# **NetUP Streamer 16xC**

### User manual

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# Contents

Chapter 1	Introduction 3
Appearance an	nd illustration3
Specifications .	
Chapter 2	Installation guide5
Device's install	ation flow chart5
Packing list che	eck 5
Safety instructi	ions 5
Environment re	equirement6
Grounding req	uirement6
Chapter 3	WEB NMS Operation7
Login	
Summary $\rightarrow$ St	atus 8
Parameters $\rightarrow$	TS Config 8
Parameters $\rightarrow$	Scrambler 11
Parameters $\rightarrow$	Modulator 11
Parameters $\rightarrow$	IP Stream
System $\rightarrow$ Netv	work
System $\rightarrow$ Pass	sword 14
System $\rightarrow$ Cont	figuration14
System $\rightarrow$ Firm	14 nware
System $\rightarrow$ Log.	
Troubleshoo	nting16



## Chapter 1 Introduction

NetUP Streamer 16xC – is the latest generation Mux-scrambling-modulating all-in-one device developed by NetUP. It has 16 multiplexing channels, 16 scrambling channels and 16 QAM (DVB-C) modulating channels, and supports maximum 1024 IP input through the GE port and 16 non-adjacent carriers (50MHz~960MHz) output through the RF output interface.

### Appearance and illustration





# Specifications

	Input	512×2 IP input, 2 100/1000M Ethernet Port (SFP)			
Innut stream	Transport Protocol	TS over UDP/RTP/RTSP, unicast and multicast, IGMP			
mput stream		V2/V3			
	Transmission Rate	Max 840Mbps for each GE input			
Mux	Input Channels	1024			
	Output Channels	16			
	Max PIDs	180 per channel			
	Functions	PID remapping (auto/manual, optional)			
	Max simulscrypt CA	4			
Scrambling	Scrambling Standard	ETR289, ETSI 101 197, ETSI 103 197			
	Connection	Local/remote connection			
	QAM Channel	16 non-adjacent carrier			
Modulation	Modulation Standard	EN300 429/ITU-T J.83A/B			
	Symbol Rate	5.0~7.0Msps, 1ksps stepping			
	Constellation	16, 32, 64, 128, 256QAM			
	FEC	RS (204, 188)			
RF output	Interface	1 F type output port for 16 carriers, $75\Omega$ impedance			
	RF Range	50~960MHz, 1kHz stepping			
	Output Level	-20dBm~+10dBm(87~117dbµV), 0.1dB stepping			
	MER	≥ 40dB			
	ACLR	-60 dBc			
TS output	16×IP output over UDP/RTP/RTSP, unicast/multicast, 2 100/1000M Ethernet				
15 output	Ports				
System	Network management software (NMS) support				
	Dimension (W×L×H)	420 mm × 440 mm × 44,5 mm			
	Approx. weight	Зkg			
Other parameters	Temperature	0~45°C(operation), -20~80°C(storage)			
	Power requirements	AC 100V±10%, 50/60Hz or AC 220V±10%, 50/60Hz			
	Power consumption	15.4W			



# Chapter 2 Installation guide



Device's installation flow chart



Before installing and connecting the device, carefully read the environment and grounding requirements, as well as safety instructions for the sake of your safety and for the safety of the device

### Packing list check

Check items according to packing list. Normally it should include the following items:

- NetUP Streamer 16xC
- Power Cord

### Safety instructions

- Before installing and connecting the device make sure that the device was damaged during delivery.
- Install the device in an appropriate place. The device is designed to work in a clean and dry room. It must be operated and maintained free of dust.
- Before switching on the device make sure that it is adjusted to the mains voltage you intend to use. Make sure that you keep within the specifications AC 100V-220V±10%, 50/60Hz.
- Check that all the cables are connected properly. Connect cables only to a device that is turned off.



