OptiLink

Model-M107/M607x

1310nm Optical Transmitter

User's Manual

1. Introduction

Model M107/M607x modular Transmitter is a new product developed by Shianjin Electronics Equipment Co., Ltd. It consists of M107 (Intelligent Chassis) and M607x Transmitter Module. The Appearance of the chassis features LCD display, thin film switch, finger-mark-free steel plate, and a vivid color, which make the unit look elegant and modern.

M107 is a one intelligent standard 19" 1RU chassis. M107 can be monitored by the network management software, even though there is no transmitter module plugged into the chassis. In this way, the network management software can get clear status of the available slots in all intelligent chassis, M107. Except for M607 (Optical Transmitter Module), the other modules such as forward optical receiver, reverse optical receiver, and etc., can be plugged into M107, which offers two respectively independent slots.

M607x optical transmitter module has 4 kinds of specification classes, and each class has totally 11 output powers including 2，4，6，8，10，12，13，14，16，18 and 20dBm, . (Refer to the Ordering Information below) M607x optical transmitter module uses an internal isolated Distributed Feedback (DFB) laser, which represents the latest technology. Its high cost-effective and wonderful performance are highlighted by its advanced multipoint pre-distortion correction circuit, RF pre-amplifier circuit, high reliability of power supply, intelligent and efficient element management, and unique air-flow design.

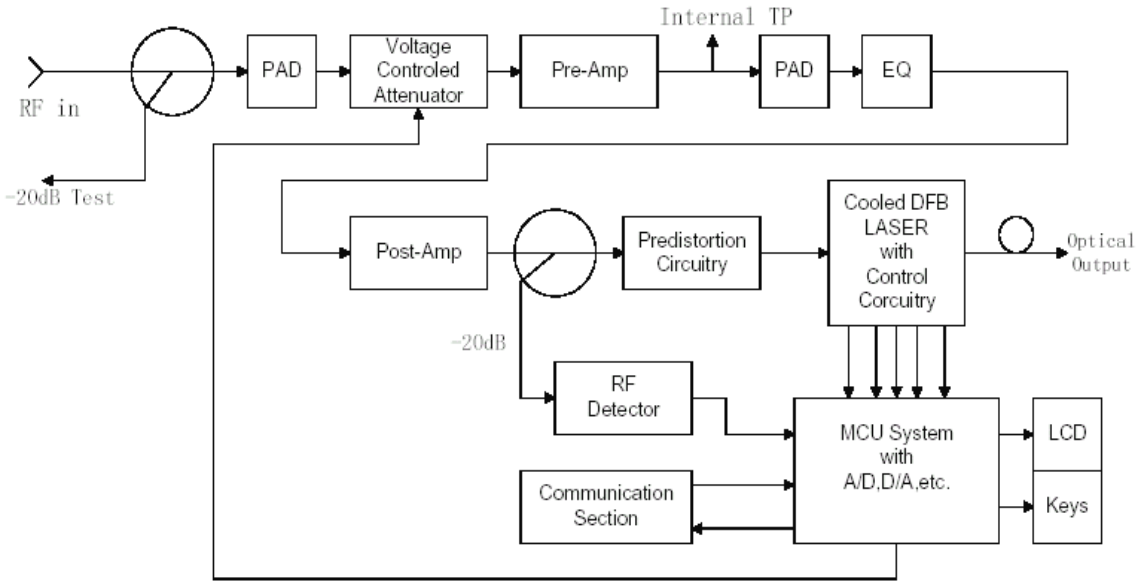
2. Features

- **860MHz bandwidth;**
- **High-performance DFB laser to increase the signal quality in HFC;**
- **Low noise, low distortion and pre-AMP to meet low RF input signal;**
- **Incorporating circuit design built with RF AMP and VCA, and multi-point pre-distortion correction, enhance equipment distortion specification;**
- **Separate CPU control board in each OTX module to support effective control and multi-protection function;**
- **Effective RF overdrive protection for LD ,low optical power output alarm and automatic LD shutdown;**
- **Effective ATC(Automatic Temperature Control) and APC(Automatic Power Control) enable precise optical power levels;**
- **Elective AGC (Automatic Gain Control) and field MGC (Manual Gain Control) enables superior link optimization and variable modulation depth (RF drive level);**
- **Front panel -20dB RF test port;**
- **RS232/485 and RJ45 Ethernet interfaces, SNMP/Telnet /Web IE network protocol can be used to realize local or remote status monitoring and controlling;**
- **Advanced high efficiency switching power supply to meet the AC voltage wide**

