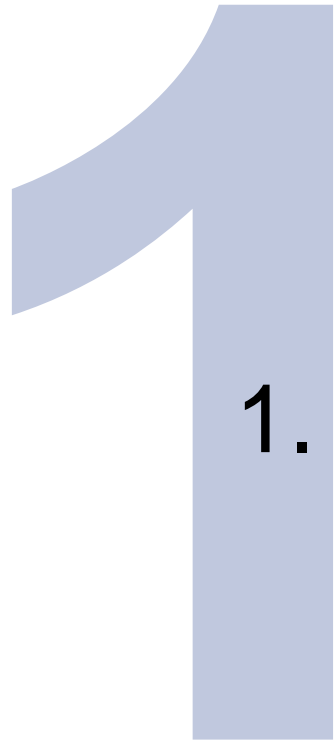


NEXEDGE Type-D Trunking System



1. Type-D Trunking Overview

1. Type-D Trunking System Overview

NEXEDGE Type-D Trunking System

**New affordable
NEXEDGE Single Site
Trunking System
now available.**



KENWOOD
NEXEDGE™

1. Type-D Trunking System Overview

MODELS

FPU

NXR-710

NXR-810

KPG-129D



NX-220

NX-320

NX-720

NX-820

KPG-176D



1. Type-D Trunking System Overview

Type-D Enhanced file

- NXR-710
- NXR-810

KWD-10DTR
(Activation File)



Activated by KPG-97FW

- NX-220
- NX-320
- NX-720
- NX-820

KWD-NXD20K

Type-D Firmware

Activation File



Activated by KPG-97FW

1. Type-D Trunking System Overview

Key Sales Points

- Minimum Investment

Type-D Single Site Trunking can be built by purchasing only Repeater Trunking Feature (KPG-10DTR) without any changes to hardware.

- No Control Channel

Type-D migration is possible for a current analog LTR user.

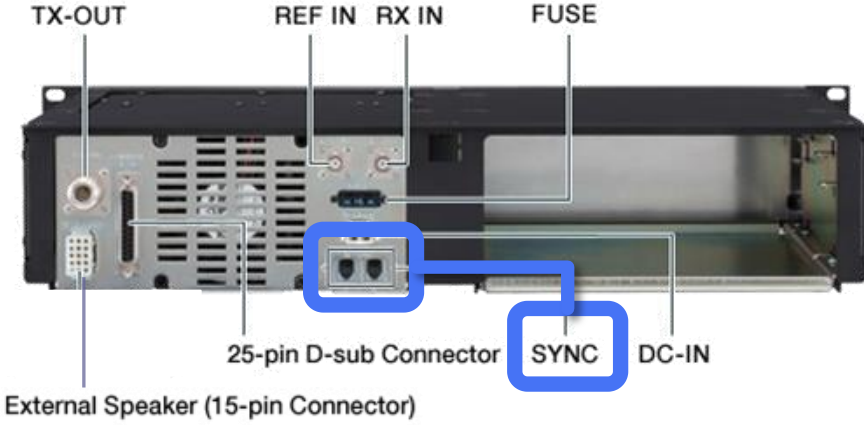
***Note that only 6.25kHz is compatible with Type-D CAI. 12.5kHz is not defined.**

- Security

ESN Validation for security feature is available.

1. Type-D Trunking System Overview

How to built Type-D Single Site Trunking



Connected each other by using N_SYNC interface connector up to 30 CH.

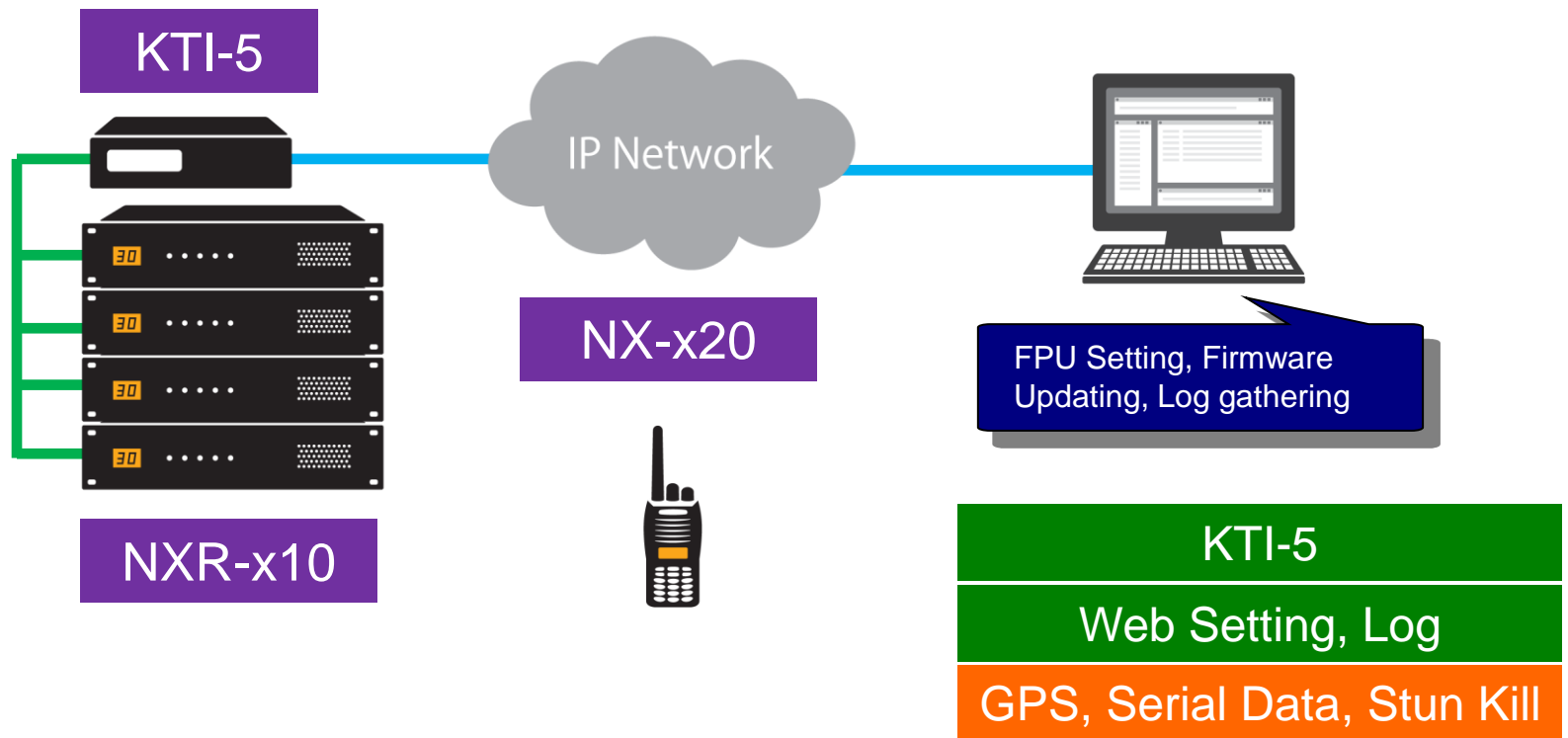


2. Version up Schedule & Comparison List

2. Version up Schedule

Release KTI-5 Network Box. FPU Setting, Firmware Update, Log via Web. NX-x20 handle some Data.

