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BRAUMS

"ITS" Moving Traffic

PEDCALL AND AUDIO TACTILE SYSTEM

Robust design

Auto pedestrian detection

Vandal resistant

Proven field performance

Safe

PEDCALL AND AUDIO TACTILE SYSTEM

The BRAUMS Pedestrian (Push Button) Detector (PEDCALL) and audio Tactile System allows vision impaired and vision able pedestrians to request a walk signal at signalised intersections and is an essential component in any city's Traffic and Pedestrian Management Plan.

To improve not only the safety for pedestrians and all road users but also the efficiency of the network, it is important to use PEDCALL to allow the Traffic Signal Controller to detect the presence of pedestrians.



Configuration

The PEDCALL can be supplied in three main configurations:



1. PEDCALL S - Standard without Audio Tactile Transducer

Allows pedestrians to request a walk signal and allows the Traffic Signal Controller to detect the presence of the pedestrian.



2. PEDCALL AT with Audio Tactile

Provides assistance to vision impaired pedestrians via both the Audio and Tactile feedback to locate the PEDCALL, the crossing direction and the status of the phase of cycle (I.E. Walk or Don't Walk).



3. PEDCALL REC with an LED Wait Indicator in either the Standard or Audio Tactile PEDCALLS

When the PEDCALL button is pushed, an LED Indicator illuminates to provide feedback to the pedestrian showing that their call has been registered.

Technical Description

The PEDCALL assembly includes a manually operated, non-locking solid stainless steel push button, mounted in a strong diecast Aluminium case. A combined visual/tactile arrow is displayed on the front of the case, to indicate to a pedestrian facing the push button assembly the direction of the crossing associated with the facility. The arrow can be rotated in a vertical plane to yield the appropriate orientation. Provision is made for the fitting of an audio tactile transducer to provide audio and tactile signals for visually impaired pedestrians. An illuminated demand indicator can also be fitted as an option if requested.

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A complete PEDCALL push button assembly comprises the following component parts:

- Base casting for mounting on the signal post, pole or mast arm
- Front cover casting incorporating the push button and switch mechanism
- Arrow Disc
- Audio tactile transducer (if required for vision impaired pedestrians)
- Two mounting Screws and associated spring washers.

General Assembly

The base casting incorporates terminal facilities for clamping flexible cables and a stainless steel wire for retaining the removable front cover casting and preventing stress on the electrical wiring connections.

The front cover casting is secured to the base by means of two recessed blackened stainless steel socket head screws designed for use with an Allen key measuring 5mm across the flats. The front cover incorporates the Stainless steel push button and switch assembly and provides facilities for fitting the arrow disc.

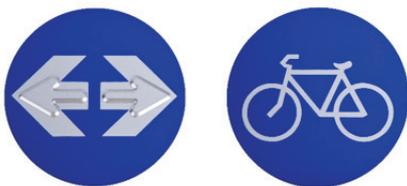
Arrow Disc

Each push-button assembly is fitted with either a single or dual arrow disc. The disc is held in a resilient mounting within the front cover casting, and is replaceable from the inside.

Facilities are provided to rotate the disc so as to provide the desired arrow orientation.

Facilities are provided for the disc to be rotated in angular increments of 22.5 degrees off the vertical, up to a maximum of 90 degrees either side of vertical. A locking device is provided to retain the disc in the desired orientation. When correctly fitted and secured, the joint between the disc and the aperture in the front cover casting are weatherproof.

When the audio-tactile facility is required, it is attached to the single arrow disc. The disc acts as the vibrating diaphragm when attached to the transducer.



Wait Indicator

The wait indicator lens is moulded from an opaque white (translucent) acrylic that is scratch resistant with similar properties to cast acrylic 445 sheet. The wait indicator printed circuit board (PCB) is populated with surface mount components which include 10 SMT red LEDs. The PCB has been mounted at pre-determined distance from the back is the wait indicator lens to ensure an even lamination of the wait indicator when activated by the pedestrian. The wait indicator circuit has been designed to ensure that the LED's do not emit light when a minimum voltage is present.