Environment	requirement
-------------	-------------

Item	Requirement
Room space	When installing a rack in the room, make sure the distance between two
	rows of racks is 1.2~1.5m and the distance to the wall is at least 0.8m.
Room floor	Electric isolation. Dust free. The volume resistivity of ground anti-static
	material: 1×107~1×1010 $\Omega$ . Grounding current limiting resistance: 1M (Floor
	bearing should be greater than 450Kg/m <sup>2</sup> ).
Environment	5~40°C (sustainable), 0~45°C (short time).
temperature	Installing air-conditioning is recommended.
Relative temperature	20%~80% (sustainable); 10%~90% (short time).
Pressure	86~105KPa
Door & window	Install rubber strip for sealing door-gaps and dual level glasses for windows
Walls	Can be covered with wallpaper or dark paint.
Fire protection	Fire alarm system and extinguisher.
Power	The device requires AC 100V-220V±10%, 50/60Hz.
	Please carefully check before running.

### **Grounding requirement**

- Connect the ground wire to the grounding hardware on the device. Ground resistance should be no more than 1  $\Omega$ 



*Grounding is essential for device's functionality, surge and electronic interference protection* 

- Keep proper contact with the metal housing of the device
- Grounding wire must be made out of copper and as thick and short as possible
- Make sure the two ends of grounding wire conduct electricity and are not rusty
- It is prohibited to use any other devices as a part of grounding electric circuit
- All racks should be connected with a protective copper strip. Ground loops should be avoided
- Grounding wire's contact area with the rack should be no less than 25mm<sup>2</sup>



# Chapter 3 WEB NMS Operation

Use the Web interface to control NetUP Streamer 16xC.

### Login

Connect a personal computer and the device with net cable, and use ping command to confirm they are on the same network segment.



Make sure that the computer's IP address is different from the device's IP address; otherwise, it would cause an IP conflict

The default IP address of NetUP Streamer 16xC is **192.168.0.136** or **10.0.0.103**. Thus, set the computer's IP address to 192.168.0.X or 10.0.0.X, where X can be from 0 to 255, except 136 or 103. Open a web browser, enter the device's IP address in the browser address bar and press **Enter**. If the network is configured correctly, you will see the login interface (Figure 1).

Enter username and password and click **LOGIN** to enter the web interface. Default username is "admin", default password is "admin".

Web Management	+		-
€ → 192.168.0.136	☆ マ C 🛃 - Google	P 1	
	(INTERNAL)		
	Username: 🐻 admin		
	Password:		
	Default Password:admin Default Password:admin		
	The second se		
	Copyright @2011		

Figure-1



### Summary → Status

After login, you will get the Status page which displays the current system status (Figure-2).

Summary ▶ Status Parameters	
TS Config     Scrambler     Modulator     IP Stream      Vetwork     Password     Configuration     Firmware     Log	System information         Use this menu to navigate between the interface pages         Software Version:       1.11 Build 200.00 Jun 4 2016         Hardware Version:       0.90.0         Web Version:       1.10         System Version:       1.10.1.50         Product ID:       0d031600-00000010-00000000         Uptime:       0 Day-01:17.32

Figure-2

### Parameters $\rightarrow$ TS Config

Use the **TS Config** page to configure the TS output parameters and select one of the following tabs: **Output TS, Stream Select, General, PID Bypass.** 

### **Output TS**

Select the **Output TS X** tab, to open the list of available TS channels. Click one of the channels to select it (Figure-3).







### **Stream Select**

Select the Stream Select tab to select streams that should be sent to Mux out (Figure-4).



#### Figure-4

Program Information			[close]
Program From Input:	CH1_GE1_22	4.2.2.2:1234 [302]	
Service Name:	CCTV 2		
Program Number:	101		
Service Type:	0x01		
Service Provider:	CCTV		
PMT Descriptor Tag:	🔲 0x00		
PMT Descriptor Data:		(Hex)	
PMT PID:	0x0020		
PCR PID:	0x0021	Confirm	
MPEG-2 Video PID:	0x0022	changes	
MPEG-2 Audio PID:	0x0023	Changes	
		Apply	Close

#### Figure-5

#### **Operation area:**

CA Filter	filter or not filter the source CA information
PID Remap	enable or disable PID remapping
Refresh input / output	refresh an input or an output
===> / <===	move programs between the input and the output areas
All input / output	select all input or output programs



