

Lamp

The invention relates to a lamp of the type mentioned in the preamble of Claim 1.

Essentially, this lamp consists of a housing frame formed of four interconnected profile strips; a translucent pane made of glass or synthetic set into one housing side; a bottom plate set into the opposite side; as well as an illuminant, in particular a fluorescent lamp or a LED arrangement, arranged in the housing.

Such a lamp has been known from DE AS 1 048 543 as well as from DE 202 411 U1.

In the case of the known lamp, the profile strips forming the housing frame, namely extruded profile rods, have border strips on the exterior side of the housing with which the housing can be attached to a wall or a similar background.

On the interior side of the housing, the profile strips have backing strips that serve as support and attachment of the pane or, respectively, of the bottom plate.

Such a lamp constructed of prefabricated elements, in particular profile strips, can be manufactured advantageously in a simple and economical manner in various sizes.

In the case of use of the lamp as a surface mounting lamp, i.e. where the border strips are to be attached to an underground, the bottom plate is located in proximity to the border strips while the translucent pane is

provided on the opposite side of the housing.

If, on the other hand, the lamp is to be set into a recess provided in a wall, i.e. if it is to be used as built-in lamp, the pane is to be provided on the plane of the border strips while the bottom plate is located on the opposite side of the housing.

These two types of utilization require differently designed profile strips due to the different attachment of pane and bottom plate.

Lamps of this type but without border strips serving as an attachment in which the backing strips provided on the profile strips are designed identically and arranged in mirror-symmetric fashion to each other have been known from EP 0 616 168 A1.

The invention is based on the objective of creating profile strips suitable for the manufacture of the frame for surface mounting lamps as well as for built-in lamps in order to make the manufacture of the lamps even more economical.

This objective is met in accordance with the invention with profile strips as characterized in conjunction with a lamp in accordance with Claim 1.

As is known per se, in the case of these profile strips the backing strips are designed identically and arranged in mirror-symmetrical fashion to the effect that the pane or, respectively, the bottom plate can be placed alternatively in both housing sides.

In accordance with the suggestion in accordance with the invention, contact pressure strips are provided for the attachment of the pane that can be screwed to the housing frame formed by the profile strips. The bottom plate, on the other hand, can be screwed directly to the backing strips.

In order to be able to use the lamps alternatively as surface mounting lamps or, respectively, as built-in lamps, the profile strips are equipped with border strips on the exterior side of the housing as they are already known in the case of lamps with different profile strips.

This design of the housing frame proposed by the invention has the added advantage that the lamp can be serviced from both sides since the border as well as

the bottom plate can be unscrewed at any time, thereby allowing unhindered access to the interior of the lamp.

To fix the contact pressure strips as well as the bottom plate in place, the latter are equipped with angular offsets located on the exterior borders in accordance with the proposal as per Claim 2 that engage with acceptance slits of the backing strips. These acceptance slits as well as the angular offsets of the contact pressure strips and of the bottom plate are also designed identically and arranged in mirror-symmetrical fashion. In an installed state, the angular offsets are directed against each other.

According to another proposal in accordance with Claim 3, the backing strips have furrow-like grooves on their exterior sides into which sealants, preferably in accordance with Claim 4 in the form of two-component polyurethane foam material, can be filled. This makes it possible to easily manufacture a lamp that is dustproof and protected from splash water.

For a further simplification of the manufacture it is proposed in accordance with Claim 5 to provide the threads for the attachment screws in threaded strips that can be slid into grooves running parallel to the surface of the backing strips.

In a manner that is known per se, in accordance with Claim 6, the profile strips are mitered at their seams. In this case, a corner connector is provided for a connection of the profile strips that can be inserted into the upwardly open grooves of the profile strips, for example into the grooves accommodating the thread strips.

In order to achieve a tight finish in this area, it is advantageous in accordance with the proposal of Claim 7 if sealants are placed between the mitered seams of the profile strips.

Additional structural designs of the lamp in accordance with the invention are indicated in Subclaims 8 through 10.

The subject of the invention is explained in detail in the following by way of an embodiment represented in the drawings.

Shown in the drawings are:

- Figure 1: a perspective exploded view of an embodiment example of the lamp in accordance with the invention,
- Figure 2: an axial partial section of the lamp in accordance with Figure 1 as a built-in illuminator,
- Figure 3: an axial partial section of the lamp in accordance with Figure 1 as a surface-mounting illuminator,
- Figure 4: an enlarged section of the profile strip in accordance with the invention, and
- Figure 5: a perspective exploded view of the frame in the corner area.

