

DESCRIPTION

Call transmitter for the input of control commands, particularly for a lift installation

- 5 The invention relates to a call transmitter for the input of control commands, particularly for a lift installation.

Popular elements, such as known from, for example, the specifications US 4 742 198 and EP 567 357, are constructed in such a manner that the call transmitter housing can be
10 installed only in a predetermined position. According to the above-mentioned specifications this is carried out to be either proud of or flush with a front plate of a panel. It is disadvantageous with the known call transmitter that different call transmitter housings have to be used for each possible form of the call transmitter, i.e. one call transmitter housing per call transmitter. This has the consequence that call transmitter housings and
15 the individual elements of the call transmitter can be used only with limitations, i.e. in each instance only for a specific case of use. The number of elements to be produced is large. Moreover, the call transmitters which, in particular, are installed to be flush can mostly be used only for a pre-defined maximum front plate thickness (typically 2 to 4 millimetres).

- 20 The invention has the object of proposing a call transmitter, for the input of control commands, of the kind stated in the introduction, which does not have the aforesaid disadvantages and such that at least two embodiments or variants of installation of the call transmitter are possible with a single, identical call transmitter housing. The number of elements to be produced is small and a large inventory is no longer necessary for the
25 provision thereof.

This object is met by the features stated in claim 1.

- Advantageous developments and improvements of the call transmitter indicated in claim 1
30 are possible by the measures expressed in the dependent claims.

The special construction, which is symmetrical at the inner side, of the call transmitter housing is advantageous, as it enables a flexible installation and use of identical components for both variants.

Of further advantage is the fact that with this construction of the call transmitter housing not only a flush, but also a proud installation is possible.

5 A further advantage consists in that the two embodiments or variants of installation of the call transmitter can be installed even with larger front plate thicknesses. The call transmitter housing can be installed steplessly into front plates of different thickness up to a defined maximum front plate thickness.

10 In addition, both variants of installation - flush and proud - can be mounted in an identical installation cutout of the front plate.

The positioning element of the call transmitter housing also serves as a boundary surface for the carrier element and for the electronic unit.

15 In commercially available call transmitters the symbols, numerals and Braille marking are usually impressed or cast in synthetic material so as to be elevated. The impressed variants usually have disturbing roundings of the symbols, numerals or Braille marking and in addition the impressed numerals to all intents and purposes cannot be permanently characterised by a colour strong in contrast. The synthetic material variants are often
20 used at the same time as an acknowledgement and visible connecting webs are present in complicated numerals (for example, 0, 4, 6, 8, 9). Moreover, the synthetic material numerals are susceptible to vandalism, particularly to damage by means of cigarette lighters and knives.

25 According to the invention the symbols, numerals and Braille markings are proud on the carrier plate and produced from a metallic material, which enables a different, permanent coloration and at the same time is resistant to vandalism (cigarette lighters, knives, etc.).

30 All explained features are usable not only in the respectively stated combination, but also in other combinations or by themselves without departing from the scope of the invention.

Different embodiments of the invention are illustrated in the schematic drawings and explained in more detail in the following description. There:

- Fig. 1 shows an exploded overall illustration of the parts of a call transmitter according to a first form of embodiment or variant of installation of the invention,
- 5 Fig. 2 shows an exploded overall illustration of a call transmitter according to a second form of embodiment or variant of installation of the invention,
- Fig. 3 shows a call transmitter mounted to be proud,
- 10 Fig. 4 shows a call transmitter mounted to be flush,
- Fig. 5 shows a sectional view according to the line A-A in Fig. 3 of the call transmitter in the case of a proud variant of installation, and
- 15 Fig. 6 shows a sectional view according to the line S-S in Fig. 4 of the call transmitter in a flush variant of installation.

In Figure 1 there is illustrated a call transmitter in unmounted state in a first form of embodiment, which corresponds with the proud variant of installation. This call transmitter
20 for the input of control commands essentially consists of a housing 1, termed call transmitter housing 1 in the following, a carrier element constructed as, for example, a carrier plate 2, an electronic unit 3 and a retaining element constructed as, for example, a retaining plate 4.

