

NS Series V8.2 - Summary -

Rev.1.0 Jun. 2020



Item	Contents	NS500 NS700 NS1000 Version 8
1	KX-DT635 / KX-DT680 Digital PT	V8.20
2	Hot Key Dialling	V8.20
3	SIP Trunk Forwarding – 302 Message	V8.20



Overview

NS Series version 8.2 supports new DT600 series Digital Terminals



KX-DT635
Soft-labelling flexible keys



KX-DT680
Colour LCD for more features and easy operation.



Available in Black or White

**NOTE: KX-NCP/TDE/TDA do not support KX-DT635 and DT680.
KX-NS1000 can link to TDE/NCP using legacy gateway interface.**

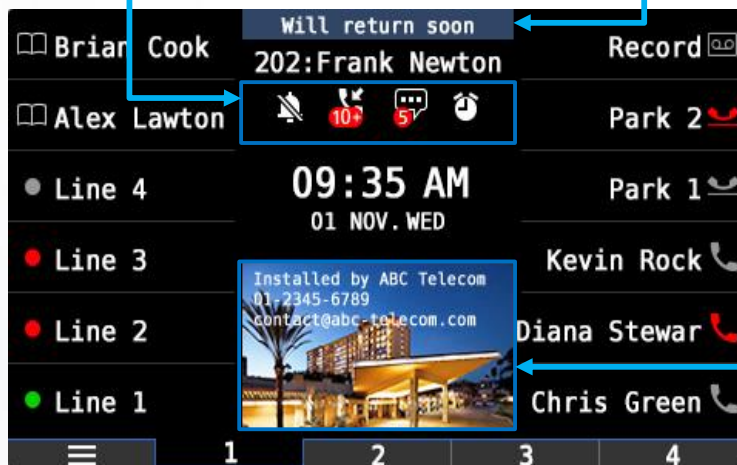
Colour LCD gives users a much clearer display and easier operation.

Customization is also possible for background effects or useful information.

DT635	DT680	Other PT
No	Yes	No

Simple status display by icon

Absent Message



NOTE:

- Touch control not supported.
- Camera/Video conversation not supported.

Picture image can also contain simple operation instructions or information and is downloaded via PBX

Simple status display by icon

DT635	DT680	Other PT
No	Yes	No



Display Conditions:



NT680 is set to No Ring (ring volume 0 or FWD ALL/DND On)



New Incoming missed calls



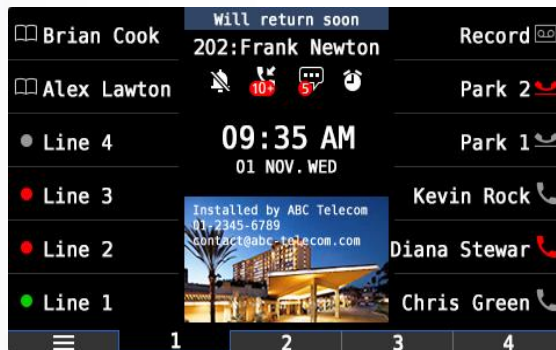
New Voicemail messages



Alarm Call / Timed Reminder set (Alarm time is not displayed).

Colourful icon indication (background colour is fixed to black).

DT635	DT680	Other PT
No	Yes	No



Flexible Button icons:



DSS / BLF: Grey=Idle, Red=Busy, Red Flashing=Ring



Call Park: Grey=Available, Red Flashing=Call Parked



OneTouch / Speed Dial icon



UM Recording: Grey=Idle, Red=Conversation Recording



TIME Service: Grey=Day, Red=Night, Green=Lunch, Green Flashing=Break



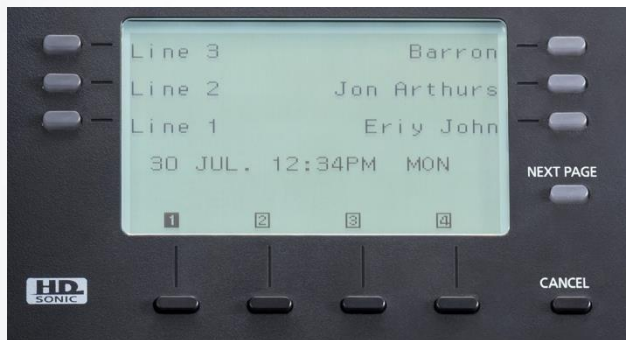
CO Line: Green=Live call to this extension, Red=Live Call to another extension (flashing=call held)

