



DIGITALISERINGSSTYRELSEN

OIOUBL Guideline

OIOUBL Totals

UBL 2.0 Totaler

G28

Version 1.3

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Colophon

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Contents

1. Preface.....	4
1.1. Purpose of this document	4
1.2. General Points	4
1.3. Changes in version 1.3.....	4
2. Relevant UBL Classes and Elements	5
2.1. DK element names and cardinality.....	5
2.2. The MonetaryTotal class	5
3. Description.....	7
3.1. Amount totals format.....	7
3.1.1. Used Decimals	7
3.1.2. Rules for rounding of decimals I OIOUBL	8
3.2. Positive and negative amounts	8
3.2.1. The Line total.....	9
3.2.1.1. Negative total line extension amount	9
3.3. Calculation Relevance.....	9
3.4. Calculation Sequence	9
3.5. Gross and Net amounts.....	10
3.6. LineExtensionAmount.....	10
3.6.1. LineExtensionAmount in Reminder	10
3.7. TaxExclusiveAmount.....	10
3.8. TaxInclusiveAmount	11
3.9. AllowanceTotalAmount	11
3.10. ChargeTotalAmount	12
3.11. PrepaidAmount.....	12
3.12. PayableRoundingAmount.....	12
3.13. PayableAmount	13
4. Examples.....	14
4.1. The use of the MonetaryTotal class	14
5. Terms and abbreviations.....	15

1. Preface

These guidelines form of a series describing the purpose and use of the business documents that comprise the Danish localization of UBL 2.0, known as OIOUBL.

As well as general guidelines describing the use of elements used across the documents, a separate guideline has been prepared for each business document.

1.1. Purpose of this document

This guideline specifies the use of classes and elements involved with total amounts of money.

1.2. General Points

The following guidelines may be relevant in relation to this guideline:

- OIOUBL_GUIDE_PRICES (Ref. G25)
- OIOUBL_GUIDE_CURRENCY (Ref. 18)
- OIOUBL_GUIDE_ALLOWANCE (Ref. 17)
- OIOUBL_GUIDE_PAYMENT (Ref. G24)
- OIOUBL_GUIDE_TAX (Ref. G27)

1.3. Changes in version 1.3

In this latest update of this guideline the following has been changed:

- Questions and answers from FAQ on OIOUBL.info has been incorporated

2. Relevant UBL Classes and Elements

Amount totals are included in the following UBL 2.0 document types:

- Order
- Invoice
- CreditNote
- Reminder

Normally, the amount totals are defined at the document level in these documents. They reflect the total of the amounts shown at line level. The transaction lines also contain a line total which is based on a calculation of, among other things, quantity and price for the given line.

In addition, the amount totals for taxes, charges and allowances are also specified. The use of these totals is described in detail in their relevant guidelines, however their relation to *MonetaryTotal* is described below.

In the *MonetaryTotal* class, the amount totals are defined at document level. The calculation of the amount totals is based on the following classes/elements:

- *AllowanceCharge* (Document and line level, and line level under the *Price* class)
- *TaxTotal* (Document and line level)
- *PrepaidPayment* (Document level)
- *LineExtensionAmount* (Line level)

2.1. DK element names and cardinality

The tables below list the elements and their names in Danish, as well as the cardinality.

2.2. The *MonetaryTotal* class

Note that the qualified naming of the *MonetaryTotal* class indicates the document type that it is defined within:

- Order (*AnticipatedMonetaryTotal*)
- Invoice (*LegalMonetaryTotal*)
- CreditNote (*LegalMonetaryTotal*)
- Reminder (*LegalMonetaryTotal*)

All these have identical structures. In this guideline, the name *MonetaryTotal* is used as the common term for all these classes.

