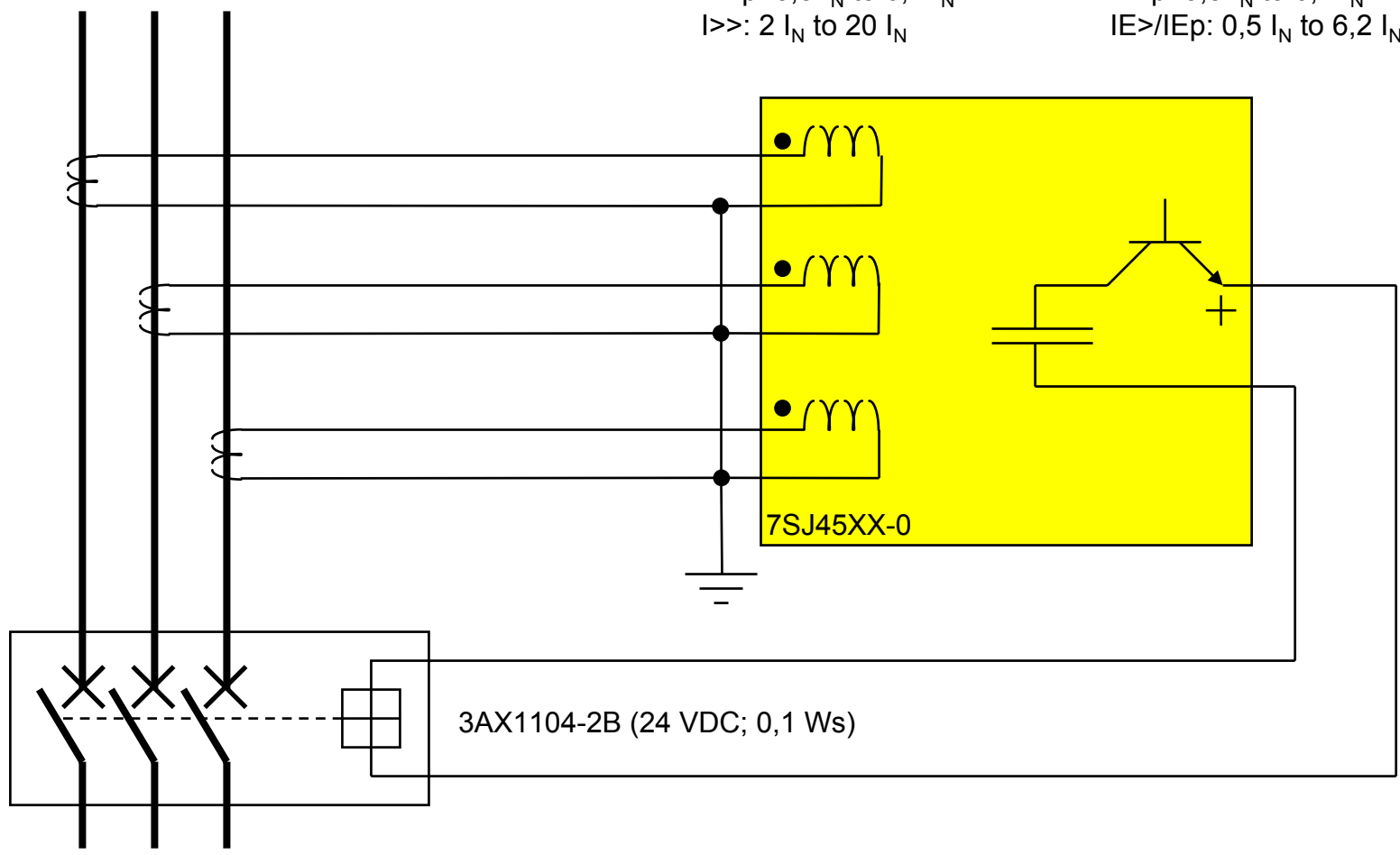




# CT-powered 7SJ45 with pulse output

**MODE I>>**  
 I>/Ip: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
 I>>: 2 I<sub>N</sub> to 20 I<sub>N</sub>

**or** **MODE IE**  
 I>/Ip: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
 IE>/IEp: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>

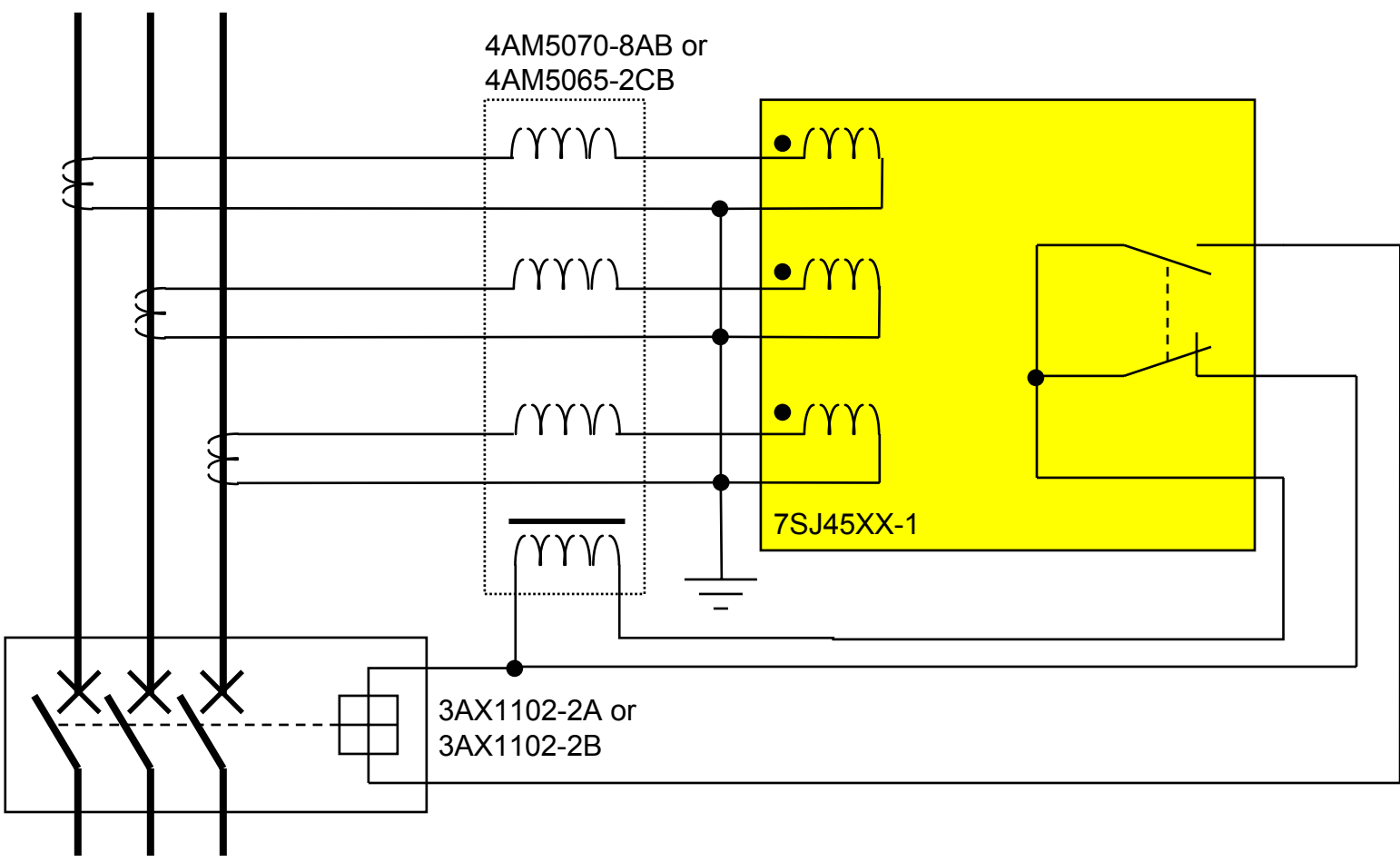




# CT powered 7SJ45 with relay contact and auxiliary trip transformer

**MODE I>>**  
I>/Ip: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
I>>: 2 I<sub>N</sub> to 20 I<sub>N</sub>

**or** **MODE IE**  
I>/Ip: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
IE>/IEp: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>

