

# NIVELCO CASE STUDIES

## SETTING THE RANGE OF CAPACITIVE TRANSMITTERS WITHOUT CHANGING THE LEVEL OF THE MEASURED MEDIUM

Among the level transmitters using different measuring principles only the capacitive is the one that requires a level change when setting the range for 4..20mA output which can be a difficult task in many cases.

This is required because the instrument has to "learn" the capacitance values belonging to the lower and upper levels.

The usual way to accomplish this is setting the 4mA at (almost) empty tank and setting the 20mA at maximum filled tank.

Nivelco's Nivocap CT/CB-200 transmitters with microprocessor controlled signal processing unit allows setting this two parameters irrespectively of each other.

Another way of setting the range is by calculating the capacitance values from a measurement with partially filled tank.

The above brought the idea how can the range setting be simplified if there are more than one tanks with the same dimensions.



The task was to measure the level of two similar tanks with 19m height containing nitric acid at a plant of NITROKÉMIA zRt at Pétfürdő (Hungary).

Only before the field installation of the transmitters it turned out that the filling and emptying of these very high capacity tanks is a very long process. To shorten the time of this procedure that was estimated to take a couple of days the personnel selected a day when the two tanks had different levels close to the lower and upper limit levels (25% and 73%).

As the two tanks had the same dimensions and medium inside it was possible to set the range of the two instruments in this way:

- Setting the 4mA (with indirect programming) of instrument number 1 in tank "A" partially filled to 25%.
- Setting the 20mA (with indirect programming) of instrument number 1 in tank "B" partially filled to 73%.
- the same procedure with instrument number 2.



### Instruments used:

- 2pcs NIVOCAP CBK-219-2 capacitive level transmitter
- 1pc NIPOWER PPK-331 power supply
- 2pcs UNICONT PMM-313 controller

This way the installation and programming procedure took only a day.