## LP-288ai, 5.8GHz Band Fractional Bandwidth 5/10/20MHz OFDM Radio, 123 Manual for installation in Point to Point to Multi-Point.

LP288ai\_M123\_END01W



## LP-288ai, 5.8GHz Band Fractional Bandwidth 5/10/20MHz OFDM Radio, 123 Manual for installation in Point to Point to Multi-Point.



By following the instructions given in the next paragraphs, you will be able to install the LP-288ai in Point to Point to Multi-Point Mode.

Please check package contents shown in figure 1.



Figure 1

Please prepare the cable with the connector as shown in figure 2a, 2b and 2c.





Figure 2a

Figure 2b

Figure 2c

Connect the cable as shown in figure 3.



Figure 3

2

3

5 Connect one of your PC's or Switch's Ethernet ports to the **To Ethernet** input of the PoE injector of the LP-288ai as shown on figure 5. Connect the **To ODU** output of the PoE injector to your LP-288AI as shown in figure 4.



Figure 4





Connect the DC Power to the PoE's Injector Jack as shown in figure 6.



Figure 6

Go to the Properties window of your Network Interface card (NIC): Local Area Connection Properties and select: Internet Protocol, then select: Properties as shown in figure 7.

Marceo			-
Connect using:			
Intel(R) PR0/100	0 MT Mobile Conne	Configure	r
This connection uses th	e following items:		
ST NWLink NetBi	05		1
ST NWLink IPX/S	PX/NetBIOS Compatit	ble Transport Prot	11
M Themet Protoc	ol (TCP/IP)		1
<	110	- N	
Instal	Uninstal	Properties	
Description		A AL AL ALL AND A ALL A	
Transmission Control	Protocol/Internet Proto otocol that provides co	col. The default	
wide area network pr actors diverse interco	onnected networks		_

OK.

Cancel

## Figure 7

In the window: Internet protocol (TCP/IP) Properties of figure 8, select: Use the following IP address and input an IP address in the default IP range of the LP-288ai, in this example we have selected the address: 192.168.1.201. The LP-288ai has a default address of: 192.168.1.2, input in: Subnet mask: 255.255.255.0 and in: Default gateway, the destination router address, in: DNS you will have to input your ISP's DNS or the destination router address, the one that provides the Internet service, in order that any queries are routed to the destination network's router. Please take a look at the diagram shown in figure 40 at the end of the document, once finished select: Ok and then: Close.



You will need the MAC addresses of all equipment that will be involved in this Point to Point configuration, besides that, we will need two different IP addresses inside the range for their administration.



Open the browser application of your choice and input the default address: 192.168.1.2, please see figure 9.

(C) • @ http://192.168.1.2/				~
File Edit. View Favorikes Tools Help				
Figure 9				
The LP-288ai will ask that you input a User and a Password. The LP-288ai has two user levels, one with all the privileges named by default: <b>super</b> , whose password is: <b>super</b> and another with less privileges named: <b>admin</b> with a password: <b>admin</b> . Now please input as user: <b>super</b> and a password: <b>super</b> and hit: <b>OK</b> , as shown in configuration in figure 10.		Connect to 192,16	8.1.2 2 at Secure R a requesting th insecure man ection). 2 super 	ealm requires a username net your username and ner (basic authentication
Figure 10				Cancel
Mode, then select: Wireless Bridge, then select the channel in the input field: Radio frequency , now add the radios MAC addresses that will take part of the Point to Point or multi-point scheme, except the equipment you are now configuring and select: Update.	SLANPRO Basic Site Survey Administration IP Configuration Operation Mode Advanced Isado Setting Security Setting BAAC Addr Control Protocol Fiber SIMBP Configuration Miscellaneous	Basic -> Operation Operation Hode: SSID: Workess Hode: SRadio Frequency: Auto-channel Follow Up Listen Interval Enable Beacon WDS:	Hode Updat Access Peint ( GHz 54Mbps (B 180MHz (Chann Enable © Disal 0 finites Enable © Disal beason. Enable © Disal	Clent. () Wireless Endge Suppress SSID: () 22.11a) () al 36) () ble (1 - 255 seconds) e bestet f Auto-transet Fatter Up is enabled Bidge. Auto-transet Fatter Up is enabled Bidge.
	Gos Setting System Log Status System Status Association Status Super user Super User Firmware Upgrade	Advanced Settings: Distance: 4 Km and above https://www.analysis.org/ adjust the primers to gain performance. Anterne Adjust	Alaana in Saethar	Remote AP HAC List: Remote AP HAC 1: 00:10:5c:00:03:33 Remote AP HAC 2: 00:00:00:00:00:00 Remote AP HAC 3: 00:00:00:00:00:00 Temes: All '00:00:00:00:00:00' maxim allan

The equipment will save the changes but they will not take effect until you reboot the equipment. For rebooting, go to the window in figure 12 and select: **Reboot**.



