Gigabit PoE (802.3af)

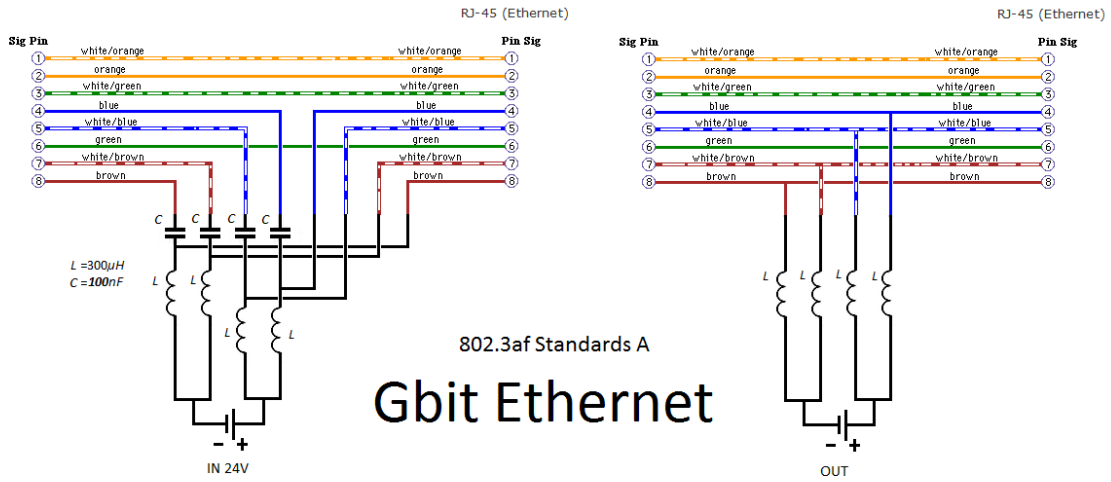
- http://en.wikipedia.org/wiki/Power_over_Ethernet#Power_capacity_limits
- http://forum.mikrotik.com/download/file.php?id=10417&sid=6fc2e8eb2c2daca423ee4b91e19a1405
- http://www.dipolnet.cz/poe_-_iee_802_3af_and_iee_802_3at_bib746.htm

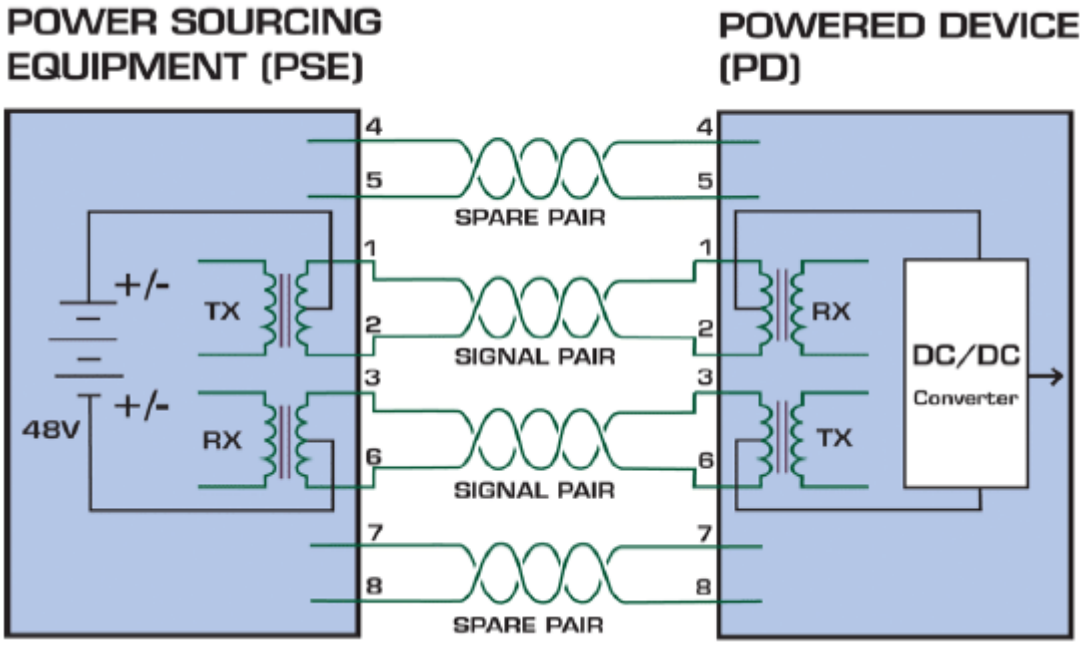
- **C = 100nF** (ceramic, stacked tin foil,...)
- **L = 300uH**
  - Ferrite material 43 or 61 (toroid FT-37-61)
  - https://www.youtube.com/watch?v=t8mB6xz2NPI