The *MonetaryTotal* class is comprised of the following elements:

UK-name	DK-name	Use
LineExtensionAmount	LinjeTotal	1

TaxExclusiveAmount	AfgiftTotalEksklusivBeløb	0..1
TaxInclusiveAmount	AfgiftTotalInklusivBeløb	0..1
AllowanceTotalAmount	RabatTotal	0..1
ChargeTotalAmount	GebyrTotal	0..1
PrepaidAmount	ForudbetaltBeløb	0..1
PayableRoundingAmount	Afrundingsbeløb	0..1
PayableAmount	ForfaldentBeløb	1

Only *LineExtensionAmount* and *PayableAmount* are mandatory, but it is recommended to also specify the other elements. It is only in the *LegalMonitotyTotal* class that the summarized and schematon validated VAT/taxes and allowance and charges can be specified, and this information is often of great value to the receiver.

It is advised to always specify the *TaxExclusiveAmount* and *TaxInclusiveAmount* if the products are subject to VAT, so the summarized VAT and taxes are specified.

3. Description

The following section contains descriptions of the use of classes and elements for amount totals.

3.1. Amount totals format

An amount total in the *MonetaryTotal* classes must be specified to have two decimals, using the period/full stop (.) as its decimal separator.

Amount totals may be zero, but can never be negative¹. Table 1 shows some examples:

Amount:	OIOUBL format:
10	10.00
9.465	9.47
9.464	9.46
0	0.00
10000.25	10000.25

Table 1. Examples of how to specify amount totals in OIOUBL.

The currency code must always be specified together with any amount total. The *currencyID* attribute defines the currency code according to the relevant code list. See Figure 1. for an example.

```
<cbc:PayableAmount currencyID="DKK">720.00</cbc:PayableAmount>
```

Figure 1. Use of the currencyID attribute.

In this example the currency code is "DKK" (Danish Krone). Other currency codes are described in the OIOUBL Guideline Exchange Rates and Currency Codes (Ref. G18).

3.1.1. Used Decimals

In the table below the allowed numbers of decimals are displayed

Element (for Invoice):	Number of allowed decimals
VAT/Tax	
TaxTotal/TaxAmount	2
TaxTotal/TaxSubtotal/TaxableAmount	2
TaxTotal/ TaxSubtotal/TaxAmount	2
Document totals	
LegalMonetaryTotal/LineExtensionAmount	2
LegalMonetaryTotal/TaxExclusiveAmount	2
LegalMonetaryTotal/TaxInclusiveAmount	2
LegalMonetaryTotal/AllowanceTotalAmount	2
LegalMonetaryTotal/ChargeTotalAmount	2
LegalMonetaryTotal/PrepaidAmount	2
LegalMonetaryTotal/PayableRoundingAmount	2

¹NOTE: For an amount total at line level, negative values and up to 4 decimals are allowed.

LegalMonetaryTotal/PayableAmount	2
Line amounts	
invoiceLine/InvoicedQuantity	4
invoiceLine/LineExtensionAmount	2-4
invoiceLine/Price/PriceAmount	No limitations
invoiceLine/Price/BaseQuantity	No limitations
invoiceLine/Price/OrderableUnitFactorRate	No limitations

Note, that there are no limitations on the number of decimals for *PriceAmount* and *OrderableUnitFactorRate*. It is recommended to specify the most possible significant decimals since it can reduce the problems related to rounding of decimals.

3.1.2. Rules for rounding of decimals I OIOUBL

There are examples that rounding of decimals causes problems when validating the totals in OIOUBL.

Some of the issues that can cause the problems are:

- Some are under the impression that only two decimals are allowed on the *PriceAmount* in OIOUBL, as it was the case in OIOXML
- Documents converted from OIOXML to OIOUBL only has two decimals
- The retail sector is often in the situation that they need to calculate the net price by subtraction the VAT, resulting in some odd amounts increasing the risk of decimal and rounding errors.
- Companies selling large amounts are also in the risk of having big rounding errors if they do not use enough decimals on the *PriceAmount*.

The basic rule is that rounding is done as late as possible in calculations so most possible decimals are used. E.g. the *PriceAmount* is not rounded before the calculation of *LineExtensionAmount*.

Although following the described principle price differences as a result of rounding cannot totally be avoided.

For now tolerances on +/- 1.00 when schematron validating *InvoiceLine/LineExtensionAmount* are allowed in OIOUBL.