Figure 12

Figure 13

In figure 13, a window will pop-up showing the progress of the reboot function.

Basic	
Administration	
IP Configuration	Rebooting
Operation Mode	5
Advanced	1220-000-000-000-0000
Radio Setting	Please wait
Security Setting	
MAC Addr Control	22
Protocol Filter	
HIAP Configuration	If the bronzer fails to auto-redirect, please use the left nangator
Rescellaneous	
Gos Setting	
states roll	
Status	
System Status	
Association Status	





15 In the window of figure 15, select: **Security setting**, in: **Security mode** select the **WEP** encryption mode. It is important to mention that in bridge mode only the WEP type is permitted, remember that for a larger encryption level the link speed is lower. Select the authentication method, the key method and key or keys and key lenght, then select: **Update**.

SLANPRO	Advanced -> Security Se	string (Update) REBOOT		
Basic Site Survey Administration	Security Hode:	WEP V		
IP Configuration Operation Mode	Authentication Hethod: 🔘 Open 🛞 Shared Key			
Advanced				
Redin Setting	Key LINDY	Hexadecimal 🕑 Asch Text		
Security Setting MAC Addi Control	Default Shared Encryption Key Key	Key Length		
Protocol Filter	1. 01234	64 bit (10 hex digits/ 5 ascir keys	1 1	
Miscelanoous	0 2	None	R	
Qos Setting	4.0	None		
shares rod	0.4	None	.*	
Status System Status Association Status		10000	_	

Figure 15



Once changes are saved, proceed to select: **Reboot** for the changes to take effect.

SLANPRO	Advanced -> Security Setting Update Reminden Hease reboot to	changes to take effect
Basic Site Survey Administration IP Configuration Operation Node	Security Hode: WEP	
Advanced Radio Setting Security Setting MAC Addr Control Protocol Fitter	Authentication Hethod: Ope Key Entry Hethod: Hex Default Shared Encryption Key	n 🕑 Shared Key adecimal 🎯 Ascii Text Key Length
Itiscatianeous	I. 01234	64 bit (10 hex digits/ 5 ascii keys) 💌
Gos Setting	0 2	None
	0 1	None
Status System Status	0.	None

Figure 16



In figure 17 you can watch the equipment doing the reboot function.



Figure 18

Figure 20

Once rebooted, select: Click here, as shown in the window shown in figure 18.

SLANPRO	
Basic	
Site Survey	Sustem is Up
IP Configuration	System is op
Operation Mode	
Advanced	Click here
Radio Setting	
Security Setting	
MAC Addr Control	
Protocol Filter	
SNMP Configuration	
Miscellaneous	
Qos Setting	
System Log	
Status	
System Status	
Association Status	

 Important recommendation (Optional): Proceed to change the User password: admin and the super user password: super of your equipment, In order to change the User: admin, password, select: administration input the new password in the field named: password, then select: Update as shown in figure 19.

**20** For the changes to take effect, please select: **Reboot** in the window shown in figure 20.



SLANPRO	Basic -> Administra	tion (Update)	REBO
Basic	Rema	deri Picase reboot for chan	pes to take effect
Sile Survey			
Administration			
IP Configuration	Device Name:	<u></u>	
Operation Mode	User Name:	admin	
Advanced	Password		
Radio Setting			

21 The progress of the reboot function is shown in the window of figure 21.

SLANPRO	
Basic	
Site Survey	
Administration	
IP Configuration	Rebooting
Operation Mode	
Advanced	
Radio Setting	Please wait
Security Setting	
MAC Addr Control	(28)
Protocol Filter	
SMMP Configuration	If the browser fails to auto-redirect, please use the left navigator
Miscellaneous	
Qos Setting	
System Log	
Status	
System Status	
Association Status	

The equipment will ask again for the User and Password. If you are authenticated as **admin**, input the value you changed and select: **OK**, then select: **click here**, please see figure 22.

