

# **Function Description**

## **Interactive Messaging (IM)**

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## 1 Introduction

Interactive Messaging (IM) makes it possible for a client application to have a two-way communication in plain language with a user of a portable. This simplifies the handling of the portable since very little training and/or few instructions are needed for teaching a user.

An IM can be initiated by the application, as a result of an event in the system, for example a personal alarm from a portable. Independent of how an IM is initiated a number of choices will be presented, in plain language, on the display of the portable. By selecting a choice, an application controlled action will take place. An action can for example be to dial a specific number, or just returning a value which the application translates and converts to another action. This action could for example be to open a gate, start a machine, or send back a reply. An IM session can take place in several steps; an answer can be followed by a new question etc.

The time it takes to send an IM is longer than for a standard paging. The time to transmit depends on what equipment that is being used. The time will also vary depending on number of options and also which information that is transmitted when an option with response is selected. See [3.6 Considerations for IM](#) on page 7.

## 2 Examples

### 2.1 Processing Industry

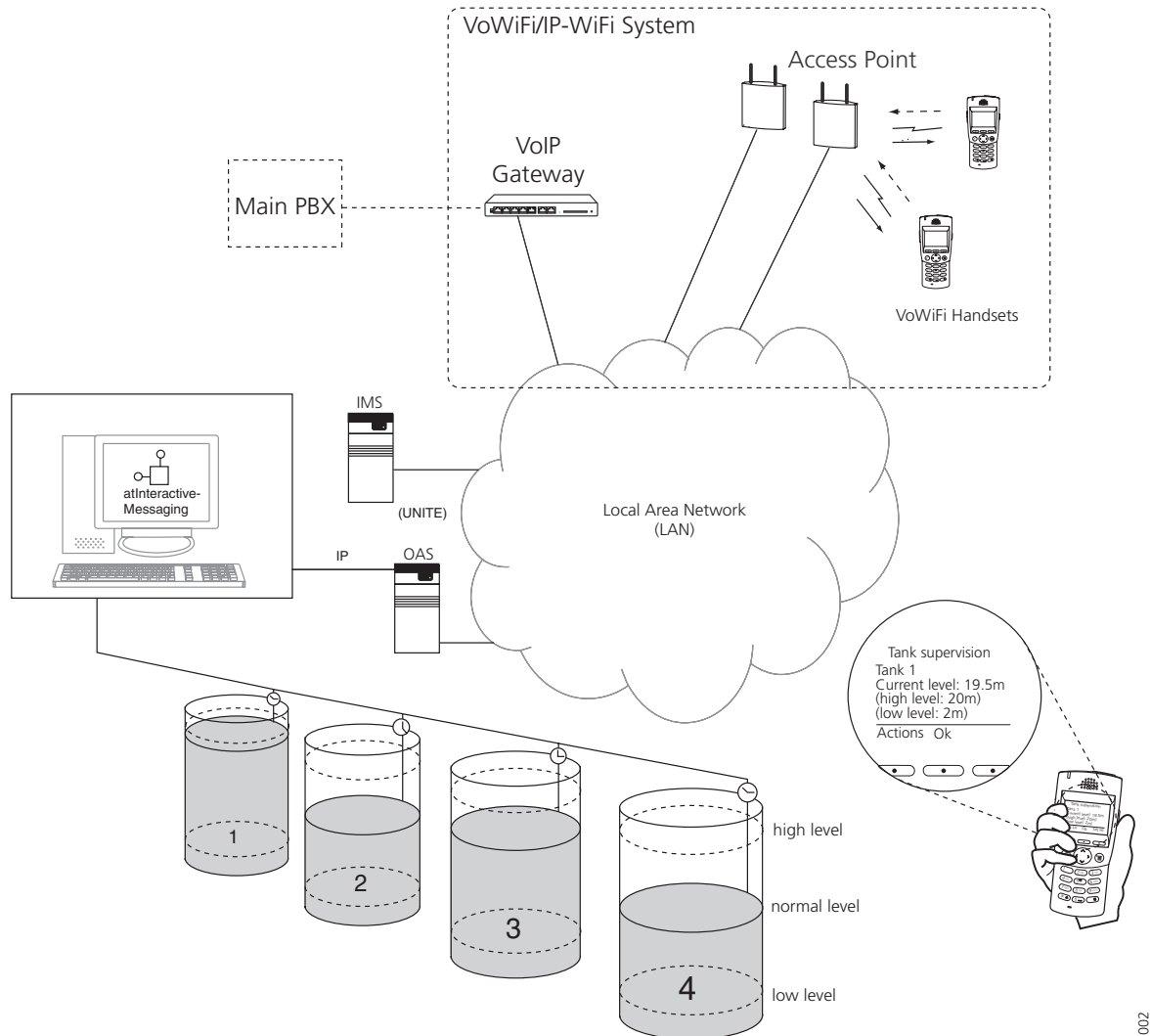
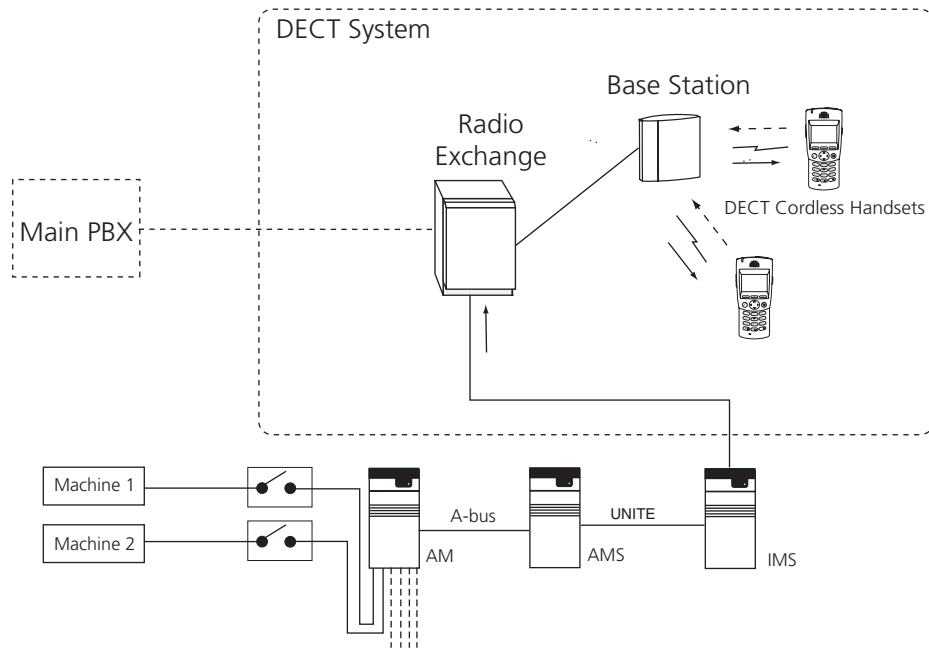


Figure 1. The level in the tanks is monitored by an application.

