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54 **Seventeen segment alphanumeric display system.**

⑤7 It is applicable to electronic devices that provide numerical or written information, representing standardized figures and letters, improving the graphy and separation consistency between the symbols of the existing seven and sixteen segment systems.

The system (18) includes seven segment traditions (1 to 7) that establish two vertically adjacent squares sharing a center segment (7) and including ten smaller segments (8 to 17), four of them (8 to 11) occupying the diagonals of the top square. There are four other segments (12 to 15) of which three of them (13, 14 and 15) occupy positions similar to the previous ones (8, 10 and 11) in the bottom square, while the remaining segment (12) is located parallel under the right part of the center segment (7.)

Two other segments (16 and 17) are located in line and at their left part with the top segment (1) and with the bottom segment (4) respectively.

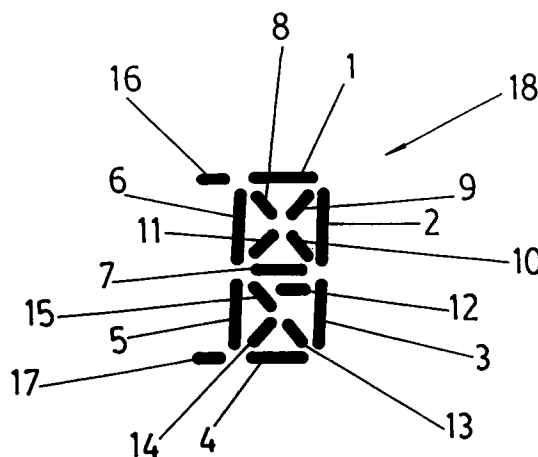


FIG. 1

OBJECT OF THE INVENTION

As is expressed in the title of this specification, the present invention consists of a seventeen segment alphanumeric display system whose purpose is to provide a standardized figures and letters display with greater possibilities, better definition and identical simplicity than those of the systems existing within its range.

The invention is applicable to a large majority of electronic devices that require a screen or display element to provide specific information by means of LED diodes, liquid crystal, movable plates or other components.

BACKGROUND OF THE INVENTION

Different figure and letter display systems by means of a specific number of segments arranged in a characteristic group or by means of dot matrixes are known.

The systems based on dot matrixes permit a definition and some display possibilities superior to those that use segments, but they are more complex and require the corresponding decoders to be larger.

For these reasons segment systems are still used for a large number of uses.

Among these systems the typical seven segment system whose segments are approximately of the same length and are arranged in such a way that they define approximately two vertically adjacent squares that share the center segment is known.

This seven segment system permits an acceptable display of numbers and of only some letters therefore it is not suitable for the display of written texts.

In order to facilitate the display of written texts by means of segments, there is a system of sixteen segments each one of them being approximately of the same length and grouped in such a way that the contour of the grouping defines approximately one square in which each one of its sides is formed by two consecutive segments. Respective segments project from the center area of this square towards the center of each side and towards the vertexes of the cited square, in such a way that eight triangular parts with an identical surface are defined in said square.

This sixteen segment system permits a figures and letters display but involves inconveniences such as a rather poor graphy and extensive irregularity in the separation between the consecutive symbols.

DESCRIPTION OF THE INVENTION

In order to obtain the objectives and to solve the problems pointed out above in this specification, the invention consists of a seventeen segment alphanumeric display system whose arrangement and dimensions are described hereinafter.

Hence, seven of said segments have approximately the same length and their arrangement is similar to that of the classic seven segment system, that is to say, defining approximately two vertically adjacent squares, sharing the center segment. The other ten segments are shorter and four of them have the same size. They are uniformly distributed upon imaginary lines from the center to the vertexes of the top square, occupying the diagonals thereof.

The bottom square also has inside it four other segments of characteristics and locations similar to those corresponding to the top square, with the exception of the segment corresponding to the top right vertex of this bottom square, which instead of occupying part of the corresponding diagonal, is placed close to and parallel under the right part of the center segment mentioned in the above paragraph.

The two remaining segments are outside the cited squares and parallel to the center segment, each one of them being located close to the top left vertex of the top square, and the other one close to the bottom left vertex of the bottom square.

This pattern permits a correct figures and letters display with better consistency in the separation between symbols and an outstanding improvement of the graphy of said symbols, especially the letters B, D, G, J, O, R and numbers 1 and 7.

Hereinafter, to provide a better understanding of this specification and as an integral part of the same, some figures in which the object of the invention has been represented in an illustrative and non-restrictive manner are attached hereto.

BRIEF DESCRIPTION OF THE FIGURES

Figure 1.- It represents the arrangement of the seventeen segments of the alphanumeric display system of the invention.

Figure 2.- It shows a possible number display with the system of the invention.

Figure 3.- It shows a possible letter display with the system of the invention.

DESCRIPTION OF AN EMBODIMENT OF THE INVENTION

A description of an example of the invention referring to the numbering used in the figures is

made hereinafter.