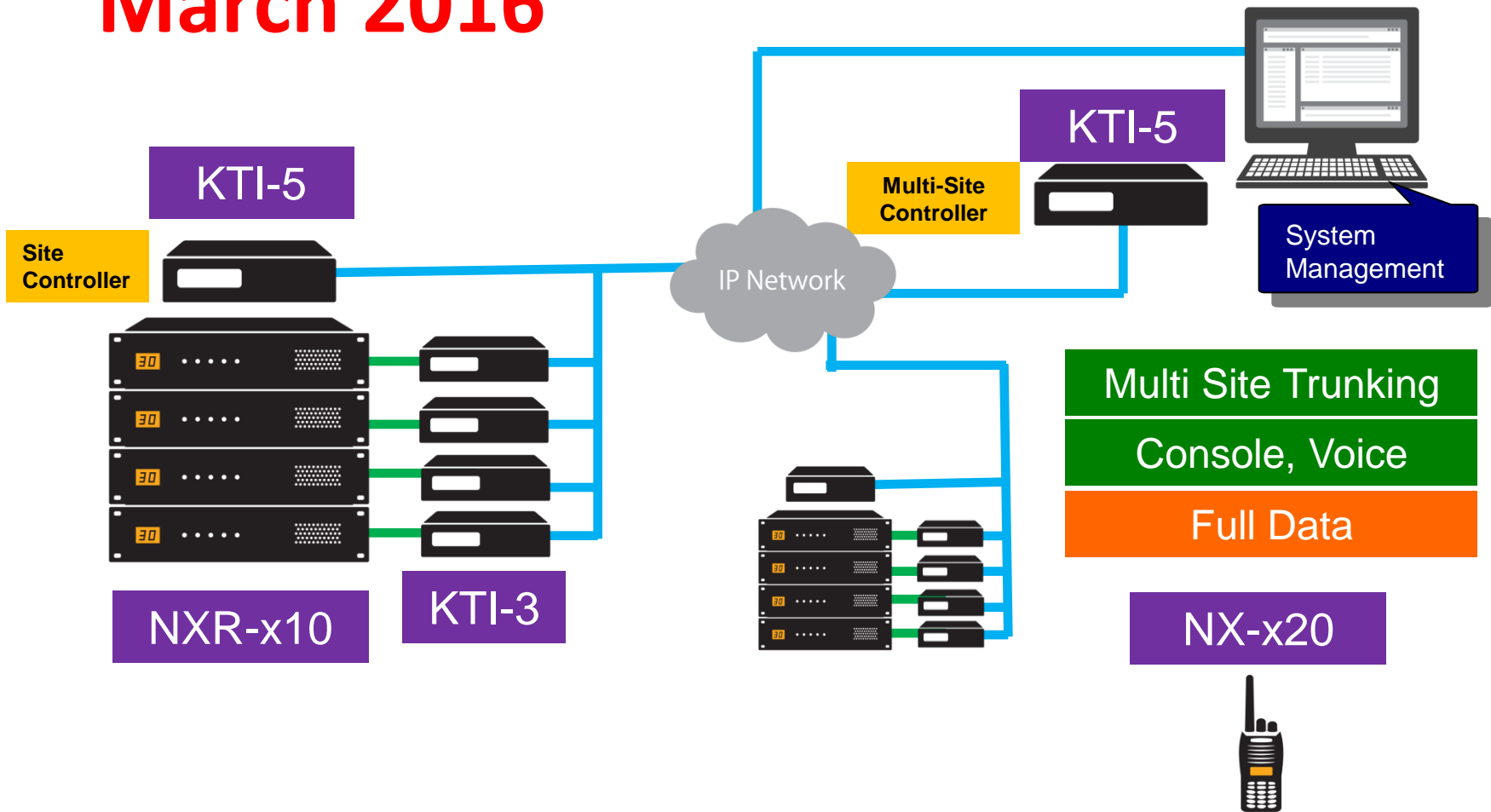
May 2015



2. Version up Schedule

Release Multi Site up to 15 Sites. KTI-3 will be needed per CH. Site Cont. and Multi-Site Cont. will be necessary

March 2016



2. Comparison List

Function	LTR	Type-D	IOP	Type-C
Unit ID	Required FleetSync	1-2000	✓	1-65519
Group ID	1-250	1-2000	✓	1-65519
Number of Unit ID	Required FleetSync	2000x30=60000	✓	3000
Number of Group ID	250x20=5000	2000x30=60000	✓	3000
Transmission Trunked Mode	✓	✓	✓	✓
Message Trunked Mode	n/a	n/a		✓
Individual Call	Required FleetSync	✓	✓	✓
Group Call	✓	✓	✓	✓
All Group Call	✓	✓	✓	✓
Broadcast Call	n/a	Available Mar 2016		✓
Emergency Call	Required FleetSync	✓	✓	✓
Paging Call	Required FleetSync	✓	✓	✓
Caller ID (PTT ID)	Required FleetSync	✓	✓	✓
Control Channel (FCC License)	decentralized (FB6)	decentralized (FB6)	✓	Centralized (FB8)
Registration	n/a	n/a		✓
ESN Validation	n/a	✓		✓
Remote Group Add	n/a	Available Mar 2016		✓
Number of Channels (Repeater)	Up to 20 Channels	Up to 30 Channels	✓	Up to 30 Channels
Priority Monitor (Fixed ID)	2	2	✓	4
Late Entry	✓	✓	✓	✓
Failsoft Mode (2nd Home)	n/a	(Available Mar 2016)	✓	✓
Telephone Interconnect	✓	n/a		✓
System Key File Security	n/a	n/a		✓
6.25kHz Channels	n/a	✓	✓	✓
12.5kHz Channels	✓	Not defined in Type-D		✓
Over-the-Air Alias	n/a	✓ (w/o Late Entry)		✓
Over-the-Air Programming	n/a	Available Mar 2016		✓
Status Messaging	Required FleetSync	✓	✓	✓
Short & Long Data Messages	Required FleetSync	Available Mar 2016		✓
Remote Stun/Kill	Required FleetSync	Supported from Apr 2015	✓	✓
Transparent Mode	Required FleetSync	Available Mar 2016		✓
Scrambler	✓ (Option)	✓ (NXDN)	✓	✓ (NXDN)
AES/DES Encryption	n/a	Not defined in Type-D		✓
GPS Data	Required FleetSync	Supported from Apr 2015		✓
Serial Data Interface	✓	Supported from Apr 2015		✓
ESN Validation	n/a	Supported from Dec 2014		✓

IOP

Interoperability for ICOM

Over-the-Air Alias

Alias will not display for late entry because it sent beginning of transmission

Number of Group

LTR and Type-D can be used same Group ID for each Home Repeaters. Number of Group ID

x Number of Repeater

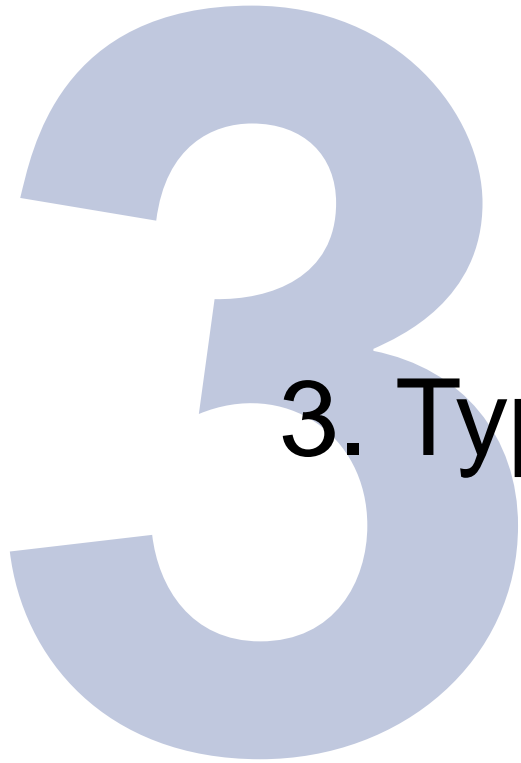
Note1:

Following functions are not Interoperable even if Conventional

- Short Message
- Long Message
- GPS Data
- Other Data
- Over-the-Air Alias

Note2:

