

CYIENT

CYCERO

Cyient Cab Event Response Output

Your one-stop cab event response device
for a safer train journey



Overview

Passenger and asset safety is highly critical in the railway industry, with the train driver playing a major role in ensuring the same. Cycero™ (Cyient Cab Event Response Output) is a supplementary alarm system fitted in the train driver's cab to support the goal that no alarm raised for the driver goes unnoticed. Cycero is built with a scalable architecture which accommodates options to customize features to suit specific requirements.

Functionalities

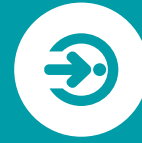
Cycero provides unified output of audio alarms by processing input triggers from sub-systems such as Train Control Management System (TCMS), TPWS, CBTC and others. It supports 16 input triggers for which alarm tones can be played from the primary audio outputs. The device also has analog audio inputs which can play alarms from the secondary audio outputs.

Cycero alerts the driver by playing pre-configured tones associated with specific events and prompts immediate corrective action. The device allows configuration of priority levels of individual triggers wherein a higher priority trigger can override or play at a higher amplitude over a lower priority trigger. Cycero uses the cab's existing speaker system and external loudspeakers can be provided in addition on demand.

The alarm tones are stored in the internal memory of Cycero and are played by a 32-bit ARM microcontroller when triggered by an input signal.



KEY FEATURES



16 logical/digital inputs command tone generation



Operating voltage range of 24 to 110 VDC



Programmable and upgradeable



Visual indication



Automatic noise compensation



Programmable and upgradeable



Optimized maintenance



Utilization of cab space



Wide operating voltage range



Health status indication



Prioritization enabled



Multiple audio inputs (digital and analog)



Tamper proof

Automatic noise compensation

Cycero measures ambient noise through a microphone interface and adjusts the primary and secondary speaker output play volume upwards by up to 15 dB without exceeding the 95 dB overall limit.

Programmable and upgradeable

Cycero communicates with a computer using serial communication for firmware upgrade, diagnostics, audio tone download and audio tone trigger priority configuration.

Health status indication

Cycero conducts diagnostics routinely and on demand, and maintains a log of faults from the diagnostics tests. Any fault in the device can be communicated to the TCMS through a digital output.

Visual indication

5 LEDs on Cycero indicate different operating states of the system.

Effective utilization of cab space

Cycero has a compact design with the dimension of 286 x 280 x 65 mm. It can be mounted at a convenient place in the cab.

Optimized maintenance

Cycero does not require any preventive or periodic maintenance.

