

NEC Enterprise Solutions

DECT Handset I766(Ex)

DECT handset

Release Overview



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Contents

SUMMARY	4
1. PRODUCT OVERVIEW.....	5
1.1 Promotional bundles	5
1.2 I766 Partlist	5
1.3 Features and applications	6
1.4 Firmware	7
1.5 Bluetooth.....	7
1.6 Security.....	7
2. MARKETING ASPECTS	8
2.1 Positioning.....	8
2.2 Pricing.....	8
2.3 Competition.....	8
2.4 Promotion.....	9
3. SALES GUIDELINES	10
3.1 Life expectancy of the I766 handset	10
3.2 Battery instruction.....	10
3.2.1 Battery Instruction for the I76Ex.....	11
3.3 Product Reliability	11
3.4 I766 designed to perform.....	11
3.5 Messaging, Alarming, Positioning	12
3.6 Accessories	12
4. DETAILED PRODUCT DESCRIPTION (OFFER TEXT)	13
4.1 The I766.....	13
4.1.1 The I766Ex	13
4.2 Handset layout	14
4.3 Making and receiving DECT calls	14
4.4 Contacts list / People.....	14
4.5 Voicemail	14
4.6 Alarm (SOS) button.....	14
4.7 Man-down	14
4.8 Pull-Cord	15
4.9 Charging the battery.....	15
4.10 Messaging.....	15
4.11 Location detection (RTLS) based on RSSI	16
4.12 Location detection based on last connected AP	16
4.13 Location detection (RTLS) based on beacons (not for I766Ex).....	16
4.14 Noise reduction feature	17
4.15 DMLS.....	17
4.16 Management features.....	17
4.17 Functionality comparison handsets	18
5. COMPATIBILITY.....	19
5.1 IP DECT Platforms.....	19
5.1.1 The I766Ex will be supported on the following versions:	19
5.1.2 License for ATEX handset	19
5.2 Loading the Firmware Upgrade Patch.....	19
5.3 DECT platforms.....	20
5.4 DMLS.....	20
5.5 Micro SD Card.....	21
5.6 BlueTooth Headsets	21

5.7	Wired Headset (not for I766Ex).....	21
5.8	DECT Handset configurator (DHC).....	21
5.9	Flash Loader.....	24
5.10	PBX platforms.....	24
6.	INTRODUCTION AND REGULATORY	24
6.1	Language support.....	24
6.2	Regulatory Compliance	24
7.	DOCUMENTATION	25
8.	LOGISTICS	26
9.	SUPPORT AND SERVICES.....	27
9.1	Warranty	27
9.2	Repair	27

SUMMARY

The I766 DECT handset is a powerful communication tool and with its ruggedized design the successor for the I755 handset. It is positioned for verticals such as in healthcare, manufacturing and industry. For hazardous/explosive environments there is a ATEX version of the I766 available, called I766Ex.

Key aspects:

- Very sturdy, yet appealing design
- Large 2.4-inch high resolution display
- Intuitive user interface with colour display and icon-based menus
- Personal security with SOS, Man-down and Pull Cord
- Location detection (RTLS) based on RSSI as well as on beacons
- Integrated Bluetooth headset support
- Dual- and rack chargers; also charging additional batteries
- DECT compliance for high quality speech and security
- High definition audio in line with CAT-iq
- I766Ex is ATEX version of I766

Differentiators with respect to the I755:

- Large SOS key, located at the top of the handset
- Ruggedized design
- New personal security Pull-Cord feature complementing Man-down and SOS key
- High definition audio in line with CAT-iq incl. loud speaking mode
- Integrated Bluetooth support with preparation for BT-Low Energy)
- 2nd microphone to suppress environment noise
- Elpas beacon support by means of add-on DLA
- Modern micro USB interface and microSD card
- Desk- and Rack chargers supporting the entire range (G266, G566, I766 and G966)



Integrated Application support:

- Central Directory
- Messaging and alarming
- Location detection

Member of the next generation handsets

The I766 is member of the NEC DECT handset portfolio, also consisting of G266, G566s/d and G966. The I766 fits into the enhanced desktop charger which is available as dual charger and a rack charger.

I766Ex

Special version of the I766 DECT Handset for use in hazardous/explosive environments.

This I766 model is based on intrinsic safe technology.

The I766Ex does not have a headset connector, USB connector (USB connection via enhanced desktop charger) or DLA slot.

It has the following ATEX specifications:

I M2 Ex ib I Mb

II 2G Ex ib IIC T4 Gb

II 2D Ex ib IIIC T135C Db

-10C ~ +50C IP65

Um = 5.25VDC

CE0035

Presafe 17 ATEX 9520 X

IECEX PRE 17.0011X



1. PRODUCT OVERVIEW

1.1 Promotional bundles

The following promotional bundles are available during the introduction period of the I766 until December 31st, 2015.

I766 Bundle Euro (EU909326) and I766 Bundle Multi-region (EU909327)

This bundle will be offered during the introduction phase of the I766, including

- 1x I766 DECT handset (EU917081)
- 1x Gx66/I766 Enhanced desktop charger
- 1x AC Adapter (Euro or Multi-Region)
- 1x Memory card (uSD)



I766 Rack Charger Bundle (EU909332)

- 6x I766 DECT handset (EU917081)
- 6x Memory card (uSD)
- 1x Gx66/I766 Enhanced Multi-Charger Rack
- 1x Gx66 AC Adapter – Multi-Charger Rack (Multi-Region)



1.2 I766 Partlist

I766 DECT Handset (EU917081)

- 1x I766 handset including 1100mA battery and spring belt clip mounted
- 1x Handset battery door
- 1x Cover for belt clip
- 1x Pull-cord
- 1x Quick reference guide and Additional information sheet



I766Ex DECT Handset (EU917102)

