



# PRODUCT INFORMATION

## Outside Ambient Temperature Sensor

- EMC stable and robust design
- Fast response times

### PRODUCT FEATURES

#### Application

Air temperature sensors are used for various functions and applications inside the vehicle. This sensor variant is used to determine the outside temperature.

Typical applications of the outside temperature sensors are

- Show outside temperature to the driver on the infotainment system (e.g. ice warning)
- Use temperature information as a control variable for other systems inside the vehicle

The installation space is typically located in the front bumper. The design of a fixture for the sensor is responsibility of the customer

#### Design and function

The basic design of this sensor variant consists of an NTC resistor. NTC resistors have a negative temperature coefficient and increase their conductivity as temperatures rise.

The basic wiring diagram consists of the sensor and a series-connected constant resistor. By means of the voltage drop on the resistor or on the sensor, it is possible to apply the voltage divider law to calculate the resistance of the NTC temperature sensor. The resistance curve can be used to match the temperature to the resistance of the NTC sensor.

The variant (Part no.: 6PT 009 522-011) was designed as an outdoor temperature sensor and is splash-proof. The use of a parallel resistor linearises the temperature characteristic curve. A parallel capacitor improves the electromagnetic compatibility of this variant.

# TECHNICAL DETAILS

Technical data	
Rated voltage	5 V
Temperature measurement range	-40 °C to +65 °C
Time constant	< 35 s (DIN EN 60539)
Capacitor	$C_n = 100 \text{ nF}$ $C_{tol} = -20 \% \text{ till } +50 \%$ $R_{IS} \geq 10 \text{ m}\Omega$ $U_N = 63 \text{ V}$ $U_{Neff} = 40 \text{ V}$
Resistor	$R_s = 10800 \Omega \pm 0,25 \%$
NTC	$R_a (25 \text{ }^\circ\text{C}) = 3012 \Omega \pm 3,5 \%$ $B_{25/85} = 3975 \text{ K} \pm 0,5 \%$
Storage temperature	-40 °C to +120 °C
Protection class	IP 67
Corrosion tested in accordance with	ASTM 13117, 96 h
Housing material	PA6 GF30
Contact pin	CuSn6, gold plated
Mating connector <sup>1)</sup>	2-1437712-5
Weight	6 g

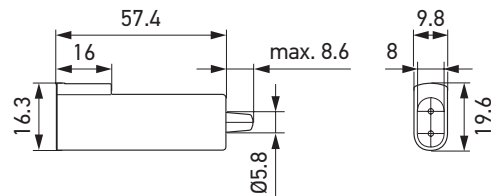
<sup>1)</sup> These accessories are not included in the scope of delivery.  
Available from TE Connectivity.

Characteristic resistance values	
Temperature	Impedance
-40 °C	9795 $\Omega$
-30 °C	9022 $\Omega$
-20 °C	7931 $\Omega$
-10 °C	6594 $\Omega$
0 °C	5179 $\Omega$
+5 °C	4499 $\Omega$
+10 °C	3838 $\Omega$
+20 °C	2792 $\Omega$
+30 °C	1978 $\Omega$
+40 °C	1392 $\Omega$
+350 °C	981 $\Omega$
+60 °C	696,4 $\Omega$

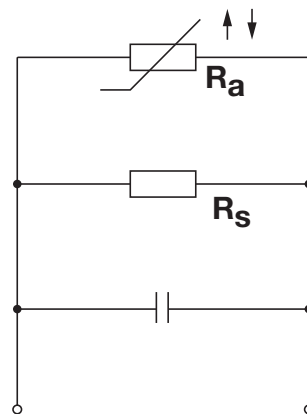
# PROGRAM OVERVIEW

Product picture	Areas of application	Housing	Part number	Packaging unit
	Outside air temperature	Yes	009522011	1

## Technical drawing



## Circuit Diagram



## Schematic sensor design