Panasonic One touch access Key

One touch access key for Flexible button individual pages:

DT635	DT680	Other PT
Yes	Yes	No

KX-DT635 supports 4 pages x 6 keys



KX-DT680 supports 4 pages x 12 keys



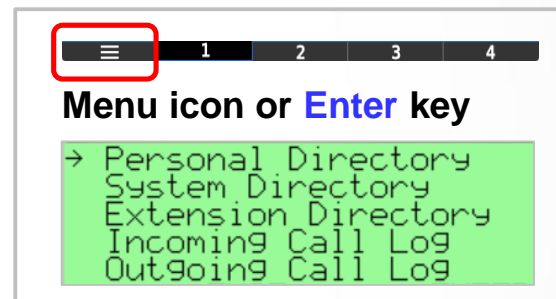
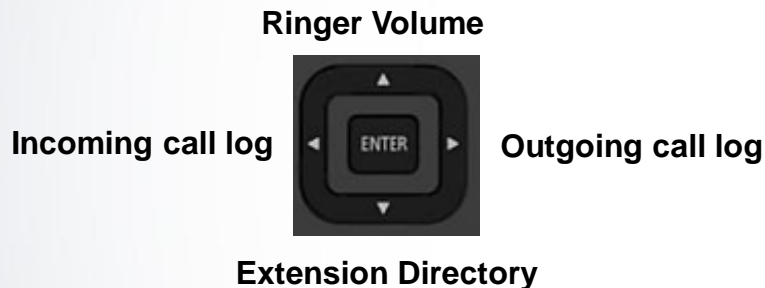
One touch access key for “PT Programming”



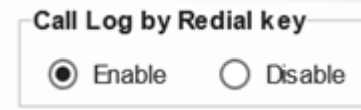
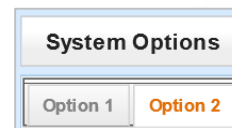
PAUSE/PROG fixed key on KX-DT635/680 (not displayed on soft keys)

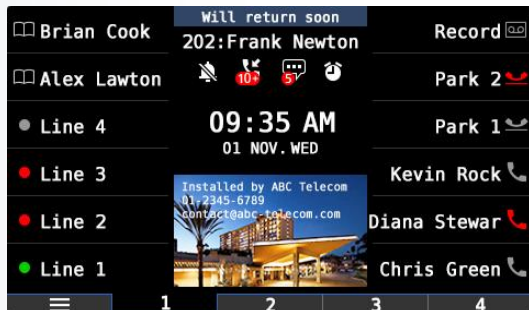
Quick access by Navigation key

DT635	DT680	Other PT
Yes	Yes	No



When Redial key is configured as Call Log in System Options [Right] button is for Personal Directory.

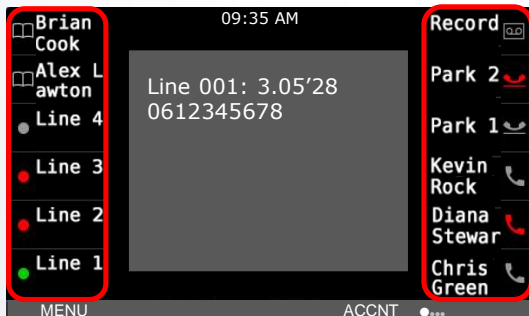




Off hook
(info hidden)



Incoming Call



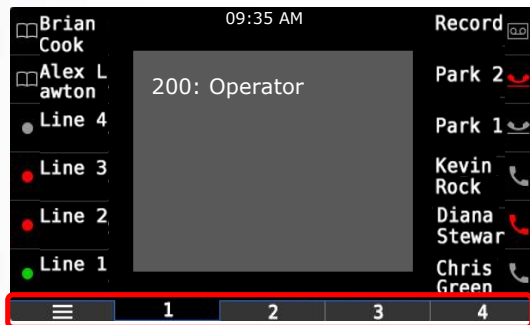
Hold, Transfer
or Conference
hides the child
screen

On Hook Dialling



Button labelling reduces to 2 lines, 12 characters when "child" screen is displayed

