

Low installation thread

a) family houses without lightning conductor and exposed conductive parts

- with buried cable power lead
- where is no threat of direct lightning stroke to close building with lightning conductor which is connected galvanically with the protected building

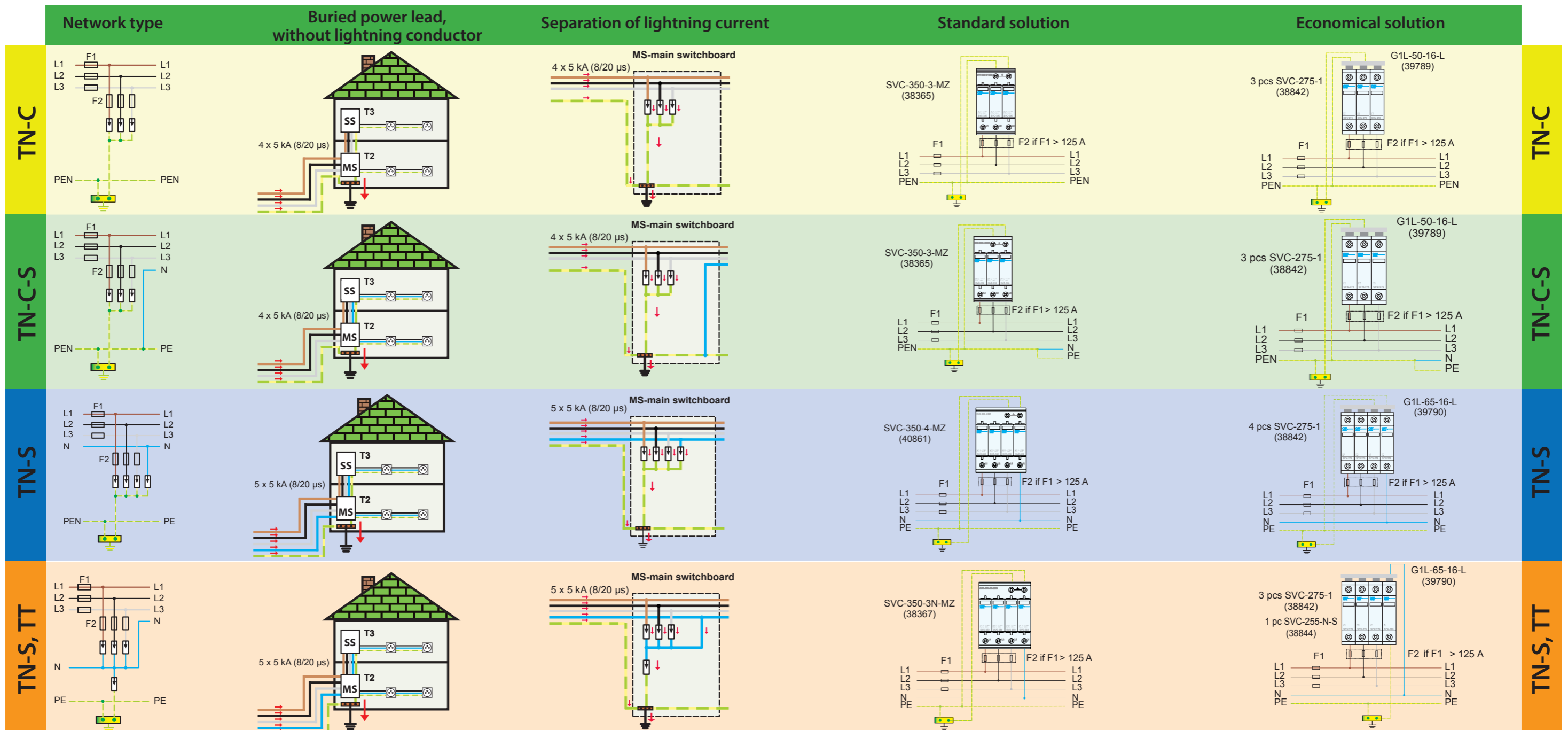
b) individual housing units

- in prefabricated or apartment buildings if is possible install T1 in the main switchboard

Required back-up protection and conductors cross-section:

