

## Single Polarized Hybrids for 4 Outdoor Radio Units (6 dB nominal coupling<sup>1</sup>)

### Electrical Specification

<i>Operating Frequency Band</i>	13 GHz	15 GHz	18 GHz	23 GHz	26 GHz	28 GHz
<i>Operating Frequency Range</i>	12.750–13.250 GHz	14.200–15.350 GHz	17.700–19.700 GHz	21.200–23.600 GHz	24.500–26.500 GHz	27.500–29.500 GHz
<i>Insertion Loss</i>	7.4 dB	7.4 dB	7.4 dB	7.4 dB	8.0 dB	8.0 dB
<i>Inter-Port Isolation</i>	20 dB	20 dB	20 dB	20 dB	20 dB	20 dB
<i>Return Loss</i>	-17.7 dB	-17.7 dB	-17.7 dB	-17.7 dB	-17.7 dB	-17.7 dB
<i>Interface</i> <sup>2</sup> <i>antenna side</i>	Upon Customer's Request					
<i>Interfaces</i> <sup>3</sup> <i>ODU side</i>	Upon Customer's Request					

### Mechanical Specification

<i>Net Weight</i> <sup>4</sup>	7.0 kg	7.0 kg	7.0 kg	7.0 kg	7.0 kg	7.0 kg
<i>Material</i>	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium

### Electrical Specification

<i>Operating Frequency Band</i>	32 GHz	38 GHz
<i>Operating Frequency Range</i>	31.000–33.400 GHz	37.000–39.500 GHz
<i>Insertion Loss</i>	8.0 dB	8.0 dB
<i>Inter-Port Isolation</i>	20 dB	20 dB
<i>Return Loss</i>	-17.7 dB	-17.7 dB
<i>Interface</i> <sup>2</sup> <i>antenna side</i>	Upon Customer's Request	
<i>Interfaces</i> <sup>3</sup> <i>ODU side</i>	Upon Customer's Request	

### Mechanical Specification

<i>Net Weight</i> <sup>4</sup>	7.0 kg	7.0 kg
<i>Material</i>	Aluminium	Aluminium



(3+1) system under construction  
(2 ODUs installed)



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<sup>1</sup> Different coupling coefficients are available upon request.

<sup>2</sup> Direct and separate mounting is available upon request.

<sup>3</sup> Coaxial cable connector, standard waveguide flange or any ODU interface is available upon request.

<sup>4</sup> Approximate value (net weight depends on the required interfaces).

# Ordering Information

## Single Polarized Hybrids for 4 Outdoor Radio Units

### Product Identification

1	2	3	4	5	6
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**1 Mounting at Antenna Side** *I* – Integrated (direct mount)  
*S* – Separated (separate mount)

**2 Product Type** *SH* – Single polarized hybrid

**3 Frequency Band** Operational frequency in GHz, multiplied by 10.  
If the hybrid is wideband, or the operational frequency range is not commonly used, the minimum and the maximum operational frequency is indicated here.

**4 Interface at ODU side** Number and type of connecting interfaces.

- NEC* – NEC Pasolink Interface (for most recent and/or most popular NEC ODU)  
Please note that this field requires further specification in some cases (e.g. at lower frequencies).
- V23* – NEC Pasolink Interface (V23 = V2&V3)
- DW* – DragonWave Horizon Interface
- F* – Nokia Flexihopper Interface
- I* – Intracom Intralink Interface
- R2* – Ericsson Mini-Link Interface (RAU12 = RAU1&RAU2)
- SG* – Sagem Interface
- SIAE* – SIAE Interface
- S* – Siemens Interface
- ... – Standard Waveguide Flange (according to IEC 60154-2)  
Flange material (aluminium or brass) has to be specified.
- etc.* – Any other interface is available upon request.

**5 Coupling Coefficient** *6* – 6 dB coupling (25%)  
*etc.* – Any other coupling coefficient is available upon request.

**6 Interface at Antenna Side** *U* – Universal interface  
The hybrid can be directly attached to the back of the direct mounted antenna, i.e. single ODU (1+0) system can be upgraded to (4+0) or (3+1) or (2+2) system.

- ... – Standard Waveguide Flange (according to IEC 60154-2)  
Flange material (aluminium or brass) has to be specified.
- etc.* – Any other interface is available upon request.  
For example: Sagem antenna interface with NEC ODU interface.



*I SH 180 4NEC 6 U*

### Examples

*I SH 180 4NEC 6 U*

- I* – integrated mount to the antenna
- SH* – single polarized hybrid
- 180* – frequency band: 18 GHz  
frequency range: 17.700 – 19.700 GHz
- 4NEC* – four NEC ODU interfaces (currently: NEO)
- 6* – 6 dB nominal coupling
- U* – universal antenna interface  
(1+0) system with NEC ODU is upgraded to (3+1) system

*S SH 130 4SIAE 6 PDR140(Alu)*

- S* – separate mount to the antenna
- SH* – single polarized hybrid
- 130* – frequency band: 13 GHz  
frequency range: 12.750 – 13.250 GHz
- 4SIAE* – four SIAE interfaces at ODU side
- 6* – 6 dB nominal coupling
- PDR140(Alu)* – PDR140 aluminium interface at antenna side  
Antenna is connected to the hybrid with flexible waveguide (separate mount).