PrestaShop Product Properties Extension Smart Price plugin

User Guide

Introduction

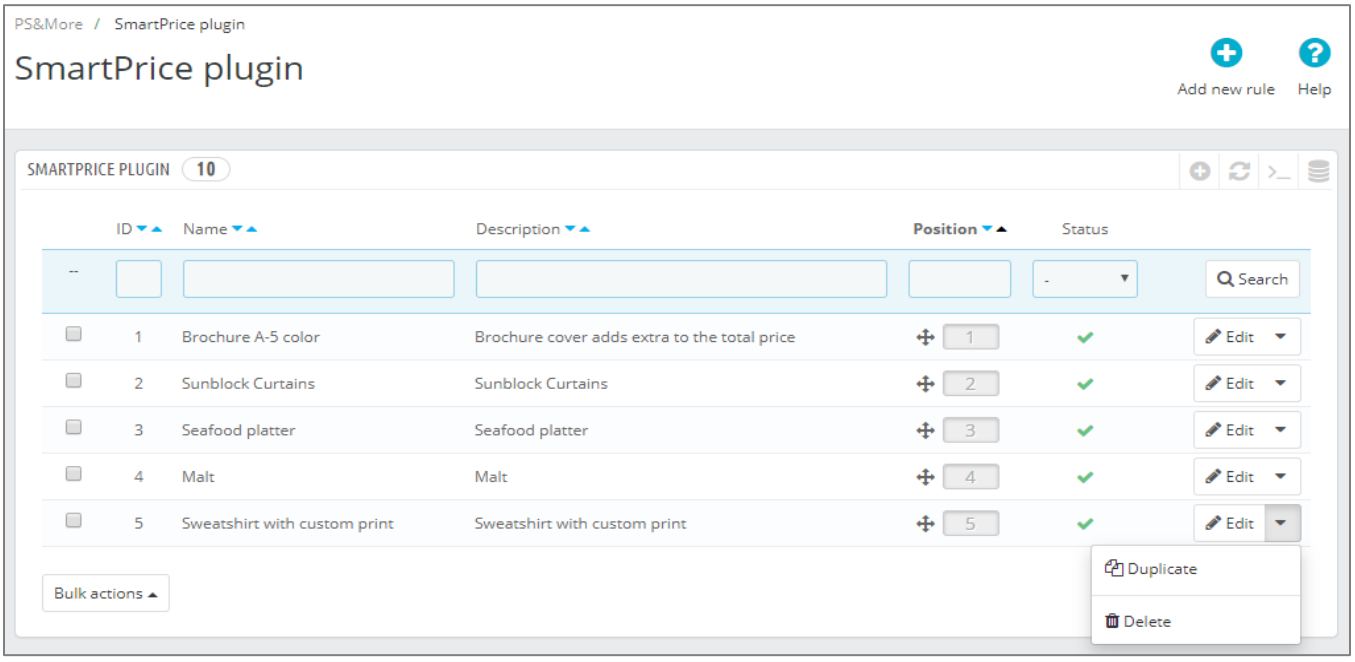
The PS&More Product Properties Extension Smart Price plugin adds additional functionality to the Product Properties Extension module. The plugin allows you to specify rules that affect the product price calculations. You can also add dynamic quantity and price dependent explanations for the customer, making the shopping experience more attractive.

The Smart Price plugin has a rich set of built-in configuration options and rules. It also allows user defined expressions and customization, giving endless possibilities for complex price calculations.

The Smart Price plugin comes in two versions: Basic and Pro.
The Smart Price plugin Pro version adds an additional functionality to the plugin.

Using the Smart Price plugin

You start working with the plugin by creating the Smart Price Rules. Just press the “Add new rule” button. You can edit, duplicate or delete the rule at any time by pressing the “Edit”, “Duplicate” or “Delete” buttons.



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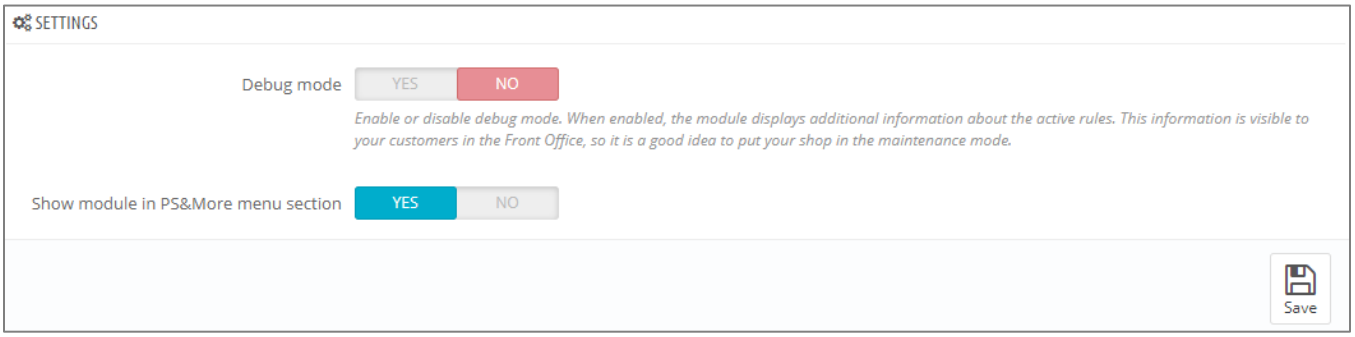
Settings

When working with the plugin you can enable the debug mode. When enabled, the module displays additional information about the active rules and built-in variables. This information is visible to your customers in the Front Office, so it is a good idea to put your shop in the maintenance mode.