- 1x I766Ex handset including I766Ex battery and spring belt clip mounted
- 1x Cover for belt clip
- 1x Pull-cord
- 1x Quick reference guide

I766Ex Spare Battery (EU917103)

- 1x I766Ex Battery

DECT Handset Battery Pack (960001787000)

- Lithium-ion 1100mA

I766 Swivel Belt Clip set (EU917085)

- 1x I766 Swivel knob
- 1x Swivel belt clip

- 2x Mounting screws

I766 Spring Belt Clip set (EU917086)

- 1x I766 Spring lever belt clip
- 2x Mounting screws



Gx66/I766 Enhanced Desktop Charger (EU917079)

- 1x Enhanced desktop charger for Gx66 and I766 models
- 1x usb-cable

Note: This charger can charge an additional 1100mA (G266/566 and I766) or 1600mA battery (G966). The AC adapter to be ordered separately, either with Euro or Multi-adapter



Gx66/I766 Enhanced Multi Charger Rack

- 1x Charger rack with 6 charging stations for Gx66 or I766 handsets

Note: Each of the 6 chargers can charge an additional 1100mA (G266/566 and I766) or 1600mA battery (G966). The Rack Charger AC adapter to be ordered separately



Gx66/I766 Download Cable

- 1x USB to 3.5 mm headset jack cable.

Note 1: This cable is used for connecting the Flash Loader to the I766 for firmware upgrading.

Note 2: Connection to the I766Ex via the Gx66/I766 Enhanced Desktop Charger

Headsets

- The I766 supports wired and Bluetooth headsets. The I766Ex only supports Bluetooth headsets

1.3 Features and applications

Also refer to the Datasheet and to chapter 4.

Messaging

The I766 handset supports all messaging and alarming features as also available in the G566 and I755 handsets and DMLS interface. Regarding personal security, it adds the Pull-cord in addition to the SOS key and man-down alarming.

Real Time Location Services (RTLS)

RTLS is possible with two methods:

- based on the existing functionality with Ekahau, working with multi-RSSI (received signal strength) values and a location engine from Ekahau
- new functionality based on Tyco/Elpas beacon support, using an optional DLA (DECT Locator Accessory) unit which can be fitted to the handset in a dedicated slot behind the clip. Note that the I766Ex does not support the DLA

Central Directory

The I766 supports CDA (Central Directory Application) identical to the other handsets in the portfolio and based on BusinessConneCT or a separate CDA tool.

Other applications

The handset has a number of useful applications like a calculator and agenda.

1.4 Firmware

The I766 is released with firmware package V28b0004.

The firmware will be updated at regular intervals:

- For bug fixing
- To add new functions

New firmware can be installed with the FWU (Firmware Upgrade) tooling over the air (via DECT), which is provided for B7xx DECT series FWU tool, and in IP DECT with the built-in FWU tool. Firmware can also be loaded manually with the download cable and Flashloader tool.

1.5 Bluetooth

The I766 provides the latest on Bluetooth technology, supporting classic mode as well as Bluetooth Low Energy (BLE). BLE is prepared in the hardware of the handset, and its functionality will be enabled in future software releases.

Protocol: Bluetooth 3.0 + EDR + BLE (BT 4.0)

Profiles supported:

- HSP (Headset) profile 1.2
- HFP (Handsfree) profile V1.6

Bluetooth devices tested:

- Plantronics Voyager PRO
- Plantronics Voyager PRO HD
- Plantronics Voyager Legend
- Jabra SUPREME model: OTE8

1.6 Security

The I766 offer various security features to protect the device against un-intended use.

- (Automatic) keyboard lock
- Pin code
- DECT security by encryption

2. MARKETING ASPECTS

NEC introduced the G266 and G566 handsets a while ago and more recently the G966. Now the I766 is available as a robust handset for industry, healthcare and hospitality.

Just read more in the following sections about the various marketing aspects of this handset.

2.1 Positioning

The I766 handset can be positioned to various different enterprise customers:

Retail

With the I766 employees can easily stay connected with the call centre to support customers, while on the move.

Production

The I766 provides the essential voice communication to stay in contact including messaging and alarming functionality in case of urgency and escalations.

Hospitality

The I766 integrates well with task management applications by its standard messaging capabilities. It's rugged nature makes sure that the handset stays operational during demanding circumstances.

Care and Cure

The I766 can be integrated with messaging and alarming servers like the other handsets in the range, such as G566 and G966. This provides the so valuable combination of patient alarming with nurse messaging and the immediate response by voice conversation. All just with a single handset.

2.2 Pricing

The I766 handset pricing is in line with the I755 rugged handset which is logical comparing the capabilities of the handset. As price reference we took the price level of the ruggedized DECT handsets in the mentioned vertical markets.

2.3 Competition

The I766 is comparable with ruggedized models like offered by Spectralink (Kirk) and Ascom. Ascom is mainly focussing on the care and cure segments with premium pricing. NEC has proven to be a strong player in office and vertical market segments by means of the entirely renewed portfolio; the line-up of handsets from basic to specialised and the strong message integration with many message suppliers around the globe makes it a valuable solution. The various tuning capabilities of the IPDECT system makes the solution suited for demanding and special circumstances.

2.4 Promotion

To support the introduction of I766 into the global market NEC has prepared a range of materials to support Business Partners with their introduction. These are available on the I766 page on the BusinessNet.

Datasheet

The datasheet provides the product technical detail specification.

IP DECT brochure

The updated IP DECT brochure shows the entire line-up of handsets, including the I766 and M166.

Micro website

www.nec-ipdect.com provides an total overview of the NEC IP DECT portfolio. Also the generic website provides info on I766.

NEC BusinessNet

On the extranet for Business Partners BusinessNet, the DECT terminal pages provide all related documents to I766, like manuals, presentations, data sheets and service info.