fluctuating (176V-264V); redundant switch power supply and automatic alternation;

- **Module position swap freely and hot plug-in and pull-out;**
- **Reliable thermal structure design to ensure high stability and long operating life of the equipment.**

3. Block Diagram



4. Specifications

	Item	Unit	Specification
1	Type of laser		DFB
2	Wavelength	nm	1310±20
3	Modulation mode		Direct Light Intensity Modulation
4	Output Optical Power	mw	4 6 8 10 13 16
5	Fiber Connector		SC/APC
6	Frequency Range	MHz	47-870
7	Input RF Signal Level	dBuv	80±3
8	CNR	dB	≥52 Note
9	CTB	dB	≤-67 Note
10	CSO	dB	≤-62 Note
11	Flatness	dB	±0.75
12	RF Input Impedance	Ω	75
13	RF Input Return Loss	dB	≤-16(47-550MHz) ≤-14(551-870MHz)
14	APC Control Precision	dB	≤±0.1
15	ATC Control Precision	℃	25±1

16	Max TEC Operating current	mA	850@DC+5V， 850@DC-5V
17	MTBF	h	≥40000
18	Laser Operating Voltage Range	V	DC±4.5--±5.5
19	Laser Operating Temperature Range	℃	+5--+40
20	Overall Storage Temperature Range	℃	-25—55
21	Overall Relative Humidity	%	40—70
22	Overall Power Supply Input (with Filter)	V	AC220(86-264V)
23	Communication Interface		RS232/485
24	Power Dissipation	W	50
25	Dimensions	mm	480x350x44
26	Weight	Kg	4 (2 modules)

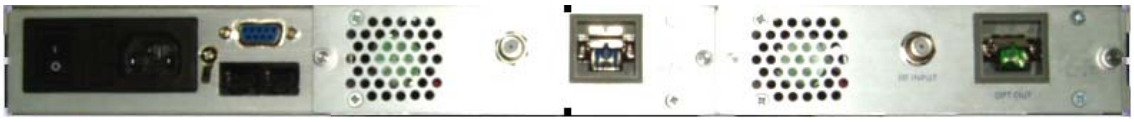
Note: Distortion test condition:

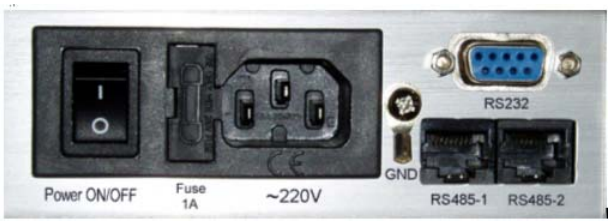
10Km fiber + adjustable optical attenuator, 69207B optical node -1dBm optical power input and test.