Push-button Mechanism

The push-button actuating mechanism (including the switch) incorporates inherent audible and tactile "feedback" The BRAUMS design minimizes the risk of the button being jammed by insertion of foreign objects or material.

The mechanism is designed for a service life of 10 years and a minimum of 10 million actuations.

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Transducer

The transducer assembly can be fitted to either a single or double arrow escutcheon. These are supplied pre-assembled with the arrow casting and gasket. These are also factory tuned to optimum performance. The audio and tactile of the transducer is dependent on the audio tactile drive unit. When coupled to a BRAUMS driver unit the requirements of both AS2535:1999 and RMS specification ATS/4 are met.



Mounting Hardware

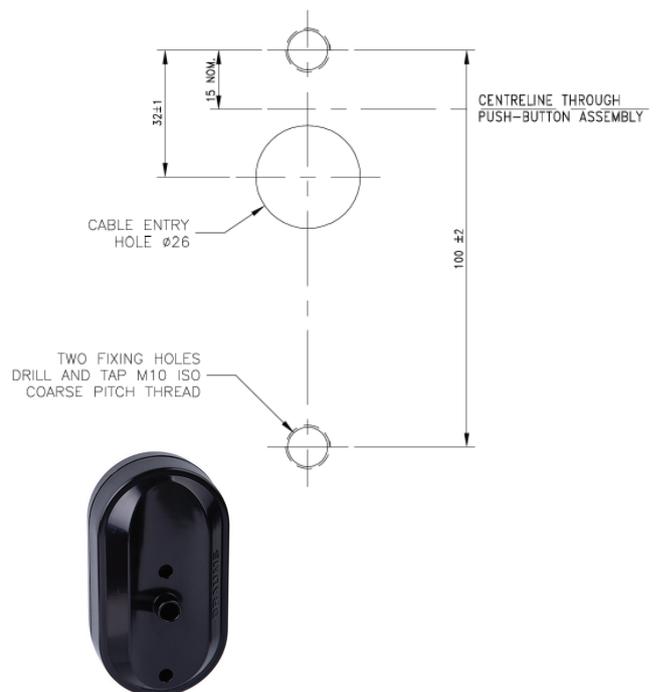
Each push-button assembly is supplied with two stainless steel set screws, internal star washers and flat washers. These six components are packed in a sturdy plastic bag, which is secured inside the push button assembly.

Electrical Requirements

Standard Supply Voltage 32Vac: 50Hz.

Wiring

The switch housing is wired in 24/0.2 gauge 250V grade PVC insulated copper cable, complying with the requirements of AS 3191. All wiring is supported with ties so that no stress is transmitted to any connection.



Technical Description

The PEDCALL AUDIO TACTILE (AT) unit is designed to be installed with or can be added to an existing compliant push button at signalised intersections.

The Audio Tactile unit generates a homing or locating audio signal to assist vision impaired pedestrians at locating the pushbutton. The audio output is via a transducer mounted behind the pushbutton and generates its tones at a frequency and periodicity that can be felt by the pedestrian's hand when pressing the button.

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Below are the waveforms that show the typical response and these are in accordance with the standard AS2353:1999.

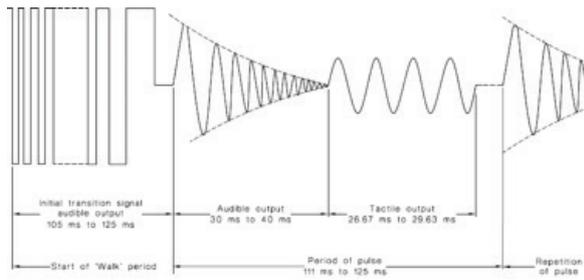


Figure 1: Walk and Don't Walk Frequency Tones

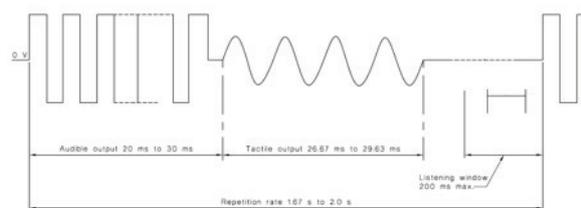


Figure 2: Homing or Locating Signal Frequency Output

The audio level output by the transducer is controlled continuously and is automatically adjusted by the Audio Tactile unit via an Automatic Gain Control (AGC) circuit to take into account varying background noise.

