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Revision 2.0

EHS Headset Function Specification for DT500/900

Date	Revision	Notes	Author
10-19	1.0	Original Release Note	EA
1-2020	2.0	• Add 8LK notation • Add line key layout for SV9500 with and without ADP-80	

Table Contents

1.0 EHS Headset Description	3
1.1 Features	3
2.0 Part List	4
2.2 EHS Picture	4
APN-91	4
APD-80	4
3.0 Plantronics Compatibility	5
3.1 CS Model	5
3.2 Savi 700 Series	5
4.0 Supported Terminals	6
4.1 IP Terminals (DT900/DT900S)	6
4.2 Digital Terminals (DT530)	6
5.0 Supported Functions	7
6.0 Connectivity	8
6.1 APN-91	8
6.2 Terminal Configuration	8
6.2.1 NEC-SIP Terminal	8
6.2.2 STD-SIP Terminal	8
6.2.3 Digital Terminal	8
6.2.4 SIP Server configuration	8
6.3 APD-80	9
6.3.1 NEC-SIP Terminal	9
6.2.2 STD-SIP Terminal	9
6.2.3 Digital Terminal	9
6.2.4 SIP Server configuration	9
7.0 EHS Headset Control	10
7.1 APN-91	10
7.2 APD-80	10
7.2.2 Control EHS Headset	10
7.2.3 Monitor Hook status of EHS headset	10
8.0 System Compatibility	11
8.1 SV8100 & SV9100	11
8.2 SV8300 & SV9300	11
8.3 SV8500 & SV9500	11
9.0 Line Key Layout for SV9500 Environment	12
9.1 12 button Terminal with 8LK (w/o EHS headset (APD-80)	12
9.2 12 button Terminal with 8LK (w/ EHS headset (APD-80)	12
9.3 12 button Terminal with 16LK (w/o EHS headset (APD-80)	13
9.4 12 button Terminal with 16LK (w/ EHS headset (APD-80)	13
9.5 24 button Terminal with 8LK (w/o EHS headset (APD-80)	14
9.6 24 button Terminal with 8LK (w/ EHS headset (APD-80)	14
9.7 24 button Terminal with 16LK (w/o EHS headset (APD-80)	15
9.8 24 button Terminal with 16LK (w/ EHS headset (APD-80)	15

1.0 EHS Headset Description

EHS (Electronic Hook Switch) is a way of electronically connecting a wireless headset to a DT500/900. EHS passes predefined signaling such as on/off hook, volume control and mute functionality to and from the headset to the DT500/DT900. This functionality is provided on selected models of Plantronics wireless devices with the integration of the APD-80 cable or APN-91 cable. Without the cable limited functionality (one-way control) is directed by the headset to the phone. Limitations for this operation are noted in the EHS Limitation table.

1.1 Features

- Electronics Headset Switch (EHS) cable was designed specifically for NEC's DT terminal
- Works with most wired to wireless Plantronics headsets.
- EHS allows user to control On/Off hook function from the headset. User can answer/terminate calls via the control button of the headset.

2.0 Part List

EHS Cable Part Number			
NEC Part Number	Name	Description	Notes
Not Stocked at NEC	APD-80	- Includes EHS Cable - Includes Microphone	Cable must be purchased by a Plantronics reseller
Q24-FR000000113032	APN-91	- Includes EHS Cable - Includes Microphone	

2.2 EHS Picture

APN-91

When connecting this cable to the terminal, connect to both the site options connector and the headset jack

