

Proposed Change: SECMP 0006 - Specifying the number of digits for device display

Requirement

This section summarises the key parts of the requirement for this SEC Modification, as currently clarified and refined by the Working Group. The following solution(s) sections detailed the required changes to SEC and wider documents that are proposed to implement this requirement. Where there are multiple solutions sections, they reflect the alternatives the Working Group wished to consider.

Context

In line with ZigBee Smart Energy, the values in GSME gas consumption registers can be up to 15 decimal digits in length (48 binary digit, unsigned numbers), with units of metres cubed and a decimal point whose location may vary by GSME.

In line with DLMS COSEM and the GBCS, the values in ESME import and export energy registers can be up to 10 decimal digits in length (32 binary digit, unsigned integers) and are whole numbers of Wh (so in thousandths of kWh). Thus, in kWh, ESME record up to 7 decimal digits to the left of the decimal point, and 3 to the right.

The above 15 and 10 digit values are reported to other Devices on the SMHAN, and returned when such registers are read via DCC Service Requests.

Currently SMETS requires that these values can be displayed on the User Interfaces of ESME and GSME, but not how they are displayed.

Change

The change here is to specify that GSME and ESME have the ability to display a specified subset of digits in relation to the above registers on their User Interfaces:

- A GSME would need the capability to display, on its User Interface, each value in a consumption register as 8 decimal digits, representing a value in thousandths of metres cubed. Any digits representing a value of less than one thousandth of a meter cubed and any digits representing one hundred thousand meters cubed or higher would not be displayed.
- For an ESME, the Working Group wished to move forward with two options:
 1. An ESME would need the capability to display, on its User Interface, each value in an import / export energy register as 6 decimal digits, representing a value in whole numbers of kWh, with the most significant decimal digits not displayed
 2. A Single Element or a Twin Element ESME would need the capability to display, on its User Interface, each value in an import / export energy register as 5 decimal digits, representing a value in whole numbers of kWh, with the two most significant decimal digits not displayed. A Polyphase ESME would be the same as in option 1.

Note that in both ESME Options, any digit representing a tenth of a kWh or less would not be displayed. Rounding down is specified in all cases.

For both GSME and ESME, leading zeros would be required to pad to the full number of digits.

This change also applies to the Tariff Block Counter Matrix on GSME, to align to the Tariff TOU Block Counter Matrix requirements on the ESME, given they perform similar functions.

Active Export Register is not required (in SMETS currently) to be displayed on Twin Element ESME, but is required on Single Element and Polyphase ESME. The drafting in this document adds Active Export Register as a display requirement for Twin Element ESME and adds the corresponding format requirement. This makes the approach common across ESME.

These changes do not have any effect on systems beyond an ESME or GSME. Hence, they only impact the GSME and ESME functional requirements and so require changes in SMETS only. Both solution options reflect that.

The Working Group decided it did not wish to apply this requirement to any other Device types that have User Interfaces, so specifically not to IHD or PPMID.

Solution – option 1

This section details the required changes to SEC and wider documents that are proposed to implement the requirement for this SEC Modification.

SEC main body change

None

SMETS changes

Add the following 3 sections to SMETS:

4.4.5.1 Presentation of information on the User Interface

For each of the values currently stored in the *Consumption Register*(4.6.5.4), the *Tariff Block Counter Matrix*(4.6.5.19) and the *Tariff TOU Register Matrix*(4.6.5.20), GSME shall be capable of displaying a value calculated from the stored value by:

- i. converting the stored value in to a decimal, integer number of thousandths of metres cubed, rounding the stored value down to the nearest thousandth of a metre cubed;
- ii. discarding all except the eight least significant decimal digits so produced;
- iii. adding leading zeros so that there are exactly eight decimal digits; and
- iv. placing the decimal point separator between the fourth and third least significant digits.

5.5.4.1 Presentation of information on the User Interface

For each of the values currently stored in the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, and the **Error! Reference source not found.(Error! Reference source not found.)**, ESME shall be capable of displaying a value calculated from the stored value by:

- i. converting the stored value in to a decimal, integer number of kilowatt hours, rounding the stored value down to the nearest kilowatt hour;
- ii. discarding all except the six least significant decimal digits so produced; and
- iii. adding leading zeros so that there are exactly six decimal digits.

5.11.1.1 Presentation of information on the User Interface

For each of the values currently stored in the **Error! Reference source not found.(Error! Reference source not found.)** , the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)** and the **Error! Reference source not found. [INFO](Error! Reference source not found.)**, ESME shall be capable of displaying a value calculated from the stored value by:

- i. converting the stored value in to a decimal, integer number of kilowatt hours, rounding the stored value down to the nearest kilowatt hour;
- ii. discarding all except the six least significant decimal digits so produced; and
- iii. adding leading zeros so that there are exactly six decimal digits.

