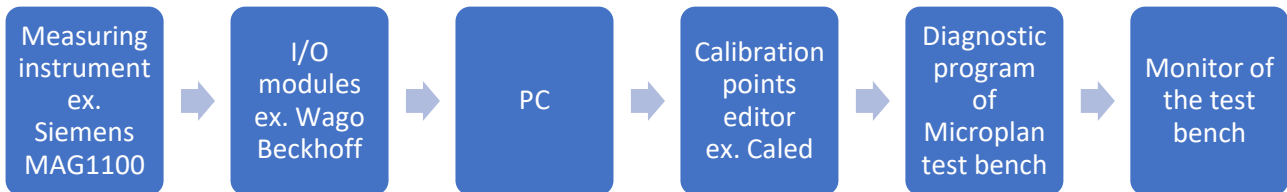




Sensors – transducers troubleshooting

The following diagram shows the typical process of acquisition of the output signal of a measuring instrument fitted into a Microplan test bench.



Whenever you find a malfunction of a sensor (transducer) the following troubleshooting might help.

Possible reason	Possible solution
Transducer problem	

- The diagnostic program allows users to check the analog signal input “Electric” against the corresponding value “Real”. Most used transducers give a 4-20 mA output signal; in this case – with no flow, no pressure etc. - you should get a value around 4 mA under the "Electric" menu and a value around zero under the "Real" menu. Use the drop-down menu - yellow circled in the above image – to switch from Electric to Real menu. In case the instrument doesn't return the 4 mA value – with no flow, no pressure etc. - then check its **electrical supply** (with a multimeter) and the associated **electronic channel** (read “I/O modules problem” here after).
- (When applicable) cross check the value shown by the diagnostic program of the test bench against the value shown by the display of the transducer (if available). They should provide similar values.
- (When authorized by Microplan staff) wire the transducer into different available channels of the I/O modules, enter the appropriate theoretical



Possible reason	Possible solution
	values into the calibration points editor and check the values displayed for that transducer in the diagnostic program.
Transducer settings	<ul style="list-style-type: none"> • Check that correct (coherent) values have been entered into calibration editor of the test bench (usually Caled). Read more. • Some transducers need to be set prior to their use. These settings can be executed with a keypad onboard the instrument or with external devices. In both cases check that values such end scale, cut-off, unit of measurement are correctly programmed.
Gas counter problem	<ul style="list-style-type: none"> • Read Gas counter troubleshooting • Read Can the gas meter – counter be damaged by overpressurization?
Temperature sensor problem (PT100, TC)	<ul style="list-style-type: none"> • Use the diagnostic program of the test bench and check the value returned by the system for that temperature sensor. When a temperature probe loses its insulation it usually gives a very high value. • (When possible) Cross check the measurement of the fault temperature probe with the one of another probe along the same circuit. • Remove the temperature sensor from its seat and keep it in your hand, the temperature should increase, check the value on the diagnostic program. • (When authorized by Microplan staff) wire the temperature sensor into a different available channel of the I/O modules, enter the appropriate theoretical values into the calibration points editor (read more) and check the values displayed for that transducer in the diagnostic program.
Transducers not powered	<ul style="list-style-type: none"> • Check if any thermal switch or fuse is down/broken inside the electric cabinet. • Inspect wirings • (When applicable) ensure electrical connector is inserted/plugged properly.
I/O modules problem	<ul style="list-style-type: none"> • Check the status of the led on the I/O electronic modules inside the electric cabinet • Read Wago and Beckhoff electronic modules troubleshooting • Read Compact Field Point electronic I/O modules troubleshooting • Read Beckhoff bus coupler (BK9050) troubleshooting • Read cDAQ electronic modules troubleshooting
Transducer segregated from the process	<ul style="list-style-type: none"> • Ensure suitable manual valves are open
Test bench in emergency mode	<ul style="list-style-type: none"> • Ensure safety conditions and reset the test bench