Guidelines for the use of the selectivity module

This application software allows the user to manage selectivity at 380Vac-415Vac between circuit-breakers type Emax – Tmax – Tmax XT – System pro M.
It consists of three operating modules (Module 1 – Module 2 – Module 3) representing the most common plant engineering situations which can be summarized as the need to know:
- the selectivity value for a known combination (module 1);
- the typology of downstream (module 2) or upstream (module 3) circuit-breakers in order to obtain selectivity under the desired operating conditions.
The three modules are illustrated in an introductory page which schematizes the available searching options.

Here is a brief description of the three-module structure:

Module 1

this module allows the selection of the circuit-breaker type on both the load as well as the supply side by means of a guided choice. The result given is the limit selectivity value at 380Vac-415Vac.
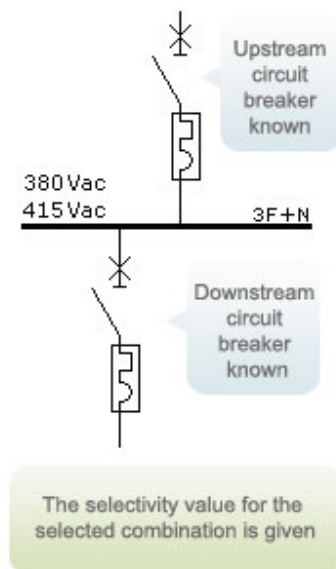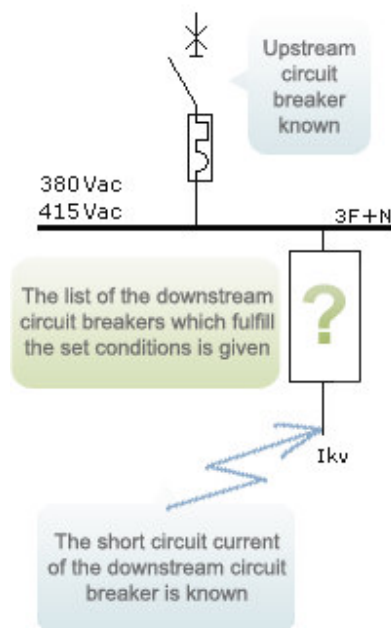
Module 2

this module represents the situation of the plant in which the upstream circuit-breaker is known. The user is requested to:

- select the upstream circuit-breaker through guided choice;
- insert the short-circuit current value of the plant at the installation point of the downstream circuit-breaker.

The given result is a list of the downstream circuit-breakers which guarantee selectivity at 380Vac-415Vac under the defined conditions.

Module 3

this module represents the situation of the plant in which the downstream circuit-breaker is known. The user is requested to:

- select the downstream circuit-breaker through guided choice;
- insert the short-circuit current value of the plant at the installation point of both the downstream as well as the upstream circuit-breaker.

The given result is a list of the upstream circuit-breakers which guarantee selectivity at 380Vac-415Vac under the defined conditions.
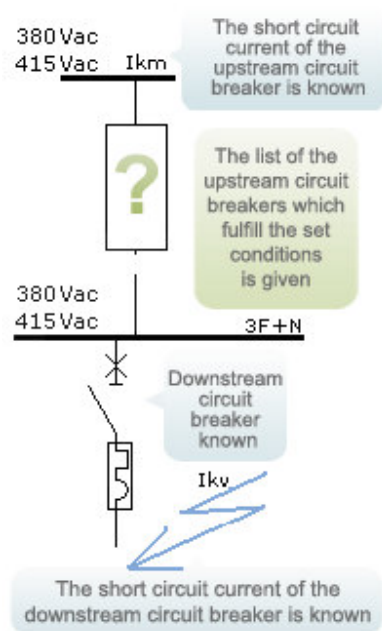
The user is guided through the identification of the circuit-breakers by filling in the different fields, which has to be made in sequence.

Here is a description of the meaning of the different windows which the user finds during the compilation phase.

The choices made possible by the different windows are subordinated to the availability of selective combinations and not to the generic availability of products. For example, as circuit-breaker on the load side the series System pro M is not shown because there isn't a selective combination with the miniature circuit-breaker in this position, or for the circuit-breakers of the Tmax series when chosen as upstream circuit-breaker, low rated currents are not proposed because, even if they are commercially available, they do not guarantee selective combinations. Numbers must be entered with decimal digits separated by dot, comma separator cannot be used (e.g.: 25.8 is accepted, 25,8 is not accepted).

In details, here is the meaning of the names given to the different selection windows:

- **Series:** it shows the name of the "macrofamily" of circuit-breakers taken into consideration. The following circuit-breakers are proposed: Emax – Tmax – Tmax XT – System pro M.
- **Circuit-breaker:** in correspondence with the series previously selected, this window shows the circuit-breaker types. E.g. for the series Tmax XT the choice between XT1 – XT2 – XT3 – XT4 is presented.
- **Version:** it allows the letter identifying the breaking capacity of the circuit-breaker to be chosen. As regards miniature circuit-breakers, this field is not pertinent and therefore the abbreviation N/A (Not Applicable) is proposed.
- **Size:** it gives the maximum current value of the selected circuit-breaker. For the circuit-breakers of the System pro M family this datum might result unusual but, by analogy in the management of the different options, the maximum rated current value of the circuit-breaker has been considered (e.g. 63A for circuit-breakers from S200L to S200P or 125A for circuit-breakers S290).
- **Trip unit:** it gives the types of electronic (PR… or Ekip) or thermomagnetic trip unit (TMA or TMD) which are available according to the circuit-breaker typologies previously selected. In this field, for the circuit-breakers of the System pro M family, the available curves (Curve B – Curve C – etc.) are shown.
- **Rated current In:** it gives, from the point of view of selectivity, the rated current available for the selected trip unit and for all the other choices previously made.

The different modules are associated with error messages which warn the user in case of choices not consistent between them.

For example, for the module 1, the logic of selection taken into consideration does not allow size and rated current of the downstream circuit-breaker to exceed the same parameters of the upstream circuit-breaker. In the modules 2 and 3 there is an information message which signals if the user enters upstream or downstream fault current values not consistent with the breaking capacity of the circuit-breakers and which helps in the correct compilation.

There are some navigation push-buttons which allow moving through the program.

From the main page, through the push-button [Enter] the module of one's own interest is entered.

In each module:

- the push-button [Show the results] allows the proposal based on the choices made to be displayed.

- the push-button [Reset] allows erasing of the previous choices and restarting with all the fields cleared.

- the push-button [Back] goes back to the main page to change the module.

In the modules 2 and 3, the suggested solution consists of a list of circuit-breakers which satisfy the selection parameters set. There is the possibility of managing this list through filters represented by the following icon [▽] [▼] (light grey to signify that the "filter is not active"; dark grey for "filter active") so that the suggested solutions are viewed according to one's own requirements.

A print output is available for each module and it is identified by the following icon [🖶].

NOTE
In consideration of modifications to Standards, the indications given in the "selectivity module" may be considered binding only after confirmation by ABB SACE.