



# Mobility Monitor Wireless

## System Overview

Release Date: 13.07.2017

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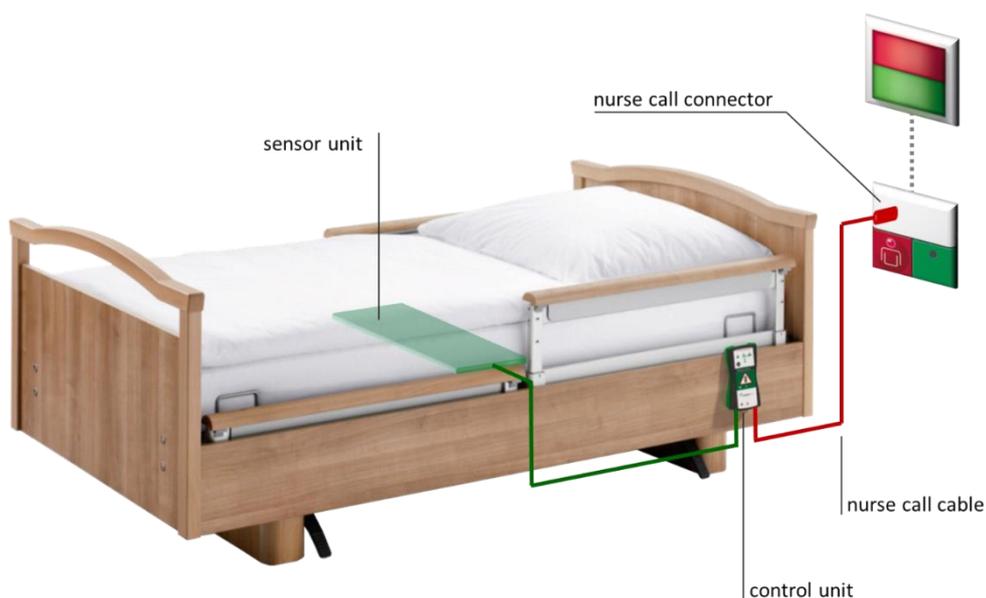
## 1. Introduction

This document describes the Mobility Monitor Wireless System. The most important features are described for interested customers and IT administrators.

For more details on how to use and the functions of Mobility Monitor please refer to the instruction manuals for Mobility Monitor and the Mobility & Care Manager software.

### 1.1. Mobility Monitor

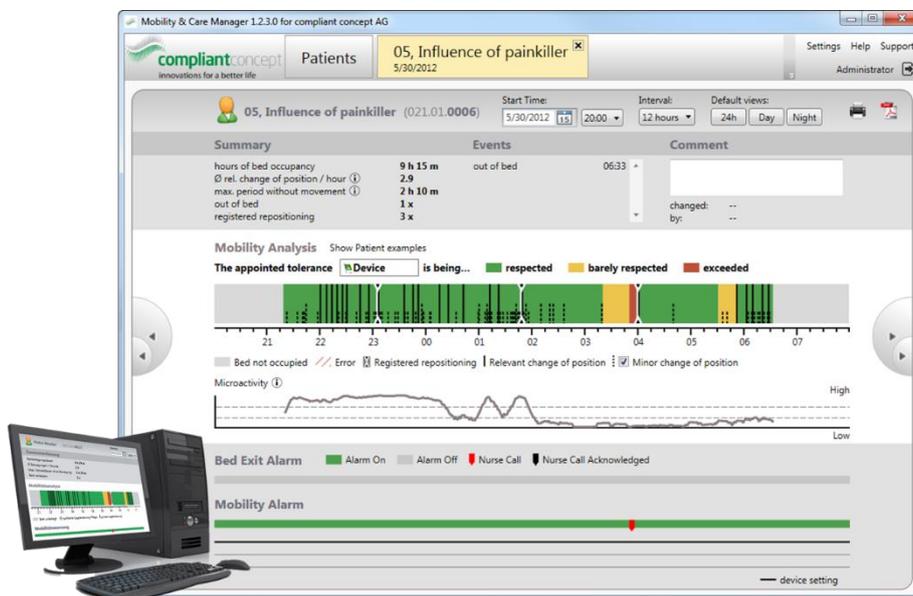
Mobility Monitor is an innovative analysis and information tool that allows for determining the mobility of a resident in bed. A sensor unit under the mattress registers, without any direct contact to the patient, the slightest movement of the resident and provides this information to the corresponding control unit. The system distinguishes between relevant changes in position, which lead to pressure relief, and non-relevant movements. When connected to the nurse call system, Mobility Monitor triggers a nurse call after an adjustable period of time (2h, 3h or 4h) without relevant change in position. If desired, a nurse call may be triggered when sitting on the edge of the bed or when leaving the bed. Care actions can be acknowledged on the operating unit and are automatically recorded and documented. The sleep profile as well as getting up, mobility data and acknowledged care actions can be represented on the computer with the Mobility & Care Manager software for further analysis.



