

DCT DELTA OHR

HYBRID REPEATER



- Connects optical FTTx networks (Greenfields / Brownfields) to existing coaxial HFC networks cost-effectively
- Extends range of deployed FTTx networks
- Provides a suitable migration path towards 100% fiber-optic expansion
- Easily exchange of MDR box in case of upgrade or service
- Reduction of service times and user-friendly
- Replaces cascaded line amplifiers
- Increases range of PoP through fiber optics
- Reduces number of optical repeater with lower attenuation

HYBRID REPEATER (0/0)

ELECTRICAL AND GENERAL DATA		MIN.	TYP.	MAX.	REMARKS
Operating Voltage by remote feeding	V~	28		65	230V on request
Power consumption	W				Without EDFA
OHR 1x4 Splitter			4,5		
OHR 1x8 Splitter			5		
OHR 1x16 Splitter			6,3		
Protection class			II		direct feeding
Operating voltage, internal	V DC		9		NVD housing
Indication Power ON			LED, green		
Operating temperature	°C	-20		+55	
IP class			IP 65		
Dimensions B x H x T	mm		260 x 215 x 120		
Weight	kg		3,5		
Fiber Connector			LC/APC		
RF Connector			F-female		
Conformity			CE		

DOWNSTREAM TRANSPARENT		MIN.	TYP.	MAX.	REMARKS
Optical wavelength	nm	1540	1550	1560	Standard λ DS
	nm	1530		1570	Extended λ DS
Integrated WDM Filter 1550 nm/CWDM			Yes		
Attenuator DS passive splitter	dB				
OHR 1x4			8,0	8,5	
OHR 1x8			11,0	11,5	
OHR 1x16			14,0	14,5	
Optical Input Power	dBm			22	
Optical Input Return loss DS	dB	45			
WITH FOSTRA-F	Optical Receiver Diode Type		PIN		
	Decoupling Attenuation	dB	0,3	0,5	
WITH EDFA	Optical Input Power Range	dBm	0	+3	+6
	Optical Output Power (total)	dBm	15		17
	Power consumption	W	2,5	3,0	

UPSTREAM ACTIVE COMBINER			MIN.	TYP.	MAX.	REMARKS
INPUT	Optical Receiver Diode Type			PIN		
	Optical Input Wavelength	nm	1240		1620	Standard without λ 1540-1560 Extended without λ 1530-1570
	Optical Input Power Standard Gain	dBm	-3		+3	high gain selectable
	Optical Input Return Loss US	dB	45			
OUTPUT	Optical Transmitter Diode Type			DFB		Laser Class 1
	Optical Output Wavelength	nm	1605	1610	1615	18 CWDM λ available
	Optical Output Power	dBm		+6		
	Laser turn-on time	nsec		CW		Continuous Mode
TRANSMISSION CHARACTERISTIC	Frequency range	MHz	12	-	204	for DOCSIS 3.1
	Flatness (at one input)	dB		$\pm 0,5$	$\pm 0,75$	
	Level Drift between Inputs	dB		$\pm 0,75$	$\pm 1,0$	
	Testpoint for OMI control	dB μ V	75		82	75dB μ V $\triangleq$ 6% OMI 82dB μ V $\triangleq$ 15% OMI
	Optical input dynamic range, adjustable with Micro-Controller					

