AUTOMATION

Project Generator

1/4-2017

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PREFACE

This manual describes how to generate projects automatically in **Automation**. Together with this manual it is recommended to read the "Sub drawings" chapter in the **Automation** manual.

OTHER MANUALS

For **Automation** the following additional manuals exist:

- The **Automation** manual, which is the main manual for the electrical documentation program **Automation**.

- The **Quick start** manual: Gives you a quick introduction to **Automation**.

- The **Component Wizard** manual: Describes how to easily create components with attached symbols for the component database in **Automation**.

- The **Tools** manual: Describes how you can document symbols in projects or libraries automatically, how to set up parameters for DWG/DXF import/export, how to use the **PCSCHEMATIC Translator** program, for translating project texts, as well as how you automatically create graphical *terminal plans*, graphical *cable plans* and graphical *connection plans*.

- The **Database** manual: Describes how to use the **PCSCHEMATIC Database** program for creating and maintaining your database for **Automation**.

- **Guide for using Automation Service and the Mounting Assistant**: Describes how to use PCSCHEMATIC Automation Service as well as how to use the **Mounting Assistant**, which is included in all variants of **Automation**.

- The **Panelrouter** manual: Describes how to use the **Panelrouter** in **Automation**.

- The **Administrator control** manual: Describes how to perform administrator control on **Automation**. Please contact PCSCHEMATIC A/S for further information.

Tutorials

Various tutorial manuals also exist, which guides you through how to use the program for various types of projects:

- **Motor control tutorial**: Guides you through creating a motor control project in **Automation**.

- **PLC project tutorial**: Guides you through creating a motor control project in **Automation** and introduces various advanced options for working with plcs.

- **House installation tutorial**: Guides you through creating a house installation project in **Automation**.

- **Panel Builder tutorial**: Guides you through creating a Panel Builder project in **Automation**. The Panel Builder supports you in automatically documenting small switchboards and panels according to requirements in EN61439-1 and 3 concerning power dissipation calculation and more.

- **Component Wizard tutorial**: Shows you how to easily create components with attached symbols in the database.

- **Clip Project Marking integration tutorial**: Guides you through how you can easily print labels in Clip Project Marking directly from **Automation**.

All of these manuals can be downloaded at www.pcschematic.com/manuals, where you can also see the news in the latest version of **Automation**.

Videos and articles at www.pcschematic.com

At www.youtube.com/pcschematic and at www.pcschematic.com/videos you can watch videos showing many of the available options in **Automation**.

At www.pcschematic.com/articles you can also a read survey article about the program, as well as articles about the basic drawing functions, PLC functions. lists and about working with projects.

Generate and Update Projects

This section describes how to generate and update projects automatically in PCSCHEMATIC Automation.

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GENERATE AND UPDATE PROJECTS AUTOMATICALLY

ON AUTOMATIC PROJECT GENERATION

POSSIBILITIES IN AUTOMATIC GENERATION OF PROJECTS

— GENERATING PLC AND CIRCUIT DIAGRAMS FROM A PROJECT DEFINITION FILE FROM E.G. EXCEL

— PROJECTS ON HUNDREDS OF PAGES CAN BE GENERATED FROM A SINGLE PROJECT DEFINITION FILE

— CORRECTIONS CREATED IN **Automation** CAN BE TRANSFERRED BACK TO THE PROJECT DEFINITION FILE, JUST LIKE CORRECTIONS IN THE PROJECT DEFINITION FILE CAN BE TRANSFERRED BACK TO **Automation**

Before you can generate projects automatically, you must do this:

1) Create all relevant *sub drawings* for automatic placing — see "Creating Project pages for aut. placing of sub drawings" in the PCSCHEMATIC Automation manual.

2) Create all relevant *drawing templates* for inserting sub drawings.
   — See "Creating drawing templates for automatic project generation" on page 10 and "Points to consider in Project generation" on page 10.

3) Create all other complete pages and/or projects — also including front pages, chapter front pages, tables of contents and all types of lists —, that you wish to include in the generated project.

4) Specify in which folders all of these sub drawings, drawing templates and project pages / projects are placed. — See "Settings for the Project Generator" on page 15, "Specify where sub drawings and drawing templates are placed" on page 16 in particular.

After this, you can generate a *project definition file* — see "On Project definition files" on page 12. Based on this project definition file you can then automatically generate **Automation** projects. — See "Generate projects based on Project definition files" on page 22.

On projects created via automatic project generation

When you have created a project via automatic project generation, you can continue working on the project, as with any other **Automation** project. If you want to, you can update the project definition file at a later stage, so that it matches the changes you have made in the project.

Creating drawing templates for automatic project generation

The pages, which the sub drawings are placed on during the automatic project generation, are called *drawing templates*.

Drawing templates are created just like you create sub drawings, as described in "Preparing Sub drawings for Drag'n Draw / Aut. placing" in the PCSCHEMATIC Automation manual.

On drawing templates you can — as opposed to sub drawings — also place a drawing header.

On drawing templates you can — just as for sub drawings — insert *variable markers*, so that the texts in the drawing template can be controlled from the project definition file.

An example on creating a drawing template can be found in "Creating Project pages for aut. placing of sub drawings" in the PCSCHEMATIC Automation manual.

POINTS TO CONSIDER IN PROJECT GENERATION

When you wish to create sub drawings for automatic project generation, it is necessary that you spend some time considering exactly how to apply the sub drawings, and in which context they are going to be used. — See also "Preparing Sub drawings for Drag'n Draw / Aut. placing" and "Placing the insertion point symbols carefully" in the PCSCHEMATIC Automation manual.

CREATING SUB DRAWINGS GRADUALLY

TO MAKE STARTING TO APPLY AUTOMATIC PROJECT GENERATION EASIER, YOU CAN START BY CREATING THE SUB DRAWINGS GRADUALLY, AS YOU GET TO NEED THEM IN YOUR DAILY WORK.
— TO GET THE MAXIMAL BENEFIT FROM THE SUB DRAWINGS IN THE LONG RUN, YOU MUST FIRST CONSIDER THE ISSUES MENTIONED BELOW.

You should for instance consider:

Paper size and Reference system

One of the things you should consider, is of course which paper size the sub drawings should be designed for, because this has an influence on the size of the sub drawings.

If you are applying a reference system on the pages, there must also be space available for current path numbers on the page.

Using variables

When you are creating the sub drawings, you should also consider which data are fixed, and which are changed in the repeated use of the sub drawings. For those data that changes, you should create variables.

At the same time, you should also decide whether you wish to apply automatic naming or not. If you wish not to apply automatic naming, you will have to create more variables in the sub drawings.

Please note that it is possible to place variable markers for e.g. symbol names, and in the project definition file specify not to change the symbol names from there — see "Project generation with no symbol names in the project definition file" on page 39.

Creating sub drawings based on existing projects

As a starting point, it is a good idea to look closely on the already existing projects, and discover which of the existing pages, that can be used for creating sub drawings. When examining the projects, you can also discover where the insertion points should have been placed, if you had generated the projects automatically.

When you have done this, you can for instance start by placing the insertion points for a coming sub drawing already in the existing project. You can then copy the desired area containing symbols, lines and insertion points etc., and *then* create a sub drawing based on the copied area.

— See "Creating sub drawings by Copying from projects" in the PCSCHEMATIC Automation manual.

Creating sub drawings as Modules

To use the area of the page to full extend in project generation, it is a good idea to consider the size of the sub drawings.

It is here recommended to create the sub drawings in different sets of fixed module sizes, in multipla that fits to the page size — or more precisely: In multipla that fits to the room between the insertion points on the page.
— See "The function of the insertion points" in the PCSCHEMATIC Automation manual.

As the largest module size — when disregarding sub drawings that fills a full page — you can for instance create sub drawings, which you can have exactly two of on a page.

As the next module size you can create sub drawings, of which you can have exactly four, eight and even sixteen on a page.

Designed this way, you can for instance have one half page sub drawing and two quarter page sub drawings on the same page, which gives you a better use of the pages.

Drawing template   + 4 sub drawings of 1/4 page   = Full use of the page
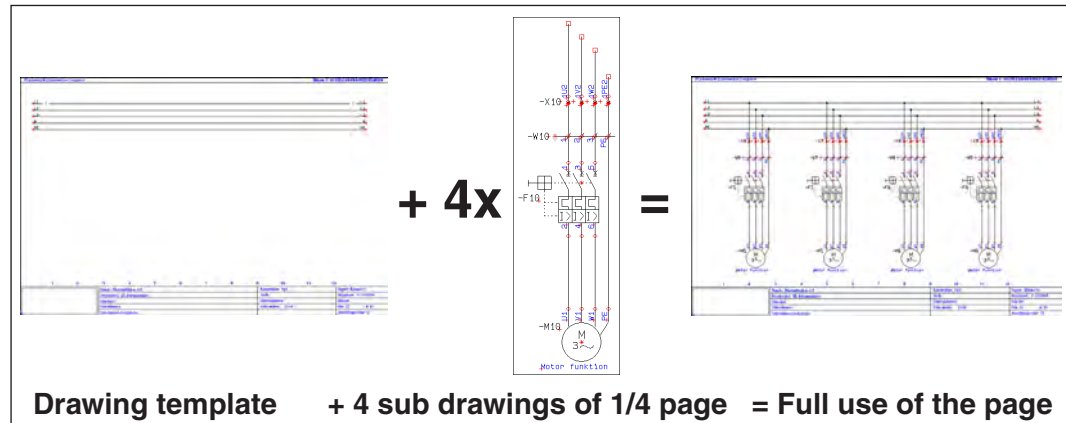
Model data in automatic project generation

— See "Create model variable" on page 38.

ON PROJECT DEFINITION FILES

To generate projects automatically in **Automation**, there must first be generated a *project definition file*.

Together with the created *sub drawings*, *drawing templates* etc. — see "On automatic project generation" on page 9 —, this file defines the contents of the automatically generated project.

You can either create the project definition file directly in Excel, or you can let **Automation** generate a project definition file based on an existing project — see "Generating Project definition files from Automation" on page 13. You can then adapt the generated project definition file according to your needs.

— See "Syntax for project definition files" on page 27.

