

# Ecodial 4.8

The improvements & fixes as compared with the previous version

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# Authentication Module

# Authentication Module

One time registration is mandatory

Note :

1. User will be able to create a new project, only after completing the registration steps...
2. The user 'authentication module' will open only on the IE version above 8 (IE8 is excluded)

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## Ecodial Advance Calculation INT<sup>4.8</sup>

The screenshot displays the user interface of the 'Ecodial Advance Calculation INT<sup>4.8</sup>' application. A central dialog box with a green title bar and a question mark icon contains the text: 'You need to register to use this application (requires internet connection). Do you want to continue?'. Below the text are 'OK' and 'Cancel' buttons. The background interface includes a 'Projects' section with 'Recent projects', a 'Latest news' section with a scrollable list of news items, and a bottom navigation area with buttons for 'Create a new project' and 'Open an existing project'. On the left side, there is a vertical menu with buttons for 'Tutorials', 'Find a version', 'About', 'Options', and 'Exit'.

# Reference method of installation 'E' & 'F'

Installation methods "31, 32, 33 & 34"

# Reference Method : F

The calculation & sizing is now enhanced up to 19 “number of additional touching circuits”

The default “tray number” is one (1)

The limitation of 2 “number of additional touching circuits is still valid, while the other tray numbers are specified by the users.

The screenshot displays the 'Report' window of the Ecodial Advance Calculation software. The main area shows a circuit diagram with various components and their properties:

- Source 0:** MVQA 0, MWWD 0 (10 m, 1 x 185 Al)
- TA 0:** Trihal, 3150 kVA, 20 kV / 400 V, 20 A, 3 B
- WD 0:** 5 m, Ph: 9x300 Cu, Ne: 9x300 Cu, PE: 5x300 Cu
- QA 0:** NW50H1, Micrologic 5.0 E, 5000 A / 4P4d
- WC 1:** (connected to QA 0)
- UC 2:** No preference, Undefined, 0 A
- QA 3:** NSX630H, Micrologic 2.3, 630 A / 4P4d
- WD 3:** 5 m, Ph: 1x240 Cu, Ne: 1x240 Cu, PE: 1x120 Cu
- AA 3:** 500 A, P.F.: 0.85, Nbr. of circuits: 1, Ku: 1
- Load 3:** (connected to QA 3)

The right-hand side shows the 'Properties' panel for 'LV cable WD 0':

Size with current	Ir
Type	LV cable
Cable length (m)	5
Conductor metal of phase(s)	Copper
Conductor metal of PE	Copper
Insulation	XLPE
Live conductors	Single-core
PE	Separate PE
Installation method	31 / F
Single-core cables on horizontal perforated tray <a href="#">Modify the installation m</a>	
Maximum permissible CSA (mm <sup>2</sup> )	300
THDI3 (%)	0
ΔU max. circuit (%)	2
Correction factor	1

Below the properties panel, the 'Solution' section shows:

<b>Phase</b>	
Nbr. per phase	9
Phase CSA (mm <sup>2</sup> )	300

# Reference Method : E

The calculation & sizing is now enhanced up to 19 “number of additional touching circuits”

The default “tray number” is one (1)

The limitation of 9 “number of additional touching circuits is still valid, while the other tray numbers are specified by the users (arrangement : Touching)

The limitation of 6 “number of additional touching circuits is still valid, while the other tray numbers are specified by the users (arrangement : Spaced)

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The screenshot displays the Ecodial Advance Calculation 4.8 INT software interface. The main window shows a circuit diagram with various components and their properties. The 'Report' tab is active, and the 'Properties' panel is open for 'LV cable WD 0'.

**Properties Panel: LV cable WD 0**

Size with current	Ir
Type	LV cable
Cable length (m)	5
Conductor metal of phase(s)	Copper
Conductor metal of PE	Copper
Insulation	XLPE
Live conductors	Multi-core
PE	PE included
Installation method	31 / E
Multi-core cables on horizontal perforated tray	<a href="#">Modify the installation m</a>
Maximum permissible CSA (mm <sup>2</sup> )	300
THDI3 (%)	0
ΔU max. circuit (%)	2
Correction factor	1

**Solution**

<b>Phase</b>	
Nbr. per phase	11
Phase CSA (mm <sup>2</sup> )	300

**Circuit Diagram Components:**

- Source 0: MVQA 0, MWVD 0 (10 m, 1 x 185 Al)
- TA 0: Trihal, 3150 kVA, 20 kV / 400 V
- WD 0: 5 m, Ph : 11x300 Cu, Ne : 11x300 Cu, PE : 11x150 Cu
- QA 0: NW50H1, Micrologic 5.0 E, 5000 A / 4P4d
- WC 1
- UC 2: No preference, Undefined, 0 A
- QA 3: NSX630H, Micrologic 2.3, 630 A / 4P4d
- WD 3: 5 m, Ph : 1x240 Cu, Ne : 1x240 Cu, PE : 1x120 Cu
- AA 3: 500 A, P.F. : 0.85, Nbr. of circuits : 1, Ku : 1
- Load 3

# Reference Method : E

The calculation & sizing is now enhanced up to the “Tray number (6)”

## Live conductor type : Multi-core conductor

### 1. Method Of Installation ?

Situation

- Overhead
- Surface mounted**
- Cable channel
- Embedded in structure
- Buried in ground
- Building voids

Air ambient temperature  (°C)

Installation System

- Conduit
- Cable ladder, cable tray, cable brackets**
- Clipped direct
- Cable trunking (including skirting trunking, flush floor trunking)
- Cable ducting

- on horizontal perforated tray
- on vertical perforated tray
- on brackets or on a wire mesh
- spaced more than 03 times cable diameter from a wall
- on ladder**