### General

Summary					
► Status	NFIG				
Parameters					
► TS Config	Output TS 1 -	Stream Select	General P	ID Bypass	
▶ Scrambler					
Modulator	Stream				
P P Stream	Output Mode:	Mux out	•	PAT Insert:	7
System	SDT Insert:			BAT Insert:	V
Network	Share BAT:			CAT Insert:	<b>v</b>
Configuration	PMT Insert:	V		TDT Insert:	
► Firmware	TOT Insert:	V		TS ID:	1
▶ Log	ON ID:	1		PCR Correct	
	PCR Speed BW	0	•	PCR State BW	0 -
	NH				
	NIT Insert:			Private Data:	☑ 0×0000000
	Network ID:	1		Network Name:	network-1
	Version Mode:	Automatic	•	Version Number:	0 (0-31)
	Index TS ID	ON ID	Frequency	Constellation	Symbol Rate 🛨 🏛
					· <b>A</b> -
	VCT				
	VCT Insert:			Modulation Mode:	4 Add an NIT
					descriptor

Select the **General** tab to edit common parameter for output streams (Figure-6).

#### Figure-6

NIT Descriptor			[ close ]
TO ID			
ISID:	1		
ON ID:	1		
Frequency:	450.000	MHz	
Constellation:	16 QAM	*	
Symbol Rate:	6875	Ksps	
FEC Inner:	1/2 conv.	*	
FEC Outer:	not outer FEC	*	
		Add	Close

#### Figure-7

### **PID Bypass**

Select the **PID Bypass** tab to edit the list of PIDs that should pass through (Figure-8).

Summary	TS CONFIG	
Scrambler	Output TS 1- Stream Select General PID Bypass	
Modulator	Index Input Channel Input PID(0x) Output PID(0x) +	
Network     Password	1	
Configuration Firmware		Set Del-All
Log		

Figure-8



### Parameters → Scrambler

Use the Scrambler page to manage scrambling options and select programs to scramble (Figure-9).



#### Figure-9

### Parameters → Modulator

Use the Modulator page to edit RF output parameters (Figure-10).

meters	Center Freque	ncy: 710.000 MHz		Standard: J	83A(DVB-C)				
Config	Level(All Carrie	ers): 0 0 dBm		Channel Info	Alarm/Active/To	tal): 0/16/16			
rambler								2.1	
odulator	Channel	Frequency	Constellation	Symbol Rate	Gain offset	Status	Bit(Act/Max)	1	Ouick confi
stream	1	650 000 MHz	64 QAM	6875 Ksps	0.0 dB	•	34.7/38.0 M	1	
em	2	658.000 MHz	64 QAM	6875 Ksps	0.0 dB		0.0/38.0 M	1	(Figure-11)
twork	3	666.000 MHz	64 QAM	6875 Ksps	0 0 dB		0.0/38.0 M	1	
infiguration	4	674.000 MHz	64 OAM	6876 Kens	0.0.dB		0.0/38.0 M	1	
mware		574.000 min.			0.0 00		0.0120.010		
1	5	682.000 MHz	64 QAM	6875 Ksps	0.0 dB	•	0.0/38.0 M	1	
	6	690.000 MHz	64 QAM	6875 Ksps	0.0 dB		0.0/38.0 M	1	
	( <b>7</b> )	698 000 MHz	64 QAM	6875 Ksps	0.0 dB	•	0.0/38.0 M	1	
	8	706 000 MHz	64 QAM	6875 Ksps	0.0 dB		0.0/38.0 M	1	
	9	714.000 MHz	64 QAM	6875 Ksps	0.0 dB		0.0/38.0 M	1	
	10	722.000 MHz	64 QAM	6875 Ksps	0.0 dB		0.0/38.0 M	1	Channel
	11	730.000 MHz	64 QAM	6875 Ksps	0.0 dB		0.0/38.0 M	1	config
	12	738.000 MHz	64 QAM	6875 Ksps	0.0 dB		0.0/38.0 M	1	(Figure 12)
	13	746.000 MHz	64 QAM	6875 Ksps	0 0 dB	•	0.0/38.0 M	1	(Figure-12)
	14	754.000 MHz	64 QAM	6875 Ksps	0.0 dB		0.0/38.0 M	1	
	15	762.000 MHz	64 QAM	6875 Ksps	0.0 dB		0.0/38.0 M	1	
	46	770 000 1001		6675 W	0.0.10		0.0000.014	140	