3. SALES GUIDELINES

3.1 Life expectancy of the I766 handset

The I766 handset is a robust handset which is intended for demanding environments. Many aspects of the handset have been redesigned and improved compared to the I755.

The life expectancy of the I766 handset is strongly dependent on how the handset is treated, the nature of use and the environment in which it is used. For example if handsets are subject to repeated or severe dropping beyond their design specifications they can be damaged and problems will develop either immediately or at a later date. Another example is when handsets are intensively used, such as in 24/7 environments and employees sharing the same handset and change battery every shift, the expected lifetime of the handset may be reduced to max 2 years.

When handsets are used in an industrial environment or hospital they are subject to additional environmental challenges.

Also for the battery expected lifetime, the nature of daily use and the way in which the handset battery is charged and discharged will also affect its useful life.

Taken the above into account, it is obvious that there is a considerable difference between office use and the use in healthcare and industry. Examples showing 20% failing handsets after 3 years in industry or other demanding environments is acceptable, a total useful lifetime of 3 years is not unusual for a DECT handset or even 2 years when used in a 24/7 demanding environment.

3.2 Battery instruction

When battery runs out of charge, recharge the battery as soon as possible. Leaving the battery out of charge for an extended period may damage the battery.

Keeping the battery in the constant charging mode, such as in charging cradle or connected to power source for more than one month will shorten its life, and may cause the battery to deform. Since the handset is powered on and placed on the charger for an extended period of time, the battery will go through many cycles of charging; hence, the battery may reach the end of its lifetime in a shorter period of time

Avoid frequent full discharges of the batteries. Only full discharge the batteries once after 25-30 times of partial discharge for recalibration.

If the device is not in service for more than one month, remove the battery from the device.

The battery of the I766 will gradually decrease with usage. The rate of capacity decrease depends on the depth of discharge, operating temperatures and charging method; the deeper the batteries are discharged and the warmer the ambient temperature is, the shorter the service life.

A battery with less use has lower wear-and-tear than one in daily operation. Although Lithium battery has limited charge/discharge cycles over their life span, it is not trivial to define the end of battery life.

Weak battery is the sign of battery approaching its end. Signs of a weak battery:

- Battery level indicator will show must faster draining rate
- Service time for the battery is much shorter
- Weak battery charges faster than good ones
- Swelling of the battery

It is recommended to replace the battery as soon as possible when the mentioned signs appear.

A battery may also swell during its lifecycle

- Inherent characteristics of Lithium (Li+ and Li Polymer) battery implies that the battery cell may swell up to 10% during normal working conditions
- Typical life cycles for a Lithium battery is 300-500 cycles
- Approaching the end of its lifetime, the swelling of a battery cell may exceed 10% depending on the charge conditions
- The swelling of the battery will not cause the battery to open or leak electrolyte.

3.2.1 Battery Instruction for the I76Ex

Note that special battery rules apply to the I766Ex. It is not allowed to charge or replace the battery in the ATEX area. These rules are further described in the I766Ex Quick Reference Guide which is shipped with the handsets.

3.3 Product Reliability

The I766 handset has been designed to meet very high standards regarding reliability. A summary:

Dropping

The handset will remain functional after 12 drops from 1.6 meter on concrete floor, 6 angles (front, back, top, bottom, sides) and 2 times on each angle, according to IEC 60068-2-32, procedure 1

Belt clip

The clip can withstand 40K cycles (Open & close counts as 1 cycle, opening at ≥ 1 mm), and the punctual force before breaking is 50N.

Cleaning (resistance to liquids)

According EN ISO 2812-4:2007 EN - Paints and varnishes – Determination of resistance to liquids - Part 4: Spotting methods. Liquids:

- 99% concentration of isopropyl alcohol
- Undiluted dish washer detergent
- 3% Hydrochloric Acid
- M-alcohol (85% methylated ethanol)
- 60% Chlorhexidine 0.5mg/ml

Resistance to dust and water

The I766 offers Ingress protection (IP) at level IP65.

3.4 I766 designed to perform

The following picture shows various aspects of the handset providing best performance to the user:



3.5 Messaging, Alarming, Positioning

The I766 offers the many alarming and messaging features fully compatible with other DECT handsets such as G566 or G966. It fully supports DMLS and as such it can be combined with G566 and G966 with DMLS connecting to Messaging servers like Mobicall.

The I766 offers an easy access SOS button at the top. This initiates an alarm call or message for starting an alarm escalation script.

A pull cord can be applied for personal safety purpose. The user can pull the cord when in danger. This will like the SOS button start an alarm message or call.

Location detection is possible by means of Tyco/Elpas beacons (not supported by I766Ex). The handset is able to send beacon information in addition to and alarm message. The location method based on RSSI signal strength and triangulation type of solutions combined with Ekahau positioning solutions is available as well.

3.6 Accessories

The I766 handset shares some of the accessories with the G266, G566 or G966 handsets, e.g. enhanced desktop charger, enhanced multi rack charger, the uSD memory card and the wired headset (not for I766Ex). Please note that the I766 does not fit in the desktop charger or multi charger rack that was introduced initially with the G266 and G566.

The enhanced chargers can also charge an additional battery, either the 1600mA model of the G966 or the 1100mA model of the G266/G566 and I766.

4. DETAILED PRODUCT DESCRIPTION (OFFER TEXT)

4.1 The I766

The new I766 DECT handset is a powerful communication tool and with its ruggedized design the successor for the I755 handset. It is positioned for verticals such as in healthcare, manufacturing and industry.

