

Title (en)  
PROXIMITY SENSOR AND METHOD FOR MEASURING THE DISTANCE FROM AN OBJECT

Title (de)  
NÄHERUNGSSENSOR UND VERFAHREN ZUR MESSUNG DES ABSTANDS EINES OBJEKTS

Title (fr)  
CAPTEUR DE PROXIMITÉ ET PROCÉDÉ POUR MESURER LA DISTANCE D'UN OBJET

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Application  
**EP 13753410 A 20130701**

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Abstract (en)  
[origin: WO2015000452A1] The invention relates to a proximity sensor (10) and to a method for measuring the distance (D) from an object (12). The proximity sensor (10) contains a microwave oscillator (52) which provides, as an output signal (54), a transmission wave (16) which is emitted by the proximity sensor (10) in the direction of the object (12) as a free space transmission wave (16c) which is reflected by the object (12), which is electrically conductive or has at least one electrically conductive surface, as a free space reflection wave (30a) and is received by the proximity sensor (10) as a reflection wave (30), wherein the reflection coefficient ( $\Gamma$ ) is determined from the transmission wave (16) and the reflection wave (30) and is provided by the proximity sensor (10) as a measure of the distance (D). The proximity sensor (10) according to the invention and the method according to the invention are distinguished by the fact that the transmission wave (16) is guided in a waveguide (22) as a waveguide transmission wave (16b), that the transmission wave (16) is injected into the waveguide (22) with a wave mode which results in the waveguide transmission wave (16b) being separated at the aperture (26) at the front end of the waveguide (22) into the free space transmission wave (16c) and in the free space transmission wave (16c) propagating to the object (12).

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