



- Water temperature sensor for AFT high-power devices
- Glass-encapsulated NTC thermistor
- Low response time
- Robust design
- Hexagonal stainless steel body with mounting thread M8x0.5

Technical Data of Temperature Sensor

Parameter	Value	Unit	Remark
Type of sensor	glass-encapsulated NTC thermistor	-	-
Nominal resistance	10k	Ω	at 25°C
Tolerance of resistance	±1	%	at 25°C
Thermal time constant	4 (approx.)	s	in air
Max. voltage	100	VDC	at 25°C
Max. power	18	mW	at 25°C
Water temperature range	+10 to +90	°C	
Connection thread	M8 x 0.5, 6 deep	mm	
Wrench size	14	mm	
Gasket	1 pc. rubber o-ring included	-	

Ordering Code

P/N	Description	Value Options	Quantity
TSWIN01	Temperature Sensor Water Inlet - Yellow	Yellow wires	1 pc.
TSWOUT02	Temperature Sensor Water Outlet - Red	Red wires	1 pc.

Rev.	Remark	Date	Name
00	Initial	13.12.2016	C. Weil
01	Appendix: Instructions for sensor replacement	23.01.2018	C. Weil

Appendix

Instructions for Replacement of Temperature Sensors

This document describes instructions for the replacement of NTC temperature sensors installed in AFT water-cooled high-power circulators.

1. Uninstall old sensors

- Drain all the water from the circulator cooling system.
- Refer to the footprint drawing of the circulator device to identify the location of the water manifolds (connectors) for water inlet and outlet.
- The sensor body is of hexagonal shape and it is threaded into the manifold. Use a wrench of size 14mm to unmount the old sensors from the manifolds.
- Each sensor is sealed by a rubber gasket. Remove the gasket and clean connecting threads and faces in the manifold from remnants if required.
- Disconnect the sensor wires from the terminal strip at the TCU connector box. Bear in mind the pin assignment for inlet sensor (yellow) and outlet sensor (red) wires.
- Remove the wiring from the cable clamps and pull out the wires from the circulator assembly.

2. Install new sensors



Note:

The temperature sensor head has a fragile glass cover protruding from the front face. Protect it from contact with any hard material.

- Remove the protective cap from the new sensor. Check that the o-ring rubber gasket is in place. Carefully insert and screw the sensor into the threaded hole of the water manifold without hitting the glass head. Fasten the new sensor with a 14mm wrench. This procedure refers to water inlet and outlet sensor, respectively.
- Lay the wires inside the circulator by using the preinstalled cable clamps.
- Connect the sensor wires to the terminal strip at the TCU connector box according to the given pin assignment.

3. Water leak test

- Supply water to the circulator cooling circuit according to the specified conditions. Test the sensors for water leakage by visual inspection. If leakage is observed, check for proper tightening of the sensors and check the o-ring gaskets.

4. Verification of Sensors

- Connect the circulator to the corresponding TCU by using the sensor and coil cable supplied with the TCU.
- Switch on the TCU and verify the displayed values for water inlet and water outlet temperature. In case of abnormal values please check proper connections or call AFT for troubleshooting.