Key aspects:

- Very sturdy, yet appealing design
- Large 2.4-inch high resolution display
- Intuitive user interface with colour display and icon-based menus
- Personal security with SOS, Man-down and Pull Cord
- Location detection (RTLS) based on RSSI as well as on beacons
- Integrated Bluetooth headset support
- Dual- and rack chargers; also charging additional batteries
- DECT compliance for high quality speech and security
- High definition audio in line with CAT-iq



Integrated Application support:

- Central Directory
- Messaging and alarming
- Location detection

4.1.1 The I766Ex

The I766Ex is a special ATEX version of the I766 for hazardous/explosive environments. The I766Ex is based on intrinsic safe technology.

It has the following specifications:

I M2 Ex ib I Mb
II 2G Ex ib IIC T4 Gb
II 2D Ex ib IIIC T135C Db
-10C ~ +50C IP65
Um = 5.25VDC
CE0035
Presafe 17 ATEX 9520 X
IECEX PRE 17.0011X



The I766Ex fits just like the I766 in the enhanced desktop charger or enhanced multi charger rack. The battery construction of the I766Ex is different due to ATEX requirements. This battery does not fit in the spare battery slot of the enhanced desktop charger (or multi charger). Special rules apply to charging of the handset or battery; the I766Ex is only allowed to be charged outside ATEX area. These rules are described in the quick reference guide which is delivered together with the handset

The I766Ex does not have a headset connector or USB connector. Note that a USB connection to the I766Ex can be made by placing the handset in the enhanced desktop charger. A Bluetooth headset can be applied as long as it has ATEX specs compatible with the handset.

The I766Ex does not have a slot for the DLA. This means that it cannot be used in combination with the Elpas beacons.

4.2 Handset layout

The I766 handset has the normal keypad, (soft key) menu and call operation keys as well as 4 function keys currently used for speed dialling. At the sides of the handset there are keys for volume control and key lock.



4.3 Making and receiving DECT calls

A call can be started by using the keypad keys or by using the central directory. Calls can also be initiated from the callers' list.

4.4 Contacts list / People

The I766 provides a personal contacts list. This can be accessed through the left most soft key. It can contain up to 200 entries with up to 4 numbers per contact. Each entry has maximum 24 characters for a name and 32 digits for a number.

4.5 Voicemail

A Voicemail box can be programmed in the I766. Any message left will be indicated by the VM icon at the top of the screen.

4.6 Alarm (SOS) button

The I766 offers alarming to a central messaging system via DMLS. The red SOS key at the top of the handset can be programmed to send an alarming message to the messaging server via DMLS, or directly to another handset. When DMLS and an alarming server is in use, this can result in logging and escalation scripts to ensure that staff gets assistance, like in the occasion of duress. Finally, the SOS key can also be programmed to setup a voice call.



4.7 Man-down

The man down function offers additional protection to the lone worker. It causes the handset to either send a message or to make a call when the handset is turned in a horizontal position. The sensitivity of the feature can be adjusted by a pre-alarm time which is the time that the handset needs to be in the

horizontal position before the alarm is activated. A delay time can be set during which the man-down call can be cancelled before it is sent out.

4.8 Pull-Cord

The pull cord allows the user to raise an emergency alarm if needed. Like for the SOS alarm button and man-down function an alarm call can be initiated or an alarm message sent. The voice connection resulting from the pull cord action will go into hands free mode autonomously and can only be released by the opposite party.



4.9 Charging the battery

The I766 can be charged by using the USB cable, the desktop charger or the Multi Charger Rack for 6 handsets. The I766 has been optimized to have an outstanding battery life. The DECT talk time is up to 16 hours, and the DECT standby time is up to 160 hours.

The handset can be programmed for silent charging, either when connected via the USB cable or when on the desktop charger. The required silent charging functionality can be programmed to silent only or disconnect.

The I766Ex is only allowed to be charged outside the ATEX area. It can only be charged when placed in the Enh. Desktop charger or Enh. Multi charger rack (as it has no USB interface). The charging rules of the I766Ex are described in the I766Ex Quick Reference Guide which is included in the handset package.

4.10 Messaging

The I766 handset is able to receive and send alphanumeric messages. These can be send, or originated directly to/from other DECT handsets that support messaging, such as G566 and G966.

However, in most cases a dedicated messaging server is applied, that connects to the DMLS.

When a message is received the handset will indicate this with a message waiting indication in the status line of the handset and on the messaging widget.

The handset can receive/send messages with up to 160 characters (the maximum message length might be restricted by the used PBX and/or application).

A message can have either a "Normal", "Urgent" or "Emergency" status:

- Normal: When the handset receives a "Normal" message the handset will send an "acknowledge" to the sender. No user actions are required.
- Urgent Message: An "Urgent" message must reach the user. So to have a response that not only the handset has received the message also the user will have to make an acknowledgement. Alerting will not stop until the user has acknowledged the message.
- Emergency Message: This is a variation on the "Urgent" message. A different ringer melody is used to be distinguished from "Normal" and "Urgent" messages. An "Emergency" message must reach the user. So to have a response that not only the handset has received the message also the user will have to make an acknowledgement. Alerting will not stop and the volume will increase until the message is read and confirmed. "Emergency" messages can only be sent to the handset from special applications and handsets cannot send an "Emergency" message themselves.

The I766 handset provides the same messaging related tones as available on the G566, to make consistent operation possible.

The (IP)DECT system is connected to a messaging server by means of the DECT Messaging and Location (DMLS) services interface.

4.11 Location detection (RTLS) based on RSSI

Via the DMLS the handset can be located in two different ways; by means of the RSSI (Received Signal Strength Indication) of the DECT radios received by the handset (Ekahau method), or by means of beacon detection of the handset (Elpas Method).

This chapter summarizes the Ekahau method.

The Ekahau Real Time Location System (RTLS) is an accurate and efficient way to locate people and assets. Ekahau location tracking technology can be combined with NEC's IP DECT, allowing organizations to accurately locate and track DECT handsets to facilitate various staff safety scenarios.