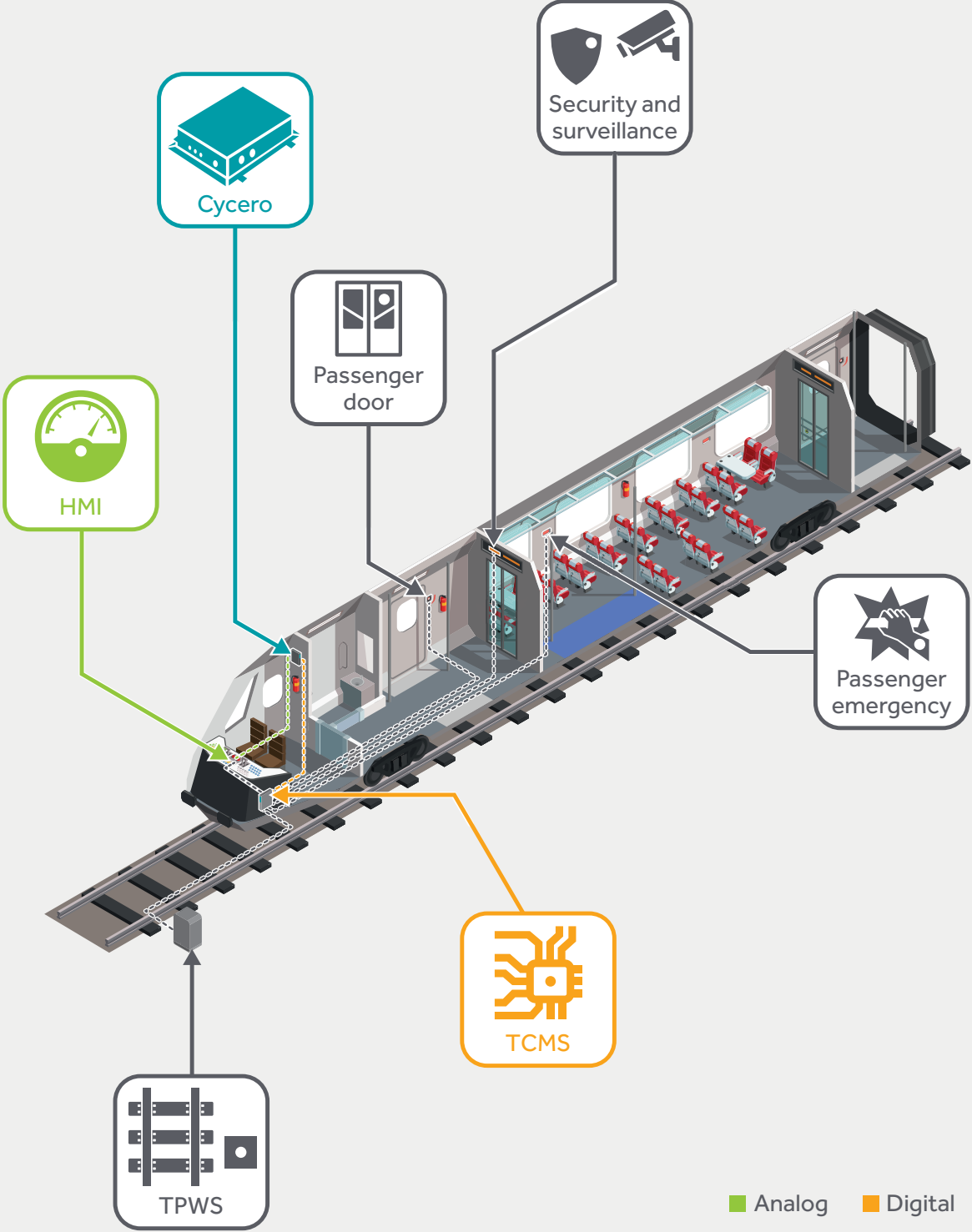
Technical Specifications

Features	Cycero
Power supply	24-110 V _{DC} ; tolerance +/- 20%
Power supply holdup time	30 msec (minimum)
Protection	Overcurrent, under voltage, reverse polarity and over-temperature
Operating temperature	-20 °C to 70 °C
Power supply isolation	3 kV (Input/Output)
Ingress protection	IP54
Sound pressure level (SPL)	95 dBm (max)
Ambient noise compensation	Yes
Number of logic inputs (prioritized)	16
Voltage range for logic inputs	24-110 V _{DC} ; tolerance +/- 20%
Audio inputs – single-ended and differential input range	0-5 V
Ethernet communication	Yes; 10/100 Mbps (Protocol as required by the client)
Firmware and tone upgrade	Yes, through USB
Health status indication to TCMS	Yes, logic output (24-110 V _{DC})
Primary audio output	8 Ohm, 25 W
Secondary audio output	4 Ohm, 2.5 W or 8 Ohm, 1.5 W

Compliance with Standards

Document No.	Document Title
EN 50155:2007	Railway applications – electronic equipment used on rolling stock
IEC 60068-2-1:2007	Cold test
IEC 60068-2-2:1974 A1:1993 et A2:1994	Dry heat test
IEC 60068-2-30:2005	Environmental testing (damp heat, cyclic (12h + 12h cycle))
EN 61373:1999	Shock and vibration
NF F 16-101, EN 45545	Fire and smoke
EN 50121-3-2:2006	Electromagnetic compatibility
EN 61000-4-2:1995, A1: 1998 and A2:2001	Immunity to electrostatic discharges
EN 55011:2017	Conducted emissions
EN 61000-4-3:2006 et IS1:2009	Immunity to radiated radio-frequency
EN 61000-4-4:2004	Immunity to electrical fast transients
EN 61000-4-5:2006	Immunity to voltage bursts
EN 50128:SSIL0	Railway applications – software for railway control and protection systems
EN 50126	Railway applications – specification and demonstration of Reliability, Availability, Maintainability and Safety (RAMS)
EN 50129	Railway applications – safety related electronic systems for signaling

Cycero Integrated Into a Vehicle Configuration



This illustration is an example of a possible configuration.

About Cyient

Cyient (Estd: 1991, NSE: CYIENT) provides engineering, manufacturing, geospatial, networks, and operations management services to global industry leaders. We leverage the power of digital technology and advanced analytics capabilities, along with domain knowledge and technical expertise, to solve complex business problems. As a Design, Build, and Maintain partner, we take solution ownership across the value chain to help our clients focus on their core, innovate, and stay ahead of the curve.

Relationships lie at the heart of how we work. With more than 15,000 employees in 22 countries, we partner with clients to operate as part of their extended team, in ways that best suit their organization's culture and requirements. Our industry focus spans aerospace and defense, medical, telecommunications, rail transportation, semiconductor, utilities, industrial, energy and natural resources.

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