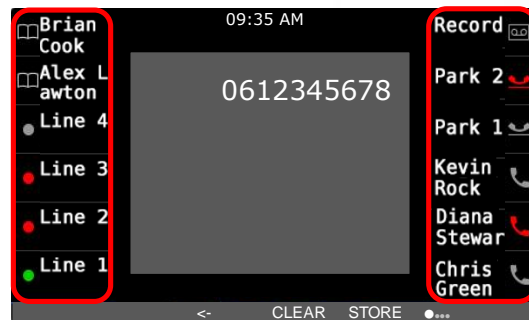
Receiving Page Call



Soft keys do not change for Page calls.
(e.g. No “ANSWER” key)

Configure One-Touch for *43 feature if
button for “ANSWER” page call required

Outgoing Calls



No “ACCNT” or “MENU” buttons
displayed until outgoing is connected.

Configure One-Touch for *49 if “ACCNT”
button required before call is connected

One-touch Voicemail access

DT635	DT680	Other PT
Yes	Yes	Yes

**Message key works as Voicemail key for Unified Messaging (does not apply to SVM).
(Can be configured to previous behaviour by system option programming).**



Extension Status	Message Key action
Idle	Access to UM mailbox
Incoming Call Ringing	Redirects incoming call to UM mailbox.
Calling another extension - Ring back tone - Busy tone - DND tone	Leave voicemail message for target extension.
Talking	Voicemail Transfer to target mailbox.

User name changes are instantly updated on DSS Key labels

DT635	DT680	Other PT
Yes	Yes	Yes

- First 12 characters of extension/User name are displayed at DSS key on DT6xx
- DSS key label name cannot be programmed separately

Web Admin reprogramming:

Ext	Before Change	After Change
102	Alfred King	Brian Cook
103	Charles Whitehead	Diana Green



EXT 102



EXT 103



DSS Key Label instant update



EXT 104

PBX requirements are as follows:

PBX and Software version	Expansion Unit	DLC / DHLC Card Software
NS500/700 Version 8.200 or later	NS520/720 Version 9.035 or later	Version 8.200 or later
NS1000 Version 8.200 or later	TDE/TDA100/200/600/620 including TDA100D Stack-S Version 8.200 or later	Version 8.200 or later
	NCP500/1000 Stack-S Version 8.200 or later	-

Use NS1000 as Legacy Gateway controller for NCP/TDE/TDA cabinets, if required, to support DT6xx.



Two specification differences from previous digital terminal models must be noted to avoid misconfiguration, particularly if replacing terminals on installed systems:

1. DT6 Series power “budget” consumption is greater than DT5, therefore fewer terminals can be connected than previous models.
2. XDP/DXDP is not supported so terminals cannot be “piggy-backed” from each other.

(see Appendix for full details)

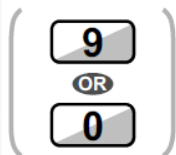
Fast dialling with reduced key presses



DT635	DT680	Other PT
Yes	Yes	Yes

It is not necessary to press [SP-Phone] button after on-hook dialling.

extension no.

Dial e.g. “2” and  (or ) button becomes active.
Continue dialling “0” and “1” to call extension 201



Dial “0” (or “9” depending on region) and  (or ) button becomes active.
If no further digits dialled then call to Operator

outside
phone no.