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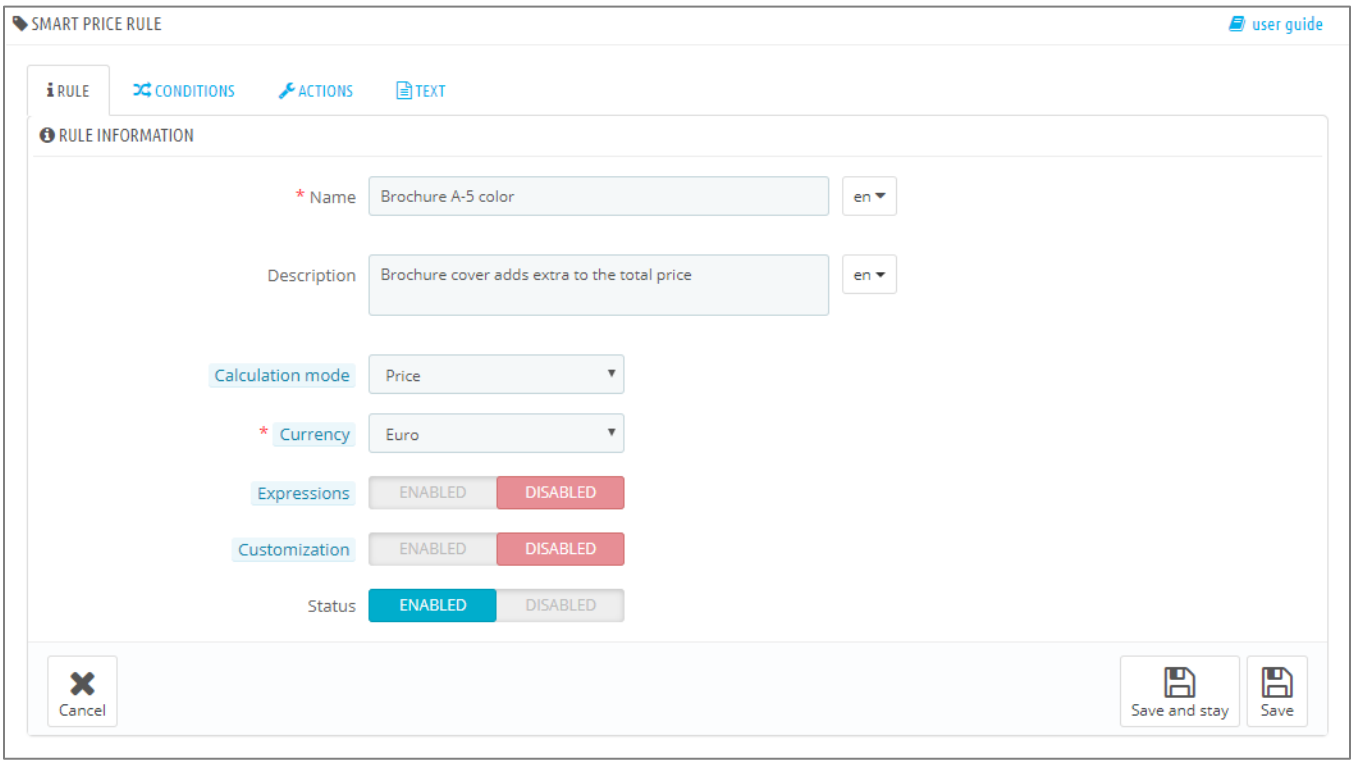
The Smart Price Rule configuration

The Smart Price Rule configuration page has several sections giving access to different rule settings.

Rule Information

You specify general rule configuration information in the “Rule Information” section.



Field	Description
Name	Rule name is an internal name and not visible in the shop. Rule name is **mandatory**.
Description	Rule description. Any text to help you to identify the rule. If you do not give any description, one will be auto generated for you.
Calculation mode	*Pro feature* Calculation mode instructs the module what to do with the results of the calculation. You can choose “Price”, “Weight” or “Custom” mode. In the Price mode (the only mode in the basic version), the result of the calculation updates the product total price. In the Weight mode, the result of the calculation updates the product total weight and is useful to calculate a shipping weight. In the Custom mode, the result of the calculation does not update any product characteristic. It is usually used in a Rule Text as an additional dynamic explanation displayed to the user.

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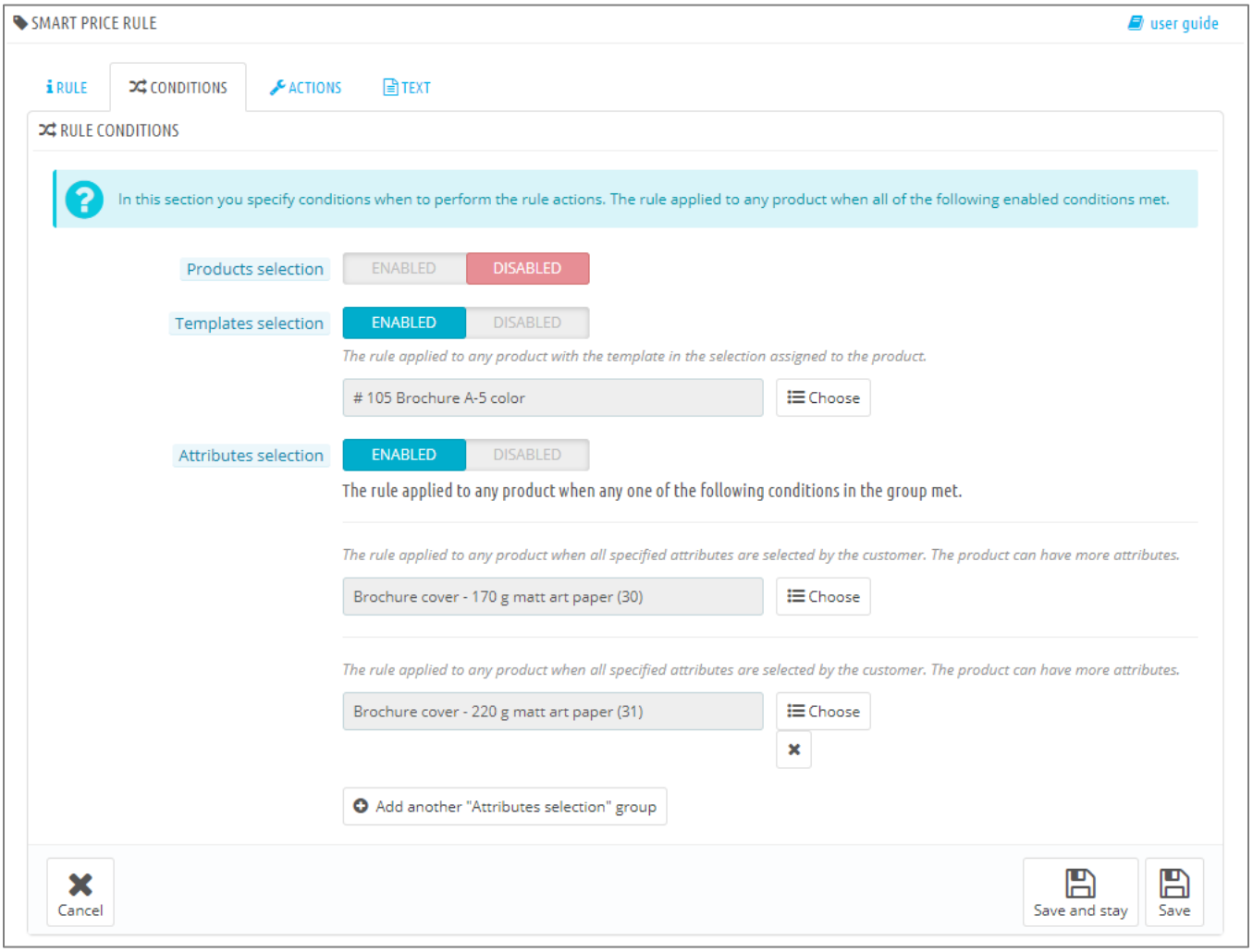
Field	Description
Currency	Currency used to specify the amount related values in the rule's action section. Currency exchange rates used for calculations the amount related values in other currencies. Currency is **mandatory** for calculation mode "Price".
Expressions	You can enable or disable expressions for the rule. If you do not use expressions, for performance reasons leave this option disabled. See the "Using expressions" section in this document.
Customization	You can enable or disable customizations for the rule. If you do not create user defined customizations, for performance reasons leave this option disabled. See the "User defined customizations" section in this document.
Status	You can enable or disable the rule. The disabled rule not used for price calculations.

