EKS / AKS, Temperature sensors

AKS temperature sensors are used for exacting applications within air-conditioning as well as commercial and industrial refrigeration applications.
The Pt 1000 sensor element meets the DIN/EN 60751 class B requirements and ensures an accurate and reliable temperature signal applicable for regulation, safety and data logging.

EKS temperature sensors are a family of cost efficient temperature sensors based on thermistors with NTC or PTC characteristics which are used with Danfoss EKC controllers.

Features
EKS / AKS

EN441 certified
AK-HS 1000
HACCP sensors

AKS21 sensor system for controlling extreme high and low temperatures

AKS 11 temperature sensor for reliable super heat control to optimize accuracy and process efficiency

Facts

Benefits:

- AKS 11 is designed for easy installation and optimized for demanding control functions like liquid injection control in evaporators where a reliable sensor is a must
- AKS 12 is the all-round cable temperature sensor to be used for plain temperature monitoring and control purposes

- AKS 21 is the ultimate sensor for -70 – 180 °C anywhere in the refrigeration plant and is available in various designs (cable and B-head) and with various accessories like sensor pockets
- AK-HS 1000 is the first choice for a temperature sensor for monitoring and HACCP data logging. The sensor design makes it simulate a refrigerated product what enable a realistic temperature signal is transmitted to a HACCP data logger

- EKS comes with PTC 1000 Ω (EKS 111), NTC 5000 Ω (EKS 211), or NTC 1000 Ω (EKS 221) with various cable lengths

Technical data and ordering

AK-HS - For monitoring and data logging in HACCP systems
Temperature sensors
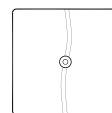
Type	Signal	Temperature range (°C)	Measuring accuracy	Enclosure	Cable length (m)	Code no.
AK-HS 1000	Pt 1000	-30 – 50	EN 60751 Class B	IP 54	5.5	084N1007

EKS - For measuring air temperatures
Temperature sensors
PTC characteristics matches controllers types EKC 101, EKC 201, EKC 301, CC and AK.
NTC characteristics matches controllers, types EKC and CC.

Type	Signal	Temperature range (°C)	Sensor tube	Electrical connection	Cable length (m)	Code no.
EKS 111	PTC 1000	-55 – 100	Round	Cable with pins	1.5	084N1178
	PTC 1000	-55 – 100	Round	Cable with pins	3.5	084N1179
	PTC 1000	-55 – 150	Round	Cable with pins	8.5	084N1168
EKS 211	NTC 5000	-40 – 80	Round	Cable	3.5	084N1221

## EKS - For measuring temperatures
Temperature sensors
The sensor characteristics matches to OPTYMA room controllers and MCX unit controllers.

Type	Signal	Temperature range (°C)	Sensor tube	Electrical connection	Cable length (m)	Code no.
EKS 221	NTC 10000	-50 – 120	Round	Cable	3.5	084N3210

AKS - For measuring temperature
Temperature sensors
Recommended for accurate temperature measurement in superheating, food safety logs and other important applications
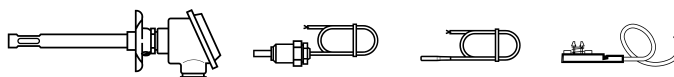
Type	Signal	Measure range [°C]	Sensor tube	Electrical connection	Cable length [m]	Code no.
AKS 12	Pt 1000	-40 – 80	Round	AMP plug	3.5	084N0039
	Pt 1000	-50 – 100	Concave	Cable	1.5	084N0036
AKS 11	Pt 1000	-50 – 100	Concave	Cable	8.5	084N0008
AKS 21A	Pt 1000	-70 – 180	Round	Cable	3.5	084N2007
AKS 21W	Pt 1000	-70 – 180	Sensor pipe	Cable	2.5	084N2017

Technical data and ordering

PT 1000 resistance
AKS 11, AKS 12, AKS 21

°C	ohm	°C	ohm
0	1000.0		1000.0
1	1003.9	-1	996.1
2	1007.8	-2	992.2
3	1011.7	-3	988.3
4	1015.6	-4	984.4
5	1019.5	-5	980.4
6	1023.4	-6	976.5
7	1027.3	-7	972.6
8	1031.2	-8	968.7
9	1035.1	-9	964.8
10	1039.0	-10	960.9
11	1042.9	-11	956.9
12	1046.8	-12	953.0
13	1050.7	-13	949.1
14	1054.6	-14	945.2
15	1058.5	-15	941.2
16	1062.4	-16	937.3
17	1066.3	-17	933.4
18	1070.2	-18	929.5
19	1074.0	-19	925.5
20	1077.9	-20	921.6
21	1081.8	-21	917.7
22	1085.7	-22	913.7
23	1089.6	-23	909.8
24	1093.5	-24	905.9
25	1097.3	-25	901.9
26	1101.2	-26	898.0
27	1105.1	-27	894.0
28	1109.0	-28	890.1
29	1112.8	-29	886.2
30	1116.7	-30	882.2
31	1120.6	-31	878.3
32	1124.5	-32	874.3
33	1128.3	-33	870.4
34	1132.2	-34	866.4
35	1136.1	-35	862.5
36	1139.9	-36	858.5
37	1143.8	-37	854.6
38	1147.7	-38	850.6
39	1151.5	-39	846.7
40	1155.4	-40	842.7
41	1159.3	-41	838.8
42	1163.1	-42	835.0
43	1167.0	-43	830.8
44	1170.8	-44	826.9
45	1174.7	-45	822.9
46	1178.5	-46	818.9
47	1182.4	-47	815.0
48	1186.3	-48	811.0
49	1190.1	-49	807.0
50	1194.0	-50	803.1

approx. 3.9 ohm/K

The tolerance of a Pt 1000 sensor is less than ±(0.3 + 0.005 T).

This translates into a temperature error of less than 0.5 degree for refrigeration control.