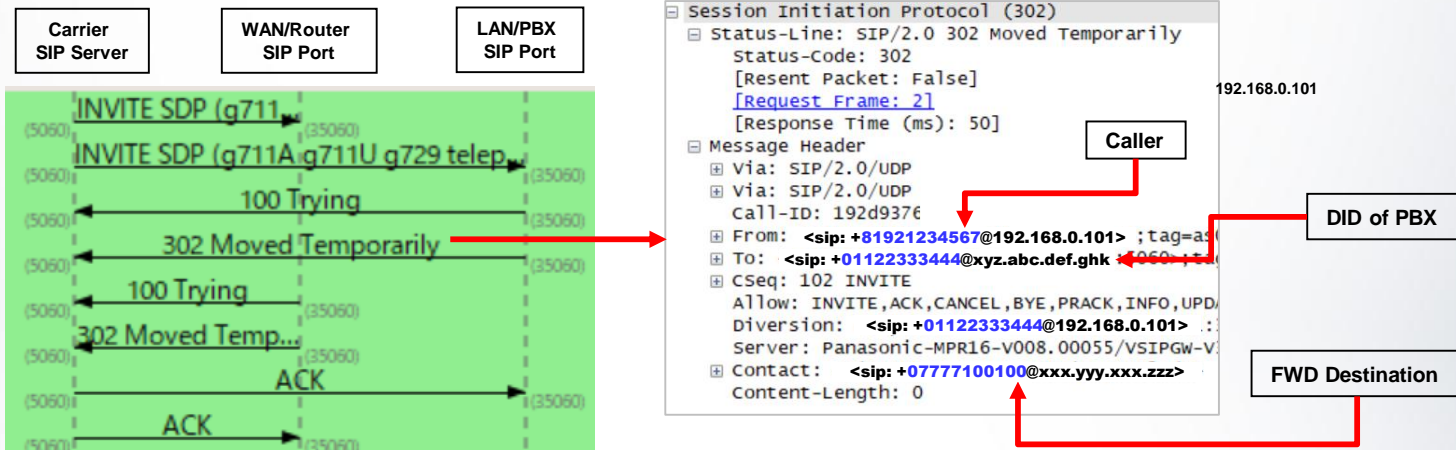


Dial “9” (or “0” depending on region) and  (or ) button becomes active.
Continue dialling to call external destination

For analog CO trunk lines, Extension with TRS level 1 will dial external after a few digits entered. To prevent this situation it is recommended to assign TRS level 2 to 7 for all PT extensions with this feature enabled.

SIP Trunk Forwarding – 302 Message

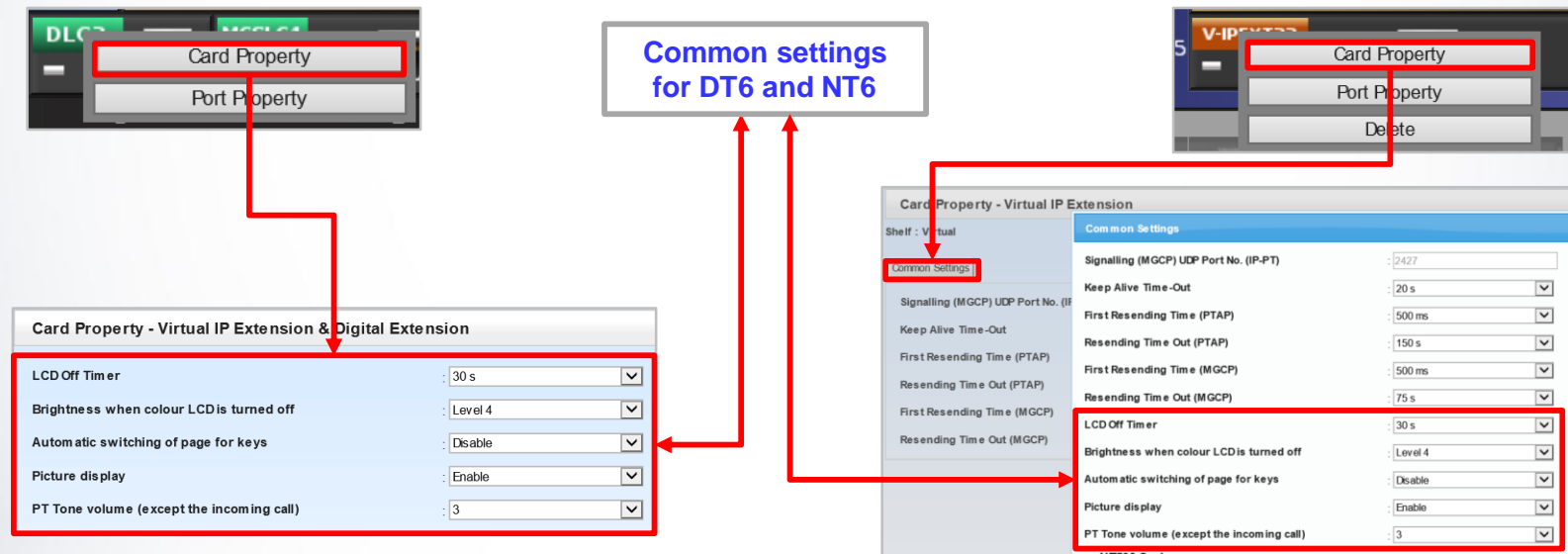
SIP Trunk channels can be released when incoming calls are redirected by forwarding to another external number. Using the 302 Moved Temporarily mechanism, the original incoming call is pushed back to the SIP carrier instead of consuming an inbound and outbound trunk channel.





