

Series

57

Multi-Tone Warning Indicator

www.eao.com/57-mtwi



Series 57

Multi-Tone Warning Indicator

Audible warning and LED status indication combined in a single compact device – EAO has expanded its globally recognised Series 57 to include another innovative product in the form of the multi-tone warning indicator.

Safety has absolute priority when it comes to opening and closing doors in public transportation. This also has an impact on accessibility issues – whether for facilitating passenger entry on trains, trams, bus or for public use emergency call and call-for-aid systems. Users can depend on both the audible and the visual warnings provided by the Series 57 multi-tone warning indicators (MTWI).

Typical applications

- Passenger access to trains, trams, bus
- Emergency call and call-for-aid systems
- Access control systems

The Series 57 MTWI uniquely combines two rail industry established HMI functions into one singular compact device – the Series 56 multi-tone sound module and the Series 57 warning indicator. This provides additional advantages and enhances safety in public transportation, especially for people with visual impairments. Passengers are intuitively warned about potential dangers thanks to the loud, audible warning signal and the LED status indicator visible from any angle.

When the train door is opened, green LEDs steadily illuminate or flash (must be controlled externally). At the same time, the door opening audio signal will sound to provide an additional acoustic warning. As soon as the door closes, the red LEDs illuminate (or flash) and the “door closing” signal can be heard clearly. Choices in LED colours and combinations are available and can be tailored to meet the specific application requirements (e.g. TSI PRM). Additionally, for emergency call system announcements, a passive speaker module variation is available that can be connected to an external signal source and amplifier.

Public transportation operators and door system providers benefit from attractive total costs of ownership (TCO), reliable LED technology and a long service life for the device. The combination of two HMI functions in a single device allows for space, time and cost savings when mounting it with only one required cable connection. The multi-tone warning indicator also requires fewer drill holes than would be necessary with two separate HMIs.

The multi-tone warning indicator is based on the same modern design as the attractive Series 57 door opening pushbuttons and is therefore the perfect addition to the product range. The audible warning emitted by the MTWI is based on the proven 3-tone Series 56 MTSM with manual volume adjuster and a selection of TSI PRM compliant sound sequences.

In all, the MTWI offers a variety of technical and economic benefits for users, train door system providers and public transportation operators.

Advantages.

- Audible and visual warning in a single device
- A single cable for space and cost savings in mounting
- Modern, timeless design of Series 57
- Long service life and attractive total cost of ownership
- Intense 180° illumination

Materials

The materials used are compliant with the strict EAO standards regarding quality, functional safety, service life and design. They are resistant to standard cleaning agents and are also highly resistant to UV radiation.

Mechanical characteristics

- Cable 6-pin, 0.24 or 0.5 mm² with core-end sleeves
- Several plug connectors available upon request
- Cable length 200 mm; 1000 mm; 2000 mm (other lengths upon request)
- Resistant to impact and vibration shock

Electrical characteristics

- Single-colour: 18 LEDs Red, Yellow, Blue, White
- Bi-colour: 9/9 LEDs Red/Yellow, Red/Green
- Operating voltage 24 VDC, -30 % ... +25 %
- Current consumption:
 - < 100 mA for 3-tone sequence module
 - < 75 mA for passive speaker
- Light intensity and colour may vary due to LED manufacturer tolerances.

Further information is available under www.eao.com/57-mtwi



Technical specifications.

Acoustic characteristics

The sound sequences can be played back at different volumes, for different lengths and at different intervals. Customised sound sequences can be created upon request by EAO or directly by our intuitive sound editing program. This program can be downloaded from eao.com under the "Software" section of our downloads page. The 3-tone model allows the volume of each sound sequence to be pre-defined to any one of 17 levels with increments of 1.5 dB. One wire allows the volume to be adjusted directly. The three sound sequences can be triggered by a binary signal using two other wires.

Frequency range

- 500 Hz ... 3000 Hz $\pm 1\%$
(3-tone sequence module)
- 30 Hz ... 20000 Hz (passive speaker)

Duration

- 100 ms ... ∞ (infinite)

Sound pressure level 3-tone sequence module

- Sound pressure level 5 of 17:
90 dB ± 8 dB @ 10 cm @ 1 kHz
A sound sequence comprises:
 - Two frequencies of any desired length and repetition
- Multi-sound programmable in accordance with TSI PRM

Sound pressure level passive speaker

- 98 ± 3 dBA @ 1W RMS @ 10 cm

Ambient conditions

- Storage temperature $-45^{\circ}\text{C} \dots +85^{\circ}\text{C}$
- Operating temperature $-40^{\circ}\text{C} \dots +70^{\circ}\text{C}$