GENERATING PROJECT DEFINITION FILES FROM AUTOMATION

To generate a *project definition file* in Excel format — see "On Project definition files created from Automation" on page 14 — from a drawing template, do the following:


🚫 **WHEN USING DRAG'N DRAW: KEEP TRACK OF THE FOLDERS**

WHEN YOU USE DRAG'N DRAW FOR DRAGGING SUB DRAWINGS AND PROJECT PAGES INTO A PROJECT, AND *THEN* GENERATE A PROJECT DEFINITION FILE, INFORMATION ABOUT THE *NAMES* OF THESE SUB DRAWINGS, PROJECT PAGES ETC. ARE INCLUDED, BUT THE *PATH* LEADING TO THESE SUB DRAWINGS ETC. IS *NOT* INCLUDED.

WHEN YOU EXECUTE THE AUTOMATIC PROJECT GENERATION BASED ON THE PROJECT DEFINITION FILE, YOU MUST THEREFORE HAVE CREATED AN *ALIAS* FOR EACH OF THE FOLDERS, WHICH YOU NEED TO FETCH SUB DRAWINGS ETC. FROM.

OTHERWISE, THE PROJECT WILL NOT BE GENERATED CORRECTLY!
— READ MORE ABOUT ALIASES IN "WHAT IS AN ALIAS?" ON PAGE 17.

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1) Choose **Tools => Project generator**.
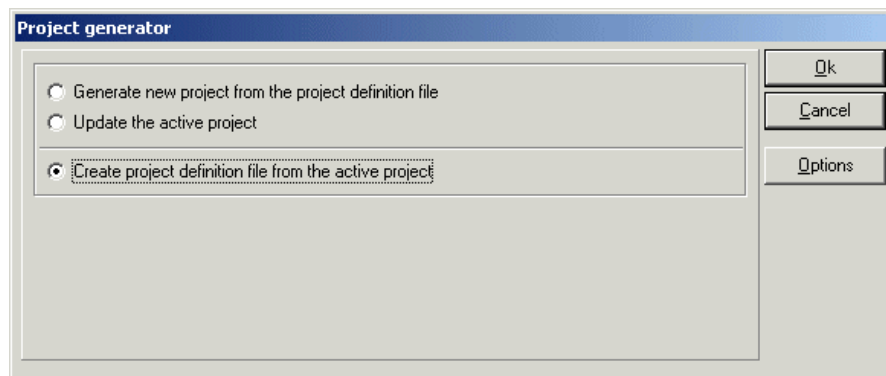
2) In the dialog box **Project generator**: Click on **Options** if you need to change the settings for the project definition file — see "Settings for the Project Generator" on page 15.

3) Click on ***Create project definition file from the active project*** and click **OK**.
   (If you wish to specify the settings for creating the project definition file, you must first click the **Options** button — see "The Project definition file tab" on page 19).

4) In the dialog box **Save as**: Assign a name to the project definition file, and specify where to save the file, and click **Save**.

5) You now get a status of the generated project definition file:

Create project definition file from the ... ☒

ⓘ Project definition list has been created

The project contained 14 variables
1 of the pages contains variables

[Ok]
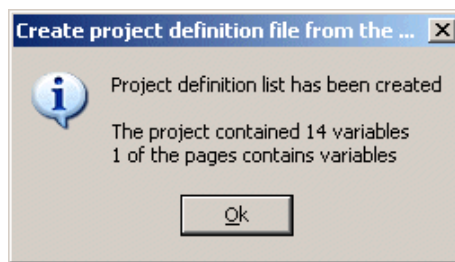
Click **OK**.

You have now generated a project definition file from the active project.

💡 **ON PROJECT DEFINITION FILES CREATED FROM *AUTOMATION***

WHEN YOU HAVE GENERATED A *PROJECT DEFINITION FILE* IN THE EXCEL FORMAT, YOU CAN EDIT THE FILE FROM MICROSOFT EXCEL, AS DESCRIBED IN "SYNTAX FOR PROJECT DEFINITION FILES" ON PAGE 27.

SUCCEEDINGLY YOU CAN UPDATE THE ACTIVE PROJECT — OR GENERATE A NEW PROJECT — BASED ON THE PROJECT DEFINITION FILE. READ MORE ABOUT THIS IN "GENERATE PROJECTS BASED ON PROJECT DEFINITION FILES" ON PAGE 22.

SETTINGS FOR THE PROJECT GENERATOR

When you have chosen **Tools => Project generator**, and clicked on **Options**, you can specify the settings for the project definition file you wish to generate from **Automation**:

What happens when the project is generated   **What is included in the project definition file**   **The file format**

Options for Project generator

Generate/Update project   Project definition file   File format   _Close_

Settings for 'Generate new project' / 'Update the active project'

Folders for subdrawings/drawing templates

| TEMPLATES | C:\UK\PCSELCAD\STANDARD\DATATEMPLATE | ... |

Options for project generation
- ☑ Update lists after generation
- ☑ Update graphical plans after generation
- ☑ Update component data from database after generation
- ☑ Auto name symbols during generation
- ☐ Add page reference designation to symbols in subdrawings

PLC synchronization
- ⦿ None
- ○ PLC reference » PLC
- ○ PLC reference « PLC

Set invisible
- ☐ Unreferenced cables
- ☐ Unreferenced signals

In the dialog box you find these tabs:

- The **Generate/update project** tab: Settings for what happens when the project is generated — see "The Generate/update project tab" on page 16.

- The **Project definition** tab: Settings for what is included , when the project definition file is created — see "The Project definition file tab" on page 19.

- The **File format** tab: Settings for the file format for the project definition file — see "The File format tab" on page 21.

— See also "The significance of the first project page in the project definition file" on page 30.

The Generate/update project tab

In the tab **Generate/update project** you specify the settings for how the project is generated:
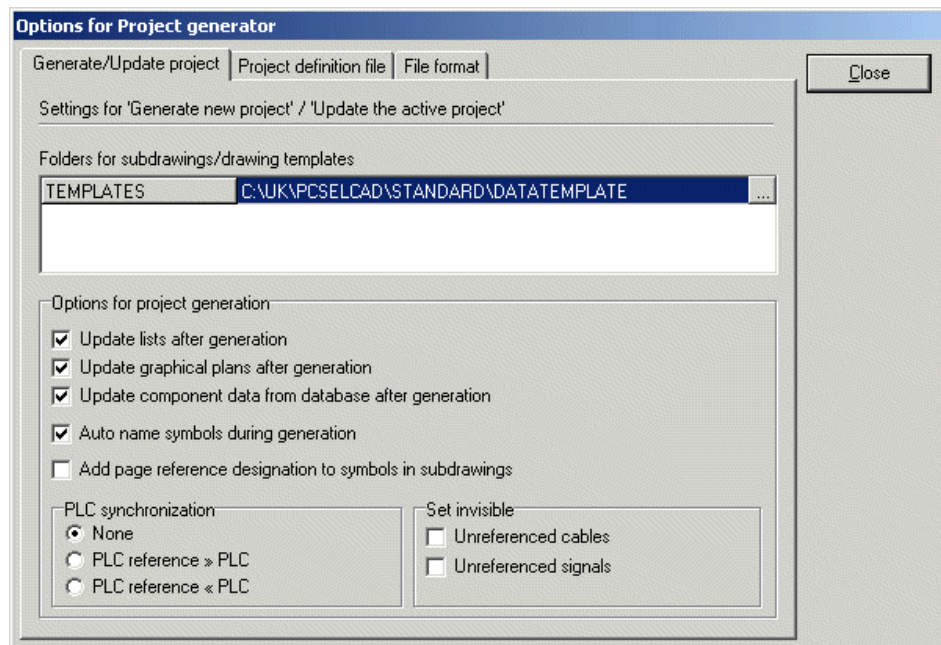
Specify where sub drawings and drawing templates are placed

Below **Folders for sub drawings / drawing templates** you can specify from where to fetch the sub drawings, drawing templates and other project pages for the generated project. This is done by creating an *alias* for each folder from which **Automation** needs to fetch drawing templates / sub drawings during the project

generation.

WHAT IS AN ALIAS?

AN ALIAS CONSISTS OF AN *ALIAS NAME*, AND A *PATH* TO A FOLDER ON YOUR PC — OR ON THE NETWORK THAT YOUR PC IS CONNECTED TO.

Alias → TEMPLATES   C:\UK\PCSELCAD\STANDARD\DATATEMPLATE ← **Path**

WHEN YOU CREATE A *PROJECT DEFINITION FILE* FROM A PROJECT, *ONLY THE NAMES* OF THE USED SUB DRAWINGS, DRAWING TEMPLATES ECT. ARE INCLUDED IN THE FILE. THE *PATH* TO THE FOLDERS WHERE THESE ELEMENTS COMES FROM, ARE NOT INCLUDED IN THE PROJECT DEFINITION FILE.

WHEN YOU WISH TO GENERATE A PROJECT BASED ON A PROJECT DEFINITION FILE, **Automation** FIRST EXAMINES THE FOLDER AT THE TOP OF THE ALIAS LIST, TO E.G. FIND AN APPLIED SUB DRAWING. IF THIS SUB DRAWING CAN NOT BE FOUND IN THIS FOLDER, THE PROGRAM EXAMINES THE CONSECUTIVE FOLDERS IN THE ALIAS LIST, UNTIL A SUB DRAWING WITH THE USED NAME IS FOUND. THIS PROCESS IS REPEATED FOR EACH INDIVIDUAL SUB DRAWING, DRAWING TEMPLATE ETC. LISTED IN THE PROJECT DEFINITION FILE.

THEREFORE IT IS IMPORTANT IN WHICH ORDER THE ALIASES APPEARS IN THE ALIAS LIST. — SEE ALSO "ALIASES/FOLDERS CAN ALSO BE SPECIFIED IN THE PROJECT GENERATOR DIALOG BOX" ON PAGE 28 AND "ALIASES RELATIVE TO OTHER ALIASES" ON PAGE 29.

You can create or delete aliases by right-clicking in the alias window, as described in "Directories" in the PCSCHEMATIC Automation manual, in particular in "Show directory alias". If you click on the **Select folder** button for one of the aliases, you can click your way to a new folder for the selected alias.

— See also "On automatic project generation" on page 9.

