



# Solar GI HRM

## Water perfused High Resolution Manometry

● Cost-efficient HRM

● Simple procedures leading to high quality recordings

● Visual motility interpretation

**High Resolution Manometry (HRM) is an advanced approach of measuring pressures in the esophageal body. The Solar GI HRM system simplifies clinical procedures and offers fast and accurate diagnostic reports.**

Around 22 closely spaced water perfused pressures capture the entire esophageal motor function from the pharynx to the stomach. Accurate sphincter location becomes so easy that specialized technical training is no longer required. Besides conventional manometry displays, rapid data interpretation via Clouse contour plots can be established.

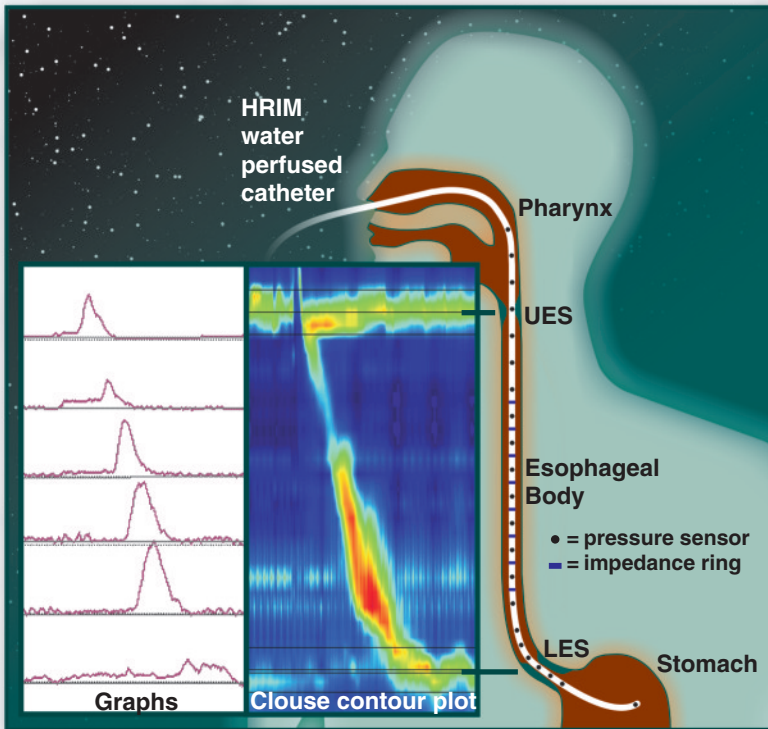
A selection of Solar GI HRM benefits:

- Fast data collection
- Captures motor function of entire esophagus
- Accurate and consistent data
- Optimal motility visualization and customized reports
- Water perfused catheter for cost-efficient HRM
- Autoclaveable water perfused catheter



# Advanced Clinical Use

## Full coverage of esophagus

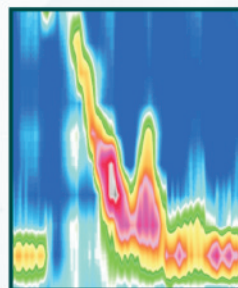


With 22 water perfused pressures the Solar GI HRM catheter can cover up to 35 cm of the esophagus:

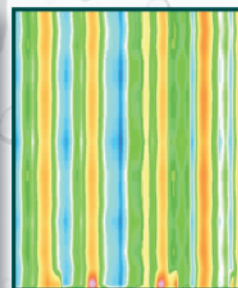
- 15 pressures monitor the pharynx, the UES and the esophageal body (spacing: 2cm)
- 6 pressures monitor the LES to determine its length, relaxations and resting pressure (spacing: 1 cm)
- 1 gastric pressure (placed 5 cm under LES)
- Optionally: up to 12 Impedance channels

## Visual View

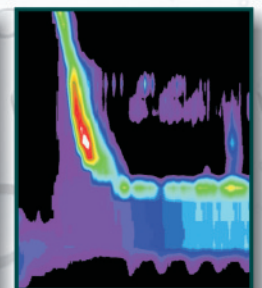
The Clouse contour plot display offers more information than the traditional pressure curves, and is still easier to analyse due to the recognition of typical patterns. So, more information and easier analysis go perfectly together.



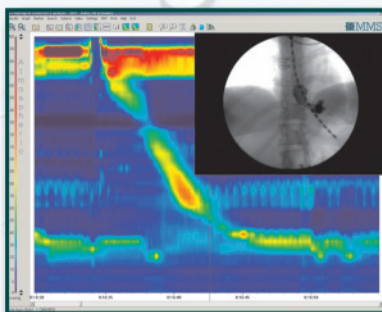
Double peak



Achalasia

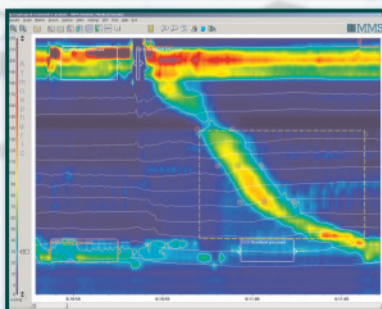


Pressure entrapment



## Combined with X-ray

By adding X-ray images and cine loops to the HRM pressure measurement you can see the swallow and bolus movement in real time.



