

The DIRECTLINK ICP Module is connected directly to a patient bedside monitor in order to display the patient's ICP value.

## ORDERING INFORMATION

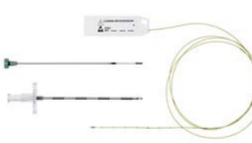
### DIRECTLINK ICP System

Part No.	Description
826828	DIRECTLINK ICP Module 
826840	ICP Extension Cable 

### DIRECTLINK Patient Monitor Interface Cables

Part No.	Description
826880	Dräger™ / Siemens INFINITY™ 10 pin input 
826881	Philips Intellivue™ / HP Merlin™ 12 pin input 
826882	GE / Marquette™ 11 pin input 

### CODMAN MICROSENSOR ICP Transducer

Part No.	Description
626631	CODMAN MICROSENSOR Basic Kit  1 pozicija
626638	CODMAN MICROSENSOR Metal Bolt Kit 
626632	CODMAN MICROSENSOR Plastic Bolt Kit 
626653	CODMAN MICROSENSOR Ventricular Kit 
626633	CODMAN MICROSENSOR Ventricular Kit (Internal) 

#### EC REP

Johnson & Johnson Medical Ltd.  
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United Kingdom



Products may be manufactured at one of the following:

**Codman & Shurtleff, Inc.**  
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Raynham, MA 02767-0350  
USA

**Medos International SÄRL**  
Chemin-Blanc 38  
CH-2400 Le Locle  
Switzerland

www.depuysynthes.com

Codman Neuro is a trading division  
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Livingston, West Lothian, EH54 0AB  
Registered in Scotland, No SC 132162

## CODMAN NEURO



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#### Indications

The intended use of the DIRECTLINK ICP Module is to enable the connection of Codman intracranial pressure sensors to an available invasive blood pressure input channel on select commercially available third party patient bedside monitor systems. The CODMAN MICROSENSOR ICP Transducer is indicated when direct intracranial pressure (ICP) monitoring is required.

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# When Simplicity and Accuracy Matter

## DIRECTLINK™ ICP Module and CODMAN MICROSENSOR® ICP Transducer



# DIRECTLINK™ ICP Module



The DIRECTLINK™ ICP Module is an easy to use cost-effective<sup>6</sup> solution to monitor Intracranial Pressure (ICP). The module is connected directly to a patient bedside monitor in order to display the patient's ICP value. Connecting an implantable ICP sensor directly to the hospital patient bedside monitoring system eliminates the need for a stand-alone ICP monitor enabling ICP data to be stored in an Electronic Medical Record (EMR) system. The DIRECTLINK ICP Module allows a user to connect and calibrate to a patient bedside monitor, connect to and zero an ICP sensor prior to implantation, and allows for the patient to be disconnected and reconnected to the patient bedside monitor during routine clinical care events such as transport for imaging.

The **DIRECTLINK ICP Module** allows the user to display a patient's intracranial pressure (ICP) value directly on the bedside monitor.

## Easy to Use Interface

- The simple to use two button interface offers quick equipment setup for monitoring ICP.
- Single button zeroing of the patient monitor and ICP transducer.

## Economical

- Reduces the need for costly capital equipment while allowing the user to connect to the CODMAN MICROSENSOR® ICP Transducer.
- Direct connection to patient bedside monitor reduces the barriers to ICP monitoring for patients.

## Compact

- Measuring approximately 2.5" x 3.5" x 1" (6.4 cm x 8.9 cm x 2.5 cm) and weighing under 3.5 oz (100 g), the DIRECTLINK ICP Module is light weight and easy to transport.
- Powered by the bedside patient monitor.

## Flexible

- Serves as an interface between the CODMAN MICROSENSOR ICP Transducer and the patient bedside monitor.
- Allows the CODMAN MICROSENSOR ICP Transducer to interface with a variety of patient monitors permitting movement of patients throughout the hospital.

# CODMAN MICROSENSOR® ICP Transducer

## Direct Pressure Monitoring at the Source

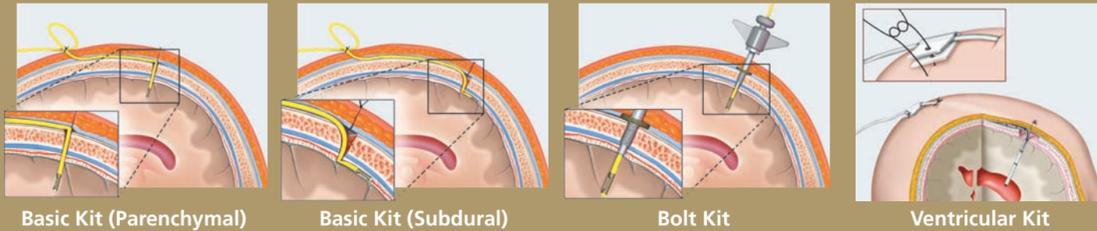
Multiple procedural kits are available, each offering direct monitoring at the source – subdural, parenchymal or intra-ventricular.