PROGRAMMING

Card Properties for DLC/V-IPEXT




DT680 Background image file is transferred from PC to PBX, and from PBX to DT680.

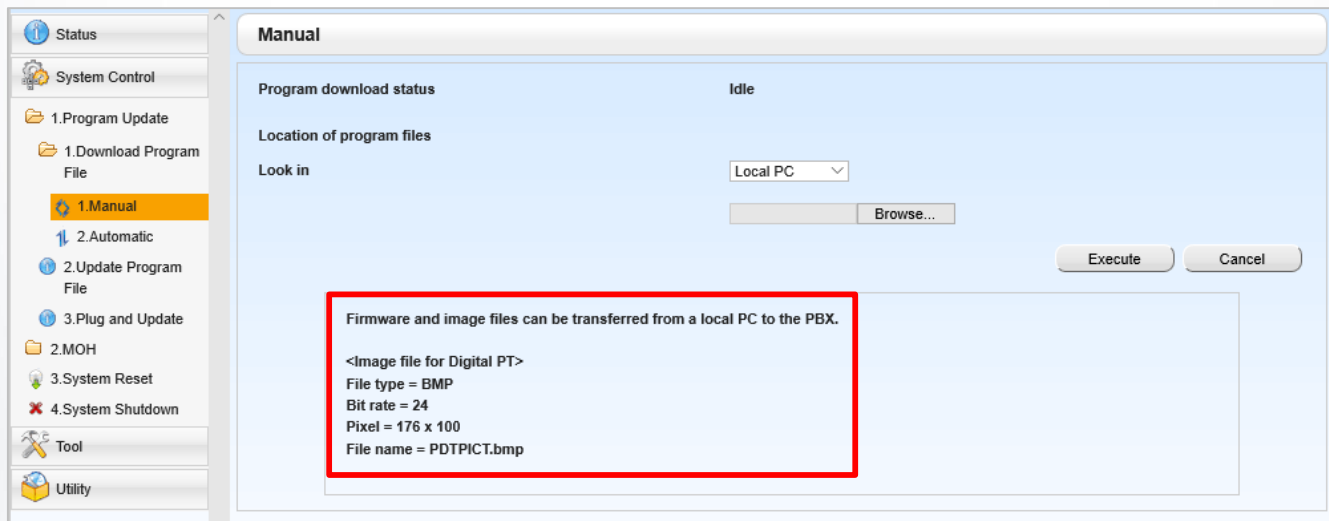
NOTE: Conditions for background image file for DT680 are different to NT680 conditions.

Conditions	DT680 (Digital)	NT680 (IP)
File type	BMP	PNG / JPEG / BMP / GIF
Bit Depth	24 bit only	(No condition)
Resolution: (Pixel W x H)	176 x 100 only	(No condition)
File size	52KB (with above bit rate/resolution)	Less than 1MB
File name	PDTPICT.bmp	Any file name except PDTPICT.bmp

File name has to be maximum 32 characters (including folder name).
0 to 9, A to Z, a to z, and # % - . = can be used in file name.

DT635	DT680	Other PT
No	Yes	No

1. Create image (e.g. using MS Paint, Powerpoint etc.) 
2. Save as “PDTPICT.bmp” – format 24-bit / 176 x 100 pixel resolution.
3. Transfer the BMP file to PBX as per firmware upload – transfer will fail if format is incorrect.



