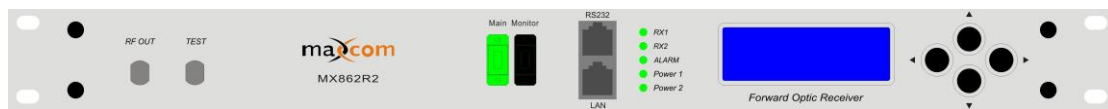




MX1000R Series

AGC Forward Path Optical Receiver



General User Manual-Spec Sheet

PRODUCT DESCRIPTION

The MX1000R2 and MX1000-36 CATV Fiber Optic receivers are designed for high reliability with optical AGC, high level RF output, ease of use, easy to read LED indicators, and is suitable for high-level applications.

FEATURES AND BENEFITS

- Optical AGC
- Wide adjustable Output level and slope range
- Operating parameters controlled by microprocessor and indicated on display screen
- Dual power supply provides for full-automatic backup switching
- Chassis temperature is auto controlled
- Advanced Network Management functions
- Intuitive RF output level display
- *Optional Dual Input Switch with Auto Detect for Redundancy

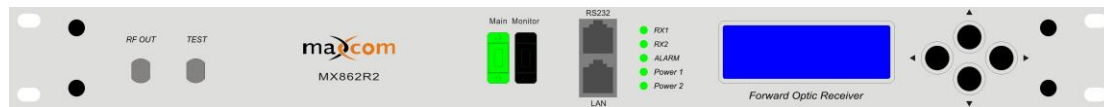
PRODUCT SUMMARY

The MX1000R is a one way forward path optical receiver.

Users may adjust RF output level, slope, and RF operating mode through the front panel controls. Users may also monitor the devices operating status through the LCD screen or with optional SNMP.

RECEIVER CONTROLS, INDICATORS, AND ALARMS

This section of the manual will give an overview of the available menus in the MX1000R series optic receiver and their descriptions. All instructions refer to the representation of the front panel shown in the diagram below. The user scrolls through the menus using the push button found on the front panel.



Operation of the panel

1.1.1 Open menu

- A. Plug into AC110V power supply or -48 VDC
- B. Turn on power switch on the rear panel (AC versions)

Receiver enters a self-diagnostic mode, after checking it begins operating status, and will display "**Forward optic receiver**".

RX1	Status lamp Red (input optical alarm)
RX2	Status lamp Red (backup input optical alarm) (MX1000R lamp is not illuminated) (*2 nd input optional)
ALARM	Status lamp Green (RF output alarm)
POWER1	Status lamp Green (power 1 alarm)
POWER2	Status lamp Green (power 2 alarm)

1.1.2 Start-up main menu

Press “any button” button to display below menu in sequence.

MODEL

Read-only menu, indicates the model of this device

S/N

Read-only menu, indicates the serial-number

INPUT1

Read-only menu, indicates the input optical power

INPUT2 (if equipped with dual input option)

Read-only menu, indicates the input optical power

RF MODE AGC

Adjustable list, display the operating mode, user may change the operating mode of the first stage RF attenuator to AGC (optic automatic gain control) or MGC (Manual gain control mode) by this menu. Suggest using AGC mode.

MGC

Adjustable list, only active when RF MODE is set to MGC

ATT/RF Adjust

Adjustable list, display the output level (second stage attenuation), each single step is 1dB

SLOPE ADJ

Adjustable list, display the slope of output signal, each single step is 1dB

Channel NUMBER

Adjustable list, display the number of channels of transmitted signal, the default is 59, this menu is used for calibrating level display

RF IN 1

Read-only menu, indicates the input signal's level

RF IN 2 (if equipped)

Read-only menu, indicates the input signal's level

RF OUT

Read-only menu, indicates the output signal's level internally

POWER1

Read-only menu, indicates the voltage of hot plug power supply 1 is +24V

POWER2

Read-only menu, indicates the voltage of hot plug power supply 2 is +24V

LCD Contrast Control

Adjustable list, displays the LCD contrast level adjustments

Menu Options if unit has SNMP Option:

IP

Adjustable list, displays the IP address of SNMP

Subnet

Adjustable list, displays the address of sub-net mask

Gateway

Adjustable list, displays the gateway address

Trap1

Adjustable list, displays the trap1 address

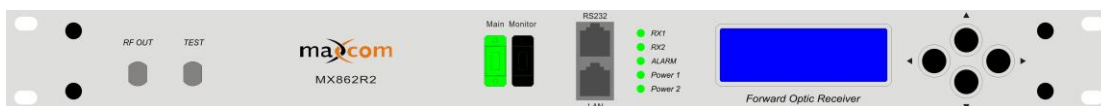
Trap2

Adjustable list, displays the trap1 address

1.1.3 Menu assistant manual

Press “UP” or “DOWN” button to select the menu that you wish to modify, press “RIGHT” button to enter modify status, then press “RIGHT” or “LEFT” button to shift the key to the position that needs to be modified, press the “UP” or “DOWN” button to change the value, after making change, press the “RIGHT” button to save. Press “LEFT” button to exit or cancel this setting.