The AGC has time delay filters that can exclude large short term transient noise from affecting the AGC circuit and as a consequence the audio levels output by the transducer.

The Audio Tactile generates to two types of audio signals that indicate "Walk" and "Don't Walk" aurally and in synchronization with the display pedestrian lanterns for green Walk and red Don't Walk phase.

The circuits operate on 240vac and is a proven and reliable design that can withstand the harsh roadside environment.

The Audio Tactile Unit is programmed to generate the correct timings and frequency, however, it has the option of generating the Walk tone for the whole of the Walk phase or only for the first 8 seconds of the Walk phase.

Input Feature

The BRAUMS Audio Tactile Unit has additional circuitry allowing for up to 4 Input Control signals. These inputs are interfaced by additional wiring coming from the traffic signal controller.

These inputs allow the user to provide functionality such as Tactile Only Output, Reduced Output Level by 3dB, Shutdown until Push Button pressed. The above are some of the software options that can be made available.

Implementation

The inputs of the Audio Tactile Unit can be wired to the controller using spare cores of the existing field wiring. This wiring can be terminated to the output of a relay fitted in the controller. By using the same ELV supply as used by the push buttons the return can be the same ELV return thus saving on wiring.

This relay can be controlled from the controller personality either on a Time of Day basis or directly from a command message sent from a SCATS® Regional Computer. A Special Purpose Output controlled by the controller personality program can control the relay so that a 32Vac ELV supply is feed to the Input Circuit of the Audio Tactile Unit. When this control signal is applied to the desired input then the required functionality can be implemented. This functionality can be as defined above or another user defined feature that is programmed into the Audio Tactile Unit before delivery from the BRAUMS factory.

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Driver Housing General Assembly

The Audio Tactile unit is fitted with a "L" bracket for mounting to a standard traffic signal pole and connected to the pushbutton to drive a transducer that generates the required audio tones for Walk and Don't Walk portions of a pedestrian walk phase to assist vision impaired pedestrians. The Audio Tactile unit also has a low frequency and amplitude homing signal.

The BRAUMS Audio Tactile unit is designed in accordance with the Australian Standard for pushbuttons AS2353 and RMS' ATS/4 Specification.

The BRAUMS Audio Tactile enclosures are manufactured from 1.6mm aluminium sheet. The enclosure and lid are polyester powder coated satin silver. All external fasteners are stainless steel. The enclosure has been designed for and meets the requirements of the Ingress Protection standard of IP45 (as specified in RMS specification ATS/4).

Cable entry into the enclosure is on the side and the uses the standard cable entry cover, gasket and cable clamp (internally) as used on the BRAUMS traffic signal lanterns.

Gear Tray

The gear tray on the Audio Tactile Enclosure has been designed so as it can be removed from the enclosure intact with all parts once the Driver Card has been removed and the incoming cables disconnected from the terminal block. This design allows for easy replacement of components should they ever need replacing.

The gear tray electrical terminations are fully covered with a clear moulded polycarbonate cover. The side label is the BRAUMS identification label that contains the date of manufacture, IP rating, model type and serial number.

Electrical Requirements

Supply Voltages of:
- 240Vac, 50Hz/60Hz, or
- 42Vac, 50Hz/60Hz.

