
4	209597-4
5	209597-5
6	209597-6
10	1-209597-0
12	1-209597-2
15	1-209597-5
18	1-209597-8
20	2-209597-0
25	2-209597-5

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .10 x nominal attenuation value
< 5 dB: ± 0.50 dB
Reflectance ≤ -60 dB

Bandpass Attenuators

Operating Wavelength 1260-1360nm & 1430-1625nm

Attenuation (dB)	Part Number
1	417021-1
2	417021-2
3	417021-3
4	417021-4
5	417021-5
6	417021-6
10	1-417021-0
12	1-417021-2
15	1-417021-5
18	1-417021-8
20	2-417021-0
25	2-417021-5

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .15 x nominal attenuation value
< 5 dB: ± 0.75 dB
Reflectance ≤ -60 dB

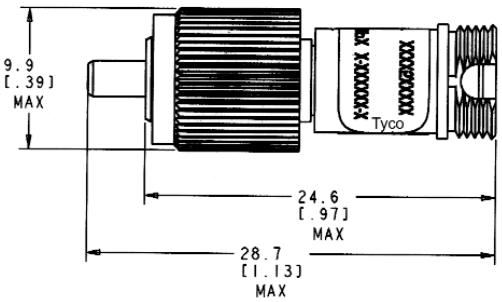
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Attenuators (Continued)

Singlemode
FC Attenuators, Build Out
Style, Fixed Value

FC/UPC



Note: Additional attenuation values available upon request.

Dual Window Attenuators

Operating Wavelength
1310/1550nm ±25nm

Attenuation (dB)	Part Number
1	209948-1
2	209948-2
3	209948-3
4	209948-4
5	209948-5
6	209948-6
8	209948-8
9	209948-9
10	1-209948-0
12	1-209948-2
13	1-209948-3
15	1-209948-5
18	1-209948-8
20	2-209948-0
25	2-209948-5

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .10 x nominal attenuation value
< 5 dB: ± 0.50 dB
Reflectance ≤ -55 dB

Bandpass Attenuators

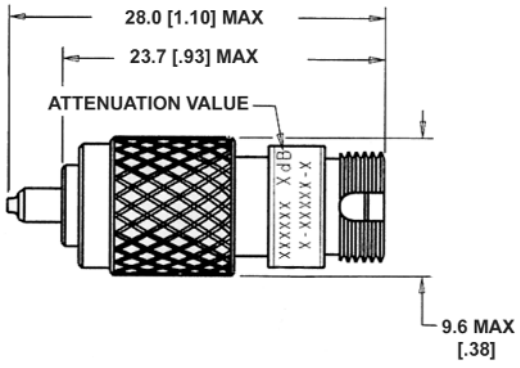
Operating Wavelength
1260-1360nm & 1430-1625nm

Attenuation (dB)	Part Number
0	9-209285-9
1	209285-1
2	209285-2
3	209285-3
4	209285-4
5	209285-5
6	209285-6
7	209285-7
10	1-209285-0
12	1-209285-2
15	1-209285-5
18	1-209285-8
20	2-209285-0
25	2-209285-5

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .15 x nominal attenuation value
< 5 dB: ± 0.75 dB
Reflectance ≤ -55 dB

Singlemode
FC Attenuators, Build Out
Style, Fixed Value

FC/APC (8°)



Note: Additional attenuation values available upon request.

Dual Window Attenuators

Operating Wavelength
1310/1550nm ±25nm

Attenuation (dB)	Part Number
1	209845-1
2	209845-2
3	209845-3
4	209845-4
5	209845-5
6	209845-6
10	1-209845-0
12	1-209845-2
15	1-209845-5
18	1-209845-8
20	2-209845-0
25	2-209845-5

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .10 x nominal attenuation value
< 5 dB: ± 0.50 dB
Reflectance ≤ -60 dB

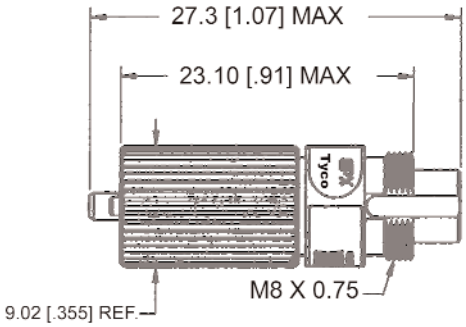
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Attenuators (Continued)

Singlemode
D4 Attenuators, Build Out
Style, Fixed Value

D4/PC



Note: Additional attenuation values available upon request.