### 1.2. Mobility & Care Manager

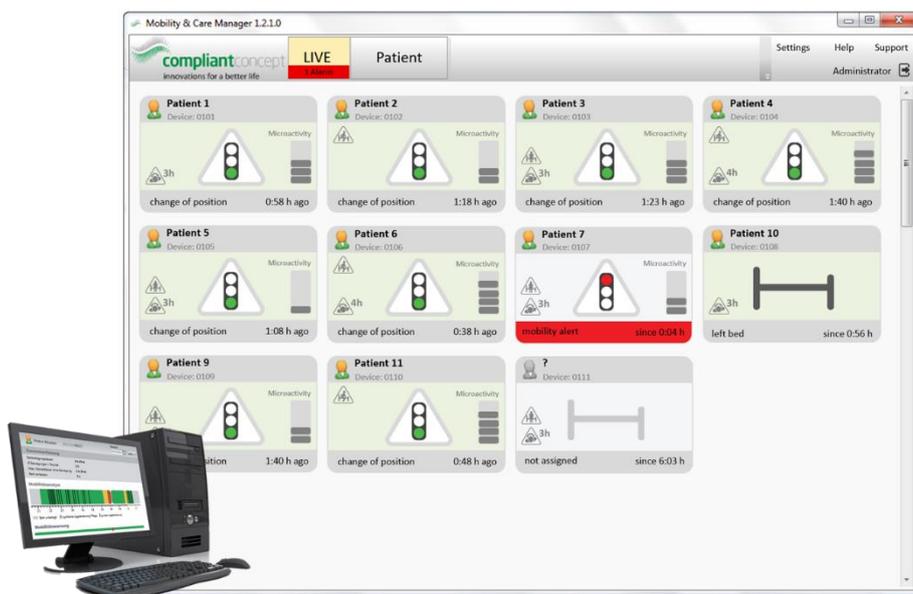
The software Mobility & Care Manager is the application used for visualization and analysis of measurement data created by compliant concept's Mobility Monitor. Data generated by Mobility Monitor, depending on the model, are transferred via USB stick or via wireless connection into the database of the Mobility & Care Manager software. The database is either installed locally or can be implemented on a central server.

Installation of Mobility & Care Manager and how to set up a central database are described in the corresponding manuals.



### 1.3. Wireless Add-On

The wireless system described here adds to the existing Mobility Monitor automatic wireless transmission of all measurement data, real-time overview of the residents/patients and real-time data analysis.



