

How to communicate eWON with Danfoss System Manager SM via XML Interface

EDF File

Danfoss has for every device a well-known Device Support File EDF (ED3 for newer devices). These files can be downloaded from the Danfoss website.

<http://food-retail.danfoss.com/support-center/apps-and-software/ak-sm-800/#/>

The screenshot shows the Danfoss website interface for the AK-SM 800 v08.053 software. The page is structured as follows:

- Navigation:** Includes a search bar, a navigation menu with links like 'DANFOSS GROUP GLOBAL', 'DANFOSS.COM', 'ABOUT DANFOSS', 'MEDIA', 'CAREER', 'CONTACT', 'PROCUREMENT', and 'MY PRODUCT LIST (0)'. A red header bar contains the Danfoss logo and the slogan 'ENGINEERING TOMORROW'.
- Left Sidebar:** A vertical menu with categories: 'Education & Training', 'CoolApps', 'Software', and a list of software tools: 'ADAP-KOOL® Software', 'Coolselector*2', 'Hexact', 'Low-GWP Tool', 'CO₂ Calculation Tool', 'Pack Calculation', and 'KoolProg'.
- Main Content Area:**
 - AK-SM 800 v08.053:** A section describing the software version, its replacement of v08.047, and a list of new updates: 'Danfoss Coordinated Adaptive Defrost', 'Energy Measurement / load shed', 'Support for EMERSON® CoreSense™ modules', and 'Minor bug and enhancements'. A link for 'AK-SM800_V08_053.zip' is provided.
 - RMT (Remote Management Tool) StoreView Desktop (SVD):** A section providing instructions for downloading the latest RMT v4.13/SVD v1.18 software and listing links for 'RMT4.13_SVD1.18.zip', 'SVD1_19_07.zip', and 'VG08_053_Simulator_Install.zip'.
 - AK-SM 800 User Guide:** A section with a link to 'View the user guide (PDF)'.
 - Device Support Files (EDFs):** A section with a red arrow pointing to it, containing links for 'AK-SM_800_0853_EDF.zip (Nov 18, 2016)' and 'AK-SM_800_Interim_EDF.zip (Mar 06, 2017)'. This section is circled in red.
 - Previous SM800 Software:** A section with a link to 'AK-SM800_V08_047.zip'.
- Footer:** A red bar with 'ALL DANFOSS PRODUCTS' and categories: 'RESIDENTIAL', 'COMMERCIAL', 'INDUSTRIAL', 'BUSINESS PARTNER'. Below it are links for 'TERMS OF USE', 'PRIVACY POLICY', and 'GENERAL INFORMATION'. The bottom right corner has a 'Verknüpfung' link.

In this file you can find all informations about a device including a complete list of parameters which this device provide. Very important are CID and VID, Component ID and Value ID. The values of CID and VID for a specific parameter you can find also into the EDF file. With these two parameters it is possible to identify every parameter of a device explicit!

How to get the right EDF?

If you read out a System Manager AK-SM with the XML command "read_devices" you will get an answer like this:

```

<?xml version="1.0" encoding="UTF-8"?>
<resp error="0" action="read_devices" compress="0">
  <unit_name>Full store wall</unit_name>
  <software>G08.047</software>
  <device rack_id="1" indent="0" nodetype="255">
    <name>Pack 1</name>
    <type>PACK_ONLY</type>
    <num_suction>1</num_suction>
  </device>
  <device indent="0" nodetype="16" ctrl_val="16.0 °C" value="40.7 °C" point="0" mod="0" online="1" alarm="0" node="4" modelname="AK-PC781-041x" status="Volle Last">
    <name>Pack 1</name>
    <device_id>08020186_041x</device_id>
    <type>PACK</type>
    <rack_id>1</rack_id>
  </device>
  <device rack_id="1" indent="4" nodetype="16" ctrl_val="15.5 °C" value="36.6 °C" point="0" mod="0" online="1" alarm="0" node="2" modelname="AK-CC500_a_012x" status="(s20) Alarm" suction_id="1" multicasename="AK CC 550" defrost="0" state="0">
    <name>AK CC 550</name>
    <device_id>084B8030_012x</device_id>
    <type>EVAP</type>
  </device>
  <device rack_id="1" indent="4" nodetype="16" ctrl_val="2.0 °C" value="27.7 °C" point="0" mod="0" online="1" alarm="0" node="6" modelname="AK-CC550-A-015x" status="(s20) Alarm" suction_id="1" multicasename="AKCC550-2" defrost="0" state="0">
    <name>AKCC550-2</name>
    <device_id>084B8032_015x</device_id>
    <type>EVAP</type>
  </device>
  <device rack_id="1" indent="4" nodetype="16" ctrl_val="2.0 °C" value="26.4 °C" point="0" mod="0" online="1" alarm="0" node="7" modelname="AK-CC550-A-015x" status="(s20) Alarm" suction_id="1" multicasename="AKCC550-3" defrost="0" state="0">
    <name>AKCC550-3</name>
    <device_id>084B8020_015x</device_id>
    <type>EVAP</type>
  </device>
  <device rack_id="1" indent="4" nodetype="16" ctrl_val="NA" value="0.0 °C" point="0" mod="0" online="1" alarm="0" node="5" modelname="AK-LM350-012x" status="Ja" suction_id="1" multicasename="LM350" defrost="0" state="0">
    <name>LM350</name>
    <device_id>08020176_012x</device_id>
    <type>EVAP</type>
  </device>
  <device rack_id="1" indent="4" nodetype="16" ctrl_val="2.0 °C" value="0.2 °C" point="0" mod="0" online="1" alarm="0" node="10" modelname="AK-CT550A-017x" status="(s11) Gestoppt" suction_id="1" multicasename="AK CT550A" defrost="0" state="0">
    <name>AK CT550A</name>
    <device_id>084B0043_017x</device_id>
    <type>EVAP</type>
  </device>
</total>
</resp>

