

# Representing Black Box Devices in Multiple Ways

All Electrical Designer Users



A black box device such as an emergency stop relay can often be represented in a multitude of ways dependent upon the customer.

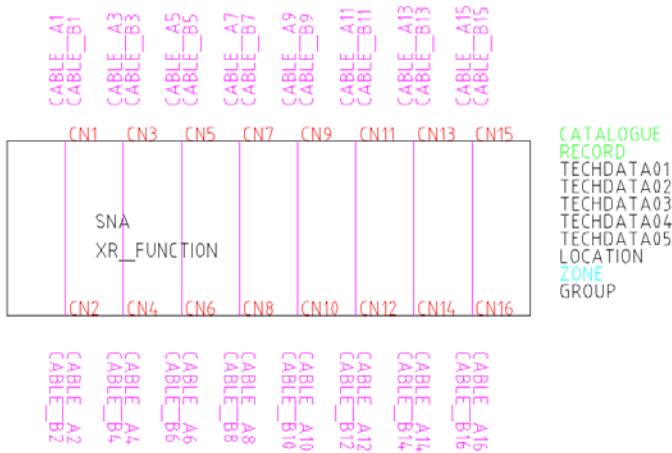
The device may be shown:

1. as a one unit in the schematics
2. as a primary device in one drawing with secondary contacts being displayed separately on different pages
3. as a primary device on one drawing (e.g. power part) and the secondary (control) part on a different drawing.

In this month's tips and tricks we will look at how each method is achievable.

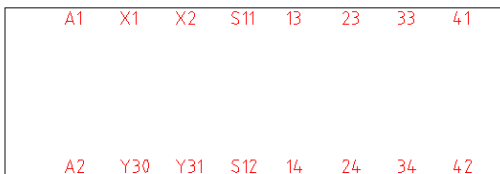
1.

- a) Create a new element 
- b) Create empty
- c) Definition of element – Final Consumption; Symbol = K
- d) Select Accept
- e) Type a name for the element e.g. ESR
- f) Select Accept
- g) Go into the symbol
- h) Select Definition Wizard 
- i) Select Accept
- j) Define Insertion point of symbol
- k) and follow the prompts so that the finished symbol looks similar:



- I) Use DDEDIT to change the value of each attribute so instead of CN1 having a value of 1, it has A1. Repeat for others.

The finished item inserted into a schematic will look similar to:



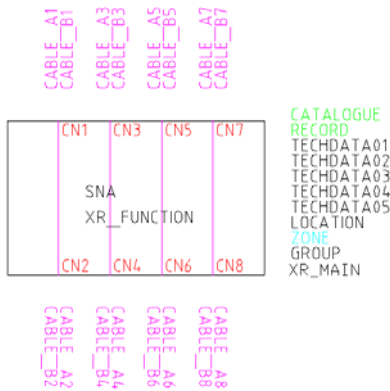
## 2.

Repeat the creation as per 1 except

- c) Definition of element – Relay or element with contacts; Symbol = K
  - i. Select Def.Contacts
  - ii. Define pins as follows

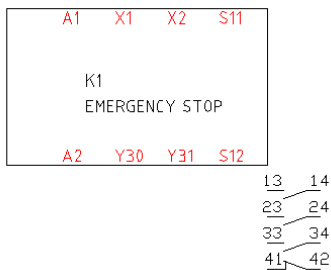
Pin1	Pin2	Ty...	Gr...
13	14	1	.
23	24	1	.
33	34	1	.
41	42	2	.

- k) and follow the prompts so that the finished symbol looks similar:



- i. Note the additional XR\_MAIN attribute which will display the secondary contacts referencing. This can be rotated and positioned in the box if preferred.

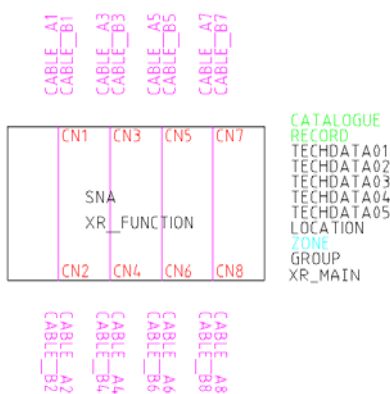
The finished item inserted into a schematic will look similar to:



### 3.

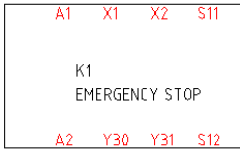
Repeat the creation as per 1 except


- c) Definition of element – Functional Block; Symbol = K
- l) and follow the prompts so that the finished symbol looks similar:



- i. Note the additional XR\_MAIN attribute which will display the secondary contacts referencing.

The finished item inserted into a schematic will look similar to:



- m) Create a new element 
- n) Create empty
- o) Definition of element – Functional Sub-block; Symbol = K
- p) Select Accept

Follow the notes for creation of the symbol using Def.Wizard as per 1.

The finished item inserted into a schematic will look similar to:



When this symbol is given the same function as the primary part, it will cross-reference to the parent.