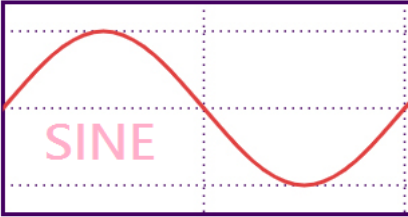



IEC 62368-1 ES energy source classification

Normal condition

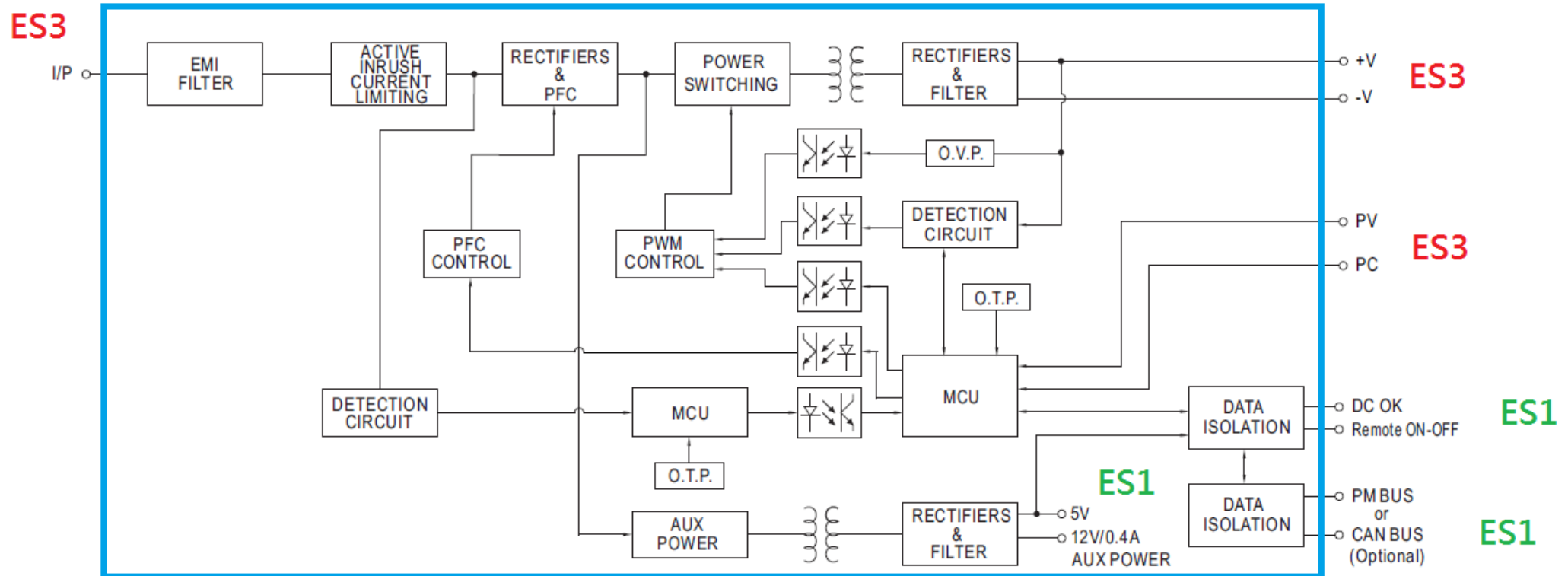
Condition	Figure	ES1	ES2	Clause
Steady State		≤30Vrms	≤50Vrms	5.2.2.2 Table 4
		≤60Vdc	≤120Vdc	

Steady state is considered established when the voltage values persist ≥ 2 s

IEC 62368-1 ES energy source classification

Example

UHP-1500-HV series



The insulation between ES3 and ES1 shall be R/I or D/I insulation .