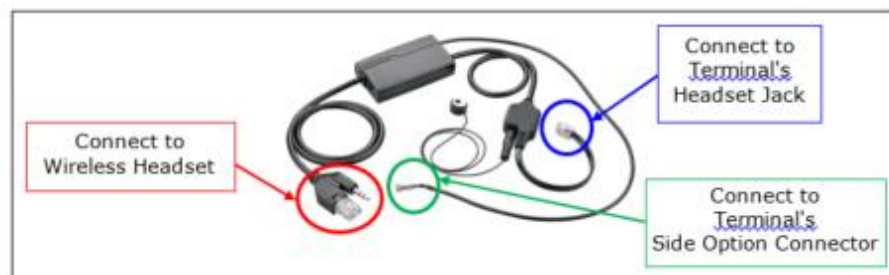


Figure APN-91

APD-80

When connecting this cable to the terminal, connect to the headset jack

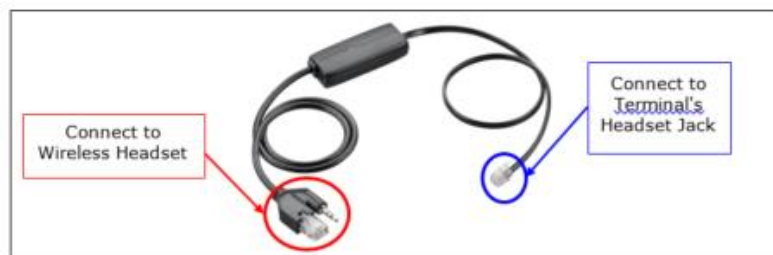


Figure APD-80

3.0 Plantronics Compatibility

The following list of model headsets work with the EHS functionality

3.1 CS Model



3.2 Savi 700 Series



4.0 Supported Terminals

4.1 IP Terminals (DT900/DT900S)

Terminal		NEC-SIP (FW)		STD-SIP (FW)		Note
		APN-91	APD-80	APN-91	APD-80	
Desktop	DT920(6D)		✓		✓	
	DT920(8LCGX)		✓		✓	
	DT930(24CG)	✓ *1	✓ *2	N/A		24CG for STD-SIP is not supported
	DT930(8TCGX)		✓		✓	
	DT920S(6D)	N/A			✓	
	DT920S(32LCGX)	N/A			✓	
	DT930S(32TCGX)	N/A			✓	

*1 If connected 8LK or 16LK, then Terminal is not supported

*2 When using 8LK/16LK and EHS headset(APD-80) at the same time on DT930(ITK-24CG) and is accommodated in SV9500, be sure to assign "1(16 Line/Feature Buttons + DSS keys)" or "2(24 Line/Feature Buttons + DSS keys)" to the "LKP" parameter of ADKS command for the terminal.

4.2 Digital Terminals (DT530)

Terminal		APN-91	APD-80	Note
Desktop	DT920 (6D)	✓		

5.0 Supported Functions

The following functions are provided by the EHS cable

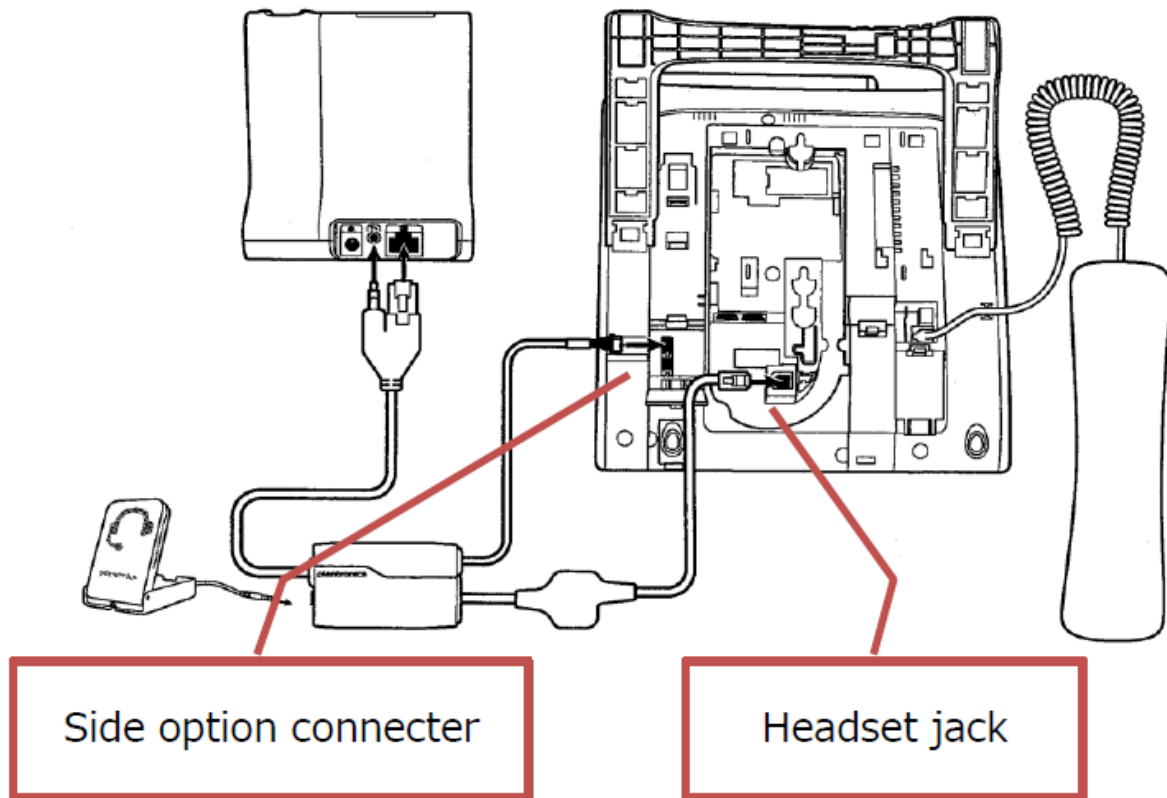
Destination	APN-91	APD-80	Note
Hooking by EHS headset	✓	✓	
Hooking by terminal	✓	✓	
Ringling from EHS headset on ideal	✓	✓	
Ringling from EHS headset when talking	✓	✓	
Inbound Ringling from EHS headset			
Volume control by terminal			

6.0 Connectivity

6.1 APN-91

APN-91 has two connectors, one is side option connector and the other is a headset jack. To use APN-91, you need to connect both connectors to the terminal.