**Example:** In this example the level in the four tanks is monitored by the OPC Client application. At every new shift the supervisor on duty initiates the OPC Client to send an Interactive Message to his handset. It is also possible to program the OPC Client to automatically send a message at the start of a new shift. By using his handset the supervisor can view available data and check the level in a tank wherever he is on the plant and he can call the control room for help at critical situations. A possible configuration is described in chapter 5.1 on page 8.

## 2.2 Machine Stoppage Recovery

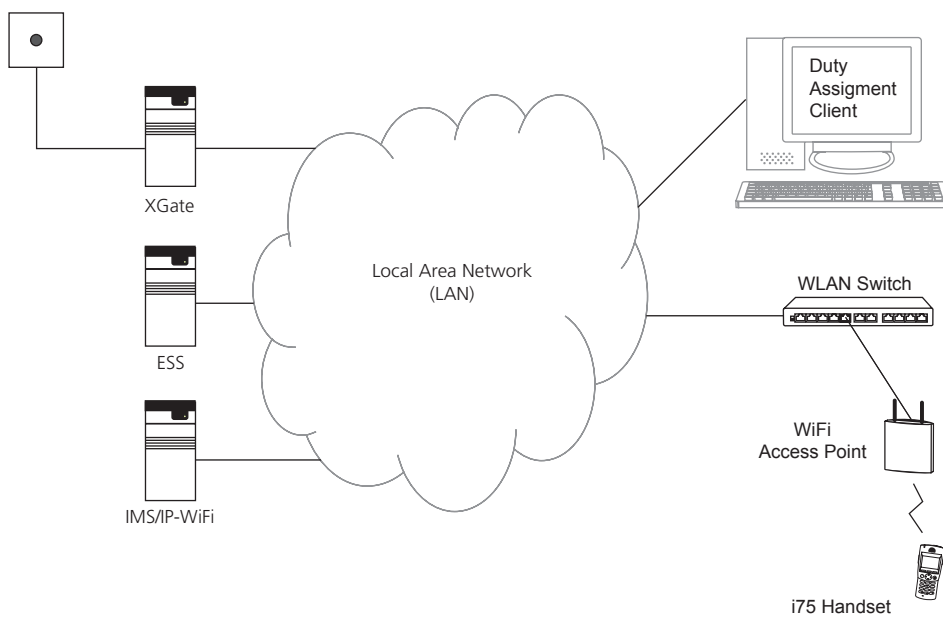


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Figure 2. Interactive Messaging makes rapid recovery from machine stoppage possible.

**Example:** In most industries it is important that a fault in a machine is immediately taken care of – every minute of stopped production costs money. By having the machines in a factory equipped with digital outputs indicating machine alarm and stop, and connecting them to an AM (Alarm Module), a swift recovery from machine stoppage can be achieved. When a machine stoppage occurs, the AMS sends an IM to the technician responsible for the machine, and he can then take the appropriate action. A possible configuration is described in chapter 5.2 on page 12.

## 2.3 Health Care – Nurse Call Connection



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Figure 3. A teleCARE system as used in health care.

A distressed person presses the button and a message with room/flat number and name is sent out to the staff. A nurse can either accept the task immediately, or decide to call and calm down the distressed person and/or to get more information about the situation. Using Interactive Messaging simplifies the handling and shortens the time for actions like calling, informing other nurses if a task is accepted or not, and selecting the options since they can be customized and displayed in plain language. All events can also be logged by the application which makes it possible to check the course of events afterwards. A possible configuration is described in chapter 5.3 on page 17.

### 3 Technical Solution

#### 3.1 Open Access Toolkit and Open Access Server

Interactive Messaging is enabled by the atInteractiveMessaging component in the OAT toolkit. The component communicates with an OAS module over TCP/IP. Together with the OAT, it enables creation of customized PC applications to communicate with Ascom messaging systems. The only requirement is a development tool that can produce applications that run on a Win32 system. Applications can be written for any VBA-aware Windows application, such as programs in the MS Office™ Suite, in any programming language for example Visual C++, Visual Basic, and Delphi.

For more information refer to *Programming Guide, Open Access Toolkit (OAT), TD 92040GB, Data Sheet, OAS - Open Access Server, TD 92090GB, and Data Sheet, OAT - Open Access Toolkit, TD 92029GB.*

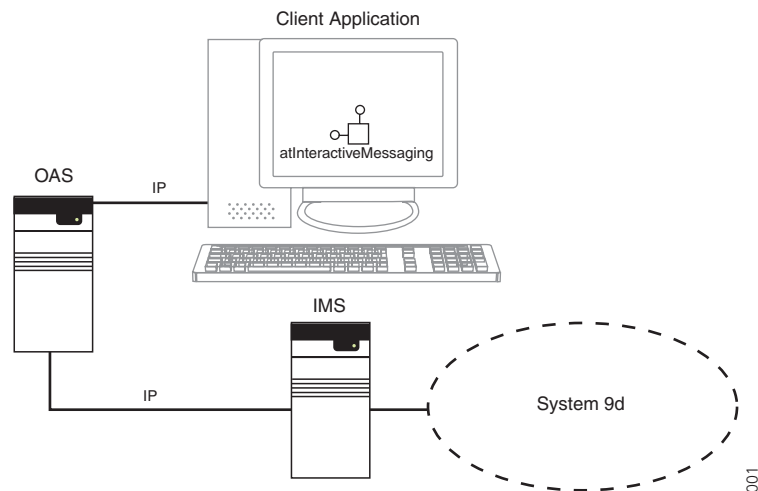


Figure 4. atOAC2 enabling Interactive Messaging in DECT System 9d.

#### 3.2 Alarm Management Server

The Event Handler in the AMS can be used to initiate an Interactive Message. An example describing how to use a portable for alarm handling (acknowledgement and reset of

alarms) in the Alarm Management Client using Interactive Messaging can be found in *Programming Guide, Event Handler, TD 92329GB*.

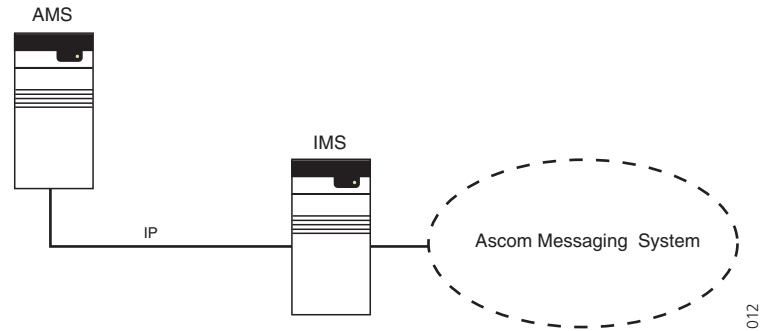


Figure 5. AMS enabling Interactive Messaging in DECT system 9d.

