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Description

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Securing device for the assembly bracket of plug-in cards and standard flat components

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The invention relates to a securing device according to the features of the preamble of claim 1.

Standard flat components, in particular the plug-in cards used in computer technology, are usually
10 mounted with the aid of assembly brackets at appropriately designed mounting locations. Secured to these assembly brackets there is in each case at least one plug-in connector, which establishes the connection of the plug-in card to external terminals. The housing
15 wall therefore has at the mounting locations in each case slot-like clearances, which are covered by the respective assembly bracket. Also provided on the assembly bracket is a securing flange, which is attached at right angles, lies snugly against a
20 correspondingly angled support surface of the housing wall and is releasably fixed there by means of a screw or clamp connection.

By way of example, DE 44 03 907 A1 discloses a securing device in the form of a clamping strip which
25 reaches over all the insertable flat components or their assembly brackets and, in the fitted state, fixes all the plug-in cards and, in the releasing state, releases all the plug-in cards, and which has flexible regions which are assigned to the individual plug-in
30 cards. A disadvantage in this case is that, irrespective of the number of mounting locations occupied, a clamping strip wide enough to cover all the mounting locations is always required and that, when retrofitting or exchanging, the securement has to be
35 temporarily loosened for all the other, in fact unconcerned, flat components.

The present invention is thus based on the object of providing for the securement of the assembly bracket of plug-in cards a device which is as simple as

possible and also can be handled as easily as possible, permitting an individual securement on the housing of each individual flat component.

This object is achieved according to the invention by the features of claim 1. Advantageous developments of the invention are specified in subclaims.

An exemplary embodiment of the invention is explained in more detail below with reference to the drawing, in which:

Figure 1 shows a cutout from a housing wall of a computer housing with a securing device according to the invention in a perspective representation,

Figure 2 shows the clamping element as a component part of the device according to Figure 1,

Figures 3, 4 show the securing device according to Figure 1 at the time of assembly or after assembly.

Figure 1 shows a cutout of a housing rear wall 1 of a PC housing, which has an approximately rectangular recess 2 in the region of two mounting locations for plug-in cards. Secured to the mounting locations, arranged parallel to one another in the form of slot-like clearances, there are respectively L-shaped assembly brackets 3 of a plug-in card or, if the mounting locations are not occupied, covering brackets identical in design to these assembly brackets. The securement of the assembly bracket 3, or of the identical covering bracket, takes place at its right-angled securing flange 4, which lies snugly against a lateral supporting wall 5 of the housing wall 1, formed by the recess 2. As a substitute for the screw connection usually provided, there is provided a clamp device 6, which comprises a bow-shaped spring element, this spring element being supported with the bow ends on the housing wall 1 and being capable of snapping in between the securing flange 4 on the one hand and a

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catch element 7, provided on the housing wall 1, on the other hand. Provided for example as the catch element 7 is a sheet-metal lug torn out from the housing wall 1.

5 Details of the clamp device 6 used in the securing device according to Figure 1 are revealed by the representation in Figure 2. This clamp device, consisting for example of plastic, has on the side facing the securing flange 4 of the assembly bracket 3
10 (see Figure 1) a centering pin 8, which enters through a U-shaped notch in the assembly bracket into a hole-like clearance in the support surface 5 of the housing wall 1, whereby the assembly bracket is additionally fixed by means of the clamping. The side of the clamp
15 device facing the securing flange 4 has a surface which is plane-parallel to the securing flange.

 The assembly or final fixing of the clamp device can be seen from Figures 3 and 4. Serving as an assembly aid is a gripping element which projects in a
20 nose-like manner and is formed on at the region of the bow-like spring element facing away from the securing flange. Slight pressure applied by the thumb in the direction of the securing flange causes the spring element, preferably consisting of flexible plastic, to
25 be compressed to the extent that the bow facing away from the securing flange enters behind the catch element 7 in the housing wall 1 and locks when the gripping element is released. Figure 4 shows the clamp device in the assembled state, the spring bow being
30 clamped between the securing flange 4 and the catch 7 and fixed in the correct position by the centering pin 8, entering into the supporting wall 5.

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Patent claims

1. A securing device for the assembly bracket of standard flat components which are releasably secured by the assembly bracket at mounting locations in the form of slot-like clearances in a housing wall of a data-processing device in such a way that the securing flange of the assembly bracket lying against an angled support surface of the housing wall and correspondingly angled can be fixed by means of a clamp device, characterized in that the clamp device (6) comprises a bow-like spring element which is supported with the bow ends on the housing wall (1) and is capable of snapping in between the securing flange (4) of the assembly bracket (3) and a catch element (7) provided on the housing wall (1).
2. The securing device as claimed in claim 1, characterized in that the clamp device (6) consists of flexible plastic.
3. The securing device as claimed in claim 1 or 2, characterized in that the clamp device (5) has on the side facing the securing flange (4) a centering pin (8), which enters through a U-shaped notch in the assembly bracket (3) into a hole-like clearance in the support surface (5) of the housing wall (1).
4. The securing device as claimed in one of the preceding claims, characterized in that the side of the clamp device (6) facing the securing flange (4) is designed as a surface which is plane-parallel to the securing flange (4).
5. The securing device as claimed in one of the preceding claims, characterized in that a gripping element (9) which projects in a nose-like manner is provided at the region of the bow-like spring element facing away from the securing flange (4).

