

Planning checklist for the electrical system

Which characteristics should your planned electrical system have?

The scoring on the back shows whether your system should be classified as Mission Critical and whether it may be financially worthwhile to pay special attention to the design of the network type.



1	Can your system be shut down for maintenance purposes (e.g., periodic inspection and insulation measurement)?	The system can be shut down/put out of operation several times a year.	0	
		A shutdown affects production. Loss of yield/output is expected.	3	
		Shutdown for maintenance purposes is not possible (24/7).	7	
2	Faulty tripping of protective devices (e.g., RCDs due to leakage currents) results directly in consequential costs.	5	
		... are not desirable.	3	
		... are tolerable.	0	
3	The search for insulation faults (earth faults/short-circuits) and repair can be performed when the power supply is switched off.	0	
		... ideally takes place during ongoing operation.	3	
4	Does your system count as a special system within the meaning of the VdS guidelines (Property Insurers Association)?	No	0	
		Sub-areas (e.g., warehouse = fire hazardous business facilities). <i>VdS 2033</i>	3	
		Yes, several power electronic devices (frequency inverters) are used. <i>VdS 3051</i>	5	
5	Unexpected failure of the electrical power supply leads to high costs due to unscheduled process interruptions.	4	
		... is not desirable, but tolerable.	2	
		... is not a problem for your system.	0	
6	Do you have to pay particular attention to protecting persons against electric shock in your system?	Yes, for example, many people move within system components with high electrical output or the electrical equipment and are exposed to extreme environmental conditions (pollution, temperature, other external influences).	5	
		No	0	
7	Pausing and restarting your production processes is possible at any time without financial impact.	0	
		... leads to financial expenses due to restarting or setting up processes.	3	
		... leads to considerable financial expenses due to the impact on batch processes.	7	

Total

0 to 8 points	Your system is not Mission Critical. An investment in high-availability supply infrastructure is unlikely to be worthwhile.
8 to 15 points	An unearthed system (IT system) may be worthwhile for sub-areas of your system. The additional investment costs are low for new systems (<0.5% of the total volume). Conversion of existing systems is possible but costly. Using an IT System results in savings in maintenance costs and the avoidance of downtimes. The IT system is preferred to maximise safety (fire protection and protection of persons against electric shock). We offer you innovative measurement technology for all network types, thus ensuring maximum system availability and supporting preventive maintenance. Information can be found at: www.stillstand-vermeiden.de
more than 15 points	Your system is a Mission Critical Application. Typically, systems of this type are designed as unearthed systems (IT system) to avoid unscheduled downtime due to insulation faults. In addition, shutdown for periodic inspection is not required according to DGUV V3 and DIN VDE 0100-600 or DIN VDE 0105-100. An IT system design is definitely worthwhile. Typical applications are: <ul style="list-style-type: none">• Chemical industry (sensitive batch processes)• Steel processing (high costs in case of power supply failure)• Process industry with linked production units (paper processing)• Data processing (data centres)• Systems with large spatial expansion (e.g. airport)• Systems with DC supply. We have compiled the benefits of an unearthed power supply for your customers at https://www.bender.de/en/know-how/technology/it-system/advantages-of-the-it-system .