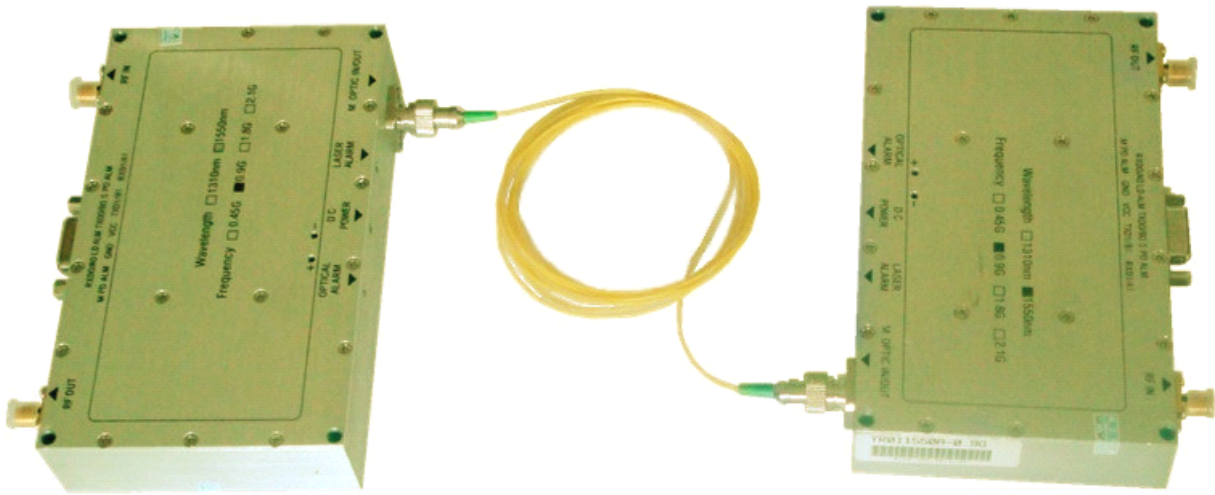


KYR011310B/KYR011550A 800MHz RF-Optical Transceiver



1 Feature

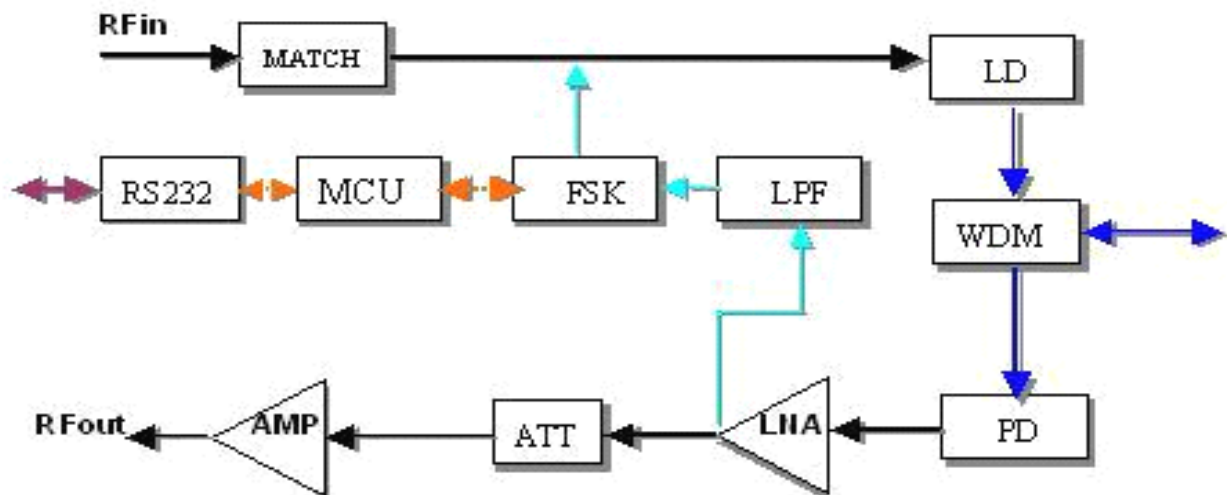
- ◆ High linear analog PD and DFB laser
- ◆ With low noise and high linear gain power amplifier
- ◆ With APC and protect circuit for laser
- ◆ Build-in Bi-Di component
- ◆ +12V Single power supply
- ◆ RS232 control interface
- ◆ -20℃~+70℃ Operating Temperatur