Standard solution			
F1	F2	S <sub>L</sub>	S <sub>PEN</sub>
A gL/gG	A gL/gG	mm <sup>2</sup>	mm <sup>2</sup>
≤50		6	6
63		10	10
80		13	13
100		25	25
125		25	25
>125	125	25	25

Economical solution			
F1	F2	S <sub>L</sub>	S <sub>PEN</sub>
A gL/gG	A gL/gG	mm <sup>2</sup>	mm <sup>2</sup>
≤50		6	6
63		10	10
80		13	13
100		25	25
125		25	25
>125	125	25	25



Medium installation thread

a) family houses

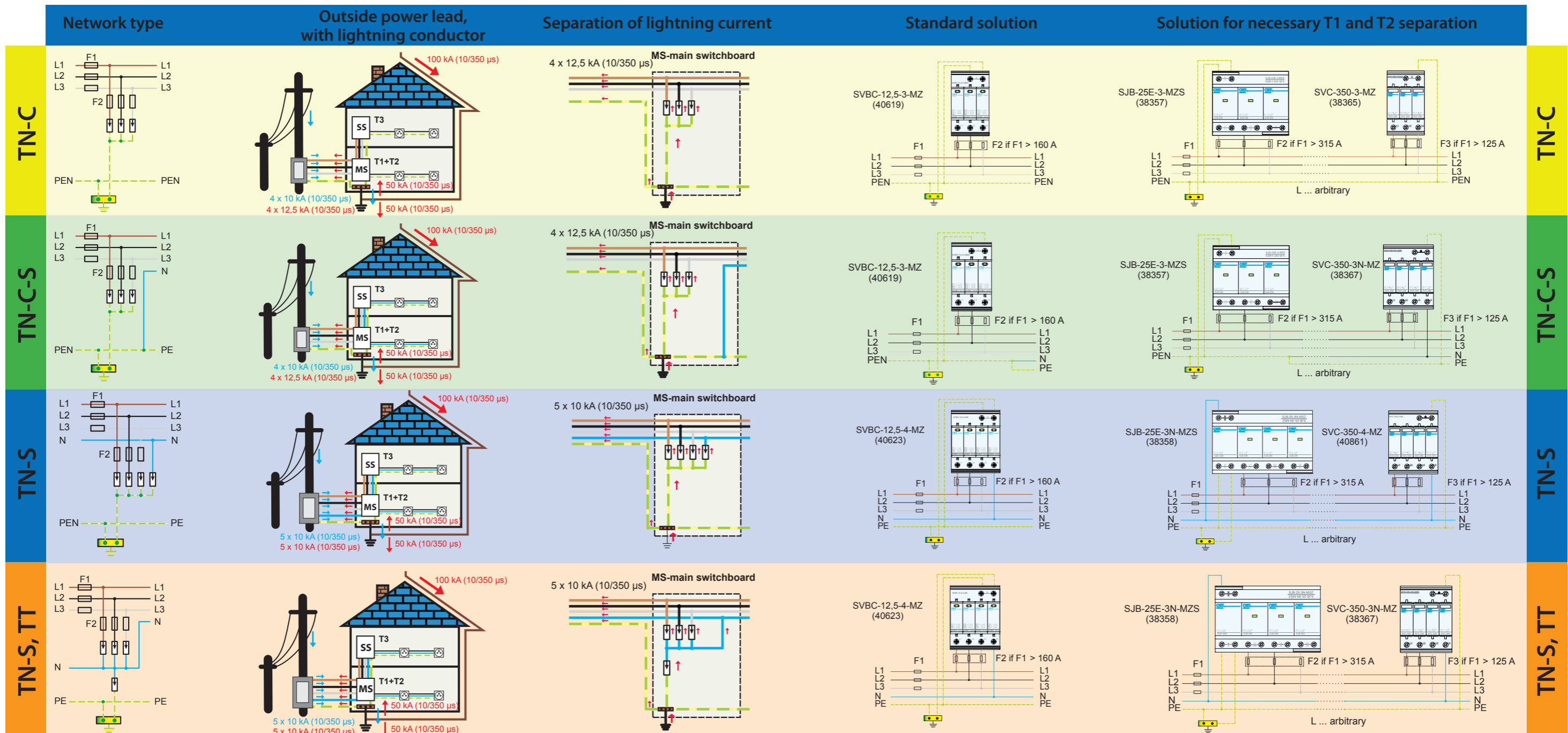
- where is a threat of direct lightning stroke to protected building or close building with lightning conductor which is connected galvanically with the protected building - protection level against lightning LPL III or LPL IV
- with overhead cable line