### 2. Additional settings for grouping factor

Arrangement Touching Circuit

- cables touching**
- cables spaced of 1 diameter alone

Number Of Trays

Number of additional touching circuits



### 3. Results

Method Number **34**  
Reference Method **E**  
Description **multi-core cables on ladder**



# Reference Method E

**Table B.52.20 – Reduction factors for group of more than one multi-core cable to be applied to reference current-carrying capacities for multi-core cables in free air – Method of installation E in Tables B.52.8 to B.52.13**

Method of installation in Table A.52.3			Number of trays or ladders	Number of cables per tray or ladder					
				1	2	3	4	6	9
Perforated cable tray systems	31		1	1,00	0,88	0,82	0,79	0,76	0,73
			2	1,00	0,87	0,80	0,77	0,73	0,68
			3	1,00	0,86	0,79	0,76	0,71	0,66
			6	1,00	0,84	0,77	0,73	0,68	0,64
Cable ladder systems, cleats, etc. (note 3)	32 33 34		1	1,00	0,87	0,82	0,80	0,79	0,78
			2	1,00	0,86	0,80	0,78	0,76	0,73
			3	1,00	0,85	0,79	0,76	0,73	0,70
			6	1,00	0,84	0,77	0,73	0,68	0,64



# Reference method of installation 'D1' & 'D2'

Installation methods "70, 71, 72 & 73"

# Reference Method : D1

Conductors at 'cable ducting' & 'in the Ground' is known reference method D1

Table B.52.19 for "group reduction factor" is updated.

The calculation & sizing is now enhanced up to 19 "number of additional touching circuits"

The screenshot displays the Ecodial Advance Calculation 4.8 INT software interface. The main window shows a circuit diagram with various components and their properties. The 'Properties' panel on the right is focused on the 'LV cable WD 0'.

**LV cable WD 0**

Size with current	Ir
Type	LV cable
Cable length (m)	5
Conductor metal of phase(s)	Copper
Conductor metal of PE	Copper
Insulation	XLPE
Live conductors	Multi-core
PE	PE included
Installation method	70 / D1
Maximum permissible CSA (mm <sup>2</sup> )	300
THDi3 (%)	0
ΔU max. circuit (%)	2
Correction factor	1

**Solution**

Phase	
Nbr. per phase	13
Phase CSA (mm <sup>2</sup> )	300

The circuit diagram shows a source (Source 0) connected to a transformer (TA 0) and a circuit breaker (QA 0). The circuit is protected by a circuit breaker (QA 3) and a fuse (AA 3). The load (Load 3) is connected to the circuit. The properties panel shows the details for the LV cable WD 0, including its length, conductor metal, insulation, and installation method.

# Reference Method : D2

Conductors directly 'in the ground' is grouped as reference method D2

The following "current carrying capacity" tables are updated.

Table B.52.2

Table B.52.3

Table B.52.4

Table B.52.5

The screenshot displays the Ecodial Advance Calculation 4.8 INT software interface. The main window shows a circuit diagram with various components and their properties. The 'Report' tab is active, and the 'Properties' panel is open for 'LV cable WD 0'. The circuit diagram includes a source (Source 0), a transformer (TA 0), a circuit breaker (QA 0), and a load (Load 3). The properties panel for 'LV cable WD 0' is as follows:

Property	Value
Size with current	Ir
Type	LV cable
Cable length (m)	5
Conductor metal of phase(s)	Copper
Conductor metal of PE	Copper
Insulation	XLPE
Live conductors	Multi-core
PE	PE included
Installation method	72 / D2
Maximum permissible CSA (mm <sup>2</sup> )	300
THDi3 (%)	0
ΔU max. circuit (%)	2
Correction factor	1

The 'Solution' section shows the following results:

Phase	Value
Nbr. per phase	11
Phase CSA (mm <sup>2</sup> )	300

# Reference Method : D2

Table B.52.18  
for “group reduction factor” is updated.

The calculation & sizing is now  
enhanced up to 19 “number of additional  
touching circuits”

The screenshot displays the Ecodial Advance Calculation 4.8 INT software interface. The main window shows a circuit diagram with various components and their properties. The 'Report' tab is active, and the 'Properties' panel is open for 'LV cable WD 0'.

**LV cable WD 0 Properties:**

Size with current	Ir
Type	LV cable
Cable length (m)	5
Conductor metal of phase(s)	Copper
Conductor metal of PE	Copper
Insulation	XLPE
Live conductors	Multi-core
PE	PE included
Installation method	72 / D2
Maximum permissible CSA (mm <sup>2</sup> )	300
THDi3 (%)	0
ΔU max. circuit (%)	2
Correction factor	1

**Phase Summary:**

Nbr. per phase	11
Phase CSA (mm <sup>2</sup> )	300

**Circuit Diagram Components:**

- Source 0: MVQA 0, MVWD 0 (10 m, 1 x 185 Al)
- TA 0: Trihal, 3150 kVA, 20 kV / 400 V
- WD 0: 5 m, Ph: 11x300 Cu, Ne: 11x300 Cu, PE: 11x150 Cu
- QA 0: NW50H1, Micrologic 5.0 E, 5000 A / 4P4d
- QA 3: NSX630H, Micrologic 2.3, 630 A / 4P4d
- WD 3: 5 m, Ph: 1x240 Cu, Ne: 1x240 Cu, PE: 1x120 Cu
- AA 3: 500 A, P.F.: 0.85, Nbr. of circuits: 1

# 1/2 PE conductor - priority solution


Full PE conductor is optional

# 1/2 PE conductor – priority selection

While sizing the cable with 'Multi core – included PE' the priority solution is 1/2 PE

Full PE is optional – from the manual choice controller

## LV cable WD 0

Size with current	Ir	▼
Type	LV cable	▼
Cable length (m)	5	
Conductor metal of phase(s)	Copper	▼
Conductor metal of PE	Copper	▼
Insulation	XLPE	▼
Live conductors	Multi-core	▼
PE	PE included	▼
Installation method	72 / D2	
Sheathed multi-core cables direct in the ground without added mechanical protection		<a href="#">Modify the installation</a>