Ex: modify IP: 192.168.000.015, If you need change the 5 to 6, press “DOWN” button to select IP menu, press “RIGHT” button to enter modify status, then press “RIGHT” button to shift the key to 5 this position, and then press “UP” or “DOWN” button amend current value, press “RIGHT” button to shift right to save and exit. Press “LEFT” button to shift left to cancel and exit.



RS232 USER INSTRUCTIONS

Connect the device to a PC by using an RJ45 data cable, use your PC's serial port assistant software to see the working parameter of this device

Control command: READ

Baud rate: 9600

Data bit: 8

Stop bit: 1

Check bit: NONE

Control flow: NONE

NOTES

1. Input optical Power: For optimal performance, the received power should be between -7~+2 dBm. Receiver will operate as low as -12 dBm Input power, however CNR will deteriorate as input power decreases. If input power is too high, it will cause CTB and CSO deterioration. When received power is >3dBm (2mW), it may potentially damage the optical receiver module.

2. RF output level: optical receiver's RF output level is related to receive power and optical receiver's RF drive level (the modulation coefficient). Typically, as receive power increases or decreases by 1 dB, optical receiver's RF output level would increase or decrease 2 dB (1:2). If the Optical receiver's RF drive level increases or decreases 1 dB, the optical receiver's RF output level would increase or decrease 1 dB (1:1).

3. CTB and CSO: RF output level too high will cause the CTB and CSO index to deteriorate. Shall output level increase 1dB, and CTB would deteriorate 2dB, CSO would deteriorate 1.5dB. When adjusting optical receiver's RF output level, you should ensure the distortion index $CTB \leq -65dB$, $CSO \leq -60dB$.

ERROR AND REMEDY

No RF output

Check the power supply of the unit to determine whether it is normal.

Insert optical connector, if the RX-Low is showing a red light, or no optical power, you should use an optical power meter to measure the optical power of the optical cable output connector. If optical power is normal, it may not be seated well into the optical connector, (this unit adopts SC/APC), or optical receiver module may be damaged, if damage is suspected, you should contact Maxcom and return for factory maintenance.

RF output level too low(<20dBmV)

Check received optical power to determine if too low. (<-12dBm)

RF output level too high causing the distortion index to be deteriorated

Check received optical power to determine if too high, such as >3dBm you should install an optical attenuator.

Check the head-end optical receiver's RF drive level whether too high. Optical receiver's RF drive level determines the modulation, it also determines the system index (CNR, CTB, CSO). Designing should meet optical receiver manufacture requirement.

If received optical power and optical receiver RF drive level are all normal, optical receiver RF output power may be adjusted through ATT1.

Performance			MX1000R2 and MX1000-36
Optical feature	Wavelength (λ)	(nm)	Agnostic 1290-1630, Typical 1310/1550
	Input power	(dBm)	-12~+2
	Operating mode		Optical AGC (when using the MGC function, AGC will not be operational)
	Return wave loss	(dB)	≥55
	Optical connector		SC/APC
RF feature	Bandwidth	(MHz)	45~1000
	Output level	(dBmV)	MX1000R2=53dBmV / MX1000R-36=36dBmV
	Flatness	(dB)	≤±0.5
	Output level adjustable	(dB)	0~20MGC (ADJ)
	Output level adjustable	(dB)	0~20(ATT)
	Output slope adjustable	(dB)	0~15(SLOPE)
	Return loss	(dB)	≥16(750MHz)
	Output impedance	(Ω)	75
Link feature	Test channel		ATSC-D/79CH
	CNR	(dB)	≥52(10Km fiber,-1dBm receive)
	CTB	(dB)	≤-70
	CSO	(dB)	≤-63
General feature	Network management interface option		RJ45, R232(supports IE & SNMP)
	Power supply	(V)	110VAC (-48VDC option)
	Power consumption	(W)	≤50 (single PS operation)
	Work temp.	(*F)	-23~149 (Unit temp. controlled automatically)
	Storage temp.	(*F)	-40~185
	Relative humidity	(%)	5~95
	Size (W)x(D)x(H)	(inch)	14.5x17.25x1.75



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