WHEN USING DRAG'N DRAW: KEEP TRACK OF THE FOLDERS

WHEN YOU USE DRAG'N DRAW FOR DRAGGING SUB DRAWINGS AND PROJECT PAGES INTO A PROJECT, AND *THEN* GENERATE A PROJECT DEFINITION FILE, INFORMATION ABOUT THE NAMES OF THESE SUB DRAWINGS, PROJECT PAGES ETC. ARE INCLUDED, BUT THE *PATHS* LEADING TO THESE SUB DRAWINGS ETC. ARE *NOT* INCLUDED — AS DESCRIBED ABOVE.

WHEN YOU GENERATE A PROJECT, YOU MUST THEREFORE HAVE CREATED AN *ALIAS* FOR EACH OF THE FOLDERS, WHICH YOU NEED TO FETCH SUB DRAWINGS ETC. FROM, IN ORDER TO GENERATE THE PROJECT.

OTHERWISE, THE PROJECT WILL NOT BE GENERATED CORRECTLY!

Updating lists automatically when using drawing templates

Select **Update lists after generation** when you wish to have the project lists updated automatically after generating/updating a project.

This is the same as executing the command **Lists => Update all lists** after the project is generated.

Automatic update of graphical lists

Select **Update graphical plans after generation** when you wish to update the graphical lists in the project automatically after generating/updating a project.

DRAWING TEMPLATES FOR GRAPHICAL PLANS

IT IS RECOMMENDED TO CREATE DRAWING TEMPLATE PAGES FOR EACH INDIVIDUAL TYPE OF GRAPHICAL PLANS, THAT YOU USE.

YOU CAN CREATE A DRAWING TEMPLATE BASED ON AN EXISTING GRAPHICAL PLAN, AND THEN PLACE IT UNDER THE **SUBDRAWINGS** TAB IN THE **EXPLORER** WINDOW. THE DRAWING TEMPLATE ONLY NEEDS TO CONTAIN A SINGLE PAGE, AND IT IS IMPORTANT THAT YOU KEEP THE FIRST PAGE FROM THE ORIGINAL GRAPHICAL PLAN. THIS IS BECAUSE THE FIRST PAGE CONTAINS THE PLAN SETTINGS INFORMATION.

WHEN YOU DRAG A SUCH DRAWING TEMPLATE FOR A GRAPHICAL PLAN INTO A PROJECT, THE GRAPHICAL PLAN SETTINGS ARE AUTOMATICALLY INCLUDED.

Updating component data automatically when using drawing templates

Select **Update component data from database after generation** to update component data automatically after generating/updating a project.

This causes that for instance the type descriptions matches the article number — without including the type descriptions in the project definition file.

Auto name symbols during generation

If you choose **Auto name symbols during generation**, the symbols are named automatically in the generated project. If you choose this option, you will therefore not have to specify symbol names in the project definition file.

— See "Current path numbers Or Automatically generated names" on page 30.

— See also "Project generation with no symbol names in the project definition file" on page 39.

Add page reference designation to symbols in subdrawings

This only applies for generating projects: If you choose **Add page reference designation to symbols in subdrawings**, symbols with no function and/or location aspect in the reference designation are automatically assigned these from the page, on which the subdrawing is placed when generating the project.

If a symbol has the name **-Q1**, and the page reference designation is **=G1+A2**, the symbol will get the reference designation **=G1+A2-Q1**, if you have chosen **Add page reference designation to symbols in subdrawings**. — If not, the symbol will just keep the name **-Q1**.

If a symbol in a subdrawing has a location and/or a function aspect attached, the reference designation will *not* be changed, even though you have chosen **Add page reference designation to symbols in subdrawings**.

PLC synchronization

When you in the project generation use pages from different projects, where pages with PLC symbols comes from one project, and pages with PLC reference symbols

comes from another, **Automation** can not determine how to synchronize the PLC symbols and the PLC reference symbols.

Below *PLC synchronization* you have the following options:

- *None*: No synchronization is made.

- *PLC reference >> PLC*: Data is transferred from the PLC reference symbols to the PLC symbols. This is equal to executing the command **Functions => Special Functions => Transfer data from PLC reference symbols to PLC symbols** after generating the project.

- *PLC reference << PLC*: Data is transferred from the PLC symbols to the PLC reference symbols. This is equal to executing the command **Functions => Special Functions => Transfer data from PLC symbols to PLC reference symbols** after generating the project.

Invisible nonreferenced Cables and Signals

When you create a project by applying sub drawings or project pages, where one end of a cable is illustrated on one page, and the other end is illustrated on another page, it may occur that one end of a cable is not applied in a project. When the cable connection points have *With reference* activated, nonreferred cables will occur. The same phenomenon can be observed for signals.

These cables and signals can be set invisible by selecting *Unreferenced cables* and *Unreferenced signals* respectively. This is equal to executing the command **Functions => Special Functions => Set unreferenced cable symbols invisible** and **Functions => Special Functions => Set unreferenced signal symbols invisible** after generating the project.

The Project definition file tab

In the **Project definition file** tab it is specified which information is included when the project definition file is created:
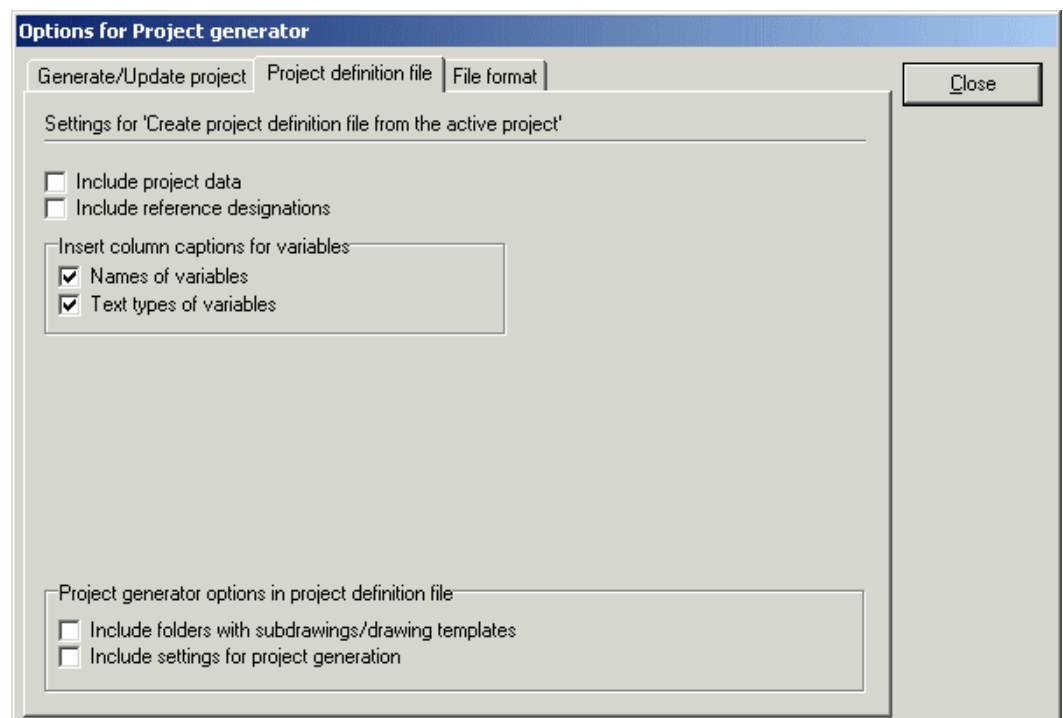
Include Project data

When you select **Include project data**, the applied Project data datafields are included in the project definition file.

Include reference designations

When you select **Include reference designations**, the project reference designations are included in the project definition file.

Creating column headings in project definition files

When you want **Automation** to create column headings describing the variables in the generated project definition file, you have two options:

- Choose **Names of variables** to insert variable names (@1, @2, @3 ...) as column headings.
- Choose **Text types of variables** to insert the variable text types (s.name, c.function ...) as column headings.

Please note, that it is possible to select both, so that you get two heading rows.

Project generator options in the project definition file

The settings you specify in the **Options for project generator** dialog box, can be included in the project definition file.

INCLUDE FOLDERS WITH SUBDRAWINGS/DRAWING TEMPLATES

When you select **Include folders with subdrawings/drawing templates**, the folders with sub drawings / drawing templates, which you have specified in the **Generate/update project** tab, are saved in the project definition file.

— See the syntax for how the information is saved in the project definition file in "Syntax for project definition files" on page 27.

INCLUDE SETTINGS FOR PROJECT GENERATION

When you select **Include settings for project generation**, the settings you have specified under **Options for project generation** in the **Generate/update project** tab, are saved in the project definition file.

— See the syntax for how the information is saved in the project definition file in "Syntax for project definition files" on page 27.

The File format tab

In the **File format** tab, you specify the file format for the project definition file:
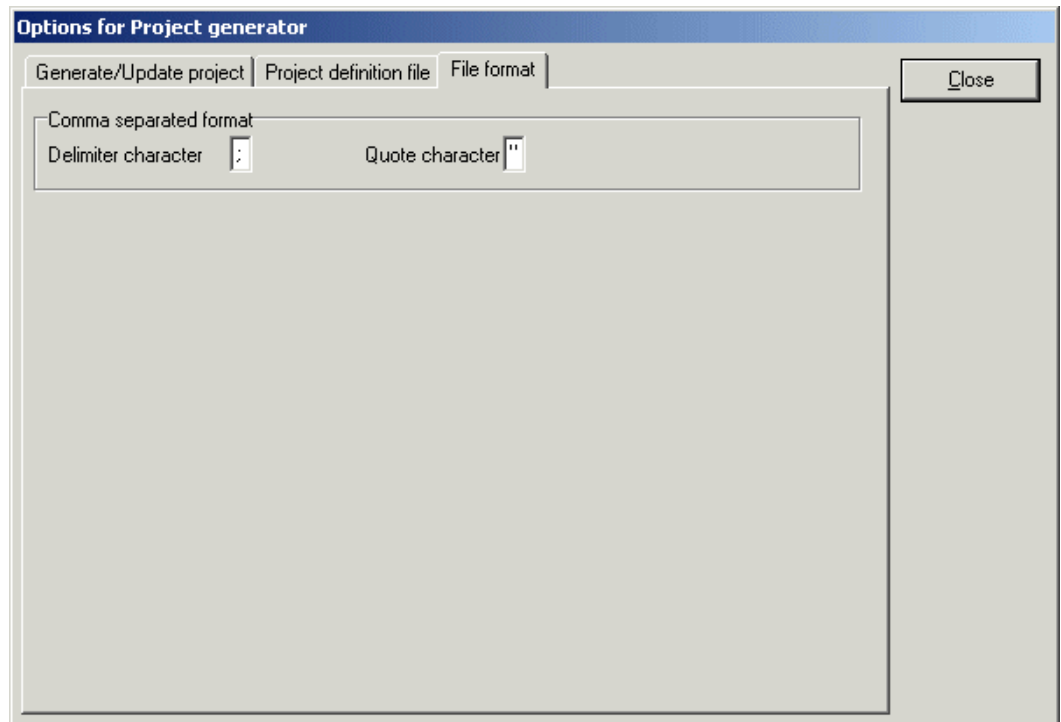

Format for comma separated files

For comma separated files you can specify **Delimiter character** and **Quote character** at the bottom of the dialog box.