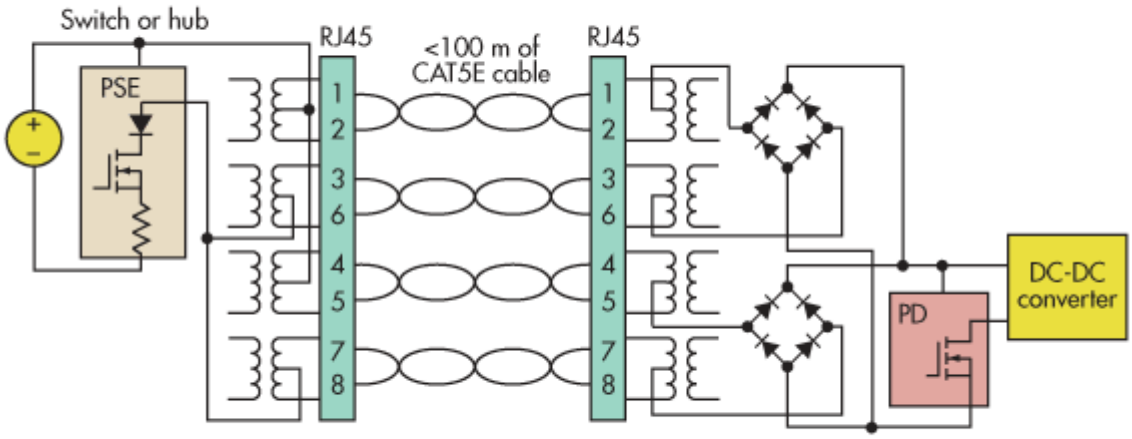
PINS on Switch	1000 (1 Gigabit)	Bi-Data
Pin 1	TxRx A +	
Pin 2	TxRx A -	
Pin 3	TxRx B +	
Pin 4	TxRx C +	
Pin 5	TxRx C -	
Pin 6	TxRx B -	
Pin 7	TxRx D +	
Pin 8	TxRx D -	

PINS on	1000 (1 Gigabit) DC & Bi-Data	
Pin 1	TxRx A +	
Pin 2	TxRx A -	
Pin 3	TxRx B +	
Pin 4	TxRx C +	DC +
Pin 5	TxRx C -	DC +
Pin 6	TxRx B -	DC -
Pin 7	TxRx D +	
Pin 8	TxRx D -	DC -

PINS on Switch	1000 (1 Gigabit) DC & Bi-Data	
Pin 1	TxRx A +	
Pin 2	TxRx A -	
Pin 3	TxRx B +	
Pin 4	TxRx C +	DC +
Pin 5	TxRx C -	DC +
Pin 6	TxRx B -	DC -
Pin 7	TxRx D +	
Pin 8	TxRx D -	DC -







Experiments

- I've decoupled all of 8 gigabit ethernet conductors using 100nF ceramic capacitors and the link was still OK.
- I've shorted + and - of 3 meters 100M ethernet pair through FT-50-61 toroid choke. For 4 and more windings it did not affected the link. When removing the winds the link quality was getting gradually worse.
- I've put FT-50-61 toroid choke on + of the same pair and from 9-10 winds and up it prevented the ethernet from linking. When trying less winds the link quality was gradually better.
- It's not good idea to use wire with 0.2mm diameter for more than 3A (too much voltage drop, too much heat). So probably 2A should be maximum.