IP DECT is capable of providing the multi-AP location information through DMLS to an external application, in this case Ekahau positioning engine. When initiated, IP DECT will check the specified handset for Received Signal Strength (RSSI) values, and provides a list of "visible" Access Points and associated RSSI value to the external application. The number of APs that can be reported varies per handset model and is typical 4. DMLS is also capable to ask this information a number of times from the handset in a sequence, and to present this as a burst to the connected application.

To obtain an accurate position, Ekahau uses RF prediction based on sophisticated algorithm.

The combined Ekahau and NEC location solution consists of the following building blocks:

- IP DECT, AP300 or AP400 series Access Points. The size of the wireless system is up to 256 Aps, but with VLS larger configurations are possible. The system must include the DMLS open interface.
- IP DECT Handsets (note; in 2ndH 2015 handsets are aligned to provide consistent RSSI values, please check with NEC the availability by technical RAP).
- Ekahau RTLS Controller (ERC) with the Ekahau Positioning Engine
- Ekahau Vision, a web application to immediately locate people and assets from virtually any computer. It also provides an XML interface to an additional messaging application
- Ekahau ESS, a site survey tool that has been adapted to work with the NEC IP DECT and I755 Handset (note; this will be changed to the I766 handset, check with NEC the availability by technical RAP).
- An optional Messaging system to complement the Vision escalation scenario's or to extend Vision to DECT handset messaging to and from the handsets

4.12 Location detection based on last connected AP

The location of a handset can be derived from the identity of an AP. An application can ask for the last visited AP by means of a command through the DMLS. Please note that this method of location detection is in general less accurate than the RSSI (see 4.11) - and beacon methods (see 4.13)

4.13 Location detection (RTLS) based on beacons (not for I766Ex)

Via the DMLS the handset can be located in two different ways; by means of the RSSI (Received Signal Strength Indication) of the DECT radios received by the handset (Ekahau method), or by means of beacon detection of the handset (Elpas Method).

This chapter summarizes the Beacon method.

The I766 and M166 are compatible with Elpas beacons. In both handsets it is possible to insert an optional DLA (DECT Location Accessory) module. When an alarm is initiated on the handset, the alarm message will be provided with the beacon identity where the handset is located.

This beacon information will be sent via the DMLS to subscribed applications, like the Elpas messaging system Eiris. The use of Eiris is a logical choice in case more solutions from Elpas are required.

I766

A DLA can be inserted behind the belt clip, the DLA senses entry to the Elpas Low Frequency (LF) Beacon Field providing explicit Room or Door location.

The LF Location changes are reported by I766 (and also the M166) device via the DMLS to an application server like Eiris (from Elpas)

All I766 (and M166) events such as SOS, man-down, pull-cord detection are reported with location info.

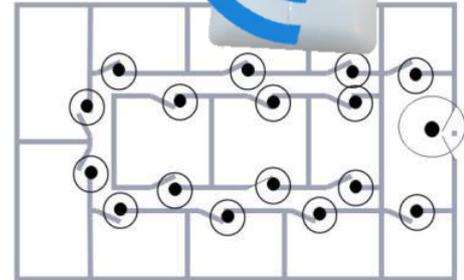


Beacons

The Elpas beacons can be mounted inside rooms, but typically at doorways. The range of the beacon can be set per beacon. Beacons can be powered only, or connected

through a bus structure and controllers to a central Eiris application platform.

The Eiris server for alarming and location integrates with the DMLS.



More information

A dedicated solution description will become available in Q3 2015 describing the combined NEC/Elpas RTLS solutions and the way NEC and Elpas business partners can work together to maximise value.

4.14 Noise reduction feature

In environments with a lot of ambient noise, such as in production environments, the I766 noise reduction feature can be enabled resulting in a strong reduction of the noise level. The I766 has an additional microphone situated at the top back of the handset, by comparing the audio from both microphones, the I766 can discriminate voice and ambient noise. This results in less disturbance of the call and much better quality of the voice.



4.15 DMLS

The DMLS (DECT Messaging and Location Services) interface provides an open interface to integrate messaging middleware to the DECT or IP DECT systems.

An overview of DMLS:

- Supports user messages, broadcast messages, confirmation by the user, various urgency levels
- Definition of the message background colour and ringtone
- Workflow info
- DECT Access Point status
- Handsets status like presence, battery status, firmware level, in charger, etc.
- Provides forced handset loudspeaker call and silent listen-in
- Provides Location information either based on RSSI of multiple Access Points (only for IP DECT) or on beacon information (M166CL with DLA only)

Refer to the various DMLS documents for more information.

4.16 Management features

The I766 follows the same way of programming as the G266 and G566 handsets offer. It can be subscribed manually and by means of the uSD memory card and DHC – DECT Handset Configurator.

The DHC can also be used to program various settings in the I766.

Firmware upgrading can be done via OTA (Over-the-Air) by means of the (IP)DECT system.