Figure-10



Quickly Config.		[ close ]
Otan danda	1.024/D)//	
Standard:	J.63A(DVE	5-0) ▼
Level(All Carriers):	0.0	(-20 ~ +10 dBm)
Observed Freehler		
Channel Enable:	V	_
Start Frequency:	650.000	(30 ~ 900 MHz)
Bandwidth:	8.000	MHz
Constellation:	64 QAM	•
Symbol Rate:	6875	(5000 ~ 7000 Ksps)
Gain offset:	0.0	(-10 ~ 0 dB)
		Apply Close
Figure-11		
Channel 1 Config.		[ close ]
Standard:	J.83A(DVE	3-C) 🗸
Level(All Carriers):	-10.0	(-12 ~ +13 dBm)
Channel Enable:	<b>~</b>	
Frequency:	474.000	(30 ~ 900 MHz)
Constellation:	64 QAM	*
Symbol Rate:	6875	(5000 ~ 7000 Ksps)
Gain offset:	0.0	(-12 ~ 0 dB)
		Apply Close

Figure-12

### Parameters → IP Stream

NetUP Streamer 16xC supports TS IP output (16×MPTS) via the DATA port. Use the **IP Stream** page to set IP output parameters (Figure-13).

atus										
meters	Channel Info.	(Alarm/Active/Tota	l): 0/1/16							_
rambler	Channel	IP Address	Port	Protocol	Pkt Length	Null PKT Filter	Status	Bit(Act/Max)	Ζ.	
dulator	1	224.2.2.2	2001	UDP	7		۲	32.5/38.0 M	12	
stream	2	224.2.2.2	2002	UDP	7		۲	0.0/38.0 M	1	
work	3	224.2.2.2	2003	UDP	7		۲	0.0/38.0 M	1	
sword	4	224.2.2.2	2004	UDP	7		۲	0.0/38.0 M	12	Click to
iguration	5	224.2.2.2	2005	UDP	7		۲	0.0/38.0 M	1	paramet
	6	224.2.2.2	2006	UDP	7		۲	0.0/38.0 M	12	(Figure-
	7	224.2.2.2	2007	UDP	7		٠	0.0/38.0 M	12	
	8	224.2.2.2	2008	UDP	7		۲	0.0/38.0 M	1	
	9	224.2.2.2	2009	UDP	7		۲	0.0/38.0 M	12	
	10	224.2.2.2	2010	UDP	7		۲	0.0/38.0 M	12	
	11	224.2.2.2	2011	UDP	7		۲	0.0/38.0 M	1	
	12	224.2.2.2	2012	UDP	7		۲	0.0/38.0 M	12	
	13	224.2.2.2	2013	UDP	7		۲	0.0/38.0 M	1	
	14	224.2.2.2	2014	UDP	7		۲	0.0/38.0 M	1	
	15	224.2.2.2	2015	UDP	7		۲	0.0/38.0 M	iz.	
	16	224.2.2.2	2016	UDP	7	(m)		0.0/38.0 M	1	

Figure-13



#### NetUP Streamer 16xC. User manual

Channel 1 Config.		[ close ]
Enable:		
Source Select:	Scrambed TS	*
IP Address:	224.2.2.2	
Port:	2001	
Protocol:	UDP	*
Pkt Length:	7	*
Null PKT Filter:		
		Apply Close

Figure-14

### System → Network

Use the **Network** page to edit networking parameters (Figure-15).

0		
summary	NETWORK	
▶ Status		
Parameters		
TS Config	NMS	
Scrambler	IP Address: 10.0.0.104	
Modulator	Subnet Mask: 255.0.0.0	
P Stream	Gateway: 10.0.0.1	
ystem	Web Manage Port: 80	
Network	MAC Address: 20:3f:12:34:56:78	
Password		
Configuration		Apply
Firmware		
Log		
	Scrambler	
	IP Address: 192.168.19.197	
	Subnet Mask: 255.255.255.0	
	Gateway: 192.168.19.1	
		Apply
	DATA	
	IP Address: 192.168.100.100	
	Subnet Mask: 255 255 255 0	
	Gateway: 192 168 100 1	
	MAC Address: 20:4f 12:34:56:78	
	TS Output: 054 0 050	
	I S Output: GE1 🖬 GE2 🕅	

Figure-15



### System → Password

Use the **Password** page to change current password and username (Figure-16).