Protection degree

- IP67 front side
- IP67 rear side

Impact resistance

- IK07

Colour of front bezel

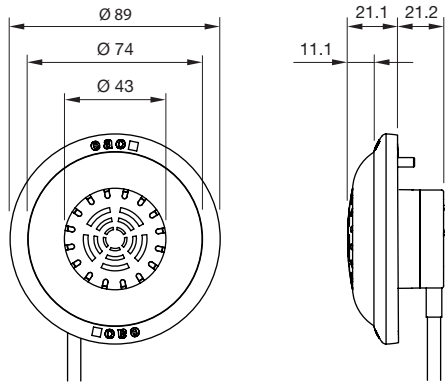
- Plastic: Green, Red, Blue, Yellow, Grey, Black, Night Blue
- Aluminium: Natural, anodised

Standards and directives

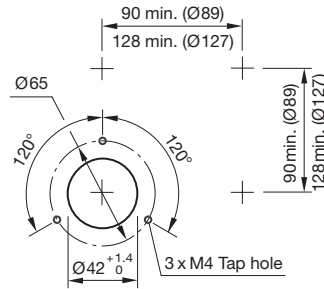
- Devices are consistent with
 - EN 50155:2017
 - EN 14752
- EMC
 - IEC 61000-6-2:2016, EN 61000-6-2:2019
 - EN 61000-6-3:2006+A1:2010
 - EN 50121-3-2
 - ESD according to EN 61000-4-2 ± 20 kV
 - Regulation no. EMV 06
(radio compatibility of Deutsche Bahn)
- Cables
 - DIN EN 50306-2; VDE 0260-306-2
 - DIN EN 50306-4; VDE 0260-306-4
 - EN 45545
 - ECE R118
- TSI PRM

Dimensions, mounting cut-outs and wiring diagrams.

Dimensions (front and side view)

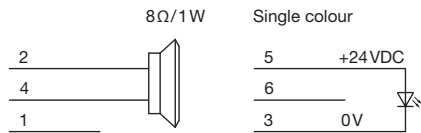


Mounting cut-out

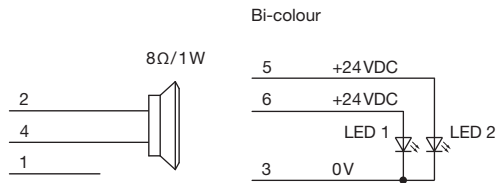


Wiring diagrams

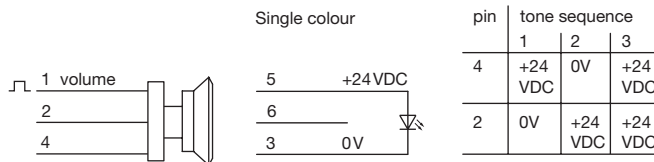
Passive speaker single colour



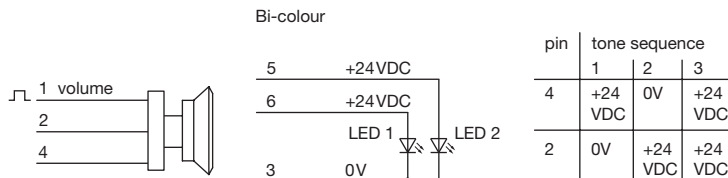
Passive speaker bi-colour



3-tone sequence single colour



3-tone sequence bi-colour



All dimensions in mm.

Expert manufacturers.

EAO creates possibilities. Since 1947.



Founding year: 1947

Number of employees: 600

Headquarters: Olten, Switzerland

Manufacturing Companies: Switzerland,

Germany, North America, China

Sales Companies: 10

Distribution countries: 50

Core markets: Transportation, Machinery,

Heavy Duty & Special Vehicles, Automotive

EAO AG, a Swiss, family-owned company founded in 1947, has developed into one of the world's leading manufacturers of high-quality switches, keyboards, sophisticated control elements, and complete HMI control units and HMI Systems.

Efficient and modern development processes, effective global supply chains, and skilled project and consultation management represent additional services that we offer our customers and business partners around the world.

Your solution-focused expert and partner

We do much more than just manufacture individual control elements. As a solution-focused partner, we provide the option of technically and mechanically customising existing HMI Components in line with our customers' individual requirements. From simple control elements through to sophisticated HMI Systems, from serial production through to installation – we offer the entire range of HMI services and inspire the confidence of our customers.

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