

# Cyber-Physical Industrial Systems

## MODULE 1 SESSION 2

### CHOOSE OR DESIGN THE SENSORS AND/OR THE TRANSDUCERS FOR MEASURING OR FOR DATA COLLECTION

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#### *LECTURER NOTES*

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Based on the system's diagram, the list of quantities to be measured and data sets to be acquired, ask the students to identify commercially available transducers for each quantity and for each data set.

When searching for transducers, recommend some global databases like:

- <https://www.globalspec.com/>
- <https://www.tme.eu/>

Recommend the students to use searching criteria like “force transducer”, “flow transducers” etc.

Recommend the students to apply at least the following selection criteria:

- measurement intervals (the students will have to estimate the values interval of the physical quantity to be measured and choose a transducer which is covering this one but is keeping as close as possible to it);
- precision, accuracy;
- output type (if there will be more transducers in a setup, it is advisable to have more common output types);
- cost;
- availability, delivery time.

Ask the students to check if the chosen transducers need to be powered and, if yes, ask them to choose the necessary power supplies.

When using the same power supply for more transducers, ask the students to check the total needed current against the power supply's capacity.

**Of course, only a small part of the transducers which students will choose will be available in the lab.**

**Explain to the students that, initially, they will have to build a proof of concept, using the existing transducers.**

Provide the students with the datasheets of the available transducers and ask them to evaluate their performance and compare it with the performance of the chosen ones.