25 The call transmitter housing 1 has in longitudinal direction an axis B of actuation and transversely thereto a transverse axis Q. The call transmitter is installed in a front plate 5 intended for that and has for that purpose an installation cutout 11. The electronic unit 3 comprises inter alia contacts 13, the actuation of which is effected by pressure on the carrier plate 2. The carrier plate 2 can be selectably equipped with or be without an
30 acknowledgement element 6. Symbols, numerals and/or a Braille marking 12 is or are placed on the carrier plate 2.

The carrier plate 2 can be of integral or, however, multi-part construction. Moreover, only parts thereof can be movable and/or be actuated. Also, several carrier elements 2 can be
35 installed in a single call transmitter housing 1.

A positioning element 7 for positioning the carrier plate 2 is present in the call transmitter housing 1. The call transmitter housing 1 has a first end 9 and an opposite, second end 10, also called in the following first end face 9 and second end face 10, respectively, of the call transmitter housing 1. The first end face 9 has a first opening 9' and the second end face 10 has a second opening 10', which are arranged in alignment with one another. The positioning element 7 is so arranged in the interior of the call transmitter housing 1 that it is disposed in the middle between the first opening 9' and the second opening 10' or between the first end face 9 and the second end face 10. The first end face 9 and the second end face 10 are thus arranged symmetrically with respect to the positioning element 7. This circumstance enables installation of the carrier plate 2 from both end faces 9 and 10, wherein the carrier plate 2 is always flush with the first end face 9 or with the second end face 10. The call transmitter housing 1 is constructed to be substantially symmetrical in the direction of the axis B of actuation with respect to the positioning element 7.

The positioning element 7 consists in this form of embodiment substantially of inwardly projecting tongues/projections 7', at which corresponding fastening/locking means 2' of the carrier plate 2 can engage/detent. Other forms of embodiment of the positioning element 7 or of the carrier element 2 are also possible, such as, for example, slots with corresponding engagement means. The positioning element can also be constructed as an encircling edge within the call transmitter housing 1 or as an apertured plate.

The call transmitter housing 1 is formed in such a manner that the first end face 9 corresponds exactly with the call transmitter shape and the opposite, second end face 10 has a protruding flange 20 or a shoulder.

In the proud installation variant the call transmitter projects beyond the front plate 5 by the flange thickness. The projecting flange 20 at the second end face 10 functions as an abutment relative to the front plate 5. The carrier plate 2, which serves as an operating surface for input of control commands, is in this variant installed in the second end face 10 provided with the flange 20. On actuation of the call transmitter by pressure on the carrier plate 2, accordingly there is no risk that the call transmitter drops out the back, i.e. in the direction of the pressure. The call transmitter, if it is to be mounted proud, can be clamped with the front plate 5, for example by screws 21, by the retaining plate 5 which is fastened to the call transmitter housing 1 for the electronic unit 3.

According to the invention this special construction of the call transmitter housing 1 enables installation of the call transmitter in the front plate 5 not only to be proud, as described above, but also flush with the front plate 5. In order to realise the flush variant of installation, it is sufficient to rotate the call transmitter housing 1 from Figure 1 through 180
5 degrees about the transverse axis Q. The above-described symmetry of the call transmitter housing 1 with respect to the positioning element 7 allows the call transmitter components of the proud variant of installation to also be used for the flush variant of installation.

10 Fig. 2 shows an exploded illustration of the call transmitter in the flush variant of installation, wherein the same elements are denoted by the same reference characters as in Figure 1.

The carrier plate 2 serving as operating surface for the input of control commands is in this
15 variant installed in the first end face 9 not provided with the flange 20. By virtue of the symmetrical construction of the call transmitter housing 1 the fastening/locking means 2' of the carrier plate 2 are engaged/detented at inwardly protruding tongues/projections 7' of the positioning element 7 also in this variant.