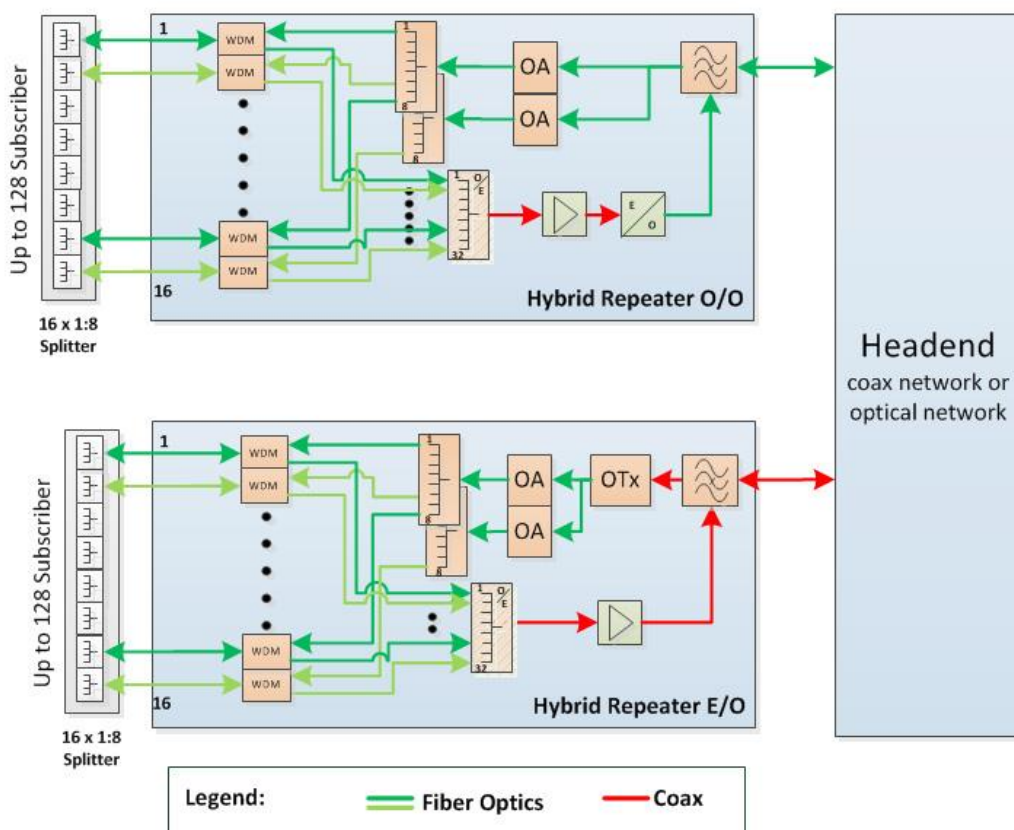
HYBRID REPEATER (E/O)

ELECTRICAL		MIN.	TYP.	MAX.	REMARKS
Operating voltage	V~	28		65	remote feeding 230V on request
Power consumption	W		10	10,5	
Length of Power Cable	m	1,3	1,5		
Mains plug			Euro		
Protection class			II		direct feeding
Operation voltage, internal	V DC		9		
Indication Power ON			LED, green		
Operation temperature	°C	-20		+55	
IP Class			IP 65		
Dimensions B x H x T	mm		260 x 215 x 120		NVD housing
Weight	kg		3,5		
Fiber connector			LC/APC		
RF Connector			F-female		
Conformity			CE		

DOWNSTREAM		VALUE		REMARKS
RF FEATURES	RF Bandwidth	MHz	85 ... 1218	RF Attenuator 10dB
	RF Input Level	dB μ V	70 ... 80	
	RF Flatness	dB	+/- 1,5	
	Cable simulator	dB	0 ... 16	
	Return loss	dB	> 18	
	CSO/CTB	dB	> 60	
	Link Noise Figure	dB	< 20	
	RF Input Connection		Standard F-Connector, 75 Ω	

	RF Testpoint		available for each Tx module	
OPT. FEATURES	Optical Wavelength	nm	1550	
	Type of modulation		direct	
	Optical Output Power, only Tx	dBm	9	4 dBm integrated
	Attenuator DS passive splitter			
	1x2	dB max.	3,7	
	1x4	dB max.	8,5	
	1x8	dB max.	11,5	
	1x16	dB max.	14,5	
WITH EDFA	Optical Input Power Range	dBm	+7 ... 0	depends on EDFA module
	Optical Output Power	dB	15,0	
	Power Consumption	W	2,5	

UPSTREAM		MIN.	TYP.	MAX.	REMARKS
Optical Input Wavelength	nm	1260		1620	without λ 1540 – 1560 MDR with Standard or extended filter
Optical Input Power Standard gain	dBm	-3		+3	high gain -10...-4 dBm selectable
Optical Input Return loss US	dB	45			
Optical Receiver Diode type			PIN		
Frequency range	MHz	12	-	204	depends on plugged diplexer
Flatness	dB			$\pm 0,5$	TP for calibration
Testpunkt	dB		-20		adjustable: 0.5 steps
RF Output Level	dB μ V	70		98	
FOSTRA and Monitoring with DOCSIS Modem 3.1 optionally					