To avoid larger price differences it is recommended that the sender of the document specifies most possible decimals on *PriceAmount*, *BaseQuantity* and *OrderableUnitFactorRate*. Too few decimals can cause large differences as described in the example below:

Quantity	Price	Line total
10000	1.02	10200.00
10000	1.024	10240.00

3.2. Positive and negative amounts

OIOUBL Invoices and Credit notes can never have a negative document total (*PayableAmount*), since it is the document type (Invoice or Credit note) that determines whether an amount should be credited or debited.

The Invoice document total can be 0.00 if the invoice e.g. has a positive and a negative invoice line that even out the amounts.

The document total can also be 0.00 if all invoice line in an Invoice is free of charge (*FreeOfChargeIndicator="true"*).

3.2.1. The Line total

The total for Invoice or Credit note lines can be negative as long as the document total is not negative.

A negative Invoice line is given by defining a negative *PriceAmount*, and thereby a negative *InvoiceLine/LineExtensionAmount*.

Note that amounts in the *InvoiceLine/TaxTotal* class also must be negative on a negative Invoice line.

3.2.1.1. Negative total line extension amount

LegalMonetaryTotal/LineExtensionAmount can also be negative as long as the *PayableAmount* is still positive. If an Invoice e.g. has two invoice lines:

Line 1: DKK 100.00 VAT Standard rated

Line 2: DKK -110.00 VAT Zero rated

Then the document total will look as in the example below after calculation of VAT

```
<cac:LegalMonetaryTotal>
  <cbc:LineExtensionAmount currencyID ="DKK">-10.00</cbc:LineExtensionAmount>
  <cbc:TaxExclusiveAmount currencyID ="DKK">25.00</cbc:TaxExclusiveAmount>
  <cbc:TaxInclusiveAmount currencyID ="DKK">15.00</cbc:TaxInclusiveAmount>
  <cbc:PayableAmount currencyID ="DKK">15.00</cbc:PayableAmount>
</cac:LegalMonetaryTotal>
```

3.3. Calculation Relevance

The amount total can sometimes be calculated by totaling all subtotals. However, some subtotals may be merely descriptive. Their purpose is to show how another subtotal is calculated. As such, these descriptive subtotals have no relevance to the total and cannot be included in the calculation of the amount total.

For example, the specification of charges and allowances at line level within the *Price* class may be used to permanently specify a charge for a given item. However, such values are only informative, as the charge should already be included in the calculated *PriceAmount* for the item in question. This means the amount is also included in the *LineExtensionAmount* for this line and should not be included when the amount totals are calculated in *MonetaryTotal*.

3.4. Calculation Sequence

Formally defining the total calculation method may be necessary if a document contains a series of interconnected taxes, allowances, or charges. For example, if an allowance is to be deducted before a charge is calculated.

To do this, the field *SequenceNumeric*², in the different class instances, is assigned a serial number beginning with 1. This indicates that the calculation of the individual taxes, charges, and allowances is performed in this numeric order.

²Note! That in the *TaxSubTotal* class the field *CalculationSequenceNumeric* is used.

Please note that the above mentioned calculation sequence has not influence on the calculation of taxes. The tax liability of charges and allowances is always specified in the *TaxCategory*, whilst the calculation for taxes is defined by the *TaxScheme* class.

For further information on taxes, allowances, and charges, see the relevant guidelines: OIOUBL Guideline Tax (Ref. G27) and OIOUBL Guideline AllowanceCharge (Ref. G17).

3.5. Gross and Net amounts

In OIOUBL documents, prices (*PriceAmount*) are always specified as the net amount. The tax is calculated separately, and is added to the overall total (*PayableAmount*) as described below.

In the following description it is thus presumed that *LineExtensionAmount* for a given line is always exclusive of taxes.

3.6. LineExtensionAmount

It represents the total amount for the transaction line of the document, and is calculated by totaling the line subtotals. This can be expressed as the formula in Figure 2.

$$\text{LineExtensionAmount} = \sum \text{LineExtensionAmount (at line level)}$$

Figure2. Calculation of the document line total amount.