Rule Conditions

The "Rule Conditions" section specifies conditions when to perform the rule actions. The rule applied to any product when all of the enabled conditions met, meaning that many different products can share the same rule.



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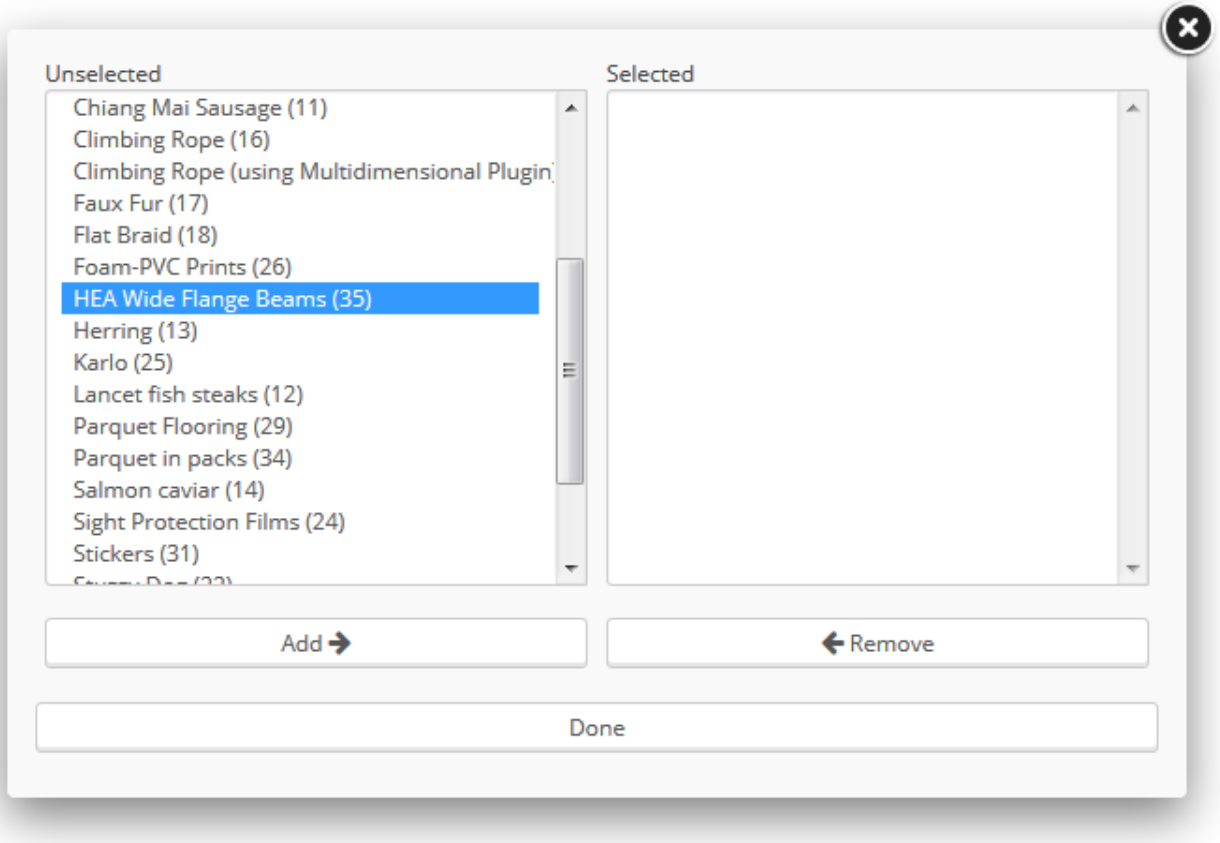
Products selection condition

The product selection condition applied to any product specified in the condition. You select products by using the “Choose” button.

The list of available products appears in new window. Move the products from the left panel to the right one by selecting products and clicking on the "Add" button, and close the window by clicking on the “Done” or on the "X" at the top right.



Templates selection condition

The template selection condition applied to any product with the template in the selection assigned to the product. You manage templates and assign them to the products using the Product Properties Extension module.

Attributes selection condition

The attributes selection condition consists of one or many groups. Each group specifies the attributes combination. The group applied to any product when all specified attributes in the group selected by the customer. You do not need to specify all available product attributes. The product can have more attributes.

The attributes selection condition applied to any product when any one of the attribute group conditions met. You can create as many groups as you need.

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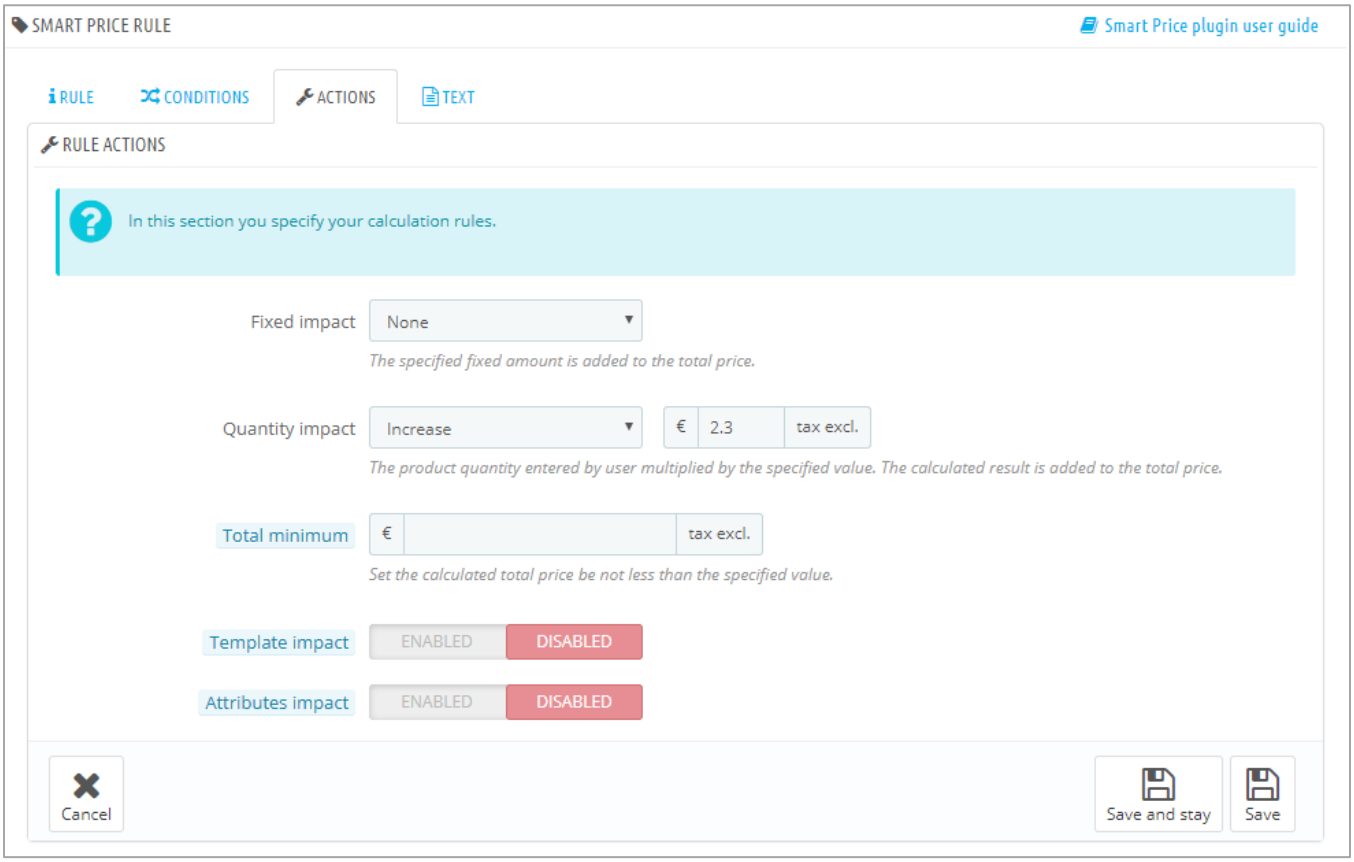
Rule Actions