Summary  Status	PASSWORD
TS Config       Scrambler       Modulator	Modify the login name and password to make the device safely. If forget the name or password, you can reset it by keyboard. The default login name and password is "admin" Also please note the capital character and lowercase character.
IP Stream  System  Network  Password  Configuration  Firmware  Log	Current UserName:     admin       Current Password:
	Apply



### System → Configuration

Use the **Configuration** page to save or restore system configuration, to revert to factory settings, to work with backups or to load configurations (Figure-17).

nary	
atus	
ameters	
TP Config	Save Restore Factory Set Backup Load Select a tab
Berambler	
Modulator	
IP Stream	When you change the parameter you shoud save configuration otherwise the new configuration will lost after reboot
ystem	
Network	
Password	Save config
Configuration	
Firmware	
► Log	



### System → Firmware

Use the Firmware page to update firmware for the device (Figure-18).

Summary	FIRMWARE
Status Parameters  TS Config Scrambler Modulator IP Stream  System	<ul> <li>Warning:</li> <li>1. Upgrade firmware(software and hardware) to get new function.please choose the right firmware to upgrade. If you use a wrong file, the device may not work.</li> <li>2. Upgrade will keep a long time, please do not turn off the power, otherwise the device will not work.</li> <li>3. After upgrade, you must reboot device manually.</li> </ul>
Network     Password     Configuration     Firmware     Log	Current Software Version:       1.11 Build 200.00 Jun 4 2016         Current Hardware Version:       0.90.0.0         File:       Browse         No file selected

Figure-18



### System $\rightarrow$ Log

Use the Log page to see system logs (Figure-19).

ummary	LOG
▶ Status	
Parameters	
▶ TS Config	Log Type: Kernel Log Auto Refresh: 0   Kornel Log
▶ Scrambler	[ 0.000000] System Log al CPU 0x0
Modulator	[ 0.000000] Linux version 3.19.0-xillinx (root@localhost.localdomain) (gcc version 4.9.1 (Sourcery CodeBench Lite 2014.11-30) ) #134 SMP PREEMPT
▶ IP Stream	[ 0.000000] CPU: ARMv7 Processor [413fc090] revision 0 (ARMv7), cr=18c5387d
	0.000000] CPU: PIPT / VIPT nonaliasing data cache, VIPT aliasing instruction cache
ystem	0.000000] Machine model: xinx,zynq-7000
b. Madaurada	[ 0.000000] cma: Reserved 16 MiB at 0x15800000
Network	0.000000] Memory policy: Data cache writealloc
Password	[ 0.000000] On node 0 totalpages: 98304
Configuration	[ 0.000000] free_area_init_node: node 0, pgdat 40560200, node_mem_map 57cf0000
▶ Firmware	0.000000] Normal zone: 768 pages used for memmap
L og	0.000000] Normal zone: 0 pages reserved
F LOG	0.000000 Normal zone: 98304 pages, LIFO batch:31
	0 0000001 PERCPU: Embedded 9 pages/cpu @57cd3000 s8128 r8192 d20544 u36864

Figure-19



# Troubleshooting

Check the following before troubleshooting:

- Whether the server room is well ventilated and hot air from the back panel of the device is effectively removed?
- Does the supply voltage meet the power requirements of the device?
- Is the RF output level vary within the tolerant range?
- Are all cables connected correctly?

Turn off the device and unplug the power cord in the following cases:

- The power cord or socket is damaged.
- A liquid is splashed on the device.
- A short circuit has occurred.
- The device is in damp environment.
- The device suffered from physical damage.
- Longtime idle.
- After switching on and restoring to factory setting, device still cannot work properly.
- Maintenance needed.



Frequent on and off switching is prohibited; the interval between switching the device on and off must be more than 10 seconds