Calculated products  Entire catalogue

	3Ph+N 3Ph+N/2 <b>3Ph+N+PE</b> 3Ph+N, separate PE 3Ph+N/2+PE 3Ph+N/2, separate PE	PVC Rubber, 70°C Rubber, 85°C	185 240 <b>300</b> 400 500 630	
<b>Nbr. per phase</b>	<b>Conductor metal of neutral</b>	<b>Neutral CSA</b>	<b>Nbr. neutral</b>	<b>Conductor metal of PE</b>
1 2 3 4 5 6 7 8 9	Copper	300	11	Copper
<b>PE CSA</b>	<b>Nbr. PE</b>			
150 300	11			

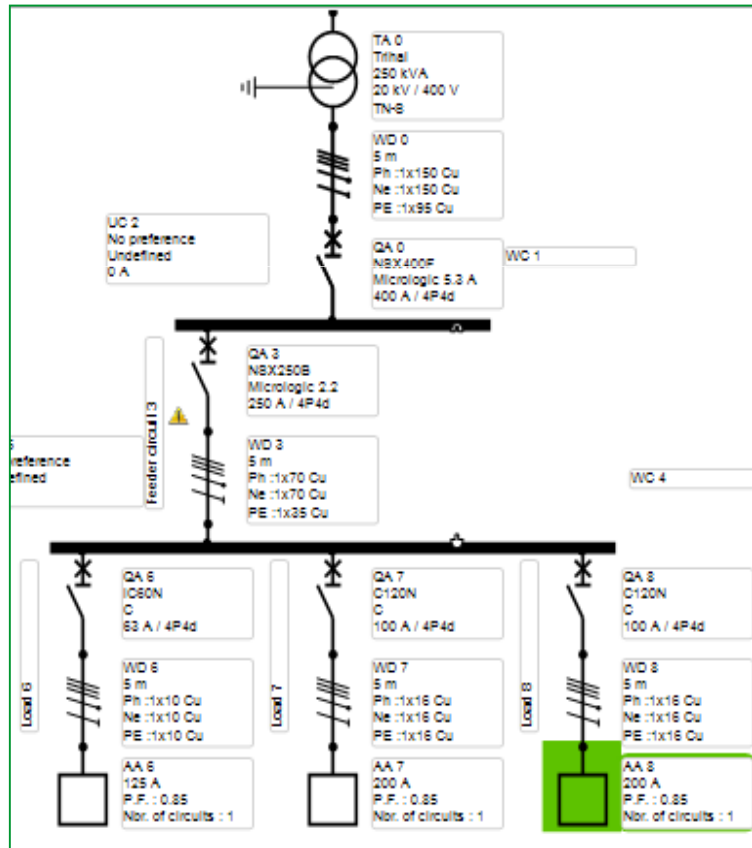
# Ku propagation

$Ku=1$  is to size the protection & cable

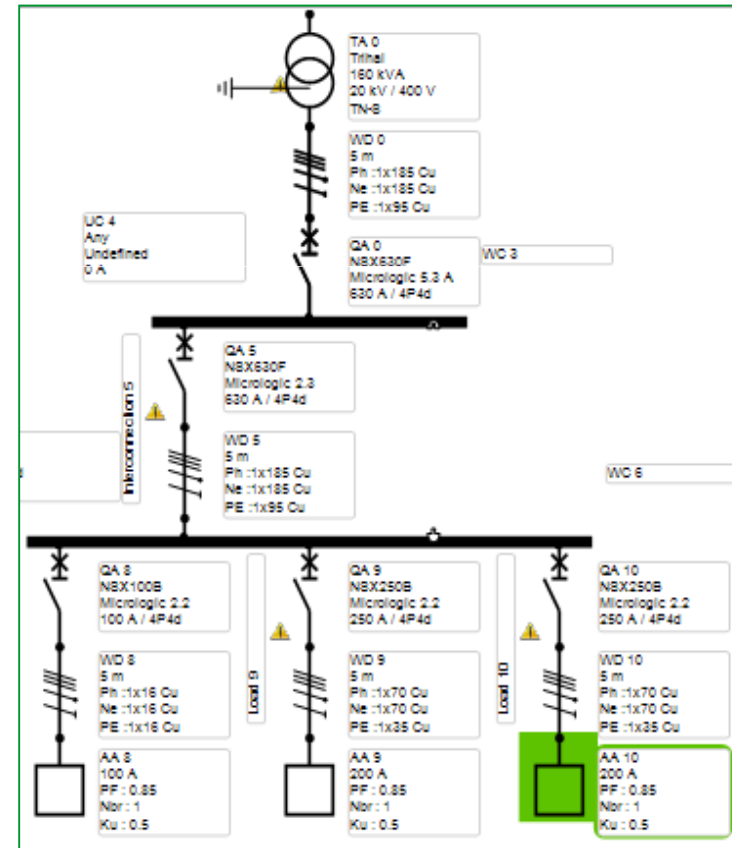
$Ku=?$  the value defined by the user impacts the 'source sizing'

# Ku propagation

Impact on the protection and cable...



Impact on the source sizing...





# Cascading

Reading the Cascading table for 'single phase loads' at 220 volts network is correct now.