b) individual housing units

- in blocks of flats, if the installation of common first stage of protection (T1) in main switchboard is not possible and where the lightning current (due to division into more branches) does not exceed 12.5 kA (10/350 μs)

Required back-up protection and conductors cross-section:

Standard solution				T1 - separated				T2 - separated			
F1	F2	S <sub>L</sub>	S <sub>PEN</sub>	F1	F2	S <sub>L</sub>	S <sub>PEN</sub>	F1	F2	S <sub>L</sub>	S <sub>PEN</sub>
A gL/gG	A gL/gG	mm <sup>2</sup>	mm <sup>2</sup>	A gL/gG	A gL/gG	mm <sup>2</sup>	mm <sup>2</sup>	A gL/gG	A gL/gG	mm <sup>2</sup>	mm <sup>2</sup>
≤80		10	16	≤80		10	16	≤50		6	6
100		16	16	100		16	16	63		10	10
125		16	16	125		16	16	80		13	13
160		25	25	160		25	25	100		25	25
>160	160	25	25	200		35	35	125		25	25
				250		35	35	>125	125	25	25
				315		50	50				
				>315	160	50	50				



Big installation thread

a) family houses with lightning conductor or exposed conductive parts

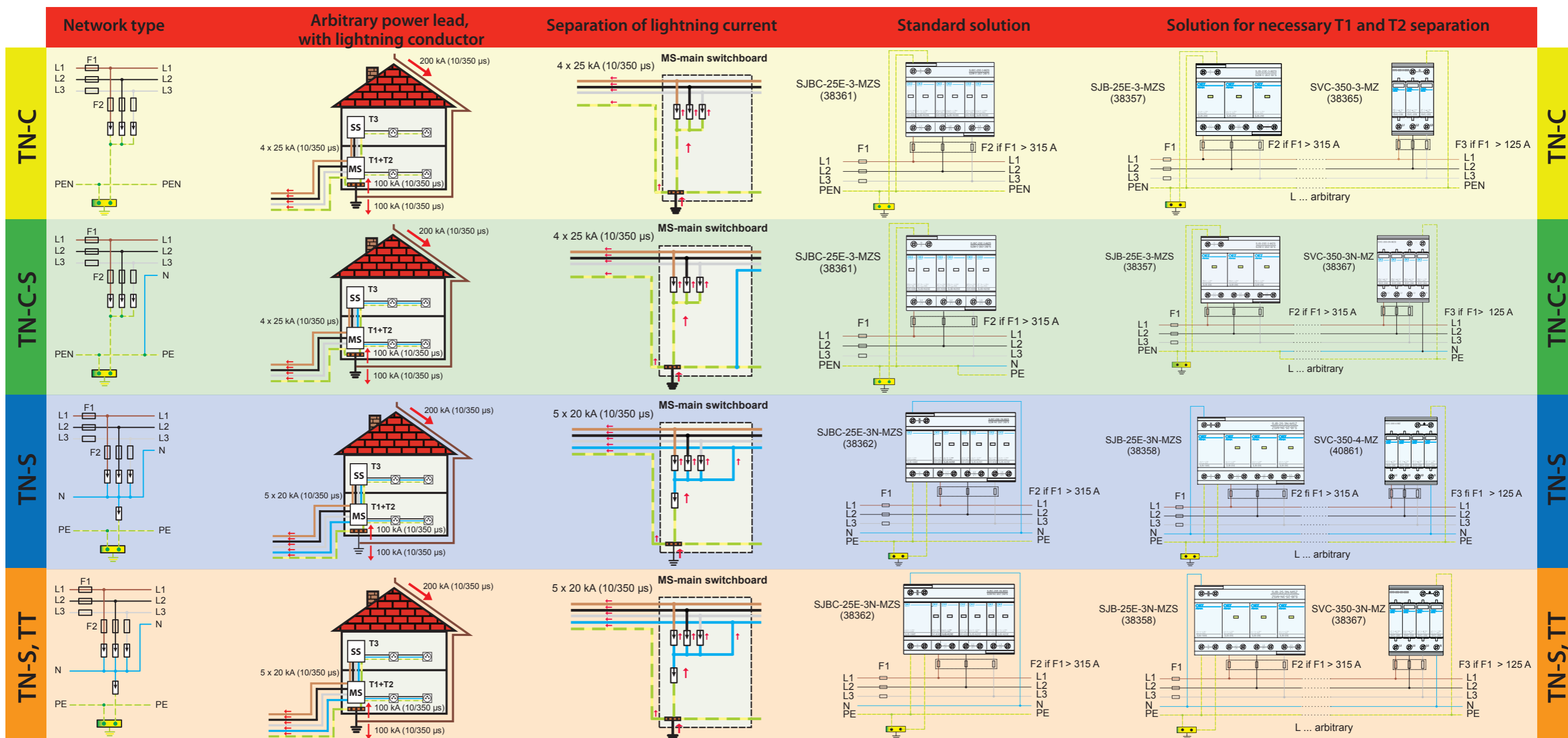
- independent on connection type
- where is a threat of direct lightning stroke to protected building or close building with - lightning conductor which is connected galvanically with the protected building - protection level against lightning LPL I or LPL II