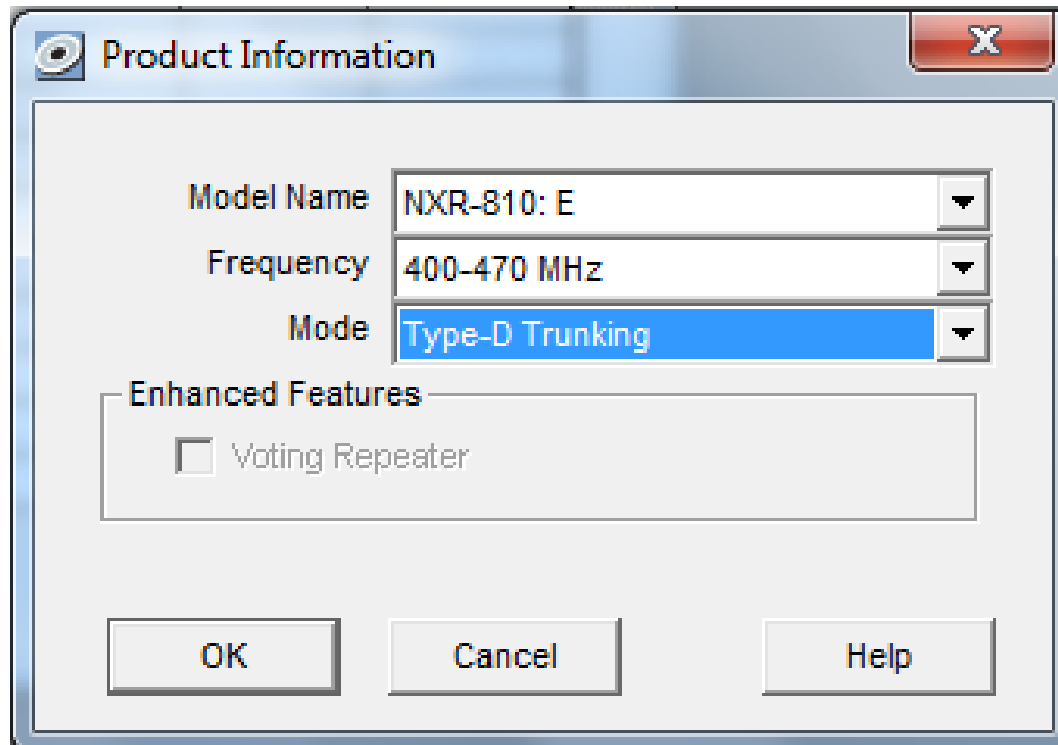
Functions with “available Mar 2016” may change schedule



3. Type-D Configuration

3. Repeater Mode

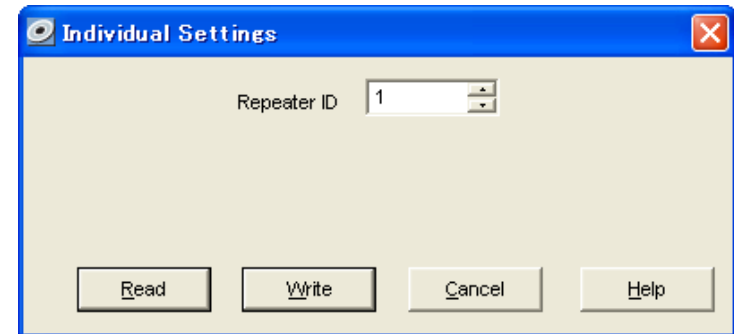
Mode = Type-D Trunking



3. Repeater ID Setting

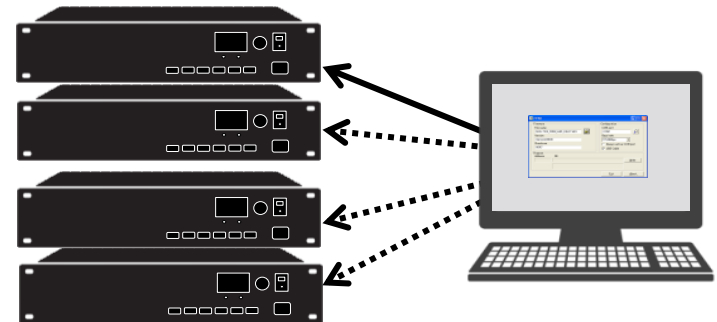
Set the Repeater ID

1. Select “Program” > “Individual Settings”.
2. Set “Repeater ID”.
3. Confirm that the repeater is currently connected to a PC, and then click the “Write” button.



Note: Each repeater must have different Repeater ID.

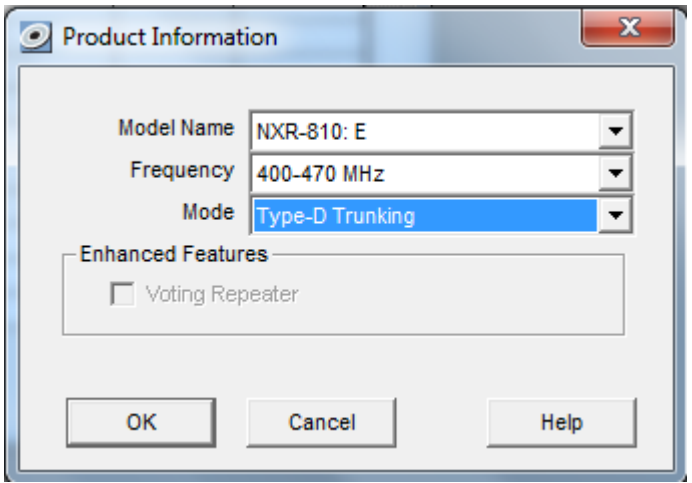
4. Connect next repeater and set different “Repeater ID” then click the “Upgrade” (Must be set Repeater ID one by one Connection).



3. Basic Setting (KPG-129D Ver3.xx)

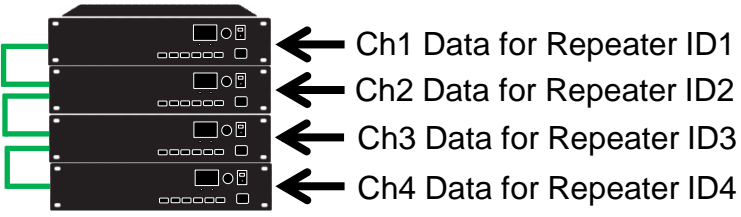
Product Information

1. Select "Model" > "Product Information".
2. Set "Model Name", "Frequency" and "Mode Type-D Trunking". And click OK.



Channel Setting

1. Select "Edit" > "Chanel Information".
2. Set "RX/TX frequencies", "CH Type NXDN".



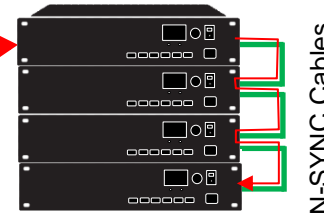
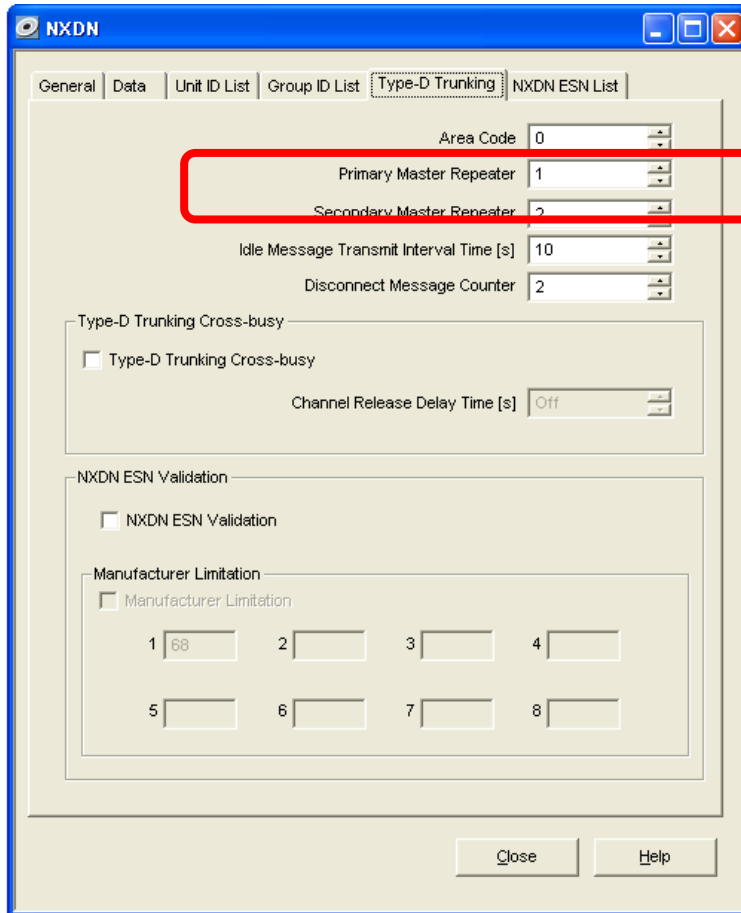
Ch	RX Frequency	TX Frequency	Ch Type	TX Mode	QT/DQT Dec	QT/DQT Enc	RAN Dec	RAN Enc	Ch Name
1	455.100000	450.100000	NXDN		---	---			1
2	455.200000	450.200000	NXDN		---	---			2
3	455.000000	450.300000	NXDN		---	---			3
4	455.400000	450.400000	NXDN		---	---			4
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									

Note: Repeater ID# must equal CH#

3. Basic Setting

Master Repeater

1. Select “Edit” > “NXDN” > “Type-D Trunking”.
2. Set “Primary Master Repeater” and “Secondary Master Repeater”.



Note :

- NXR-710/810 has Trunking Controller capability.
- Must be required Master Repeater for sending synchronized Data via N-SYNC cable.
- In case of Primary Master Repeater is failed, Secondary Master Repeater take over. If both Primary and Secondary are failed, Type-D Trunking System doesn't work.

