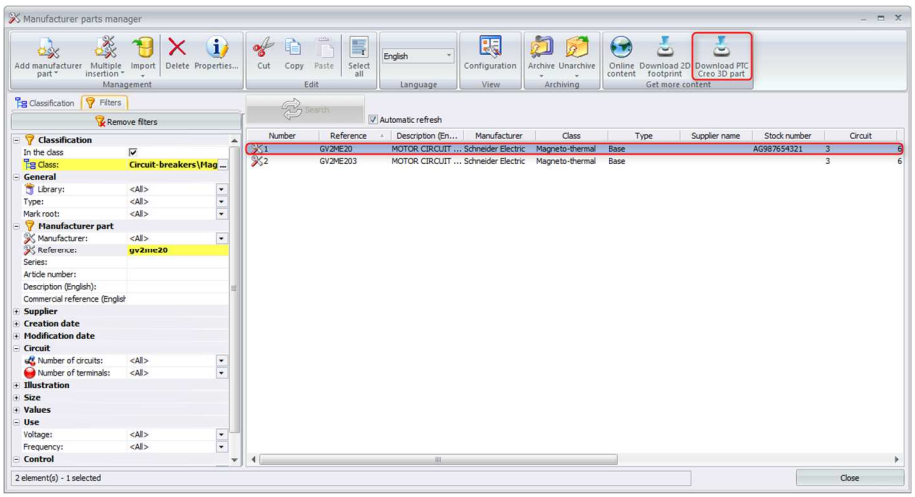
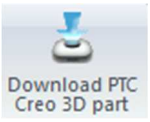
elecworks™ Tips & Tricks

Defining Electrical Intelligence to a 3D Part within PTC Creo

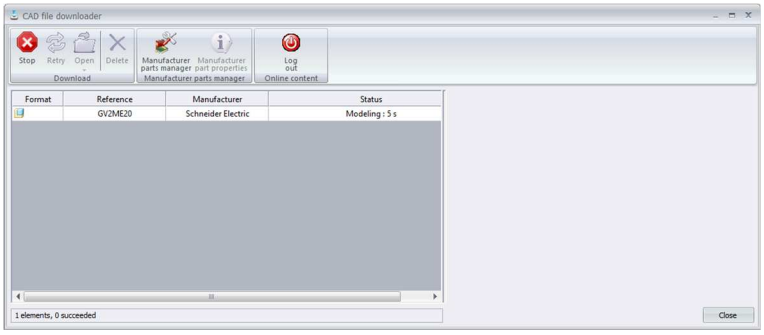
In this month's Tips and Tricks we are going to show how to correctly define electrical intelligence to a PTC Creo part.

The example below uses the Schneider Electrical GV2ME20 which can be downloaded from www.traceparts.com. You can also download the 3D model directly from within the elecworks for PTC Creo module > *Manufacturer parts manager*.



Select 

and the model will be downloaded and associated to the specific manufacturers part

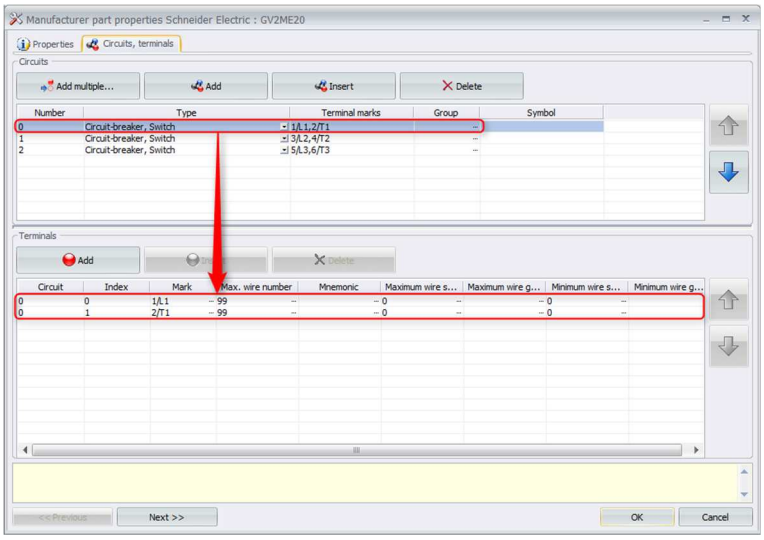


If downloading the part directly from Traceparts or from a manufacturers website, the part should be placed in the following directory (as default) assuming the data is local.