IEC 62368-1 ES energy source classification

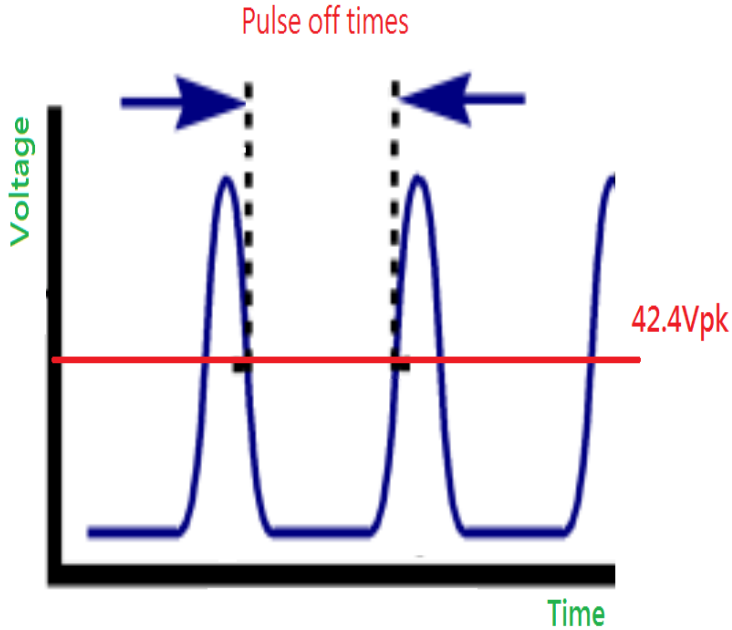
Abnormal & Single fault condition

Condition	Figure (*)	ES1	ES2	Clause																
Single pulse		60Vpk	<table border="1"> <thead> <tr> <th>Pulse duration up to and including</th> <th>ES2 U_{peak}</th> </tr> <tr> <th>ms</th> <th>V</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>196</td> </tr> <tr> <td>20</td> <td>178</td> </tr> <tr> <td>50</td> <td>150</td> </tr> <tr> <td>80</td> <td>135</td> </tr> <tr> <td>100</td> <td>129</td> </tr> <tr> <td>200 and longer</td> <td>120</td> </tr> </tbody> </table>	Pulse duration up to and including	ES2 U_{peak}	ms	V	10	196	20	178	50	150	80	135	100	129	200 and longer	120	5.2.2.4 Table 6
			Pulse duration up to and including	ES2 U_{peak}																
			ms	V																
			10	196																
			20	178																
			50	150																
			80	135																
			100	129																
200 and longer	120																			

(*) Pulse duration is considered to be the time duration when the voltage exceeds 42.4Vpk

IEC 62368-1 ES energy source classification

Abnormal & Single fault condition

Condition	Pulse off times	Figure (*)	ES1	ES2 (**)	Clause														
Repetitive pulses	<3 sec	 <p>The graph plots Voltage (y-axis) against Time (x-axis). It shows a series of three pulses. The time between the start of one pulse and the start of the next is labeled 'Pulse off times' with blue arrows and dashed vertical lines. A red horizontal line is drawn across the graph at a level labeled '42.4Vpk'. The pulses rise above this line and then fall back to the baseline.</p>	42.4Vpk	70.7Vpk	5.2.2.2 Table 4														
	≥3sec		60Vpk	<table border="1"> <thead> <tr> <th>Pulse duration up to and including</th> <th>ES2 U_{peak}</th> </tr> <tr> <th>ms</th> <th>V</th> </tr> </thead> <tbody> <tr> <td>10</td> <td>196</td> </tr> <tr> <td>20</td> <td>178</td> </tr> <tr> <td>50</td> <td>150</td> </tr> <tr> <td>80</td> <td>135</td> </tr> <tr> <td>100</td> <td>129</td> </tr> <tr> <td>200 and longer</td> <td>120</td> </tr> </tbody> </table>	Pulse duration up to and including	ES2 U_{peak}	ms	V	10	196	20	178	50	150	80	135	100	129	200 and longer
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(*) Pulse off times means the time duration when the voltage < 42.4Vpk

(**) Pulse duration is considered to be the time duration when the voltage exceeds 42.4Vpk