Dual Window Attenuators

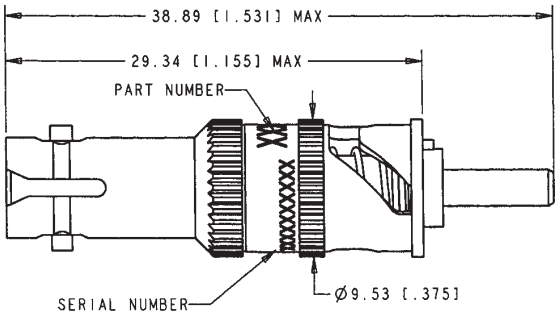
Operating Wavelength 1310/1550nm ±25nm

Attenuation (dB)	Part Number
5	209570-5
10	1-209570-0
15	1-209570-5
20	2-209570-0

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .15 x nominal attenuation value
< 5 dB: ± 0.75 dB
Reflectance ≤ -45 dB

Singlemode
ST Attenuators, Build Out
Style, Fixed Value

ST/UPC



Dual Window Attenuators

Operating Wavelength 1310/1550nm ±25nm

Attenuation (dB)	Part Number
1	417549-1
2	417549-2
3	417549-3
4	417549-4
5	417549-5
6	417549-6
10	1-417549-0
12	1-417549-2
15	1-417549-5
18	1-417549-8
20	2-417549-0
25	2-417549-5

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .15 x nominal attenuation value
< 5 dB: ± 0.75 dB
Reflectance ≤ -55 dB

Bandpass Attenuators

Operating Wavelength 1260-1360nm & 1430-1625nm

Attenuation (dB)	Part Number
0	9-417399-9
1	417399-1
2	417399-2
3	417399-3
4	417399-4
5	417399-5
6	417399-6
10	1-417399-0
12	1-417399-2
15	1-417399-5
18	1-417399-8
20	2-417399-0
25	2-417399-5

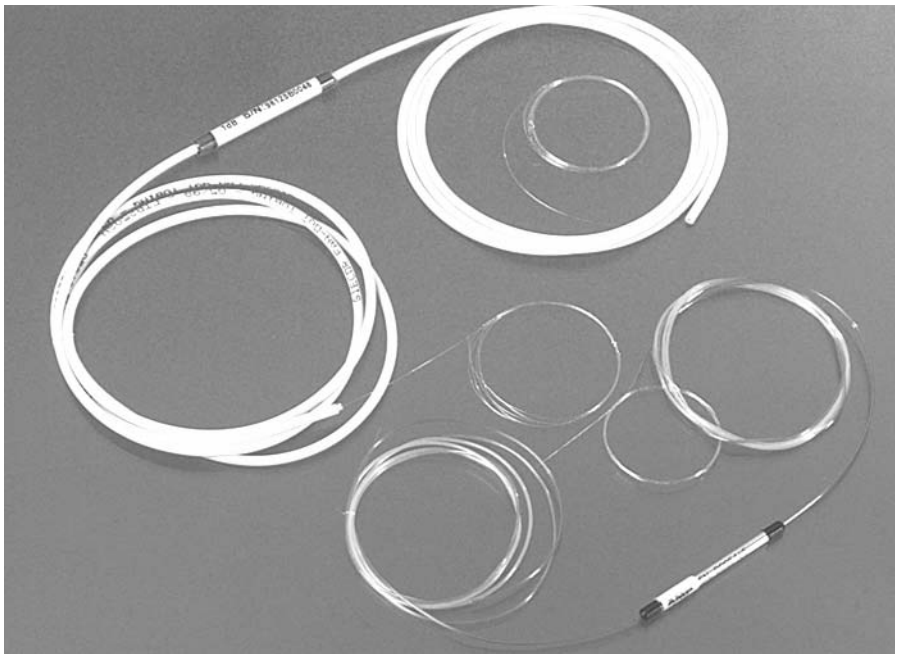
Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .15 x nominal attenuation value
< 5 dB: ± 0.75 dB
Reflectance ≤ -55 dB

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Attenuators (Continued)

In Line Attenuators



Product Facts

- **A range of fixed attenuation values. Standard values of 1 through 20, and 25 dB**
- **UPC and APC offer Excellent Return Loss**
- **Attenuation is wavelength independent and polarization insensitive**
- **Low PDL**
- **Low modal noise**
- **Long term reliability**
- **≤ -60dB Reflectance (unconnectorized)**
- **Low cost**
- **Vibration resistant**
- **Single and Dual Window**
- **Designed to comply with Telcordia GR-910**

Applications

- **Power leveling in DWDM transmission systems**
- **Test and Measurement**
- **Power attenuation at the receiver**

Available Collateral

- **Product Specification 108-2103 Heavy Duty 3mm cable 108-2130 Medium Duty 900µm cable**
- **Product designed to meet Telcordia GR-910**
- **Customer Drawings**

Customizable Features

- **Lead lengths**
- **Connectorized types, including SC, FC, ST, LC, and MU**
- **LC and MU available in Medium Duty (900 µm cable) only**
- **Available in Heavy Duty (3mm cable) and Medium Duty (900 µm cable)**

Tyco Electronics' high performance In Line Attenuators utilize a unique all fiber construction to absorb the optical signal.

