Monitoring of motor temperature

Translation of the "Original Dokumentation"

Name: FKT_Ueberwachung_Temperatur_Motor_en

Version:

Version: 2019/45	
Change	**Letter symbol**
• Controller card KW-R27 added	STL

Previous version: 2018/44

Product version:

Product (AMK part no.)	Firmware Version (AMK part no.)
KW-R06 (O835) KW-R07 (O807) KW-R16 (O872) KW-R17 (O873)	AE-R05/R06 V1.10 2013/15 (204486)
KW-R24 (O901)	AE-R24 V2.03 2015/06 (205587)
KW-R24-R (O954)	AE-R24-R V2.11 2016/46 (206643)
KW-R25 (O902)	AE-R25 V2.03 2015/06 (205588)
KW-R26 (O903)	AE-R26 V2.03 2015/06 (205589)
KW-R27 (O957)	AE-R26 V2.12 2018/40 (207284)
iX / iC / iDT5 /	iX V1.03 2013/18 (204515)
iX(-R3) / iC(-R3) / iDT5(-R3) /	iX V2.08 2015/46 (206017)
ihXT	ihX V1.00 2015/06 (205440)

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1 Monitoring of motor temperature

Supported hardware:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / KW-R24 / KW-R24-R / KW-R25 / KW-R26 / KW-R27 / iX / iC / iDT5 / iX(-R3) / iC(-R3) / iDT5(-R3) / ihXT /

The temperature sensor of the motor is connected via one of the following connections:

- X12: KW-R06 / KW-R16 / KW-R07 / KW-R17 / KW-R24 / KW-R24-R / KW-R25 / KW-R26 / KW-R27 /
- X06: iX / iC / iX(-R3) / iC(-R3) /
- Temperature sensor connected internal: iDT5 / iDT5(-R3) / ihXT /

The controller monitors the motor temperature.

2 Relevant parameters

Parameter	Name	Meaning See document 'Parameter description' (AMK part no. 203704)
ID33117 3)	'Temperature external'	Display of sensor temperature
ID34166 1)	'Temperature sensor motor'	Type of connected temperature sensor
ID34203 1)	'Voltage at 25 degrees'	Support points which form the characteristic curve of the temperature sensor.
ID34204 1)	'Voltage at 75 degrees'	
ID34205 1)	'Voltage at 125 degrees'	

1) The parameter value must be set specific to the application

3) Parameter value is automatically generated by the controller card

3 Startup instructions

ID34166 'Temperature sensor motor'

Input format

T T T A X

|	|	|	
|	|	Sensor type:	
|	|	0:	without
|	|	1:	THW [1] temperature sensor (bimetal switch)
|	|	2:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / Reserved iX(-R3) / iC(-R3) / iDT5(-R3) / ihXT / KW-R24 / KW-R24-R / KW-R25 / KW-R26 / KW-R27 / No sensor (monitoring inactive)
|	|	3:	PTC [1]
|	|	4:	KTY 83 [2]
|	|	5:	KTY 84 with 825 ohm series resistor [2]
|	|	6:	KTY 84 [2]
|	|	7:	KW-R06 / KW-R16 / KW-R07 / KW-R17 / iX / iC / iDT5 / Reserved iX(-R3) / iC(-R3) / iDT5(-R3) / ihXT / KW-R24 / KW-R24-R / KW-R25 / KW-R26 / KW-R27 / PT1000 [2]
|	|	8:	Reserved
|	|	9:	User-defined [2]
|	Number of sensors 0..9		
Switch-off temperature 0..654 °C			

1) Shutdown at approximately 140 °C (value dependent on PTC / THW type)
NTC type is not supported
2) Shutdown at a maximum of 140 °C or at the specified shutdown temperature (TTT)

Example:

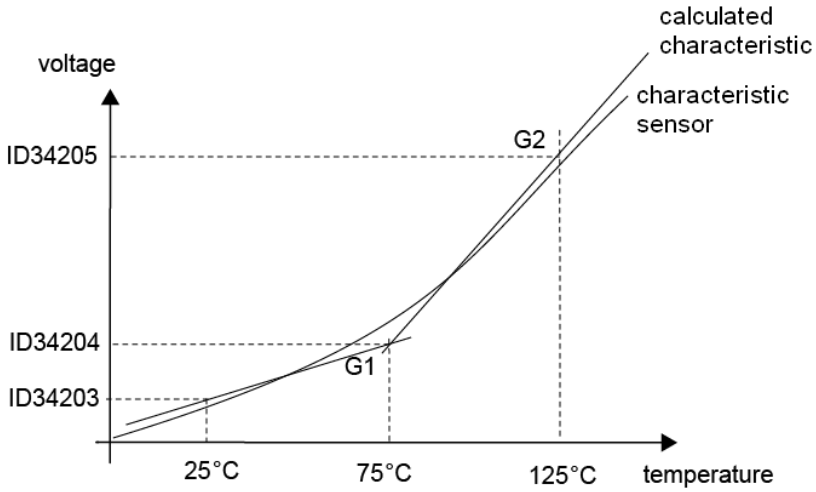
ID34166 = 150 5 4

|	|	L	Sensor type = KTY 83
|	L		5 Sensors
L			Cut-off temperature = 150 °C

ID34203 'Voltage at 25 degrees', ID34204 'Voltage at 75 degrees', ID34205 'Voltage at 125 degrees'

The temperature is determined using a characteristic curve. The characteristic curve is formed by 3 support points through which two lines are placed. The following values are stored in the firmware.

Type	Sensor	Voltage at 25 °C ID34203	Voltage at 75 °C ID34204	Voltage at 125 °C ID34205
4	KTY 83	1.250 V	1.781 V	2.421 V
5	KTY 84 with 825 ohm Series resistor	1.785 V	2.099 V	2.481 V
6	KTY 84	0.754 V	1.067 V	1.450 V
7	PT1000	1.371 V	1.613 V	1.849 V
9	User-defined	0.000 V	0.000 V	0.000 V


calculated
characteristic
characteristic
sensor
voltage
ID34205
G2
ID34204
G1
ID34203
25°C
75°C
125°C
temperature

4 Development

If the maximum of the permitted motor temperature is exceeded, a warning (Diagnostic message 2351 'Motor temperature warning') is generated. Past ID32943 'Warning time' 4 s, an error message (Diagnostic message 2347 'Motor temperature error') is set and the motor is decelerated.

- If the motor temperature decreases underneath the limit within the warning time, it will be stopped and reset. No error message will be generated but the warning will stay until it is cleared.
- If the motor temperature increases again, warning time starts once more. A new warning message will be set if the old one was cleared before.
- If the warning is cleared within the warning time although the temperature is still high, the message is repeated at once, the warning time is continued until the temperature is gone under the limit or the warning time is finished and the error message is set.
- After the error message is cleared, the warning time starts again as soon as new violation of limit appears, independent whether it is still present or it is a new one.