Side option connector is used to communicate control commands between the terminal and APN-91. Headset jack is used to send voice only.



6.2 Terminal Configuration

6.2.1 NEC-SIP Terminal

The following configuration option in the terminal menus will need to be configured

- Configuration>3. Maintenance Settings→4. Adjust→6. EHS Calbe→ 3. APN-91

6.2.2 STD-SIP Terminal

STD-SIP terminal does not support APN-91

6.2.3 Digital Terminal

Digital terminal does not need configuration assignment for APN-91 on terminal

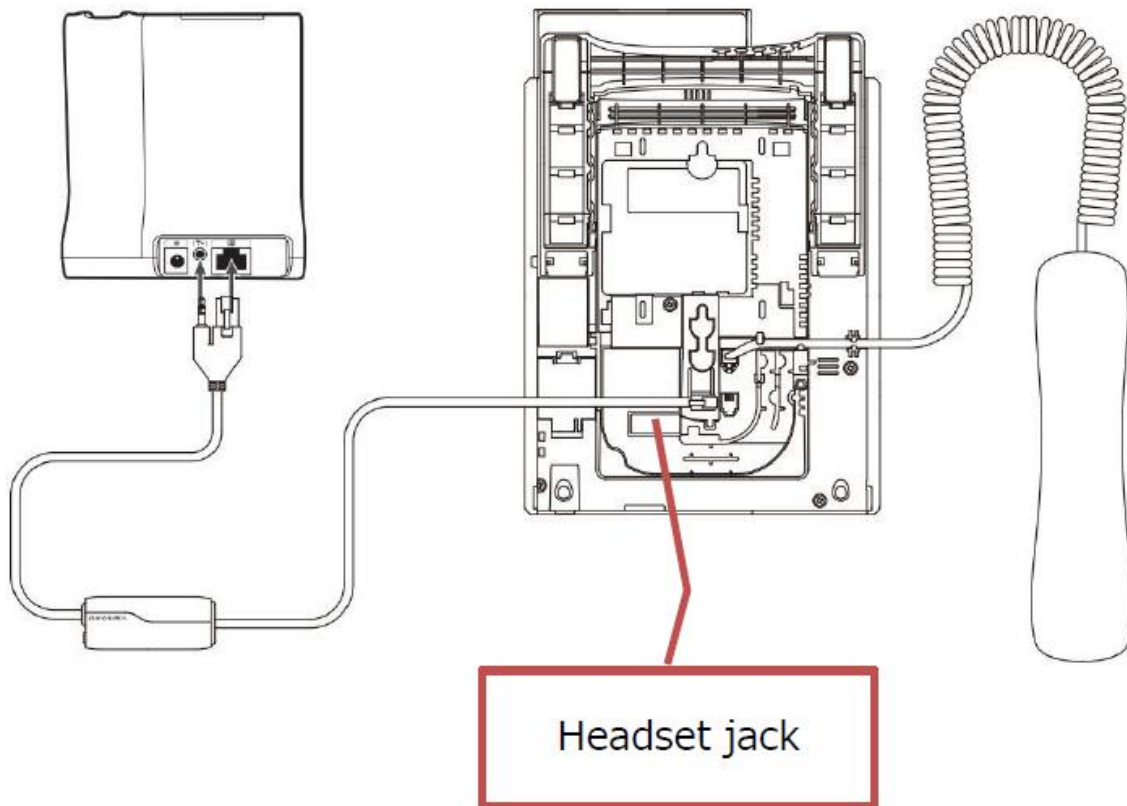
6.2.4 SIP Server configuration

To use APN-91, the administration needs to assign a 'Headset' line assignment for the terminal

6.3 APD-80

The APD-80 cable has only one connector for the headset jack. The terminal sends not only voice but also DTMF tone from headset jack to APD-80 for EHC headset control.

Terminal also monitors electrical loop of the headset jack, so the terminal can detect hooking status of the EHS headset.