Audio Tactile Frequencies

Don't Walk Signal:

Pulse rate of 0.5Hz—Tone Frequency of 2kHz with a decayed response to 500Hz

Walk Signal:

Pulse rate of 8.3Hz—Tone Frequency of 50 Hz

Mounting Hardware

The mounting bracketed has been manufactured by 40 x 5 mild steel flat bar and has been hot dipped galvanized. The bracket has been designed in accordance with the RMS drawing VM626-9 issue B. This mounting approach allows the Audio Tactile Enclosure to be mounted directly from an upper or lower mounting bracket M12 bolt. This eliminates the needs for U-Bolts and associated nuts and washers.

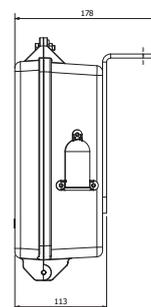
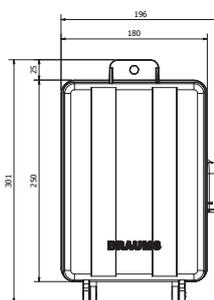
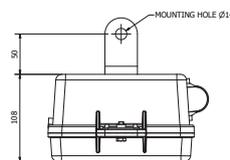
With the new designed bracket the Audio Tactile Enclosure can sit over the M12 bolts on the upper or lower mounting brackets without falling.

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Technical Installation

Audio Tactile Wiring Harness Connections:

1. Connect Green/Yellow to Earth terminal in upper mounting assembly.
2. Connect Blue to Neutral terminal in upper mounting assembly.
3. Connect Brown to undimmed lamp active (constant 240Vac terminal in upper mounting assembly)
4. Connect Orange to "WALK" active terminal in upper mounting assembly.
5. Connect White Figure 8 to terminals on transducer inside PEDCALL assembly.

Dip-Switches in Audio Tactile Housing:

SW1 - 1 —> 8 second walk tone timeout, OFF—Untimed, ON—Timed.

SW1 - 2 —> Not used, set to OFF.

SW1 - 3 —> Tactile circuit, ON—Tactile Only, OFF—Normal Tones.

SW1 - 4 —> Serial Enable for Test and Calibration, set to OFF.

Note: These settings correspond mostly to current Australian jurisdiction's configurations.

'Settings can be included for SCATS® (Sydney Coordinated Adaptive Traffic System) controllability such as muting the Audio Tactile System in pedestrian off-peak hours, different WALK tones for adjacent crossings, etc.



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External Inputs into Audio

Tactile Housing:

Ext I/P_1 —> Selects Tactile ONLY feature.

Ext I/P_2 —> Selects Reduced Audio Output by 3dB feature.

Ext I/P_3 —> Spare.

Ext I/P_4 —> Spare.

SW2 Gain Settings:

H = Higher Volume Output

N = Normal Volume Output

L = Lower Volume Output

PART No.	PRODUCT NAME	DESCRIPTION
BPB1000	PEDCALL S	Standard PEDCALL (No Audio Tactile Transducer)
BPB1001	PEDCALL AT	PEDCALL with Audio Tactile
BPB1002	PEDCALL REC S	PEDCALL with Call Record LED WAIT Indicator
BPB1003	PEDCALL REC AT	PEDCALL with Audio Tactile and Call Record LED WAIT Indicator
BPB1101	PEDCALL DRIVER CAUTION—RED	PEDCALL with Red 100mm Driver Call Record LED Lens
BPB1102	PEDCALL DRIVER CAUTION—AMBER	PEDCALL with Amber 100mm Driver Call Record LED Lens
BPB1103	PEDCALL DRIVER CAUTION—GREEN	PEDCALL with Green 100mm Driver Call Record LED Lens
BAT1000	AT DRIVER HOUSING	Audio Tactile Driver Housing ONLY (Spare housing without Driver Board)
BAT1001	AT DRIVER HOUSING C/W DRIVER BOARD	Audio Tactile Driver Housing Complete (Including Driver Board)
BATB0001	AT DRIVER BOARD	Audio Tactile Driver Board ONLY
BAT1001-M	AT DRIVER HOUSING C/W DRIVER BOARD - MUTEABLE	Audio Tactile Driver Housing Complete (including Driver Board) - Muteable



Driveway calls