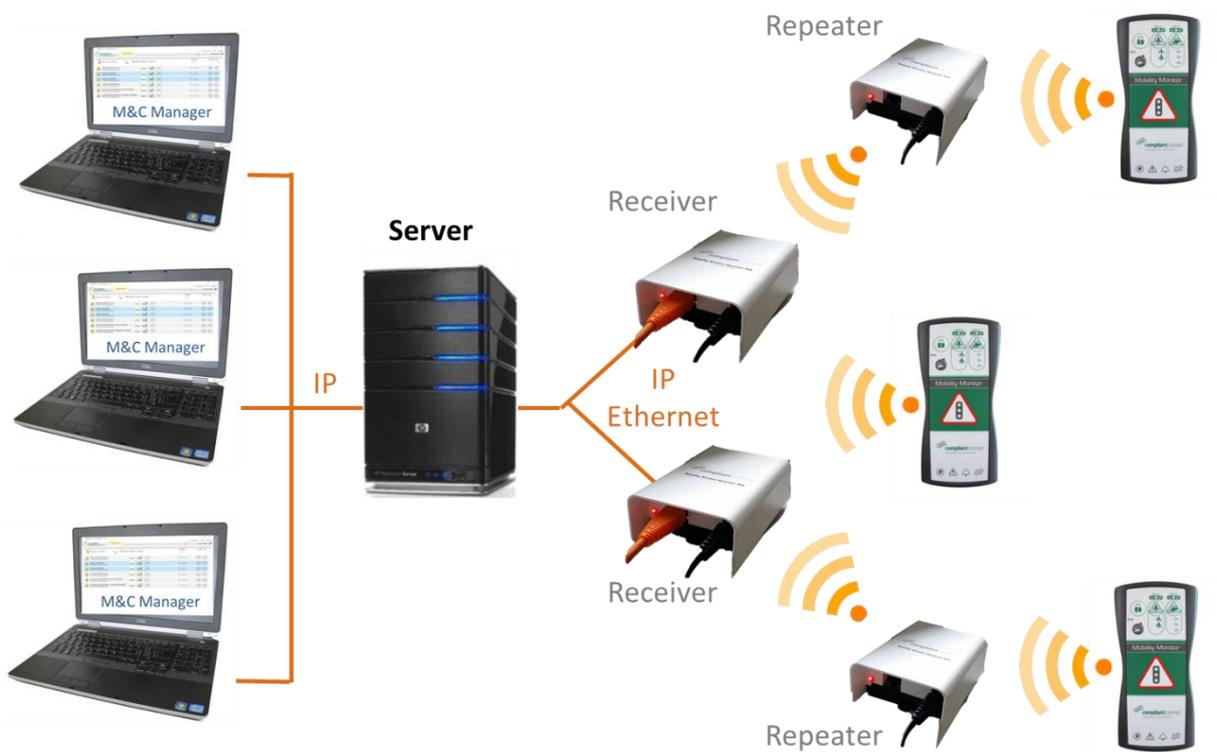
## 2. Wireless System

The Mobility Monitor Wireless System has the following properties:

- Continuous data transmission from Mobility Monitor into the database.
- The current status of the device is available in real time in Mobility & Care Manager (Live View).
- The data is temporarily stored when the connection is interrupted and automatically transferred when connection becomes available again.
- Multiple redundant receivers and repeaters are supported.
- Data transfer via USB stick is still possible.

### 2.1. Overview

The data transferred by Mobility Monitor will be received by a receiver and then transmitted to the server where the database is located. To achieve even greater reach, repeaters can be used over long distances. If needed, more than one receiver can be used. This makes sense when separate buildings or floors must be covered but also to further increase the system availability by redundancy. Analysis and visualization of the data takes place on workstations with the Mobility & Care Manager software installed.



## 2.2. Radio Transmission

For the wireless transmission of data to the server, a wireless mesh network is used in the 868MHz frequency band. The technology, which is working in the freely usable ISM band, allows for maximum coverage and is independent of other radio infrastructures. Note that this is not a Wi-Fi or WLAN network!

## 3. Infrastructure requirements

The following requirements on the infrastructure are required to install and operate the Mobility Monitor Wireless-868 System.

### 3.1. Server



There must be a server with a Microsoft Windows operating system. The server should be running 24 hours a day. The minimum technical requirements for the server are listed in chapter 5.3.

A database and the "WirelessServer" service (see chapter 5) are installed on the server. The database and the service can also be operated on two different servers.

### 3.2. Computer (PC)



The user software "Mobility & Care Manager" is installed on at least one PC. Basically, any modern PC or laptop with Windows operating system can be used. The minimum technical requirements are listed in the installation guide for the software.

The PC must be connected to the server via the local network (see chapter 4).

### 3.3. Receiver Requirements

#### 3.3.1. Location

At least one receiver must be installed (see chapter 2.1 Overview). The receiver must be installed within the radio range of the Mobility Monitors or the next repeater. Because metal weakens or even shields the radio signal, the receiver should not be installed near large metal surfaces. Under no circumstances can the receiver be installed on or in a metal control cabinet.



#### 3.3.2. Connections

Because the server is generally not directly next to the receiver, a network connection from the receiver to the server is required. Before commissioning, check whether a LAN connection is available or if one needs to be installed in advance.

A 230V socket is required for the plug-in power supply.