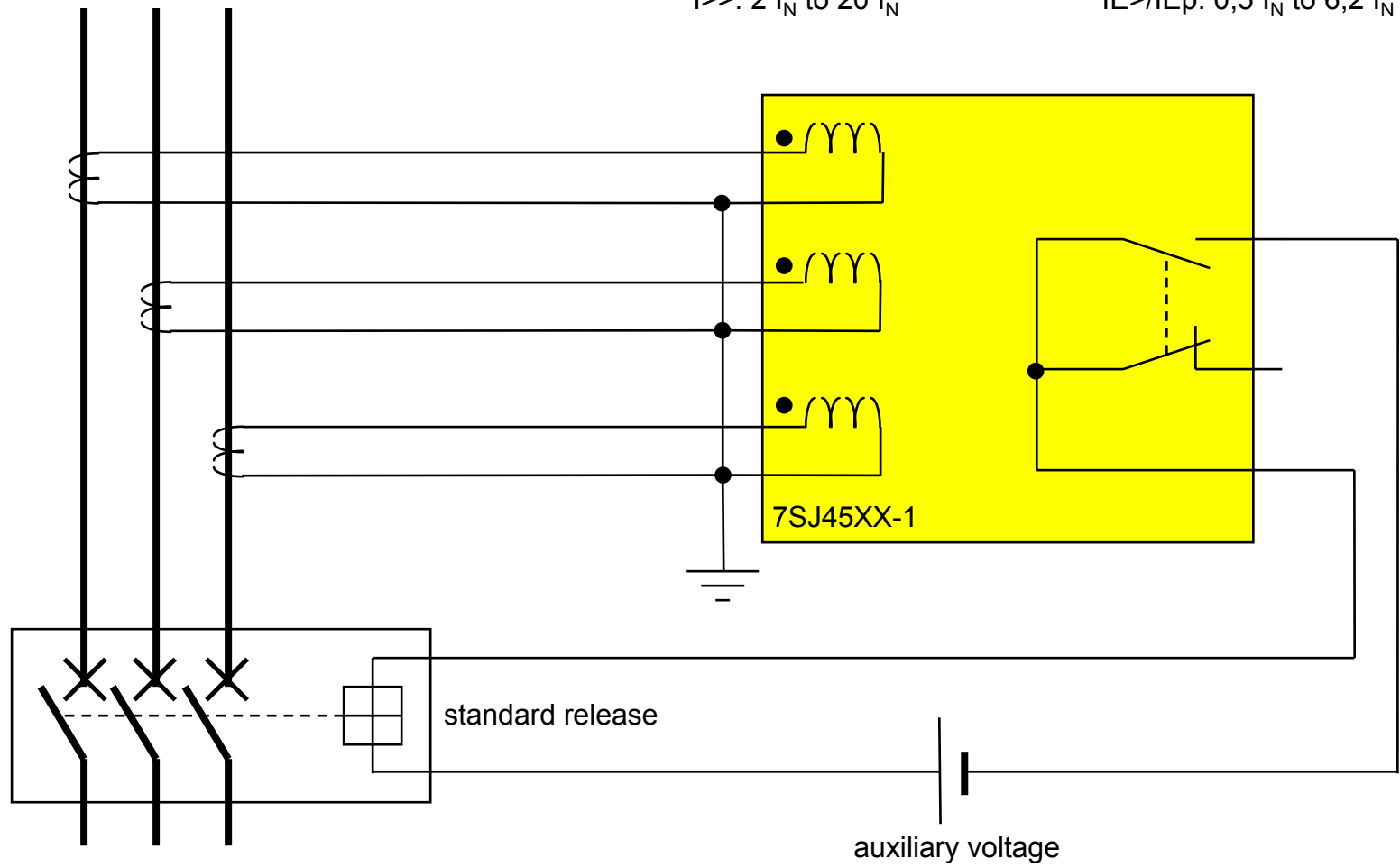




# CT powered 7SJ45 with relay contact and station battery

**MODE I>>**  
 I>/Ip: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
 I>>: 2 I<sub>N</sub> to 20 I<sub>N</sub>

**or** **MODE IE**  
 I>/Ip: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
 IE>/IEp: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>



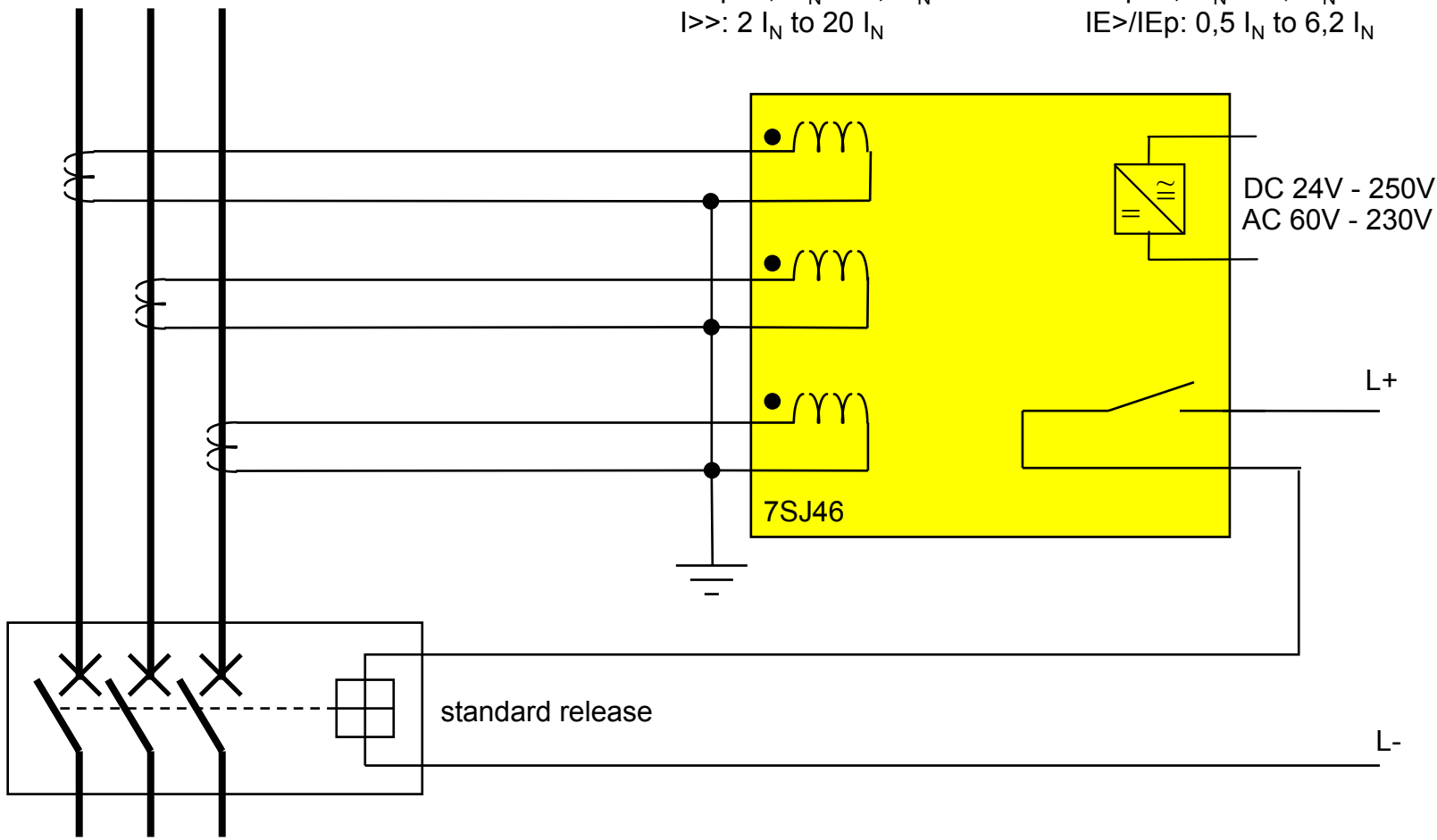


# Application with AC/DC powered version 7SJ46



**MODE I>>**  
 I>/Ip: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
 I>>: 2 I<sub>N</sub> to 20 I<sub>N</sub>

**or** **MODE IE**  
 I>/Ip: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
 IE>/IEp: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>