# Cascading

Reading the table for single phase loads at the 220 volts is improved

## Version 4.7

Ecodial Advance Calculation 4.7 INT

Report

Operating mode: Normal

Page Settings | Properties | Details | Curves

The screenshot shows a circuit diagram with various components labeled: TA 0 (Trihal 160 kVA, 20 kV / 220 V, TN-S), WD 0 (5 m, Ph: 1x185 Cu, Ne: 1x185 Cu, PE: 1x95 Cu), QA 0 (NSX630F, Micrologic 5.3 A, 630 A / 4P4d), UC 2 (No preference, Undefined, 0 A), UC 5 (No preference, Undefined, 0 A), Feeder circuit 3, QA 3 (NSX160S, Micrologic 2.2, 160 A / 4P4d), WD 3 (5 m, Ph: 1x50 Cu, Ne: 1x50 Cu, PE: 1x25 Cu), WC 1, WC 4, On/Off, QA 6 (NG125N, C, 125 A / 3P3d), WD 6 (5 m, Ph: 1x25 Cu, Ne: 1x25 Cu, PE: 1x16 Cu), and AA 6 (125 A).

**Properties**

Device status	Closed
Withdrawable	Not required
Cascading	Yes
Motor mechanism	Not required
Residual-current protection	No
Overload protection	Yes

**Solution**

<b>Circuit breaker</b>	
Type of standard	Industrial
Range	Acti9 NG125
Circuit breaker	NG125N
Rating (A)	125
Breaking capacity (kA)	50
Poles	3P3d
Trip unit/Curve	C
Trip-unit rating (A)	125
Long time (A)	125
Short time (A)	1000
Withdrawable version	Not available
Motor mechanism	Not available

[Select another product](#)

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## Version 4.8

Ecodial Advance Calculation 4.8 INT

Report edition

exploitation modes: Main Exploitation Name

Print Settings | Properties | Solution | Curves

The screenshot shows a circuit diagram with components: UC 4 (Any, Undefined, 0 A), QA 0 (NSX630F, Micrologic 5.3 A, 630 A / 4P4d), WD 0 (5 m, Ph: 1x185 Cu, Ne: 1x185 Cu, PE: 1x95 Cu), QA 5 (NSX160S, Micrologic 2.2, 160 A / 4P4d), WD 5 (5 m, Ph: 1x50 Cu, Ne: 1x50 Cu, PE: 1x25 Cu), WC 3, WC 6, On/Off, QA 8 (NG125N, C, 125 A / 3P3d), WD 8 (5 m, Ph: 1x25 Cu, Ne: 1x25 Cu, PE: 1x16 Cu), Load 8, and AA 8 (125 A, PF: 0,85, Nbr: 1).

**Results**

<b>Breaker</b>	
Type of standard	Industrial
Gamme	Acti9 NG125
Désignation	NG125N
Calibre disjoncteur (A)	125
Breaking capacity (kA)	50
Enhanced breaking capacity (kA)	85
Poles coupés / poles protégés	3P3d
Déclencheur/courbe	C
Calibre déclencheur (A)	125
Réglage I <sub>lr</sub> (A)	125
Réglage I <sub>cr</sub> (A)	1000
Withdrawable	Impossible
Motor mechanism	Impossible

[Choose another component](#)

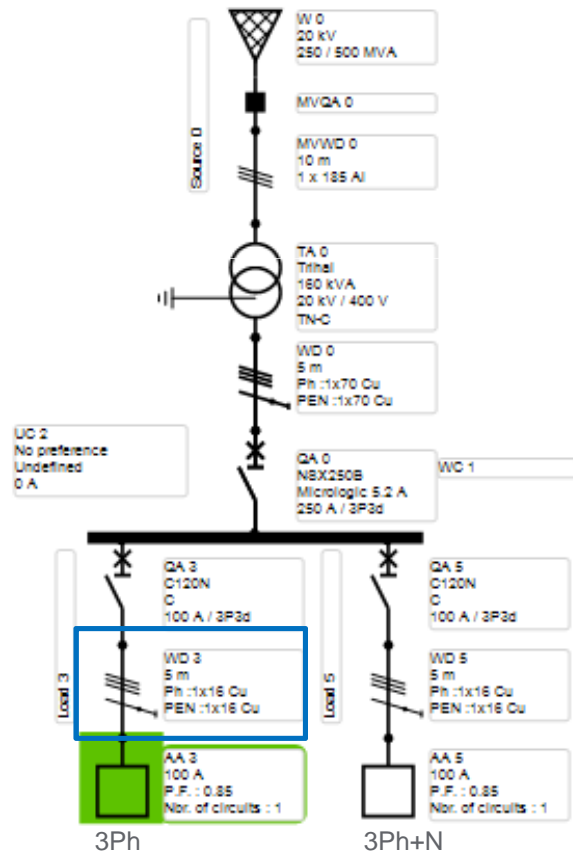
# Representation of conductors

The representation of “2Ph & 3P” conductors at TNC system is improved.

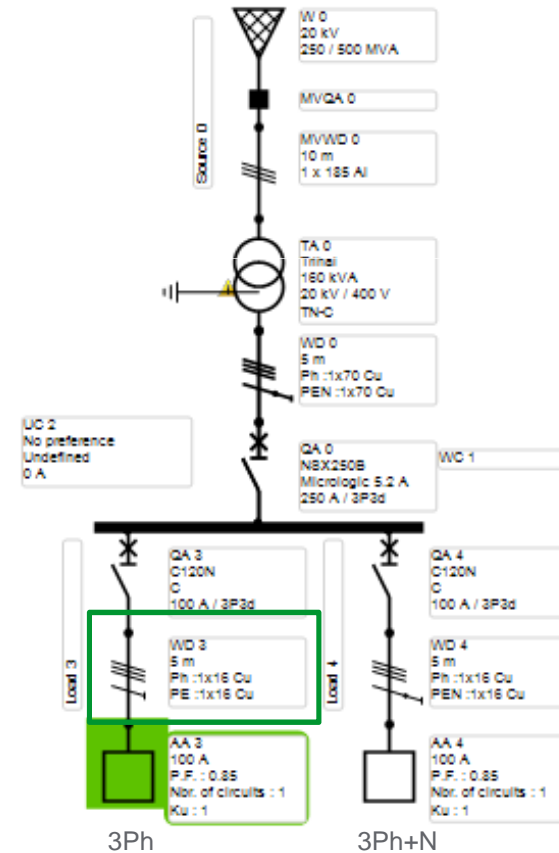
# Representation of conductors

The representation of 2Ph&3Ph conductors at TNC system is improved.