3. Basic Setting

User List

1. Select "Edit" >> "Chanel Information".
2. Click "Channel Edit".
3. Set "User List".

The screenshot shows the 'Channel Edit' dialog box. On the left, the 'User List' dropdown menu is expanded, showing options: 'None', 'Group ID List', 'Unit ID List', and 'Both'. An arrow points from the 'User List' label to this dropdown. The main dialog contains various settings for channel parameters like frequency, mode, and power.

The screenshot shows the 'Channel Information [Channel - 4]' dialog box. It contains a table with the following data:

Ch	RX Frequency	TX Frequency	Ch Type	TX Mode	QT/DQT Dec	QT/DQT Enc	RAN Dec	RAN Enc	Ch Name
1	455.100000	450.100000	NXDN		---	---			1
2	455.200000	450.200000	NXDN		---	---			2
3	455.000000	450.300000	NXDN		---	---			3
4	455.400000	450.400000	NXDN		---	---			4
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									

An arrow points from the 'Channel Edit' button in the bottom right of this dialog to the 'Channel Edit' button in the larger dialog shown in the previous block.

User List Selection:

- None
All radios can be accessed.
- Group ID List
Only pre-programmed Group IDs can be accessed.
- Unit ID List
Only pre-programmed Unit IDs can be accessed.
- Both
Both Only pre-programmed Group and Unit IDs can be accessed.

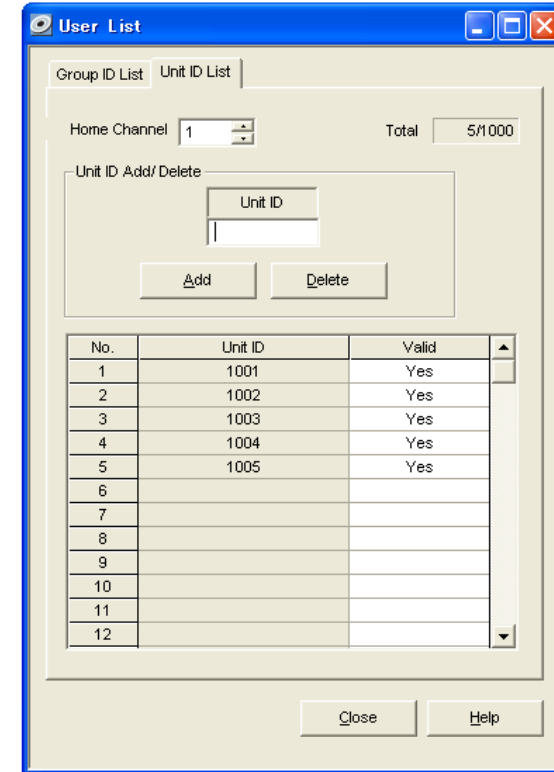
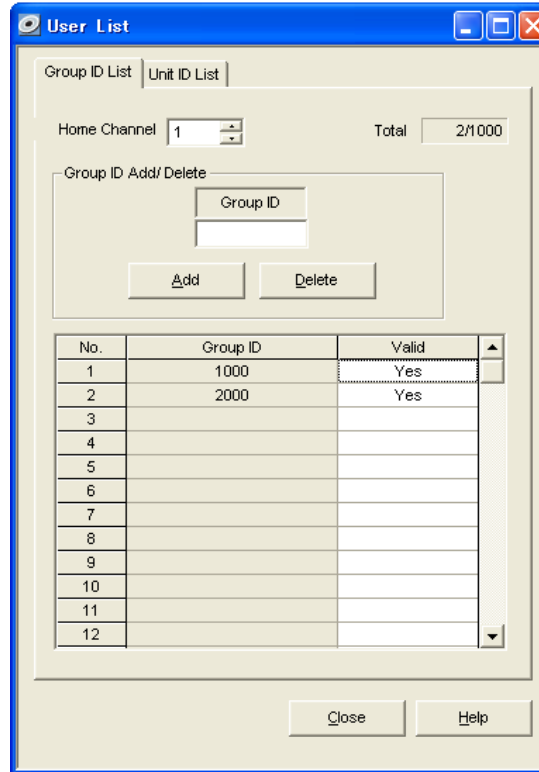
3. Basic Setting

Pre-Programmed Group ID and Unit ID

1. Select "Edit" > "User List" > "Group ID List".
2. Set "Group ID" and "Home Channel".
3. Select "Edit" > "User List" > "Group ID List".
4. Set "Unit ID" and "Home Channel".

Home Chanel:

- NXR-710/810 Type-D Trunking System have Home Channel like LTR system.
- Up to 30 repeaters and up to 30 home channels for Type-D Trunking System can be set.
- If Home Channel's repeater is dead, Type-D Trunking system still working with rest of repeaters. But radios programed dead Home Channel cannot access to the repeater.



Note:

- Not required Home Chanel Repeater# equals Master Repeater#
Home Chanel is used for handshaking radios.
- Listed Group ID and Unit ID can be access to NXR-710/810 Type-D Trunking System.
Group ID: 0000(All) or 1 to 2000
Unit ID: 1 to 2000

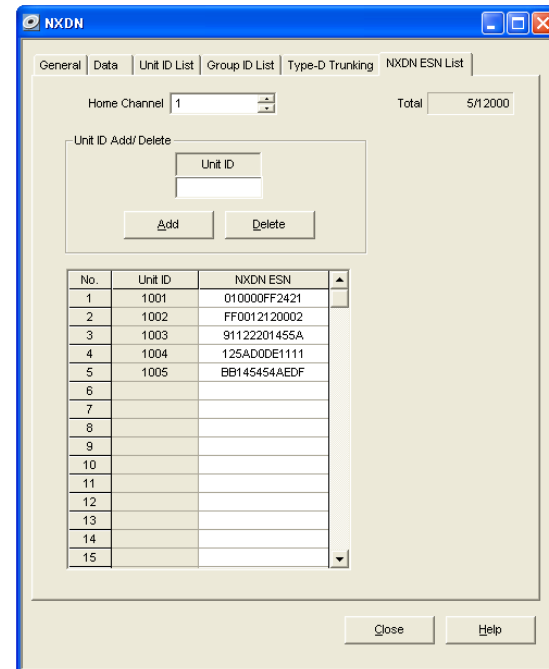
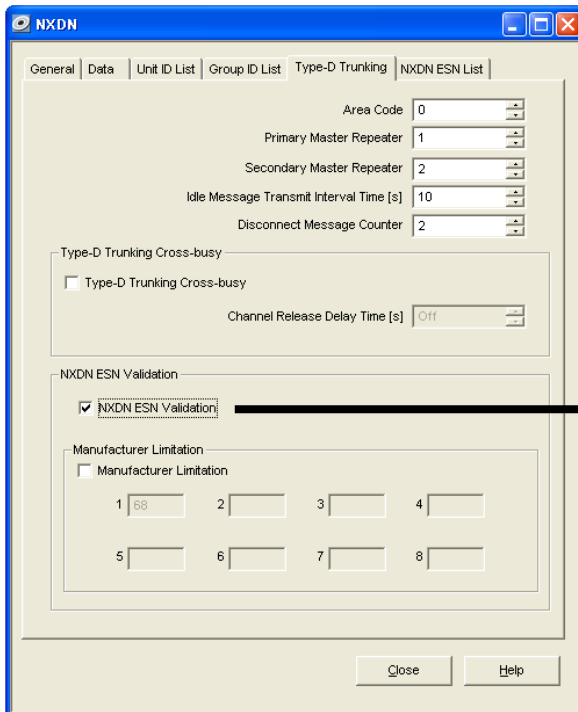
3. Basic Setting

ESN Validation

1. Select “Edit” > “NXDN” > “Type-D Trunking”.
2. Check “NXDN ESN Validation”.
3. Select “Edit” > “NXDN” > “NXDN ESN List”.
4. Set radio’s “Unit ID” and “NXDN ESN”.