b) individual housing units

- in blocks of flats, if the installation of common first stage of protection (T1) in main switchboard is not possible and where the lightning current can exceed 12.5 kA (10/350 μs)

Required back-up protection and conductors cross-section:

Standard solution				T1 – separated				T2 – separated			
F1	F2	S <sub>L</sub>	S <sub>PEN</sub>	F1	F2	S <sub>L</sub>	S <sub>PEN</sub>	F1	F2	S <sub>L</sub>	S <sub>PEN</sub>
A gL/gG	A gL/gG	mm <sup>2</sup>	mm <sup>2</sup>	A gL/gG	A gL/gG	mm <sup>2</sup>	mm <sup>2</sup>	A gL/gG	A gL/gG	mm <sup>2</sup>	mm <sup>2</sup>
≤80		10	16	≤80		10	16	≤50		6	6
100		16	16	100		16	16	63		10	10
125		16	16	125		16	16	80		13	13
160		25	25	160		25	25	100		25	25
200		35	35	200		35	35	125		25	25
250		35	35	250		35	35	>125	125	25	25
315		50	50	315		50	50				
>315	160	50	50	>315	160	50	50				



Industrial and special applications

a) industrial applications, where higher requirements for overvoltage protections have to be met, e.g. due to high short-circuit current

■ the separation of lightning current is the same as in the case of big installation threat

b) buildings that fulfill the criteria of big installation threat with two-conductor power lead

Required back-up protection and conductors cross-section:

Standard solution				T1 – separated				T2 – separated			
F1 A gL/gG	F2 A gL/gG	S <sub>L</sub> mm <sup>2</sup>	S <sub>PEN</sub> mm <sup>2</sup>	F1 A gL/gG	F2 A gL/gG	S <sub>L</sub> mm <sup>2</sup>	S <sub>PEN</sub> mm <sup>2</sup>	F1 A gL/gG	F2 A gL/gG	S <sub>L</sub> mm <sup>2</sup>	S <sub>PEN</sub> mm <sup>2</sup>
≤50		6	6	≤80		10	16	≤50		6	6
63		10	10	100		16	16	63		10	10
80		13	13	125		16	16	80		13	13
100		25	25	160		25	25	100		25	25
125		25	25	200		35	35	125		25	25
>125	125	25	25	250		35	35	>125	125	25	25
				315		50	50				
				400		50	50				
				500		50	50				
				>500	500	50	50				

Network type	Higher requirements or two-conductor power lead	Separation of lightning current	Standard solution	Solution for necessary T1 and T2 separation
<b>TN-C</b>				
<b>TN-S</b>				
<b>TN-S, TT</b>				
<b>TN-C</b>				