This magnetic, non-consumable, sensor is located into the lance extension tube (front pipe), protected by the carton tube of the probe itself, when dipping.

With an accuracy of ±2 cm, the measuring head of the probe will be dipped always at the same depth below the pure steel surface, where the slag effect gives no interference to the measuring probe.

As soon as the liquid steel surface will be reached, independently from slag thickness and steel level, a signal will be sent through an amplifier to the lance motor drive, and the lance stroke will stop.

Recommended wherever an automatic dipping system is used, it will automatically allow the measuring probe to get reliable, repetitive and accurate measurements in molten steel.

Can also help to determine bath level value and/or slag thickness.
OPERATING INSTRUCTIONS
for
BATH LEVEL DETECTION UNIT FOR AUTOMATIC MEASURING SYSTEM

See the drawing N. 2 for the following connections to the equipment terminal board:

- Level sensor to terminal ‘+/- Probe’
- Power supply to terminals ‘220V’ or ‘110V’ (accordingly to supplied voltage) by means of an external circuit breaker (optional)
- Earth to terminal ‘ground’
- RESET contact, coming from measuring equipment, to terminals ‘RV’
- Contacts on terminal ‘C’ (common), NO (normally open), NC (normally closed) to control device for lance STOP at fixed sensor’s depth into liquid steel bath.

For the optimum system sensitivity proceed with the following instructions (see dwg. No.1):

A. Apply power to the equipment and check the green lamp (3) that must be on.
B. Set the dip-switches(5) for a proper combination suitable to obtain the highest indication value on meter scale (1).
C. For a good practice is enough to reach a value higher than mid scale (if possible).
D. Proceed with a practical test surrounding the terminal part of the measuring sensor holder lance with an heavy ring of steel. When the ring will reach the sensor position (black portion) the indication of meter (1) will drop down toward low end of scale.

Example: starting with the maximum reading on the indicator of ‘6’ a possible value with steel ring around the sensor could drop to ‘2 or 3’.

E. Set the dial of potentiometer (2) at the operating value always lower than the maximum reading of indication meter (1) and higher than value indicated with the steel ring applied around the sensor. Following the example given previously, the proper potentiometer setting on his dial should be approximately “4.5”.
F. RESET the equipment pushing the red button (4). The lamp will switch OFF confirming all circuits are ready to operate.
G. Repeat the practical test suggested and check that when the ring reaches the sensor (black portion) the lamp of red button is ON and the NO-NC contact is activated.

Note:
Every time the NO-NC contact is actuated (red light ‘ON’) it remains in this latched position till the red RESET button is pushed or one contact at terminals marked RV is closed.

H. After the set-up above mentioned proceed in measuring as follows:

- RESET the equipment (see the above note)
- Engage the measuring sensor on the lance
- Lower the lance to reach the steel bath
- Check if during the immersion the indication of analog meter moves toward low end of scale, actuating NO-NC contact (red lamp to ‘ON’)

I. If the above operations are OK proceed to connect the NO-NC contact to the lance driving device, in order to stop it when the steel level is reached by the level sensor. Usually, for auto reset, the terminals RV are connected to the measuring equipment.

NOTE!

Every time the terminal part of the lance, which includes the level sensor, is substituted, it is mandatory to repeat the optimization procedure described above.