Note:

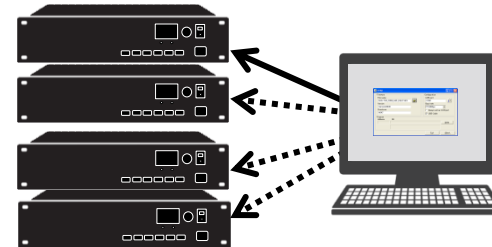
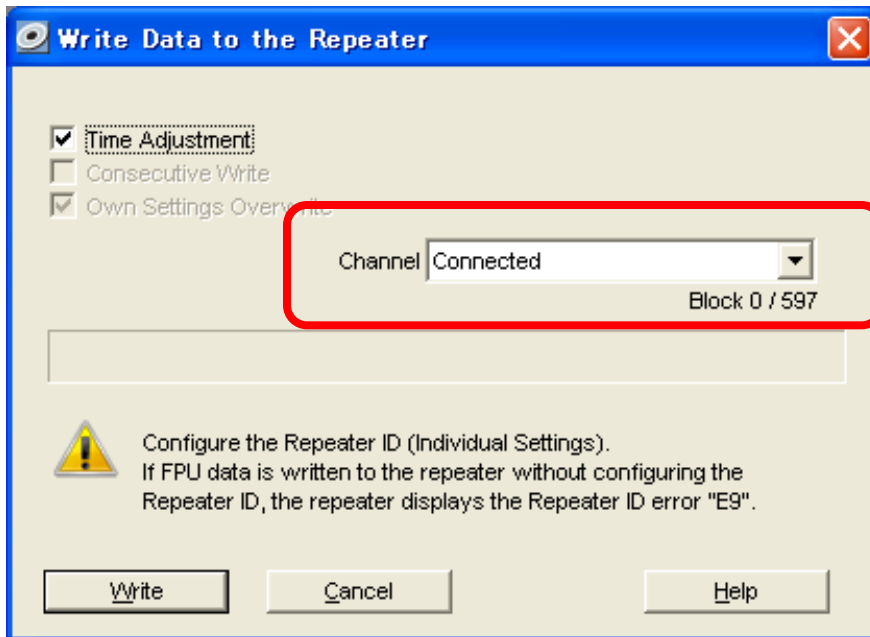
NXR-710/810 Type-D Trunking system does not have radio registration function like Type-C Trunking System has. For avoiding unauthorized radio access, use NXDN ESN Validation.
Radio’s NXDN ESN (Electronic Serial Number) is unique ID written by factory and cannot not be duplicated.



3. Data Write

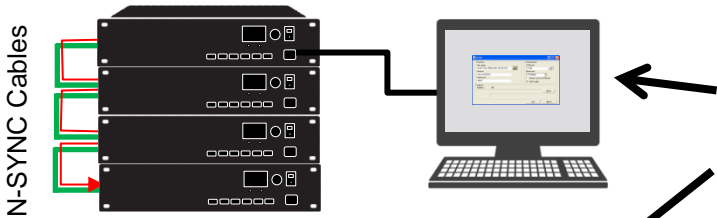
All repeaters have same FPU data to write

1. Select "Program" > "Write Data to Repeater".
2. Set "Channel Connected".
3. Click "Write" to write Data to Repeater.
4. Connect next repeater then update firmware.



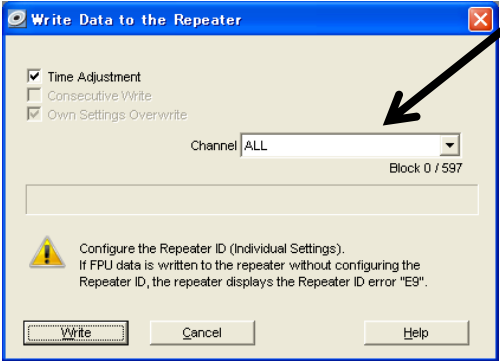
3. Faster Data Write

After set up Type-D Trunking, now you can change FPU data and Firmware much faster



FPU Data

1. Confirm N-SYNC connected each repeater.
2. Connect PC to one repeater.
3. Select "Program" > "Write Data to repeater".
4. Set "Channel Connected".
5. Click "Write" . Then All repeater received FPU data via N-SYNC cable.

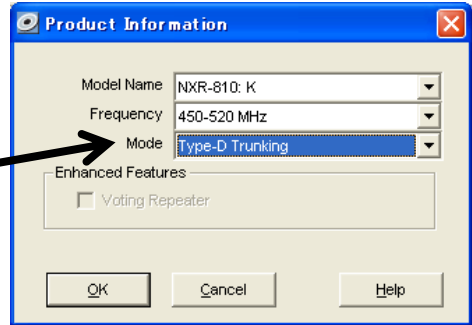


Firmware

1. Execute FPRO.exe and write firmware instead of set repeater as Firmware Programming Mode.
2. Connect PC to one repeater and write the firmware.
3. All repeater received firmware via N-SYNC cable.
4. TX LED lights when completed. You must confirm all repeaters TX LEDs.
5. If could not write the firmware, repeater RX LED blinks and displayed **dE** (Data Error), you must write firmware to each repeaters after Data Error .

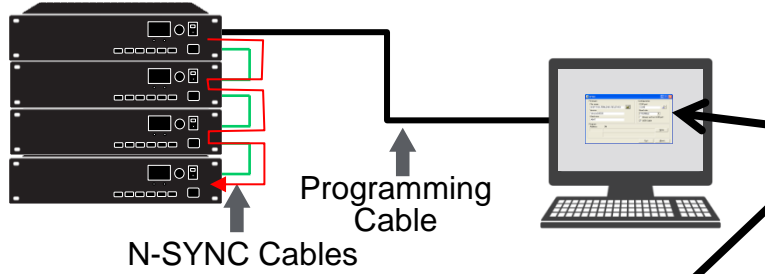
N-SYSNC Connected Repeater FPU Data and Firmware Write requirement

1. All repeaters have been already written Firmware Version 3.00 or later
2. All repeaters have been already written Type-D Mode FPU data.



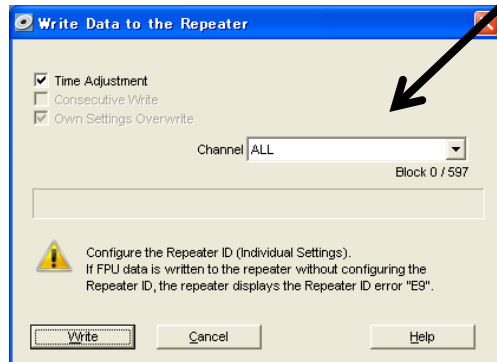
4. Faster Data Write (KPG-129D Ver3.00 or later)

After set up Type-D Trunking, now you can change FPU data and Firmware much faster



FPU Data

1. Confirm N-SYNC connected each repeater.
2. Connect PC to one repeater.
3. Select "Program" > "Write Data to repeater".
4. Set "Channel" = ALL.
5. Click "Write" . Then All repeater received FPU data via N-SYNC cable.

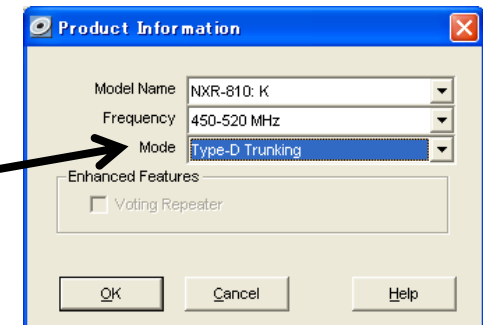


Firmware

1. Execute FPRO.exe and write firmware instead of set repeater as Firmware Programming Mode.
2. Connect PC to one repeater and write the firmware.
3. All repeater received firmware via N-SYNC cable.
4. TX LED lights when completed. You must confirm all repeaters TX LEDs.
5. If could not write the firmware, repeater RX LED blinks and displayed **dE** (Data Error), you must write firmware to each repeaters after Data Error .