5. Appearance description

5.1.Chassis Front Panel ：

5.2.Chassis Rear Pannl ：

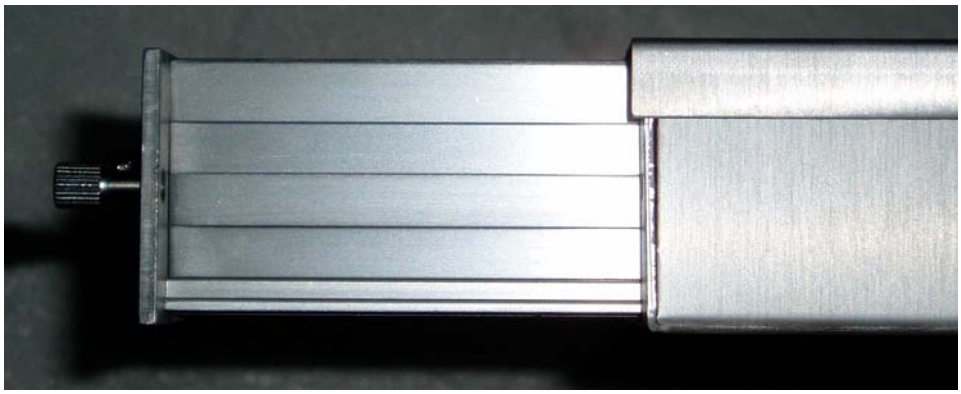




～220V 50Hz	Switching power supply socket with filter (including 1A fuse)
RF INPUT	RF input port
OPT OUT	Optical power output port
RS232	Network Management Interface
RS485	Network Management Interface
GND	Grounding bolt

5.3. M607x OTx Module Front Panel:

5.4. M607x OTx Module Installation:



Push horizontally the module into any one of the two slots at the back of transmitter. (See the figure below for reference.) Please be careful to push the module in the right direction that the words on the panel should not be upside down, and then tighten the two screws.

6. Equipment Operations:

6.1. Display Explanations of LCD

a. LCD displays totally 20 characters, in two lines.
b, Module/ Parameter name is in the first line;
Parameter value/Alarm status is in the second line.

c. At the right bottom of LCD, the "[xxx]" shows the object of operating

[1RU]---1RU Intelligent Chassis
[MKD]---MKD Module

[01]---The First module
[02]---The Second module

d, Switch-on Character:

OptiLink Platform

e, If there is no module in the chassis, the LCD shows:

No Module installed in [01] or
No Module installed in [02]

6.2. Operation Explanations of Keyboard:

a, The left key and the right key are to select [1RU],[MKD],[01],[02].
b, Top key and bottom key are to select or change the value of present parameter
c, The key "Select" is to refresh or modify/confirm the parameter's value.
d, For the parameter that can be modified, the left key increase the value, the right key decrease the value.

6.3. Chassis ID Configuration and Diplay:

a, Chassis ID is configured by a 8-bits finger switch (up is “1”, down is “0”)
The ID range is 00-FF.

b, The present Chassis ID will be shown on the two LEDs, use HEX 00-FF.

c, After configuring, the chassis must be powered on again.

6.4. M607x Transmitter Module Parameters:

Press the top key and the bottom key, the following information will pop up:

0	OptiLink 1310nm OTx	
1	Model	
2	Rating LD Power	
3	LD Power:	
4	LD TEM:	
5	LD BIAS:	
6	LD TEC:	
7	LD Lev:	
8	DC +12V:	
9	DC +5V:	
10	DC -5V:	
11	AMP TEM.	
12	VCA Offset:	
13	Module ID:	
14	Software Ver.	
15	LD SN:	
16	Module SN:	
17	Manufacture Date:	

To VCA Offset the left key to decrease the spar numbers, the right key to increase the spar numbers, each spar is 0.5 dB.

M607x Module Type Vs Output Power:

Model	Rating LD Power
M607X-2	2.5mW(4dBm)
M607X-4	4mW(6dBm)
M607X-6	6mW(8dBm)
M607X-8	8mW(9dBm)
M607X-10	10mW(10dBm)
M607X-12	12mW(10.5dBm)
M607X-13	13mW(11dBm)
M607X-14	14mW(11.5dBm)
M607X-16	16mW(12dBm)
M607X-18	18mW(12.5dBm)
M607X-20	20mW(13dBm)

X = A,,E

6.5. M107 1RU Chassis Parameters::

Press the top key and the bottom key, the following information will pop up:

0	OptiLink 1RU Chassis			
1	Model:			M107
2	Slot number:			2
3	Chassis ID:			(DIP state)
4	Software Ver.:			V1.0
5	Chassis SN:			CM107XXX

7. Caution

7.1.Once you get the equipments, check the following items:

A) Whether the package is damaged or not.