2 Application

- ◆ GSM 900MHz Optical Repeater
- ◆ CDMA 800MHz Optical Repeater

3 General

The KYR011310B/KYR011550A is a low noise RF fiber optical transceiver designed for CDMA, GSM network and broadband RF wireless up link/down link applications, respectively. Each pair consists of a master and a slave modules, the link from master to slave is called down link, from slave to master as up link. In down link a 1550nm DFB-LD is selected as transmitter and a high linear analog PD as optical signal receiver, In up link a 1310nm FP-LD is selected to transmit the optical signal and a high linear analog PD as optical signal receiver. These modules can be used for 20km applications



4 Performance Specifications

4.1 Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Unit	Comments
Input Voltage	-	7	15	V	
Input RF power			10	dBm	
Input Optical power	R		8	mW	

4.2 Recommended Operation conditions

Parameter	Symbol	Min.	Typ.	Max.	Unit	Comments
Operating Temperature	T _{OP}	-20		+70	°C	
Storage Temperature	T _{stg}	-40		+85	°C	

E-O and O-E Characteristics



RF-Optical Transceiver

4.3.1 Optical Characteristics

Parameter	Symbol	Min	Typ	Max.	Unit	Comments
Optical Wavelength	λ	1530	1550	1570	nm	
Optical Wavelength	λ	1290	1310	1330	nm	
Average Optical Output Power	Po	2	4	6	dBm	
Optical Return Loss	RL	40			dB	
Optical Isolator	Iso	25			dB	

4.3.2 Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Unit	Condition
Power Supply	V _{cc}	7	12	15	V	
Current Consumption	I _{cc}			250	mA	
Bandwidth		800		1000	MHz	
Link Gain	G	10	18	20		optical no loss
Response Flatness				1.4	dB	
Output Noise Floor				-133	dBm/Hz	optical no loss
IM3				-60	dBc	2ch/ch/-3dBm
RF Isolation		65			dB	optical no loss
VSWR					1.4	
RF Impedance			50		Ω	
FSK Frequency			433. 766		MHz	

4.3.3 The connector

Optical connector	FC/APC or SC/APC
RF connector	SMA-50KFD

4.3.4 FSK Communication Protocol

- 1) FSK IC: CC1000
- 2) Modulation Rate: 9600bps
- 3) Encoding: Synchronous Manchester encoding
- 4) Carrier Frequency:

Tx center frequency: 433.916MHz, "1"→433.948 MHz, "0"→433.884MHz

Rx LO Frequency: 433.766 MHz

- 5) Modulation Frequency: $\pm 32\text{kHz}$
- 6) RF Receive Sensitivity: $\leq -90\text{dBm}$
- 7) Optical Receive Sensitivity: $\leq -15\text{dBm}$
- 8) Error Frame Rate: ≤ 0.001
- 9) CC1000 Register Configuration:

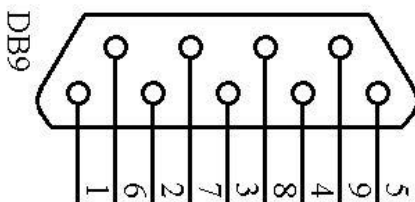
FREQ A: 582625HEX FREQ B: 582000HEX REFDIV: 1001BIN

- 10) FSK data communication (data between HU and RU optical module) and control

instructions (data between optical module and PC) use the same communication interface. According to start/end signs of data and module address, etc., optical module can automatically distinguish between data transmitted by FSK and instructions of local control.