## Combined with Impedance (Solar HRIM)

While HRM measures peristalsis, Impedance measures the actual bolus movement, making it a very powerful combination as 51% of patients with Inefficient Esophageal Motility (IEM) have normal bolus transit\*. Solar HRIM offers the new standard for total esophageal function monitoring.

\*Tutuian R, Castell DO, American Journal of Gastroenterology, 2004, 2:230-236

# Simple procedures leading to high quality recordings

## Fast and easy setup

The fast, standard and one-time positioning of the HRM catheter makes the esophageal manometry examination so simple that a consistent high quality measurement can be achieved. The preparation of the Solar GI HRM procedure offers several advantages:

- Short setup time of 22 pressures water perfused HRM system.
- Smooth and patient friendly intubation of catheter.
- One-time positioning of catheter, with basic training.
- Easy location of LES.

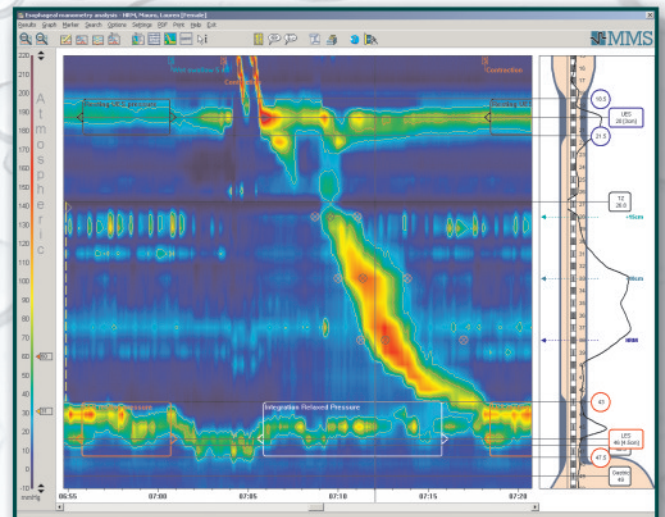
## Esophageal manometry has never been so easy

UES and LES can easily be recognized on the monitor of the Solar GI HRM. After location of both sphincters the HRM examination can be started. 22 Pressures cover the complete esophageal length. A stepwise pull-back of catheter is not needed, which saves time.

Patient can be instructed to swallow water, viscous food or solid food. The Solar GI HRM procedure for an assessment of the complete esophagus normally takes no longer than 10 minutes.



*MMS Solar perfusion pump:  
compact and silent*



## Easy data analysis

Solar GI HRM analysis software helps you to review all manometry data very efficiently. It provides for fast and accurate determination of diagnostic parameters using intuitive graphical markers. Peristaltic movements and disorders can be diagnosed easily by recognizing typical patterns. After quickly checking all swallows you can print a report with plots of all marked contractions. Additional benefits are:

- Sphincter locations are easily recognized in the Clouse contour plots.
- Automatic marking of LES and UES resting pressures and LES residual pressure.
- Automatic contraction detection and marking.
- Automatic result calculation.
- Rapid switch between Clouse contour plot and graphs.
- Multiple isobar indication, also during measurement.



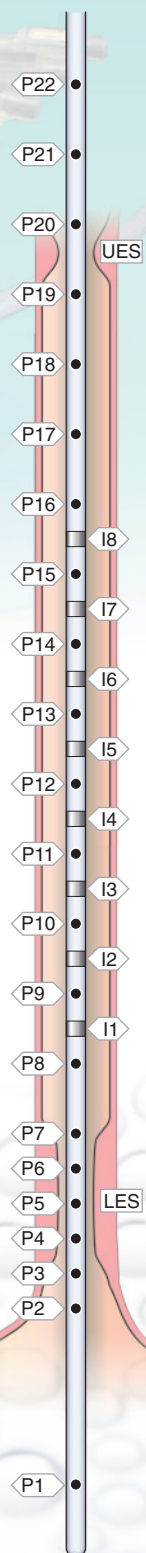
## Advantages of water perfused HRM catheters

HRM catheter for 22 pressures

MMS offers a water perfused HRM solution as water perfused manometry is a proven technique for over 15 years. More than 100.000 manometry studies have been performed with this type of catheter. Unidirectional recording is the world standard on which all current normal values are based. Water perfused HRM catheters offer many advantages:

- The attractive purchase price of water perfused HRM catheters allows you to buy several catheters.
- No risk of cancelling manometry examinations due to catheter failure, as water perfused catheters do not break or need repair.
- As these catheters are also autoclaveable no catheter disinfection between patients is needed, making an easy organization of disinfection / sterilization possible.
- Catheter configurations can be designed to your clinical needs.
- You can also add a guide wire lumen to your catheter.

HRIM catheter with 22 pressure lumina + 8 impedance rings



## Additional products and software options

The **Ohmega Impedance-pH recorders** can be added using the same MMS patient database.

The **Orion II pH recorders** can be added using the same MMS patient database.

The **Solar GI Neuro module** can be used for stimulation and high speed EMG studies.

**Networking:** linking the system to other hospital departments as well as the outside world.

**HIS:** connect your system to the hospital information system.

**Other GI studies:** Small bowel, Colon manometry, Anorectal manometry, EGG, TMPD and Barostat.

**Software** available in more than **15 languages**



Ohmega: ambulatory Impedance-pH recorder

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