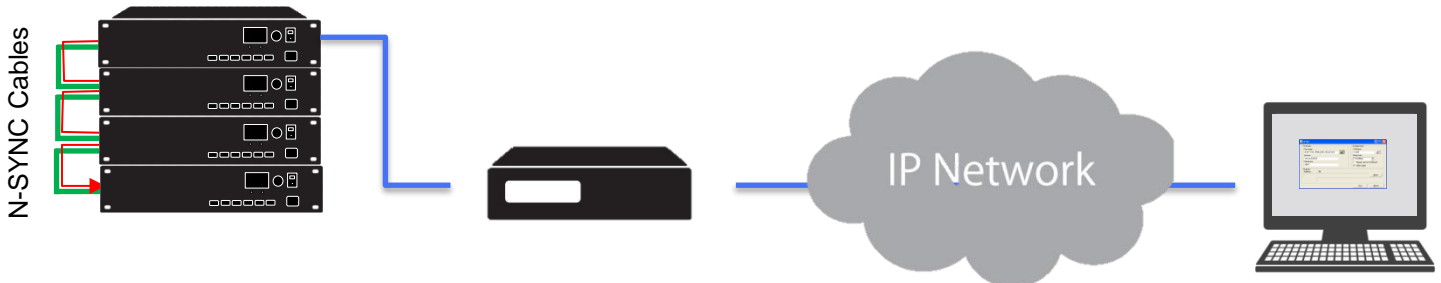
N-SYNC Connected Repeater FPU Data and Firmware Write requirement

1. All repeaters have been already written Firmware Version 3.00 or later
2. All repeaters have been already written Type-D Mode FPU data.



4. Faster Data Write

Type-D Trunking FPU data and Firmware update through a KTI-5

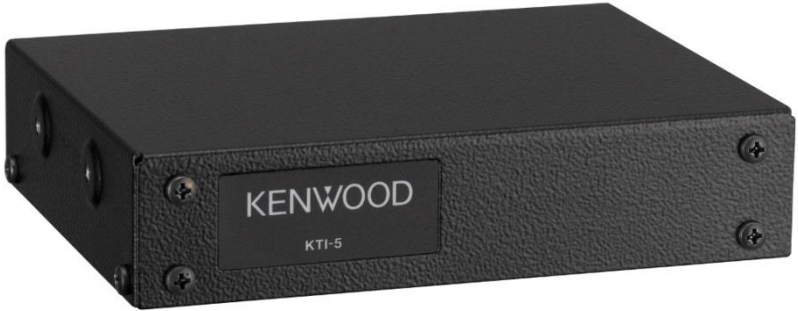


4

4. KTI-5

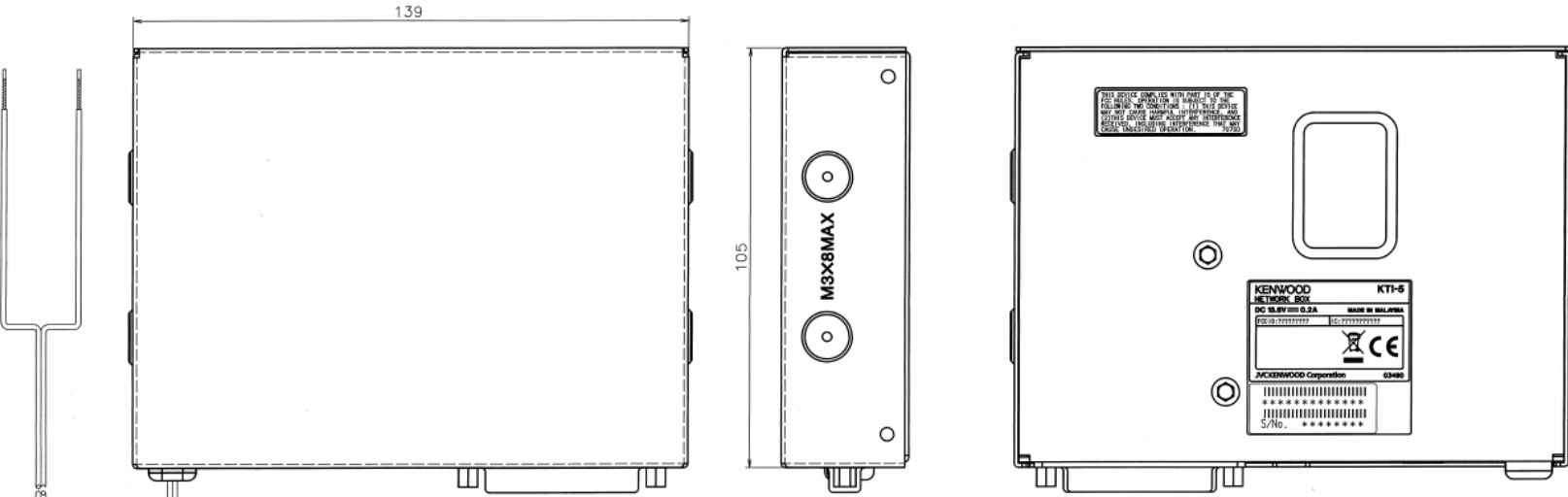
4. KTI-5 Hardware 1

- N-SYNC (4P4C Modular for Repeater Connection)
- LAN (RJ45 for 10BASE-T/100BASE-TX Ethernet)
- Internal Clock (Lithium-Ion battery backup)
- Status LED (7 Colors)

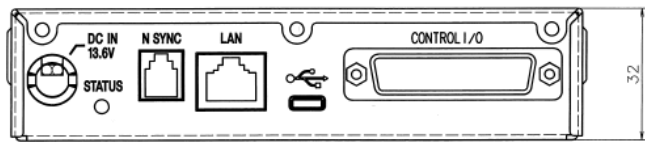


Input Voltage	DC 13.6V (10.8V to 15.6V)
Current Drain	MAX 1.6 A
Temperature Range	-30°C to +60°C
Dimensions (W x H x D) (Exclude projections)	139 x 32 x 105mm
Weight	570g

4. KTI-5 Hardware 2



DC Cable (2m)



Label Modification example



Supplied Accessory

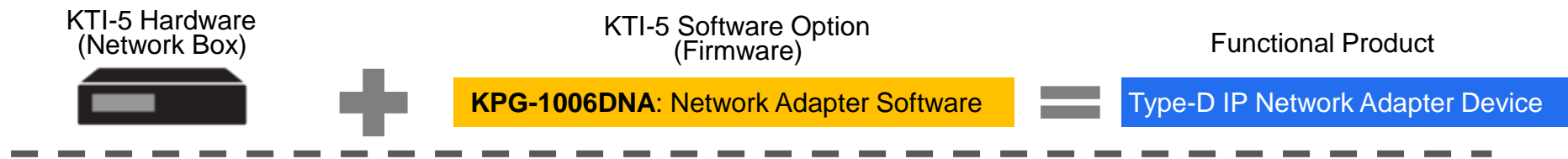
ITEM	P/N	Qty
N SYNC Cable (1m)	E30-7717-XX	1
Cushion	G1D-0077-XX	2
Cushion	G13-2339-XX	4
Instruction Manual	B5A-0555-XX	1

Attach the KTI-5 to the Repeater Accessory Cabinet using the supplied cushion. There are two methods of attaching the KTI-5:

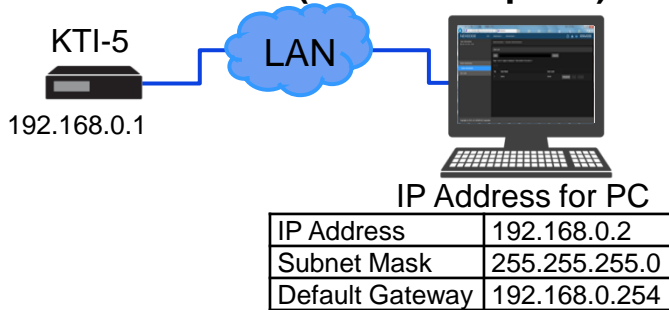
1. Attach 4 cushions (G13-2339) on the 4 base corners of the KTI-5, and place it into the Accessory Cabinet.
2. Attach the cushion (G1D-0077) to the base of the KTI-5, and attach it to the Accessory Cabinet.