### 3.3 XGate

The XGate can be used to generate an Interactive Message as a result of an event in an external system. The XGate can be configured to send messages to specific addresses through Duty Assignment **and depending on the active** work shift. For more information, see *User Manual, Administration, XGate, TD 92364GB*.

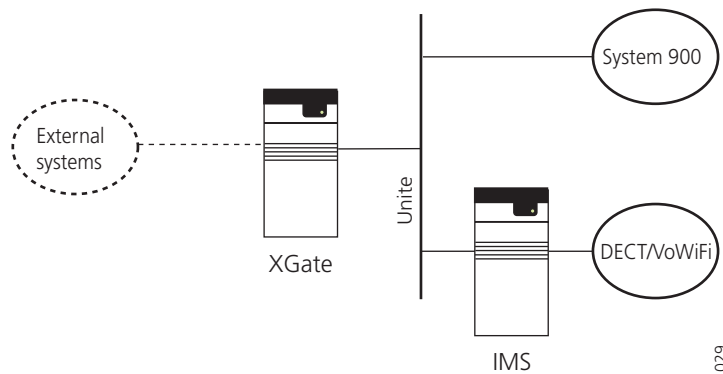


Figure 6. XGate sending Interactive Messages as a result of events in external equipment.

### 3.4 Open Java Server

Interactive Messaging is enabled by the JatIM class in the OAJUtil package included in the Open Java Server software. It enables creation of customized applications to communicate

with Ascom messaging systems. For more information refer to *Programming Guide, Open Java Server (OJS), TD 92230GB*, and *Data Sheet, OJS, TD 92186GB*.

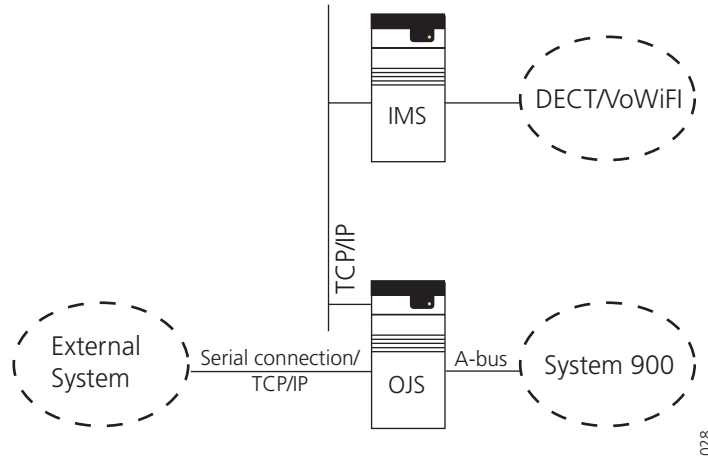


Figure 7. OJS converting events in external equipment to Interactive Messages.

### 3.5 Open Access Protocol

OAP is an XML based protocol that enables exchange of data between external applications or systems and the Unite system. The OAP server runs on an Elise module and communicates with the external application over the LAN using a TCP connection. The interactiveMessage service is used to send an IM to a portable in the Unite system. For more information refer to *Function Description, Open Access Protocol (OAP), TD 92215GB*.

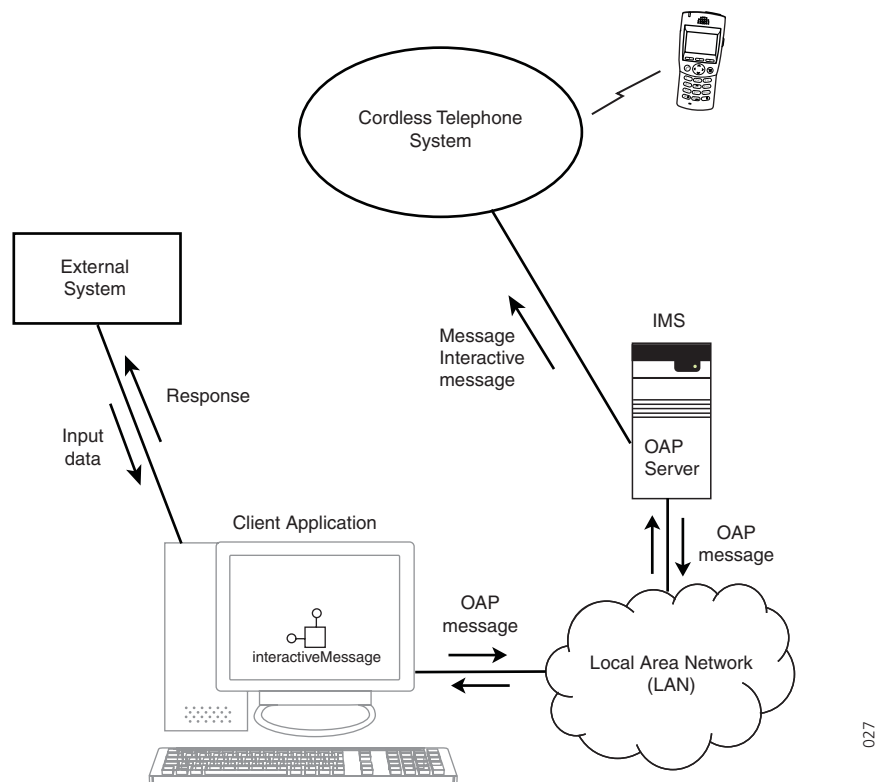


Figure 8. OAP used to convert events in external equipment to Interactive Messages.



### 3.6 Considerations for IM

- All parts of an IM are sent through the air.  
An IM contains an address, a subject, body, options and response data.
- The total transmission time is dependent mainly on the system bandwidth.
- There can be limitations to which characters that can be used in an IM depending on the portable and system.  
There might be limitations of characters in a returning answer of a sent IM, depending on which portable the IM is sent to.
- An IM should only include the most necessary information, as a long IM increases the transmission time.  
As a rule of thumb, an IM should contain the following:
  - Subject consisting of one text row
  - Body consisting of one or more text rows, but keep it as short as possible
  - Text options containing one row per option
  - Up to six characters in response back of an IM

**Note:** Let the option Data Response be as short as possible. Its sole purpose is to identify the IM response. Increasing the Data Response length will seriously affect the IM transmission time.

## 4 System Requirements

The Interactive Message functionality has been improved over the years and is still under development. Therefore, always use the latest version of software both for portables and application platform or use the release notes to determine whether current version supports the needed functionality.

## 5 Example Configurations

The following are simple examples of possible IM configurations. They explain some of the settings just to show the connection between the programming and what is displayed. The presentation on the display will look different depending on which portable device is in use.