C:\ProgramData\elecworksdata\PTCCreo\Component

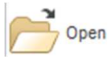
You must have elecworks for PTC Creo installed. If you do not have this module, please consult sales sales@cadline.co.uk or 0044 (0) 1924 442333

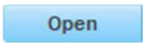
In the first instance we should look at how the GV2ME20 has been defined in the Manufacturer parts manager



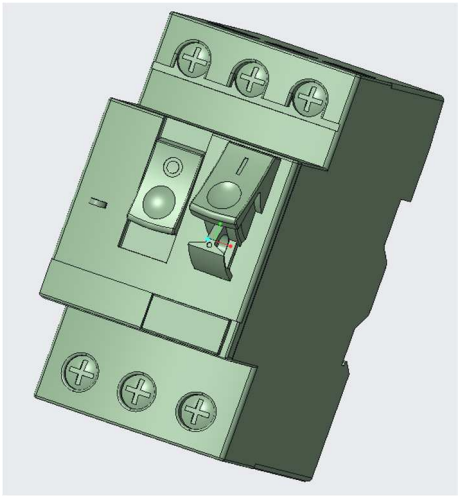
The part reference has the following connections:

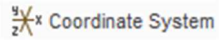
Circuit	Index	Connection name	Mark
0	0	0_0	1/L1
0	1	0_1	2/T1
1	0	1_0	3/L2
1	1	1_1	4/T2
2	0	2_0	5/L3
2	1	2_1	6/T3

Select File > 

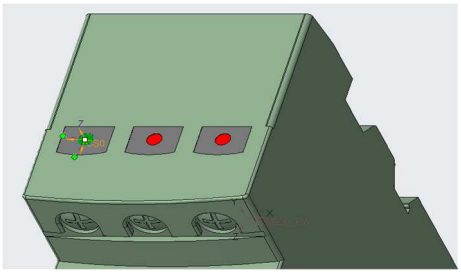
Highlight *GV2ME20.prt* and select 

From the  *Datum Display Filters* > ☐ *Select All*

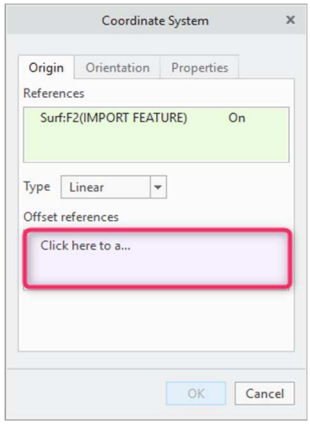


Select the *Model* ribbon tab > *Datum* panel > 

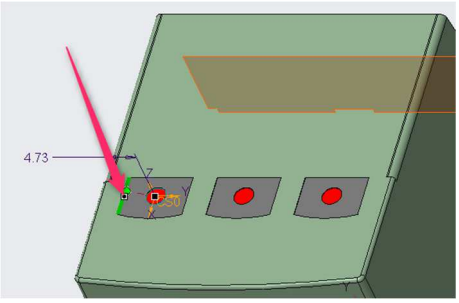
Select the center of the connection point



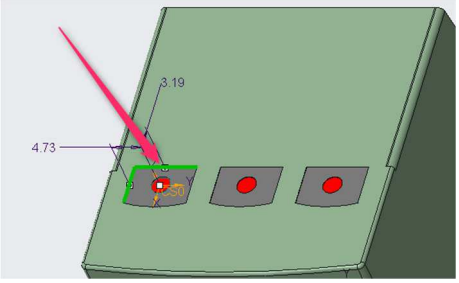
Left click in the area highlighted



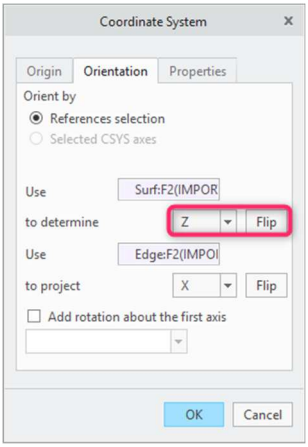
We need to select 2 faces for the X & Y. The direction of X & Y should be consistent for all connections.
Select the following edge:



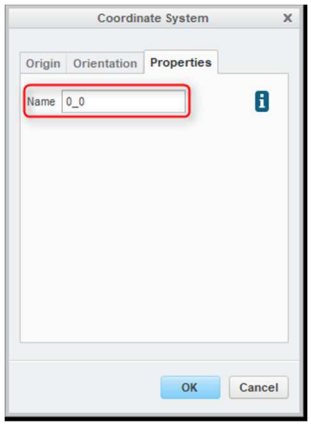
Holding ***Ctrl*** down, select the next face



Ensure that the Z coordinate is pointing away from the device. You can always flip:

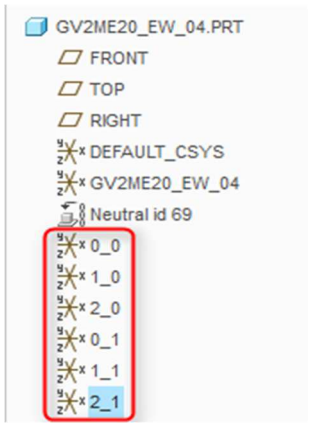


The connection name is defined in the *Properties*



Select OK

Repeat the process until all necessary connection points are defined



A connection point can be renamed by double left clicking on the existing name in the *Model Tree.*

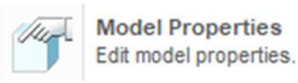
A connection point can be edited by right clicking on the connection point in the *Model Tree* and selecting  *Edit the definition of the selected object*

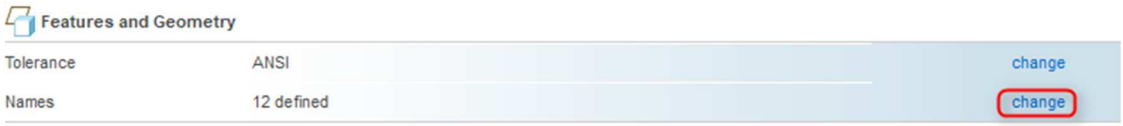
Play the video!

Once all the connection points have been defined, we need to define the “interface features” of the component. elecworks™ uses the following mates:

Feature Name	Type	Constraint Type	Explicit Type
TREWLEFTFACE	Surface feature		
TREWRIGHTFACE	Surface feature		
TREWDOOR	Component Interface Feature	Coincident	Mate
TREWBACK	Component Interface Feature	Coincident	Mate
TREWRAIL35	Component Interface Feature	Interface	Placing

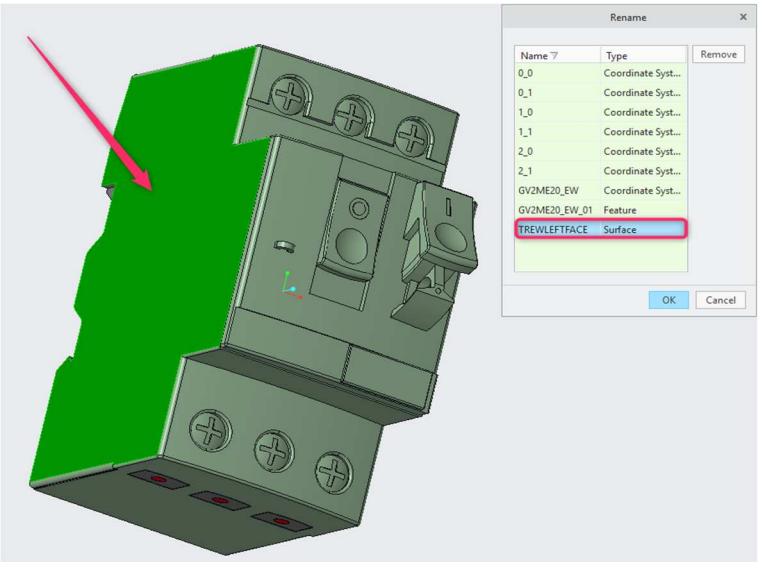
TREWLEFTFACE & TREWRIGHTFACE automatically mate with one another when multiple components are placed.
A TREWDOOR mate can be mated with an interface or geometry so a TREWDOOR is not necessary on the enclosure as an example although makes it easier to place a component.
A TREWBACK mate can be mated with an interface or geometry so a TREWBACK is not necessary on the enclosure as an example although makes it easier to place a component.
If a component has a TREWRAIL35 mate it will automatically snap onto DIN rail