Thus, the alphanumeric display system (18) of the present invention has seventeen segments (1 to 17), seven of them (1 to 7) being arranged as in the classic seven segment system, that is to say, defining approximately two vertically adjacent squares that share the center segment (7.)

Four other segments (8 to 11) of these seventeen segments are identical and shorter than the previous ones, being located inside the top square defined by segments 1, 2, 6 and 7 and occupying its diagonals.

Inside the bottom square defined by segments 3, 4, 5 and 7 there are four other segments (12 to 15) with dimensions and arrangement similar to those referred to in the above paragraph, with the exception of segment 12 corresponding to the top right area of said bottom square, which is close to and parallel to the center segment (7), under its right part.

Nearby, at the left part, and in line with the top segment (1) there is another segment (16), while close by, at the left part, and in line with the bottom segment (4) there is another segment (17.) Both segments 16 and 17 are of the same length and shorter than those of their respective adjacent segments 1 and 4.

This pattern of seventeen segments improves the existing ones of seven and sixteen segments, permitting a correct numbers display, as is seen in figure 2 and letters display as shown in figure 3.

A better graphy of the figures 1 and 7 due to the existence of segments 9 and 12 respectively is worth pointing out among the numbers.

Concerning the letters, segments 16 and 17 help to define the letter B, differentiating it from the number 8. These same segments 16 and 17 permit a better definition of the letter D, differentiating it from the symbol O. The graphy of the letters G and J is improved thanks to segments 12 and 16 respectively, as well as the graphy of letter R by means of segments 13 and 15.

Claims

1. Seventeen segment alphanumeric display system (18) for the display of standardized figures, numbers and letters for electronic devices requiring display elements to provide specific visual information comprising a first conventionally arranged group of seven segments (1, 2, 3, 4, 5, 6, 7) defining two vertically adjacent squares sharing the center segment (7) characterized in that it comprises a second group of ten segments (8, 9, 10, 11, 12, 13, 14, 15, 16, 17) being shorter than the segments (1, 2, 3, 4, 5, 6, 7) of said first group, whereby four of the segments (8, 9, 10, 11) of said

second group are located on the diagonal lines of said upper square, two of the segments (13, 15) of said second group are located on the diagonal line crossing said lower square from its right upper corner to its left lower corner, a further segment (14) of said second group is located on the lower half of the diagonal line crossing said lower square from its lower left corner towards its upper right corner, a further segment (12) of said second group is located parallel to said center segment (7) within the half of said lower square, a further segment (16) of said second group is located as a continuation on the left of the horizontal upper segment (8) of said upper square, and a further segment (17) is located as a continuation on the left of the lower horizontal segment (4) of said lower square.

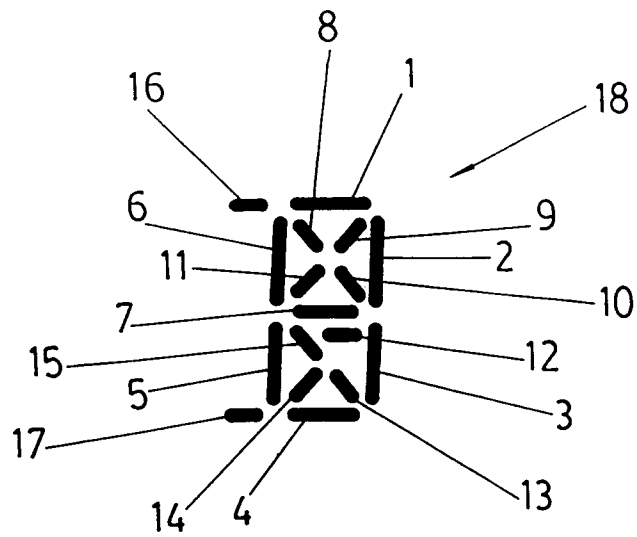


FIG. 1

1 2 3 4 5 6 7 8 9 0

FIG. 2

A B C D E F G H I J K L M
N O P Q R S T U V W X Y Z

FIG. 3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number

EP 93 20 0978

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
A	EP-A-0 142 954 (BRITISH TELECOMMUNICATIONS PLC) * page 1, line 4 - page 5, line 17; figures 1-4 * ----	1	G09F9/30
A	US-A-4 184 319 (KUMATA) * column 4, line 18 - column 7, line 33; figures 1,4,7 * * column 14, lines 19 - 39 * ----	1	
A	WO-A-8 502 703 (LANGE) * page 3, line 28 - page 4, line 19; figures 1,2 * ----	1	
A	RADIO FERNSEHEN ELEKTRONIK vol. 37, no. 5, May 1988, BERLIN, DDR pages 279 - 284 B.STANDFUSS ET AL 'Familie der LED-Anzeigen' * page 281; figures 6,7 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			G09F
The present search report has been drawn up for all claims			
Place of search BERLIN		Date of completion of the search 29 JUNE 1993	Examiner TAYLOR P.
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			