6.3.1 NEC-SIP Terminal

The following configuration option in the terminal menus will need to be configured

- Configuration>3. Maintenance Settings→4. Adjust→6. EHS Calbe→ 2. APN-80

6.2.2 STD-SIP Terminal

The two configurations for using STd-SIP terminals must be completed.

- User Settings → 2. Headset → 1. Enable/Disable → 2. Enable
- Admin Settings → 3. Maintenance Settings → 3. EHS Headset → 2. Enable

6.2.3 Digital Terminal

Digital terminal does not support the APD-80

6.2.4 SIP Server configuration

To use APN-80, the administration needs to assign a 'Headset' to a terminal line key for the NEC-SIP terminal. STD-SIP terminal does not need any configuration settings enabled on the SIP server.

7.0 EHS Headset Control

7.1 APN-91

Not available for distribution

7.2 APD-80

7.2.2 Control EHS Headset

To control EHS headset, the terminal sends specified DTMF tones via the headset Jack.

Control	DTMF Tone Frequency	DTMF Tone Duration	DTMF Tone Level	Note
Go off-hook	697(Hz) +1805(Hz)	100(ms) (+/- 20%)	-48(dBm)	
Go on-hook *1	770(Hz) +1805(Hz)	100(ms) (+/- 20%)	-48(dBm)	
	-	65(ms) (+/- 20%)		Wait 65ms
	941(Hz) +1805(Hz)	100(ms) (+/- 20%)	-48(dBm)	
Ring	852(Hz) +1805(Hz)	100(ms) (+/- 20%)	-48(dBm)	Ringing about 1 second

*1 Need to 2 DTMF Tone

7.2.3 Monitor Hook status of EHS headset

Terminal monitors the headset jack to get status of the EHS headset

Monitor	Status of EHS Headset	Note
Close Loop	Off-hook	
Open Loop	On-hook	

8.0 System Compatibility

The following table notes the specification for each UNIVERGE switch and NEC terminal that allows for EHS functionality to operate. The terminal should have the latest firmware load based on the production of this document for proper operation. This is related only to the NEC-SIP terminal and Digital Terminal.

8.1 SV8100 & SV9100

Terminal Type			SV9100		SV8100	
			APN-91	APD-80	APN-91	APD-80
IP	DT920	ITk-6D	No	Yes	Not supported	
		ITK12D		Yes		
		ITK-8LCX		Yes		
	DT930	ITK-24CG	Yes	Yes		
		ITK-8TCGX	No	Yes		
	DT530	DTK-12D	Yes	No		
		DTK-24D	Yes	No		

8.2 SV8300 & SV9300

Terminal Type			SV9300		SV8300	
			APN-91	APD-80	APN-91	APD-80
IP	DT920	ITk-6D	No	Yes	Not supported	
		ITK12D		Yes		
		ITK-8LCX		Yes		
	DT930	ITK-24CG	Yes	Yes		
		ITK-8TCGX	No	Yes		
	DT530	DTK-12D	Yes	No		
		DTK-24D	Yes	No		

8.3 SV8500 & SV9500

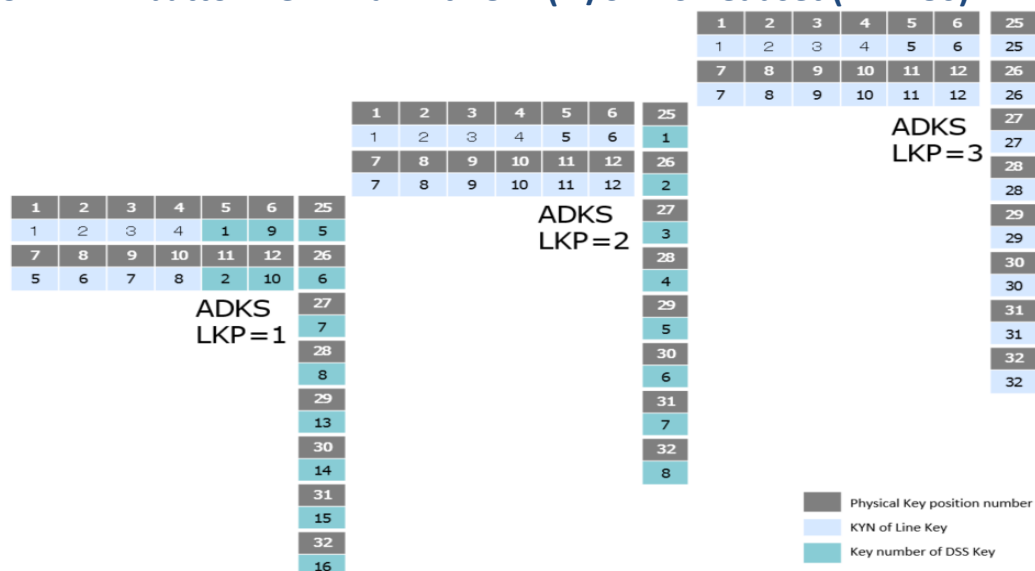
Terminal Type			SV9300		SV8300	
			APN-91	APD-80	APN-91	APD-80
IP	DT920	ITk-6D	No	Yes	Not supported	
		ITK12D		Yes		
		ITK-8LCX		Yes		
	DT930	*1 ITK-24CG	Yes	Yes		
		ITK-8TCGX	No	Yes		
	DT530	DTK-12D	Yes	No		
		DTK-24D	Yes	No		