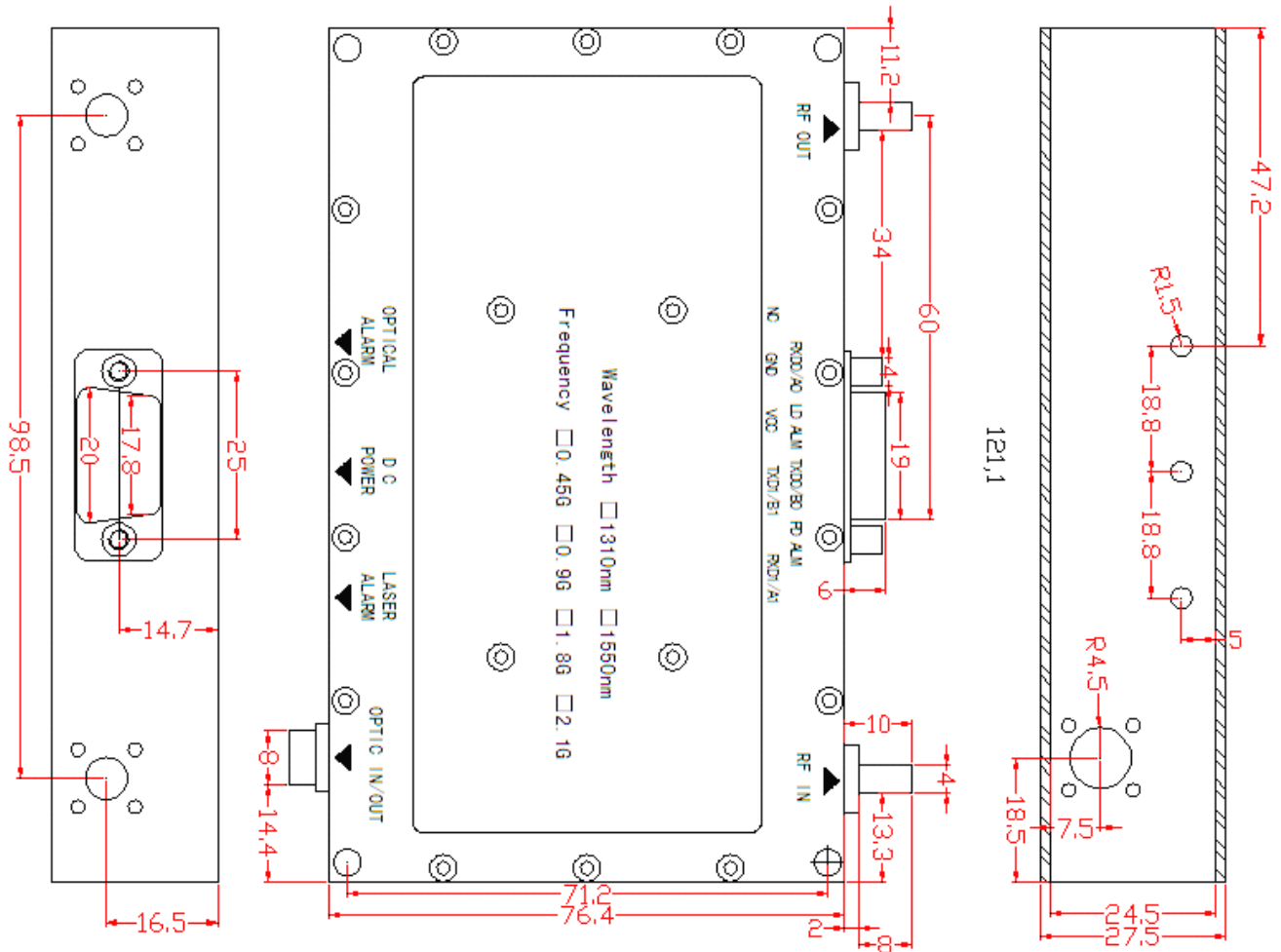
11) Optical module has two independent data interfaces: RS232/RS485 optional. They all can be used as monitoring or data transferring interface.

5 Pin Definitions (DB9-FM connector)



Pin Name	Pin Descriptions	Pin Function Descriptions	Comments
1	NC		
2	GND	Ground	
3	VCC	+12V	
4	TXD1	RS232 DATA IN	
5	RXD1	RS232 DATA OUT	
6	RXD0	RS232 DATA OUT	
7	LD ALM	TTL Output, Hight for Alarm	
8	TXD0	RS232 DATA IN	
9	PD ALM	TTL Output, Hight for Alarm	

6 Package Information (Unit:mm)





RF-Optical Transceiver

7 Specification for Environmental Protection

This product have a quality of "Green product", all raw materials are avirulence and have no environmental impact, apply new technology, strictly control the manufacturing process, the finished products do not contain any hazardous chemical substances regulated by RoHS, 2002/95/EC, or the trace element impurity concentration of banned Substances is less than ROHS

8 Ordering information

Model	Type	Band (MHz)	Wavelength (nm)	FSk Function	Interface	Note
KYR011310B	BIDI	800~1000	1310	with	RS232	
KYR011550A	BIDI	800~1000	1550	with	RS232	