## Version 4.7



## Version 4.8



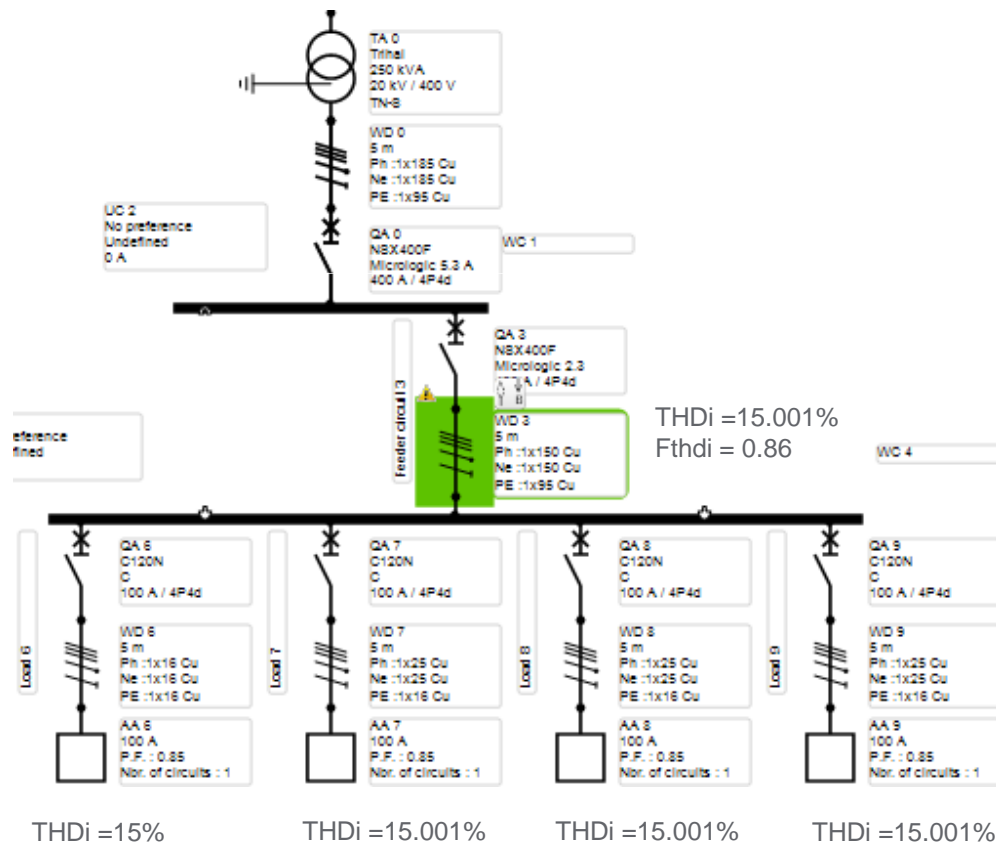
# THDi Propagation

THDi Propagation and fine tuning at decimal level

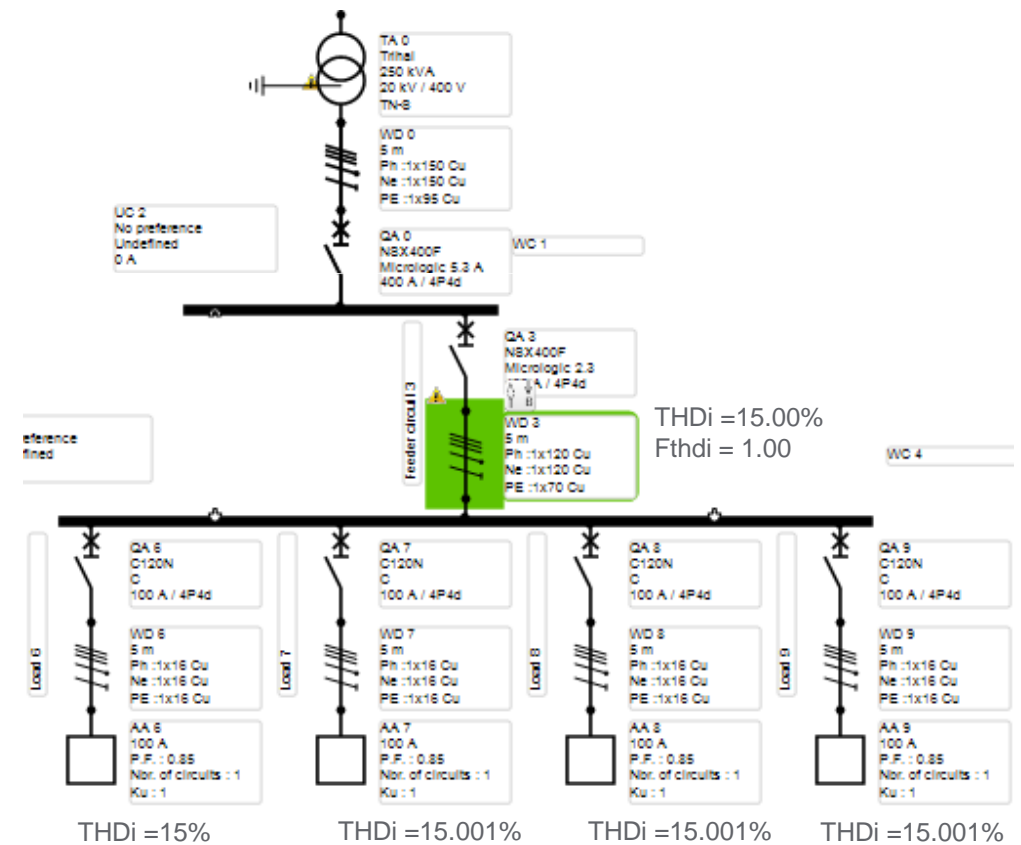
# THDi Propagation

## THDi Propagation and fine tuning at decimal level