## Small, Flexible and Low-Profile

The small size and flexibility of the CODMAN MICROSENSOR ICP Transducer allows for low-profile tunneling under the scalp and kinking of the transducer without breakage or monitoring disturbance.

## Elimination of Maintenance Requirements Associated with Fluid Coupled Systems

The CODMAN MICROSENSOR ICP Transducer eliminates the need for constant alignment of the transducer to the patient's head and periodic re-zeroing. False readings associated with obstructions, air bubbles or movement of the patient fluid lines are no longer a concern.



Basic Kit (Parenchymal)

Basic Kit (Subdural)

Bolt Kit

Ventricular Kit

## MRI Conditional

- The CODMAN MICROSENSOR ICP Transducer is MRI conditional and may be imaged in the MR environment when used in accordance with the manufacturer's instructions for use.<sup>1</sup>
- Critically ill neurosurgical patients may benefit from the additional information gained for planning therapy and predicting outcomes.<sup>2</sup>

## Cost-Effective

- Long-term accuracy and stability eliminates the need for sensor replacement due to drift.
- Without fluid lines the time required in the maintenance and troubleshooting of a fluid system is eliminated.



## Accuracy

Studies have been performed on the CODMAN MICROSENSOR ICP Transducer<sup>3,4,5</sup>, demonstrating a high degree of accuracy in subdural, parenchymal and intra- ventricular ICP monitoring. The graphs in Figure 1 summarize the results from one of these studies<sup>5</sup> and demonstrate a high correlation between the CODMAN MICROSENSOR ICP Transducer subdural, parenchymal and ventricular pressure versus standard ventricular fluid pressure as measured with an external transducer.

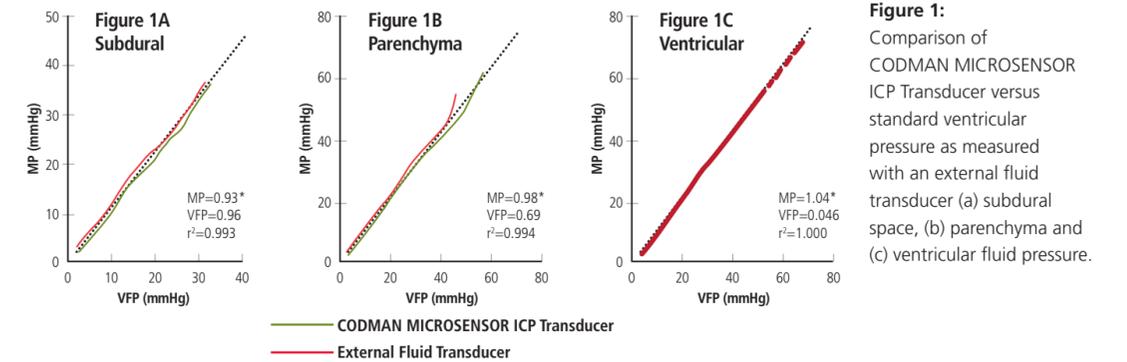
## Minimal Drift

The stability of the CODMAN MICROSENSOR ICP Transducer has been tested in a variety of studies<sup>3,4,5</sup>.

One study showed a mean drift of 0.9 mm Hg over an average 7.2 days of monitoring, with 25 percent of the sensors exhibiting no drift during the entire monitoring period<sup>3</sup>.

TIME (Days)	DRIFT (Mean)
7.2 ± .04	0.9 ± 0.2 mmHg

The **CODMAN MICROSENSOR ICP Transducer** consists of a miniature strain gauge pressure sensor mounted in a titanium case at the tip of a 100 cm flexible nylon tube. The CODMAN MICROSENSOR ICP Transducer monitors intracranial pressure directly at the source – subdural, parenchymal or intraventricular.



## References

1. CODMAN MICROSENSOR Instructions for Use, 2015.
2. Heidenreich JO, Stendel R, Brock M, Wolf KJ, Schilling AM. Evaluation of MR imaging compatibility of a new intracranial pressure monitoring device. AJNR Am J Neuroradiol. 2005;26(2):360-2.
3. Koskinen L, Olivecrona M: Clinical Experience with the Intraparenchymal Intracranial Pressure Monitoring Codman Microsensor System. Neurosurgery 56: 693-698, 2005.
4. Gopinath S, Robertson C, Contant C, Narayan R, Grossman R: Clinical Evaluation of a Miniature Strain-Gauge Transducer for Monitoring Intracranial Pressure. Neurosurgery 36: 1137-1141, 1995.
5. Marmarou A, Tsuji O, Dunbar J: Codman White Paper. 1994.
6. Data on file.