SLANPRO	
Basic Site Survey	Contant in Un
Administration IP Configuration Operation Mode	System is Up
Advanced	Click here
Radio Setting	
Security Setting	
MAC Addr Control	
Protocol Fitter	
SMMP Configuration	
Miscellaneous	
Qos Setting	
System Log	
Status	
System Status	
Association Status	



Figure 23

Proceed to change the password of the user: super, in order to be able to make this change you must be authenticated as super user, now select option: super user and input a new password, then select: update, please see figure 23.

SLANPRO	Super User -> Su	per User (Update)	REBOOT
Basic			
Administration	User Rame:	super	
IP Configuration	Password		10
Operation Mode			
Advanced			
Radio Setting			
Security Setting			
MAC Addr Control			
Protocol Filter			
SHMP Configuration			
Miscellaneous			
Qos Setting			
System Log			
Status			
System Status			
Association Status			
Super user			
Super User			
Firmware Opgrade			
Firmware Version			
License Key			

For the change to take effect, please select: **Reboot** in the window shown in figure 24.

24



25	Watch now the progress of the reboot function, please see figure 25.	SLANPRO	
	5	Basic	
		Site Survey	
		Administration	Rehooting
		Operation Mode	Rebooting
		Advanced	
		Radio Setting	Please wait
		Security Setting	[20]
		Protocol Fitter	(a)
		SNMP Configuration	If the browser fails to auto-redirect, please use the left navigator
		Miscellaneous	
		System Log	
		-	
		Status	
	Figure 25	Association Status	
26	In the window chown in figure 26, plages calents		
20	Click here	SLANPRO	
	click liefe.	Desis	
		Site Survey	
		Administration	System is Up
		IP Configuration	-,,
		Operation Mode	
		Advanced	Click here
		Radio Setting	
		MAC Addr Control	
		Protocol Fitter	
		ShittP Configuration	
		Qos Setting	
		System Log	
		Status	
		System Status	
	Figure 26	Association Status	
	-		

<sup>27</sup> The equipment will ask you to input the new user and password, input the new values to proceed and select: **OK** 

<sup>28</sup> Disconnect the first equipment and proceed to configure the second equipment, configure it like the first, by first changing the IP Address in its configuration console. Important: you must select the same channel for all the equipment.

Please open your preferred browser and input the default address: 192.168.1.2 as shown in figure 27.

29

Internet Explorer cannot display the webpage - Windows Internet Explorer
 Internet Explorer



<sup>30</sup> In the window shown in figure 28 the equipment will ask for validation, please input user: **super** and in password: **super**. In the window shown in figure 29, select: **IP configuration** and change the IP, we recommend to use another from the same segment not assigned by the DHCP; in this example we will use: 192.168.1.3. Once done, select: **Update.** 

Connect to 19	2.168.1.2	? 🛛
R	G C	N.
The server 192.1 and password. Warning: This ser password be sen without a secure User name:	68.1.2 at Secure Realm requires rver is requesting that your usen t in an insecure manner (basic au connection).	a username name and thentication
Password:	••••	
	Remember my password	I

SLANPRO	Basic -> IP Configuration	REBOOT	
Basic Site Survey Administration	IP Mode: DHCP Relay:	<ul> <li>Static IP</li> <li>Olisable</li> </ul>	O Dynamic IP (DHCP Client) O Enable
IP Configuration Operation Mode Advanced Radio Setting Security Setting MAC Addr Control	IP Address: Subnet Hask: Default Gateway Address:	192 , 168 255 , 255 0 , 0	.1.3 .255.0 .0.0
Protocol Filter SNMP Configuration Miscellaneous Gos Setting System Log			

Figure 29

Figure 28

For the changes to take place, you must select: **Reboot** in the window of figure 30.

SLANPRO	Basic -> IP Configuration	pdate				KEBUUT
	Reminder: Please	reboot	for char	opes to tab	e effect	
Basic	IP Mode:		Acr 10	Open	NH IR COM	P Pilet
Administration	DHCP Relay:	@ Dis	sable	OEnabl		a anna
Operation Mode						
Advanced	IP Address:	192	168	1	.3	i –
Fladio Setting Security Setting	Subnet Hask	255	. 255	. 255	.0	1
MAC Addr Control	Default Gateway Address:	0	. 0	. 0	.0	1
SHMP Configuration						
Miscellaneous						
System Log						

<sup>32</sup> In the window of figure 31 an indication of the reboot function progress will be shown.