The exploded view in accordance with Figure 1 shows the structural elements of the lamp in accordance with the invention in their spatial correlation.

The lamp has a central frame 1 into which a pane of a translucent material 20, e.g. a glass pane, is inserted from above

and a bottom plate 30 is screwed on from below with screws 23.

The pane 20 is attached to the frame 1 by means of the individual contact-pressure strips 21 that form a second frame 2 and that are connected to the frame 1 by means of screws 23.

The bottom plate 30 supports the fluorescent lamp 41 together with its lamp sockets 42 by means of angular sheets. The control gear 44 is arranged next to the fluorescent lamp 41 on the bottom plate 30. One sheet 31 serves to cover the control gear 44 with its angular offset 32 and, with its connected angular offset, as reflector 33 for the fluorescent lamp 41. This reflector 33 is supplemented by a second reflector sheet 34 arranged on the bottom plate 30.

A screen 26, e.g. a prism screen, is provided above the fluorescent lamp 41 but below the panes 20.

Figures 2 and 3 illustrate the two different installation options.

The profile strips 10 forming the frame 1 are designed in such a way that the lamp, as shown in Figure 2, can be inserted into a recess of a wall 5, the laterally protruding border strips 12 of the profile strips 10 being connectible to the wall near the recess, e.g. by means of screws.

The representation in accordance with Figure 3 shows the modification of the lamp assembled as surface-mounting lamp and constructed with the same structural elements. In this case, the lamp frame formed with the profile strips 10 is attached to the wall 5 with its laterally protruding border strips 12, e.g. by means of screws.

These different usage categories are made possible by the design of the profile strips 10 in accordance with the invention whose enlarged cross section can be seen in Figure 4.

As Figure 4 shows, the profile strips 10 are constructed on their side facing the interior of the lamp in mirror-symmetrical fashion relative to the A-A axis of symmetry.

Horizontally directed backing strips 13, here shown vertically, are provided on both sides of this line on the wall part 11. At their exterior ends, the backing strips 13 have furrowed grooves 14 and 15 to accommodate sealants 24.

Moreover, one groove 16 each is provided to accommodate a threaded slide-in strip 22 as well as a receptacle slit 17 to accommodate the angular offsets 21a of the contact-pressure strips 21 or, respectively, of the angular offsets 30a of the bottom plate 30 as explained in detail below.

Only one border screen 12 is provided on the exterior side of the wall part 11 at one of its ends for which there is no symmetrical counterpart.

This design of the profile strips 10 makes the manufacture of a built-in lamp as well as of a surface-mounting lamp possible with the same structural elements, as shown in Figures 2 and 3.

In the case of the built-in lamp in accordance with Figure 2, the translucent pane 20 is arranged in the vicinity of the circumferential border screen 12. Here, the pane 20 rests on the end of the backing strip 13 protruding towards the interior, with the sealant

injected into the groove 14 and consisting of a 2-component polyurethane foam material providing a dust-tight and spray-water protected finish. The border strips 21 resting on the upper side of the pane 20 fix the pane 20 in place. They are connected to the backing strip 13 by means of screws, with the threaded slide-in strips 22 inserted into the groove 16 containing the threads 22a for the screws 23 (cf. Figure 5). The end of the contact-pressure strip 21 adjacent to the border screen 12 is designed in the form of an angular offset 21a that engages in the receptacle slits 17 of the profile strips 10.

The bottom plate 30 is similarly connected to the lower backing strip 13 designed in mirror-image fashion, namely by means of screws 23. These screws also engage in the threads of the threaded slide-in strip 22 inserted into the groove 16.

The end of the bottom plate 30 adjacent to the wall part 11 is designed similarly to the contact-pressure strips 21 as an angular offset 30a that engage in the slits 17 of the profile strip.

In order to obtain a dust-tight and spray-water protected finish, a sealant 24 consisting of a 2-component polyurethane material is injected into the groove 15 between the bottom plate 30 and the backing strip 13.

The mirror-symmetrical design of the profile strips 10 make the construction of a surface-mounting lamp possible with the same structural elements, as shown in Figure 3.

Compared with the structure in accordance with Figure 2, the bottom plate 30 and the pane 20 and the appurtenant contact pressure strips 21 are transposed in this case.

The design of the structural elements as well as of the arrangement of the electrical components remains unchanged.

The fluorescent lamp 41 together with its reflectors 33 and 34 and the control gear 44 are arranged in the interior of the lamp. The control gear 44 is covered by an angular offset 32 of the metal sheet 31. A screen, e.g. a prism screen 26, is arranged above the fluorescent lamp 41.