Note 1:

- Additional combination concerning key layout is applied when side option 8LK added to APD-80 integration review section 9.
- Side option with APN-91 is not supported

9.0 Line Key Layout for SV9500 Environment

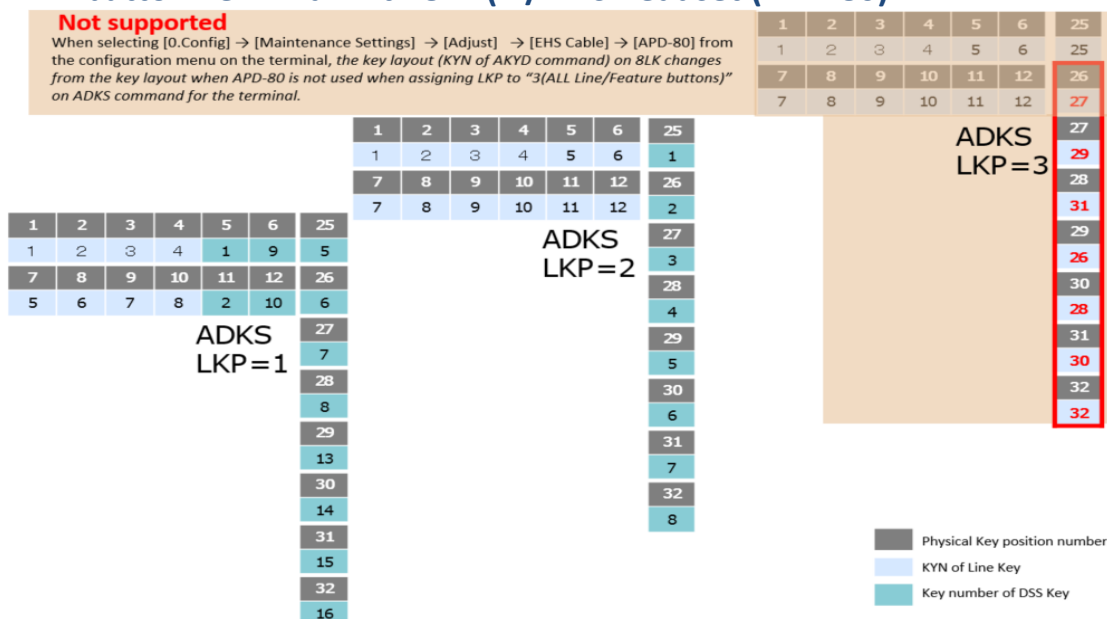
9.1 12 button Terminal with 8LK (w/o EHS headset (APD-80))



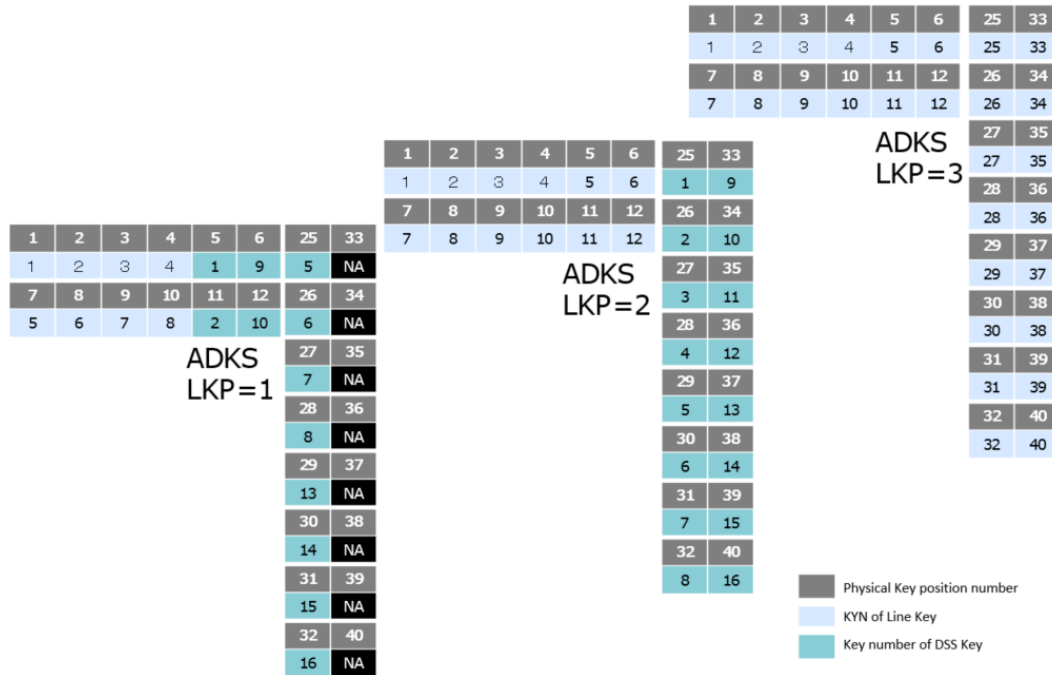
9.2 12 button Terminal with 8LK (w/ EHS headset (APD-80))