Note that, for Polyphase ESME, section 5.5.4 is not dis-applied in Part C of SMETS. Therefore, the Single Element requirement above (5.5.4.1) applies also to Polyphase ESME, as per SMETS 5.14.

To require that Active Export Register is displayed on Twin Element ESME in line with Single Element and Polyphase ESME, revise the text in section 5.11.1 as follows (deletion shown by strike through and addition shown by underlining):

- xxi. the *Secondary Active Tariff Price [INFO](5.13.2.9) [PIN]*; ~~and~~
- xxii. the *Event Log(5.7.5.16)* and the *Power Event Log(5.7.5.25)* (with the exception of any Personal Data)~~;~~ and

xxiii. the Active Export Register [INFO](5.7.5.2).

ESME shall be capable of displaying the *Security Log*(5.7.5.31) on its User Interface following physical access through the Secure Perimeter of ESME.

CHTS changes

None

GBCS changes

None

SEC Appendix E changes

None

DUIS changes

None

MMC changes

None

Other SEC document changes

None

Changes to documents outside of SEC

None

Solution – option 2

This section details the required changes to SEC and wider documents that are proposed to implement the requirement for this SEC Modification.

SEC main body change

None

SMETS changes

Add the following 4 sections to SMETS:

4.4.5.1 Presentation of information on the User Interface

For each of the values currently stored in the *Consumption Register*(4.6.5.4), the *Tariff Block Counter Matrix*(4.6.5.19) and the *Tariff TOU Register Matrix*(4.6.5.20), GSME shall be capable of displaying a value calculated from the stored value by:

- i. converting the stored value in to a decimal, integer number of thousandths of metres cubed, rounding the stored value down to the nearest thousandth of a metre cubed;
- ii. discarding all except the eight least significant decimal digits so produced;
- iii. adding leading zeros so that there are exactly eight decimal digits; and
- iv. placing the decimal point separator between the fourth and third least significant digits.

5.5.4.1 Presentation of information on the User Interface

For each of the values currently stored in the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, and the **Error! Reference source not found.(Error! Reference source not found.)**, ESME shall be capable of displaying a value calculated from the stored value by:

- i. converting the stored value in to a decimal, integer number of kilowatt hours, rounding the stored value down to the nearest kilowatt hour;
- ii. discarding all except the five least significant decimal digits so produced; and
- iii. adding leading zeros so that there are exactly five decimal digits.

5.11.1.1 Presentation of information on the User Interface

For each of the values currently stored in the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)** and the **Error! Reference source not found. [INFO](Error! Reference source not found.)**, ESME shall be capable of displaying a value calculated from the stored value by:

- i. converting the stored value in to a decimal, integer number of kilowatt hours, rounding the stored value down to the nearest kilowatt hour;
- ii. discarding all except the five least significant decimal digits so produced; and
- iii. adding leading zeros so that there are exactly five decimal digits.

5.17.3 Presentation of information on the User Interface

Presentation of information on the User Interface (5.5.4.1) in Part A shall not apply to ESME.

For each of the values currently stored in the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, the **Error! Reference source not found.(Error! Reference source not found.)**, and the **Error! Reference source not found.(Error! Reference source not found.)**, ESME shall be capable of displaying a value calculated from the stored value by:

- i. converting the stored value in to a decimal, integer number of kilowatt hours, rounding the stored value down to the nearest kilowatt hour;

- iv. discarding all except the six least significant decimal digits so produced; and
- v. adding leading zeros so that there are exactly six decimal digits.

Note that in this option, a new section for Polyphase is required, because the required number of decimal digits is different than on a Single Element ESME.

To require that Active Export Register is displayed on Twin Element ESME in line with Single Element and Polyphase ESME, revise the text in section 5.11.1 as follows (deletion shown by strike through and addition shown by underlining):

- ii. the *Secondary Active Tariff Price [INFO](5.13.2.9) [PIN]*; ~~and~~
- vi. the *Event Log(5.7.5.16)* and the *Power Event Log(5.7.5.25)* (with the exception of any Personal Data); ~~and~~ and
- vii. the Active Export Register [INFO](5.7.5.2).

ESME shall be capable of displaying the *Security Log(5.7.5.31)* on its User Interface following physical access through the Secure Perimeter of ESME.

CHTS changes

None

GBCS changes

None

SEC Appendix E changes

None

DUIS changes

None

MMC changes

None

Other SEC document changes

None

Changes to documents outside of SEC

None