### 5.1 Processing Industry Example

#### Application startup

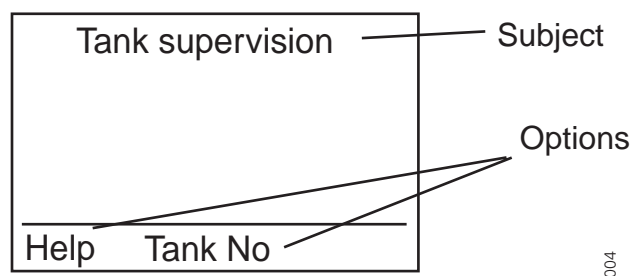
A first message is sent to the Supervisor on duty. The message is stored in his handset and can be activated any time during his shift.

Every message consists of a subject and one or more options. Body text can be added, for example to describe the options. Choosing an option might invoke a new message which will prompt the supervisor for more data, in this example the number of the tank he wants to check. The action can also be to call a predefined number, in this example to the control room when help is needed.

- First message:

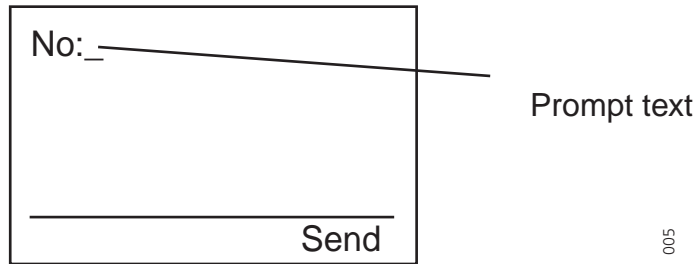
**New Message:**

<i>Subject</i>	<i>Tank supervision</i>
<i>Option ID</i>	<i>1</i>
<i>Option text</i>	<i>Help</i>
<i>Assigned soft/hot key</i>	<i>A</i>
<i>Number to call</i>	<i>123456</i>
<i>Option ID</i>	<i>2</i>
<i>Option text</i>	<i>Tank No</i>
<i>Assigned soft/hot key</i>	<i>B</i>
<i>Show prompt text and request data from user</i>	<i>No:</i>
<i>Data to send:</i>	<i>TankNo</i>

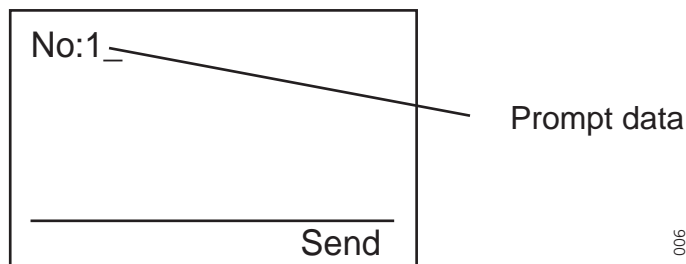


**The supervisor wants to check tank no. 1**

He selects the "Tank No" option which trigger the action(s) related to that option. In this case he will be prompted to enter the tank number.



He enters "1". By pressing "Send" this value will be sent back to the application together with the identifier "TankNo".



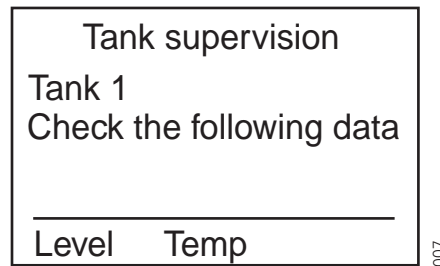
A new set of options is sent out by the application where he can select to either check the liquid level or the temperature. The new message is sent as an update, note that for example Subject does not need to be set again, it will hold its last value.

- Second message:

**Update Message:**

<i>Body</i>	<i>Tank 1</i> <i>Check the following data</i>
<i>Option ID</i>	<i>1</i>
<i>Option ID</i>	<i>2</i>
<i>Option ID</i>	<i>3</i>
<i>Option text</i>	<i>Level</i>
<i>Assigned soft/hot key</i>	<i>A</i>
<i>Data to send</i>	<i>L1</i>
<i>Option ID</i>	<i>4</i>
<i>Option text</i>	<i>Temp</i>
<i>Assigned soft/hot key</i>	<i>B</i>
<i>Data to send</i>	<i>T1</i>

Options 1 and 2 will be erased as they are included in the update without any information.



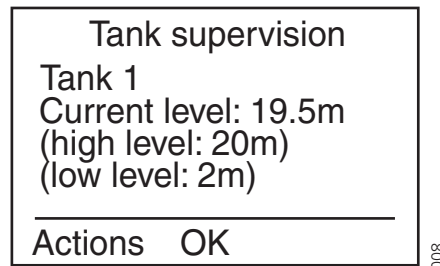
**The supervisor wants to check the level**

The supervisor selects the "Level" option which will cause an event in the client application. The response is evaluated, the level is measured and a text is composed that shows the value. Also a new set of options is sent out where he can choose an action if he finds it necessary, or go back to default state by choosing "OK".

- Third message:

**Update Message:**

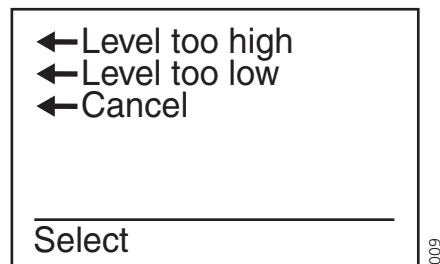
<i>Body</i>	<i>Current level: 19.5m (high level:20m) (low level: 2m)</i>
<i>Option ID</i>	<i>3</i>
<i>Option ID</i>	<i>4</i>
<i>Option ID</i>	<i>5</i>
<i>Display layer</i>	<i>1</i>
<i>Option text</i>	<i>Actions</i>
<i>Assigned soft/hot key</i>	<i>A</i>
<i>Display specified layer</i>	<i>2</i>
<i>Option ID</i>	<i>6</i>
<i>Display layer</i>	<i>1</i>
<i>Option text:</i>	<i>OK</i>
<i>Assigned soft/hot key</i>	<i>B</i>
<i>Data to send</i>	<i>Home</i>
<i>Option ID</i>	<i>7</i>
<i>Display layer</i>	<i>2</i>
<i>Option text</i>	<i>Level too high</i>
<i>Data to send</i>	<i>L1High</i>
<i>Option ID</i>	<i>8</i>
<i>Display layer</i>	<i>2</i>
<i>Option text</i>	<i>Level too low</i>
<i>Data to send</i>	<i>L1Low</i>
<i>Option ID</i>	<i>9</i>
<i>Display layer</i>	<i>2</i>
<i>Option text</i>	<i>Cancel</i>
<i>Display specified layer</i>	<i>1</i>



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### The supervisor wants to notify the control room that the level is too high

The supervisor finds the level too high and wants to notify the control room. He selects the "Actions" option.