ORDERING INFORMATION

OHR **xx** - **xx** - **x** - **OA xx** - **R** - **x**

SPLIT FACTOR	OPTICAL TRANSMITTER MODULE	FIBER CONNECTOR	OPTICAL AMPLIFIER	POWERING	MONITORING
2; 4; 8 or 16	Upstream Modul: 61: 1610 nm 47: 1470 nm 51: 1510 nm 59: 1590 nm Downstream Modul: RF: 1x Tx on 1550 nm RF2: 2x Tx on 1550 nm	S: Single patch cable M: MPO plug	OA 15: 1x EDFA 15 dBm OA 17: 1x EDFA 17 dBm OA 25: 2x EDFA 15 dBm OA 27: 2x EDFA 17 dBm	- : Local powering R: Remote powering	- : FOSTR-A-F prepared FOSTR-A: FOSTR-A F integrated

TYP	ITEM NO.	DESCRIPTION
OHR 2-61-S-R	57003515	Optical Hybrid Repeater O/O, Tx. 1610nm, FOSTR-A-F prepared
OHR 4-47-M-OA15-R	57003581	Optical Hybrid Repeater O/O, Tx. 1470nm, MPO plug, FOSTR-A-F prepared, EDFA 15dBm
OHR 4-51-M-OA15-R	57003580	Optical Hybrid Repeater O/O, Tx. 1510nm, MPO plug, FOSTR-A-F prepared, EDFA 15dBm
OHR 4-59-M-OA15-R	57003579	Optical Hybrid Repeater O/O, Tx. 1590nm, MPO plug, FOSTR-A-F prepared, EDFA 15dBm
OHR 4-61-M-OA15-R	57003576	Optical Hybrid Repeater O/O, Tx. 1610nm, MPO plug, FOSTR-A-F prepared, EDFA 15dBm
OHR 4-61-S-OA15-R	57003516	Optical Hybrid Repeater O/O, Tx. 1610nm, FOSTR-A-F prepared, EDFA 15dBm
OHR 8-47-M-OA17-R	57003584	Optical Hybrid Repeater O/O, Tx. 1470nm, MPO plug, FOSTR-A-F prepared, EDFA 17dBm
OHR 8-51-M-OA17-R	57003583	Optical Hybrid Repeater O/O, Tx. 1510nm, MPO plug, FOSTR-A-F prepared, EDFA 17dBm
OHR 8-59-M-OA17-R	57003582	Optical Hybrid Repeater O/O, Tx. 1590nm, MPO plug, FOSTR-A-F prepared, EDFA 17dBm
OHR 8-61-M-OA17-R	57003577	Optical Hybrid Repeater O/O, Tx. 1610nm, MPO plug, FOSTR-A-F prepared, EDFA 17dBm
OHR 8-61-S-OA17-R	57003517	Optical Hybrid Repeater O/O, Tx. 1610nm, FOSTR-A-F prepared, EDFA 17dBm
OHR 16-61-S-OA17-R	57003390	Optical Hybrid Repeater O/O, Tx. 1610nm, FOSTR-A-F prepared, EDFA 17dBm
OHR 2-61-S	57003661	Optical Hybrid Repeater O/O, Tx 1610nm, FOSTR-A-F prepared, local powered
OHR 16-61-S	57003658	Optical Hybrid Repeater O/O, Tx 1610nm, FOSTR-A-F prepared, local powered
OHR 16-61-S-OA 17	57003660	Optical Hybrid Repeater O/O, Tx 1610nm, FOSTR-A-F prepared, EDFA 17dBm, local powered
OHR 2-RF-S-R	57003563	Optical Hybrid Repeater O/E, RF input level 70-80 dbμV, FOSTR-A-F prepared
OHR 4-RF-S-R	57003533	Optical Hybrid Repeater O/E, RF input level 70-80 dbμV, FOSTR-A-F prepared
OHR 8-RF-S-R	57003518	Optical Hybrid Repeater O/E, RF input level 70-80 dbμV, FOSTR-A-F prepared
OHR 16-RF-S-R	57003564	Optical Hybrid Repeater O/E, RF input level 70-80 dbμV, FOSTR-A-F prepared
OHR 8-RF-S	57003662	Optical Hybrid Repeater O/E, RF input level 70-80 dbμV, FOSTR-A-F prepared, local powered
OHR 16-RF-S	57003659	Optical Hybrid Repeater O/E, RF input level 70-80 dbμV, FOSTR-A-F prepared, local powered