

## MO1004 2x2 SEGMENTABLE MODULAR OPTICAL NODE WITH REDUNDANCY OPTION



- Downstream frequency range up to 1 GHz
- Upstream frequency range up to 200 MHz
- Optional connection to Monitoring System
- Optional GaN output stage
- Optional CWDM return path
- Automatic optical gain control
- Automatic ingress management by the RSW module
- Redundancy option

### GENERAL DESCRIPTION

This optical node can contain 2 receiver and 2 transmitter modules and allow several configurations depending on the used CM module. First configuration is 2 fully independent nodes in a common housing with common powering and management to achieve cost-effective work in case of segmenting both signal directions. Second configuration offers redundant work in both signal directions. Partial segmentation can be realized with 1 receiver and 2 transmitter modules, while the fourth configuration is a standard node with 1 receiver and 1 transmitter. By changing the CM module the configuration of the device can be modified without high expenses. The MO1004 node is available with either for HFC or for Fiber Deep network optimized circuitry.

### TECHNICAL SPECIFICATIONS

	MO1004xH	MO1004xF
<b>Optical receiver parameters</b>		
Bandwidth [MHz]	47...1000	
Wavelength [nm]	1290...1570	
Optical input level range [dBm]	-5...+3	-8...+3
Nominal optical input level [dBm]	0	-3
Optical input return loss [dB]	>45	
Equivalent input noise [pA/√Hz]	6	
RF level on the output of the receiver module (4% OMI) [dBμV]	79±1	76±1 @ 47MHz 86±1 @ 1GHz (862MHz)
TILT [dB]	0	10 <sup>(5)</sup>
Optical connector type	SC/APC, EURO2000	
<b>Optical transmitter parameters</b>		
Bandwidth [MHz]	5-200	
Wavelength [nm]	1310 or CWDM	
Optical input level range [mW]	FP: 1, DFB: 2, CWDM: 2 or 4	
Optical connector type	SC/APC, EURO2000	

*Specifications are subject to change without notice!*

RF input level (OUT1,2; OMI=10%) [dBμV]	78±1	
Flatness [dB]	±0.5	
Input return loss (40MHz -1.5dB/octave) [dB]	>18	
Input impedance [Ω]	75	
RF level on the testpoint of the optical transmitter [dBμV]	70+1/-2 <sup>(1)</sup>	
<b>RF parameters</b>	<b>MO1004Cx</b>	<b>MO1004Dx</b>
Forward path gain [dB]	38 <sup>(2)</sup>	
CTB [dB]	-63 <sup>(3)</sup>	-69 <sup>(4)</sup>
XMOD [dB]	-59 <sup>(3)</sup>	-64 <sup>(4)</sup>
CSO [dB]	-64 <sup>(3)</sup>	-70 <sup>(4)</sup>
CIN [dB]	-	60 <sup>(4)</sup>
Output testpoint attenuation [dB]	30±1	
Forward path RF testpoint attenuation [dB]	0±1 <sup>(2)</sup>	
Flatness [dB]	±0.7	
Output amplifier-module type	GaAs PD hybrid	GaN PD hybrid
Number of active outputs	2	
Output diplex filter [MHz]	30/47, 65/85, 85/105 or 204/258	
Output return loss (40MHz -1.5dB/octave) [dB]	>18	
Output impedance [Ω]	75	
Isolation between segments (forward path) [dB]	>65	
Isolation between segments (return path) [dB]	>75	
Breakpoint frequency of TILT [MHz]	606, 750, 862, 1000	
Return path	passive	
<b>General parameters</b>		
Screening factor [dB]	80	
Maximum power consumption [W]	51	
Power supply voltage [VAC]	~ 30...65; □ 35...90	
Maximum current feed-through [A]	10	
Hum modulation [dB]	70	
Degree of protection	IP 65	
Temperature range [°C]	-20...+50	
RF connector type	5/8"	
Dimensions [mm]	275x200x175	
Weight [kg]	5.2	