### Version 4.7



### Version 4.8



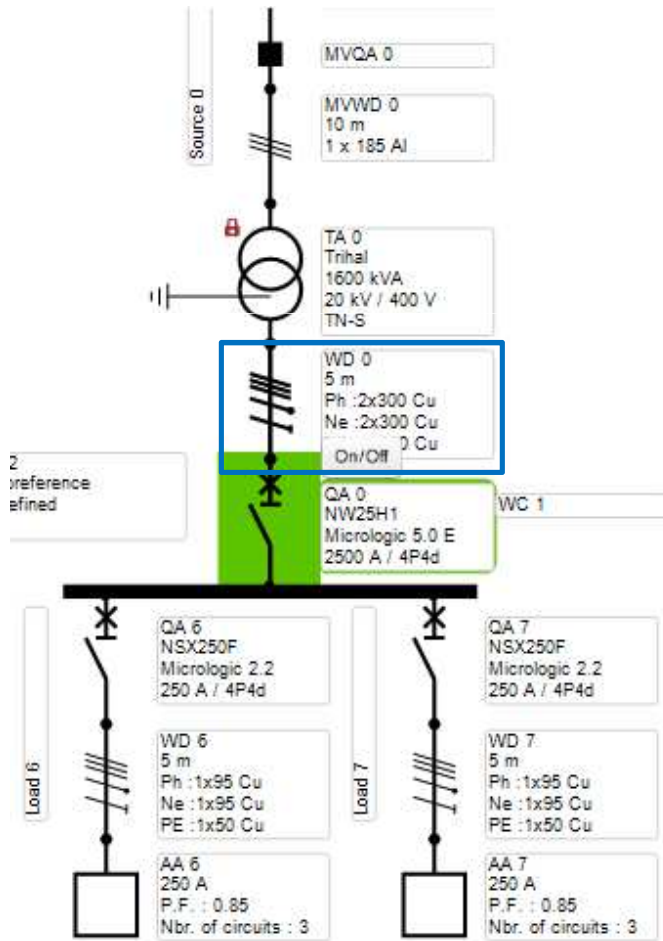
# Micrologic 5.0 E

Missed values for the “Trip Setting” are corrected.

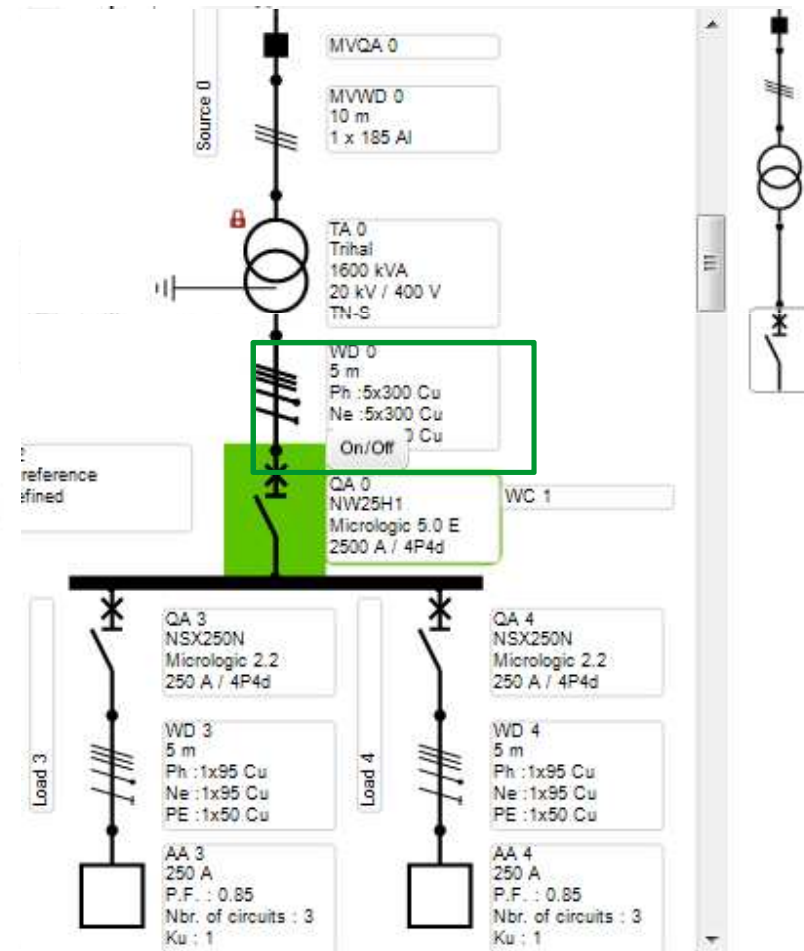
# Micrologic 5.0 E

Missed values for the trip setting are corrected.