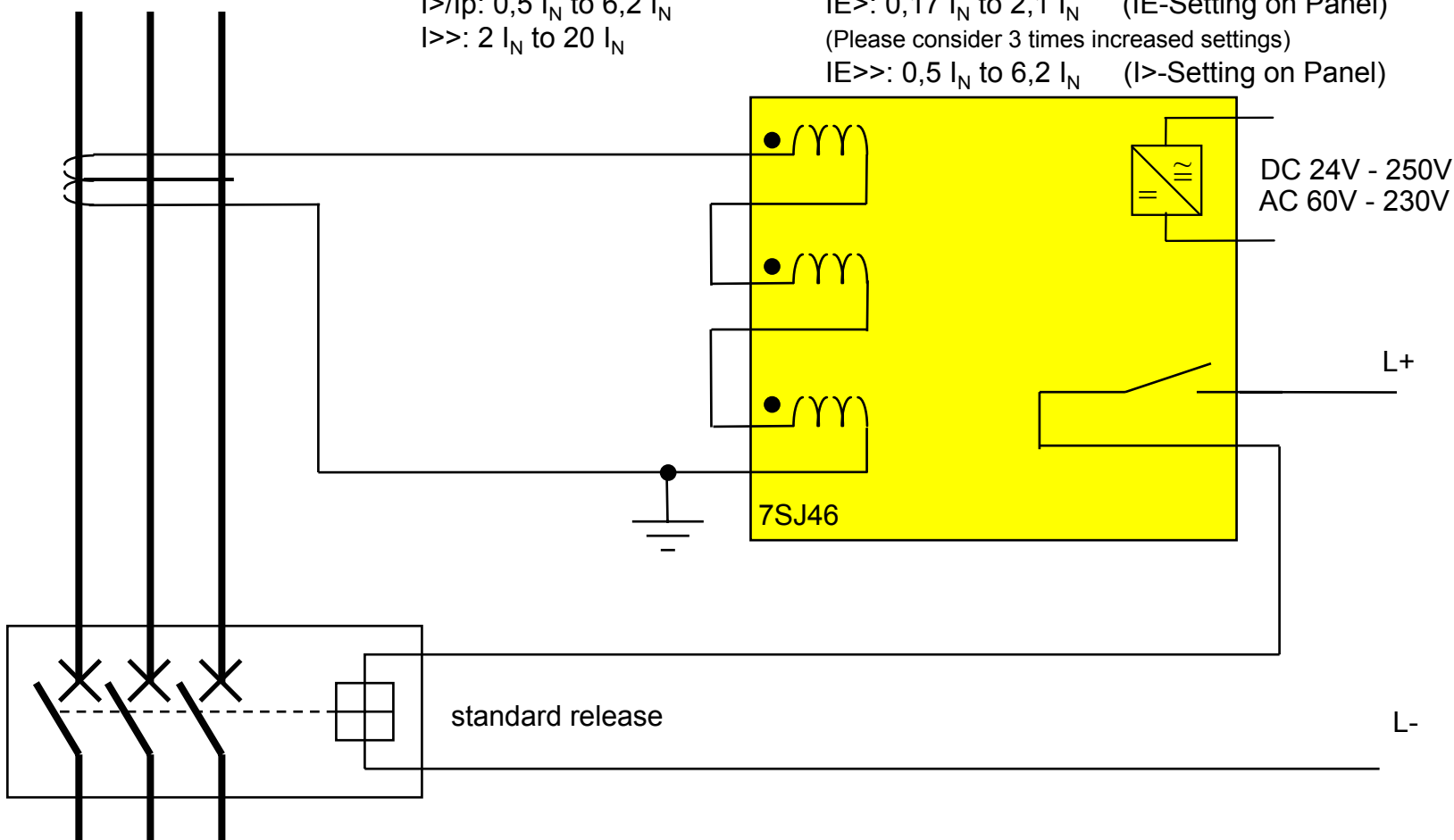


# Application with AC/DC powered version 7SJ46 Earth Fault Protection (normal or sensitive)



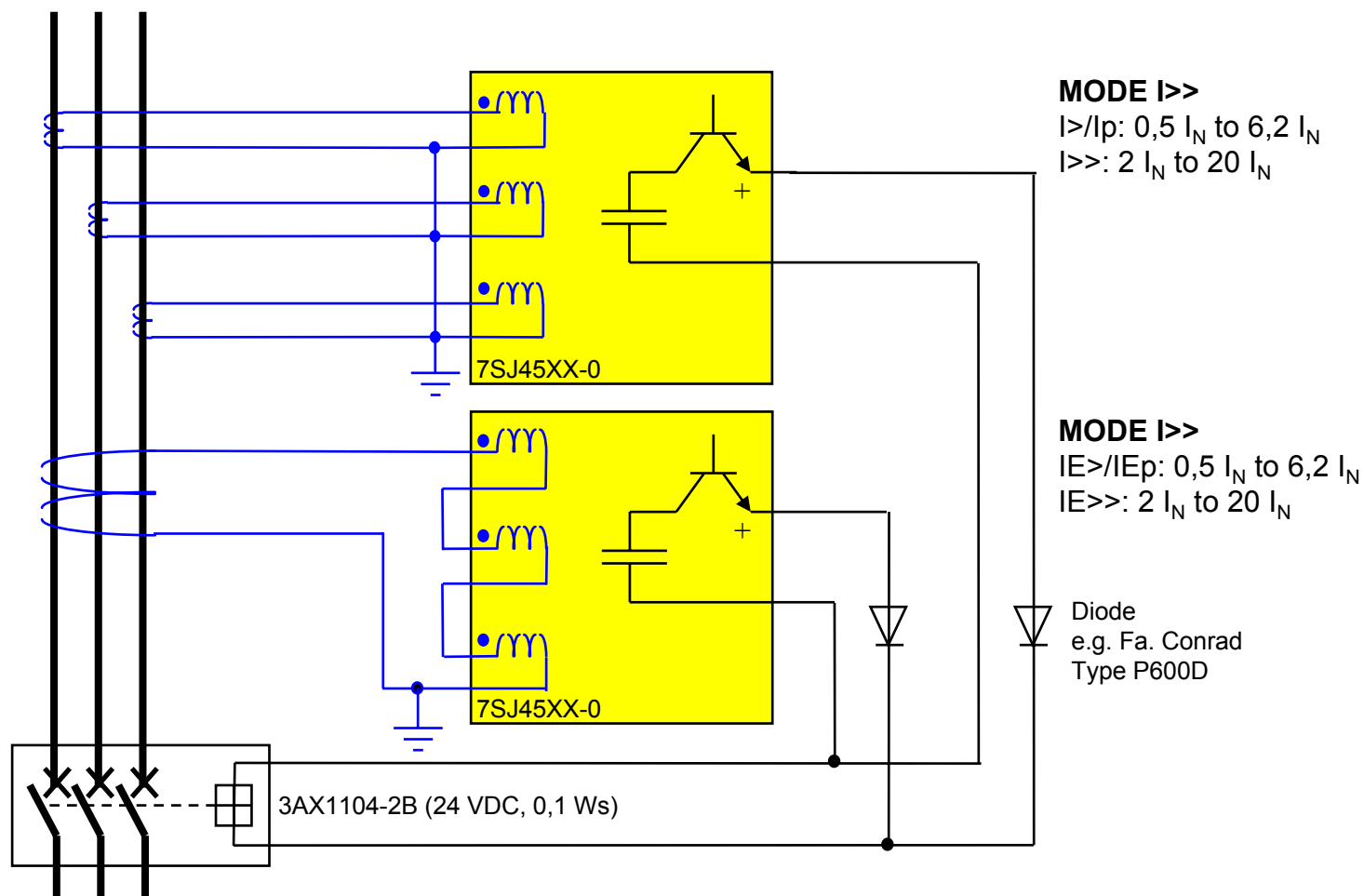
**MODE I>>**  
I>/I<sub>p</sub>: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
I>>: 2 I<sub>N</sub> to 20 I<sub>N</sub>

**or** **MODE IE**  
IE>: 0,17 I<sub>N</sub> to 2,1 I<sub>N</sub> (IE-Setting on Panel)  
(Please consider 3 times increased settings)  
IE>>: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub> (I>-Setting on Panel)