The following rules apply to the line total:

- The amount is exclusive of taxes.
- The amount represents the value before adding or subtracting any relevant taxes, allowances, and charges at document level.
- The amount represents the value before adding or subtracting any relevant allowances or charges on line level (as these have already been included in the individual line totals).

3.6.1. LineExtensionAmount in Reminder

In a Reminder document, it is possible to specify both a line amount to be credited as well as a line amount to be debited. This net amount must be considered when calculating the *LineExtensionAmount* in a Reminder, as shown by the formula in Figure 3.

$$\text{LineExtensionAmount} = \sum \text{DebitLineAmount} - \sum \text{CreditLineAmount}$$

Figure 3. Calculation of line total in a Reminder document.

The other rules for calculation of the line total are identical to those described above.

3.7. TaxExclusiveAmount

The *TaxExclusiveAmount* specifies the total amount of tax for a document. It is always specified in the field *TaxAmount* in the *TaxTotal* class on document level using the formula described in Figure 4.

$\text{TaxExclusiveAmount} = \sum \text{TaxAmount}$ (from *TaxTotal* classes on document level)

Figure 4. Calculation of the document *TaxExclusiveAmount*.

The following rules apply to the total tax amount of the document:

- The amount can be both positive, negative or null.
- If taxes are specified in a different currency than the document currency, special rules apply. These are described in the OIOUBL Guideline Exchange Rates and Currency Codes (Ref. G18).
- **Note:** The use of *TaxExclusiveAmount* in OIOUBL is by mistake different from the use in UBL 2.0. In UBL 2.0 it is the VAT Basis, and in OIOUBL it is the VAT/tax total. The Danish definition is sustained in version 2.02, but suppliers of administrative systems should be aware of the difference and take it into account.

3.8. *TaxInclusiveAmount*

The *TaxInclusiveAmount* represents the sum of the total tax amount and the related taxable amount of the document. In practice, this will represent the overall document total unless a *PrePaidAmount* applies. The complete formula is given in Figure 5.

$\text{TaxInclusiveAmount} =$
 $\sum \text{TaxAmount}$ (from *TaxTotal* classes on document level) +
 $\sum \text{TaxableAmount}$ (from *TaxSubtotal* classes on document level) +
 $\sum \text{Amount}$ (from *AllowanceCharge* classes on document level where *ChargeIndicator* = "true") -
 $\sum \text{Amount}$ (from *AllowanceCharge* classes on document level where *ChargeIndicator* = "false")

Figure 5. Calculation of *TaxInclusiveAmount*.

The following rules apply to the *TaxInclusiveAmount* of a document:

- The amount must not be zero or negative

3.9. *AllowanceTotalAmount*

AllowanceTotalAmount defines the total of all allowances in the document. It is calculated from the formula shown in Figure 6.

$\text{AllowanceTotalAmount} =$
 $\sum \text{Amount}$ (from *AllowanceCharge* classes on document level where *ChargeIndicator* = "false")

Figure 6. Calculation of the document *AllowanceTotalAmount*.

The following rules apply to the *AllowanceTotalAmount* of the document:

- The amount must not be negative

3.10. ChargeTotalAmount

ChargeTotalAmount defines the total of the charges in the document. It is calculated using the formula shown in Figure 7.

ChargeTotalAmount =

\sum Amount (from AllowanceCharge classes on document level where ChargeIndicator = "true")

Figure 7. Calculation of the document ChargeTotalAmount.

The following rules apply to the *ChargeTotalAmount* of a document:

- The amount must not be negative

3.11. PrepaidAmount

PrepaidAmount defines any prepaid amount applicable to the transaction. It can be represented by the formula shown in Figure 8.

PrepaidAmount =

\sum PaidAmount (from PrepaidPayment classes on document level)

Figure 8. Calculation of a possible prepaid amount.

The following rules apply to the *PrepaidAmount* of a document:

- The amount must not be negative

3.12. PayableRoundingAmount

PayableRoundingAmount defines any possible rounding amount for totals in a document. The formula is given in Figure 9.

