



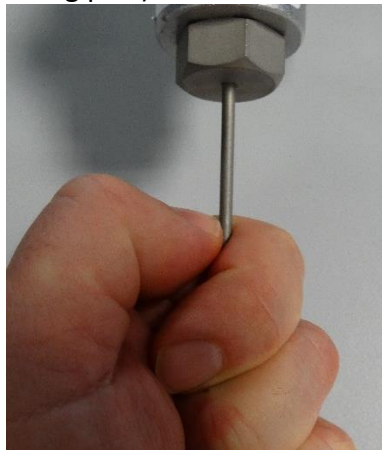
Temperature probes troubleshooting

The most common problem with temperature probes is that the wire, that is used for the sensor, will break and cause an open circuit. If the original resistance reading of the temperature probe is **infinity ∞**, it indicates the temperature probe is open and it must be replaced. It's also possible for the temperature probe to become shorted, which would cause the resistance **reading to be near zero and it would not change as the temperature changes**. Let's follow the following steps to troubleshoot problems with temperature probes:

- 1) Open diagnostic program of the test bench and check value of the desired temperature probe against another within the same circuit of the test bench (ex. central heating). They should give similar measurements (yellow rectangle in our example). If value shown is very big, like 999, or zero, the temperature probe is very likely to be broken.

Analog input Values		Analog input Chart		AI configuration		Damp. 1		Real	
CO (ppm)	AAW1 (W)	CHRT2 (degC)	AAW (W)	CWS (kg)					
0,00	0,05	20,50	0,03	0,00					
CO2 (%)	AAW2 (W)	HEOT (degC)	QC (KW)	PCWS (kg)					
0,00	0,07	20,72	0,00	0,00					
NOX (ppm)	DPCH (mbar)	GCT (degC)	QR (KW)						
0,00	0,13	21,25	0,00						
NO (ppm)	GSP (mbar)	CPT (degC)	CHUP (KW)						
0,00	-0,01	22,26	-0,00						
NO2 (ppm)	GCP (mbar)	AT (degC)	CHUE (%)						
0,00	3,49	21,49	-Inf						
AIS (mA)	AI14 (mA)	QGAS (smc/h)	QCND (Kg/h)						
0,00	0,00	0,00	0,00						
BARO (mbar)	AI15 (mA)	CHFR (l/min)	EC (KW)						
998,78	0,00	-0,00	0,00						
HYGRO (%)	CHFT1 (degC)	CHFT (degC)	FUE (%)						
0,00	20,03	20,02	0,00						
CHFR1 (l/min)	CHFT2 (degC)	CHRT (degC)	FUE2 (%)						
-0,00	20,00	20,42	0,00						

- 2) Use a key to unscrew, then lift to remove temperature probe from its seat. Keep the sensing element (the metal terminating part) in one hand to let it warm. Check temperature shown on the diagnostic program: it should increase from ambient temperature to the one of the human body.



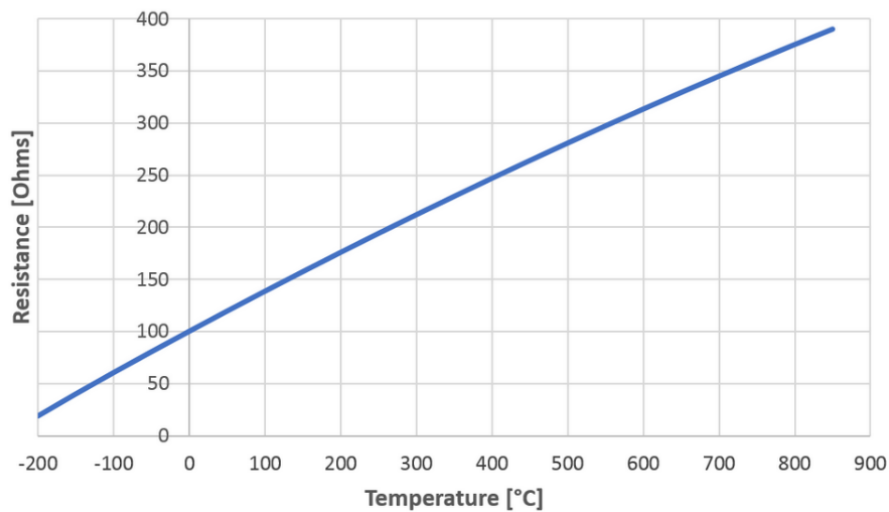
the diagnostic program: it should increase from ambient temperature to the one of the human body.