GENERATE PROJECTS BASED ON PROJECT DEFINITION FILES

Project definition files can be generated based on an existing **Automation** project — see "Generating Project definition files from Automation" on page 13 — or be created directly in e.g. Excel — see "Syntax for project definition files" on page 27.

To generate a project, or to update the active project based on an existing *project definition file* in e.g. Excel format, do the following:

1) Choose **Tools => Project generator**.
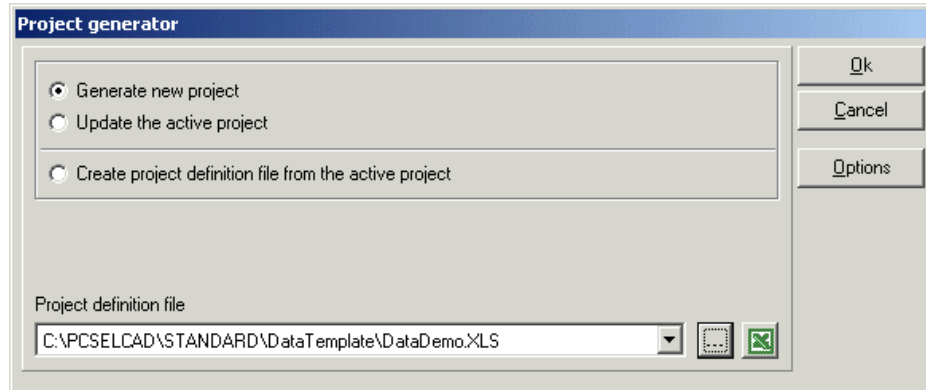
2) In the dialog box **Project generator**: Click on **Options** and check whether the setup is correct for the project generation. — See *"On automatic project generation" on page 9* and "Settings for the Project Generator" on page 15.

3) In the dialog box **Project generator**: Click on *Generate new project* when you wish to generate a new project, or click on *Update the active project* when you wish to update the active project.
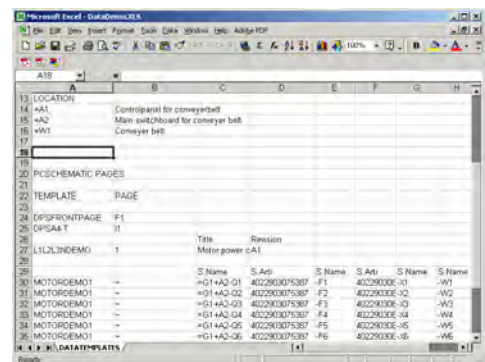
4) Click on the **Browse** button, select the project definition file in the dialog box **Open**, and click **Open**.
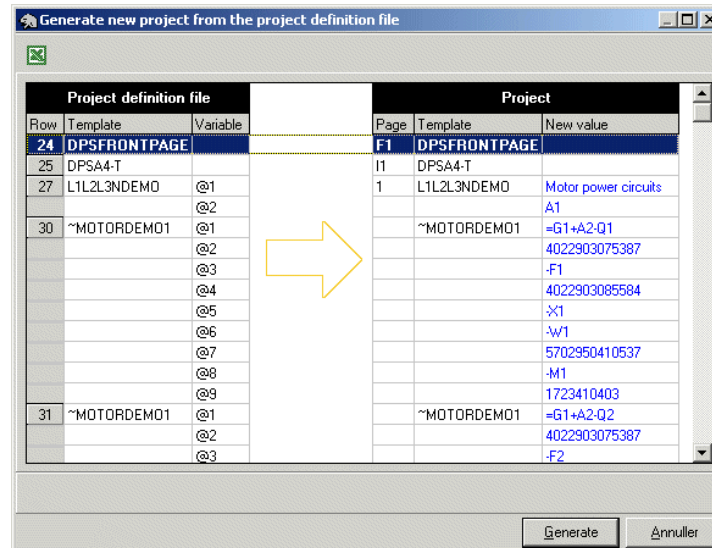
See the project definition file

5) In the dialog box **Project generator**: If you wish to see the contents of the file, click on the **Display in Excel** button, and Excel is opened — if Excel is installed on your PC — and the contents of the selected file is displayed. Here you can make changes in the project definition file before generating the project. (Please remember to save the project definition file before returning to **Automation**).

6) In the dialog box **Project generator**: Click **OK**, and the project is updated/generated based on the project definition file.

The dialog box Generate new project

7) You now enter the dialog box **Generate new project** (if you chose *Update the active project* you enter the dialog box **Update the active project** — see "The dialog box Update the active project" on page 24):

In the left-hand side of the **Generate new project** dialog box, you can see the project definition file, and in the right-hand side you can see the project pages and variable values, which will be inserted in the automatically generated project.
If you double-click on a row in the dialog box, the project definition file is opened in Excel, where the row you clicked on is selected.
If you make changes in the project definition file in Excel, before generating the project, please remember to save the Excel file before returning to **Automation**.

8) Click on **Generate**, and the project is generated.

— Please also see "The dialog box Update the active project" on page 24.

Editing text fields with variables after generating projects

When you wish to edit text fields with variables after generating a project, you can also do this by choosing **Edit => Variables**, when you subsequently work with the project in **Automation**. — See "Editing variables for inserted sub drawings" in the PCSCHEMATIC Automation manual.

You can also change data in the generated project, just like when working with any other **Automation** project.

The dialog box Update the active project

If you in the **Project generator** choose *Update the active project* and click **OK**, you enter the dialog box **Update the active project**:
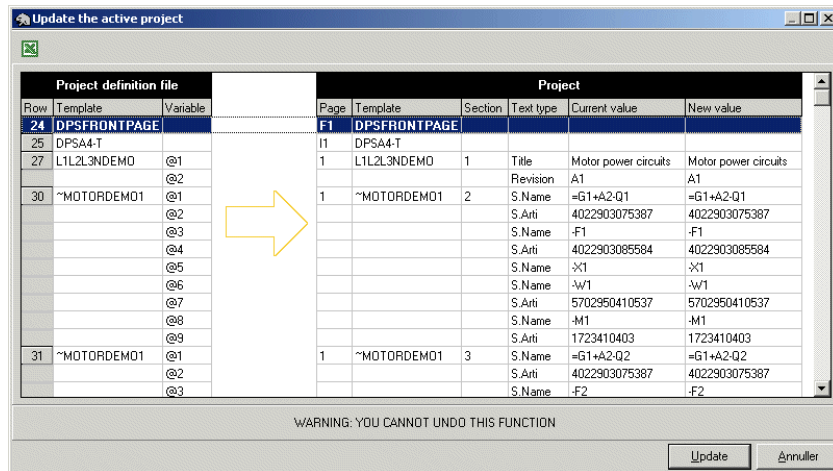
Here you have the same options as described in "The dialog box Generate new project" on page 23.

New values displayed as blue text

Beyond this, you can see the present values of the variables in the project, and the values these variables will be assigned by generating the project again.

New values are displayed as blue text.

Mismatch and syntax errors displayed as red text

If there is a mismatch between the project and the project definition file — e.g. if the project definition file does not contain enough variables — the mismatch is pointed out in red writing.

Syntax errors in the project definition file are also written in red.

Syntax for Project definition files

This section describes the syntax for project definition files.

Please note the appendix "Structure for Project definition files" on page 54 and the appendix "Variables" on page 51.

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SYNTAX FOR PROJECT DEFINITION FILES

To make it possible for **Automation** to interpret the contents of a *project definition file* —see "On Project definition files" on page 12 —, the contents of this file must follow the syntax described below.

This syntax is automatically followed when project definition files are created directly from **Automation** — see "Generating Project definition files from Automation" on page 13.

WHAT CAN BE CONTROLLED VIA THE PROJECT DEFINITION FILE

The chapter "Generate and Update projects automatically" on page 9 describes how to create **Automation** projects based on a *project definition file*. This file contains all necessary information for generating a project automatically.

In this file you can for instance specify:

- Project data and Project title

- Reference designations for projects

- The name of a project with front pages, declarations, project tables of contents etc., which your company for instance use when creating projects

- Names on the **Automation** projects containing ready made diagram pages, which shall be part of the project — e.g. projects containing circuit diagrams for relays, and projects containing circuit diagrams for PLCs

- Drawing template pages, prepared for inserting sub drawings

- Sub drawings to insert automatically on the drawing templates — see "Sub drawings" in the PCSCHEMATIC Automation manual and "Generate and Update projects automatically" on page 9

- Information on which data values to assign to the sub drawings, such as article numbers — see "Controlling texts in drawing templates / sub drawings" on page 35

- The name of a list project, e.g. containing all of the list types, that your company normally use for projects

... and much more, which is described in the following.

CREATE AN ALIAS FOR EACH APPLIED FOLDER

IN ORDER TO BE ABLE TO GENERATE A PROJECT CORRECTLY FROM THE PROJECT DEFINITION FILE, YOU MUST HAVE CREATED AN *ALIAS* FOR EACH FOLDER FROM WHICH YOU FETCH PROJECT FILES, DRAWING TEMPLATES AND SUBDRAWINGS WHEN GENERATING THE PROJECT.