Select *File* > *Prepare* > 



Select Change as shown

Left click on the surface you wish to define which in turn will create the new feature



Double left click to rename the feature to e.g. TREWLEFTFACE

Repeat on the right-hand side face for TREWRIGHTFACE

TREWLEFTFACE	Surface
TREWRIGHTFACE	Surface

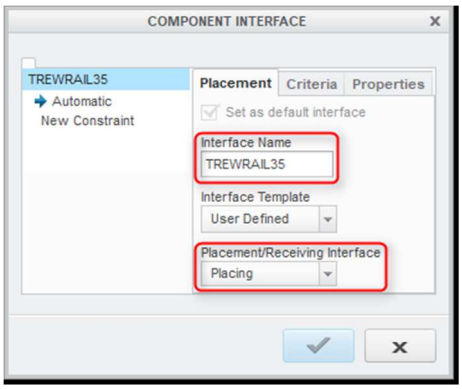
Select OK to finish

Select Close to close the *Model Properties* dialogue

Play the video!

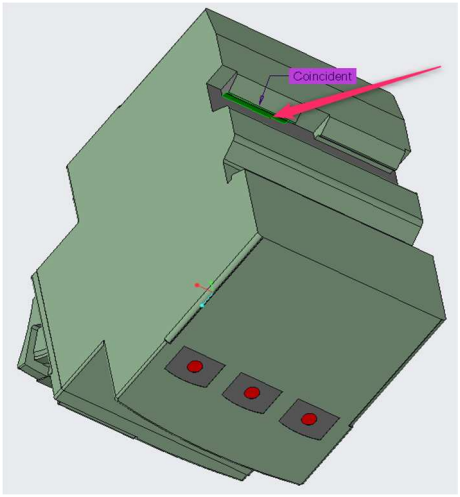
For the DIN rail mating, select the *Model* ribbon tab > *Model Intent* panel > 

Define the Interface Name: TREWRAIL35
Define the interface type: PLACING



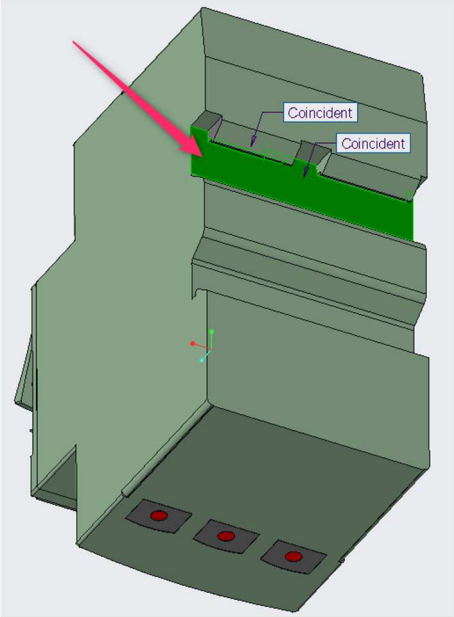
Left click on Automatic

Select the DIN rail edge face as shown:



Select New Constraint

Then select the mounting face of the DIN rail as shown:



The order of the faces must be done in the order as stated

Select 

 Save the part


Play the video!