The “Rule Actions” section is a collection of all actions performed by the rule and specifies how the product total price or weight Pro feature is calculated. You can specify two different types of impacts that affect the result of calculation. If you have enabled expressions for the rule, you can also create the expression. See the “Using expressions” section in this document. Prices specified in the rule’s actions should be without tax.



The **fixed impact** specifies the fixed amount added to (or subtracted from) the total price or weight Pro feature. This amount does not depend on the quantity.

The **quantity impact** depends on the quantity. The product quantity entered by user multiplied by the specified value and the result added to (or subtracted from) the total price or weight Pro feature.

The **total minimum** Pro feature refers to the minimum total calculated by this rule for price, weight or arbitrary custom impact. You can set the calculated total be not less than the specified value.

Impact can be global and applied on the product or can depend on template or attribute. The “Template impact” action is available when the rule conditions define one or more templates in the "Template selection" section. The “Attributes impact” action is available when the rule conditions define one or more attribute groups in the "Attribute selection" section.

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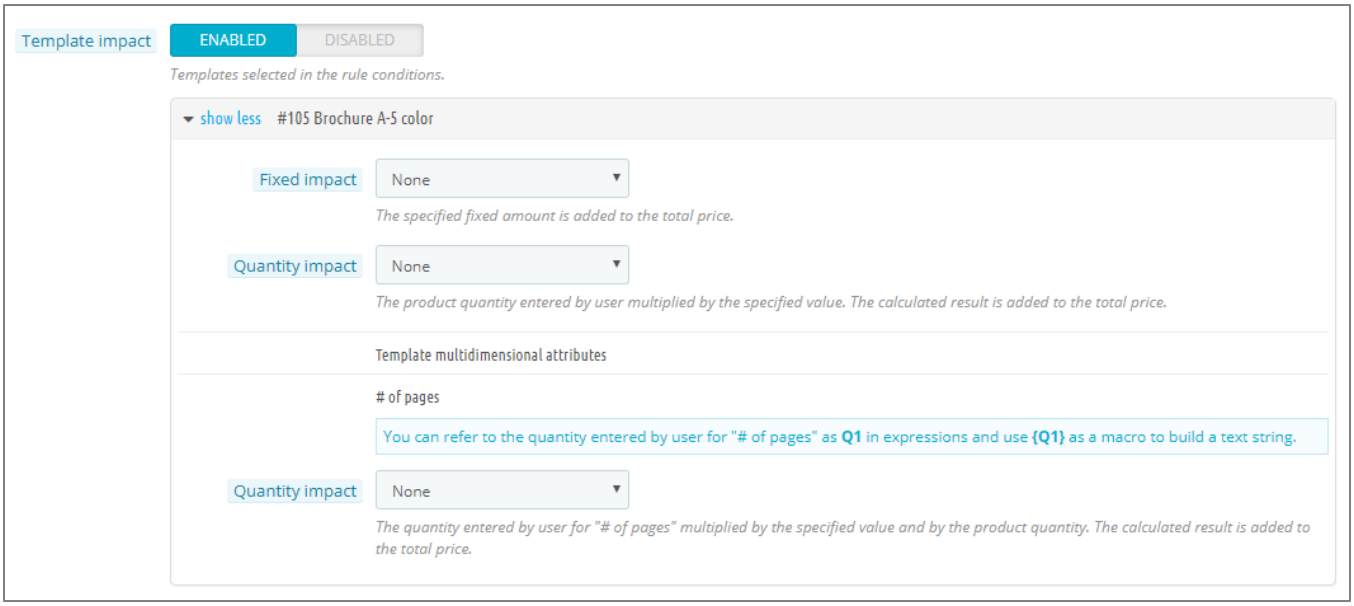
If your product has template that uses the multidimensional feature, the “Template impact” action will include the template related multidimensional attributes.