```

In the answer is always the model name (1), which is given by the user, and the Device ID (2). With the Device ID you can find the EDF file for this device because the EDF file have the same name as the device ID. For example: In the answer above, the model name is "AK-CC500_a_012x", the Device ID is 084B8030_012x, were 084B8030 is the name of the EDF file and 012x is a version number.

Now you can go to the EDF files and get the right EDF for this device 084B8030.ED3. The EDF and ED3 files are text files. If you open the file 084B8030.ED3 with a text editor you can see for instance the following:

```

87 mainswitch, .....185|Main Switch
88 night_setback1, .....012|Night Setback
89 nightstatus, .....126|Night Status
90 pressure1, .....144|P
91 prodtemp1, .....000|Product
92 setpoint1, .....005|Setpoint
93 shutdown1, .....070|Forced Close
94 superheat1, .....129|Reseance
95 supertemp1, .....128|Superheat
96 valve1, .....117|Valve
97 vapourout1, .....119|Vapor Out
98 <XMLNAME_SECTION_END>
99
100 PFN xbodezgh1xbodezgh1 U X L scaling CID VID m 2 def min max gp exp RV name
101 <PARAMETER_SECTION_START>
102 213,187,20
103 001,xbodezgh1xbodezgh1, 0, 4,16, 0, 0, 2007,W,W, 0, 0, 100,15, 0, R|--- Ctrl State
104 002,xbodezgh1xbodezgh1, 4, 4, 0, 0, 2532,F,F, 0, 0, -2000, 2000,15,258, R|u17 Ther Air
105 003,xbodezgh1xbodezgh1, 0, 0,17, 0, 0, 2554,W,W, 0, 0, 100,14, 0, R|--- Reg Cond
106 004,xbodezgh1xbodezgh1, 4, 0, 0, 0, 2583,F,F, 0, 0, -2000, 2000,14,258, R|--- Curtain Temp
107 005,xbodezgh1xbodezgh1, 4, 4, 0, 0, 2501,F,F, 0, 0, -2000, 2000,14,258, R|--- Cutout Temp
108 006,xbodezgh1xbodezgh1, 0, 0, 7, 0, 0, 124,W,W, 1, 0, 2, 1, 0, W|r14 Therm Mode
109 007,xbodezgh1xbodezgh1, 4, 0, 0, 0, 100,F,F, 20, 0, -500, 500, 1,258, W|--- Cutout
110 008,xbodezgh1xbodezgh1, 16, 0, 0, 0, 101,F,F, 20, 0, -500, 500, 1,258, W|r01 Differential
111 009,xbodezgh1xbodezgh1, 4, 0, 0, 0, 102,F,F, 800, 0, -490, 500, 1,258, W|r02 Max Cutout
112 010,xbodezgh1xbodezgh1, 4, 0, 0, 0, 103,F,F, 0, -500, 490, 1,258, W|r03 Min Cutout
113 011,xbodezgh1xbodezgh1, 5, 0, 0, 0, 123,W,W, 100, 0, 100, 1, 0, W|r15 Ther S4 %
114 012,xbodezgh1xbodezgh1, 0, 0, 0, 0, 126,B,B, 0, 0, 0, 1, 0, W|--- Night Setback
115 013,xbodezgh1xbodezgh1, 16, 0, 0, 0, 128,F,F, 0, 0, -500, 500, 1,258, W|r13 Night Offset
116 014,xbodezgh1xbodezgh1, 0, 0, 0, 0, 3044,B,B, 0, 0, 0, 1, 0, W|--- Forced Cool
117 015,xbodezgh1xbodezgh1, 4, 0, 0, 0, 131,F,F, 20, 0, -500, 500, 1,258, W|r21 Cutout2 Temp
118 016,xbodezgh1xbodezgh1, 5, 0, 0, 0, 2021,W,W, 100, 0, 100, 1, 0, W|r07 Disp S4 %
119 017,xbodezgh1xbodezgh1, 16, 0, 0, 0, 184,F,F, 0, 0, -100, 100, 1,258, W|r04 Disp Adj K
120 018,xbodezgh1xbodezgh1, 18, 0, 0, 0, 122,W,W, 1, 0, 10, 1, 0, W|r16 Melt Interval
121 019,xbodezgh1xbodezgh1, 17, 0, 0, 0, 121,W,W, 5, 0, 30, 1, 0, W|r17 Melt Period
122 020,-----h-----h,16, 0, 0, 0, 183,F,F, 20, 0, 500, 1,258, W|r62 Heat N2
123 021,-----h-----h,17, 0, 0, 0, 10018,W,W, 90, 0, 240, 9, 0, W|r63 Heat Start Del
124 022,-----g-----g, 5, 0, 0, 0, 182,W,W, 100, 0, 100, 1, 0, W|r61 Ther S4% Ngt
125 023,xbodezgh1xbodezgh1, 17, 0, 0, 0, 0,10002,W,W, 30, 0, 240, 9, 0, W|A03 Alarm Delay
126 024,xbodezgh1xbodezgh1, 17, 0, 0, 0, 0,10003,W,W, 60, 0, 240, 9, 0, W|A04 Door Open Del
127 025,xbodezgh1xbodezgh1, 17, 0, 0, 0, 0,10019,W,W, 90, 0, 240, 9, 0, W|A12 Fulldown Del
128 026,xbodezgh1xbodezgh1, 4, 0, 0, 0, 0,10019,F,F, 80, 0, -500, 500, 9,258, W|A13 High Lim Air
129 027,xbodezgh1xbodezgh1, 4, 0, 0, 0, 0,10020,F,F, 80, 0, -300, 500, 9,258, W|A14 Low Lim Air
130 028,xbodezgh1xbodezgh1, 4, 0, 0, 0, 0,10021,F,F, 80, 0, -500, 500, 9,258, W|A20 High Lim2 Air
131 029,xbodezgh1xbodezgh1, 4, 0, 0, 0, 0,10022,F,F, 80, 0, -500, 500, 9,258, W|A21 Low Lim2 Air
132 030,xbodezgh1xbodezgh1, 4, 0, 0, 0, 0,10023,F,F, 80, 0, -500, 500, 9,258, W|A22 High Lim1 S6
133 031,xbodezgh1xbodezgh1, 4, 0, 0, 0, 0,10024,F,F, 80, 0, -300, 500, 9,258, W|A23 Low Lim1 S6
134 032,xbodezgh1xbodezgh1, 4, 0, 0, 0, 0,10025,F,F, 80, 0, -500, 500, 9,258, W|A24 High Lim2 S6