— PLEASE ALSO SEE "WHAT IS AN ALIAS?" ON PAGE 17 AND "WHEN USING DRAG'N DRAW: KEEP TRACK OF THE FOLDERS" ON PAGE 13.

THE STRUCTURE AND CONTENTS OF PROJECT DEFINITION FILES

A *project definition file* can contain up to three different sections (please see the figure in "Project definition file example" on page 29):

1. FOLDERS: Specifying applied folders / Aliases

This section is optional. The section is applied to specify — in the project definition file — from which folders to fetch files, drawing templates and sub drawings when generating the project.

This is done by creating a so-called *alias* for each of these folders. A such alias consists of an *alias name*, and a *path*, that specifies the exact location of a folder. — See also "What is an Alias?" on page 17.

To create aliases in the project definition file, write *FOLDERS* in the field **A1** in the Excel spreadsheet containing the project definition file. In the field **A2** you type in the name of the first *alias,* and in the field **B2** you type in the folder (including the complete *path*), from which sub drawaings etc. are to be fetched. In the fields **A3** and **B3** you specify the next alias — etc.

Aliases/Folders can also be specified in the Project generator dialog box

When you generate projects, you must specify at least one alias, from which sub drawings, drawing templates and other project files must be fetched when generating the project. However, you have two options for specifying this information:

- When you specify the aliases *in the project definition file*, the sub drawings, drawing templates and other project files will be fetched from these folders.

- If you do *not* write this information in the project definition file, you must specify the aliases in the **Project generator** dialog box in **Automation** — see "Generate projects based on Project definition files" on page 22.

When aliases are specified both in the **Project generator** dialog box and in the *project definition file*, **Automation** first examine the aliases specified in the **Project generator** dialog box, and then examine the aliases specified in the project definition file.

CAN ALSO CONTAIN THE PROJECT GENERATOR SETTINGS

THE FIRST PART OF THE PROJECT DEFINITION FILE CAN ALSO CONTAIN THE SETTINGS FROM THE DIALOG BOX **OPTIONS FOR PROJECT GENERATOR**.
— SEE "THE PROJECT DEFINITION FILE TAB" ON PAGE 19.

2. PCSCHEMATIC DATA: Project data and Reference designations

This section is optional. The section can be used to include Project data and/or reference designations in the project definition file.

To include this section, you must write *PCSCHEMATIC DATA* at the top of column **A** (below *FOLDERS*, if this option is applied — see "FOLDERS: Specifying applied folders / Aliases" on page 28) — to tell that the lines below specifies general data for the generated project.

— See "Project title and Project data in Project generation" on page 32 and "Reference designations in Project generation" on page 32.

3. PCSCHEMATIC PAGES: Files, Drawing templates, Sub drawings etc.

If you have specified Project data or reference designations at the top of the project definition file, you must write *PCSCHEMATIC PAGES* in column **A** to specify that the consecutive rows in the project definition file contains names on drawing templates, sub drawings and other project files. — See the figure in "Project definition file example" on page 29.

Read more about this in "Specifying Drawing templates and Sub drawings" on page 34, "Controlling texts in drawing templates / sub drawings" on page 35 and "Front pages, Dividers and Lists in Aut. generated projects" on page 40.

ALIASES RELATIVE TO OTHER ALIASES

WHEN YOU SPECIFY THE *PATH* TO THE FOLDER, WHICH AN ALIAS POINTS AT, YOU CAN ALSO START BY SPECIFYING ANOTHER ALIAS BETWEEN TWO **%** CHARACTERS, AND THEN WRITE THE SUBSEQUENT PATH:

FOLDERS
ALIAS1   C:\PCS\SUBDRAWINGS
ALIAS2   **%ALIAS1%**\CUSTOMER14

IN *THE PROJECT DEFINITION FILE* YOU CAN BOTH REFER TO ALIASES SPECIFIED IN THE **PROJECT GENERATOR** DIALOG BOX, AND TO ALIASES SPECIFIED ABOVE THE RELEVANT ALIAS IN THE PROJECT DEFINITION FILE. (IN THE EXAMPLE ABOVE, ALIAS2 CAN THEREFORE BE RELATIVE TO ALIAS1 — BUT NOT THE OTHER WAY AROUND).

YOU CAN ALSO APPLY RELATIVE ALIASES IN THE **PROJECT GENERATOR** DIALOG BOX, BUT YOU CAN NOT REFER TO ALIASES IN A PROJECT DEFINITION FILE FROM THERE.

Project definition file example

A project definition file could for instance look like this:

1)

	A	B	C
1	FOLDERS		
2	Folder1	C:\AutoGenProjects\Templates	
3	Folder2	C:\AutoGenProjects\Customer39	
4			
5	**PCSCHEMATIC DATA**		
6			
7	PROJECTDATA		
8	Title	Project definition file demo	
9	Customer name	DpS CAD-center ApS	
10	Date	06-06-06	
11			
12	REFERENCE DESIGNATIONS		
13	FUNCTION		
14	=G1	Conveyer belt control	
15			
16	LOCATION		
17	+A1	Controlpanel for conveyer belt	
18	+A2	Main switchboard for conveyer belt	
19	+W1	Conveyer belt	
20			
21	**PCSCHEMATIC PAGES**		
22			
23	TEMPLATE	PAGE	
24			
25	DPSFRONTPAGE	F1	
26	DPSA4-T	I1	
27			Title
28	L1L2L3NDEMO	1	Motor power
29			
30			S.Name
31	MOTORDEMO1	~	=G1+A2-Q1
32	MOTORDEMO1	~	=G1+A2-Q2
33	MOTORDEMO1	~	=G1+A2-Q3
34	MOTORDEMO1	~	=G1+A2-Q4
35	MOTORDEMO1	~	=G1+A2-Q5
36	MOTORDEMO1	~	=G1+A2-Q6
37			
38			S.Name
39	MOTORDEMO2	~	-X7
40	MOTORDEMO2	~	-X8
41	MOTORDEMO2	~	-X9
42	MOTORDEMO2	~	-X10
43			
44	LISTS		

2)

3)

Specification of Aliases (*optional*)

Specification of Project title and Project data (*optional*)

Specification of reference designations (*optional*)

Specification of 1-page projects and page names

Specification of drawing template page

The sub drawings to insert on the drawing template (*see below for info on variables*)

Specification of project (containing list pages)

— Please note that the use of variables in project definition files is displayed in detail in "Controlling texts in drawing templates / sub drawings" on page 35.

— See also the appendices "Structure for Project definition files" on page 54 and "Variables" on page 51.

The significance of the first project page in the project definition file

Some project settings are fetched from the first project page / the first project in the project definition file. This is the case for:

Current path numbers Or Automatically generated names

If the first page — or the first project — in the project definition file uses a symbol name format containing current path numbers, this format is applied in all of the generated project. If this is not the case, automatic numbering of symbols with consecutive names are applied.

— However, the symbol naming is only changed if you in **Tools => Project Generator => Options** have selected *Auto name symbols during generation*. If this is not the case, the names will be fetched from the project definition file during the automatic project generation — if no names are specified in the project definition file, no changes are made.

— See "Settings for the Project Generator" on page 15, "Auto name symbols during generation" on page 18 in particular.

Text visibility

The general settings for which texts are visible in the generated project is determined by the first project — or by the first 1-page project — in the list of projects in the project definition file.

Information not necessarily specified in the project definition file

Other information *can* be specified in the project definition file, but does not necessarily have to be specified there. If these types of information are not specified in the project definition file, the information is fetched from the first page / project occurring in the project definition file.

This is the case for:

- Project title and Project data — see "Project title and Project data in Project generation" on page 32

- Reference designations — see "Reference designations in Project generation" on page 32

PROJECT TITLE AND PROJECT DATA IN PROJECT GENERATION

When you create **Automation** projects via a project definition file, you can specify project title and Project data at the top of the project definition file in Excel.

This is done by writing *PCSCHEMATIC DATA* at the top of column **A** (below *FOLD-ERS*, if this option is applied — see "FOLDERS: Specifying applied folders / Aliases" on page 28) in the file — to tell that the lines below specifies the general data for the created project.

Below this write *ProjectData* in column **A**, also.

If you wish to specify a project title, write *Title* below this in column **A**, and write the project title next to this in column **B**.

If you wish to specify Project data, you can write the names of the Project data datafields in column **A**, and their contents in column **B**.

PCSCHEMATIC DATA	
ProjectData	
Title	Datatemplate demo
Customer name	DpS CAD-center ApS
Date	03-21-03

— Also see the figure in "Project definition file example" on page 29 and "The significance of the first project page in the project definition file" on page 30.

REFERENCE DESIGNATIONS IN PROJECT GENERATION

In automatic project generation you can specify the reference designations for the project at the top of the project definition file.

If you have not written *PCSCHEMATIC DATA* at the top of column **A** (below *FOLD-ERS*, if this option is applied — see "FOLDERS: Specifying applied folders / Aliases" on page 28) in the project definition file, you must do this — see "Project title and Project data in Project generation" on page 32.

Below this write *Reference Designations* in column **A**.

Below this write *FUNCTION* in column **A**.

Below this write the names of the function aspects for the project in column **A**, and their attached descriptions in column **B**.

Below this write *LOCATION* in column **A**.

Below this write the names of the location aspects for the project in column **A**, and their attached descriptions in column **B**.

Reference Designations	
FUNCTION	
=G1	Conveyor belt control
LOCATION	
+A1	Controlpanel for conveyor belt
+A2	Main switchboard for conveyor belt
+W1	Conveyor belt

— Also refer to the figure in "Project definition file example" on page 29 and "The significance of the first project page in the project definition file" on page 30.

Reference designations in the individual projects when generating projects

If there exists reference designations in the different projects / project pages, these will also become a part of the generated project.

If the same reference designations exists in more than one project, and these reference designations have different attached descriptions, the descriptions for the first project / project page, in which they occur, will be attached to the generated project.

Reference designations in applied sub drawings when generation projects

When **Automation** via applied sub drawings (see "Generate and Update projects automatically" on page 9) meets reference designations, which have not been created in the project, these reference designations will be created in the generated project.

Because sub drawings can not contain descriptions for reference designations, these reference designations will have no descriptions in the generated project.

Please note that the program will issue no warning about this.

