



Azienda con Sistema di Gestione  
per la Qualità Certificato da  
DNV UNI EN ISO 9001: 2000

# DNV 2000

## ACOUSTIC DEVICE FOR BLIND PEDESTRIAN

MINISTERIAL HOMOLOGATION n° 219 of 16.02.2004

### APPLICATION

The device is suitable for being installed within controlled pedestrian crossings in order to signal blind people the possibility to cross the road according to what provided by art. 6.4 of D.P.R. 24 July 1996 n.503, by the Road Code art. 41 comma 5 and by its enforcement Regulations Art. 162 comma 5.

### REFERENCE NORMS

The device has been realized in compliance with the following norms:

- Experimental norm CEI 214-7
- Law 447 of 26-10-1995 and relevant D.P.C.M- 14/11/1997

### OPERATING FEATURES

The pedestrian crossing, according to the norm, must be equipped with a calling device and a device emitting the go-ahead signal, the whole connected so that, upon a request, the acoustic signal for going-ahead could be issued on both sides of the pedestrian crossing.

### CALL DEVICE

The calling device can be used by two kind of users, common pedestrians and blind people.

The request made by common pedestrians is signalled to the traffic controller so that it can either carry it out, introducing inside the traffic signal cycle the desired phase, and so that it can send a feedback signal used by the device for activating a luminous signal for confirming the accepted request.

The request made by blind people is signalled by:

- Acoustic device mounted on the pole itself, that stores the call and sends back to the requesting device an accepted request signal for commanding a sound signalling having the same characteristics as shown in par 4.2. of CEI 214-7 norm.
- Request device mounted on the opposite pole that sends the request to its own acoustic device.
- Traffic controller that will carry out the same functions of a common call.

In particular, in case the request made by blind people occurs when the green time is on, the device will store the call into the controller until it can be accepted for a new cycle.

### ACOUSTIC DEVICE

The device sends forth 60 sound pulses at first minute, during the green time of the crossing where it is connected, and 120 sound pulses at first minute, during the yellow time. The sound transmission occurs only upon specific request and the transmitting volume is self balanced, during the whole transmitting period, so to conform itself to the environmental sound level within the whole period.

The sound transmission is in function of the green start-up of the relevant semaphoric signalling, therefore in case of a request made during the said period, the request will be fulfilled in the next semaphoric cycle.

Upon each received request, whenever there are such conditions for which the request can be fulfilled, the device will send a signal to the call device in order to send out a sound signal for the accepted request and a signal to the traffic controller for the reservation request of pedestrian green.



Acoustic Device





## GENERAL CHARACTERISTICS

The mentioned device is composed of two units:

1) A device for requesting the possibility to go-ahead formed by:

- A push button for normal pedestrian reservation.
- A luminous signal for confirming reservation.
- A push button for blind people call.
- An acoustic device for signalling to blind people that the request has been accepted.

2) A device emitting an acoustic sound formed by:

- A microprocessor logic.
- A sensor for measuring environmental rumours.
- An acoustic trasductor for sending out the go-ahead signal.

The two units are strictly connected one another, either from the operating and from the electrical point of view, and they cannot work, according to the norm, separately.

Each unit is installed inside its own box for being mounted one on the top of the traffic pole above the relevant pedestrian signal head, the other, for the request, on the pole's front.

### SAFETY

#### CALL DEVICE

The call device does not send a sound signal confirming the accepted request if the acoustic device cannot fulfil the request.

#### ACOUSTIC DEVICE

The device power supply is taken in parallel with the traffic signal lamps of the pedestrian crossing, where the device is connected, so that there cannot be any misalignment between the semaphoric and the sound signalling.

The sound signal transmission is delayed as regards to the pedestrian green start-up in order to allow the eventual occurring of the traffic controller safety conditions, before the sound is sent out.

The sound signal transmission is cut off in case of:

- Turned off plant (inner safety as the power supply of the sound signal transmitting circuit is taken in parallel with the green and yellow lamps of the pedestrian signal head which is joined to).
- Tension at the red pedestrian signal head top ends higher than the values indicated by the norm for a signal that for safety purposes must be OFF (50 V).
- Tension at the green and/or yellow pedestrian signal head top ends lower than the values indicated by the norm for a signal that for safety purposes must be ON (160V).
- Flashing plant.

## TECHNICAL CHARACTERISTICS

### SIGNAL OF ACCEPTED REQUEST TO GO-AHEAD

The above signal has the following characteristics:

Sound frequency = 2KHz  $\pm$  10%  
Sound pressure level 50 dBA at 1 metre

### GO-AHEAD SIGNAL

The above signal has the following characteristics:

- 1) During the Green time:
  - Sound pulses at first minute = 60  $\pm$  1% with duty cycle 50%  $\pm$  1%
  - Sound frequency = 800 Hz  $\pm$  10% modulated at 20 Hz
- 2) During the Yellow time:
  - Sound pulses at first minute = 120  $\pm$  1% with duty cycle 50%  $\pm$  1%
  - Sound frequency = 800 Hz  $\pm$  10% modulated at 20 Hz
- 3) Sound pressure level self balanced in function of environmental rumours:
  - D environmental rumours 5,10 dB
  - Minimum 30 dBA
  - Maximum 60 dBA (according to table B of DPCM 14-11-1997)

## MECHANICAL CHARACTERISTICS

### ACOUSTIC DEVICE

Housing in plastic material with IP55 protection degree.

### CALL DEVICE

Housing in polycarbonate with IP55 protection degree  
Complete of:



- Antivandalism push-button for common pedestrian call.
- Silk-screen printings with information and images.
- Reservation signalling realized by Green Led at high luminous intensity.
- Hidden button for blind people call with mechanical characteristics as indicated in CEI 214-7 norm.
- Direction arrow with mechanical characteristics as indicated in CEI 214-7 norm.
- Cables entry with protection collar for the cable entrance in the pole hole that can be sealed up after the mounting completion, for granting water and dust resistance.
- Pole mounting by means of two M6 bolts to be fixed in the proper locations or by means of band-it (aluminium bands).

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