# CT-powered SIPROTEC **easy** 7SJ45 (Pulse Output, 4-stage, sensitive IE)



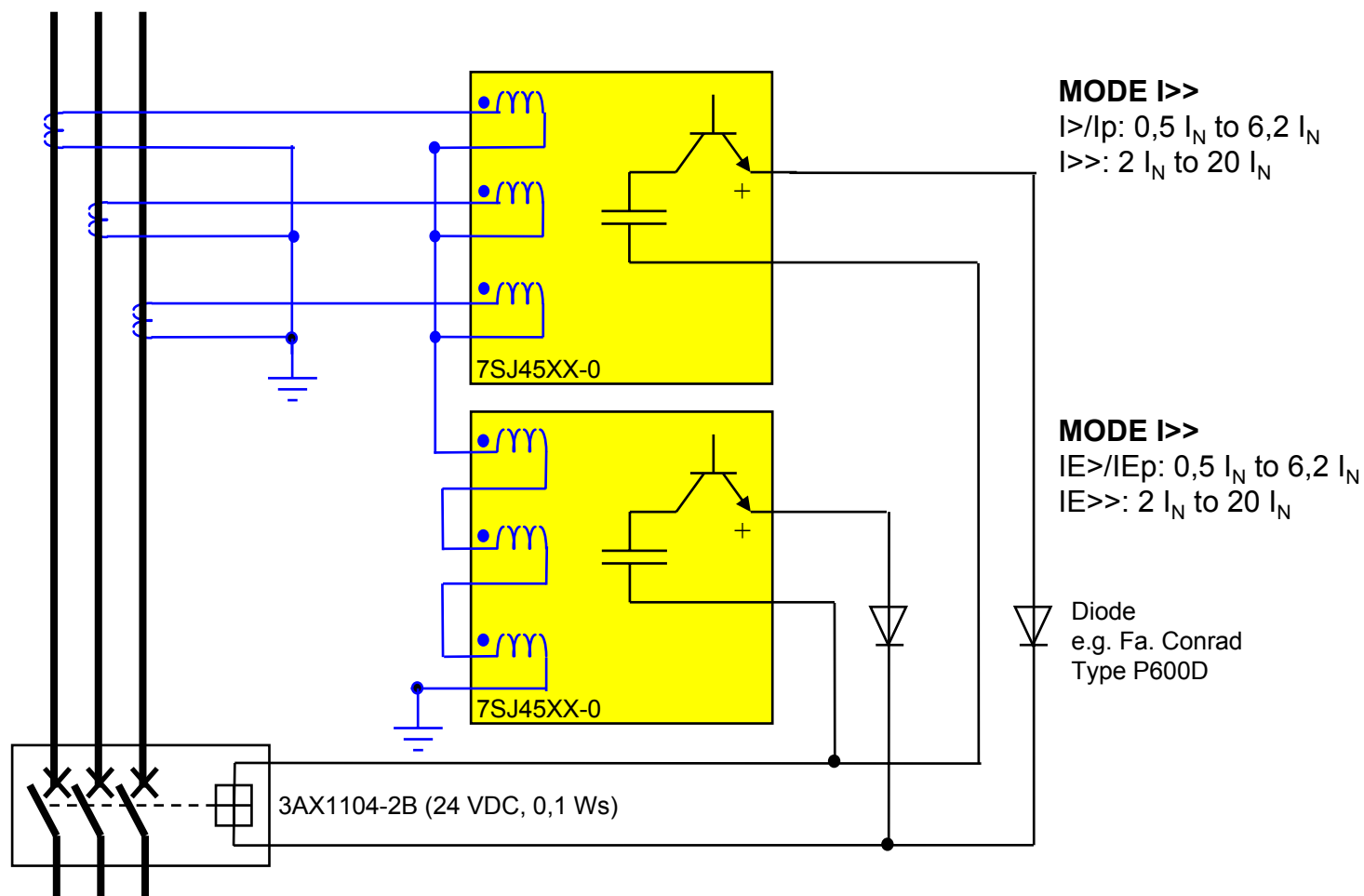
**MODE I>>**  
 I>/I<sub>p</sub>: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
 I>>: 2 I<sub>N</sub> to 20 I<sub>N</sub>

**MODE I>>**  
 IE>/IE<sub>p</sub>: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
 IE>>: 2 I<sub>N</sub> to 20 I<sub>N</sub>

Diode  
 e.g. Fa. Conrad  
 Type P600D



# CT-powered SIPROTEC easy 7SJ45 (Pulse Output, 4-stage, normal IE)





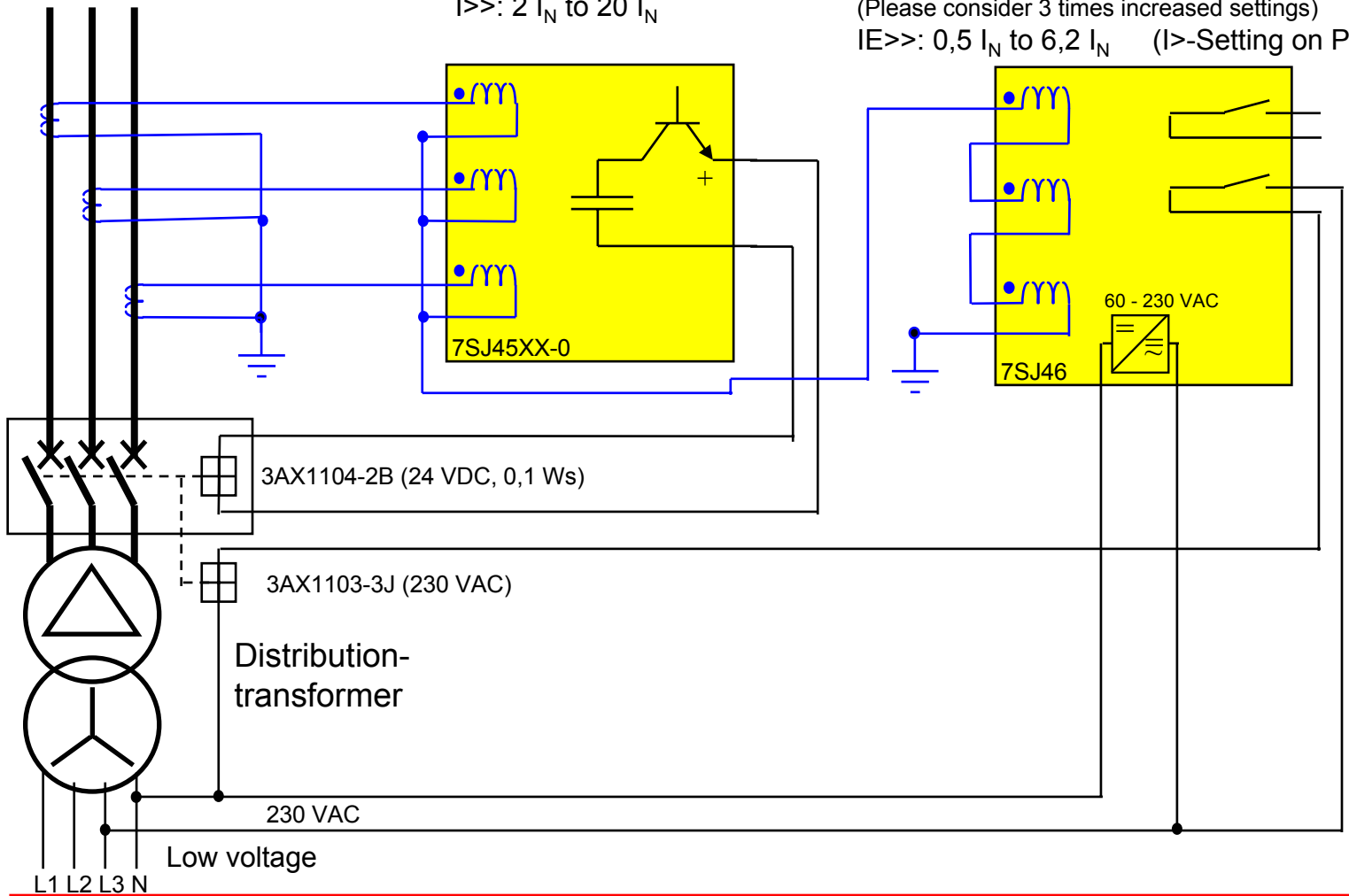
# Dual-powered combination SIPROTEC easy 7SJ45/46 (Pulse Output, 4-stage, sensitive IE)

### MODE I>>

I>/I<sub>p</sub>: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub>  
I>>: 2 I<sub>N</sub> to 20 I<sub>N</sub>