Controlling reference designations for individual pages

— See "Sub drawings" in the PCSCHEMATIC Automation manual, "Variables for Page title and Page data" in particular.

PC|SCHEMATIC
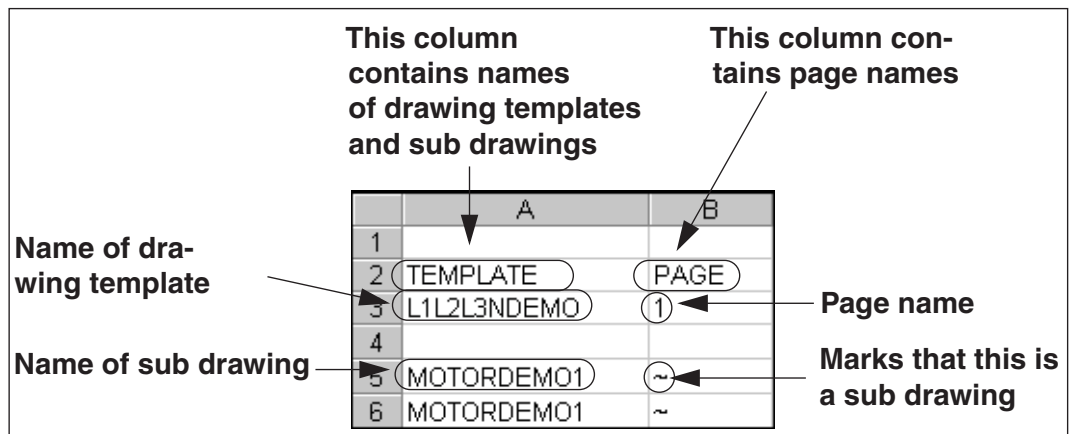
SPECIFYING DRAWING TEMPLATES AND SUB DRAWINGS

The first project information you must specify, is the name of the drawing template, which must be placed in column **A** (in the column with the heading TEMPLATE).

After this you write the name of the drawing template in column **B**. When you do not write anything in column **B**, it is assigned the next available page name.

Under this — in column **A** — you place the names of the sub drawings, which shall be placed on the specified drawing template. In column **B** you write the character ~, which tells the program that this is a sub drawing. If there is no ~ character, the program knows it is a drawing template.

When more than one project page with the specified drawing template is required, these are inserted automatically — see "Sub drawings" in the PCSCHEMATIC Automation manual, "Insertion points and automatic project generation" in particular.

When you need a drawing template or a sub drawing from another folder than the one that is specified in the **Options** dialog box — see "Settings for the Project Generator" on page 15 — (or under *FOLDERS* in the project definition file, see "FOLDERS: Specifying applied folders / Aliases" on page 28), you must type in the path to this folder in front of the drawing template or the sub drawing.

This column contains names of drawing templates and sub drawings

This column contains page names

Name of drawing template

Page name

Name of sub drawing

Marks that this is a sub drawing

MERGE WHEN MERGING PROJECTS

IN STEAD OF **TEMPLATE** YOU CAN ALSO WRITE **MERGE** IN THE PROJECT DEFINITION FILE. THIS IS USED FOR MERGING PROJECTS VIA THE **PROJECT GENERATOR**. — SEE "KEEPING THE ORIGINAL PAGE NUMBERS WHEN MERGING PROJECTS" ON PAGE 47.

CONTROLLING TEXTS IN DRAWING TEMPLATES / SUB DRAWINGS

In the automatic project generation you can control *all* texts and names in the project. This chapter describes how to control the texts in drawing templates and sub drawings.

To be able to control the texts in a sub drawing or a drawing template via the project definition file, this requires that *variable markers* have been inserted, and that a *variable list* have subsequently been created for the sub drawings / drawing templates — see "Sub drawings", and in particular "Creating a variable list" in the PCSCHEMATIC Automation manual.

Variables in the project definition file

In the columns immediately after the drawing template / sub drawing — typically in column **C** — the values for the *variables* on the drawing template / sub drawing are specified. — See "Inserting variables in Sub drawings, Pages and Projects" in the PCSCHEMATIC Automation manual.
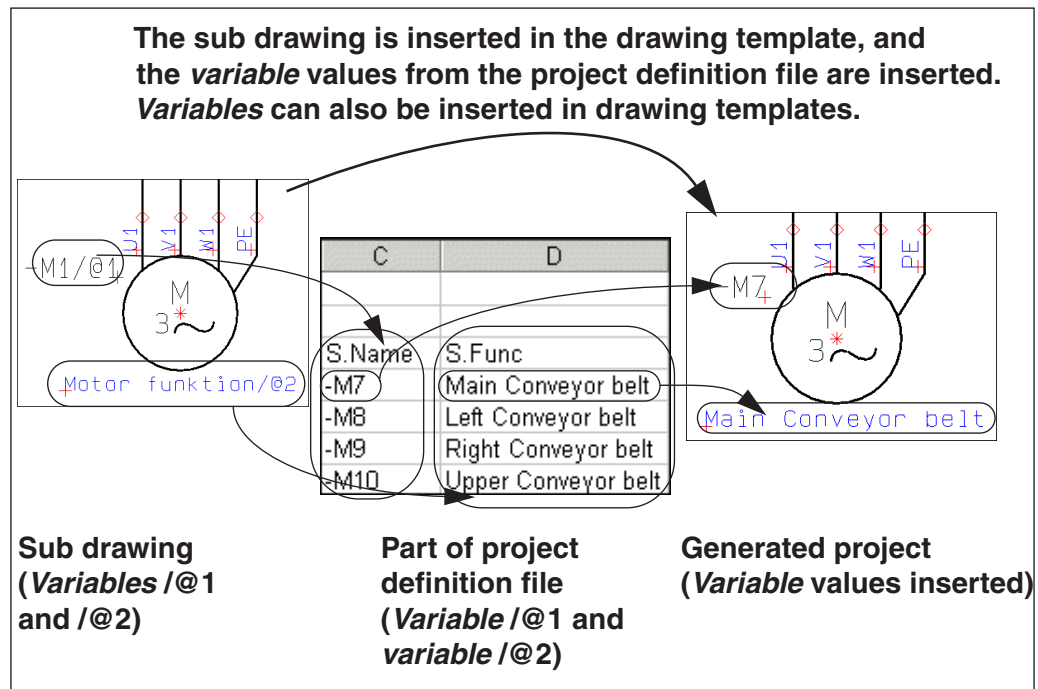

The text for variable @1 for e.g. a *sub drawing* is placed in the first text column (C) in the *project definition file*. The text for variable @2 is placed in the second text column (D) - etc.

Sub drawing (or drawing template)

When the variables in the sub drawing are inserted in the *project definition file*

In the project definition file you must write the name of the sub drawing for each time the sub drawing shall be placed, followed by the *variable* values for this specific sub drawing.

When the project is generated, the values of the variables are fetched from the project definition file, the values are inserted in the sub drawing, and the sub drawing is inserted in the project.

The sub drawing is inserted in the drawing template, and the *variable* values from the project definition file are inserted. *Variables* can also be inserted in drawing templates.

Sub drawing (*Variables* /@1 and /@2)

Part of project definition file (*Variable* /@1 and variable /@2)

Generated project (*Variable* values inserted)

— See also the figure below "Example on project definition file with drawing templates and sub drawings" on page 37.

SEE APPENDICES FOR VARIABLES AND PROJECT GENERATION

PLEASE NOTE THE APPENDIX "VARIABLES" ON PAGE 51 AND THE APPENDIX "STRUCTURE FOR PROJECT DEFINITION FILES" ON PAGE 54.

Example on project definition file with drawing templates and sub drawings

A project definition file specifying drawing templates and sub drawings, could for instance look like this:

Drawing template *L1L2L3DEMO* with page name 1

	A	B	C	D	E	F	G
1							
2	TEMPLATE	PAGE					
3	L1L2L3NDEMO	1					
4			S.Name	S.Name	S.Name	S.Name	S.Name
5	MOTORDEMO1	~	-Q1	-F1	-X1	-W1	-M1
6	MOTORDEMO1	~	-Q2	-F2	-X2	-W2	-M2
7	MOTORDEMO1	~	-Q3	-F3	-X3	-W3	-M3
8	MOTORDEMO1	~	-Q4	-F4	-X4	-W4	-M4
9	MOTORDEMO1	~	-Q5	-F5	-X5	-W5	-M5
10	MOTORDEMO1	~	-Q6	-F6	-X6	-W6	-M6
11							
12			S.Name	S.Func	S.Name	S.Name	S.Name
13	MOTORDEMO2	~	-M7	Main Conveyor belt	-F7	-W7	-X7
14	MOTORDEMO2	~	-M8	Left Conveyor belt	-F8	-W8	-X8
15	MOTORDEMO2	~	-M9	Right Conveyor belt	-F9	-W9	-X9
16	MOTORDEMO2	~	-M10	Upper Conveyor belt	-F10	-W10	-X10

The sub drawing *MOTORDEMO1*
- with the *variable* values @1 (-Q1) to @5 (-M1)
The sub drawing is inserted (here: 6 times) on the
last mentioned drawing template (here: *L1L2L3DEMO*)

— Please note that automatic naming during project generation is not applied in the figure above, because the symbol names are controlled directly from the project definition file.

Naming connectionpoints in the project definition file

When you wish to specify connection names for a symbol, you just write **:** (colon) after the symbol name in the project definition file, followed by the connection name.

Example: If the name of a terminal is specified as **-X1:1** in the project definition file, the symbol gets the name **-X1**, and the connection name is set to **1**.

For symbols with more than one connection name, the connection names are separated by commas.

Example: If the name of a symbol with three connectionpoints is specified as **-M1:U,V,W** in the project definition file, the symbol is assigned the name **-M1** and the connection names are set to **U**, **V** and **W** respectively.
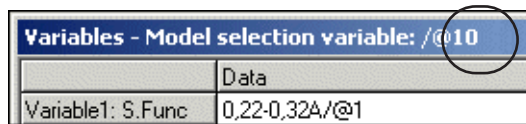
Create model variable

For use in automatic project generation, you can create a so-called *model variable*, so that you from the project definition file can specify which of the *models* for a sub-drawing, that you wish to insert.