4. KTI-5 Initial Setup

KTI-5 is provided as HARDWARE and becomes functional product when SOFTWARE is installed (loaded).



Install Firmware (Software Option)

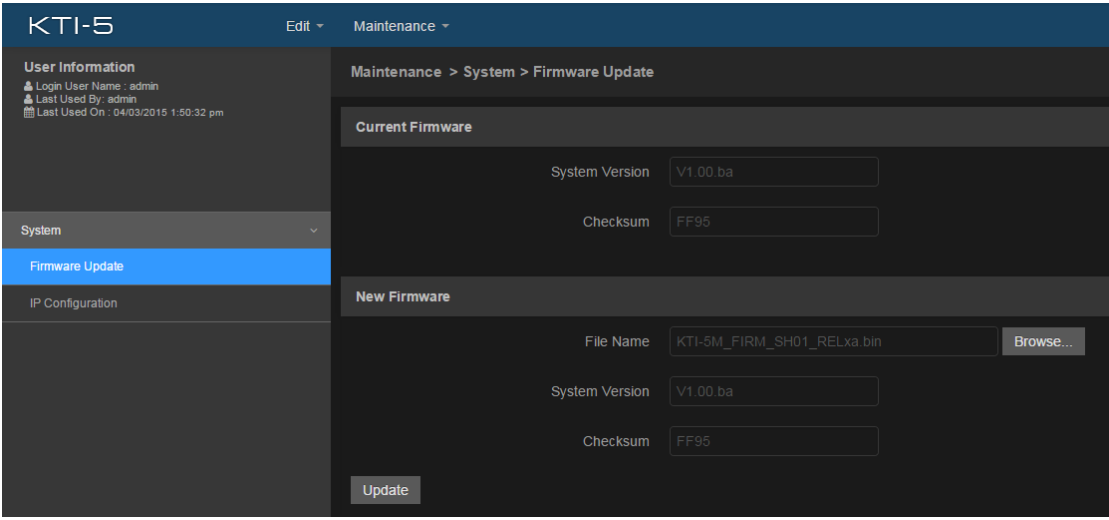


1. Connect PC to KTI-5 (if connect direct, cross cable is require)
2. Set PC IP Address (because normally you PC sets DHCP)
3. Execute Internet Explorer (Ver 9 to 11 recommended)
4. Input KTI-5 IP Address (http://192.168.0.1)
5. Log in to KTI-5 (User Name = admin, Password = none)
6. Go to "Maintenance" > "System" > "Firmware Update"
7. Click "Browse" to read KPG-1006DNA firmware (*.bin file)
8. Click "Update" to write the KPG-1006DNA.
9. After uploaded , Login windows with "Update succeeded" message appeared.

Login

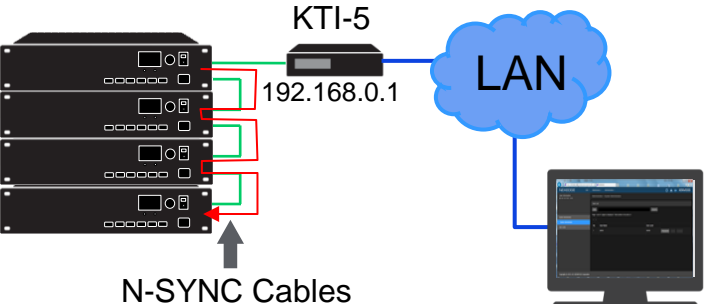
User Name

Password



4. Remote FPU Data Write/Read (with KTI-5)

After set up Type-D Trunking with KTI-5, now you can change FPU data by KPG-129D remotely

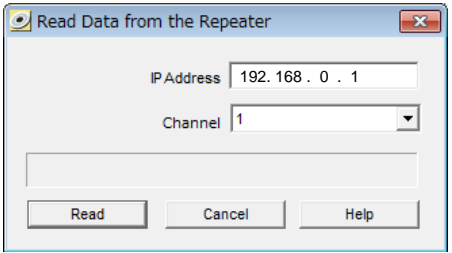
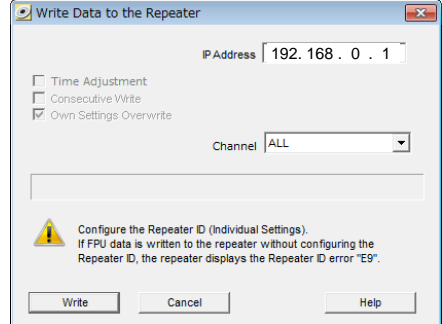
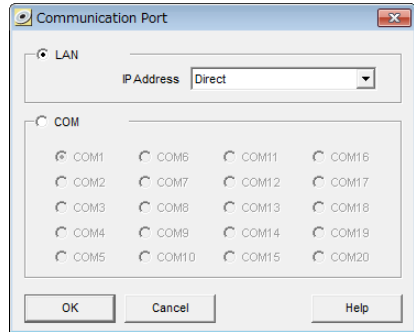


IP Address for PC

IP Address	192.168.0.2
Subnet Mask	255.255.255.0
Default Gateway	192.168.0.254

FPU Data Write

1. Connect PC to KTI-5 (if connect direct, cross cable is require)
2. Set PC IP Address (because normally your PC sets DHCP)
3. Execute KPG-129D (must be Ver3.10 or later)
4. Select "Setup" > "Communication Port".
5. Set "LAN" and confirm IP address as "Direct".
6. Connect PC to KTI-5 and .
7. Select "Program" > "Write Data to repeater".
8. Set "IP Address" for KTI-5 and "Channel" = ALL
9. Click "Write". Then All repeater received FPU data via KTI-5.



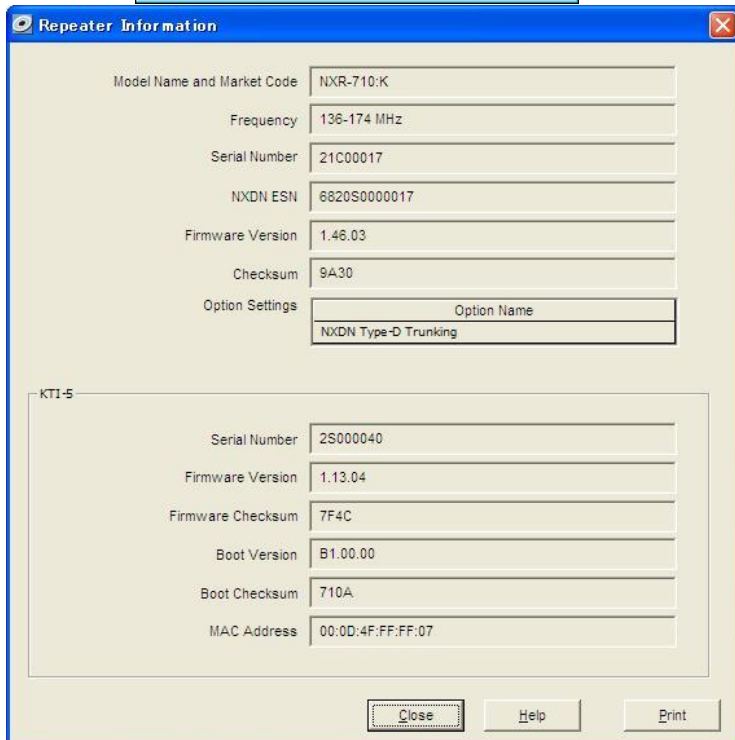
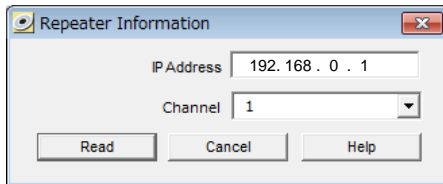
FPU Data Read

1. Select "Program" > "Read Data from the Repeater".
2. Set "IP Address" for KTI-5 and Select "Channel" for derided Repeater Channel (Repeater ID# must equal Ch#)
3. Click "Read". (All repeater have same FPU Data)

4. Remote FPU Data Write/Read (with KTI-5)

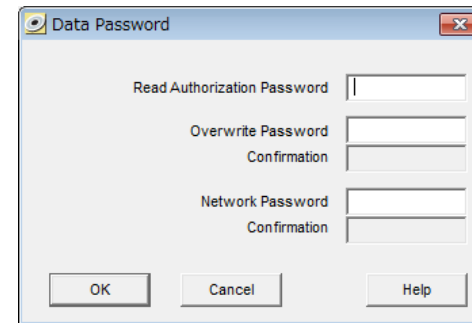
Repeater & KTI-5 Information

1. Select “Tools” > “Repeater Information”.
2. Set “IP Address” for KTI-5 and Select “Channel” for derided Repeater Channel (Repeater ID# is equal Ch#)
3. Click “Read”.