PayableRoundingAmount =

\sum RoundingAmount (from *TaxTotal* classes on document level)

Figure 9. Calculation of the document PayableRoundingAmount.

The following rules apply to the *PayableRoundingAmount* of a document:

- The amount can be positive or negative but not null.

3.13. PayableAmount

PayableAmount represents the total payable amount for a document. The formula for its calculation is given in Figure 10.

<p>PayableAmount =</p> <p>LineExtensionAmount (from <i>LegalTotal</i> classes on document level) +</p> <p>TaxExclusiveAmount (from klassen <i>LegalTotal</i> classes on document level) -</p> <p>AllowanceTotalAmount (from klassen <i>LegalTotal</i> classes on document level) +</p> <p>ChargeTotalAmount (from klassen <i>LegalTotal</i> classes on document level) -</p> <p>PrepaidAmount (from klassen <i>LegalTotal</i> classes on document level) +</p> <p>PayableRoundingAmount (from klassen <i>LegalTotal</i> classes on document level)</p>
--

Figure 10. Calculation of the document PayableAmount.

The following rules apply to the *PayableAmount* of a document:

- The amount must not be negative
- Special rules apply to the specification of alternative currency codes for the *PayableAmount*. This is described in the OIOUBL Guideline Exchange Rates and Currency Codes (Ref. G18).

4. Examples

Below an XML example showing the use the *MonetaryTotal* class.

4.1. The use of the *MonetaryTotal* class

An example showing the use of *LegalMonetaryTotal* in an Invoice document:

```
<cac:LegalMonetaryTotal>
  <cbc:LineExtensionAmount currencyID="DKK">5050.00</cbc:LineExtensionAmount>
  <cbc:TaxExclusiveAmount currencyID="DKK">1262.50</cbc:TaxExclusiveAmount>
  <cbc:TaxInclusiveAmount currencyID="DKK">6312.50</cbc:TaxInclusiveAmount>
  <cbc:PayableAmount currencyID="DKK">6312.50</cbc:PayableAmount>
</cac:LegalMonetaryTotal>
```

5. Terms and abbreviations

Listed below are the most important terms and abbreviations:

Term:	Explanation:
Document level	Elements at document level are found directly under the root element (the top element) in the XML structure. elements at the document level apply to the whole document.
Line level	Elements at line level, unlike elements at the document level, only apply to a specific transaction line
Class	A class is a collection of elements. For example, the Price class contains elements such as PriceAmount, BaseQuantity, etc.
Element	An element is an information entity in an XML structure. For example, the PriceAmount is the element containing the price in an invoice line.
Attributes	In an XML element, it is possible to specify a property as an attribute, e. g. the attribute unitCode in which the unit for a quantity may be specified, as in the example: <code><cbc:BaseQuantity unitCode="BO">1</cbc:BaseQuantity></code>
Tax	In OIOUBL taxes (afgifter) are defined as amounts that are paid to public authorities (such as VAT, taxes, environmental taxes, etc.) Taxes that are settled between commercial organizations are considered charges and allowances, and are defined in the AllowanceCharge class.
TaxScheme	An OIOUBL TaxScheme is equivalent to the Danish <i>pligtkoder</i> . <i>Pligtkoder</i> are used when a trading party is registered with SKAT, as a relationship is made between the <i>pligtkode</i> and their SE number. In OIOUBL documents that include taxes (such as an invoice) a separate amount total must be specified per TaxScheme (=pligtkode).
TaxCategory	A TaxCategory can be the values such as VAX, TAX, EXCISE, and also the Danish Duty codes such as 3096, "Cigarer, cerutter og cigarillos" (Cigars, cheroots, and cigarillos).
TaxTypeCode	Specifies whether a tax is taxable or not using a TaxSchemeCode (VAT, ZERORATED).
TaxSchemeCode	See TaxScheme
Calculation formula	The formula used to calculate a given tax based upon a taxable amount. This may be in the form of either a percentage or a fixed amount. For example, the calculation formula for VAT may either be 25% or 0% (zero-charged).