## Version 4.7



## Version 4.8



Ib (A)	2309
Device status	Closed
Withdrawable	Not required
Cascading	No
Motor mechanism	Not required
Residual-current protection	No

### Solution

#### Circuit breaker

Type of standard	Industrial
Range	Masterpact NW
Circuit breaker	NW25H1
Rating (A)	2500
Breaking capacity (kA)	65
Poles	4P4d
Trip unit/Curve	Micrologic 5.0 E
Trip-unit rating (A)	2500
Long time (A)	2375 (Setting: 0.95)
Short time (A)	19000 (Setting: 8)
Withdrawable version	Available
Motor mechanism	Available

[Select another product](#)

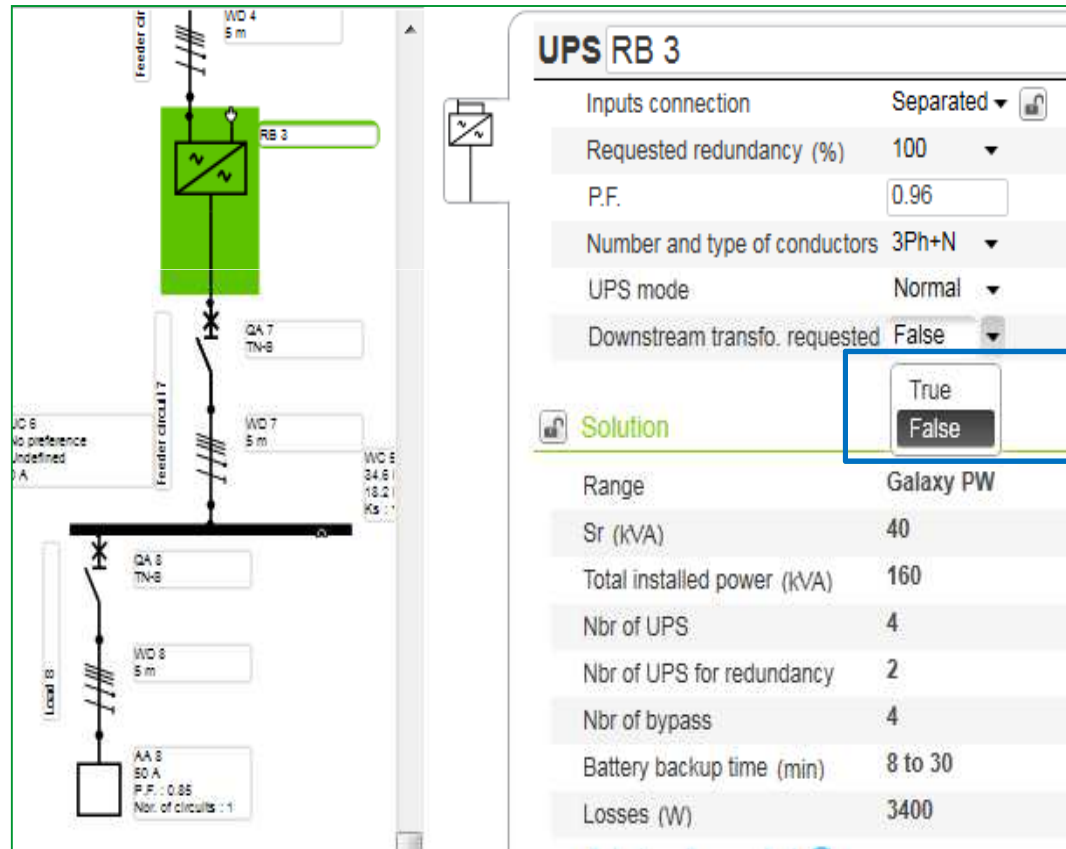


# Improvements to support the country versions

Following Improvements to support the country versions

# The hard coded values are now translatable

## Version 4.7



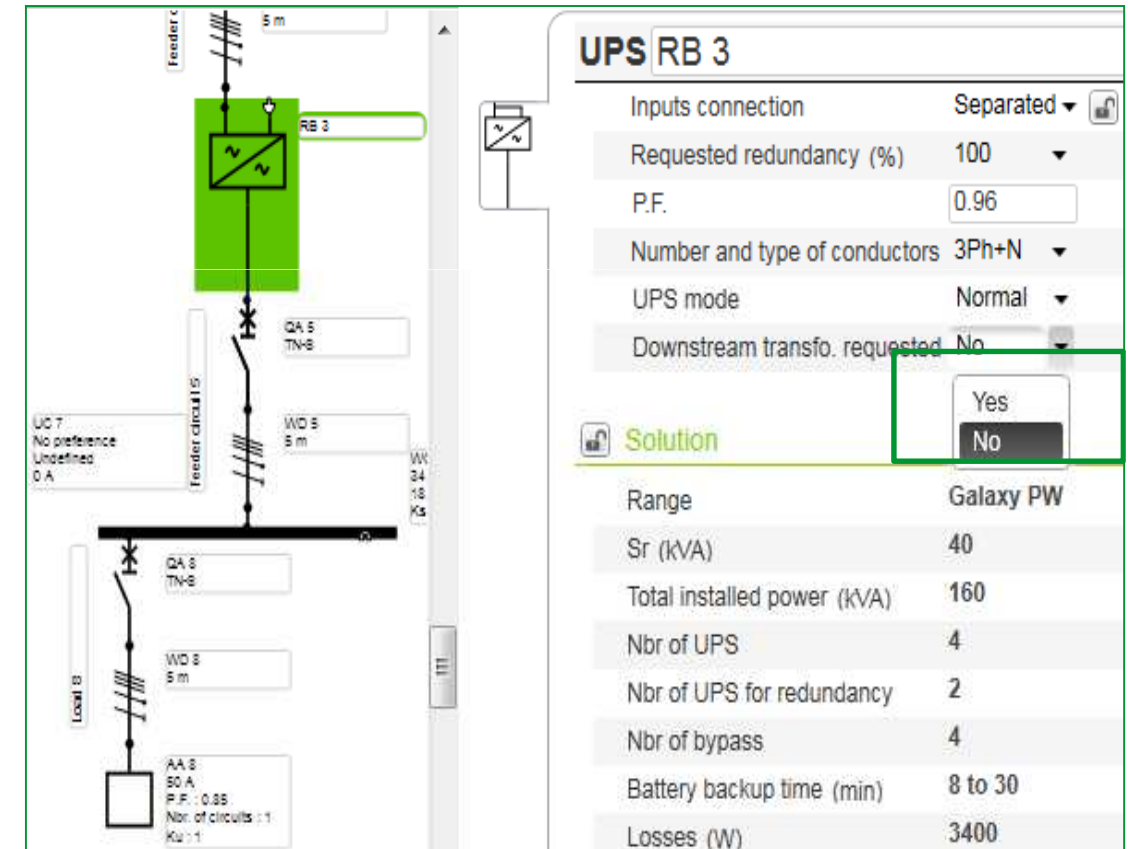
**UPS RB 3**

Inputs connection	Separated
Requested redundancy (%)	100
P.F.	0.96
Number and type of conductors	3Ph+N
UPS mode	Normal
Downstream transfo. requested	True