Not supported

When selecting [0.Config] → [Maintenance Settings] → [Adjust] → [EHS Cable] → [APD-80] from the configuration menu on the terminal, the key layout (KYN of AKYD command) on 8LK changes from the key layout when APD-80 is not used when assigning LKP to "3(ALL Line/Feature buttons)" on ADKS command for the terminal.



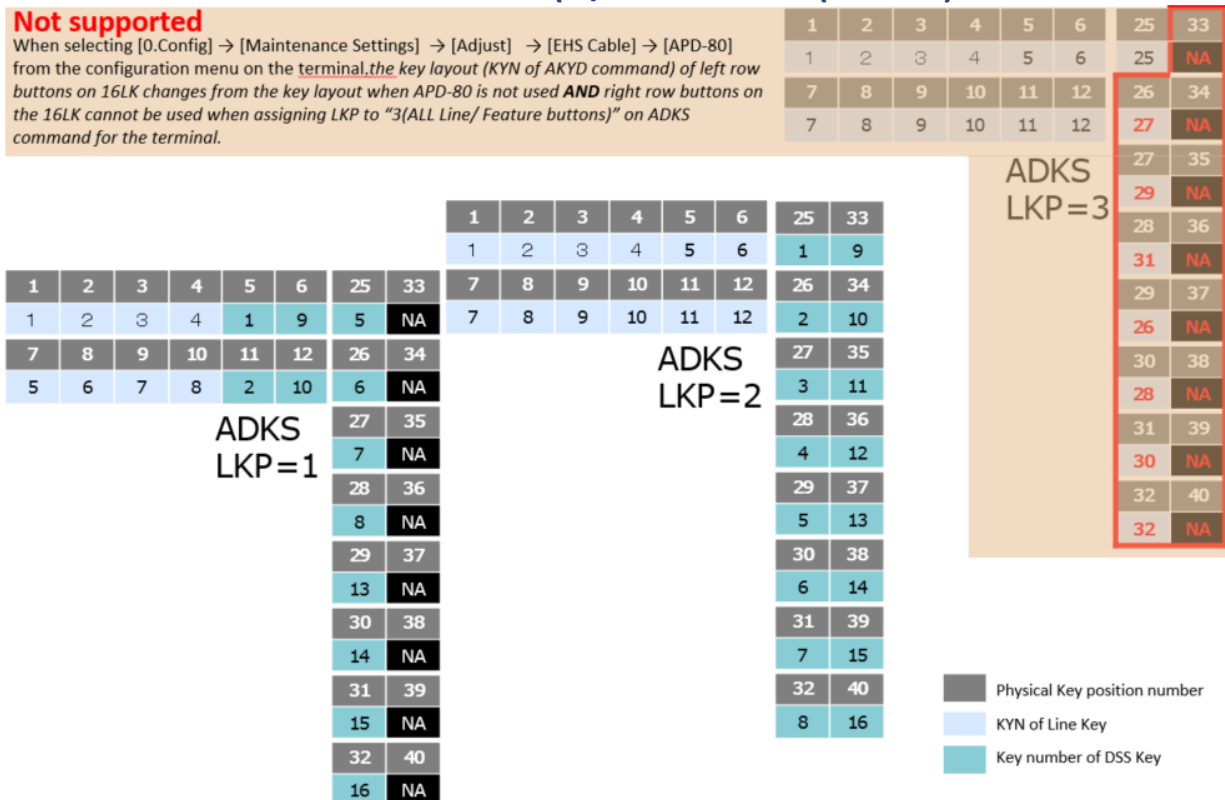
9.3 12 button Terminal with 16LK (w/o EHS headset (APD-80))



