

2 x 4 Couplers

For use with the HLP 1000 platform

Balanced and Unbalanced Couplers:

- Return Loss:
 - ≥ 55 dB including APC connectors
 - ≥ 50 dB including UPC connectors
- Polarization dependent loss: ≤ 0.2 dB
- Fiber type internal to module: SMF-28
- Operating wavelength: 1290-1330 and 1530-1570 nm
- Directivity: ≥ 55 dB

Environmental

- Operating temperature: -40° to 75°C
- Storage temperature: -40° to 85°C

Optical Specifications for Balanced Couplers:

Split percentage:	25%		
Tolerance:	± 2%		
Insertion loss (dB):	Max	Nom.	Min.
Excluding connector losses	7.0	6.5	6.1
Including connector losses	7.6	6.5	6.1

Optical Specifications for Unbalanced Couplers:

Split Ratio (%)	Tolerance (± x%)	Insertion Loss (dB)		
		Max.*	Nom.	Min.
5	1.2	15.3	13.5	12.5
10	1.5	11.8	10.5	9.8
15	2.0	9.9	8.7	8.1
20	2.0	8.5	7.4	7.0
25	2.0	7.4	6.5	6.1
30	2.0	6.6	5.7	5.4
35	2.0	5.9	5.0	4.8
40	2.0	5.3	4.4	4.2
45	2.0	4.7	3.9	3.7

* Including connectors

Configuration Information

2 x 4 Balanced Couplers:

- Model: HLS 1204-xy
- xy= AF, FC/APC
- AS, SC/APC
- UF, FC/UPC
- US, SC/UPC
- AE, E2000/APC

2 x 4 Unbalanced Couplers:

- Model: HLS 1204-yz-x₁, x₂, x₃, x₄
- yz= AF, FC/APC
- AS, SC/APC
- UF, FC/UPC
- US, SC/UPC
- AE, E2000/APC

The symbols x₁, x₂, x₃ and x₄ denote output power split percentages. Split percentages are always listed in decreasing order (highest percentage first). The possible split percentages correspond to the following codes:

Split percentage	Symbol
5%	1
10%	2
15%	3
20%	4
25%	5
30%	6
35%	7
40%	8
45%	9

Example: Module with SC/APC connectors and output split percentages of 45%, 5%, 30% and 20% would have the model number:

HLS 1204-AS-9164-1

Optical Passive Devices

Attenuators

For use in Harmonic's forward and return path receiver products and the METROLink™ DWDM system

Configuration Information

Model: ATNMNxx-yy
 xx= dB of attenuation 01-13 dB
 yy= AF, FC/APC
 AS, SC/APC
 UF, FC/UPC
 US, SC/UPC

Attenuation accuracy: Values 1-5 dB: $\pm 15\%$
 Values 6-13 dB: $\pm .75$ dB

Environmental

Operating temperature: -40° to 75° C
 Operating wavelength range: 1310 and 1550nm ± 25 nm

2 x 2 Couplers

For use with the HLP 1000 platform

Configuration Information

Model: HLS 1202-xy
 xy= AF, FC/APC
 AS, SC/APC
 UF, FC/UPC
 US, SC/UPC
 AE, E2000/APC

Optical Specifications

Insertion Loss:
 Max: 4.0 dB including connector losses
 Excess Loss: ≤ 0.2 dB
 Return Loss: ≥ 55 dB including APC connectors
 ≥ 50 dB including UPC connectors
 Polarization dependent loss: ≤ 0.2 dB
 Fiber type internal to module: SMF-28
 Operating wavelength: 1290-1330 and 1530-1570 nm
 Directivity: ≥ 55 dB

Environmental

Operating temperature: -40° to 75° C
 Storage temperature: -40° to 85° C

CWDM Coupler

For use with the HLP 1000 platform

Configuration Information

Model: WDMC-xy
 xy= AF, FC/APC
 AS, SC/APC
 UF, FC/UPC
 US, SC/UPC
 AE, E2000/APC

Optical Specifications

Insertion Loss:
 Max: ≤ 0.9 dB including connector losses
 Isolation (centered at 1310 and 1550 nm)
 ≥ 17 dB in passbands of ± 15 nm
 ≥ 20 dB in passbands of ± 10 nm
 Return Loss: ≥ 55 dB including APC connectors
 ≥ 50 dB including UPC connectors
 Polarization dependent loss: ≤ 0.2 dB
 Fiber type internal to module: SMF-28
 Operating wavelength range: 1310 and 1550 nm ± 15 nm
 Directivity: ≥ 55 dB

Environmental

Operating temperature: -40° to 75° C
 Storage temperature: -40° to 85° C