B) Unpack the transmitter, and check the compliance of transmitter module quantity and nominal output power with the order.

Once you find any problem, please contact the product supplier as soon as possible.

7.2. This transmitter uses 220V switching power supply. Connect the power line of transmitter and put it into the standard rack. The transmitter should be properly grounded. When the indoor transmitter is put into the rack and switched on, the air vent of the module should not be blocked, and the ventilation of the unit should also be guaranteed.

7.3. The fiber FC/APC connector should be cleaned with absolute alcohol, to minimize the additional loss or reflection caused by dust, which will affect the specification. Connect the tail fiber to FC/APC socket on the rear panel, and keep the fiber hanging down.

7.4. Switch on the power supply on the rear panel, and the LCD background light should be illuminated (the light will be turned off automatically after a moment for LCD to have a longer life span).

7.5. Connect the mixed RF signal to F port on the rear panel. The input level should be within a range of 80±3dBuv.
On condition that the distortion specification is guaranteed, local RF level setting function can be used in the field of the transmission system to adjust the actual operating level, in order to improve CNR.

7.6. When the power is switched on, company logo will show up in the display.

7.7. The green LED will flash if there is any fault in the Module. If the frequency of flash is 3 times per second, it indicates the transmitter module is out of working; If the frequency of flash is one time per two seconds, it indicates the transmitter module can still work with alarm. And you can get alarm details from the LCD. The alarm light will be turned on when the problem is solved and the transmitter will be operating in a normal condition.

8. Complete List

Name	Qty
a. Transmitter	1
b. Power-line	1
c. Installation and Operation Guide	1
d. Optical Transmitter Test Result	1

9. Order Information

▲ M607x OTx Module:

OTx Model	Op Power	Link Loss	CNR	CSO	CTB	Predistortion Circuit	Order PN
M607A-10	**10mW(10dBm)**		54	65	69	Multi-Point	2450124
M607A-12	**12mW(10.5dBm)**		54	65	69	Multi-Point	2450125
M607A-13	**13mW(11dBm)**		54	65	69	Multi-Point	2450126
M607A-14	**14mW(11.5dBm)**		54	65	69	Multi-Point	2450127
M607A-16	**16mW(12dBm)**		54	65	69	Multi-Point	2450128
M607A-18	**18mW(12.5dBm)**		54	65	69	Multi-Point	2450129
M607A-20	**20mW(13dBm)**		54	65	69	Multi-Point	245012A

OTx Model	Op Power	Link Loss	CNR	CSO	CTB	Predistortion Circuit	Order PN
M607E-4	**4mW(6dBm)**		50	60	65	Multi-Point	2450521
M607E-6	**6mW(8dBm)**		50	60	65	Multi-Point	2450522
M607E-8	**8mW(9dBm)**		50	60	65	Multi-Point	2450523
M607E-10	**10mW(10dBm)**		50	60	65	Multi-Point	2450524
M607E-12	**12mW(10.5dBm)**		50	60	65	Multi-Point	2450525
M607E-13	**13mW(11dBm)**		50	60	65	Multi-Point	2450526
M607E-14	**14mW(11.5dBm)**		50	60	65	Multi-Point	2450527
M607E-16	**16mW(12dBm)**		50	60	65	Multi-Point	2450528
M607E-18	**18mW(12.5dBm)**		50	60	65	Multi-Point	2450529
M607E-20	**20mW(13dBm)**		50	60	65	Multi-Point	245052A

Note: Product Specifications can be modified without notice

▲ OptiLink Model M607x OTx Module order PN 2450120-245052A

▲ OptiLink Model M107 19”1RU Chassis (no MKD) order PN 2451118

Test report of the transmitter module will include all the models above.
The warranty period is one year (man-made damage exclusive), and the lifelong paid service is provided for the user.
(The specifications are subject to change without notice.)