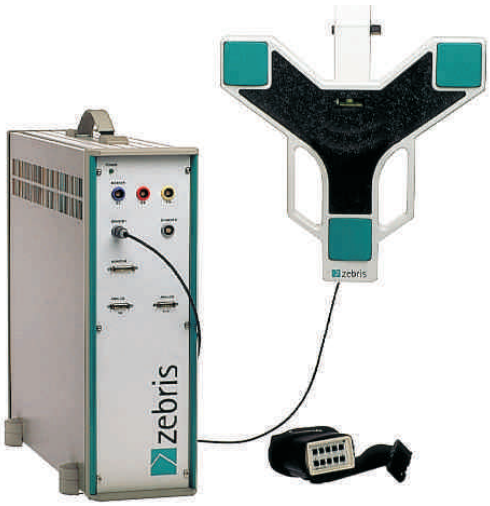
CMS-HSL / CMS-HS Measuring Systems

Measurement Systems for 3D Real Time Motion Analysis for High Sampling Rate

CMS-HSL System



CMS-HS System

The CMS-HSL and CMS-HS measurement systems operates with high measurement accuracy according to the travelling time measurement of ultrasound pulses.

Owing to a completely new conception, up to 16 / 24 markers can be employed simultaneously with a high sampling rate.

The easy handling and the possibility of real time analysis make for ideal use of the systems in clinical employment.

For bilateral gait analysis the system CMS-HS provides a direct connection for a second measuring sensor.

Further fields of application include, for example, spinal column analysis or analysis of neurological movement disorders of the hand and arm system.

An optionally available EMG system or devices for measurement of ground reaction forces can be connected directly to the basic unit via analog channels.

The data are transmitted via the parallel port of personal computers.

Owing to the modular construction, the basic versions can be extended at will with regard to the markers and analog channels.

- Easy data acquisition according to travelling time measurement of ultrasound pulses
- Up to 16 / 24 miniature markers may be connected
- Measurement rate up to 100 Hz per marker
- Operation by PC and also notebook
- Direct connection for two measurement sensors (for system CMS-HS only)
- 8 digital input channels
- Available software:
  Gait analysis
  Spinal column analysis
  Movement disorders
  Balance analysis
  and others
- Optional:
  Up to 16 / 32 analog channels (12bit) for EMG, force plates etc.

For further information please contact

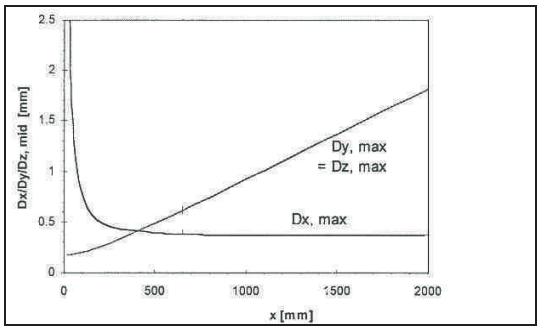
zebris Medical GmbH

Max-Eyth-Weg 43
D-88316 Isny i. Allgäu
Germany

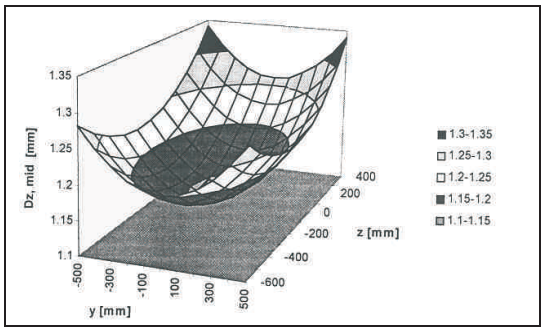
Tel.: +49 7562 / 9726-0
Fax: +49 7562 / 9726-50
E-mail: zebris@zebris.de
Internet: www.zebris.de

Technical Data

	System CMS-HS	System CMS-HSL
Dimensions basic system:	405 x 160 x 480 mm (LxWxH)	405 x 160 x 480 mm (LxWxH)
Weight:	approx. 12 kg	approx. 11 kg
Dimensions measuring sensor:	360 x 340 x 50 mm	360 x 340 x 50 mm
Weight:	1.2 kg	1.2 kg
Number of marker channels, basic version:	10 + 2 (pointer)	8
Max. number of marker channels:	22 + 2 (pointer)	16
Connection for measuring sensor:	2	1
Buffer memory:	2 MB	2 MB
Digital entrances:	8	8
Synchronisation:	Start/Stop	Start/Stop
Measurement distance (for one measuring unit):	max. 2.5 m; 80 - 100 Hz: 1.8 - 2.5 m	max. 2.5 m; 80 - 100 Hz: 1.8 - 2.5 m
Measurement:	max. 100 Hz per marker	max. 100 Hz per marker
Measurement rate (bilateral):	max. 50 / 60 Hz per marker	-



Error of relative coordinates after triangulation in direction x, y and z to L_0



Distribution of error in a distance of x = 1250 mm for z-coordinate

Optional: Analog to Digital Converter

Number of channels:	up to 32 (differential inputs)	up to 16 (differential inputs)
Sampling rate:	65000/s (for all channels)	65000/s (for all channels)
Resolution:	12 bit	12 bit
Input voltage range:	± 2 V	± 2 V

Cable Adapter

Number of connectable markers:	10 / 22
Dimensions:	115 x 70 x 45 mm (LxWxH)
Weight:	approx. 200 g

Ultrasound Markers

US marker with attachment plate:	7 x 6 mm (DxH), 1 g
Standard cable length:	1.25 m
Emission angle:	min. 120 degrees

Application devices (such as position pointer and markersets for gait analysis) are available.