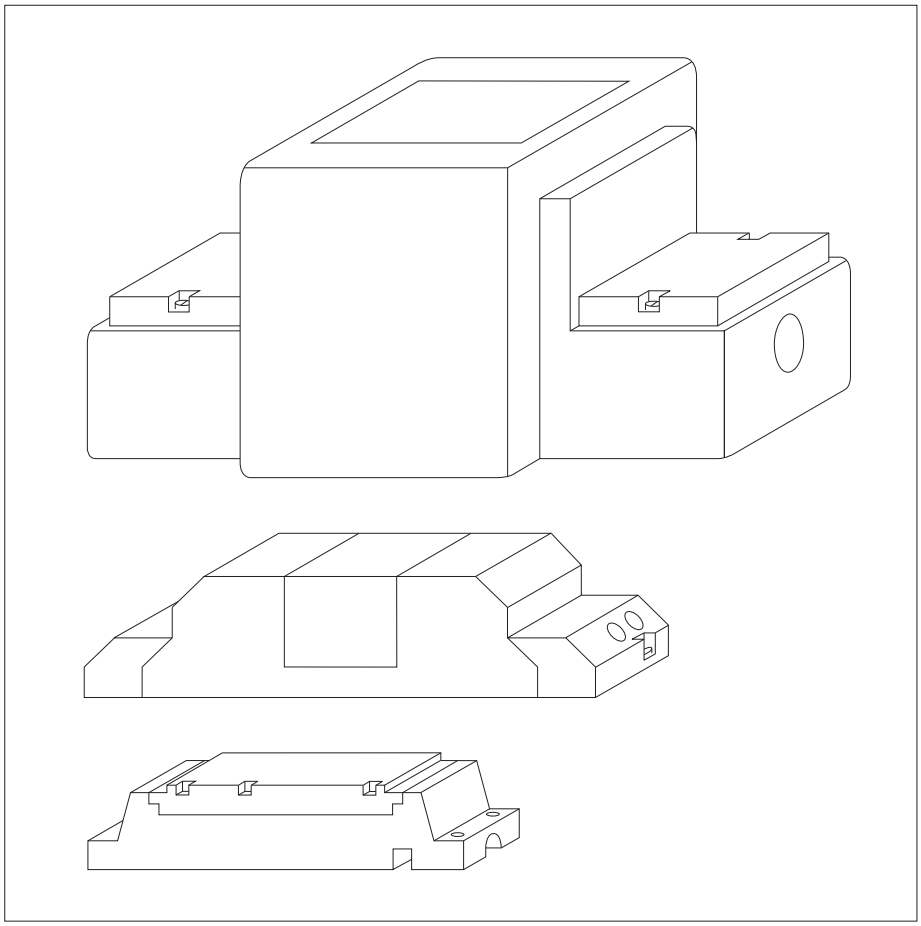
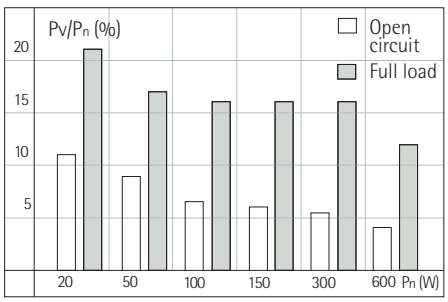


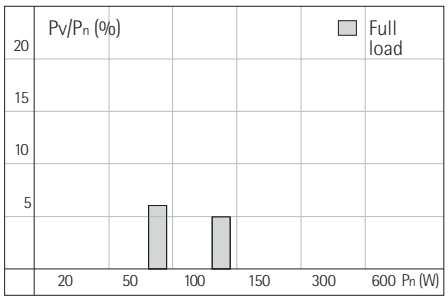
Comparison of sizes of transformers for low-voltage installations: 600 W safety transformer (above) and 100 W version (centre), 100 W electronic transformer (below).