### MODE IE

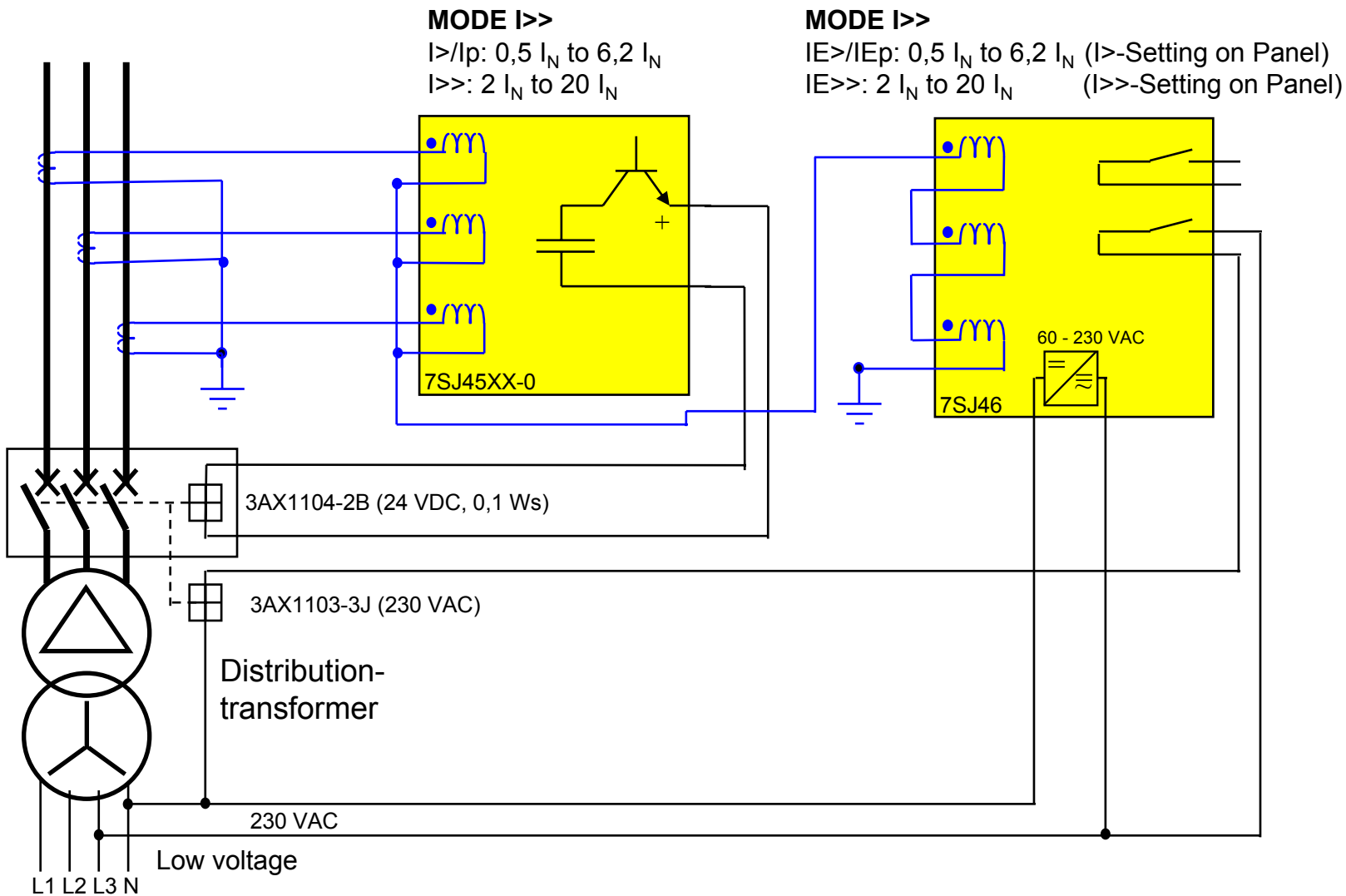
IE>: 0,17 I<sub>N</sub> to 2,1 I<sub>N</sub> (IE-Setting on Panel)  
(Please consider 3 times increased settings)  
IE>>: 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub> (I>-Setting on Panel)





