

A new telemedicine system for real-time applications in emergency ambulance vehicles

VIMED[®] CAR is a telemedicine system for permanent installation into a variety of emergency vehicles operating in the public and private sector.

■ VIMED[®] CAR focuses on telemedical support for paramedics in emergency, acute care or disaster situations where hospital-based clinicians and medical experts can instantly assess and diagnose complex injuries, securely and remotely.

VIMED[®] CAR contains a processor which establishes high-speed links to a hospital, to a medical service provider or to another control office.

■ The communication is performed using a High-Speed Downlink Packet Access (HSDPA) mobile telephony communications protocol. In the case of network unavailability the system defaults and switches to the next fastest technology in the following sequence: UMTS, EDGE, GSM.

VIMED[®] CAR is a brand new computer based telemedicine system designed and developed for permanent transport and for providing an extensive number of applications in emergency medicine.

■ The main component is the unit for medical video communication providing the bi-directional audiovisual communication between the remote physician and the patient or paramedic in the rescue vehicle. Interaction with the Windows[®] based system is performed via a touch screen monitor.

A specialised microphone and a radial audio rendering system enables clear speech comprehension without the need for a head-set, irrespective of background vehicle or ambient noise.

This is made possible using reverb and echo canceling software. Video stream grabbing is performed by two



professional cameras mounted at different locations inside the vehicle.

■ The system enables a clinician to interchange between the cameras to view the patient as a whole or simply focus on the face.

The Bluetooth interface enables the system to communicate wirelessly with several external diagnosis devices.

Vital sign information, including emergency electrocardiograms, may be recorded and transferred to a hospital or emergency centre.

VIMED[®] CAR represents a new telemedicine system applied to emergency and rescue vehicles, allowing effective support to the medical processes in emergency care.

Technical data

Processor	Intel® Pentium® M 2.0 GHz
Memory	1024 MByte
Graphic card	Intel 855 GM; 64 MByte graphic storage
Hard disk	40 GByte
Network	2x 10/100 MBit/s (RJ-45); UMTS (HSDPA/HSUPA), EDGE, GSM / VPN prepared
Connections	2x camera connection / USB 2.0 / optionally: 2x USB / UMTS antenna connection (SMA) Bluetooth (Optional) / RS-232 (optionally)
Input devices	Touchscreen (On-Screen-Keyboard)
Vibration	5 g rms / 5~500Hz / random operation (CFD); 1 g / 5~500Hz / random operation (HDD) 50g peak acceleration (11 msec. duration) (CFD); 20g peak acceleration (11 msec. duration) (HDD)
Software equipment	Microsoft Windows XP Professional OEM / Microsoft Office 2003 Professional OEM / eTrust Antivirus v7.1 / VIMED® COMM CAR

Video specifications

Bandwidth	H.323: 64 Kbp/s – 4 Mbp/s
Video standards	H.261, H.263, H.263+/++, H.264 (bis 512 Kbp/s outgoing)
Live video resolution	Interlaced CIF, CIF, SIF, QCIF, QVGA, VGA, 720p (incoming)
Data	Support for H.239 and Tandberg DuoVideo
Network specifications	ITU-T: H323 v4.2 / H.281 Annex Q (FECC) / H.323 QoS Feature / Coded conferences after H.235 (AES) possible / LDAP-Support
Camera	2 pieces
Sensor size	1/4"
Resolution	752 x 582
Norm	PAL
Dissolution	460 TV-Lines
Frames per second	25
Shutter speed	1s - 1/10.000s
Video S/N	50 dB
min. photosensitivity	0,7 Lux bei f=1,4
Lens	f = 4,1...73,8 mm F=1,4 – 3,0 / AF 216 x zoom (18 x optical)
minimum distance	35 mm... 800 mm
Camera control	Zoom function
Dimensions (HxWxD)	70 mm x 65 mm x 120 mm
Weight	350 g
Monitor	LCD-Display
Diagonal size	30,7 cm (12,1 Zoll) LCD (4:3-Format)
Active Display Size (W x H)	246 mm x 184,5 mm
Resolution	800 x 600 Pixel (1024 x 768 Pixel Interpolated)
Display colors	16,7 Million
Brightness	1000 cd/m ²
Contrast relationship	250:1
Viewing angle	140° H / +45°/-55° V
Features	Touchscreen, to the direct input over the display by means of Resistive 5 Wire technology
Input signals	RGB Analog (VGA)
Certifications and Standards	FCC Class B, UL/CSA60950

Audio specifications

Audio standards	G.711, G.722, G.722.1, G.723.1, G.728, G.729, AAC-LD
Audio features	Full duplex echo cancellation / Automatic noise suppression (ANS) / Voice Activity Detection (VAD)
Audio Input/-Output	VIMED® VOICE Sound system (integrated)

General indicated

Voltage supply	12 V over the KFZ Boardnet with entrance filter
Dimensions (HxWxD)	50 cm x 45 cm x 17 cm
Space requirement (HxWxD)	60 cm x 55 cm x 25 cm
Weight	ca. 20 kg
Operating temperature	-15° C ~ 50° C
Air humidity	5 ~ 95% @ 40° C, non-condensing

VIMED® CAR is a telemedicine system from the MEYTEC GmbH Informationssysteme and a part of the VIMED® 2000 system family
Last Change: 06 January 2010. All data without guarantee. Changes and mistakes reserve.

Competence for telemedicine and eHealth

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