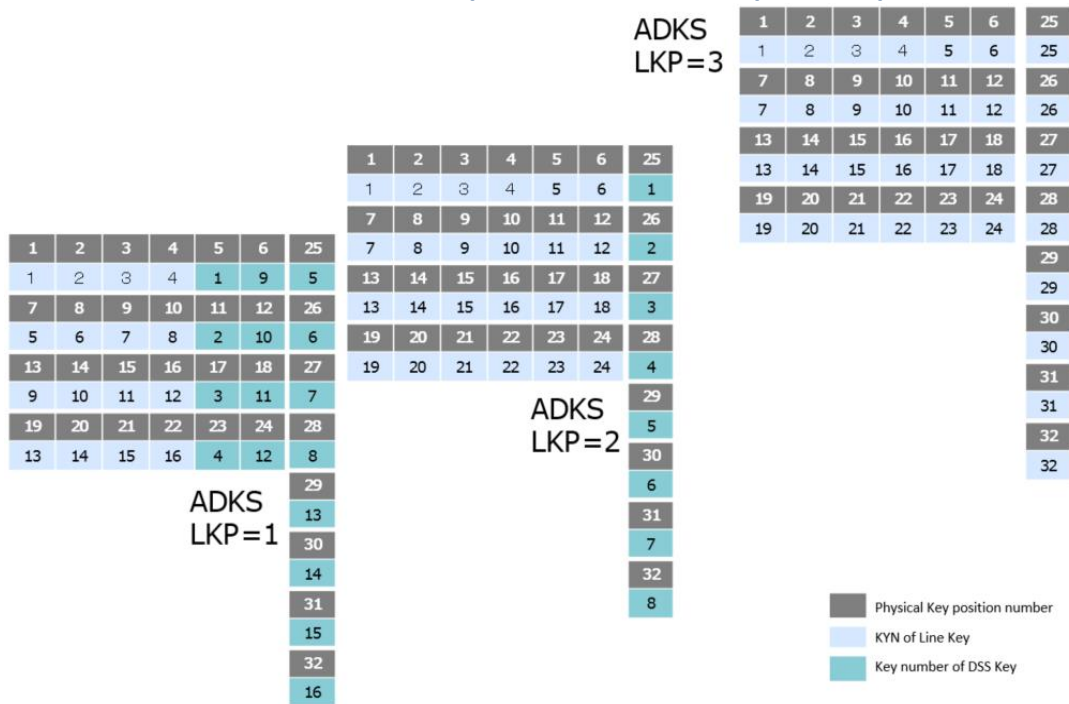
9.4 12 button Terminal with 16LK (w/ EHS headset (APD-80))

Not supported

When selecting [0.Config] → [Maintenance Settings] → [Adjust] → [EHS Cable] → [APD-80] from the configuration menu on the terminal, the key layout (KYN of AKYD command) of left row buttons on 16LK changes from the key layout when APD-80 is not used **AND** right row buttons on the 16LK cannot be used when assigning LKP to "3(ALL Line/ Feature buttons)" on ADKS command for the terminal.



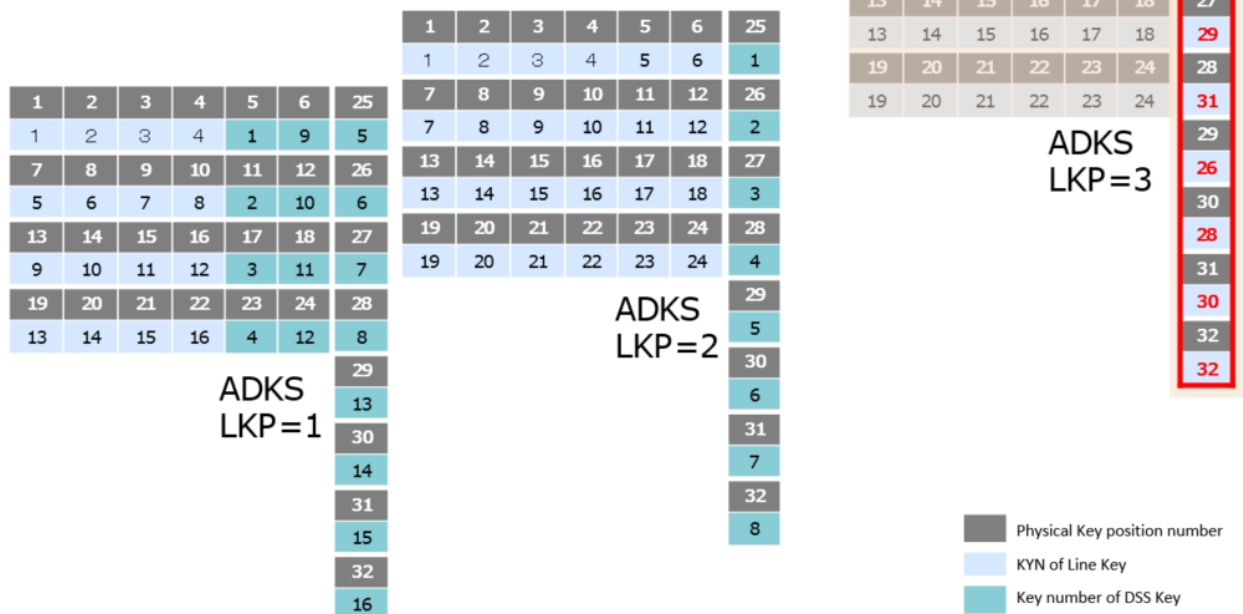
9.5 24 button Terminal with 8LK (w/o EHS headset (APD-80))