DT635	DT680	Other PT
No	Yes	No

4. Apply firmware update to DT680 port as per firmware update process:

Update Program File

Program Update Type

☒ Immediately
☐ Timed Update
☐ Update Cancel

Email notification

Email Address 1
 Email Address 2

Available Program File (s)

Program	Port Type	File name	File size	Timestamp	Version	Revision
NS500	NS500	PFMPR	91172861	01-Jun-2020 16:20:24	008.200	280
PDT635	DPT	PDT635	303080	24-Apr-2020 11:42:06	000	081
PDTPICT	DPT	PDTPICT	35304	02-Jun-2020 09:50:17	000	000
PNTPICT	IP-EXT	PNTPICT	97125	02-Jun-2020 09:47:32	000	000

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Select the target to update

	Shelf	Slot	Port	Card Type	Port Type	Telephone Type	Version	Revision
<input type="checkbox"/>	-	MainUnit	-	NS500	NS500	None	008.200	280
<input checked="" type="checkbox"/>	1	2	1	DLC2	DPT	KX-DT680	000	081

Apply

Execute **Close**

Example background images:



NOTE: Delete the PDTPICT files from the PBX after updating the DT680 to avoid accidental transfer to DT680 phones later when applying any future firmware updates.

Panasonic One touch access to VM

Message key works as Voicemail key for Unified Messaging (not SVM).

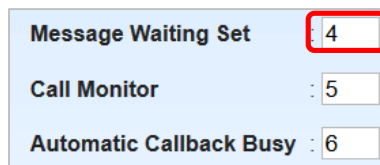
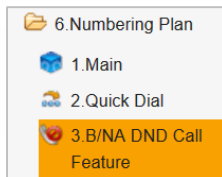
DT635	DT680	Other PT
Yes	Yes	Yes

Can be configured to previous behaviour by system option programming.

Tips



1. Flexible button set as “Message” key works as per original message key behaviour.
2. Dialling *702 also works for message reply (e.g. for desktop/handset callback messaging)
3. Remove Busy/NA/DND DTMF key “4” to avoid unintentional Message Waiting action.



Panasonic Hot Key Dialling

Reserved Bit	Default	Specification when Reserved Bit is enabled
22-7	Disable	Hot key dialling works instead of pre-dialling feature for PT. It is not necessary to press [SP-Phone] button after dialling. If PBX has analog CO trunk lines, TRS level 2 to 7 should be assigned for all PT extensions. This prevents the CO line from being accidentally occupied by erroneous operations.

SIP Trunk channels can be released when incoming calls are redirected by forwarding to another external number. Using the 302 Moved Temporarily mechanism, the original incoming call is pushed back to the SIP carrier instead of consuming an inbound and outbound trunk channel.

To enable this function:

1. Login to the PBX using [Sales Company login](#) credentials
2. Under V-SIPGW Port Property > SIP Option (bits) > Enable option **bit 16**
3. Under V-SIPGW Port Property > Advanced > Enable **Diversion Header**
4. Under V-SIPGW Shelf Property > Main > check that **Ringback Tone to Outside Caller** is **Disabled** (default)

Port Property - Virtual SIP Gateway

Select Provider Add Provider Trunk Adaptor

Enable
Disable

SIP Option (bits)

No.	Shelf	Slot	Port	11	12	13	14	15	16
1	Virtual	1	1						
2	Virtual	1	2						
3	Virtual	1	3						
4	Virtual	1	4						
5	Virtual	1	5						
6	Virtual	1	6						

Advanced SIP Option (bits)

No.	Shelf	Slot	Port	Connection	Diversion Header
1	Virtual	1	1	INS	Enable
2	Virtual	1	2	INS	Disable

Shelf Property - Virtual SIP Gateway

Main Timer NAT Traversal 1 NAT Traversal 2 NAT Traversal 3 NAT Traversal 4

SIP Client Port Number : 35060

SIP Called Party Number Check Ability : Disable(Low->High)

SIP Called Party Number Search Mode : Mode1

Symmetric Response Routing Ability : Enable

100rel Ability : Enable(Passive)

Ringback Tone to Outside Caller : Disable

NOTE: Both the incoming call CO trunk port and the FWD destination CO trunk port must be within the **Same Trunk Group**.



Appendix

Physical design of KX-DT680 (Digital) is the same as KX-NT680 (IP).



Specifications	KX-DT680
Angle	30 / 40 / 50 degrees
Dimensions (W × H × D)	220 × 183 × 179mm - Angle is 40 degrees. - Handset is included.
Weight	890g
Operating Temperature	0 °C to 40°C

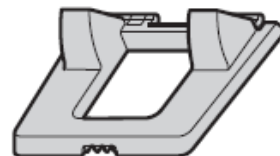
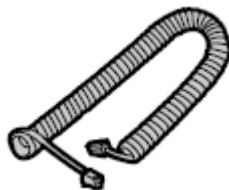
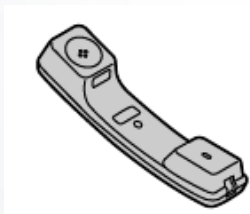
Physical design of KX-DT635 is the same as KX-NT630.
KX-DT635 also supports EHS.