SLANPRO	
Basic	
Site Survey	
Administration	Datasti
IP Configuration	Rebooting
Operation Mode	
Advanced	
Radio Setting	Please wait
Security Setting	
MAC Addr Control	29
Protocol Filter	
SNBP Configuration	If the browser fails to auto-redirect, please use the left navigator
Miscellaneous	
Qos Setting	
System Log	
Status	
System Status	
Association Status	

Figure 31

33 You wil have to acces now your equipment through the new IP, in order to do this, input the address: 192.168.1.3 in the web browser as shown in figure 32.



Please input user: super and password: super and select: Ok, as shown in the window of figure 33.



Figure 33

In the window of figure 34, select: **Operation Mode**, select: **Wireless Bridge**, and now select one channel in the field named: **Radio frequency**. Now add the MAC addresses of the radios that will form part of the point to point to multi-point configuration, excluding the MAC address of the radio you are configuring now and then select: **Update**.



<sup>36</sup> The equipment will save the changes, but they won't take effect until the equipment reboots. In order to do this, select: **Reboot** as shown in the window of figure 35.



Figure 35

Figure 36

In the Window of figure 36 the reboot progress will be shown.

LANPRO	
Basic	
Site Survey	
Administration	D.L.
IP Configuration	Rebooting
Operation Mode	3 <del>7</del> .7
Advanced	0200
Radio Setting	Please wait
Security Setting	
MAC Addr Control	28
Protocol Filter	
SNMP Configuration	If the brower fails to auto-redirect, please use the left navigator
Mincellaneous	
Qos Setting	
System Log	
Status	
System Status	
Association Status	

In the window shown in figure 37, select: **Click here.** 



Figure 38

Figure 39

<sup>39</sup> In the window shown in figure 38, select: **Security setting**, in: **Security mode**, select the encryption mode WEP, it is important to mention that that in the bridge mode only the WEP type is permitted, remember that for more encryption the less the speed of the link. Now select the authentication mode, the key method, the key or keys and the key lenght. Select: **Update**, remember that the values should be the same values you used with the equipment you configured before.

SLANPRO	Advanced -> Security Setting	date) REBOOT
Basic Sile Survey Administration	Security Hodes WEP	
IP Configuration Operation Mode	Authentication Hethod:	Open 🛞 Shared Key
Advanced Radio Setting	Key Entry Hethod: 🔘	Hexadecimal 🐵 Aacii Text
Security Setting MAC Addr Control	Default Shared Encryption Key Key	Key Length
Protocol Filter	I 01234	64 bit (10 hex digits/ 5 ascii keys) 👱
Miscelaneous	0.2	None
Qos Setting	0 1	None
System Log	0 4	tione
Status System Status Association Status		

Once changes are saved please select: **Reboot** in the window shown in figure 39 for the changes to take effect.

40

SLANPRO	Advanced -> Security Setting	(Update) REBUOT	
Basic Site Survey Administration IP Configuration Operation Mode	Security Hode: WEP	×	
Advanced Radio Setting Security Setting MAC Adds Control Protocol Nitel	Authentication Hethod: Key Entry Hethod Default Shared Encryption Key	O Open ③ Shared Key ○ Nexadecimal ③ Ascil Text Key Length	
Miscellaneous	<ul> <li>1, 01234</li> </ul>	64 bit (10 hex digits/ 5 asci keys)	2
Gos Setting	0 2	None	(M
at some cong	0 1	None	×
Status	0 4	None	*

```
41 The progress of the Reboot function will be shown In
the window of figure 40.
```

SLANPRO	
Basic	
Site Survey	
Administration	12.5 A 10 100.5
IP Configuration	Rebooting
Operation Mode	nebooting
Advanced	
Radio Setting	Please wait
Security Setting	
MAC Addr Control	28
Protocol Filter	
SMMP Configuration	If the browser fails to auto-redirect, please use the left navigator
Miscellaneous	
Qos Setting	
System Log	
Status	
System Status	
Association Status	



Figure 42

Status

Proceed to connect both equipment, one to the destination network and the other to a PC and proceed to test the connectivity between them with a PING command.



Figure 43. Reference block diagram