P_n (W)	Wt. (kg)	l (mm)	w (mm)	h (mm)
20	0.5	120	56	50
50	1.0	155	56	50
100	1.8	210	56	50
150	2.6	220	90	90
300	5.5	290	150	130
600	9.2	310	150	130

P_n (W)	Wt. (kg)	l (mm)	w (mm)	h (mm)
50	0.2	155	45	30
100	0.2	155	45	30

Rated power (P_n), weight (Wt.) and dimensions (l, w, h) of standard safety transformers (above) and electronic transformers (below).





Relative power loss (P_v/P_n) of transformers of varying rated power Pn in the case of standard safety transformers (above) and electronic transformers (below). Data provided for open circuit and full-load operation.

$$\Delta U = 0.035 \cdot \frac{I \cdot l}{A}$$

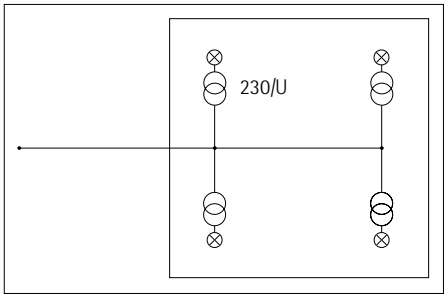
[ΔU] = V

[I] = A

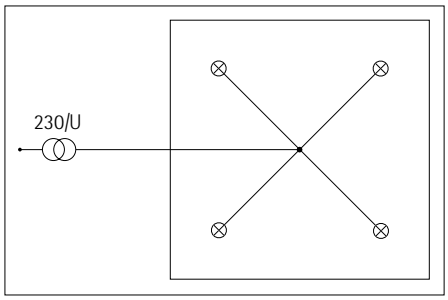
[l] = m

[A] = mm²

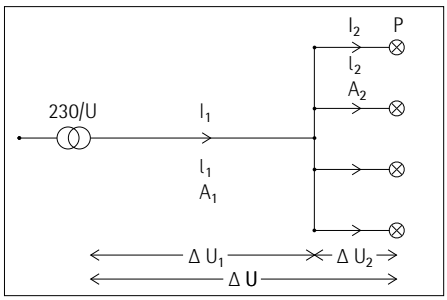
Voltage drop ΔU for copper cable, depending on current, length and diameter of cable.



Low-voltage installation with individual transformers. The wiring from transformer to luminaire is as short as possible to keep voltage drop to a minimum; the transformer may also be an integral part of the luminaire.



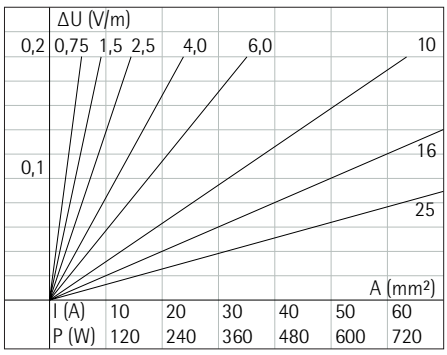
Low-voltage installation with a single transformer. Star-shaped wiring to ensure the same wiring lengths between transformer and fixtures: this guarantees that all lamps receive the same applied voltage.



The overall voltage drop ΔU of a low-voltage installation with a star-shaped wiring layout and single transformer is a result of the sum of the individual voltage drops

$\Delta U_1 + \Delta U_2$. Individual voltage drops are calculated according to the set formula, whereby I_1 is the result of all lamps 4P/U and I_2 of P/U.

Voltage drop ΔU per 1 m of cable in relation to current I and lamp power P for various cable diameters A. Applies to 12 V installations.



A (mm²)	I (A)
0.75	12
1.0	15
1.5	18
2.5	26
4.0	34
6.0	44
10.0	61
16.0	82
25.0	108

Limiting current I of multi-core conductors with diameter A.

A (mm²)	n	d (mm)
1.5	2	10
	3	10
	5	11
2.5	2	11
	3	11
	5	13
4.0	3	13
	5	15

Outer diameter d of sheathed cables of various cable diameters A with number n of cores.