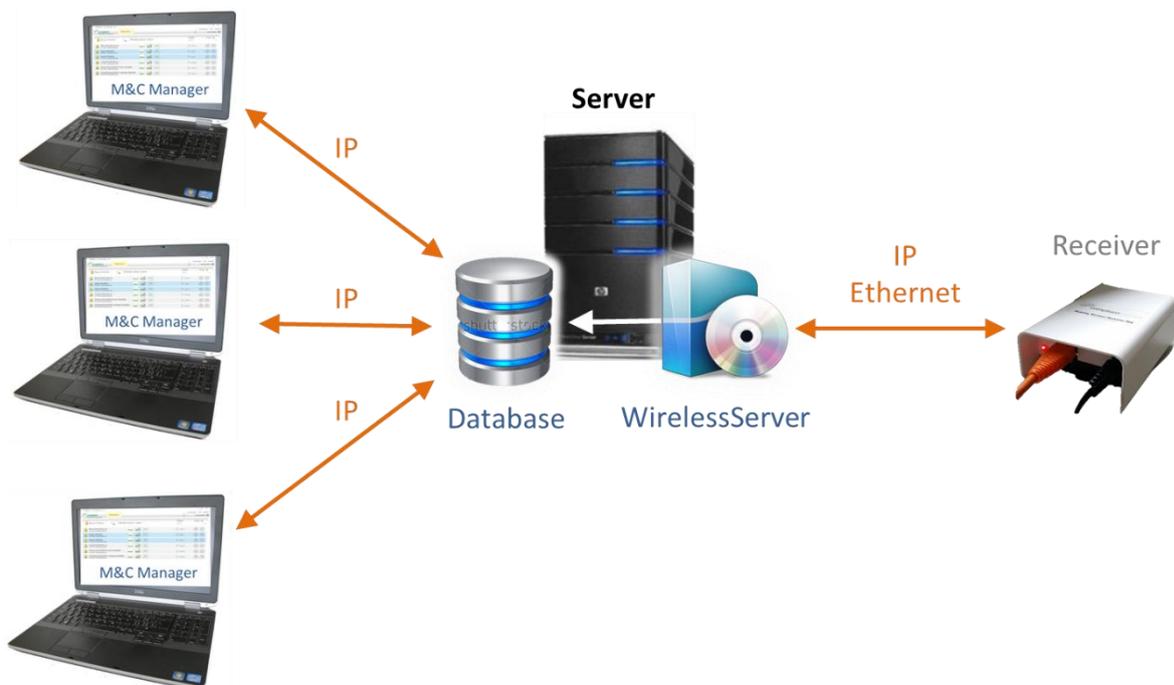


### 3.4. Repeater Requirements

Repeaters can be used to extend the radio range. The repeaters look similar to the receivers and the same requirements apply to the location. For the connection, only a 230V socket for the plug-in power supply is necessary.

## 4. IT-Network

The software “Wireless Server” communicates over TCP/IP with the receivers and writes the received data into a Microsoft SQL database. From there the data is retrieved over TCP/IP by the Mobility & Care Manager software.



### 4.1. Receiver

The Receiver waits for incoming connections on TCP port 5000. A static IP address scheme is recommended even though the device is DHCP capable. It must be ensured that devices, based on MAC address, always get assigned the same IP address.

### 4.2. Database-Server

Access via standard ports by MS SQL Server:

- TCP Port 1433 incoming
- UDP Port 1434 incoming

### 4.3. WirelessServer

It is connected via TCP/IP to the receiver and the database server. It is configured by means of WirelessServer Manager via TCP Port 4450 (incoming).

## 5. WirelessServer Software

### 5.1. Description

WirelessServer, installed as a Windows service application, connects to one or more receivers and handles communication with the Mobility Monitor devices. It also accesses the Mobility & Care Manager database and stores the received data there.

### 5.2. Installation

The installation of WirelessServer takes place via an MSI installer and is described in the corresponding installation manual. To install it, Administrator rights are required.

Included in the installation are also the WirelessServer Manager and the TinyMesh-Visualizer. These two tools are not absolutely necessary for the operation and could also be installed on a workstation with TCP/IP access to the server.

### 5.3. System Requirements

Operating System	Windows 7 32 and 64 bit or later Windows Server 2008 R2 or later
Processor	1 GHz 32-bit, 1.4 GHz 64-bit (2 GHz recommended)
Hard Disk Space	50MB
RAM memory	1 GB (2 GB recommended)
.NET Framework	.NET Framework 4.5 or higher (only when WirelessServer Manager or TinyMesh Visualizer are required)

## 6. How to Reach Us

Questions regarding Mobility Monitor and Mobility & Care Manager? We offer technical support by phone or Email.

### Switzerland (head quarter)

Attendant: +41 44 552 15 00  
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### International

Support and Contact Addresses for Distributors  
<http://www.compliant-concept.ch/en/support>

## Change History

Version	Release Date	Change	Prepared	Reviewed	Approved
1.0	09.2014	“MobilityMonitorWireless_Information_Übersicht_1v0_DE” translated to English	vre	men/zos	kst
1.1	10.2014	Adding illustrations and redundancy	kst	zos	kst
<b>1.2.0</b>	04.2017	Adding Infrastructure Requirements	jdo	men	Men