4.17 Functionality comparison handsets

	G266	ML440	G566s/d	I755s/d/x	M166	G966	I766
Call handling features: Auto Answer	√	√	√	√	√	√	√
Calling name display	√	√	√	√	-	√	√
Calling Line (CLIP) display / digits	√ / 24	√ / 24	√ / 24	√ / 24	-	√ / 24	√ / 24
Call logging / size	√ / 50	√ / 50	√ / 50	√ / 50	-	√ / 50	√ / 50
Camera	-	-	-	-	-	√ (front)	-
Cat-iq – HD Audio (requires IPDECT R6.2)	√	√	√	-	√	√	√
Charger / Multi Charger Rack	Dual / √ (6)	Dual / -	Dual / √ (6)	Dual / √ (6)	√ (single)	Dual / √ (6)	Dual / √ (6)
Display	Colour, 128x128, 1.44"	Colour, 176x220, 2"	Colour, 176x220, 2"	Colour, 160x128, 1.8"	-	Touch, 480x800, 4"	Colour, 240x320, 2.44"
Headset (connector / Bluetooth)	√ / -	√ / -	√ / -	√ / √	√ / -	√ / √ (+ BLE)	√ / √ (I766Ex has BT only)
IP-class	IP40	IP40	IP40	IP54	IP65	IP40	IP65
IECEX (ATEX)	-	-	-	I755x version	-	-	-
Location Detection RSSI / Beacon	√ / -	-	√ / -	√ / -	√ / √	√ / -	√ / √
Man down alarm	-	-	-	√	-	-	√
Messaging / SOS button	- / √	-	√ / √	√ / √	- / √	√ / √	√ / √
Multi line with programmable keys	-	√ (4 keys/led)	-	-	-	-	-
Memory card for handset settings	μSD	-	μSD	SIM	-	μSD	μSD
Personal / central directory	200 / √	100 / √	200 / √	200 / √	-	Android people / √	200 / √
Software download over the air	√	√	√	√	√	√ (via Wifi)	√

Speaker phone / HD quality	√ / -	√ / √	√ / √	√ / -	√ / -	√ / √	√ / √
Vibrator alarm	√	√	√	√	√	√	√

5. COMPATIBILITY

The I766 DECT handset is intended for NEC DECT and IP DECT systems, such as with AP300, AP400 and B712 DECT Access Points. Through these systems the I766 is compatible with a variety of NEC PBX systems.

5.1 IP DECT Platforms

The I766 will run on all versions of the DAP Controller listed below provided that the DECT APs have the mentioned firmware versions. Some DAP Controller versions need to be updated in order to support firmware upgrading over the air.

DAP Controller	AP200(s)	AP300	AP400	I766 Firmware Upgrading over the Air
5.20.0103	910.x5.33	910.x5.33	-	FWU patch needs to be applied (section 5.2)
6.00.0067	910.x6.06	910.x6.06	920.x6.06	Upgrade the DAP Controller to 6.00.0116 and then load the FWU patch (section 5.2)
6.00.0112	910.x6.13	910.x6.13	920.x6.13	Upgrade the DAP Controller to 6.00.0116 and then load the FWU (section 5.2)
6.00.0116	910.x6.13	910.x6.13	920.x6.13	FWU patch needs to be applied (section 5.2)
6.20.0125	910.x6.28	910.x6.28	920.x6.28	built-in
6.21.0163	910.x6.2a/d	910.x6.2a/d	920.x6.2a/d	built-in

Please note that software update licenses are not needed for upgrading 6.00.0067 (or 6.00.0112) to 6.00.0116.

For latest message - and/or location features on the I766 the DMLS software needs to be updated to the latest version (ref section 5.4). A DMLS upgrade does not require software update licenses.

5.1.1 The I766Ex will be supported on the following versions:

DAP Controller	AP200(s)	AP300	AP400
6.21.0299	4910.x6.30	4910.x6.30	4920.x6.30
6.41.0450	4910.x6.50	4910.x6.50	4920.x6.50

5.1.2 License for ATEX handset

The I766Ex handset requires an “IP DECT I755x\I766Ex Lic” (EU917012) in the IP DECT system.

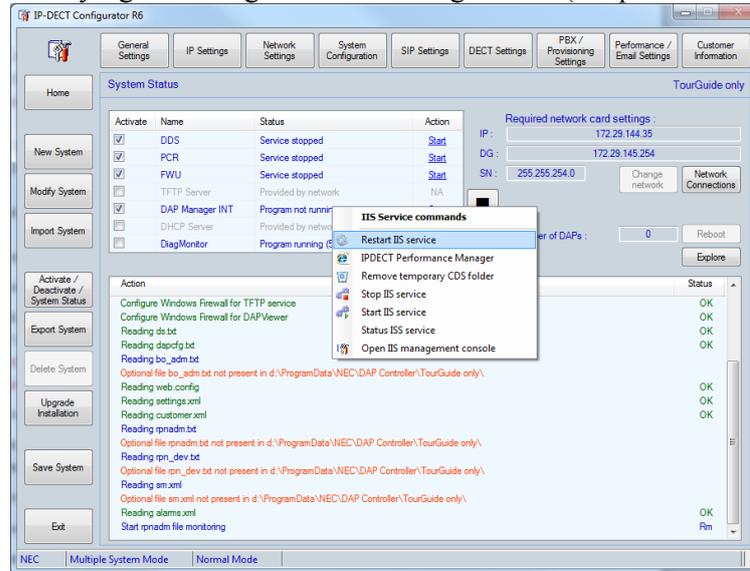
5.2 Loading the Firmware Upgrade Patch

In DAP Controller versions 5.20.103 and 6.00.0116 a FWU patch can be loaded in order to allow for upgrading the M166 firmware over the air. Each version DAP Controller requires a:

- “DAP Controller 5.20.0116 Patch for I766 (doc in zip)”
- “DAP Controller 6.00.0103 Patch for I766 (doc in zip)”

The following procedure describes updating the FWU service in DAP Controller 5.20.0103 and DAP Controller 6.00.0116:

1. Unzip the package – this will result in the folders “CDS update folder” and “FWU update folder”
2. Deactivate the system
3. Stop IIS service by right clicking on “DAP Manager INT” (see picture below)



4. Create a sub folder in the C:\inetpub\wwwroot\CDS\bin e.g. “old” and copy the CDS.dll, FWU.common.dll and protocol.dll to the “old” folder.
Note: Do not make a copy of the dll’s in the bin folder self, otherwise the DAP Manager does not start-up anymore!
5. Copy files from CDS update folder to C:\inetpub\wwwroot\CDS\bin folder.
6. Create a sub folder in the C:\Program Files (x86)\Nec\DAP Controller e.g. “old” and copy the FWU.common.dll, FWU.service.exe and the pp_data.ini file to the “old” folder.
7. Copy files from FWU update folder to C:\Program Files (x86)\Nec\DAP Controller.
8. Start IIS service.
9. Activate system.