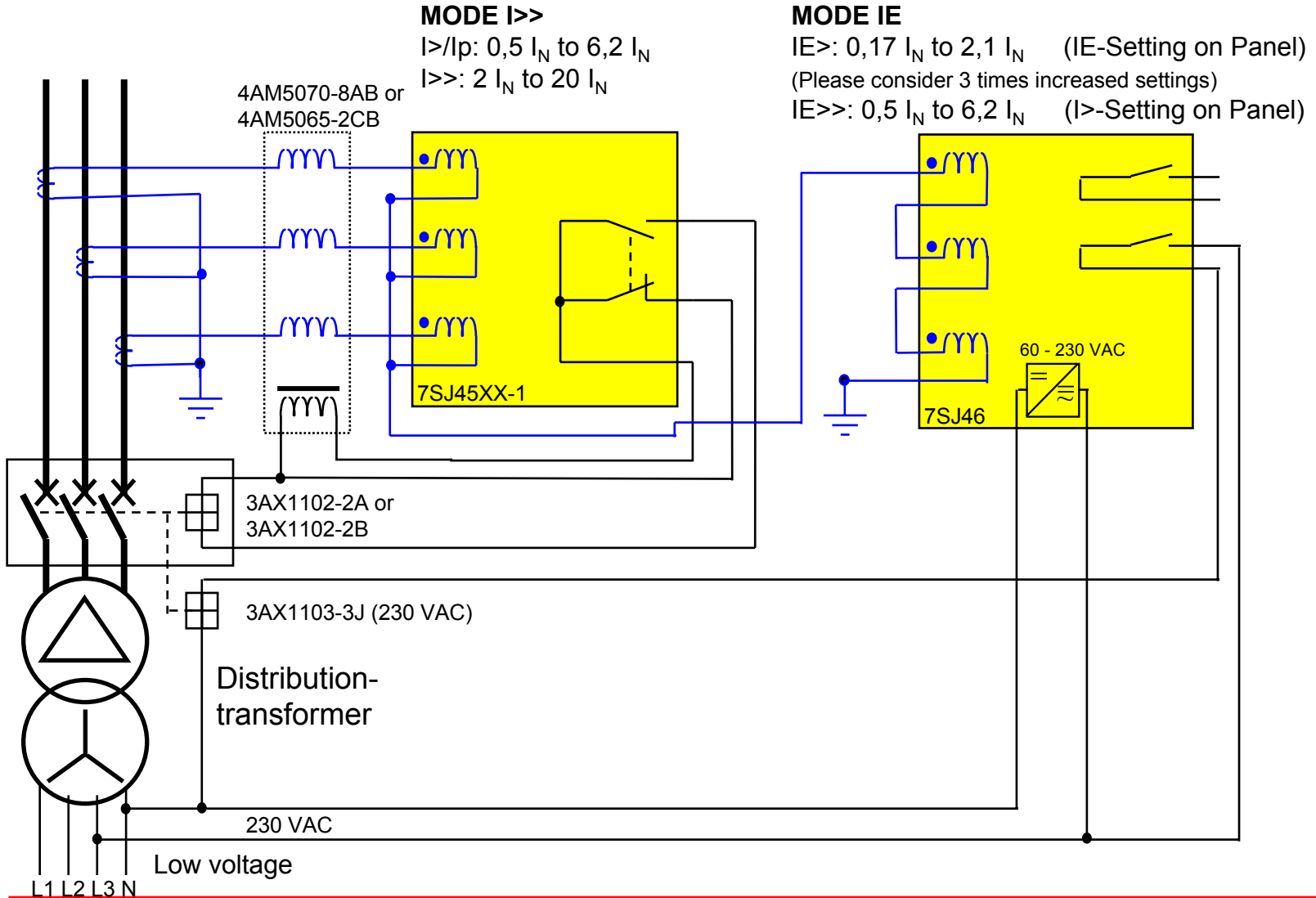


# Dual-powered combination SIPROTEC easy 7SJ45/46 (Pulse Output, 4-stage, normal IE)



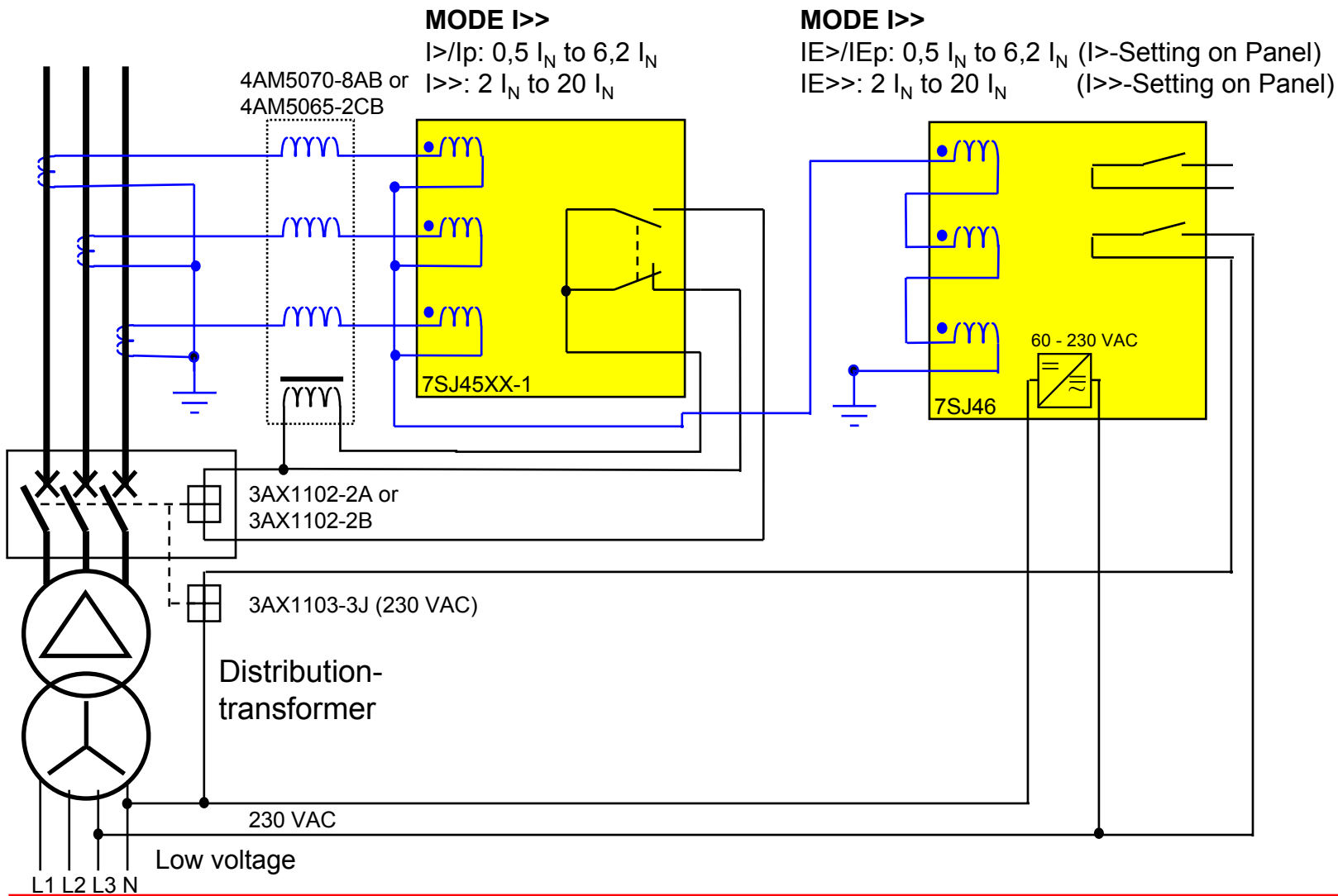


# Dual-powered combination SIPROTEC easy 7SJ45/46 (Relay-Output, 4-stage, sensitive IE)



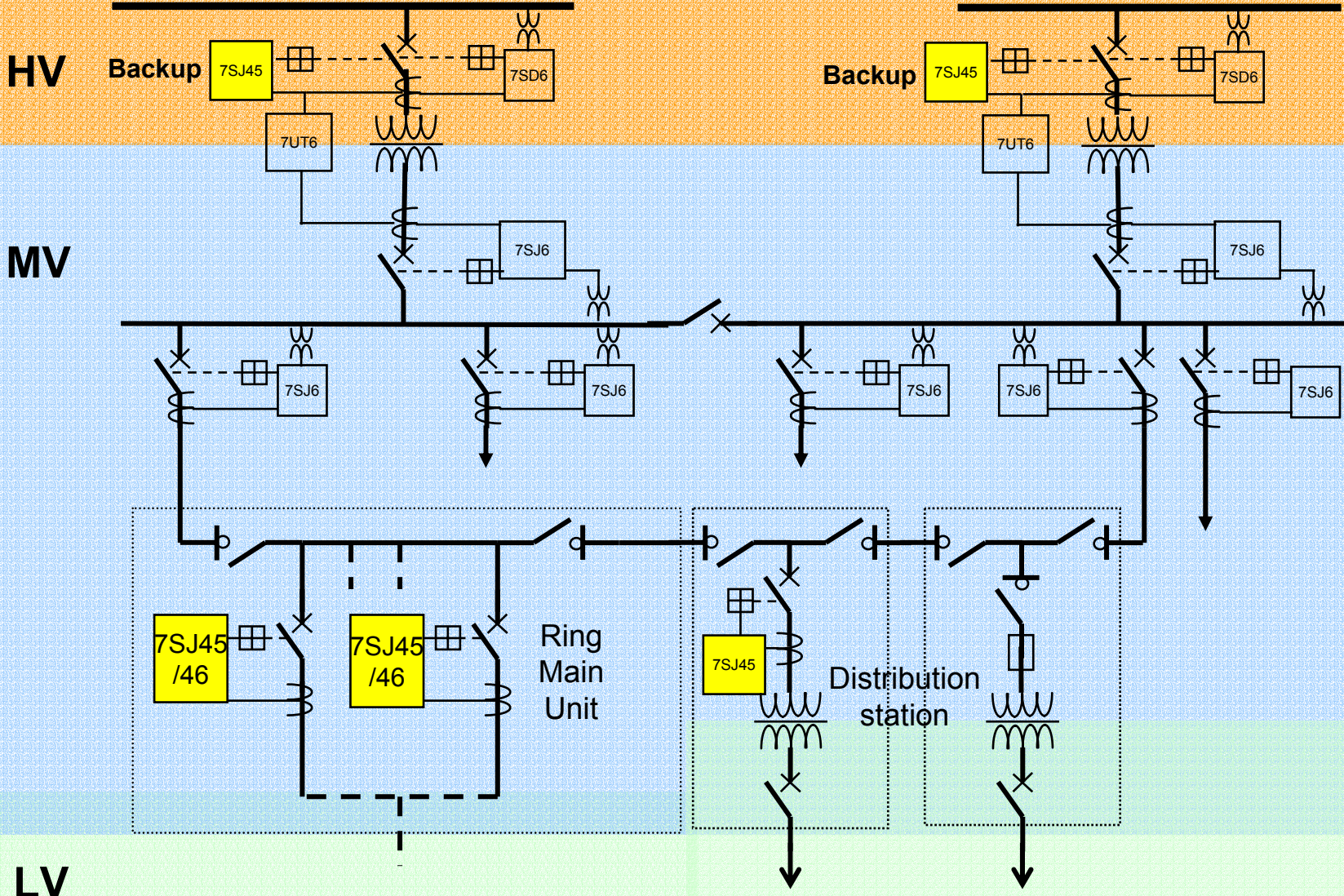


# Dual-powered combination SIPROTEC **easy** 7SJ45/46 (Relay-Output, 4-stage, normal IE)



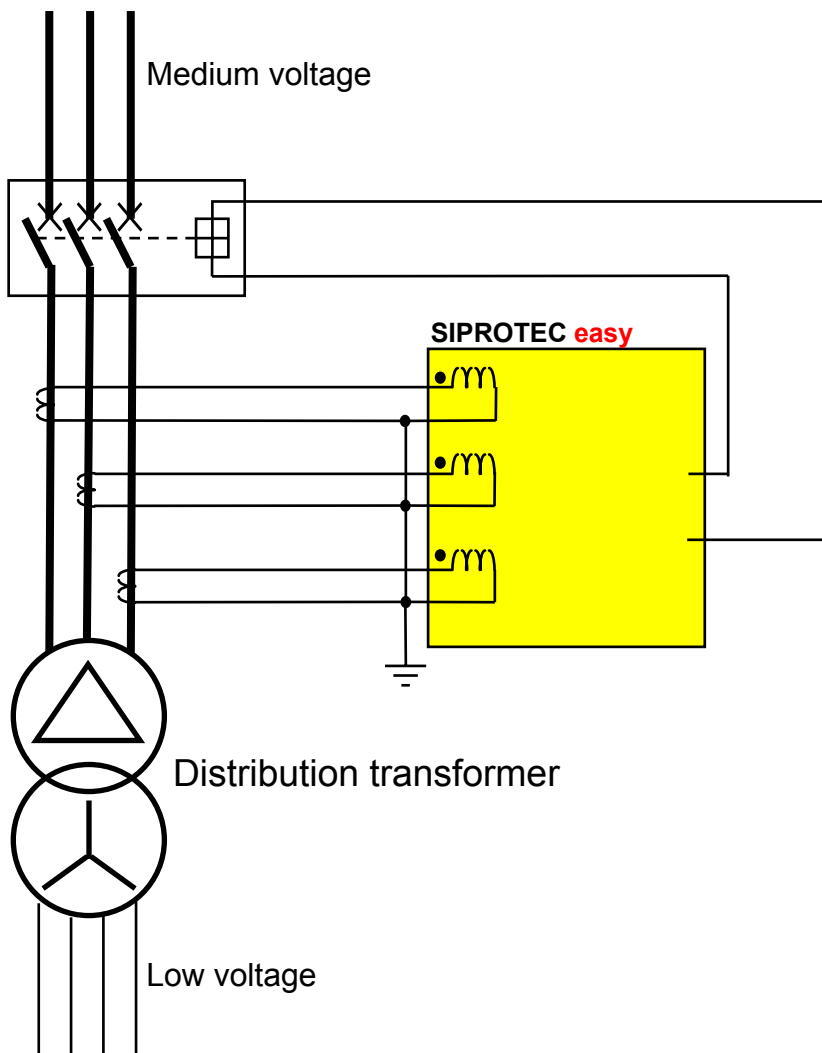


# Application





# SIPROTEC **easy** for distribution transformer application



## Settings (inverse time):

Mode IE

