Servo-Technique
Sensors

EMG Automation GmbH
Industriestraße 1
57482 Wenden / Germany
Phone: +49 (0) 27 62 / 6 12-0
Telefax: +49 (0) 27 62 / 6 12-3 84
Internet: www.emg-automation.com
E-Mail: servo@emg-automation.com
elexis Group

IMR-CP
Sensing of the centre position

Data Sheet

Function:	Sensing of the centre position of strip and metal foil in wet areas
Mechanical design:	Coils encapsulated in sheathing tubes
Connection:	Cable plug at sensor, terminal strip at the evaluation electronics
Weight:	Between 11 and 18kg per coil, depending on coil size

Application

The IMR inductive sensing system has been developed for strip centre sensing systems in the wet area of strip pickling lines and in other aggressive environments.

The IMR inductive sensing system is

- maintenance-free
- suitable for use in the presence of acid fumes and liquids.

View

The centre sensing accuracy is ± 5 mm.

Strip position sensing is based on the inductive sensing principle which EMG has applied for many years and which uses the electrical conductibility of the material surfaces subject to sensing. For this reason, the measurement is not affected by electrostatic interference in the surrounding area. In addition, the following variables have **no** effect on the measuring result:

- water steam and metallic vapour
- dust accumulation
- metallic particles such as scale or steel dust
- operator's approach to the sensing device.

Structure

Differently from the compact inductive BMI2-CP measuring frame with integral coils, the IMR system comprises four individual coils which are inserted in sheathing tubes above and below the strip. Two coils in tubes act as the transmitting coils and the other two units are the receiving coils. The coils must be installed in such a way that each transmitter is in a position opposite to the corresponding receiver, the active sensing surfaces are directed towards the strip and the sensor measuring ranges “M” of the coils are symmetrical to the axis of the line. The smallest and largest strip widths must not exceed the sensor measuring ranges “M”.

The IMR coils are encapsulated and surrounded by a stainless steel tube which is open towards the strip. For positioning the coils within the sheathing tubes, the coils are provided with a handle on the end to which a connector plug is fitted. The handle has a hole ∅20 mm for accommodating a positioning pin. The 'X' dimension of the drill hole in the handle should be specified in the order.

The cables supplied with the sensing system are provided at one end with a connector plug. Various cable lengths are available for different sensor measuring ranges. In order to line up electrically the two emitter coils and the two receiver coils must be equipped with cables of the same length (do not shorten cables!). The cables may be passed to the opposite side of the line using the free tube segment on the coil lower side.

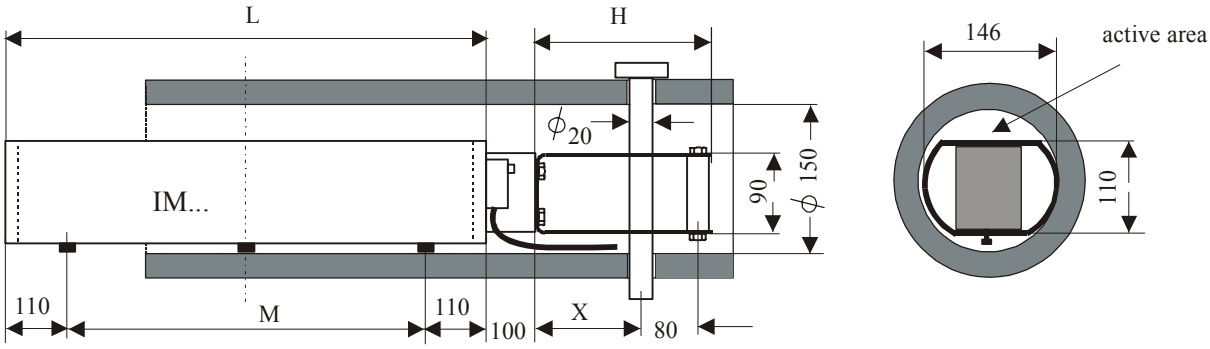
The sheathing tubes should be made from fluid-resistant non-metallic material. In practice, tubes made from PTFE or ceramics with an inside diameter of 150 mm have proved to be suitable. In order to prevent - extraneous interference with the sensing system by metallic deflectors or other metallic components, the tubes should be located a minimum distance of 275 mm from the centre line of the sensing system.
Typical strip widths in strip processing lines require four different types of coils. This sensing system is suitable for use on all types of metallic strip and foil.

Technical data

Type	IM 300.002	IM 500.002	IM 800.002	IM 140/740.002 *
Sensor measuring range:	300 mm	500 mm	800 mm	250...700 mm
Min. strip width:	350 mm	350 mm	350 mm	-
	IM 300.002	**IM 500.002**	**IM 800.002**	**IM 140/740.002 ***
Perm. change in width:	550 mm	950 mm	1550 mm	-
Space between active sensing surfaces:	300 mm (corresponds to a centre distance of the sheathing tubes of approx. 404mm)			
Coil temperature:	- 10 ... + 80 °C (lead air flow >+ 80 °C through the sheath tubes)			
Type of protection:	IP 65			
Cable length:	3....15 m	3....15 m	3....15 m	3....15 m

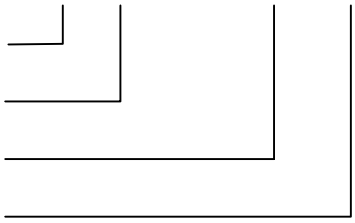
* instead of four individual coils one compact unit in each sheathing tube

Positioning in a sheathing tube with the help of the positioning pin



Type code

IMR 800.002 / 400 / 4,0 m



Inductive strip centre sensing system installed in a tube

Measuring range mm

Handle length H mm = "**X**"

Cable length m

When ordering, please specify dimension **X**!

The BMI 04.10 evaluation electronics are accommodated in an aluminium housing. Because of the limited cable length of the sensors, it must be installed in the immediate vicinity of the sensing position. The maximum permissible ambient temperature of + 50 °C for the electronics must be observed. If necessary, the sensing system must be installed in a cooled housing.

BMI 04.10 evaluation electronics

Power supply	110/230 V; 50/60 Hz
Power consumption:	60 VA
Data exchange:	CANOpen
Sensing accuracy:	± 5 mm if the measuring system is symmetrically arranged
Reproducibility:	< ± 0,5 mm
Ambient temperature:	50 °C