5.3 DECT platforms

The following table lists the minimum DCC firmware levels for the I766:

Type of DCC	DCC software
DCC	324.04.14
DCC8	600.04.14
DCC8(R)	610.04.14

To be able to use either Corporate Directory or Firmware Upgrading over the DECT interface it is necessary to have at least 1 DCC8(R) in the DECT system. For upgrading the I766 firmware FWU 2.4.2 or higher is required.

5.4 DMLS

The I766 is compatible with the latest official release (4.00.0108).
In case a DLA is inserted, then the beta release 4.00.0190 (or higher) must be used.

5.5 Micro SD Card

The I766 is compatible with the following types of micro SD cards:

- 2,4,8 and 16GB cards from Transcend and Kingston. (Class 4 or Class 10)

5.6 BlueTooth Headsets

Following requirements apply to the I766.

- Protocol: Bluetooth 3.0 + EDR + BLE (BT 4.0)*
- Profiles supported:
 - HSP (Headset) profile 1.2 (NB)
 - HFP (Handsfree) profile V1.6 (NB)
- Bluetooth devices white list:
 - Plantronics Voyager PRO
 - Plantronics Voyager PRO HD
 - Plantronics Voyager Legend
 - Jabra SUPREME model: OTE8

*) BLE is expected beginning of 2018

5.7 Wired Headset (not for I766Ex)

The following headsets are supported:

- 1) The GN2100 headset with Quick Disconnect connector (12NC: 9600 120 53000) should be combined with the Gx66 headset QD cable (EU917046) for connection to the I766 3.5 mm headset socket.
- 2) Plantronics HW251N/A
- 3) Plantronics M175R with 3,5mm jack

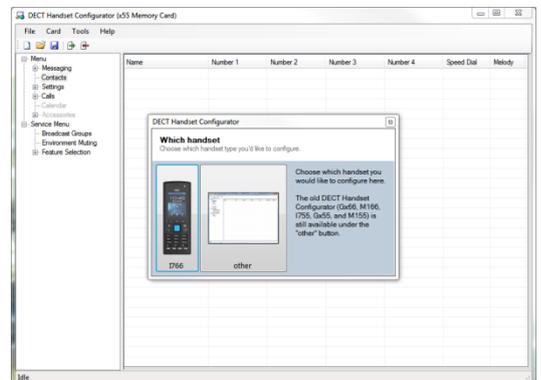
5.8 DECT Handset configurator (DHC)

The I766 is compatible with release 4.00.26 (or higher)

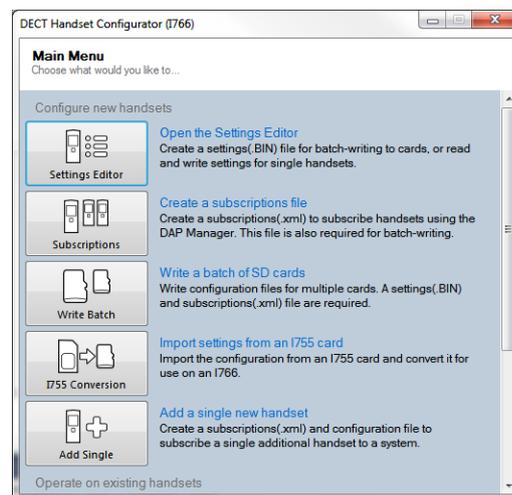
The I766 DHC does not yet support:

- Remote reset individual handsets via messaging
- Upload custom wallpapers and ringtones

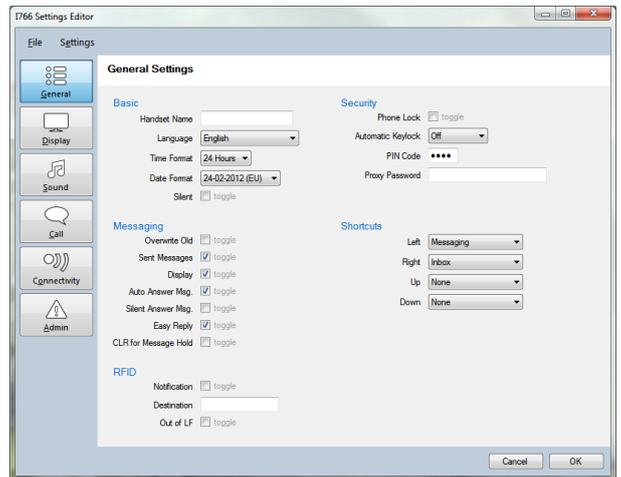
Upon startup, a splash screen offers a choice between the new I766 interface and the old interface for the other handsets. Note that switching from old to the new interface is also possible under the settings menu



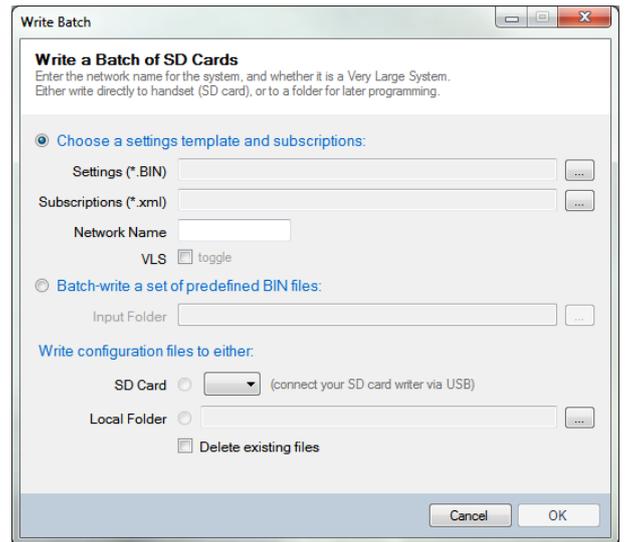
The new main menu offers a new, more task-oriented approach compared to the old configurator. You choose what to do, and a dedicated window will help you to get it done



