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™ (**Cy**ient **C**ab **E**vent **R**esponse **O**utput) is a CE certified 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

Configurable

Visual indication

Configurable

Utilization of cab space

Automatic noise compensation

Optimized maintenance

Network connectivity

Wide operating voltage range

Prioritization enabled

Tamper proof

Health status indication

Multiple audio inputs (digital and analog)

Cycero Features

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.
Configurable	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.
Certified for Safety	Cycero is CE mark certified.

Technical Specifications

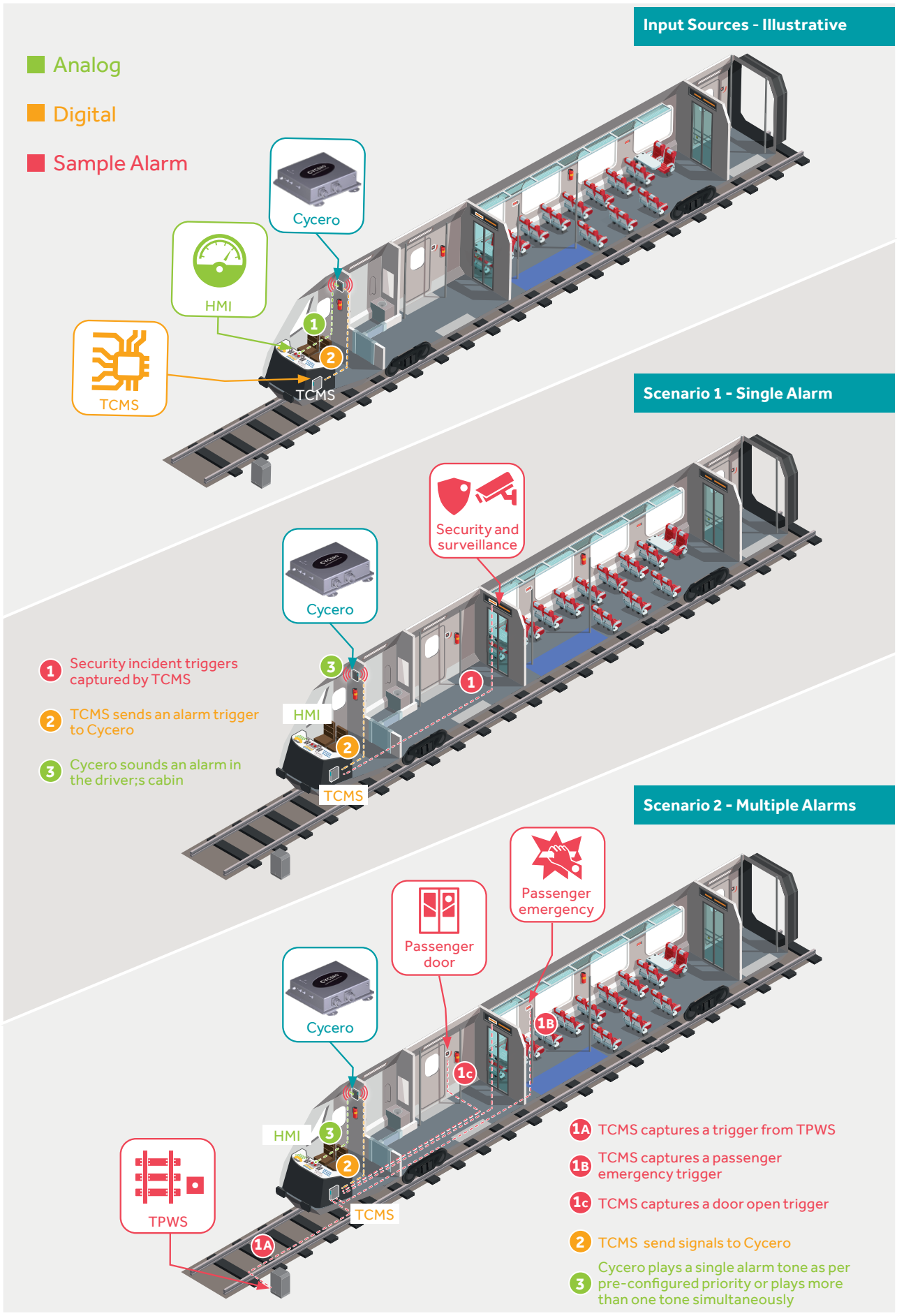
Features	Cycero
Power supply	24-110 V_{DC}; tolerance +/- 20%
Power supply holdup time	30 msec (minimum)
Protection	Overcurrent, under voltage, reverse polarity and over-temperature
Operating temperature	-20°C to 70°C
Power supply isolation	IP54
Ingress protection	95 dBm (max)
Sound pressure level (SPL)	Yes
Ambient noise compensation	16
Number of logic inputs (prioritized)	24-110 V_{DC}; tolerance +/- 20%
Voltage range for logic inputs	0-5 V
Audio inputs – single-ended and differential input range	Yes; 10/100 Mbps (Protocol as required by the client)
Ethernet communication	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, 15W

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

This illustration is an example of a possible configuration.

Cycero Integrated Into a Vehicle Configuration



About Cyient

Cyient (Estd: 1991, NSE: CYIENT) is a global engineering and technology solutions company. As a Design, Build, and Maintain partner, for leading organizations worldwide, we take solution ownership across the value chain to help clients focus on their core, innovate, and stay ahead of the curve. We leverage digital technologies, advanced analytics capabilities, and our domain knowledge and technical expertise, to solve complex business problems.

With over 15,000 employees in 20 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 includes aerospace and defense, healthcare, telecommunications, rail transportation, semiconductor, geospatial, industrial, and energy.

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