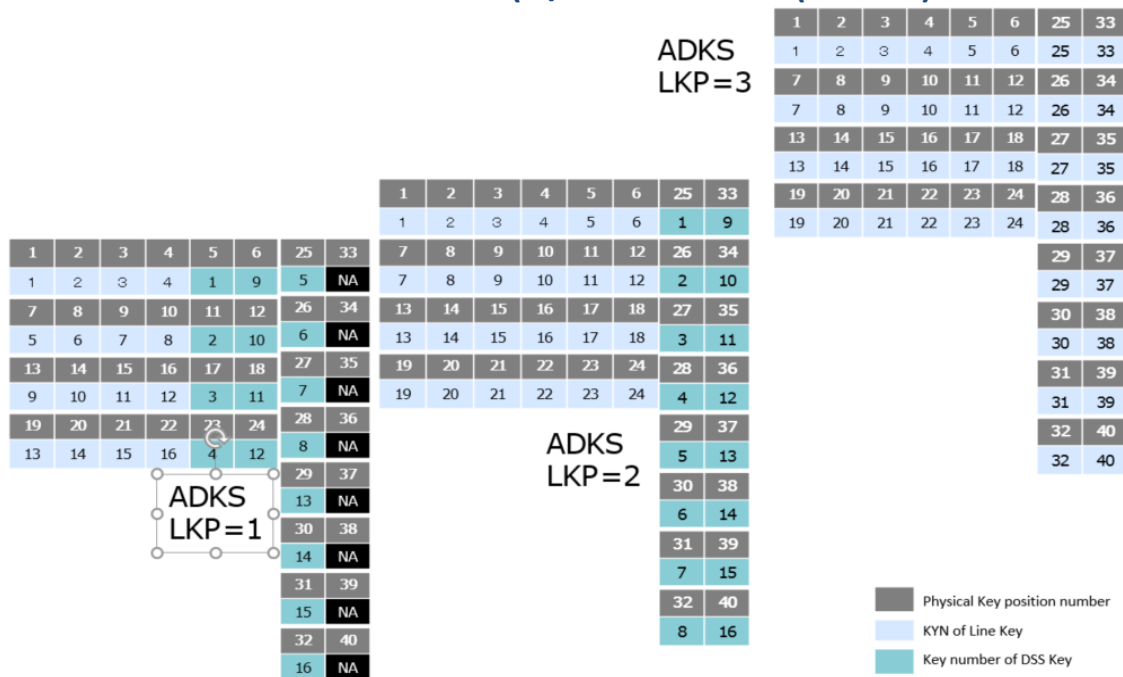
9.6 24 button Terminal with 8LK (w/ EHS headset (APD-80))

Not supported

When selecting [0.Config] → [Maintenance Settings] → [Adjust] → [EHS Cable] → [APD-80] from the configuration menu on the terminal, the key layout (KYN of AKYD command) on 8LK changes from the key layout when APD-80 is not used when assigning LKP to "3(ALL Line/ Feature buttons)" on ADKS command for the terminal.



9.7 24 button Terminal with 16LK (w/o EHS headset (APD-80))



9.8 24 button Terminal with 16LK (w/ EHS headset (APD-80))

Not supported

When selecting [0.Config] → [Maintenance Settings] → [Adjust] → [EHS Cable] → [APD-80] from the configuration menu on the terminal, the key layout (KYN of AKYD command) on 8LK changes from the key layout when APD-80 is not used when assigning LKP to "3(ALL Line/ Feature buttons)" on ADKS command for the terminal.

