SAP Product Characteristics Database (PCDB) - Application Guide for Compensating Boiler Controls and Time and Temperature Zone Controls (TTZC)

Background

Applications can be made for entries in the SAP 2012 Product Characteristics Database (PCDB) of "Compensating Boiler Control" devices and "Time and Temperature Zone Control" (TTZC) devices. This is subject to the control device satisfying criteria defined in the SAP 2012 specification – see definitions below or refer to Section 9.4 of the SAP 2012 specification available at: www.bre.co.uk/sap2012.

A "Compensating Boiler Control" device is a general term referring to either "Weather Compensation" or "Enhanced Load Compensation" control devices. A Compensating Boiler Control may use both aspects.

Applications incorporating all required documents should be sent electronically to: sapproductlisting@bre.co.uk

SAP 2012 definition - Weather compensator

A device, or feature within a device, which maintains the temperature inside the building by sensing and limiting the temperature of the water circulating through the heat generator and heat emitters in relation to the temperatures measured outside the building.

SAP 2012 definition - Enhanced load compensator

A device, or feature within a device, which maintains the temperature inside the building by sensing and limiting the temperature of the water circulating through the heat generator and heat emitters in relation to the temperature measured inside the building.

SAP 2012 definition - Time and temperature zone control

A system of control that allows the heating times of at least two zones to be programmed independently, as well as having independent temperature control.

In the case of wet systems this can be achieved by:

- *Separate plumbing circuits, either with their own programmer, or separate channels in the same programmer; or*

- Programmable TRVs (9.4.7) or communicating TRVs (9.4.8) that are able to provide time and temperature zone control (conventional TRVs without a timing function provide only independent temperature control).

In the case of direct-acting electric systems, including underfloor heating, it can be achieved by providing separate temperature and time controls for different rooms.

Time and temperature zone control is applicable when the following conditions are met:

a. there are at least two zones in which heating times and temperatures are controlled independently of each other;

b. each zone is either a single room or number of adjacent rooms, and these zones are separated from each other by doors;

c. one of the zones includes the living area;

d. if the controls are communicating TRVs or programmable TRVs they are fitted to all heat emitters within that zone;

e. the time and temperature controlled zones, taken together, cover at least 80% of the dwelling floor area;

f. timing does not depend on a shared time switch or programmer controlling all zones simultaneously;

g. boiler interlock is assured by detecting and reacting (by shutting down the boiler electrically) to the condition in which there is no call for heat from any of the zones;

h. if domestic hot water is heated by the same device as space heating it has separate time and temperature control independent of the space heating controls.

Applications for entry of Compensating Boiler Control devices in the PCDB require the following:

1) Completed form: *"Application for recognition of product data within an existing SAP technology category"* [available here]. This should include a method for identifying the control device, such as a label that will be affixed to all installed products, a sample of which must be included with the application form. The selected method must display the NCM (SAP) Identifier[1] of the control device and be viewable by SAP assessors without requiring disassembly. For Weather Compensators also see Appendix A.

   Note the following when completing the form:

   a. The Technology Type is "Heating Controls"

   b. The Technology Category is "Compensating Boiler Control".

2) Declaration of NCM (SAP) Identifiers[1] for condensing boilers entered in Product Characteristics Database that are compatible with the control device. This should be in the form of a signed, headed and dated company declaration or a suitable equivalent. The declaration must be signed by a qualified individual with the necessary authority to act on behalf of the organisation. If an OpenTherm[2] Certificate is available for both control device and boiler these should be provided.

3) Brief explanation and declaration of the control device's operational logic explaining how, when connected to a compatible condensing boiler (Mains Gas, LPG or Oil), it complies with one or both of the following SAP definitions:

   a. Weather Compensator (SAP 2012, Section 9.4.15)

   b. Enhanced Load Compensator (SAP 2012, Section 9.4.17)

   The explanation should be in the form of a signed, headed and dated company declaration or a suitable equivalent. The declaration must be signed by a qualified individual with the necessary authority to act on behalf of the organisation.

[1] NCM (SAP) Identifier refers to the combination of Brand Name, Model Name and Model Qualifier that uniquely identifies the product. In cases where it is not possible to include such information on the control device directly, this information may be provided on a separate label to be affixed to the boiler. This label must be supplied with the control device; instructions regarding the necessity of affixing the label to the boiler for SAP recognition must also be supplied.

[2] www.opentherm.eu

Applications for entry of Time and Temperature Zone Control (TTZC) devices in the PCDB require the following:

1) Identical to requirement for Compensating Boiler Controls, but complete control package (when installed) must be identifiable and a procedure for recording the installation of necessary components provided.

   Note the following when completing the form:

   a. The Technology Type is "Heating Controls"

   b. The Technology Category is "Time and Temperature Zone Control".