Housing frames 1 of any desired dimensions can be manufactured using the profile strips 10 that are designed in accordance with the invention and that are advantageously made of extruded aluminum. The profile strips are advantageously mitered at their seams. For their connection in the corner area, as shown in Figure 5, corner connectors 25 also made of aluminum are provided whose shanks 25a arranged at a right angle to each other are pressed from above into the grooves of the profile strips abutting each other. To improve the pressure fit, the shanks 25a are equipped with furrow-shaped grids on their surface.

As Figure 5 illustrates further, the threaded slide-in strips do not reach all the way into the corner area, thus leaving space to accommodate the shanks 25a of the corner connectors 25.

A corner sealant 27 made of a synthetic material whose profile, with its projections and bridges 27a through 27d in the cross section corresponds to the mitered surface, is placed between the mitered surfaces of the profile strips 10 abutting each other. The bridge 27e sticking out laterally protrudes into the frontal end of a threaded slide-in groove 16.

A flexible membrane 27f serving to stabilize the bridges and the sealant is formed between the bridges 27d.

The corner sealant 27, like the sealants 24, is made of soft polyurethane.

Reference Numerals

1	Frame
2	Frame formed by four contact pressure strips
5	Wall
10	Profile strips
11	Wall part
12	Border screen
13	Backing strip
14	Furrowed groove
15	Furrowed groove
16	Groove for threaded slide-in strip
17	Receptacle slit
18	Corner seal
19	Groove
20	Pane
21	Contact pressure strip
21a	Angular offset
22	threaded slide-in strip
22a	Thread
23	Screws
24	Seal
25	Corner connector
25a	Shank
26	Prism screen
27	Corner seal
27a-e	Bridges and projections
27f	Membrane
30	Bottom plate
30a	Angular offset
31	Metal sheet

32	Angular offset
33	Reflector
34	Reflector plate
40	Screen
41	Fluorescent lamp
42	Lamp socket
43	Angular sheet
44	Control gear
A-A	Axis of symmetry

Patent Claims

1. Lamp consisting of a housing frame (1) formed of four interconnected profile strips (10); a translucent pane (20) made of glass or synthetic set into one housing side; a bottom plate (30) set into the opposite side; as well as an illuminant, in particular a fluorescent lamp (41) or a LED arrangement, arranged in the housing, with the profile strips (10) having on the exterior side of the housing border strips (12) for attachment purposes and, on the interior side, backing strips (13) to support and attach the pane (20) or, respectively, the bottom plate (30), that are designed identically and arranged in mirror-symmetric fashion; with moreover the pane (20) being connected to the profile strips (10) of the housing frame (1) by means of contact-pressure strips (21) screwed together with the backing strips (13), and the attachment screws (23) for the contact-pressure strips (21) being screwed into threaded bore holes running vertically to the strip surface.
2. Lamp in accordance with Claim 1, characterized by the fact that the backing strips (13) have receptacle slits (17) and the bottom plate (30) as well as the contact-pressure strips (21) have angular offsets (30a, 21a) engaging in the receptacle slits (17).
3. Lamp in accordance with Claim 1 or 2, characterized by the fact that the backing strips (13) have furrowed grooves (14, 15) on their exterior sides to accommodate sealants (24).

4. Lamp in accordance with Claim 3,
characterized by the fact that the sealants (24) are inserted into the grooves (14, 15)
in the form of a 2-component polyurethane foam material.
5. Lamp in accordance with one of Claims 1 through 4,
characterized by the fact that the backing strips (13) have grooves running parallel
to the strip surface into which threaded slide-in strips (22) have been inserted.
6. Lamp in accordance with one of Claims 1 through 5,
characterized by the fact that the profile strips (10) are mitered at their seams and
that in the corner area corner connectors (25) are inserted into the upwardly open
grooves (16) connected to the threaded slide-in strips (22).
7. Lamp in accordance with Claim 6,
characterized by the fact that corner sealants (27) made of a synthetic material,
preferably of soft polyurethane, are inserted between the mitered surfaces of the
profile strips (10) abutting each other.
8. Lamp in accordance with one of Claims 1 through 7,
characterized by the fact that the contact-pressure strips (21) are mitered at their
seams.
9. Lamp in accordance with one of Claims 1 through 8,

characterized by the fact that the profile strips (10) are extruded profiles made of a light metal, preferably aluminum; the pane (20) is made of glass or a translucent synthetic material, and the bottom plate (30) is made of metal, preferably steel sheet.

10. Lamp in accordance with one of Claims 1 through 9, characterized by the fact that reflector plates (33, 34) are arranged on the bottom plate (30) next to or, respectively, below the fluorescent lamp (41).