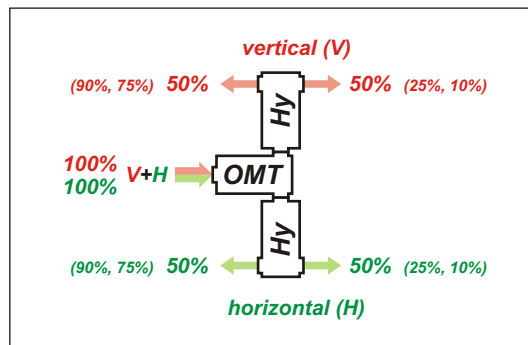


Dual Polarized Hybrids for 4 Outdoor Radio Units

DH-4ODU Series

Introduction

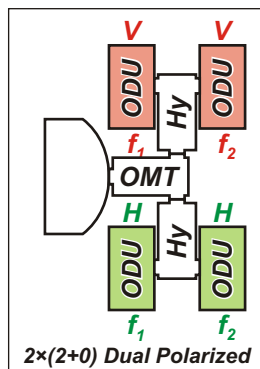
Dual polarized hybrids are 5-port microwave systems that split the input power into four parts (based on polarization separation and equipolar decoupling), consequently, allow the simultaneous operation of four outdoor radio units (ODUs). Since the devices provide high inter-port isolation and low return loss, their application together with high performance antennas lead to use of four independent transmission channels on a single antenna at the same time.



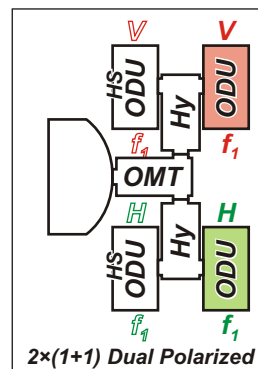
DH-4ODU consists of one OMT (for polarization separation), and two hybrids (for equipolar decoupling)

Application

Dual Polarized Hybrids can be directly mounted on antennas that have circular waveguide connector. Alternatively, if the antenna is not ready for direct mount, and the feed system itself contains an integrated orthomode transducer, the separate mounted version of the system can be applied. The interfaces on the ODU sides are upon customer's request (coaxial cable connector, standard waveguide flange, ODU interface or any special request).



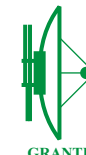
4-fold Capacity



Double Capacity and High Reliability



Direct mounted 2x(1+1) system



Dual Polarized Hybrids for 4 Outdoor Radio Units

Electrical Specification

Operating Frequency Band	11 GHz	11 GHz	11 GHz	13 GHz	13 GHz	13 GHz
Operating Frequency Range	10.700–11.700 GHz	10.700–11.700 GHz	10.700–11.700 GHz	12.750–13.250 GHz	12.750–13.250 GHz	12.750–13.250 GHz
Insertion Loss ¹ main V,H	4.5 dB	2.7 dB	2.0 dB	4.5 dB	2.7 dB	2.0 dB
Insertion Loss ¹ standby V,H	4.5 dB	8.0 dB	11.8 dB	4.5 dB	8.0 dB	11.8 dB
Inter-Port Isolation identical polarization	20 dB	20 dB	20 dB	20 dB	20 dB	20 dB
Inter-Port Isolation cross polarization	40 dB	40 dB	40 dB	40 dB	40 dB	40 dB
Return Loss	-16.5 dB	-16.5 dB	-16.5 dB	-16.5 dB	-16.5 dB	-16.5 dB
Interface ² antenna side	Upon Customer's Request					
Interfaces ³ ODU side	Upon Customer's Request					

Mechanical Specification

Net Weight ⁴	7.0 kg	7.0 kg	7.0 kg	7.0 kg	7.0 kg	7.0 kg
Material	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium

Electrical Specification

Operating Frequency Band	18 GHz	18 GHz	18 GHz	38 GHz	38 GHz	38 GHz
Operating Frequency Range	17.700–19.700 GHz	17.700–19.700 GHz	17.700–19.700 GHz	37.000–39.500 GHz	37.000–39.500 GHz	37.000–39.500 GHz
Insertion Loss main V,H	4.5 dB	2.7 dB	2.0 dB	5.2 dB	3.2 dB	2.5 dB
Insertion Loss standby V,H	4.5 dB	8.0 dB	11.8 dB	5.2 dB	8.6 dB	12.4 dB
Inter-Port Isolation identical polarization	20 dB	20 dB	20 dB	20 dB	20 dB	20 dB
Inter-Port Isolation cross polarization	40 dB	40 dB	40 dB	36 dB	36 dB	36 dB
Return Loss	-16.5 dB	-16.5 dB	-16.5 dB	-16.5 dB	-16.5 dB	-16.5 dB
Interface ² antenna side	Upon Customer's Request					
Interfaces ³ ODU side	Upon Customer's Request					

Mechanical Specification

Net Weight ⁴	7.0 kg	7.0 kg	7.0 kg	7.0 kg	7.0 kg	7.0 kg
Material	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium	Aluminium

¹ Different coupling coefficients are available upon request.

² Direct and separate mounting is available upon request. Direct mounting is possible for several types of antennas (from several manufacturers) with circular waveguide connector.

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

⁴ Approximate value (net weight depends on the required interfaces).

Ordering Information

Dual 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 *DH* – Dual polarized hybrid

3 Frequency Band Operational frequency in GHz, multiplied by 10.
If 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.

- A* – Alcatel Interface
- C(IP10)* – Ceragon IP10 Interface
- DW* – DragonWave Horizon Interface
- RAU2* – Ericsson Mini-Link Interface (RAU12 = RAU1&RAU2)
- RC1* – Remec RC1 Interface (Huawei, Sagem)
- RR1* – Remec RR1 Interface (Huawei, Sagem)
- I* – Intracom Intralink Interface
- SW* – ISKRA (SparkWave) Interface
- 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*)
- F* – Nokia Flexihopper Interface
- SIAE* – SIAE Interface
- S4* – Siemens S4 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 for V and H branches

- 3* – 3 dB coupling (50%)
- 6* – 6 dB coupling (25%)
- 10* – 10 dB coupling (10%)
- etc.* – Any other coupling coefficient is available upon request.

6 Interface at Antenna Side ... – Antenna Type (or other specification)



Examples

I DH 380 4NEC V3H3 G

I – integrated mount to the antenna

DH – dual polarized hybrid

380 – frequency band: 38 GHz
frequency range: 37.000 – 39.500 GHz

4NEC – four NEC ODU interfaces (currently: NEO)

V3H3 – 3 dB nominal coupling in both V and H branches

G – GRANTE antenna interface
with NEC fixing elements

I DH 130 4F V3H6 G

I – integrated mount to the antenna

DH – dual polarized hybrid

130 – frequency band: 13 GHz
frequency range: 12.750 – 13.250 GHz

4F – four Nokia FlexiHopper ODU interfaces

V3H6 – Vertical: 3 dB nominal coupling;
Horizontal: 6 dB nominal coupling

G – GRANTE antenna interface
with FlexiHopper fixing elements