



# RF Optical Module For Optical Repeater

## *RTXM161 Series*

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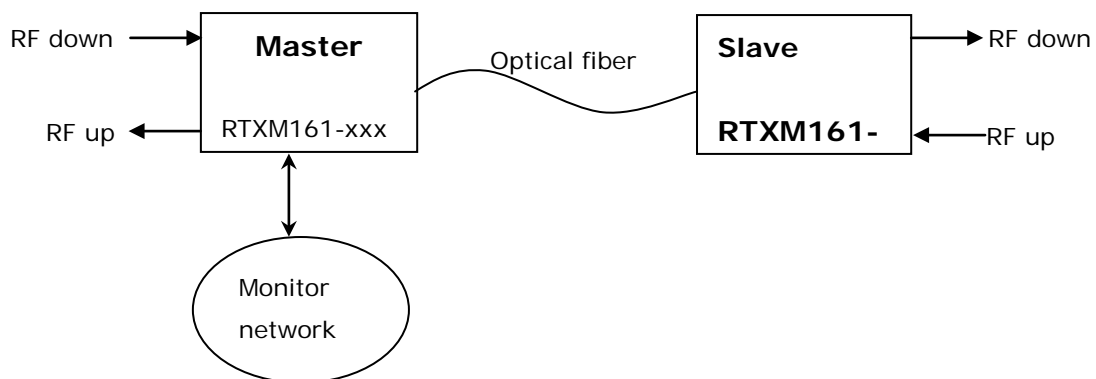
### Features

- *+8~+12V single-supply operation*
- *30dB attenuation with 1dB/step*
- *RF power DET*
- *High RF isolated*
- *Optical power DET*
- *Laser Diode bias current DET*
- *WDM include, Single fiber design, use in couple*
- *FSK module include, RS485 data interface*

### Applications

- *GSM/WCDMA/TD-SCDMA optical repeater*
- *Point to point analog network*

**Optical module application**



## Specifications

(RTXM161-001/RTXM161-002)

Parameter	Specification	
Optical Wavelength	Up link 1310±10nm	Down link 1550±10nm
Supply Voltage	+9V	+9V
Current consumption	<360 mA	<360 mA
Optical Output Power	+3dBm(±1dBm)	
Optical connection	FC/APC	
WDM	include	
Frequency range	800MHz~1000MHz	
Impedance	50 Ohm	
Downlink gain	20dB±1(all att=0dB, RF input power -15dBm)	
Uplink gain	20dB±1(all att=0dB, RF input power -15dBm)	
Gain adjust range	≥31dB	
Gain Adjust step	1dB	
Gain Adjust bit error	0~20dB≤±0.5dB;20~30dB:≤±1 dB	
Band flatness	≤1.5dB(800~1000MHz) ≤0.5dB(825~835MHz,870~880MHz) ≤0.5dB(885~915MHz,930~960MHz)	
noise	≤-127dBm/Hz	
IMD3	≤-60dBc	

DET range	Uplink: -30~0 dBm	Downlink: -30~0 dBm
DET precision	±1dB(WCDMA Test Model 1 64DPCH)	
RF isolation	uplink ≥55dB	Downlink ≥55dB
disperse	≤-60dBm/30KHz	
VSWR	≤1.4	
FSK Carrier frequency	433MHz	
Err rate	≤0.001	

*(RTXM161-003/RTXM161-004)*

Parameter	specification	
Optical Wavelength	Up link 1310±10nm	Down link 1550±10nm
Supply Voltage	+9V	+9V
Current consumption	<360 mA	<360 mA
Optical Output Power	+3dBm9±1dBm)	
Optical connection	FC/APC	
WDM	include	
Frequency range	Up link 1920~1980MHz	down link 2110~2170MHz
Impedance	50 Ohm	
Downlink gain	10dB±1(all att=0dB, RF input power -15dBm)	
Uplink gain	10dB±1(all att=0dB, RF input power -15dBm)	
Gain adjust range	≥30dB	
Gain Adjust step	1dB	
Gain Adjust bit error	0~20dB: ≤±0.5dB;20~30dB: ≤±1 dB	
Band flatness	≤1.0dB (uplink:1920~1980MHz;downlink:2110~2170MHz)	
noise	≤-130dBm/Hz	
ACPR	-55dBc @±5 MHz 0dbm output -60dBc @±10MHz 0dbm output uplink: att=0dB; downlink: all att=0dB.	
DET range	Uplink: -30~0 dBm	Downlink: -30~0 dBm
DET precision	±1dB(WCDMA Test Model 1 64DPCH)	