- 3) Use an ohm-meter to measure electric resistance of the temperature sensor (measure across white and red wires): at ambient temperature PT100 should give a value around 110 ohm (see following pictures and chart):

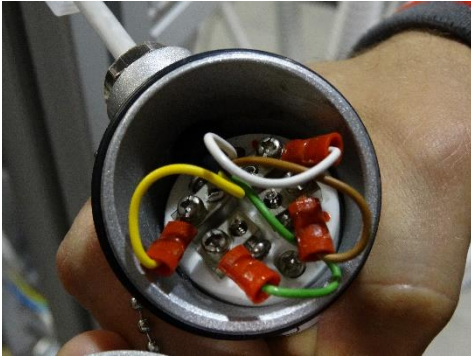


Resistance vs. Temperature - Pt100 (385)

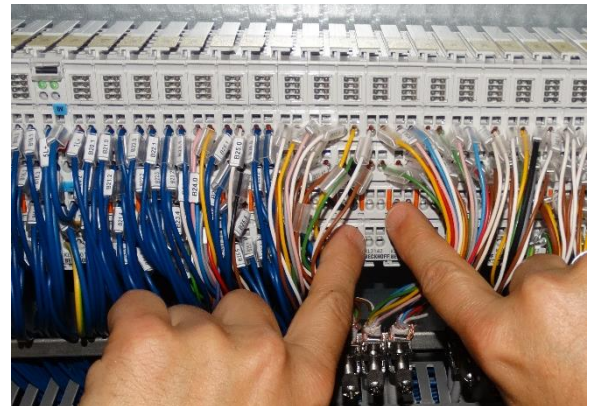




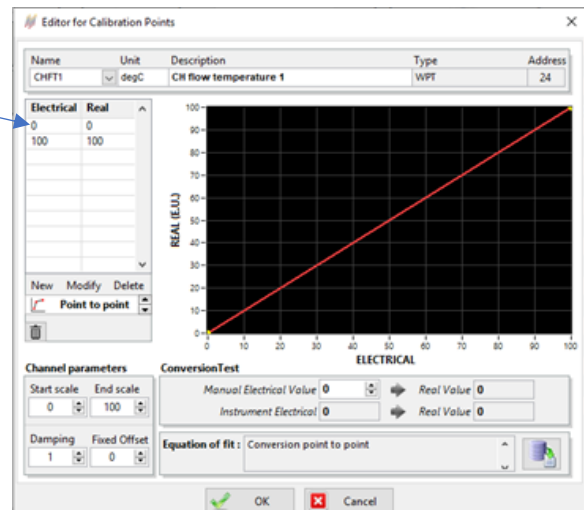
In case of temperature probes with “head” unscrew the top metal part to access the internal wirings. Remove the 4 screws to loose wirings, then measure across red and white connections on both sides: at ambient temperature PT100 should give a value around 110 ohm.



- 4) (Only if authorized by Microplan staff):
- a) Wire the temperature sensor into different channels of suitable available I/O modules



- b) Enter theoretical points into the calibration editor ([read more](#))





- c) Check the value shown on the diagnostic program of the test bench: if the fault temperature probe is still fault then the problem is with the temperature probe. If not, you have to investigate the I/O modules, according to the electronic used:
- Read [Compact Field Point electronic I/O modules troubleshooting](#)
 - Read [Beckhoff bus coupler \(BK9050\) troubleshooting](#)
 - Read [Wago and Beckhoff electronic modules troubleshooting](#)
 - Read [cDAQ electronic modules troubleshooting](#)
- 5) **(Only if authorized by Microplan staff)** If no electronic acquisition channels are available as spare (see point 4.) , to discriminate if problem is within the temperature probe, or within the I/O modules, wire the fault temperature probe in the electronic I/O channels of a good temperature probe, having the same features, and wire the good temperature probe in the electronic I/O channels of the fault temperature probe. Afterwards follow same procedure as point 4) c) here above.
- 6) A calibration might be needed ([read more](#)), according to each companies' internal quality procedures, in case a temperature probe is replaced.