20 On actuation of the call transmitter by pressure on the carrier 2 there then exists, however, the risk that the call transmitter drops out at the back, i.e. in the direction of the pressure, since an abutment against the front plate 5 is no longer present. For this reason additional fastening elements are of advantage for the fastening of the call transmitter at the front plate 5 in the flush variant of installation. These fastening elements preferably consist
25 substantially of two spacers 8, which can be fastened to the front plate 5 and to the retaining plate 4. In one form of embodiment the spacers 9 are constructed as weld pins, which are fastened to the front plate 5. The retaining plate 4 is fastened with the aid of screws 22 and the weld pins.

30 Obviously the spacers 8 can also be fastened to the retaining plate 4 and then be mounted on the front plate 5 with the aid of fastening means.

This fastening mechanism enables fastening of the call transmitter even in the case of greater front plate thicknesses. The maximum front plate thickness is in that case
35 determined by the selected height of the call transmitter housing. The minimum height of the call transmitter housing 1 corresponds with the maximum defined front plate thickness,

plus flange thickness. With this construction the call transmitter can be steplessly installed in different front plate thicknesses up to a defined front plate thickness. The call transmitter can preferably be installed in front plate thicknesses between 1 and 12 millimetres. Thicker front plates are also possible.

5

The installation cutout 11 in the front plate 5 is identical in the flush installation variant and the proud installation variant. Due to the symmetrical construction of the components, thus identical components for both variants of installation of flush and proud, and the circumstance that identical installation cutouts 11 are used for both variants of installation, the flush installation variant can in case of need also be converted on site into the proud installation variant. The same components such as call transmitter housing 1, carrier plate 2, electronic unit 3, retaining plate 4, acknowledgement element 6 and symbols, numerals and Braille marking 12 can be used for both variants of installation.

15 The call transmitter housing 1 itself can be installed in two different variants in the front plate 5, on the one hand that the first end face 9 of the call transmitter housing 1 is flush with the front plate 9 and on the other hand that the second end face 10 of the call transmitter housing 1 is mountable to be proud on the front plate 5 by the distance of the flange.

20

The call transmitter is illustrated in Figure 3 in the state of being mounted to be proud and the call transmitter is illustrated in Figure 4 in the state of being mounted to be flush. The carrier plate 2 with the symbols 12 and the electronic unit 3 are received by the call transmitter housing 1, wherein in Figure 4 the call transmitter housing 1 from Figure 3 has been rotated through 180 degrees about the transverse axis Q and additional spacers 8 for the fastening of the retaining plate 4 to the front plate 5 have been used. Otherwise, all the elements of Figures 3 and 4 are the same. In Figure 3 the carrier plate 2 is installed from the second end face 10 provided with the flange 20, whereagainst in Figure 4 it is installed from the unflanged first end face 9.

30

Figure 5 shows a vertical sectional view of the call transmitter mounted to be proud. This figure serves for a more clear schematic illustration of the individual call transmitter components in the mounted state. The call transmitter housing 1 has in its inner circumference, as positioning element 7, two tongues 7' which co-operate with corresponding engagement means 2' of the carrier plate 2. The tongues 7' serve at the inner side as boundary surface of the electronic unit 3 and at the outer side, i.e. from the

35

side of the carrier plate 2, as boundary surface for the engagement means 2' of the carrier plate 2, which in turn has an abutment surface 23 for that purpose. In this form of embodiment the engagement means 2' have noses 24 which detent in slots 25 of the support plate of the electronic unit 3. The support plate 3 is constructed in this form of embodiment as a circuitboard. In this manner the tongues 7' represent a boundary surface relative to the inside for the carrier plate 2 and relative to the outside for the electronic unit 3. The carrier plate 2 can be displaced inwardly only up to the positioning element 7, thus the electronic unit 3 cannot be pressed out of the call transmitter housing 1. In non-actuated state, i.e. when the carrier plate is not pressed, as shown in Figure 5, there exists between the abutment surface 23 and the tongues 7' a certain clearance or stroke 26, which usually has to be present for correct actuation of the carrier plate 2. This means that if the carrier plate 2 is pressed, it is to be displaced somewhat inwardly so that the electronic unit 3 can exert its function. At the same time in unoperated state the carrier plate 2 is brought into its initial position, i.e. flush with the call transmitter housing 1, solely by the electronic unit 3. In similar manner this resetting could also be achieved by a spring.