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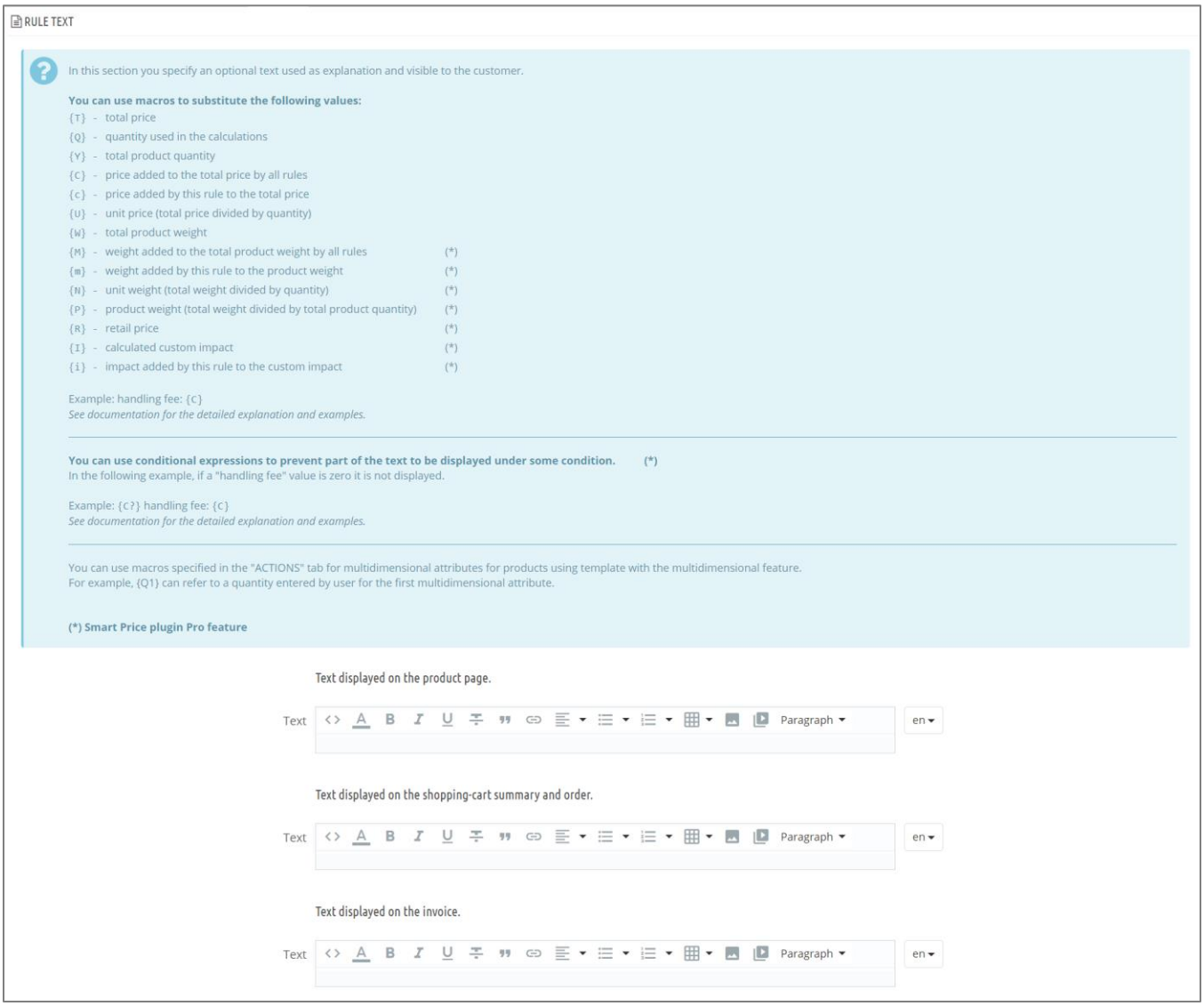
Rule Text

The “Rule Text” section defines optional text used as explanation or price qualification. Different explanation can appear on product page, on the shopping-cart summary and order, and on the invoice. The text is translatable to any language.



You can use macros in the text string to substitute the results of the calculations. All price related macros formatted according to the currency currently used by the customer and include the currency sign. You do not need to specify the currency. For other values, you can use `formatWithCurrency` (since 2.4) built-in function to format a value with the currency sign. The following macros are available.

Macro	Description

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Macro	Description
{T}	The resulting product total price for the quantity specified by user.
{Q}	Quantity used in the calculation.
{Y}	Total product quantity
{C}	The calculated price added to the total price by all rules (uppercase **C**).
{c}	The calculated price added to the total price by the rule, where this text is defined (lowercase **c**).
{U}	Calculated unit price (the total price divided by quantity).
{W}	Calculated product weight (depends on quantity). (since 2.0)
`formatWithCurrency`	Built-in function to format a value with a currency sign. You do not need to use braces. (since 2.4) For example, `formatWithCurrency(Q)`
Smart Price plugin Pro features	
{M}	Weight added to the total product weight by all rules (uppercase **M**).
{m}	The weight added by the rule, where this text is defined (lowercase **m**).
{N}	The unit weight (the total weight divided by quantity).
{P}	The product weight (total weight divided by total product quantity).
{R}	The product retail price without any discount. (since 3.1.8)
{I}	The calculated custom impact (uppercase **I**).
{i}	The impact added to the custom impact , where this text is defined (lowercase **i**).

You can use macros specified in the "Rule Actions" tab for multidimensional attributes for products using template with the multidimensional feature.

For example, {Q1} can refer to a quantity entered by user for the first multidimensional attribute.

Rule Text - Smart Price plugin Pro features

Conditional expressions

You can use conditional expressions to prevent display part of the text under some condition.

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You can apply the conditional expression to any macro. The conditional expression for a macro starts with a question mark after the macro sign and ends with a special {?} macro. When the calculated value for the specific macro is zero the text is not displayed. The ending {?} macro can be omitted if the condition applied for the whole text.

In the following example, if a "handling fee" value is zero it is not displayed.

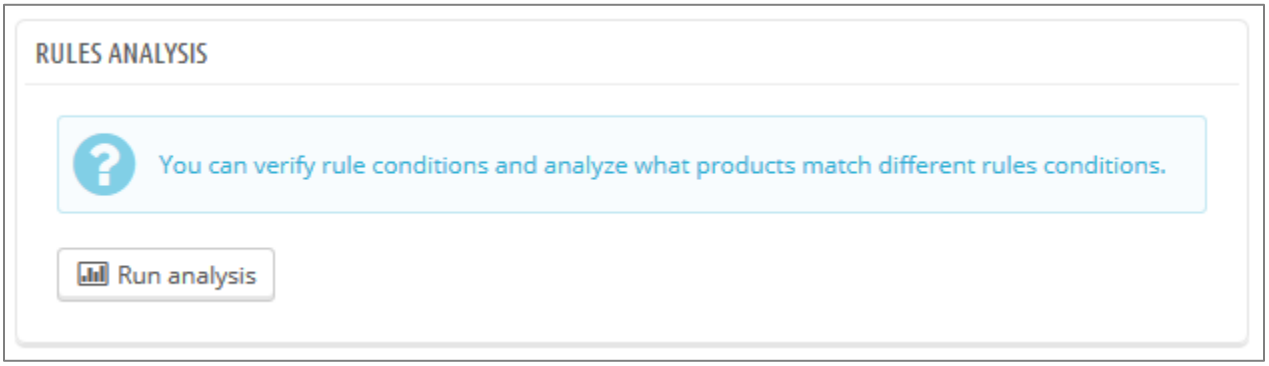
{C?}Handling fee: {C}

Multiple Rules behavior

You can create as many rules as you need. When several rules configured and applied to the same product the rules processed in the order defines by the rule position. The sequence usually does not matter for the price calculation. However, if several rules define texts the resulting text is a concatenation of all texts from all applied rules. In this case, the order of the rules is important. You can easily change the rule position by dragging the anchor in the position column in the rules list and dropping the rule in the new position. See the picture “Using the Smart Price plugin” section in this document.

Rule Analysis

The “Rule Analysis” is a handy tool where you can verify rule conditions and analyze what products match the conditions.



Just press the “Run analysis” button and review the results.