RF isolation	uplink $\geq 40\text{dB}$	Downlink $\geq 60\text{dB}$
disperse	$\leq -60\text{dBm}/30\text{KHz}$	
VSVR	$\leq 1.4$	
Carrier frequency	433MHz	
Err rate	$\leq 0.001$	

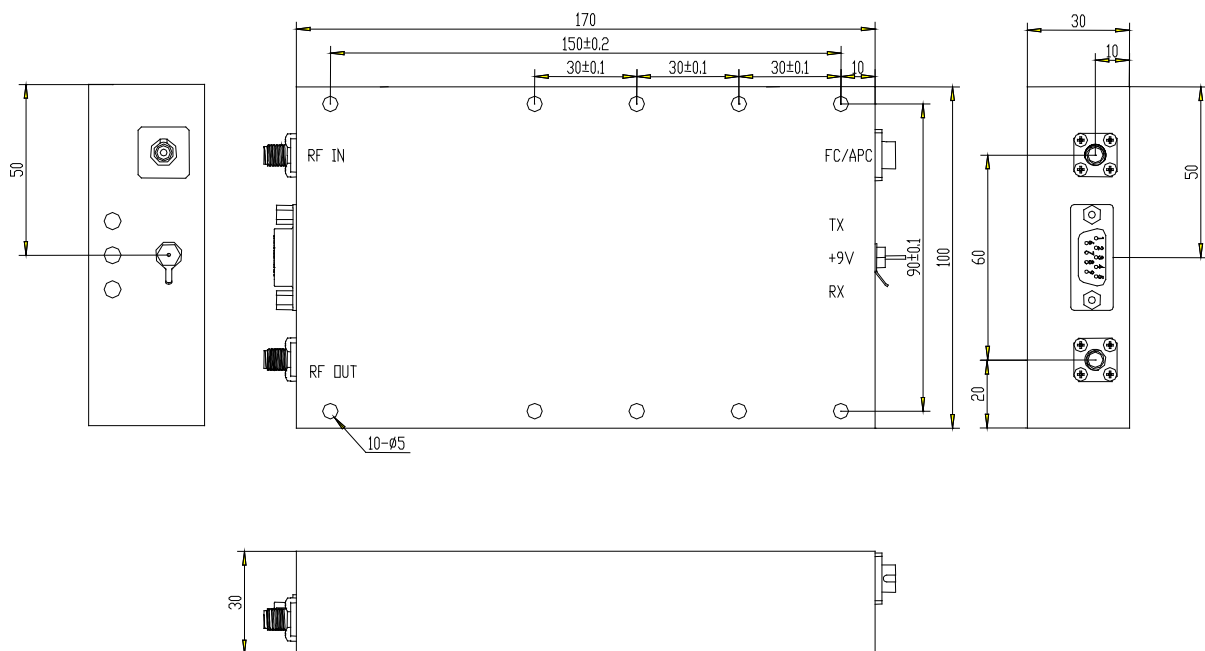
## Absolute Maximum Ratings

Parameter	Unit	Min	Max
Storage Temperature Range	$^{\circ}\text{C}$	-40	85
Operating Temperature Range	$^{\circ}\text{C}$	-25	+55
Power Supply Voltage	V	+8	+12
RF Input Power	dBm		10

## Pin Description

Pin	Description	Remark
1	A	RS485 interface DB9(Male)interface
2	A	
3	B	
4	B	
5	GND	
6,7,8,9	NC	

## Package outline



*Dimension: 170 mm\*100 mm\*30 mm*

## Ordering Information

Part No.	Specifications					Application
	Frequency	Tx	Pout	Top	Interface	
RTXM161-001	800MHz~1000MHz	1310 nm	+3(±1) dBm	-25~+55°C	DB9 Male	Analog, repeater
RTXM161-002	800MHz~1000MHz	1550 nm	+3(±1) dBm	-25~+55°C	DB9 Male	Analog, repeater
RTXM161-003	1900MHz~2200MHz	1310 nm	+3(±1) dBm	-25~+55°C	DB9 Male	Analog, repeater
RTXM161-004	1900MHz~2200MHz	1550 nm	+3(±1) dBm	-25~+55°C	DB9 Male	Analog, repeater

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