Data Password

1. Select “Edit” > “Optional Features” > “Common Page 1” > “Data Password”
2. Input Password then Click OK

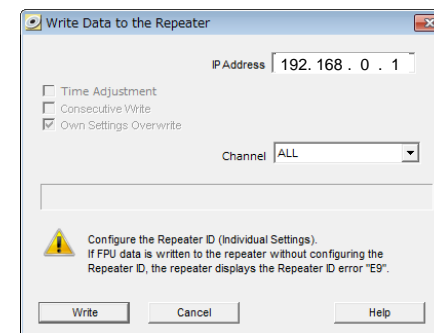


Note:

Password are stored in Repeater.

When select “Channel” = ALL at “Write Data to repeater” window., same password are written to all repeater.

Not recommended to set different password for each repeater.

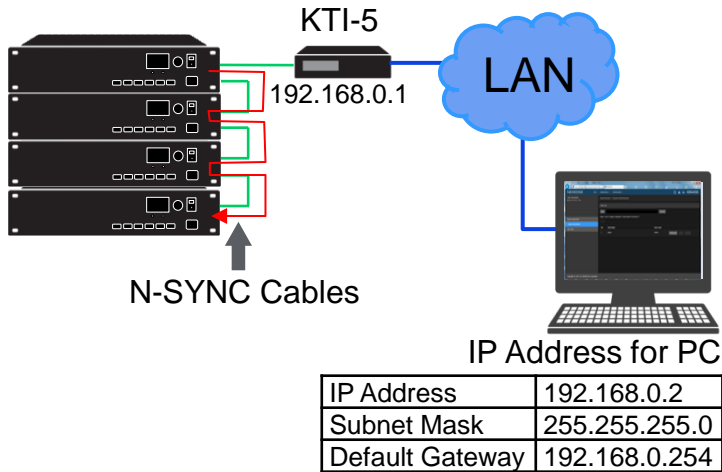


4. Remote Firmware Write (with KTI-5)

After set up Type-D Trunking with KTI-5, it can write the Firmware remotely

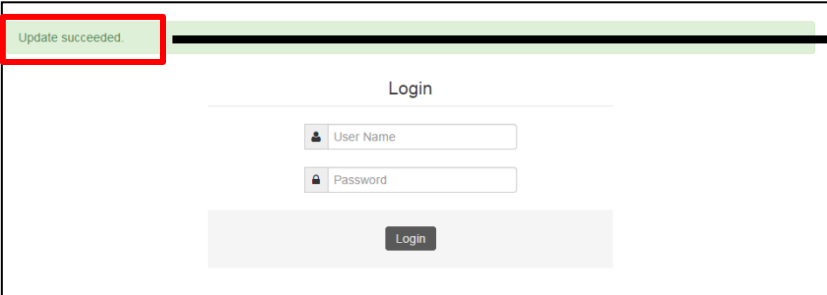
Firmware (Software Option)

1. Connect PC to KTI-5 (if connect direct, cross cable is require)
2. Set PC IP Address (because normally you PC sets DHCP)
3. Execute Internet Explorer (Ver 9 to 11 recommended)
4. Input KTI-5 IP Address (<http://192.168.0.1>)
5. Log in to KTI-5 (User Name = admin, Password = none)
6. Go to "Maintenance" > "System" > "Firmware Update"
7. Click "Browse" to read KPG-1006DNA firmware (*.bin file)
8. Click "Update" to write the KPG-1006DNA.
9. After uploaded , Login windows with Update succeeded message appeared. And then Login and see the result (See Next Slide)

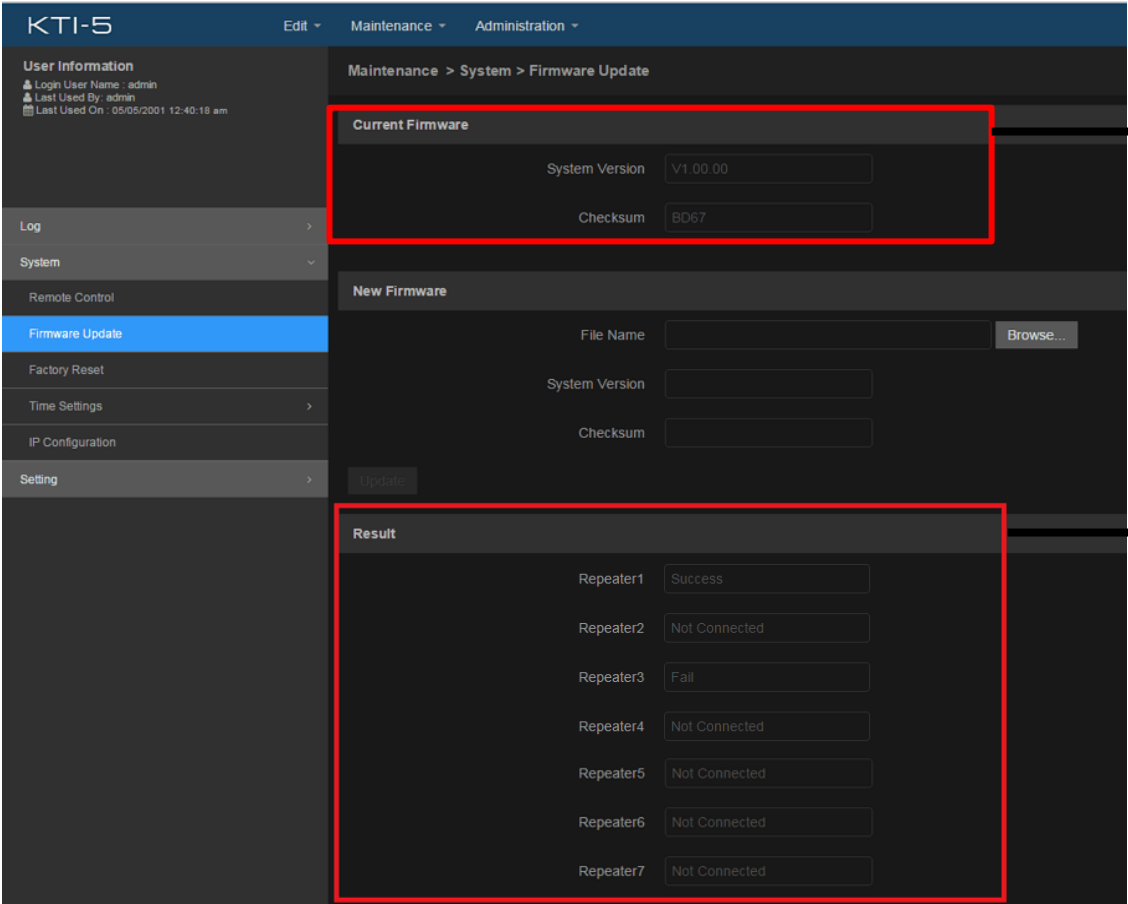


Login

4. Remote Firmware Write (with KTI-5)



Login Widows with "Update succeeded" message



KPG-1006DNA firmware Version.

Each Repeater firmware update result
Success: Update Succeeded
Not Connected: Repeater is not connected
Skip: Update skipped (because repeater has same firmware)
Fail: Check Sun Error (Need to write firmware again)

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