

# OT860-4F

## 1310nm Optical Transmitter

### User's Manual



# 1. Introduction

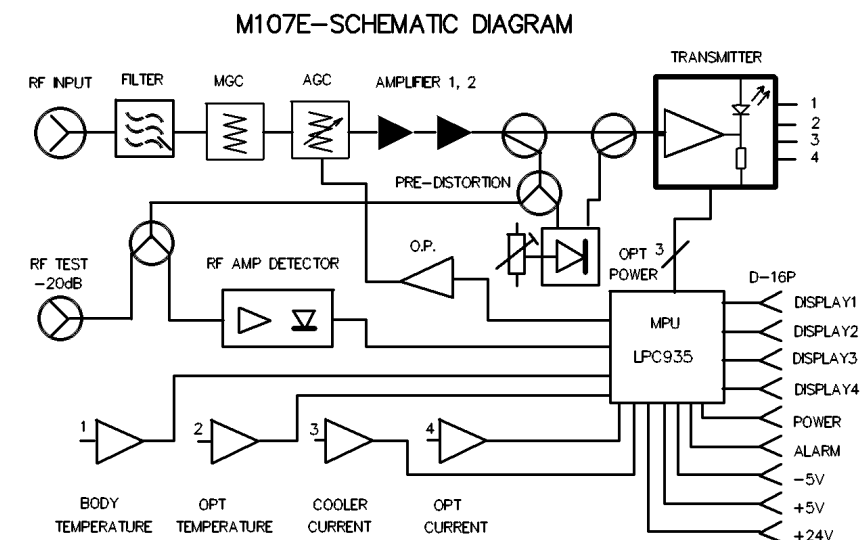
The OT86-4F Optical Transmitter is a new product developed by Shanghai Qianjin Electronic Equipment Co., Ltd. The Appearance of the chassis features LCD display, thin film switch, finger-mark-free steel plate, and a vivid color, which make the unit look elegant and modern. OT86-4F is one intelligent standard 19" 1RU chassis and can be monitored by the network management software, in this way; the network management software can get clear status of the set.

OT86-4F optical transmitter uses an internal isolated FP laser diode. Its high cost-effective and excellent performance are highlighted by its advanced pre-distortion correction circuit, RF pre-amplifier circuit, high reliability of the power supply, intelligent and efficient element management, and unique air-flow design.

# 2. Features

- 45~870MHz bandwidth;
- Low noise, low distortion and pre-AMP to meet low RF input signal;
- Incorporating circuit design built with RF AMP and pre-distortion correction, enhanced equipment distortion specification;
- Selective AGC (Automatic Gain Control) of amplitude variable and field MGC (Manual Gain Control) enables superior link optimization and variable modulation depth (RF drive level)
- Effective RF overdrive protection for LD (laser diode)alarm and automatic LD shutdown;
- Effective APC (Automatic Power Control) enable precise optical power levels;
- LCD display operation state and its information;
- Front panel -20dB RF test port;
- Alarm for over operation, low optical power output and communication
- Advanced high efficiency switched power supply to meet the AC voltage wide fluctuating (176V-264V); redundant switched power supply and automatic alternation;
- Reliable thermal structure design to ensure high stability and long operating life of the equipment.

# 3. OT86-4F Technical Parameters:



## Parameter

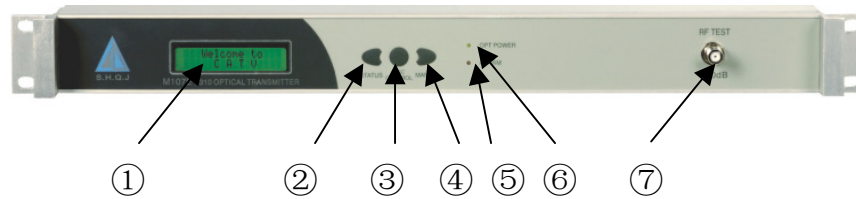
	Item	Unit	Specification
1	Type of laser		FP (with optical isolater)
2	Wavelength	nm	1310±20
3	Modulation mode		Direct Light Intensity Modulation
4	Output Optical Power	mW	4 (6dBm)
5	Fiber Connector		FC/APC SC/APC
6	Frequency Range	MHz	45~860
7	Input RF Signal Level	dB $\mu$ v	15~35
8	AGC range	dB	0~10 (MGC: 0~20dB)
9	CNR	dB	≥48 note
10	CTB	dB	≤-62 note
11	CSO	dB	≤-57 note
12	Flatness	dB	±0.75
13	RF Input Impedance	$\Omega$	75
14	RF Input Return Loss	dB	≤-15
15	APC Control Precision	dB	≤±0.2
16	ATC Control Precision	°C	25±2
17	Max TEC Operating current	mA	DC+5V@850
18	MTBF	h	≥40.000
19	Laser Operating Voltage Range	V	DC±4.5--±5.5
20	Laser Operating Temperature Range	°C	+5~+40
21	Overall Storage Temperature Range	°C	-25~55
22	Overall Relative Humidity	%	40~70
23	Overall Power Supply Input (with Filter)	V	AC220(176~264V)
24	Power Dissipation	W	12
25	Dimensions (WxDxH)	mm	480x310x45
26	Weight	kg	3

note: (Testing Condition):