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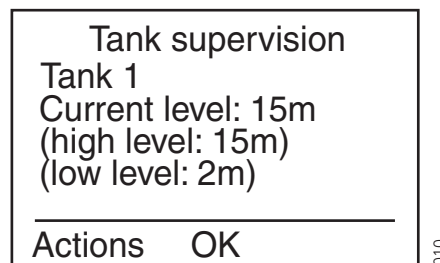
The display will show three options: "Level too high", "Level too low", and "Cancel". The supervisor selects the "Level too high" option. The operator in the control room receives the message and sets a new high level for the tank (in this case 15m). The application empties some of the liquid in the tank and after a preset time it updates the level measurement. With only the new level changed an update message is sent to the handset.

- Fourth message:

**Update Message:**

*Body*

*Tank 1  
Current level: 15m  
(high level:15m)  
(low level: 2m)*



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### The supervisor is satisfied and returns to default state

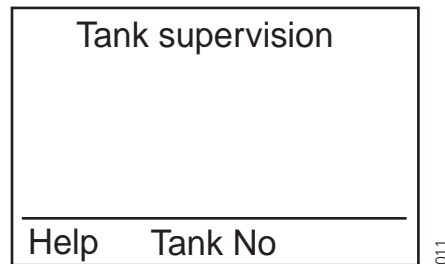
When the supervisor finds that the level has reached the new limit he wants to return to the default state. He therefore selects the "OK" option which is reported to the client application. The default message with its options is again sent out to the handset and eliminates the need to remove the old message. The IM message in the handset is then updated. An alternative to this would of course have been to create the default message

completely from scratch and send it as a normal message, but using the updates gives less transmission time. It also eliminates the need to remove the old message.

- Last message:

**Update Message:**

<i>Body</i>	<i>Empty string to remove previous body text</i>
<i>Option ID</i>	<i>5</i>
<i>Option ID</i>	<i>6</i>
<i>Option ID</i>	<i>7</i>
<i>Option ID</i>	<i>8</i>
<i>Option ID</i>	<i>9</i>
<i>Option ID</i>	<i>1</i>
<i>Option text</i>	<i>Help</i>
<i>Assigned soft/hot key</i>	<i>A</i>
<i>Number to call</i>	<i>123456</i>
<i>Option ID</i>	<i>2</i>
<i>Option text</i>	<i>Tank No</i>
<i>Assigned soft/hot key</i>	<i>B</i>
<i>Show prompt text and request data from user</i>	<i>No:</i>
<i>Data to send</i>	<i>TankNo</i>



## 5.2 Machine Stoppage Recovery Example

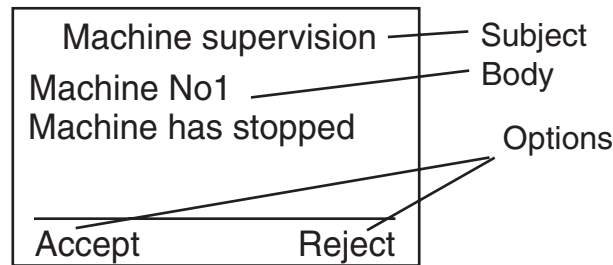
### Machine stoppage occurs

A ball bearing in a cutter breaks, causing the machine to stop. The digital output is activated, which triggers the AMS to send an IM to the technician's handset.

- First message:

**New Message:**

<i>Subject</i>	<i>Machine supervision</i>
<i>Body</i>	<i>Machine No 1 Machine has stopped</i>
<i>Option ID</i>	<i>1</i>
<i>Option text</i>	<i>Accept</i>
<i>Assigned soft/hot key</i>	<i>A</i>
<i>Data to send</i>	<i>Acc</i>
<i>Option ID</i>	<i>2</i>
<i>Option text</i>	<i>Reject</i>
<i>Assigned soft/hot key</i>	<i>B</i>
<i>Data to send</i>	<i>Rej</i>



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At the same time, a timer is started in the AMS. The timer will run until the machine has been restarted or until a predetermined timeout has been reached (for example after the timer has been running for 15 minutes). In the latter case, the AMS will send an IM to the manager to indicate that there is a serious problem. This will also happen if the technician rejects the task or fails to respond in a predetermined time (for example 30 seconds).

**The technician accepts the task**

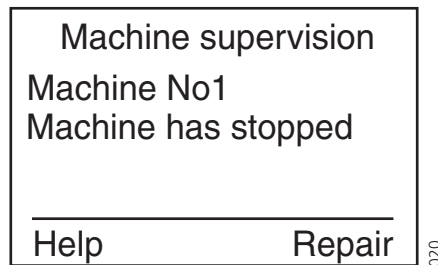
He selects the "Accept" option, which causes a new set of options to be sent out where he can either choose to repair the machine himself, or if he finds it necessary, request the help of a specialist.

- Second message:

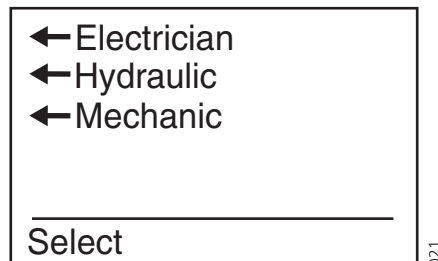
**Update Message:**

<i>Option ID</i>	<i>1</i>
<i>Option ID</i>	<i>2</i>
<i>Option ID</i>	<i>3</i>
<i>Display layer</i>	<i>1</i>
<i>Option text</i>	<i>Help</i>
<i>Assigned soft/hot key</i>	<i>A</i>
<i>Display specified layer</i>	<i>2</i>
<i>Option ID</i>	<i>4</i>
<i>Display layer</i>	<i>1</i>
<i>Option text</i>	<i>Repair</i>
<i>Assigned soft/hot key</i>	<i>C</i>
<i>Data to send</i>	<i>M1Rep</i>

<i>Option ID</i>	5
<i>Display layer</i>	2
<i>Option text</i>	<i>Electrician</i>
<i>Data to send</i>	<i>M1EI</i>
<i>Close message</i>	
<i>Option ID</i>	6
<i>Display layer</i>	2
<i>Option text</i>	<i>Hydraulic</i>
<i>Data to send</i>	<i>M1Hy</i>
<i>Close message</i>	
<i>Option ID</i>	7
<i>Display layer</i>	2
<i>Option text</i>	<i>Mechanic</i>
<i>Data to send</i>	<i>M1Me</i>
<i>Close message</i>	



After inspecting the stopped machine, the technician realizes that he cannot repair it himself, so he has to notify a specialist. He selects the "Help" option.