```

There you have all informations about the device and like you can see CID and VID for every parameter. With this information it should be possible to read and write every parameter in a device.

Read Sensors

Until now we read out the System Manager SM by XML interface with the command "read_val". It works fine so far.

But the SM can also be equipped with sensors. These are read out via the command "read_sensor". Would be nice to have this functionality with eWON as well!

Instead of CID and VID, like for "read_val", "read_sensor" works with MOD and POINT. To know MOD and POINT for a specific sensor the command "read_sensors" must be used. There is an answer like the following:

```
<sensor>
  <host>0</host>
  <legacy>0</legacy>
  <name>Roomtemp</name>
  <addr>03-2.1</addr>
  <node>3</node>
  <mod>2</mod>
  <point>17</point>
  <units>°C</units>
</sensor>
<sensor>
  <host>0</host>
  <legacy>0</legacy>
  <name>002:1 u17 Ther</name>
  <addr>002:1</addr>
  <node>2</node>
  <mod>10</mod>
  <point>17</point>
  <units>°C</units>
</sensor>
<sensor>
  <host>0</host>
  <legacy>0</legacy>
  <name>L3 FOTO</name>
  <addr>03-2.2</addr>
  <node>3</node>
  <mod>2</mod>
  <point>18</point>
  <units>lx</units>
</sensor>
<sensor>
  <host>0</host>
  <legacy>0</legacy>
  <name>Temp in wall</name>
  <addr>Ca-01</addr>
  <node>0</node>
  <mod>0</mod>
  <point>1</point>
  <units>°C</units>
</sensor>
```

```
<mod>0</mod>
<point>5</point>
<units>lx</units>
</sensor>
<total_count>15</total_count>
```

There you can see all informations are inside.

- Name of the sensor
- Node number
- MOD and POINT

After "read_sensors" and the information above you can read out a specific value by using MOD and POINT. Here is an example in which 2 values are queried in one call:

Request:

```
<cmd action= "read_sensor"units="S"><sensor node="3" mod="2" point="23"/><sensor
node="0" mod="0" point="5"/></cmd>
```

Answer:

```
<sensor node="3" mod="2" point="23" offset="0.00" parval="22.3" units="degc"
units_index="4" name="FAN temperature">22.3 °C</sensor>
<sensor node="0" mod="0" point="5" offset="0.00" parval="319.7" units="lx" units_index="25"
name="Lightsensor">319.7 lx</sensor>
```

As you can see above, FAN temperature = 22.3 °C and lightsensor = 319.7 Lux.

Is it possible to implement the read sensor function into the already existing Danfoss I/O server?