To create a model for a subdrawing, do this:

1) In the **Subdrawings** window: Right-click on the subdrawing, and choose **Edit**.

2) Right-click on the page and select **Variables**.

3) In the dialog box **Variables**: Right-click and select **Model variable**.

4) Type in an unused variable name, and click **OK**:

5) The name of the model variable is then displayed in the title bar of the dialog box **Variables**:

6) In the *project definition file* you then only have to specify the **Model title** for the desired model in the subdrawing. You do this in the **Model variable** field (here: **/@10**). Hereby the values for the other variables for the subdrawing are fetched automatically from the model data in the subdrawing definition. (If you just write *55 kW* in the figure below, the model ***55 kW 40 - 100 A*** will be inserted. This is because **Automation** selects the first model title that matches the text you write in the model variable field).

Variable independant of model selection

As described above — see "Create model variable" on page 38 —, it is possible to specify in the project definition file that a subdrawing gets its variable values from one of the created models for the subdrawing.

In the definition of a subdrawing, it is also possible to specify that the contents/value of a variable in a model is fetched from the project definition file.

To do this, write **/?** in the first model for a variable (here: for the variable **/@6**) in the dialog box **Variables**:
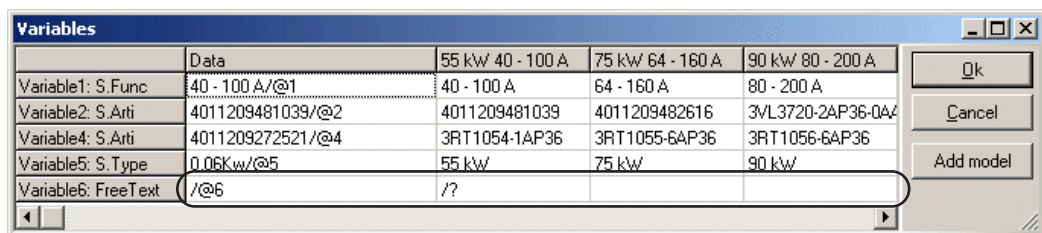
This specifies that all models in the subdrawing fetches the value for this variable from the project definition file.

Invisible symbols in sub drawings

If a symbol and its connecting lines shall be invisible, you must set the variable for the symbol name to *!* in the project definition file.

If the connecting lines are cable wires, and you wish to stop the invisibility at the cable symbol, you must set the variable for the symbol name to *!C* in the project definition file.

Project generation with no symbol names in the project definition file

If you do not wish to specify a symbol name from the project definition file — and a variable marker has been created for the symbol in the sub drawing —, you must set the variable for the symbol name to the value *?* in the project definition file.

If *Auto name symbols during generation* is not selected, the symbol will then be assigned the name specified in the original sub drawing.

Variable values in Value strings in Project generation

Variable markers in sub drawings / drawing templates / project pages can be indexed, so that they can fetch values from a comma separated value string in the project definition file.

For instance will */@1[2]* (on the project page / sub drawing) fetch the *second* value from e.g. the value string *Brown, Black, Blue* (from the project definition file). *Without* the index, the variable */@1* would be assigned the value *Brown, Black, Blue*. *With* the index it gets the value *Black* — see below:

Example for Cables
In project definition file:
    /@1 = Brown, Black, Blue

Gets the value: *Brown*
Gets the value: *Black*
Gets the value: *Blue*
... **in project generation**

Example for Terminals
In project definition file:
    /@5 = 1U2, 1V2, 1W2

Gets the value: *1U2*
Gets the value: *1V2*
Gets the value: *1W2*
... **in project generation**
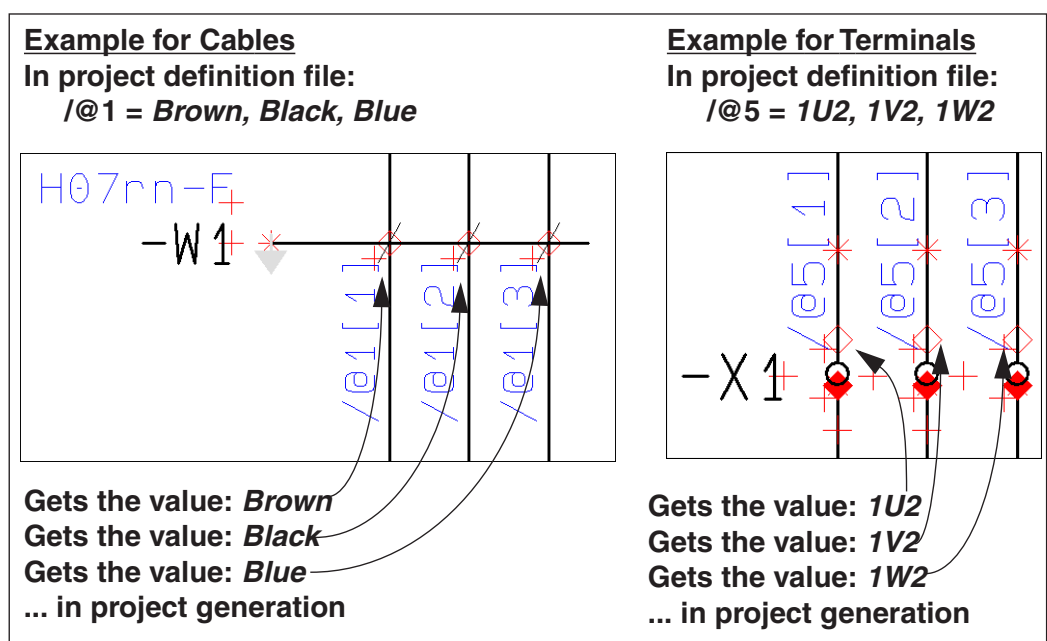
Fetching multiple values simultaneously from the value string

A variable can contain more than one index number, so that multiple values can be fetched from the string.

For instance will **/@1[1,3]** fetch the value ***Brown, Blue***. When multiple values are selected in a string, the values are separated by a comma.

Front pages, Dividers and Lists in Aut. generated projects

When you wish to insert pages, which does not use the intelligence from the project definition file, you just write the name of the page in a line in the project definition file.

The name of the project / drawing template is written in column **A**, and the name of the page can be specified in column **B**.

These projects / drawing templates could for instance include front pages, dividers or pages containing lists.

Comments in the project definition file

To place comments in the project definition file, you just have to let the first field in a row be empty. Please note, that this is only possible below the code word TEMPLATE in the project definition file.

In the figure in "Example on project definition file with drawing templates and sub drawings" on page 37, the lines with the texts ***S.Name*** and ***S.Func*** are comments, just like the blank line is a comment line. Comment lines can be inserted anywhere you want in the file.

Inserting new pages when Updating existing projects

When you wish to insert new pages when updating existing projects, you can specify this in the **TEMPLATE** column.

Here you write **NEWPAGES>>** *before* the list of new pages, type in the new pages, and write **<<NEWPAGES** *after* the inserted pages.

Example:

... Existing pages ...
NEWPAGES>>
... New pages ...
... New pages ...
<<NEWPAGES
... Existing pages ...

Remember to delete NEWPAGES
Please remember to delete the **NEWPAGE** texts from the project definition file, in case you at a later stage wish to generate the project based on the project definition file once again.

COMMA SEPARATED FILES FOR AUTOMATIC PROJECT GENERATION

You can also use comma separated files for automatic generation of **Automation** projects. These can for instance be generated directly from a company database.

Using comma separated files can be done similar to using Excel files. Here you just have to select a comma separated file (*.csv*) in stead of an Excel file in the description "Generate projects based on Project definition files" on page 22.

The syntax for the comma separated files is the same as described in "Syntax for project definition files" on page 27.

Remember to specify the settings for the comma separated file as described in "Settings for the Project Generator" on page 15.

Merging Projects

This section describes how to merge PCSCHE-MATIC Automation projects via the Project generator.

Please note the appendix "Structure for Project definition files" on page 54.

PC|SCHEMATIC

MERGING PROJECTS VIA THE PROJECT GENERATOR

In **Automation** it is also possible to use the **Project generator** for merging projects.

BENEFITS OF MERGING PROJECTS

When you merge projects via the **Project generator**, it is possible to let more than one employee work on the same project at the same time.

When you, as the constructor of a part of the project, need to know exactly how far the other constructors have come with their parts of the project — or e.g. need to know how another constructor has named a specific component —, you can create the full project via the **Project generator**. When this project is generated, this is done based on the last saved version of each constructors part of the project. Any of the constructors will at any time be able to generate the full project, as described in "How to merge projects" on page 46.

This makes it possible for each constructor to work on much smaller project files.

Naming when merging projects

When merging **Automation** projects via the **Project generator**, the program does *not* rename symbols, which appears with the same name in the different projects.

However, this is not the case if you have selected *Auto name symbols during generation* under **Options** in the **Project generator** — see "Auto name symbols during generation" on page 18.

When merging projects it is required that the constructors agrees on a convention for naming the symbols in the project. — For instance by assigning different series of numbers to the different constructors, or by using reference designations. — See "On reference designations" in the PCSCHEMATIC Automation manual.

How to merge projects

A simple example on how e.g. four project files can be merged via Excel:

1) Save the four project files — e.g. the project files **frontpages.pro**, **relays.pro**, **plcs.pro** and **lists.pro** — in the same folder. (You can also fetch the files from different folders — see "FOLDERS: Specifying applied folders / Aliases" on page 28).

2) Open the program Microsoft Excel, and create an Excel file (the *project definition file*) with the following contents:
   - Write FOLDERS at the top of column **A**, and specify the path to the folder in the next line
   - In the row below: Write TEMPLATE in column **A** and PAGE in column **B**
   - Below this the project names are written on separate lines in column **A** — according to the order in which you want the project files to be merged:

	A	B
1	FOLDERS	
2	C:\Pcselcad\Project\Excel_Merge	
3		
4	TEMPLATE	PAGE
5	frontpages	
6	relays	
7	plcs	
8	lists	
9		

3) Save the Excel file in the same folder as the project files.