Since it is a mechanical fault, he chooses the "Mechanic" option from the IM menu in his handset.

#### **The specialist receives the message**

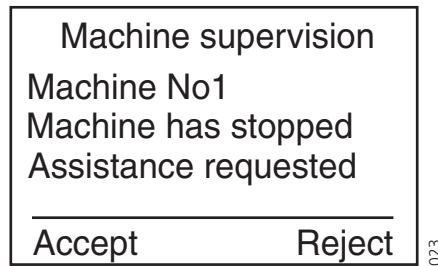
A new IM is sent to the appropriate specialist, who in turn can accept or reject the task.



- Third message:

**New Message:**

<i>Subject</i>	<i>Machine supervision</i>
<i>Body</i>	<i>Machine No 1 Machine has stopped Assistance requested</i>
<i>Option ID</i>	<i>1</i>
<i>Option text</i>	<i>Accept</i>
<i>Assigned soft/hot key</i>	<i>A</i>
<i>Data to send</i>	<i>Acc</i>
<i>Option iD</i>	<i>8</i>
<i>Option text</i>	<i>Reject</i>
<i>Assigned soft/hot key</i>	<i>C</i>
<i>Data to send</i>	<i>Rej</i>



**The specialist accepts the task**

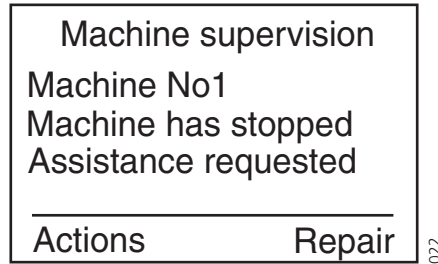
The specialist chooses to accept and receives a new IM in his handset.

- Fourth message:

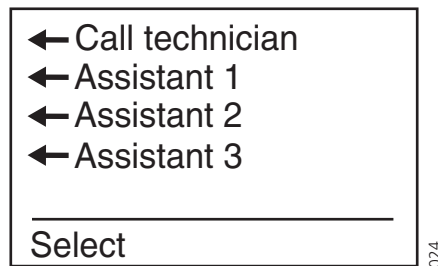
**Update Message:**

<i>Option ID</i>	<i>1</i>
<i>Option ID</i>	<i>2</i>
<i>Option ID</i>	<i>3</i>
<i>Display layer</i>	<i>1</i>
<i>Option text</i>	<i>Actions</i>
<i>Assigned soft/hot key</i>	<i>A</i>
<i>Display specified layer</i>	<i>2</i>
<i>Option ID</i>	<i>4</i>
<i>Display layer</i>	<i>1</i>
<i>Option text</i>	<i>Repair</i>
<i>Assigned soft/hot key</i>	<i>C</i>
<i>Data to send</i>	<i>AssistRep</i>
<i>Option ID</i>	<i>5</i>
<i>Display layer</i>	<i>2</i>
<i>Option text</i>	<i>Call technician</i>
<i>Number to call</i>	<i>2433</i>
<i>Option ID</i>	<i>6</i>
<i>Display layer</i>	<i>2</i>
<i>Option text</i>	<i>Assistant 1</i>
<i>Data to send</i>	<i>Assist1</i>

<i>Option ID</i>	7
<i>Display layer</i>	2
<i>Option text</i>	Assistant 2
<i>Data to send</i>	Assist2
<i>Option ID</i>	8
<i>Display layer</i>	2
<i>Option text</i>	Assistant 3
<i>Data to send</i>	Assist3



He selects the "Actions" option.



The display shows four options: "Call technician", "Assistant 1", "Assistant 2", and "Assistant 3". The specialist selects the "Call technician" option. The technician describes the problem and the specialist decides to inspect the machine. He finds out that he needs the help of an assistant specialist to repair it, so he chooses the "Assistant 1" option from the IM menu. An IM is sent to the assistant specialist, presenting him with the options to accept or reject the task.

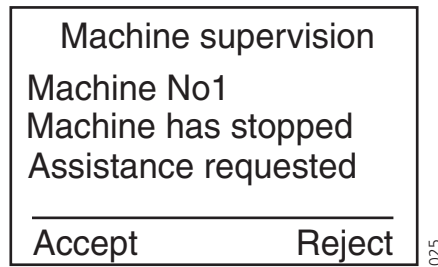
**The assistant receives the message**

- Fifth message:

***New Message:***

<i>Subject</i>	<i>Machine supervision</i>
<i>Body</i>	<i>Machine No 1</i> <i>Machine has stopped</i> <i>Assistance requested</i>

<i>Option ID</i>	1
<i>Option text</i>	Accept
<i>Assigned to soft/hot key</i>	A
<i>Data to send</i>	Acc
<i>Option ID</i>	2
<i>Option text</i>	Reject
<i>Assigned soft/hot key</i>	C
<i>Data to send</i>	Rej



He chooses to accept and proceeds to help the specialist with the repair. When the repair is finished and the machine is restarted the AMS stops the timer.

### 5.3 Nurse Call Connection Example

The patient in room 103 needs help and presses the nurse call button. Information about the call is received by the XGate, where one or more nurses are responsible for each alarm position. The nurse responsible for the specific patient receives an Interactive Message in her Cordless Handset.

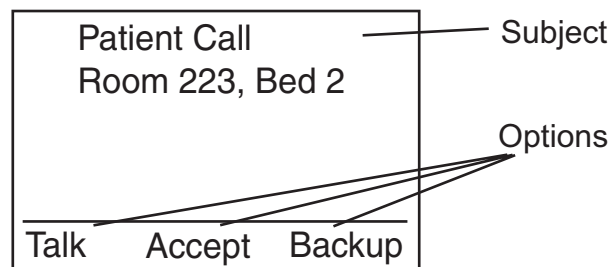
First message:

**New Message:**

<i>Subject</i>	<i>Patient Call</i>
<i>Body</i>	<i>Room 223, Bed 2<sup>1</sup></i>
<i>Message priority used by portable</i>	<i>High</i>
<i>Option ID</i>	<i>1</i>
<i>Display layer</i>	<i>1</i>
<i>Option text</i>	<i>Talk</i>
<i>Assigned to soft/hot key</i>	<i>A</i>
<i>Number to call</i>	<i>2455PPP2538#P9290# (Connect call)<sup>2</sup></i>
<i>Data to send</i>	<i>T</i>
<i>Display specified layer</i>	<i>2</i>
<i>Sticky mode</i>	<i>No change</i>
<i>Option ID</i>	<i>2</i>
<i>Display layer</i>	<i>1</i>
<i>Option text</i>	<i>Accept</i>
<i>Assigned to soft/hot key</i>	<i>B</i>
<i>Data to send</i>	<i>Acc</i>
<i>Display specified layer</i>	<i>1</i>
<i>Close message</i>	
<i>Option ID</i>	<i>3</i>
<i>Display layer</i>	<i>1</i>
<i>Option text</i>	<i>Release</i>
<i>Assigned to soft/hot key</i>	<i>C</i>
<i>Number to call</i>	<i>2455PPP2538#PP9290# (Call and disconnect)<sup>2</sup></i>
<i>Data to send</i>	<i>B</i>
<i>Display specified layer</i>	<i>1</i>
<i>Close message</i>	

