Demand Factor, Load Factor and Diversity Factor

Demand factor, load factor, diversity factor and coincidence factor of an electrical installation from connected load, maximum demand and energy used.

Method: Definitions of demand; load and diversity factors (IEC 60050-691 terminology)

Input parameters

Unit system: SI

Parameter	Value	Unit
Connected load	1,000.0	kW
Maximum demand of the installation	600.00	kW
Energy used in the period	259,200	kWh
Length of the period	720.00	h
Sum of the individual maximum demands	750.00	kW

Calculated results

Parameter	Value	Unit
Demand factor (maximum demand / connected load)	60.000	%
Average load	360.00	kW
Load factor (average / maximum demand)	60.000	%
Diversity factor (sum of individual maxima / maximum demand)	1.2500	
Coincidence factor (1 / diversity factor)	0.80000	

Formula and method

$$DF = \frac{P_{md}}{P_c}, \quad LF = \frac{E/t}{P_{md}}, \quad F_d = \frac{\Sigma P_i}{P_{md}}$$

Variables

P_c	Connected load	W
P_{md}	Maximum demand of the installation	W
E	Energy used in the period	J
t	Length of the period	s
ΣP_i	Sum of the individual maximum demands	W
DF	Demand factor (maximum demand / connected load)	-
P_{avg}	Average load	W
LF	Load factor (average / maximum demand)	-
F_d	Diversity factor (sum of individual maxima / maximum demand)	-
F_c	Coincidence factor (1 / diversity factor)	-

Method and standards

Definitions.

Assumptions and limits

- One period; kW values. A load factor above 1 is flagged as inconsistent data.

References

- Definitions of demand
- load and diversity factors (IEC 60050-691 terminology)

Report details

Report reference	FCC-334Y-GMD3 (the same inputs always give the same reference)
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Release checks	3 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/electrical/power/demand-load-diversity-factor

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.