4) In **Automation**: Choose **Tools => Project Generator**:

Click here   **Choose Excel file**   **Click here to edit the Excel file**   **Change settings**
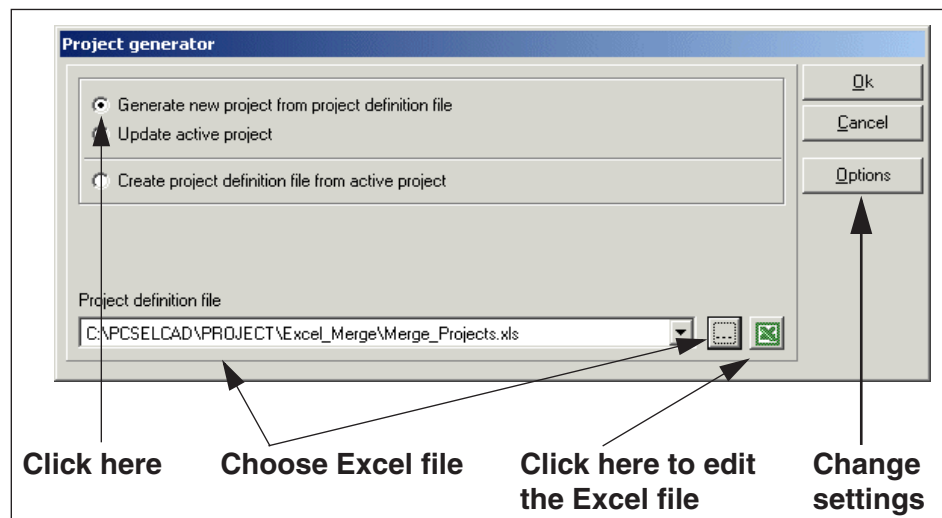
5) Click on *Generate new project from project definition file*, choose the Excel document at the bottom of the dialog box below *Project definition file*, and click **OK**. (If you wish to change settings, click on **Options** — see "Settings for the Project Generator" on page 15).

6) The project files are merged in a new project, with the same name as the Excel file.

7) If you wish to update the lists in the project, choose **Lists => Update all lists**. (This can be done automatically — see "Settings for the Project Generator" on page 15).

OTHER OPTIONS WHEN MERGING PROJECT FILES:

— "PROJECT TITLE AND PROJECT DATA IN PROJECT GENERATION" ON PAGE 32

— "REFERENCE DESIGNATIONS IN PROJECT GENERATION" ON PAGE 32

— "GENERATE AND UPDATE PROJECTS AUTOMATICALLY" ON PAGE 9

Specifying page number start when merging

When merging projects, you can use the **PAGE** column to specify the start page number for the individual projects, as displayed below.

	A	B
1	TEMPLATE	PAGE
2	frontpages	100
3	relays	200
4	plcs	300
5	lists	400

Otherwise, the pages will be numbered consecutively — see also "Keeping the original page numbers — for individual projects" on page 47.

Keeping the original page numbers — for individual projects

If you wish to keep the page number for a specific project, you type in the text **#REMAIN** in the **PAGE** column. The page number(s) which the project is created with, are hereby transferred unchanged to the automatically generated project.

KEEPING THE ORIGINAL PAGE NUMBERS WHEN MERGING PROJECTS

When you wish to keep the original page numbers from the project files (or *drawing templates*) during automatic project generation, you can do this for all projects in the project definition file, or for individual projects:

Keeping the original page numbers — for all created project pages

If you create a **MERGE** column in stead of a **TEMPLATE** column — see "Specifying Drawing templates and Sub drawings" on page 34 —, the page numbers remains unchanged on all merged project pages.

Therefore you only need a project definition file / Excel file which only consists of the following lines, which merges three projects to one new project:

MERGE
ProjectA
ProjectB
ProjectC

The page numbers from the three projects are then transferred unchanged to the automatically generated project.

Appendices

Here you will find the following:

PC|SCHEMATIC

VARIABLES

Variable definition: /@n

/@n	n is a number between 1 and 64000. Variables containing small numbers will be processed faster than variables containing larger numbers. Therefore smaller numbers are recommended in variables.
/@1 Variable 1	/@10 Variable 10

Normal variable: /@n

/@1	The variable has no default value. Fields in the project definition file, where the variable value will be typed in later, are empty.

Variable with default value: xxxx/@n

3389110610000/@1	3389110610000 is displayed in field in the project definition file, where the variable value will be typed in later.
-P1/@3	The variable has the default value –P1.
	The value that is typed in later, overwrites the default value.

Variable that inserts a value in a text: xxxx</@n>

-P</@3>	The text (name) has a fixed part (-P) and a variable part </@3>
</@4> out	
</@4> in	Can be applied with benefit where the same value shall be inserted into texts, where the fixed part are different from text to text. Here the values could for instance be 'Weighing' in one case, and 'Casting' in another.
-P</@3>	
-S</@3>	Can be applied where all — or some — names in a sub drawing always have the same serial number. E.g. –P1 and –S1

Insertion with default value: xxxx<yyyy/@n>

-P<1/@3>	The text (name) has a fixed part (-P) and a variable part </@3>, which has the default value '1'.
<Weighing/@4> out	The variable has the default value 'Weighing'.

Indexed variables: /@n[i]   or   /@n[i1,i2,i3,....]

/@4[1]	The variable takes the value from the first parameter in a comma separated text.
	E.g.: BK,BL,BU,GR The variable gets the value BK
/@4[2]	E.g.: BK,BL,BU,GR The variable gets the value BL
/@4[2,3]	E.g.: BK,BL,BU,GR The variable gets the value BL,BU
	This function is very useful for cables.
	Below this is shown with cable wire colors.
< BK,BL,BU,GR/@4[1]>	=> BK
< BK,BL,BU,GR/@4[2]>	=> BL
< BK,BL,BU,GR/@4[3]>	=> BU
< BK,BL,BU,GR/@4[4]>	=> GR

Possible control via variables in symbol names

/@1=-M1	=> The symbol gets the name **-M1**
/@1=!	=> The symbol and connecting lines becomes invisible.
/@1=!C	=> The symbol and connecting lines — up to a cable symbol — becomes invisible.
/@1=?	=> The symbol name is not controlled from the variable.

Variables in reference designations

You can insert individual variables in all aspects in reference designations. To insert a variable in an aspect designation, enter the dialog box **Reference designations** and create an aspect designation, in which you insert a variable — for instance *+23/@a3* in a position aspect.

When you then want to insert an aspect designation with an attached variable on either a symbol, a reference frame or a page, just do this by selecting the relevant aspect designation from either the **Component data** dialog box, the **Reference frame data** dialog box or the **Page data** dialog box.

VARIABLES IN REFERENCE DESIGNATIONS - IN PREVIOUS VERSIONS

IN VERSION 18 AND PREVIOUS VERSIONS OF **Automation** YOU HAD TO HANDLE VARIABLES IN REFERENCE DESIGNATIONS DIFFERENTLY.

IN ORDER TO HANDLE PROJECTS CREATED IN PREVIOUS VERSIONS IT IS STILL POSSIBLE TO USE THE OLD PROCEDURE, BUT WE STRONGLY RECOMMEND TO USE THE NEW PROCEDURE DESCRIBED ABOVE.

IN PREVIOUS VERSIONS OF **Automation** YOU HAD TO DO THE FOLLOWING TO USE VARIABLES FOR CONTROLLING REFERENCE DESIGNATIONS ON REFERENCE FRAMES:

    1) Click on **Texts**

    2) Double-click on the reference designation for the reference frame

    3) In the dialog box **Change text**: Type in the name of the variable (e.g. /@3)

IN PREVIOUS VERSIONS OF **Automation** YOU HAD TO DO THE FOLLOWING TO USE VARIABLES FOR CONTROLLING REFERENCE DESIGNATIONS ON PAGES:

    1) Right-click on the page and choose **Page article data**

    2) In the dialog box **Page article data**: Type in the name of the variable (e.g. /@7) in the *Name* field

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STRUCTURE FOR PROJECT DEFINITION FILES

A project definition file consists of three parts, of which the first two are optional.

Part 1: Specifying aliases / applied folders (Optional)

The settings in this section, corresponds to the settings which can be set from the dialog box **Options for project generator**, in the tab **Generate/update** project.

FOLDERS	
Name for Alias 1 E.g.: **FOLDER1**	Path to the *first* folder to examine for drawing templates, sub drawings and projects. E.g.: **C:\PCschematic\MySubDrawings**
Name for Alias 2	Path to the *second* folder to examine for drawing templates, sub drawings and projects.
Name for Alias 3 (Relative to other alias)	E.g.: **%FOLDER1%\SubDrawings** — Can both be relative to aliases defined in the **Project generator** dialog box, and to aliases defined on a previous line here in the project definition file.
...	...
GENERATOR OPTIONS	
UpdateLists=yes	Options: 'yes' / 'no'
UpdateFromDB=yes	Options: 'yes' / 'no'
AutoNumSymbolNames=yes	Options: 'yes' / 'no'
PLCSync=FromPLCref	Options: 'none' / 'FromPLCref' / 'ToPLCref'
MakeInvisibleUnrefSignals=yes	Options: 'yes' / 'no'
MakeInvisibleUnrefCables=yes	Options: 'yes' / 'no'

Part 2: Specifying Project data and/or Reference designations (Optional)

PCSCHEMATIC DATA	
PROJECTDATA	
Datafield from Project data	Value for datafield
Datafield from Project data	Value for datafield
...	...
REFERENCE DESIGNATIONS	
FUNCTION	
Function aspect	Description
Function aspect	Description
...	...
LOCATION	
Location aspect	Description
Location aspect	Description
...	...
PRODUCT	
Product aspect	Description
Product aspect	Description
...	...

Part 3: Specifying Drawing templates, Sub drawings and Projects

PCSCHEMATIC PAGES				
TEMPLATE	**PAGES**			
Multipage project	Page no. / Empty			
Drawing template / Single-page project	Page no. / Empty	@1	@2	...
Sub drawing	~	@1	@2	...
Project / Page	**#REMAIN**			

When Updating projects

NEWPAGES>>				
Multipage project	Page no. / Empty			
Drawing template / Single-page project	Page no. / Empty	@1	@2	...
Sub drawing	~	@1	@2	...
Project / Page	**#REMAIN**			
<<NEWPAGES				

When Merging projects
MERGE
Project 1
Project 2
Project 3
...
Project n

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PC|SCHEMATIC