Option ID	4
Display layer	2
Option text	Release
Assigned to soft/hot key	C
Number to call	*9 (DTMF and disconnect) <sup>2</sup>
Data to send	R
Display specified layer	1
Close message	
Option ID	5
Display layer	2
Option text	1
Assigned to soft/hot key	1
Number to call	1 (DTMF after disconnect) <sup>2</sup>
Data to send	1
Display specified layer	2
Option ID	6
Display layer	2
Option text	2
Assigned to soft/hot key	2
Number to call	2 (DTMF after disconnect) <sup>2</sup>
Data to send	2
Display specified layer	2
Option ID	7
Display layer	2
Option text	3
Assigned to soft/hot key	3
Number to call	3 (DTMF after disconnect) <sup>2</sup>
Data to send	3
Display specified layer	2
Option ID	8
Display layer	2
Option text	4
Assigned to soft/hot key	4
Number to call	4 (DTMF after disconnect) <sup>2</sup>
Data to send	4
Display specified layer	2

1. Normally fetched from information coming from the nurse call system
2. Text in parentheses is for clarification; it is not part of the IM.

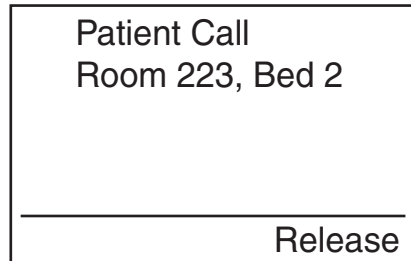


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She has three options to choose from; speak with the patient, accept the task at once, or transfer the message to a backup nurse. Information and options are displayed in plain language on the Cordless Handset display.

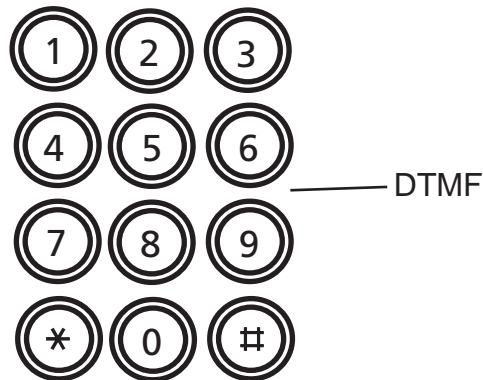
**The nurse chooses to speak with the patient**

The nurse decides to speak with the patient and selects the option "Talk". The Cordless Handset dials the proper number. The nurse is automatically connected and she can talk to the patient via the care phone. A receipt is sent back to the application.



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The nurse can also use the keypad on the Cordless Handset to send DTMF tones to control the nurse call system during the call if needed.



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When the nurse has spoken with the patient she can select the "Release" option which disconnects the call and closes the message.

## 6 Operating Instructions

Please refer to the appropriate User Manuals. See [7 Related Documents](#) on page 20.

## 7 Related Documents

Function Description, Open Access Protocol (OAP)	TD 92215GB
Programming Guide, Event Handler	TD 92329GB
Programming Guide, Open Access Toolkit (OAT)	TD 92040GB
Programming Guide, Open Java Server (OJS)	TD 92230GB
Data Sheet, Alarm Management Server (AMS)	TD 92046GB
Data Sheet, Integrated Message Server (IMS)	TD 92160GB
Data Sheet, Integrated Message Server (IMS/IP-WiFi)	TD 92321GB
Data Sheet, OAS - Open Access Server	TD 92090GB
Data Sheet, OAT - Open Access Toolkit	TD 92029GB
Data Sheet, OJS	TD 92186GB
Data Sheet, XGate	TD 92339GB
User Manual, Administration, XGate	TD 92364GB
User Manual, Ascom i75 VoWiFi Handset	TD 92319GB
User Manual, 9d24 Cordless Telephone	TD 92136GB
User Manual, 9d24 MkII Cordless Telephone	TD 92333GB
User Manual, 9d23 MkII	TD 92089GB
User Manual, i75 VoWiFi Handset	TD 92319GB
User Guide, 9p23 Portable Telephone	

## Appendix A: Interactive Messaging in Portable Devices

	i75	9p23	9d23MkII	9d24	9d24MkII
<b>Messaging</b>					
Subject	X		X	X	X
Body	X	X	X	X	X
Break through of silent mode	X	X	X	X	X
Beep characteristics/Number of beeps	X		X	X	X
Volume <sup>2</sup>					
Number of indications	X		X	X	X
Time between indications	X		X	X	X
Transmission priority used within system	X				
Message priority used by portable	X	X	X	X	X
Transmission ID <sup>3</sup>					
Message ID	X	X	X	X	X
Time to live in portable	X		X	X	X
Allow later erase of message	X	X	X <sup>1</sup>	X <sup>1</sup>	X <sup>1</sup>
<b>IM specific</b>					
Update existing IM	X	X	X	X	X
Enable quick response <sup>2</sup>					
Sticky mode	X				X
Require device ID from portable <sup>2</sup>					
Time between indications before option selection	X		X	X	X
Time between indications after option selection	X		X	X	X
<b>Options</b>					
Option text	X	X	X	X	X
Option ID	X	X	X	X	X
Assigned soft/hot key	X	X			X
Requested call number	X		X	X	X
Display layer	X				X
List order <sup>2</sup>					
<b>On option selection</b>					
Number to call	X	X	X	X	X
Request for call number	X		X	X	X
Disconnect ongoing call	X	X	X	X	X
Data to send when call is disconnected	X	X	X	X	X
Data to send	X	X	X	X	X
Erase specified option	X	X	X	X	X
Erase message	X	X	X	X	X
Update message time to live	X		X	X	X
Show prompt text and request data from user	X	X	X	X	X
Destination address for sent response	X	X	X	X	X
Enable Option ID	X				

Disable current option	X				
Mark option as selected <sup>2</sup>					
Unmarks all displayed options <sup>2</sup>					
Display specified layer	X				X
Close message	X				X
Sticky mode	X				X
Change message priority	X				X
Feedback on selection <sup>2</sup>					
Request data from system <sup>2</sup>					
<b>IM Response</b>					
Data received from portable	X		X	X	X
Data entered by user	X		X	X	X
Device ID from portable	X				
<sup>1</sup> ) Always allowed <sup>2</sup> ) Not yet implemented in any portable <sup>3</sup> ) Used within system only					