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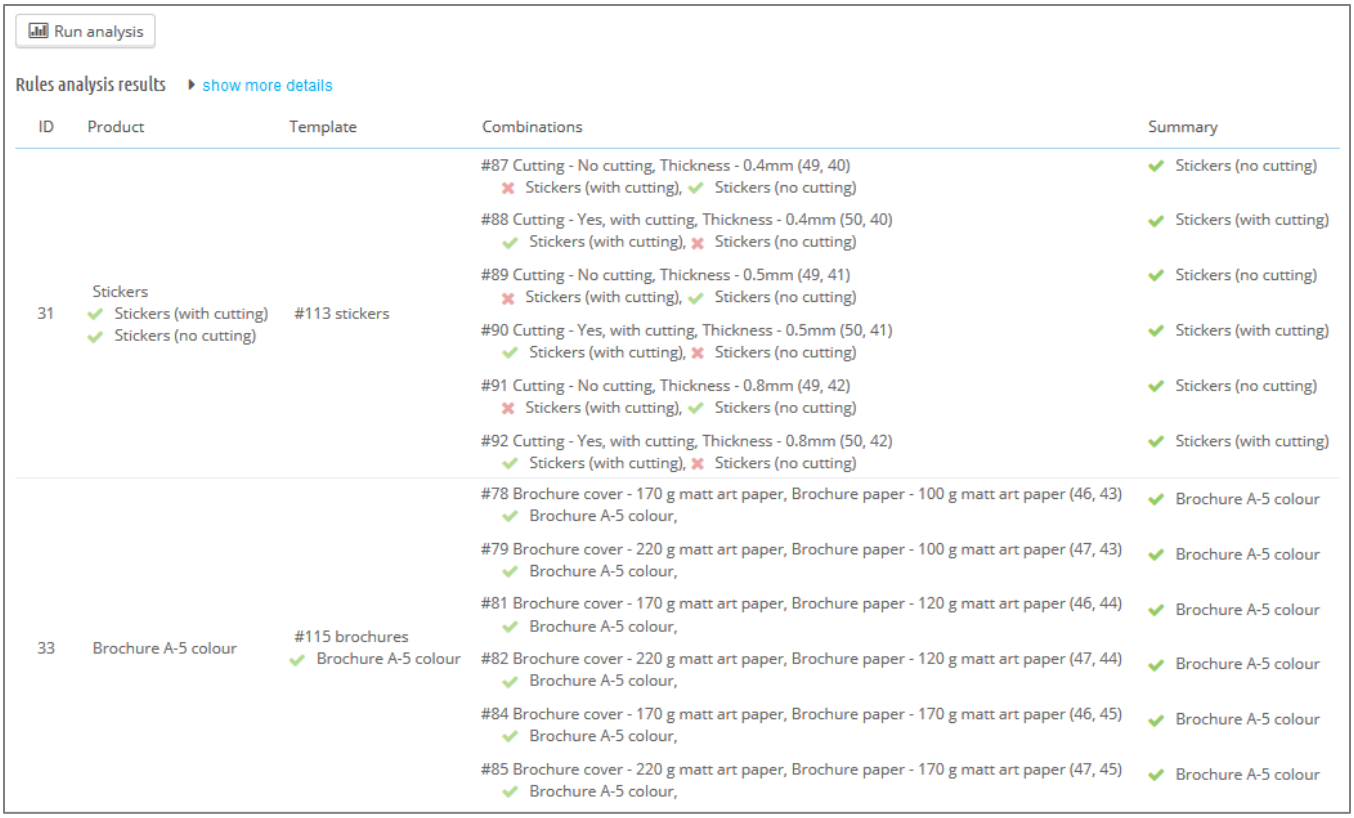

The results organized in the table. Rules that match the conditions indicated by green ✔ sign. Rules that do not match the conditions indicated by red ✖ sign. If you would like to see more detailed analysis results, you can press the “show more details” link.

The **ID** column specifies the product id used in the analysis.

The **Product** column shows the product name and list all the rules that have “Products selection” condition enabled and match the product.

The **Template** column shows the template name and list all the rules that have “Templates selection” condition enabled and match the product.

The **Attributes** column shows the product combinations together with the attribute names and list all the rules with “Attributes selection” condition enabled and have the “Attributes selection” groups match the product.

The **Summary** column is the most interesting column. The rules match all conditions and apply to the product indicated by green ✔ sign.

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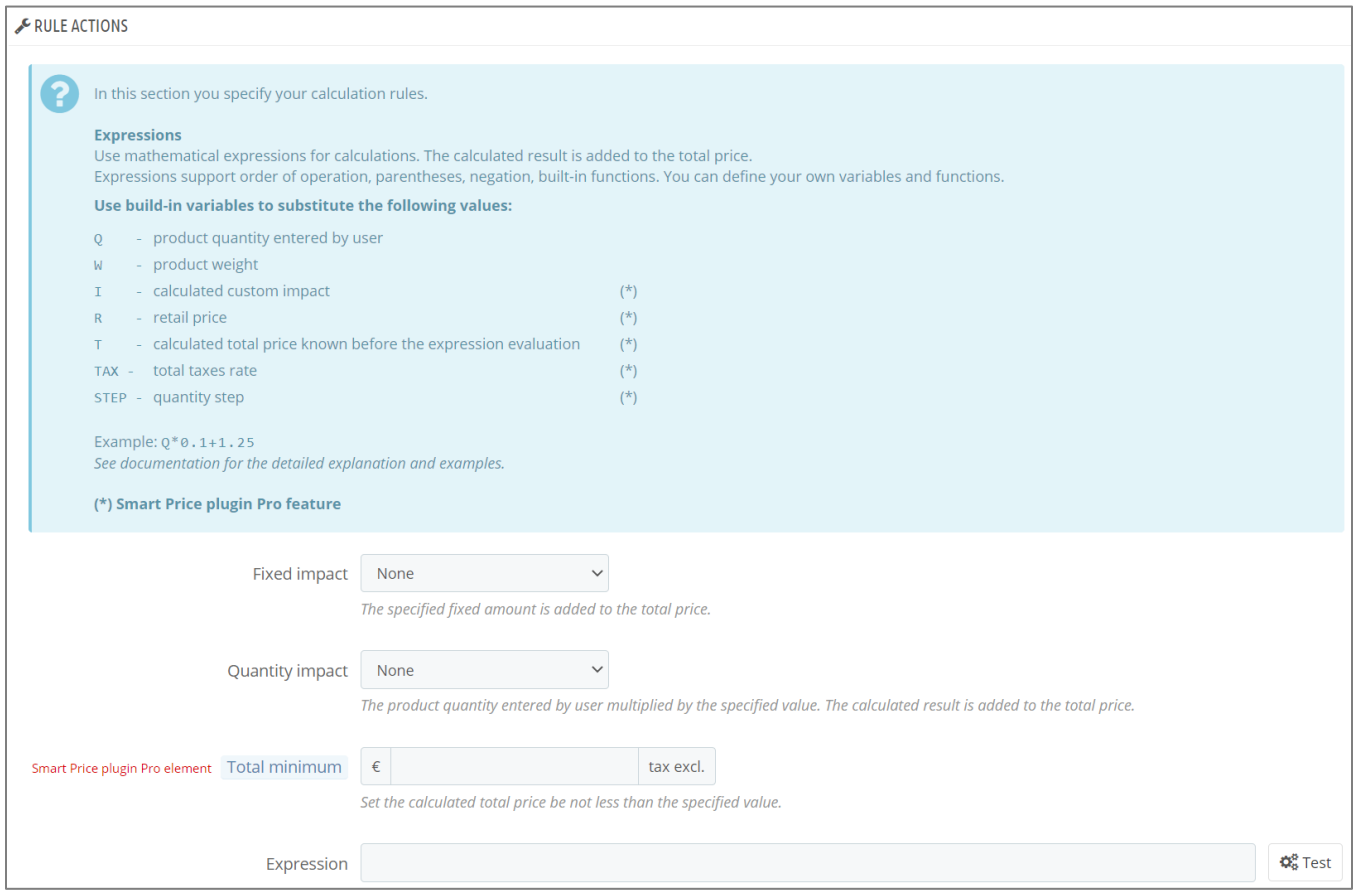
Using expressions