$I_p = 0,5 I_N$  to  $4 I_N$  step 0,1

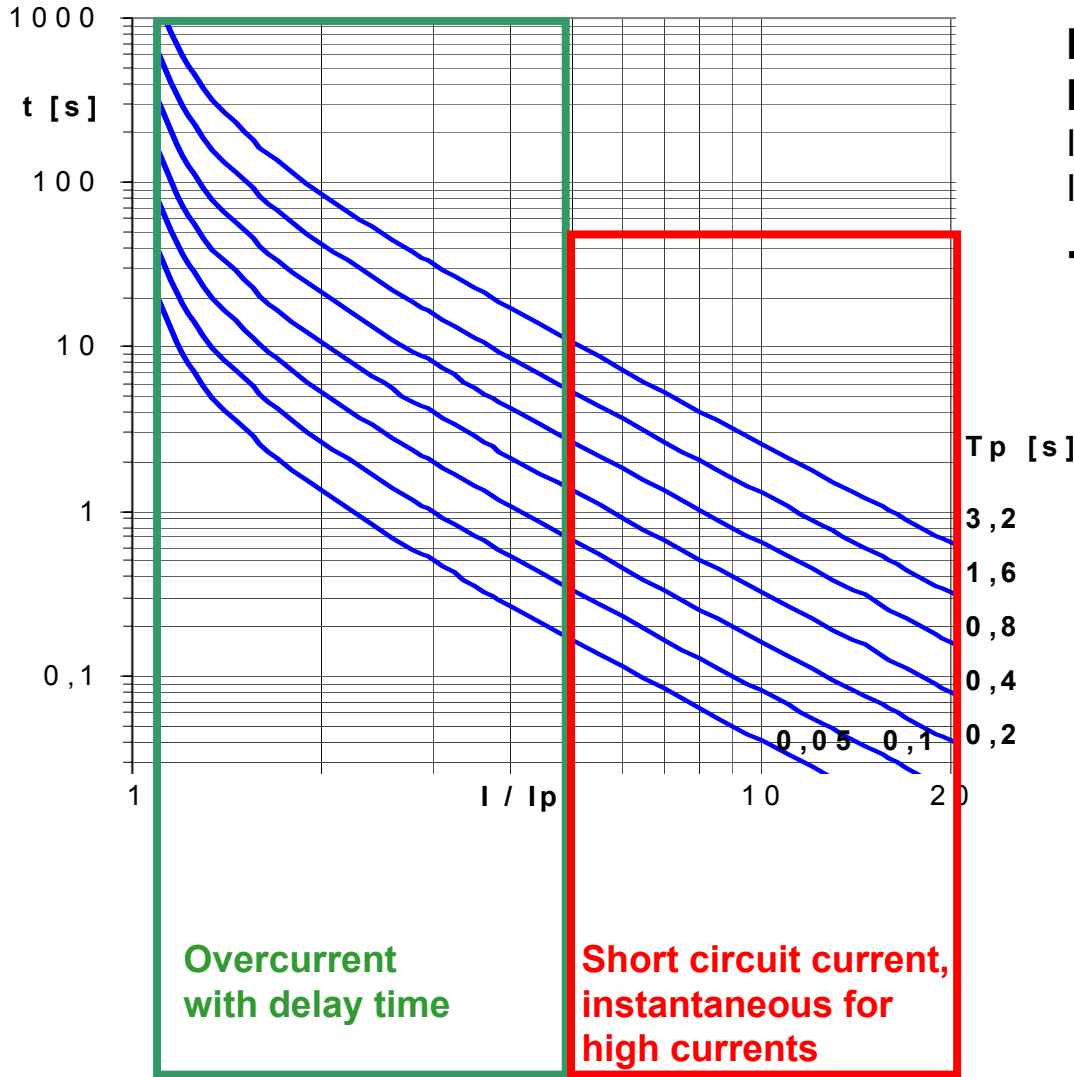
$T_{Ip} = 0,05$  to  $3,15$  s step 0,05 s

$I_{Ep} = 0,5 I_N$  to  $4 I_N$  step 0,1

$T_{IEp} = 0,05$  to  $3,15$  s step 0,05 s  
(example see next page)



# SIPROTEC *easy* for distribution transformer application



### Example: IEC 51

### Extremely inverse, E INV

$I_p = 1,2 I_N$ ,  $T_{Ip} = 0,05$  s

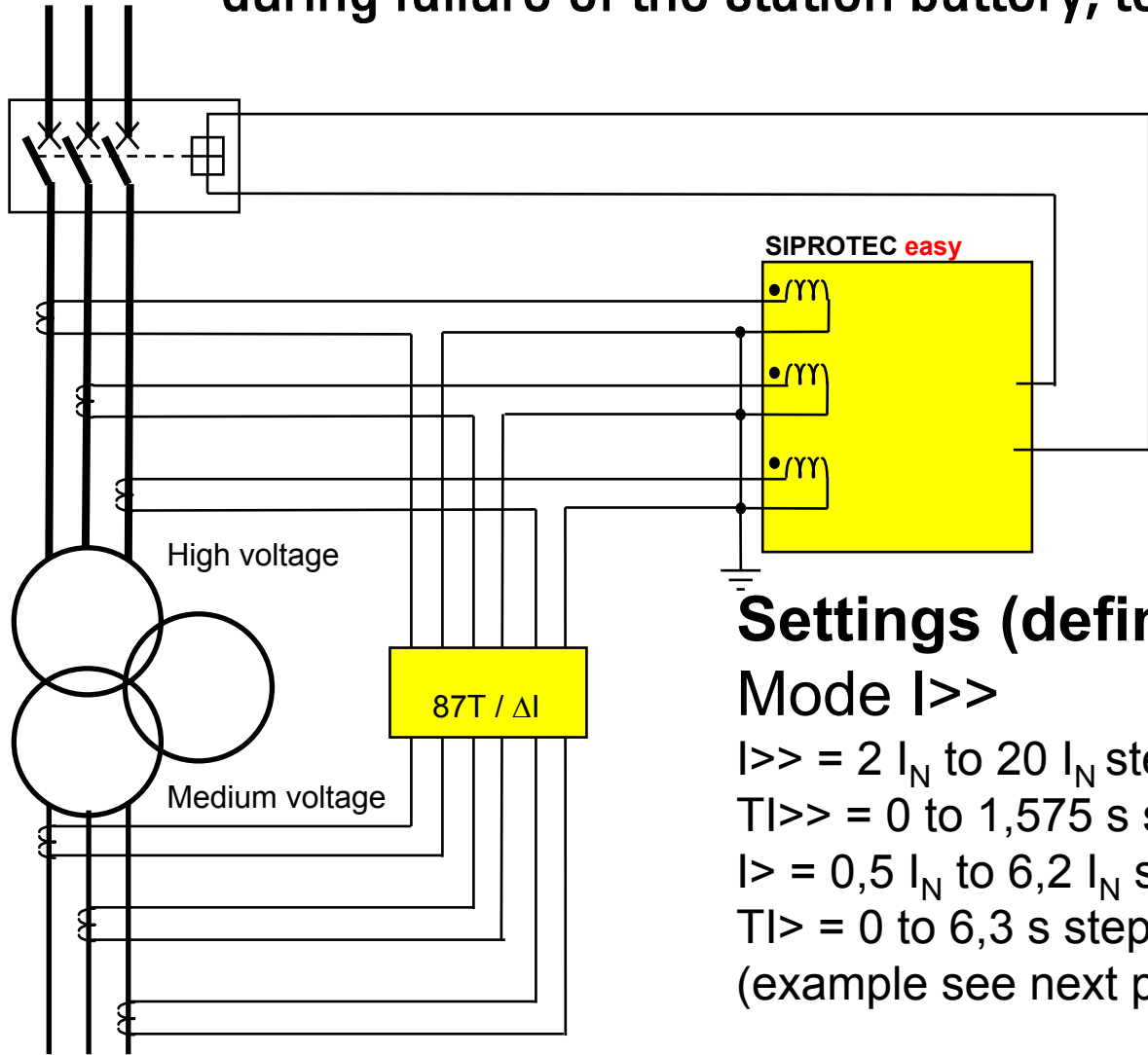
$I_{Ep} = 0,5 I_N$ ,  $T_{IEp} = 0,05$  s