## Appendix B: IM Protocol Dictionary

	XGate Action Handler	OAT	OJS	OAP	Event Handler
Interactive Message	Interactive Message	atInteractiveMessaging	JatIM	interactiveMessage	InteractiveMessage
<b>Addressing</b>					
Call ID of portable	Type/User, Type/Call ID <sup>1</sup>	CallNumber	DestinationCallId()	To	Delivery:/:Destination address/User <sup>2</sup>
Number/Address of portable	-	-	DestinationSubAddr()	-	Delivery:/:Destination address/User <sup>2</sup>
Call ID of sender	-	-	SourceCallId()	-	-
Number/Address of sender	-	-	SourceAddrFromCallId()	-	Delivery:/:Source address/*
<b>Delivery status</b>					
Availability status of portable	Failure if not available	always enabled	Availability	AvailabilityStatus	Availability (external interface)
Message is received by interface e.g. IMS	In progress	always enabled	always enabled	always enabled	Accept/Completion (external interface)
Final status for message transmission	Sent	always enabled	Completion	DeliveryStatus	Accept/Completion (external interface)
Message is received by portable	Delivery Receipt	always enabled	DelivReceipt	-	Delivery receipt (external interface)
Do not deliver to absent handset	-	-	NotToAbsent	-	Not to absent (external interface)
Message transmitted to portable	-	always enabled	Trying	-	-
Message diversion notification	Failure if redirected	always enabled	-	-	Redirection (external interface)
<b>Messaging</b>					
Subject	Subject	SubjectText	Subject	SubjectText	Subject
Body	Body	BodyText	Body	BodyText	Body
Break through of silent mode	see note <sup>3</sup>	IndicationBreakthrough			Urgent
Beep characteristics/Number of beeps	Beep Code	IndicationCode	IndicationCode	BeepCode	Beep
Volume	-	IndicationIntensity	-	-	-
Number of indications	Number of indications <sup>4</sup>	NumberOfIndications	-	-	Indication/Repetition/Number of repetitions
Time between indications	Interval time <sup>4</sup>	TimeBetweenIndications	-	-	Indication/Repetition/Interval time
Transmission priority used within system	-	TransmissionPriority	-	-	Priority (external interface)
Message priority used by portable	Priority	TransmissionPriority	Priority	Priority	Message/Priority
Transmission ID	-	TransmissionID	RefID	-	DeliveryResponse/Response ID [system]Delivery ID
Message ID	Reference	MessageID	ID	id	Block ID
Time to live in portable	Time To Live	TimeToLive	-	TTL	Message/Time to live
Allow later erase of message	always enabled	always enabled	always enabled	AllowErase	Allow erase
<b>IM specific</b>					
Update existing IM	-	UpdateMessage()	Update	Update	Update
Enable quick response	-	-	-	-	Has data response

Sticky mode	Sticky mode	-	-	-	Sticky mode
Require device ID from portable	-	-	-	-	Request device ID
Time between indications before option selection	Reminder, attention <sup>4</sup>	-	-	Attention	Reminder/Attention
Time between indications after option selection	Reminder, session <sup>4</sup>	-	-	Session	Reminder/Session
<b>Options</b>					
Option text	Option Text	OptionText	OptionText	Text	Option {x}/Text
Option ID	Option ID	OptionID	OptionID	id	Option {x}/ID
Assigned soft-/hot key	Function Key ID	-	-	FuncKeyId	Option {x}/Function key ID
Requested call number	-	OptionCallConnectDigitsToUse	-	-	Option {x}/Call request number
Display layer	Display layer	-	-	-	Option {x}/Display layer
List order	-	-	-	-	Option {x}/List order
<b>On option selection</b>					
Number to call	Dial Digits <sup>5</sup>	OptionCallConnectDigits	OptionCallNo	CallNo <sup>5</sup>	Option {x}/On selection/Call number
Request for call number	-	OptionCallConnectDigitsRequested	-	-	Option {x}/On selection/Call request
Disconnect ongoing call	Disconnect Call	-	OptionCallDisconnect	CallDisconnect	Option {x}/On selection/Disconnect call
Data to send when call is disconnected	Response Data on Disconnect	OptionCallDisconnectResponseData	OptionCallDisconnectData	CallDisconnData	Option {x}/On selection/Call disconnect data
Data to send	Response Data	OptionDataResponse	OptionDataResponse	DataResp	Option {x}/On selection/Data response
Erase specified option	Erase Option ID	OptionEraseOption (only selected option)	OptionEraseOption	EraseOption	Option {x}/On selection/Erase option
Erase message	Erase Message	OptionEraseSession	OptionEraseMessage	EraseMessage	Option {x}/On selection/Erase message
Update message time to live	New TTL	OptionNewTimeToLive	-	NewTTL	Option {x}/On selection/New time to live
Show prompt text and request data from user	User Response Prompt	OptionPromptText	OptionUserResponse	UserResponse	Option {x}/On selection/User response
Destination address for sent response	-	-	-	-	Option {x}/On selection/Data response address
Enable option ID	Enable Option ID	-	-	-	Option {x}/On selection/Enable option
Disable current option	Disable Option ID	-	-	-	Option {x}/On selection/Disable option
Mark option as selected	-	-	-	-	Option {x}/On selection/Mark option
Unmarks all displayed options	-	-	-	-	Option {x}/On selection/Unmark option
Display specified layer	Show Display Layer	-	-	-	Option {x}/On selection/Show next layer
Close message	Close message	-	-	-	Option {x}/On selection/Close message
Sticky mode	Sticky mode	-	-	-	Option {x}/On selection/Sticky mode
Change message priority	New Priority	-	-	-	Option {x}/On selection/New priority
Feedback on selection	-	-	-	-	Option {x}/On selection/Display text
Request data from system	-	-	-	-	Option {x}/On selection/Request data

<b>IM Response</b>					
Data received from portable	Response Data	ResponseData	OptionDataResponse	DataResp	Data response
Data entered by user	User Response	PromptData	UserResponse	UserResponse	User response
Device ID from portable	-	-	-	-	Device ID

<sup>1)</sup>A Call ID in the UNS where the option "user" gives a select-box and "Call ID" is manually entered.

<sup>2)</sup>Depending on whether UNS request is used in the external interface this is either a Call ID or a Pocket Unit address (sub addr.)

<sup>3)</sup>Automatically set for Priority = Alarm.

<sup>4)</sup>Set for all messages per priority, that is Alarm, High, Normal, and Low

<sup>5)</sup>Possible to specify how the handset shall handle the number, that is, if a call shall be connected, if the call shall be disconnected directly, if the digits shall be sent as DTMF in an ongoing call, and if the call shall be disconnected when the digits have been sent as DTMF.