2) Identical to requirement for Compensating Boiler Controls, but may be applicable to other heat generator types, such as heat pumps.

3) Brief explanation, to include schematic diagrams, of the control device's operation explaining how it complies with the SAP definition:

   a. Time and Temperature Zone controls (SAP 2012, Section 9.4.14)

   This should be in the form of a signed, headed and dated company declaration or a suitable equivalent. The declaration must be signed by a qualified individual with the necessary authority to act on behalf of the organisation.

Note: If the control device provides both boiler compensation and TTZC functions the technology category is "Compensating Boiler and Time and Temperature Zone Control".

Appendix A - Rules for identifying weather compensators (Class II, III, Class VI)

Where a weather compensation temperature sensor (external temperature sensor) is to be connected to a Mains Gas or LPG modulating condensing boiler to provide a weather compensation function, the following requirements must be satisfied via a label that is supplied with the sensor and affixed to the boiler by the installer upon installation. By satisfying these requirements the weather compensation function can be recognised in SAP assessments.

The label must be clearly legible without magnification and be affixed on the front of the boiler, such as the inside of the boiler front flap/panel. It must not be necessary to dismantle and/or use tools to view the label. Instructions for the installer on how to complete the label must be provided by the manufacturer.

For the purposes of this guidance two of the control classes referenced in the Commission Delegated Regulation (EU) No 811/2013 are applicable and defined[3] as:

> *Class II - Weather compensator control, for use with modulating heaters: A heater flow temperature control that varies the set point of the flow temperature of water leaving the heater dependant upon prevailing outside temperature and selected weather compensation curve. Control is achieved by modulating the output of the heater[4].*
>
> *Class VI - Weather compensator and room sensor, for use with modulating heaters: A heater flow temperature control that varies the flow temperature of water leaving the heater dependant upon prevailing outside temperature and selected weather compensation curve. A room temperature sensor monitors room temperature and adjusts the compensation curve parallel displacement to improve room comfort. Control is achieved by modulating the output of the heater[5].*

Where a weather compensation temperature sensor can also be connected to a room temperature sensor control device, i.e. a Class VI control, an alternative label must also be supplied with the weather compensation temperature sensor. All sample labels should be supplied during the PCDB data entry application process. Label requirements are defined below:

[3] Definition provided in: *"Commission communication in the framework of the implementation of Commission Regulation (EU) No 813/2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters and of Commission Delegated Regulation (EU) No 811/2013 supplementing Directive 2010/30/EU of the European Parliament and of the Council with regard to the energy labelling of space heaters, combination heaters, packages of space heater, temperature control and solar device and packages of combination heater, temperature control and solar device (2014/C 207/02)"*

[4] For the purposes of SAP assessments, this control type satisfies the SAP Weather Compensator definition

[5] Both classes have an external temperature sensor; Class VI also uses a room temperature sensor to refine the compensation curve according to internal temperature conditions. For the purposes of SAP assessments, this control type satisfies the SAP Enhanced Load Compensator definition, whilst also providing a weather compensation function.

Label requirements for Class II control (if applicable):

The following details, known as the NCM (SAP) Identifier, must be provided on a label that is supplied with the weather compensation temperature sensor at point of sale and affixed to boiler by the installer[6]:

a) Manufacturer's name or trade mark

b) Brand Name (of weather compensation temperature sensor)

c) Model Name (of weather compensation temperature sensor)

d) Model Qualifier = ErP class II

"I certify that this boiler is connected to a weather compensation temperature sensor which is compatible with the boiler and provides weather compensation control that has been permanently enabled. The boiler has been commissioned in accordance with Manufacturer instructions, which have been supplied to the Householder. The Central Heating Temperature Control Knob should normally be set at the ____ position."

Signed: _____ Date: _____

[6] This may mean that two labels are supplied with the weather compensation temperature sensor at point of sale

Label requirements for Class VI control (if applicable):

If the weather compensation temperature sensor can also be connected to a room temperature sensor control device, i.e. a Class VI control, the following details, known as the NCM (SAP) Identifier, must be provided on a label that is supplied with the weather compensation temperature sensor at point of sale and affixed to boiler by the installer[6]:

(a) Manufacturer's name or trade mark

(b) Brand Name (of room temperature sensor control device)

(c) Model Name (of room temperature sensor control device)

(d) Model Qualifier = ErP class VI

"I certify that this boiler is connected to a weather compensation temperature sensor which is compatible with the boiler and room temperature sensor control device and provides weather compensation control corrected for room temperature. This function has been permanently enabled. The boiler and room temperature sensor control device has been commissioned in accordance with Manufacturer instructions, which have been supplied to the Householder."

Signed: _____ Date: _____