Specifications	KX-DT635
Angle	30 / 40 / 50 degrees
Dimensions (W × H × D)	205 × 183 × 179mm - Angle is 40 degrees. - Handset is included.
Weight	870g
Operating Temperature	0 °C to 40°C

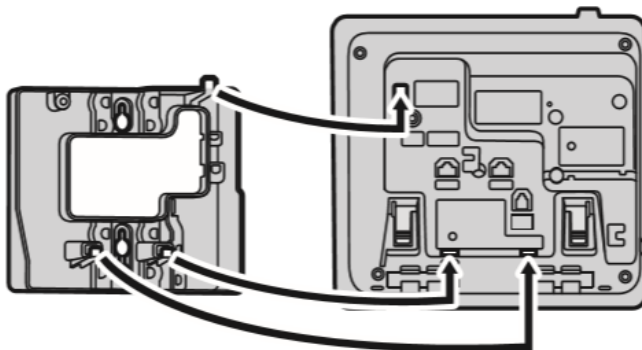
Included with DT635/680:

- Handset Earpiece
- Handset cord
- Telephone line cord (RJ11-RJ11)
- Stand



Optional Wall Mount kits:

Option	For	Functions
KX-A432	KX-DT521	Wall Mounting bracket
KX-A433	KX-DT543 / KX-DT546	
KX-A435	KX-DT635 / KX-DT680 KX-NT630 / KX-NT680	



Panasonic Hardware Specifications 1/2

Specifications	NT680	DT680	DT546	NT630	DT635	DT543
LCD for Call Control and Soft Keys	Colour 480 x 272 pixel 95.04 x 53.86mm		6-line	3-line	3-line	3-line
LCD Backlight	Yes	Yes	Yes	Yes	Yes	Yes
Flexible Buttons	12 x 4 pages	12 x 4 pages	24	6 x 4 pages	6 x 4 pages	24
Optional DSS Console	No	No (*1)	Yes	No	No (*1)	Yes
Audio Headset port (2.5mm jack)	Yes	Yes	Yes	Yes	Yes	Yes
EHS (Electric Hook Switch) port (*2)	Yes	Yes	Yes	No	Yes	Yes
Bluetooth Headset support (Built-in)	Yes	No	No	No	No	No

(*1) DT590 can be used as DSS console for DT6 if required but DT590 cannot be physically connected to DT6.

(*2) DT6 compatible headsets are same as NT6 Series.

Specifications	NT680	DT680	DT546	NT630	DT635	DT543
Optional AC Adaptor / PoE	Yes	Not Required	Not Required	Yes	Not Required	Not Required
XDP / Digital XDP port	No	No (*)	Yes	No	No (*)	Yes

(*) Single extension number for paired Digital PT and SLT extension is possible using One-Number feature.



Configure One-Number pairing through W-XDP/Share Extension setting:

No.	Extension Number	Extension Name (20 characters)	Wireless XDP / Shared Extension
1	101		201
2	102		

Panasonic Software Specifications

Specifications	NT680	DT680	DT546	NT630	DT635	DT543
Flexible key label	LCD	LCD	Paper	LCD	LCD	Paper
Icon display for status, incoming call log & outgoing call log	Yes	Yes	No	No	No	No
Flexible Button Icons	Yes	Yes	No	No	No	No
One touch access to page	Yes	Yes	No	Yes	Yes	No
One touch access to call log and directory	Yes	Yes	No	Yes	Yes	No
Image file display and update using PBX Web-MC	Yes (*1)	Yes (*1)	No	No	No	No
Phone firmware update using PBX Web-MC	Yes (*1)	Yes (*1)	No	Yes (*1)	No	No
Phone model and firmware version display on PBX Web-MC	Yes	Yes	No	Yes	No	No

(*1) The phone cannot be used during update process (it is possible to update out of hours using timed update feature). The PBX updates the phones one by one. Updating the DT680 image file takes about **5 minutes** per phone. Updating DT680 firmware takes about **30 minutes** per phone.