The Smart Price plugin supports mathematical expressions defined by user. To use expressions you need to enable this option in the “Rule Information” section. When enabled, the “expression” input field appears in the “Rule Actions” section together with the impact fields.



You define expressions to calculate price, weight (Pro feature) or custom impact (Pro feature). The module adds the calculated result to the total price, weight or custom impact.

Expressions can use +, -, *, /, ^,<,<=,>,>=,== mathematical operators. Expressions support order of operation, parentheses, negation, built-in functions. You can define your own variables and functions. When using variables and functions, separate your definitions by semicolons.

Here are several simple examples:

```
2+2
-8(5/2)^2*(1-sqrt(4))-8
```

You can create your own variables:

```
a = e^(ln(pi))
```

or functions:

```
f(x,y) = x^2 + y^2 - 2x*y + 1
```

and then use them:

```
3*f(42,a)
```

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When using variables and functions, separate your definitions and calculations by semicolons:

```
a = e^(ln(pi)); f(x,y) = x^2 + y^2 - 2x*y + 1; 3*f(42,a)
```

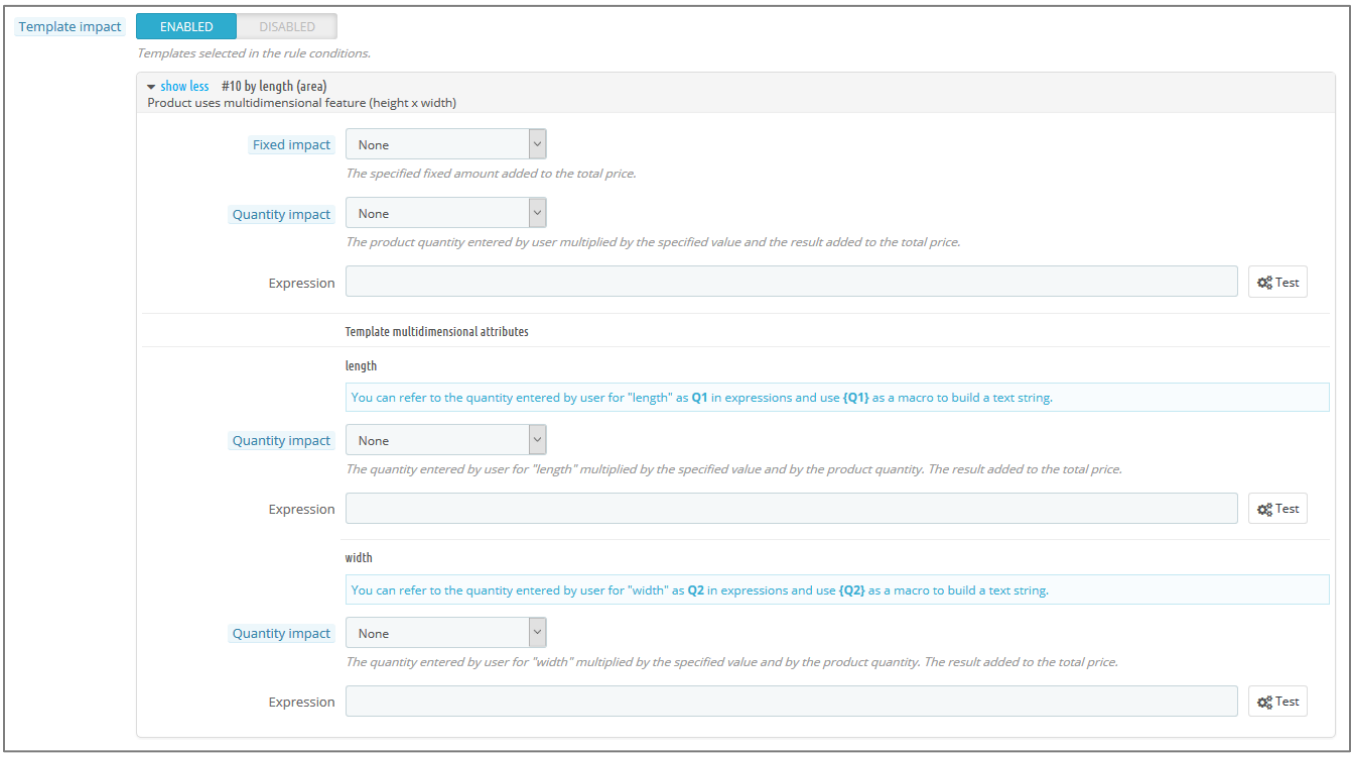
You can use built-in variables that hold user input. For example, variable **Q** refers product quantity entered by user, and you can create expression using this variable:

```
Q*0.2+1.3
```

Note: always use dot as a decimal separator in numbers.

If your product uses template with the multidimensional feature, built-in variables **Q1**, **Q2** and **Q3** hold user input for each dimension in the order the dimensions defined in the template. For convenience, expression for each multidimensional attribute shows the name of the built-in variable that holds user input for this dimension. You can use the attribute related variables in any expression for products with this template. This works even if you do not specify templates in the rule conditions "Template selection" section.

```
Q1*Q2+0.6
```



Testing expression

You can test expression by clicking the “Test” button. When testing expression, the constant value “1” assigned to all built-in variables, like variable **Q**, that holds user input.

See “**Appendix A**” for a full list of build-in operators, variables and functions.

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User defined customizations

The Smart Price plugin supports customizations defined by user. You can write your own code in PHP and the plugin will call your code when needed. You can write code that calculates the product or total price, or your own explanation text. From your code, you can call PrestaShop internal methods, access the database or perform any other designed activities. This gives endless possibilities to adjust the price calculations to your needs.

In order to use the customizations, you need to install free "Product Properties Extension customization" module. Please contact our friendly customer support team for instructions. PS&More team can also write code for you and provides paid customization service for our customers.

Installation Instructions

The PS&More Product Properties Extension Smart Price module is a plugin and requires the Product Properties Extension module (sold separately) to be installed and work correctly. The plugin extends the functionality of the Product Properties Extension module and works together with the module. The Product Properties Extension module is a main engine. The plugin cannot work separately without the Product Properties Extension module.