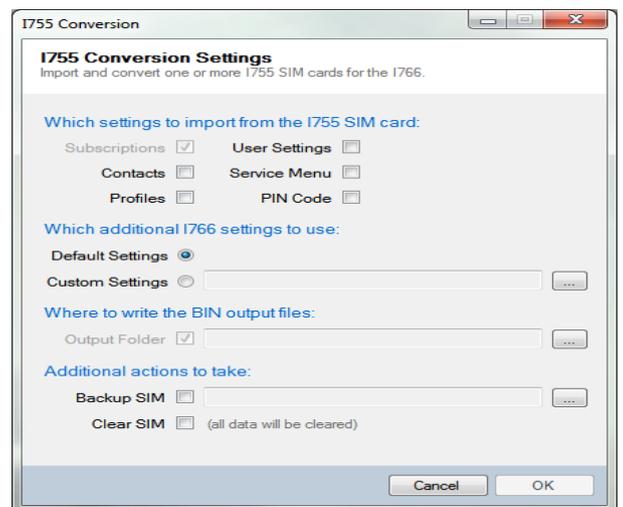
In the Settings Editor you prepare setting profiles to be used in batch-programming operations. Additionally, you may also configure single handsets using this editor



Batch-write SD cards, using a profile of settings and a file containing subscriptions. Insert the cards into handsets when done, upload the subscriptions file into the DAP Manager, and you're done



It is also possible to (batch-) convert settings from I755 SIM cards. You can choose which settings you'd like to keep and provide a default profile for the remaining settings. The ACR38T card reader is compatible with the I755 SIM cards and the DHC.



5.9 Flash Loader

For downloading of firmware by means of the download cable use Flashloader: V2.0.1.3

5.10 PBX platforms

The I766 is compatible with the common platforms of NEC:

- iS3000 and SIP@Net
- SL1000 and SL1100
- SV8100 and SV9100
- SV8300 and SV9300
- SV8500 and SV9500
- 3C

6. INTRODUCTION AND REGULATORY

6.1 Language support

The I766 supports various languages in the menus and applications. Since the handset is subject to continuous improvements, this also implies that more languages will be offered after publishing this document. In most languages, also a Quick Reference Guide is or will become available. The following table provides an overview:

Language	I766 translation / quick reference guide*)
Danish	√
Dutch	√
English	√
French	√
German	√
Greek	√
Italian	√
Norwegian	√
Polish	√
Portuguese	√
Russian	√
Spanish	√
Swedish	√
Turkish	√

*) subject to country planning

6.2 Regulatory Compliance

Please check the I766 data sheet for regulatory compliance matters.

7. DOCUMENTATION

For the I766 the following documentation applies:

Document	Description	Language
Dear Associate letter	Product Announcement of the I766	English
Release Overview	Full proposition overview of I766, including offer text	English
Quick Reference Guide	4-page document explaining how to get started with I766	Various
I766 User Manual	Full description of the I766 handset, also to be used as reference manual	English
I766 Datasheet	Full list of technical aspects	Various

8. LOGISTICS

Next table gives an overview of the commercial parts related to the I766:

Product code	Name	Description	Repairable
EU909326	I766 bundle - euro	I766 handset (+clip, battery, pull cord), charger, euro AC adapter, µSD card	No
EU909327	I766 bundle – multi region	I766 handset (+clip, battery, pull cord), charger, multi-region AC adapter, µSD card	No
EU909332	I766 Rack Charger Bundle	6x I766 handsets, uSD cards, Multi-charger rack and AC adapter multi-region	No
EU917081	I766 DECT Handset	I766 DECT handset with 1100mA battery and Quick Reference Manual	Yes
960001787000	DECT Handset Battery Pack – 1100 mA	Battery pack – 1100 mA	No
EU917079	Gx66/I766 Enh. Desktop Charger	single desktop charger for G266, G566, G966 and I766. Charging slot for additional battery	No
EU917035	Gx66 AC Adapter - Europlug	AC adaptor with europlug for single desktop charger	No
EU917036	Gx66 AC Adapter - Multi Region	AC adapter with with world plugs for single desktop charger	No
EU917080	Gx66/I766 Enh. Multi Charger Rack	Multi charger rack for 6 handsets. AC adapter not included	No
EU917038	Gx66 AC Adapter -Multi Charger Rack	AC adapter with world plugs for multi charger rack	No
960012053000	Headset Monaural	Monaural headset	No
EU917046	Gx66 headset QD Cable	Quick disconnect cable for monaural headset	No
EU917049	Gx66 Memcard	Micro SD card for G266, G566, G966 and I766	No
EU917084	DECT Locator DLA	Unit for Tyco/Elpas beacon detection	No
EU917085	I766 Swivel Belt Clip Set	Swivel knob and swivel belt clip	No
EU917086	I766 Spring Belt Clip Set	Spring belt clip	No
EU917039	Gx66/I766 Download Cable	USB to 3.5 mm cable for connecting a PC to the I766. This setup can be used for firmware upgrading. This cable was already introduced for the G266 and G566.	No

9. SUPPORT AND SERVICES

9.1 Warranty

Warranty procedures for the Gx66 handsets including I766 follow the current supply agreements with our Business Partners.

9.2 Repair

The repair service is available for I766. This repair service is available up to 1 year after the warranty period of the handset.