On actuation of the carrier plate 2 the force absorption is thus taken up not completely by way of the electronic unit 3, but also by way of the positioning element 7.

Figure 6, in which a vertical sectional view of the call transmitter mounted to be flush is illustrated, has the same elements as in Figure 5, wherein in this case the spacers 8 are present.

Due to the separate components of carrier plate 2, symbols, numerals or Braille 12 and the call transmitter housing 1, various design aspects and different colour combinations can also be realised in simple manner without problems. The different possibilities of coloration of carrier plate, call transmitter housing, front plate and numerals allow wide freedom in the fulfilment of standards.

The symbols, numerals and Braille markings are proud on the carrier plate and produced from a metallic material, which enables a different. permanent coloration and at the same is resistant to vandalism (cigarette lighters, knives, etc.).

The call transmitter housing according to the invention can have different shapes. It can be, for example, a hollow cylinder, a hollow tube or block-shaped. It can be made of steel,

but other materials, such as, for example, plastics material, diecast zinc, aluminium and so forth, are also conceivable.

The call transmitter according to the invention finds use particularly for call inputs in lifts.

5

The same construction can also be used for call input by means of key-operated switches (key-operated switch elements), for illuminated reference functions (lamp elements, indicators), for command input by means of rocker switches (rocker switch elements), for acoustic information functions (buzzer elements, conversation elements) or for addressed

10 reference functions (address elements).

Reference Symbol List

	1	call transmitter housing
	2	carrier plate
5	2'	fastening/locking means
	3	electronic unit
	4	retaining plate
	5	front plate
	6	acknowledgement element
10	7	positioning element
	7'	tongue/projection
	8	spacer
	9	first end face
	9'	first opening
15	10	second end face
	10'	second opening
	11	installation cutout
	12	characters/symbols
	13	contacts
20	20	flange/shoulder
	21	screw
	22	screw
	23	abutment
	24	nose
25	25	slots
	26	clearance/stroke
	B	axis of actuation
	Q	transverse axis of the call transmitter housing

Patent Claims

- 5 1. Call transmitter for input of control commands, particularly for a lift installation, which comprises a housing (1) and at least one carrier element (2) co-operable therewith, characterised in that the housing (1) is so constructed that it is insertable reversibly about an axis perpendicular to the axis (B) of actuation.
- 10 2. Call transmitter according to claim 1, characterised in that the housing (1) has a first end (9) and a second end (10), wherein for positioning the carrier element (2) the housing (1) has a positioning element (7) which is so arranged at the housing (1) that the carrier element (2) can be installed from both the first end (9) and the second end (10).
- 15 3. Call transmitter according to claim 2, characterised in that the positioning element (7) is arranged in the middle of the housing (1) as seen in the direction of the axis (B) of actuation.
4. Call transmitter according to claim 3, characterised in that the positioning element
20 (7) is arranged within the housing (1).
5. Call transmitter according to any one of the preceding claims, characterised in that the first end (9) or the second end (10) of the housing (1) has a protruding flange (20).
- 25 6. Call transmitter according to claim 5, characterised in that the housing (1) in the mounted state can be assembled to be flush with or proud of a front plate (5) intended for it.
7. Call transmitter according to any one of the preceding claims, characterised in that
30 the housing (1) has a smooth outer profile and can be installed steplessly in different front plate thicknesses, preferably between 1 to 12 mm.
8. Call transmitter according to any one of the preceding claims, characterised in that
35 the positioning element (7) substantially consists of an encircling edge or of tongues or of an apertured plate (7').

9. Call transmitter according to any one of the preceding claims, characterised in that the carrier element (2) has characters (12) which consist of a metallic material and are arranged on the carrier element (2) to be proud thereof.