**Solution**

Range	Galaxy PW
Sr (kVA)	40
Total installed power (kVA)	160
Nbr of UPS	4
Nbr of UPS for redundancy	2
Nbr of bypass	4
Battery backup time (min)	8 to 30
Losses (W)	3400

## Version 4.8



**UPS RB 3**

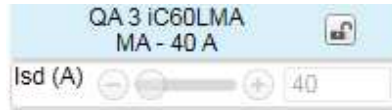
Inputs connection	Separated
Requested redundancy (%)	100
P.F.	0.96
Number and type of conductors	3Ph+N
UPS mode	Normal
Downstream transfo. requested	No

**Solution**

Range	Galaxy PW
Sr (kVA)	40
Total installed power (kVA)	160
Nbr of UPS	4
Nbr of UPS for redundancy	2
Nbr of bypass	4
Battery backup time (min)	8 to 30
Losses (W)	3400

# Improvement in reading the Isd value for 'MA trip unit'

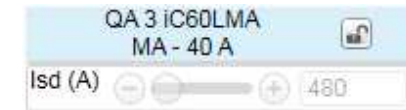
## Version 4.7



### Circuit breaker

Type of standard	<b>Industrial</b>
Range	<b>Acti9 iC60</b>
Circuit breaker	<b>iC60LMA</b>
Rating (A)	<b>40</b>
Breaking capacity (kA)	<b>15</b>
Poles	<b>3P3d</b>
Trip unit/Curve	<b>MA</b>
Trip-unit rating (A)	<b>40</b>
Short time (A)	<b>40</b>
Withdrawable version	<b>Not available</b>
Motor mechanism	<b>Available</b>

## Version 4.8

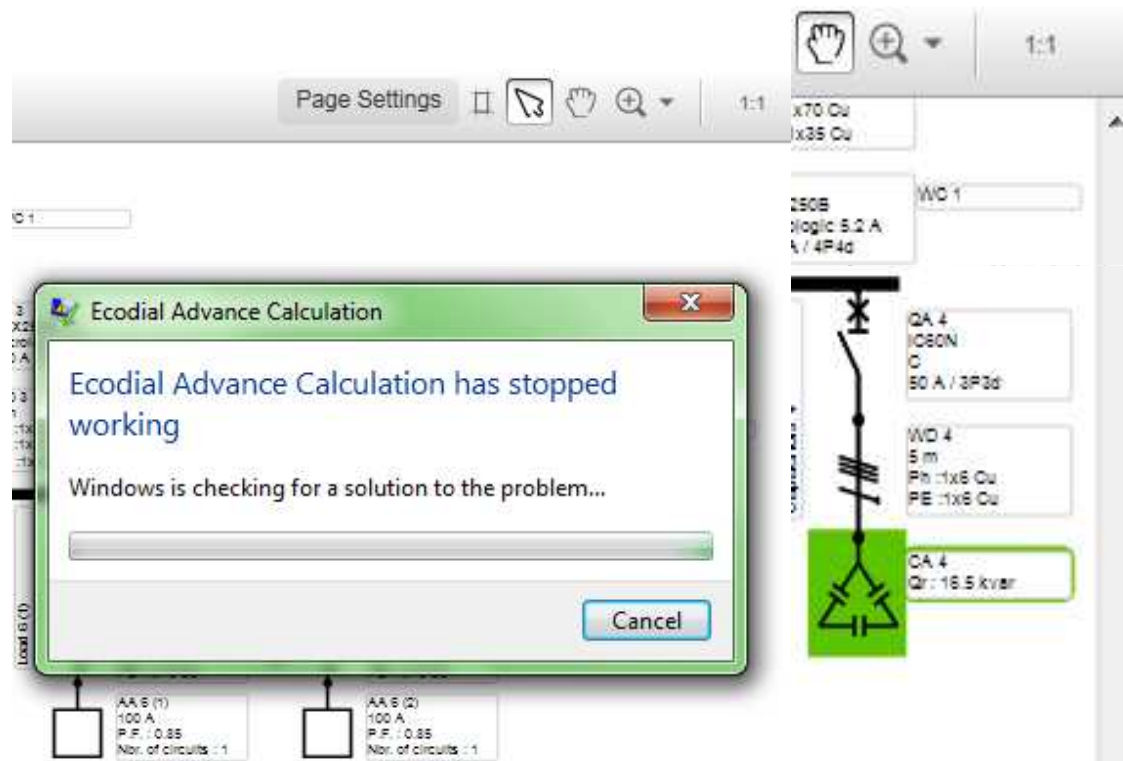


### Circuit breaker

Type of standard	<b>Industrial</b>
Range	<b>Acti9 iC60</b>
Circuit breaker	<b>iC60LMA</b>
Rating (A)	<b>40</b>
Breaking capacity (kA)	<b>15</b>
Poles	<b>3P3d</b>
Trip unit/Curve	<b>MA</b>
Trip-unit rating (A)	<b>40</b>
Short time (A)	<b>480</b>
Withdrawable version	<b>Not available</b>
Motor mechanism	<b>Available</b>

# Solution lock is disabled when there is 'no solution found'

## Version 4.7



## Version 4.8