To install the plugin module, follow the PrestaShop documentation how to install the PrestaShop modules.

The installation procedure automatically integrates the plugin with the PS&More PrestaShop Product Properties Extension module.

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Appendix A

Using expressions

The PS&More Product Properties Extension Smart Price plugin expression engine supports the following built-in operators, variables and functions.

Table 1: Mathematical Operators

Name	Description
+	plus (addition)
-	minus (subtraction) or negation operator (opposite of number)
*	multiplication (product of two numbers)
/	division (quotient of two numbers)
^	power
==	equal (since 3.1.17)
<	less than (since 3.1.17)
>	greater than (since 3.1.17)
<=	less than or equal (since 3.1.17)
>=	greater than or equal (since 3.1.17)

Table 2: Variables

Name	Description
pi	mathematical constant ***π***, the ratio of a circle's circumference to its diameter (approximately 3.14159)
e	mathematical constant ***e***, base of the natural logarithm (approximately 2.71828)
Q	product quantity entered by user
W	calculated product weight (depends on quantity) (since 2.0)
Q1, Q2, etc.	You can use macros specified in the "ACTIONS" tab for multidimensional attributes for products using template with the multidimensional feature. For example, {Q1} can refer to a quantity entered by user for the first multidimensional attribute.
Smart Price plugin Pro features	
I	calculated custom impact
R	retail price (since 3.1.7)
T	calculated total price known before the expression evaluation (since 3.1.10)
TAX	total taxes rate (since 3.1.7)
STEP	quantity step (since 3.1.6)

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Table 3: Functions

Name	Description
built-in function without arguments, for example: pi()	
pi()	mathematical constant ***π***
rand_float()	generate a random float
built-in function with one argument, for example: sqrt(16)	
sin, sinh, arcsin, asin, arcsinh, asinh cos, cosh, arccos, acos, arccosh, acosh tan, tanh, arctan, atan, arctanh, atanh	trigonometric circular and hyperbolic functions
sqrt	square root
abs	absolute value
ln	natural logarithm (alias log can be used)
exp	calculates the exponent of ***e***
round	rounds a float to zero number of digits after the decimal point (see also **round** with two arguments)
floor	round fractions down
ceil	round fractions up
built-in function with two arguments, for example: rand_int(0, 10)	
round(value, precision)	rounds a float to specified precision (number of digits after the decimal point)
rand_int(min, max)	generate a random integer between **min** and **max**
mod(a, b)	modulus (remainder of **a** divided by **b**)
power(base, exp)	exponential expression (**base** raised to the power of **exp**)
built-in function with multiple arguments, for example: average(2, 4.8, 6.5, 12)	
max	maximum (find highest value)
min	minimum (find lowest value)
sum	summation (find sum of values)
average	find average
Smart Price plugin Pro features	
array (since 3.1.19)	creates an array (variable = array(1,2,3,4,5))
[] (since 3.1.19)	creates an array (variable = [1,2,3,4,5])
logical functions	
equals(a, b) (since 2.6) eq(a, b) (since 3.1.10)	returns 1 if **a** equals **b**; 0 otherwise
ne(a, b) (since 3.1.10)	returns 1 if **a** not equals **b**; 0 otherwise
lt(a, b) (since 3.1.10)	returns 1 if **a** less than **b**; 0 otherwise
gt(a, b) (since 3.1.10	returns 1 if **a** greater than **b**; 0 otherwise
le(a, b) (since 3.1.10)	returns 1 if **a** less than or equal **b**; 0 otherwise
ge(a, b) (since 3.1.10	returns 1 if **a** greater than or equal **b**; 0 otherwise
not(x) (since 2.6)	negates the argument returns 1 if the arguments evaluates to zero or 0 if the argument evaluates to any other value
and (since 3.1.17) all (since 3.1.17)	logical “and”, accepts multiple arguments

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Name	Description
	returns 1 if all arguments evaluate to "true" or 0 otherwise
or (since 3.1.17) any (since 3.1.17)	logical "or", accepts multiple arguments returns 1 if any argument evaluates to "true" or 0 otherwise
if(x, arg1, arg2) (since 2.6)	logical "if" returns arg1 if **x** evaluates to true or any non-zero value or arg2 otherwise
choice(x, arg1, arg2, …, argN) (since 2.6)	logical choice returns arg based on the value of **x** (starting from 1) for x=1 returns arg1, for x=2 returns arg2, etc. returns 0 if x<1 or there are not enough arguments
Smart Price plugin Pro features	
range(x, b1, b2, b3, …, bN) (since 3.1.19)	logical range returns a range number (starting from 1) based on the value of **x** for b1<=x<b2 returns 1, b2<=x<b3 returns 2, etc. returns 0 if x<b1 returns N if x >= bN (the last boundary)
pick(x, y, mode| x1, x2, x3, …, xK| y1, y2, y3, …, yN| v11, v12, v13, …, v1K, v21, v22, v23, …, v2K, v31, v32, v33, …, v3K, … vN1, vN2, vN3, …, vNK) (since 3.1.19) xrange = [x1,x2,x3,…,xK] yrange = [y1,y2,y3,…,yN] pick(x, y, xrange, yrange, v11, v12, v13, …, v1K, v21, v22, v23, …, v2K, v31, v32, v33, …, v3K, … vN1, vN2, vN3, …, vNK)	pick a value from a two-dimensional matrix based on x and y The function searches for the corresponding indices based on the values x and y from the x-range and y-range and picks a matching element from the provided matrix. ○ x- range can be a plain list of K elements x1,x2 separated by comma and ended with a | symbol or an array variable (in this case a regular comma can be used instead of the ending | symbol ○ y- range can be a plain list of N elements y1,y2 separated by comma and ended with a | symbol or an array variable (in this case a regular comma can be used instead of the ending | symbol ○ values matrix is a two-dimensional matrix with K columns and N rows written continuously row by row ○ mode specifies how the function searches for the index in the x-range or y-range, can be omitted, defaults to a regular mode *mode 0 – regular mode* for x<x1 or x1<=x<x2 returns index of the first column, x2<=x<x3 returns index of the second column, etc. for x>=xK returns index of the last column The same logic is applied for y, y-range and rows. *mode 1 – median for columns* for x < (x1+x2)/2, returns index of the first column, (x1+x2)/2<=x<(x2+x3)/2 returns index of the second column, etc. for x>=(xK_{-1}+xK)/2 returns index of the last column The regular mode logic is applied for y, y-range and rows. *mode 2 – median for rows* The regular mode logic is applied for x, x-range and columns.

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Name	Description
	for y < (y1+y2)/2, returns index of the first row, (y1+y2)/2<=y<(y2+y3)/2 returns index of the second row, etc. for y>=(yN_{-1}+yN)/2 returns index of the last row *mode 3 – median for columns and rows*

(**since X**) since version X

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