By employing a Tyco Electronics' technology, the design minimizes reflectance, attenuation tolerance, and PDL while maximizing reliability, environmental stability, and power handling. There are no filters, air gaps, or core mismatches.

Specifications

Attenuation Values —
1-20dB and 25 dB (Fixed)

Reflectance —
≤ -55 and -60dB for UPC and APC polish, respectively

Operating Temperature —
-40°C to +75°C

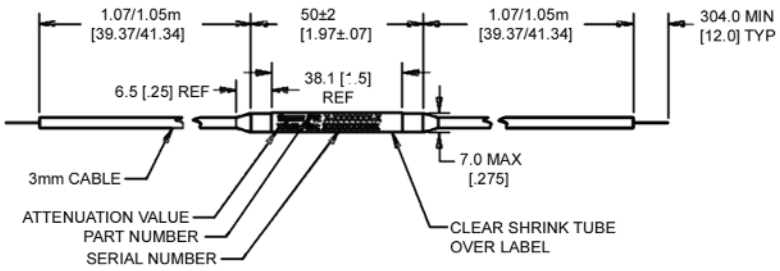
Vibration Resistance —
< 0.1 x attenuation

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Attenuators (Continued)

Singlemode In Line Attenuators, Heavy Duty (3mm cable), Fixed Value



Connector Type	Base Number	Reflectance
SC - SC	1588517	≤ -55 dB
FC - FC	1431254	≤ -55 dB

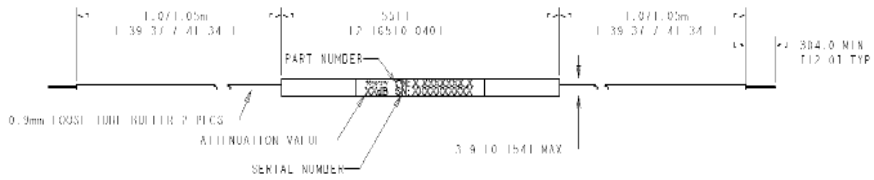
Dual Window In Line Attenuators

Operating Wavelength 1310/1550nm ±25nm

Attenuation (dB)	Part Number
1	Base Number -1
2	Base Number -2
3	Base Number -3
4	Base Number -4
5	Base Number -5
6	Base Number -6
7	Base Number -7
8	Base Number -8
9	Base Number -9
10	1- Base Number -0
11	1- Base Number -1
12	1- Base Number -2
13	1- Base Number -3
14	1- Base Number -4
15	1- Base Number -5
16	1- Base Number -6
17	1- Base Number -7
18	1- Base Number -8
19	1- Base Number -9
20	2- Base Number -0
25	2- Base Number -5

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .10 x nominal attenuation value
< 5 dB: ± 0.50 dB

Singlemode In Line Attenuators, Medium Duty (900 µm cable), Fixed Value



Connector Type	Base Number	Reflectance
SC - SC	1588566	≤ -55 dB
FC - FC	1588565	≤ -55 dB
LC - LC	1588564	≤ -50 dB
None	1321273*	≤ -60 dB

*** Note:** Only available in 5, 10, 15, and 20 dB Attenuation.

Dual Window In Line Attenuators

Operating Wavelength 1310/1550nm ±25nm

Attenuation (dB)	Part Number
1	Base Number -1
2	Base Number -2
3	Base Number -3
4	Base Number -4
5	Base Number -5
6	Base Number -6
7	Base Number -7
8	Base Number -8
9	Base Number -9
10	1- Base Number -0
11	1- Base Number -1
12	1- Base Number -2
13	1- Base Number -3
14	1- Base Number -4
15	1- Base Number -5
16	1- Base Number -6
17	1- Base Number -7
18	1- Base Number -8
19	1- Base Number -9
20	2- Base Number -0
25	2- Base Number -5

Note: Attenuation Tolerance, Ambient
≥ 5 dB: ± .10 x nominal attenuation value
< 5 dB: ± 0.50 dB

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Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

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