(1) 10% optical modulation index

(2) Parameters are relative to FOR output level

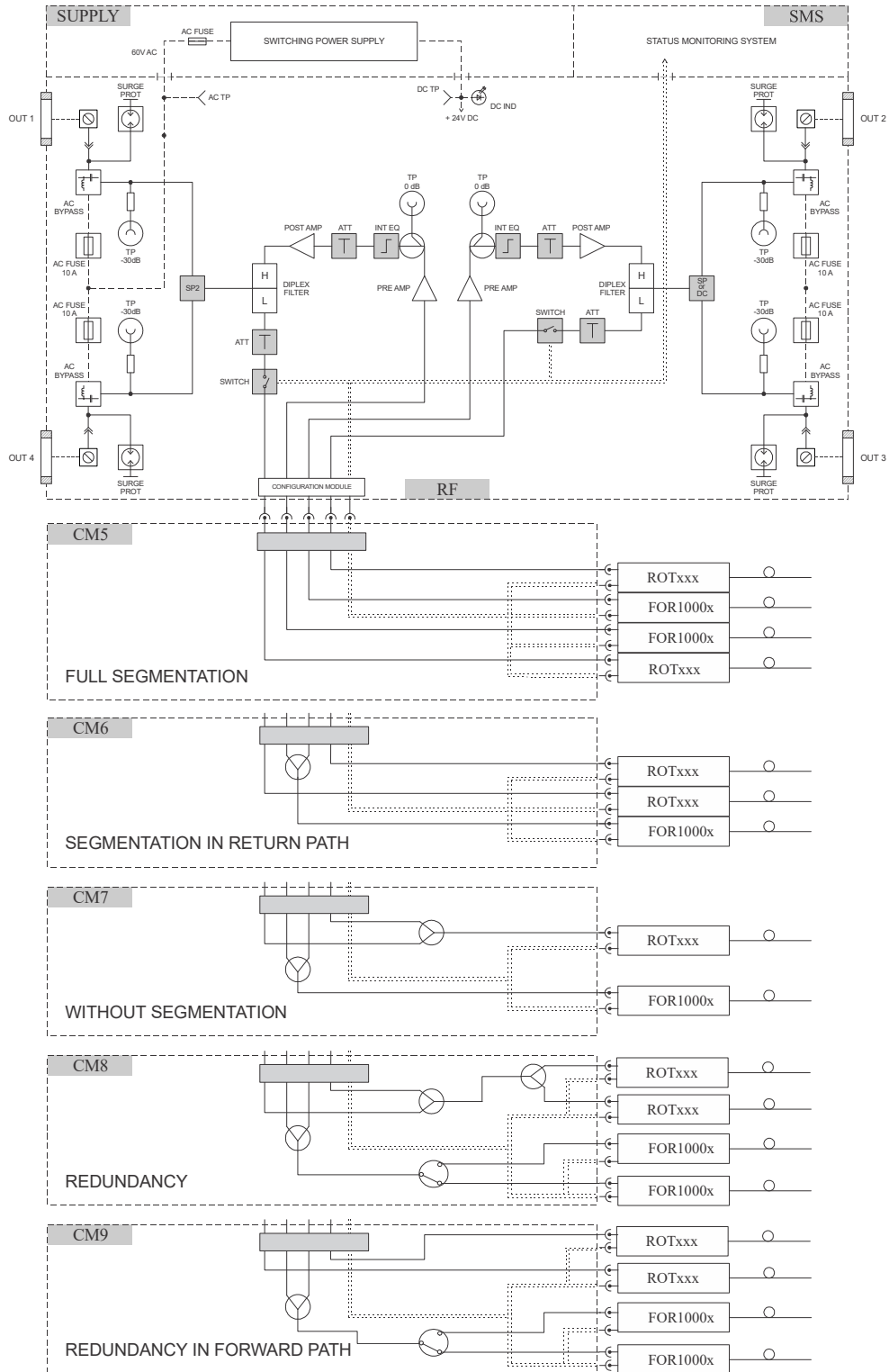
(3) 132 ch.flat, Vout:44dBmV

(4) 79 ch. 7dB tilted, Vout:50dBmV @ 550MHz, 75digital ch. -6dB offset

(5) TILT breakpoint frequency jumper adjustable - 862MHz or 1GHz

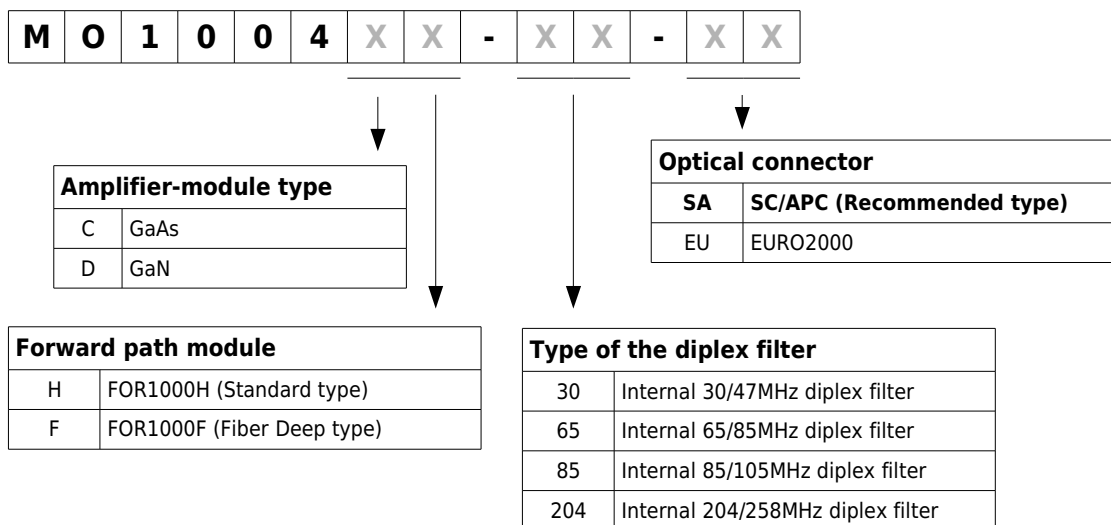
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BLOCK DIAGRAM



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ORDERING INFORMATION



Option	Required modules	Ordering codes
Monitoring option	1pc NMT-F, 2pcs RSW2-A or 2pcs RSW2-H20	NMT-Fxxx, RSW2-A, RSW2-H20
Wall mount kit	1pc WMK-1 (double)	WMK-1

CONFIGURATION POSSIBILITIES

Segmentation in forward and return path	Required modules	Ordering codes
Configuration module	1pc CM5 configuration module	CM5
Return path optical transmitter(s)	2pcs ROT201F, ROT202D, ROT20xC	ROT20xx-xxxx-xx
Forward path optical receiver(s)	2pcs FOR1000x (one is contained)	FOR1000H-xx or FOR1000F-xx

Segmentation in return path	Required modules	Ordering codes
Configuration module	1pc CM6 configuration module	CM6
