

## HSE-Harvard\* Einthoven Goldberger Module (EGM)

- 6 lead-ECG amplifier (I, II, III, aVR, aVL, aVF)
- Floating input
- Frequency range suitable for all species from mouse up to large animals
- 12 lead-ECG in combination with the WLA module

The EGM module is used for capturing and amplifying ECG signals after Einthoven and Goldberger in the PLUGSYS system. It connects to 4 electrodes. This module has isolated input amplifiers in order to avoid hum interference. In this way the inputs are isolated electrically from the output circuits and from the housing. The 6 output voltages of the different leads can be switched through jumpers to the PLUGSYS system bus. From the system bus they can be picked off by a Recorder Output Module (ROM) (e.g., ROM-DL) for direct recording or for data acquisition by computer.

### Inputs Leads:

RA	Right Arm
LA	Left Arm
LF	Left Foot
RF	Right Foot (Reference)

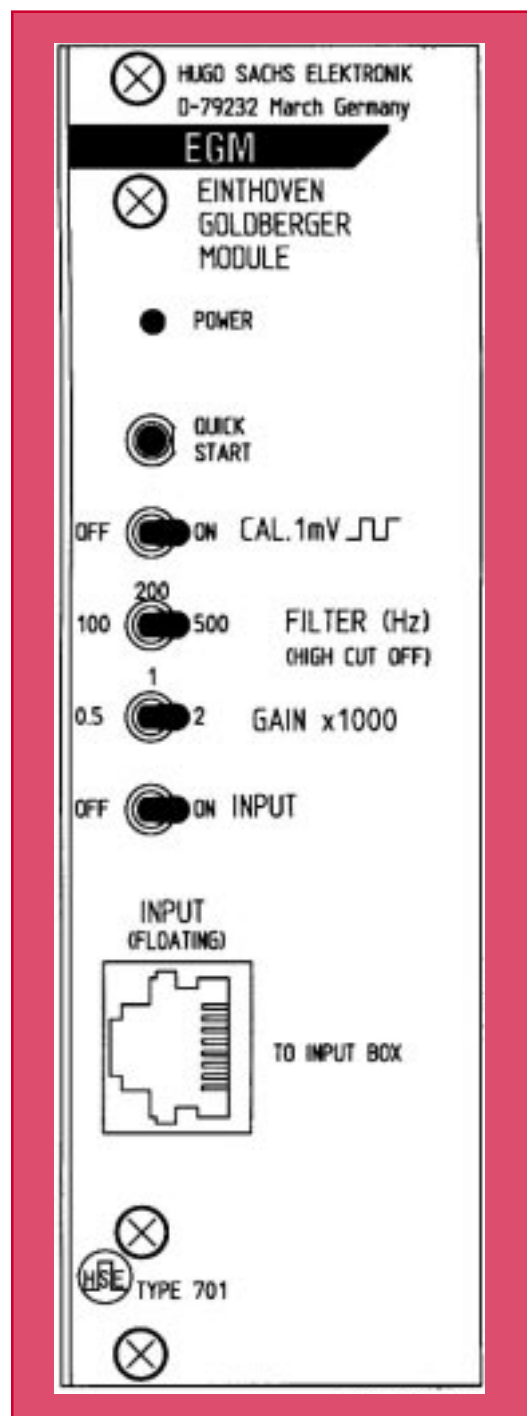
### Output Signals: Bipolar Einthoven Extremity Leads:

I	LA(+) - RA(-)
II	LF(+) - RA(-)
III	LF(+) - LA(-)

### Unipolar Goldberger Extremity Leads:

aVR	RA(+) - (LA+LF)/2(-)
aVL	LA(+) - (RA+LF)/2(-)
aVF	LF(+) - (RA+LA)/2(-)

In addition the CTP (Central Terminal Point) signal is available at the multi-pin socket. This signal is required when using the Wilson Lead Amplifier (WLA) PLUGSYS module Type 702.



## Specifications

ECG Leads	Bipolar extremity leads I, II and III after Einthoven as well as unipolar extremity leads aVR, aVL and aVF after Goldberger
ECG Input	4-way inputs cable must be connected as follows: RA (right arm), LA (left arm), LF (left foot), RF (right foot)
Input Circuit	Isolated input circuit (floating input), isolating voltage 200 V DC max.
Input Impedance	10 <sup>7</sup> Ω
Filter	
Low-Pass Filter	100 Hz, 200 Hz and 500 Hz
High-Pass Filter	0.1 Hz, fixed
Gain:	
Setting x0.5	500
Setting x1	1000
Setting x2	2000
Calibration	Square-wave signal 1 mV 2 Hz (120/min); calibration signal is activated with switch
Recorder Outputs	Outputs of 6 ECG leads are linked by jumpers to PLUGSYS bus system; link to recorder is provided by Recorder Output Module (ROM) installed in PLUGSYS system
Supply	5 V 1.2 mA from PLUGSYS system bus
Dimensions, H x W x D	128.7 x 40.8 x 220 mm (5.1 x 1.6 x 8.7 in)
PLUGSYS Width*	2 slot units
Connector	96-pin VG connector to DIN 41612, 8-pin RJ-45
Weight	0.43 kg (1 lb)

### Catalog No.

### Model

CGS 8409.71	EGM Einthoven Goldberger Module
CGS 8410.71	4-lead ECG Input Cable with Needles
CGS 8411.71	4-lead ECG Input Cable with Banana Plugs
CGS 8412.71	Input Box Type 701/2 for EGM and WLA