→ Tripping for phase current  $> 1,2 I_N$  with delay time  $< 19$  s.  
 Instantaneous tripping for phase current at  $10 I_N$  (58 ms).

Tripping for earth current  $> 0,5 I_N$  with delay time  $< 19$  s.  
 Instantaneous tripping for earth current at  $5 I_N$  (40 ms).



# SIPROTEC **easy** for transformer protection (backup) - during failure of the station battery, too (7SJ45) -



## Settings (definite time):

Mode I>>

I>> = 2 I<sub>N</sub> to 20 I<sub>N</sub> step 0,5

TI>> = 0 to 1,575 s step 0,025 s

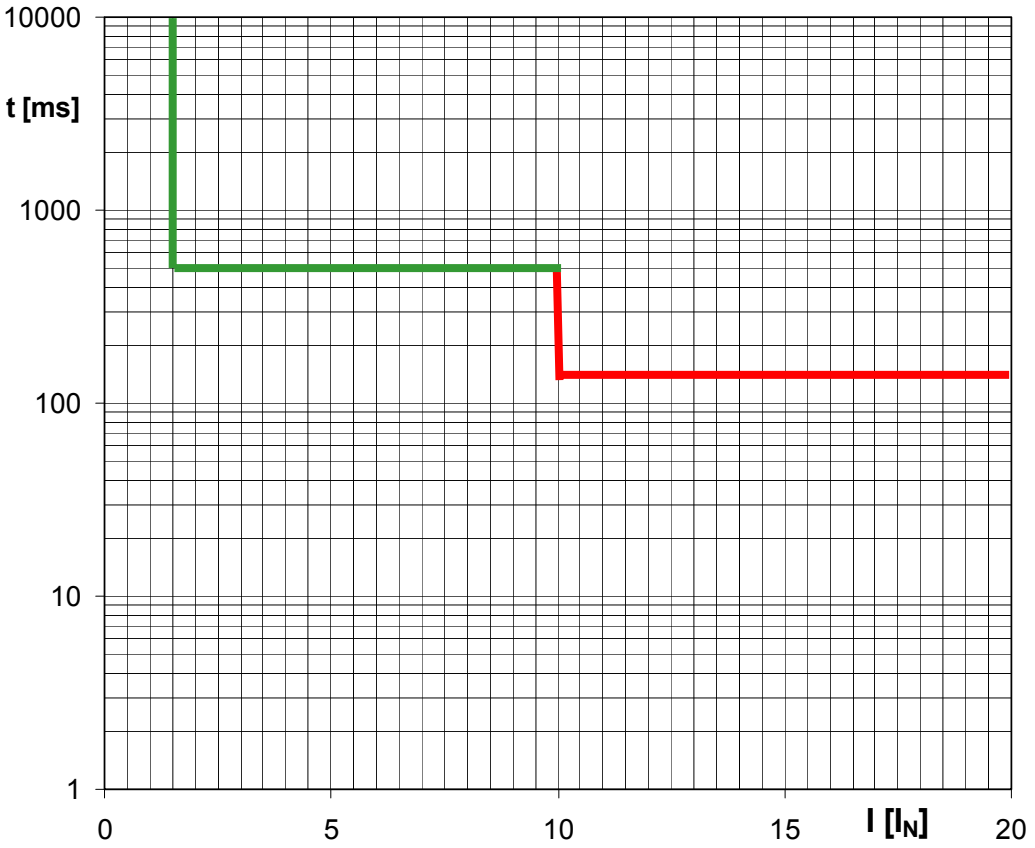
I> = 0,5 I<sub>N</sub> to 6,2 I<sub>N</sub> step 0,1

TI> = 0 to 6,3 s step 0,1 s

(example see next page)



# SIPROTEC *easy* for transformer protection (backup)



**Example:**

**Definite time DT O/C**

$I > = 1,5 I_N, T I > = 0,5 \text{ s}$   
 $I >> = 10 I_N, T I >> = 0,15 \text{ s}$

- Tripping at  $1,5 I_N$  with delay time of 500 ms.
- Instantaneous tripping at  $10 I_N$  with delay time of 150 ms.

$I >, T I >$ :  
**Overcurrent with delay time**

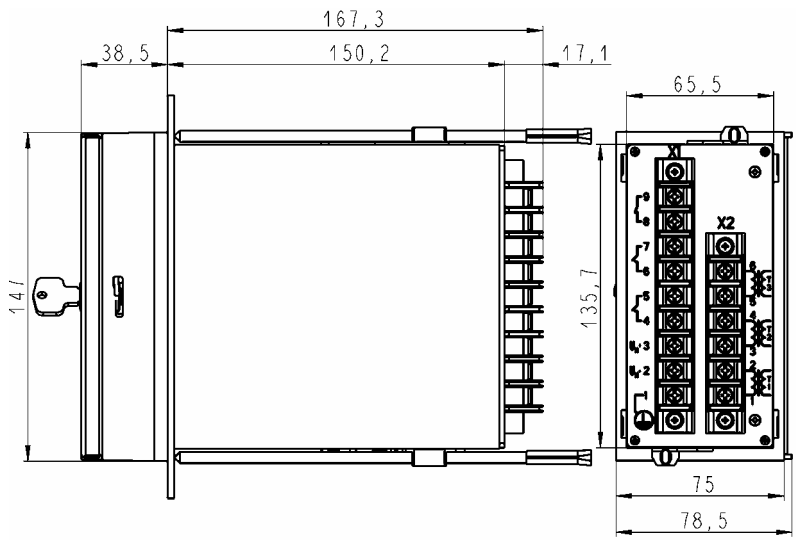
$I >>, T I >>$ :  
**Short circuit current**



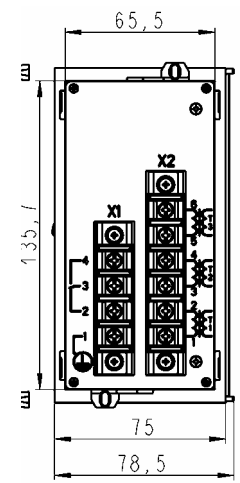




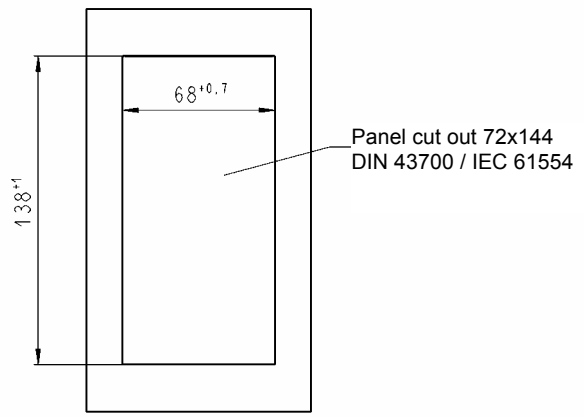
# Dimensions flush mounting



7SJ46



7SJ45





# Dimensions rail mounting