Return path optical transmitter(s)	2pcs ROT201F, ROT202D, ROT20xC	ROT20xx-xxxx-xx
Forward path optical receiver	1pc FOR1000x (contained)	FOR1000H-xx or FOR1000F-xx

No segmentation	Required modules	Ordering codes
Configuration module	1pc CM7 configuration module	CM7
Return path optical transmitter(s)	1pc ROT201F, ROT202D, ROT20xC	ROT20xx-xxxx-xx
Forward path optical receiver	1pc FOR1000x (contained)	FOR1000H-xx or FOR1000F-xx

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<b>Redundancy in forward and return path</b>	<b>Required modules</b>	<b>Ordering codes</b>
Configuration module	1pc CM8 configuration module	CM8
Return path optical transmitter(s)	2pcs ROT201F, ROT202D, ROT20xC	ROT20xx-xxxx-xx
Forward path optical receiver(s)	2pcs FOR1000x (one is contained)	FOR1000H-xx or FOR1000F-xx

<b>Redundancy in forward path</b>	<b>Required modules</b>	<b>Ordering codes</b>
Configuration module	1pc CM9 configuration module	CM9
Return path optical transmitter(s)	2pcs ROT201F, ROT202D, ROT20xC	ROT20xx-xxxx-xx
Forward path optical receiver(s)	2pcs FOR1000x (one is contained)	FOR1000H-xx or FOR1000F-xx

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