Optical Link Loss: 10km Fiber + Optical Attenuator

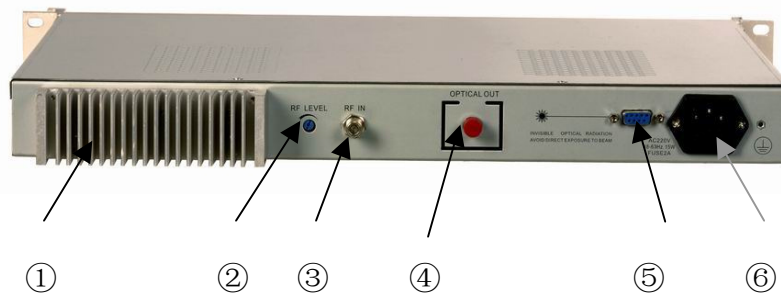
RF Input: 59PAL-D/K Channels 47-550MHz, Input Optical Level: -1dBm

#### 4. Appearance description (OT86-4F as sample)



##### Front Panel Features

- ①、 **LCD:** Display operation states and its information;
- ②、 **Lift Key:** Select operation states;
- ③、 **Middle Key:** AGC control to adjust the deeps of modulation, when selected using the lift key and right key to decrease and increase the deeps of modulation
- ④、 **Right Key:** Select information of module
- ⑤、 **Laser LED:** Read ~ no laser, Green ~ laser on;
- ⑥、 **Alarm LED:** Flashing when operation state over usually and communication;
- ⑦、 **RF test port :** -20dB RF level test port.



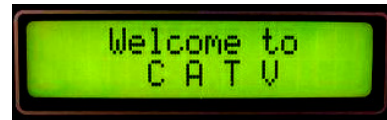
##### Rear Panel Features

- ①、 **Radiator:**
- ②、 **RF Attenuator:** For suitable RF level(see 6.4)
- ③、 **RF input:** The RF input level never be bigger then 50dBm
- ④、 **Optical signal output:** Interface SC/APC or FC/APC
- ⑤、 **RS232c port(option):** Communication with PC
- ⑥、 **Power in:** Connection this set to power and Using the fuse of 250V/1A

## 5. Operations:

### 5.1. Display Explanations of LCD

- a; LCD displays 16 characters a line, totally two lines.
- b, Parameter name is in the first line; value is in the second line.  
After plugging in to the suitable power socket this set will automatically delay 7 seconds before opening RF amplifier. Shows as follow:



### 5.2. Press middle key:



Changing the amplitude of RF driving signal then change the modulation depth of laser and can using the left key and right key to decrease and increase it.



Amplitude of RF  
(There is RF signal)



Amplifier working status  
(If there is no RF signal)

### 5.3. Operation Explanations of Left Key:

Press the Left key, the following information will pop up:

1	Optical Power:	Optical output power
2(note1)	RF Driver:	Modulation of Laser
3	OPT Current:	Bias current of Laser
4	OPT Temperature:	Temperature of Laser
5	Cooler Current:	The current of cooler
6	DC +24V Test:	Test value of +24V
7	DC +5V:	Test value of +5V

Note1: If no RF signal it will display “no RF signal” as fellow left finger. Otherwise

LCD will display the amplitude of RF signal as fellow right finger.

Totally 16 words “>”, User may adjusting the RF amplitude by press the left Or right key (see 7.4) according to the number of TV channels transmitted And the parameter of your system to enables superior link optimization and Variable modulation depth (RF drive level).



#### 5.4. Operation Explanations of Right Key: :

Press the right key, the following information will pop up:

1(note2)	Module: OT860-4F	Product model Option range
2	MANUF Date:	Data of leaving factory
3	Module SN:	Series Number of Module
4	Laser Type:	Series Number of Laser

Note2: This will change as your option

- 5.5. Connect the mixed RF signal to F port on the rear panel. The input level should be within a range of 15-35dBm. On condition that the distortion specification is guaranteed. This equipment can automatically adjust the RF amplitude within 8dB, if the RF signal is too big then 35dBm; you can adjust the attenuator on the rear panel to reduce the RF signal from zero to 20 dB to improve CNR. Local RF level can be tested from the -20dB port on front panel to get the actual operating RF value.

### 6. Caution

- 6.1. When you get the Transmitter check it, once you find any problem, please contact the product supplier as soon as possible.
- 6.2. The transmitter should be properly grounded.
- 6.3. For it running correctly you must wait for half an hour after turn on
- 6.4. 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.
- 6.5. If the laser runs well the green LED is on and will flash once a second. If it becomes red means the laser is out of working. The ALARM red LED will flash if there is any fault in this machine. When the problem is being solved the transmitter will be operating constantly.

### 7. Complete List

- |                        |     |
|------------------------|-----|
| a. OT86-4F Transmitter | one |
| b. Power-cord          | one |
| c. User's Manual       | one |