- Other specifications of DT6 Series which are not listed in this document are basically the same as KX-DT5 Series.
- Audio characteristics of DT6 Series are the same as DT5 Series
- LCD backlight “Off” for DT635 is completely OFF (like DT543) not “Slightly On” like NT630 backlight.
- LCD backlight mode can be changed to “Always On” by programming. (Default is “Automatic”)

Panasonic Capacity in NS500

PBX Capacity for DT6 Series is limited by power consumption.
Load Figure of each DT6 is “1.5” in NS500.

Cabinet	Maximum Load Capacity
NS500	40 (24 for DPT)
NS520	40 (24 for DPT)

Load Figure Calculation

Equipment Type	Item	Load Figure
PT	DPT	1
	DPT (KX-T7400 series/ KX-T7500 series)*	2
	DPT (KX-DT600 series)	1.5
	DSS Console	1
	D-XDP	0.5
	APT	1.5
	IP-PT	0
	SIP-EXT	0
CS	DPT I/F CS (2ch)	2
	DPT I/F CS (8ch)	8
SLT	DHLC4	4
	SLC8	8
	SLC16	16
	KX-NS500 (Preinstalled SLC)	16
	KX-NS520 (Preinstalled SLC)	16

Cabinet	DT5 w/o D-XDP	DT6
NS500 DLC2 + DLC16 x 1	18	16 (24 / 1.5)
NS520 DLC16 x 1	16	16 (24 / 1.5)
NS500 + NS520 x 1	34	32
NS500 + NS520 x 2	50	48
NS500 + NS520 x 3	66	64

Load Figure of one pair of DT5 + DT5 on DXDP is “1.5”

Panasonic Capacity in NS700

PBX Capacity for DT6 Series is limited by power consumption.
Load Figure of each DT6 is “1.5” in NS700.

Cabinet	Maximum Load Capacity
NS700	40 (36 for DPT)
NS720	40 (40 for DPT)

Load Figure Calculation

Equipment Type	Item	Load Figure
PT	DPT	1
	DPT (KX-DT600 series)	1.5
	DSS Console	1
	D-XDP	0.5
	APT	1.5
	IP-PT	0
	SIP-EXT	0
CS	DPT I/F CS (2ch)	2
	DPT I/F CS (8ch)	8
SLT	DHLC4	4
	SLC8	8
	SLC16	16
	KX-NS700 (Preinstalled SLC)	4

Unit	DT5 w/o D-XDP	DT6
NS700 DLC2 + DLC16 x 2	34	24 (36 / 1.5)
NS720 DLC16 x 2	32	26 (40 / 1.5)
NS700 + NS720 x 1	66	50
NS700 + NS720 x 2	98	76
NS700 + NS720 x 3	130	102

Load Figure of one pair of DT5 + DT5 on DXDP is “1.5”

Panasonic Capacity in NS1000 and NSX

PBX Capacity for DT6 Series is the same as capacity for DT5 without DXDP.
Load Figure of each DT6 is “2” in NS1000.

Cabinet	PSU	Maximum Load Capacity
TDA/TDE	Small	64
	Medium	128
	Large	512
NCP	-	44

Load Figure Calculation		
	Equipment Type	Load Figure
PT	KX-DT300 series DPT/KX-DT300 series DSS console/KX-T7600 series DPT/KX-T7600 series DSS console	1
	KX-DT600 series DPT	2
	KX-T7560/KX-T7565 DPT	1
	Other DPT/Other DSS console	4
	APT	4
	IP-PT	0
	SIP Extension	0

Example Capacities with TDE620 cabinets on NS/NSX

PBX with PSU-L	DT5	DT6
NS1000 x 1 + TDE620 x 1	160 (10 x DLC16)	160 (10 x DLC16)
NS1000 x 1 + TDE620 x 2	320 (20 x DLC16)	320 (20 x DLC16)
NS1000 x 2 + TDE620 x 4	512 (32 x DLC16) 1024 ports with D-XDP	512 (32 x DLC16)
NSX2000 + NS1000 x 4 + TDE620 x 7	1008 (63 x DLC16) 2016 ports with D-XDP	1008 (63 x DLC16)

Load Figure of one **pair** of DT5 with D-XDP phone = **2**



END