

T14-1 Transport hearing loop driver

Hearing Loops are the only assistive listening technology suitable for use on public passenger vehicles to communicate service broadcasts and emergency announcements to hearing aid users.

The T14-1 can cover a whole car or coach with a single amplifier making it the most cost effective solution available.

Compliant with all relevant rail industry standards including EN50155, EN50121-3-2 and EN45545, the T14-1 Transport hearing loop driver delivers unrivalled intelligibility whilst generating less heat than other drivers in its class.

Covered by Ampetronic's 5 year warranty and offering performance you can rely on, the T14-1 requires little to no maintenance minimising lifetime costs.

Networking features give the operator remote access to configure and control the system and can integrate reporting features with the TCMS.

With power supply options to suit most common rail and commercial vehicle power systems it is the obvious choice for any quality on-board audio system that requires an Audio Induction Loop.



T14-1UW - Wago



Ampetronic™ T14-1 Transport hearing loop drivers:

Rail

- T14-1LW: 24-36V DC power, Wago connectors
- T14-1LH: 24-36V DC power, Harting connectors
- T14-1UW: 72-110V DC power, Wago connectors
- T14-1UH: 72-110V DC power, Harting connectors

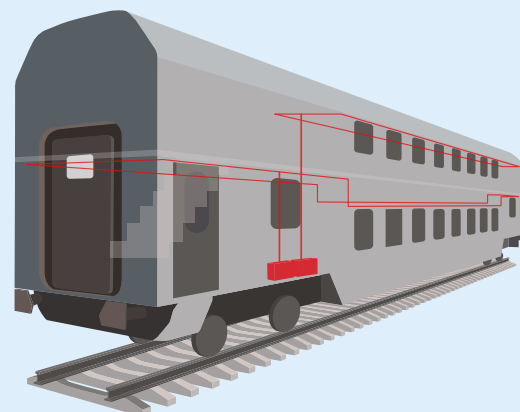
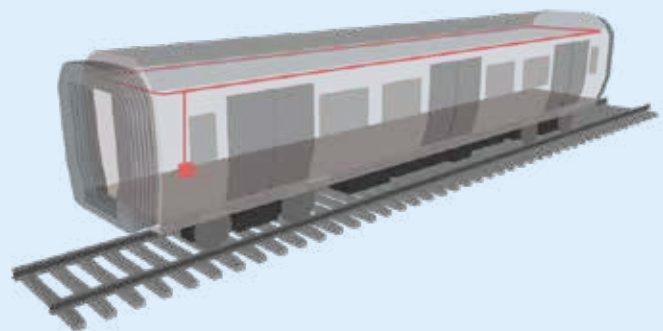
Features and benefits

- Generating less heat than other drivers in its class
- Remote technical support and network features to control and configure the system
- Enables reporting features to be integrated with the TCMS
- Metal Loss Correction
- Low lifetime cost
- Excellent reliability backed by a 5 year warranty
- Class D output stage driver for maximum efficiency, unsurpassed in its field
- Less weight than most alternatives in its class
- Dual analogue inputs
- Optional VOIP audio over ethernet
- Transformer isolated inputs
- Industrial Ethernet port
- USB firmware configuration and update port

Applications include

- Metro Systems
- National and Regional Railways
- Trams & Light Rail (LRVs)

Transport loop configurations



T14-1 Product Information

Power Options

T14-1LW, T14-1LH

Nominal voltage	24-36V DC
Voltage range	16.8 - 45V DC
Isolation	1500V DC
Recommended overcurrent protection	Type C DC MCB 16A
Inrush Current (max peak)	24V: 17.7 A, 36V: 18.9 A
Final fault protection	Non-replaceable fuse, T 25A
Power Consumption	Typical audio 24V: 59W (2.47A) / 36V: 61W (1.7A) Quiescent 24V: 10.3W (0.43A) / 36V: 12.6W (0.35A) Peak* 24V: 252W (10.5A) / 36V: 248W (6.9A)

T14-1UW, T14-1UH

Nominal voltage	72-110V DC
Voltage range	50.4 - 137.5V DC
Isolation	1500V DC
Recommended overcurrent protection	Type C DC MCB 72V: 5A, 110V: 4A
Inrush Current (max peak)	72V: 7.0 A, 110V: 9.3 A
Final fault protection	Non-replaceable fuse, T 10A
Power Consumption	Typical audio 72V: 57W (0.79A) / 110V: 61W (0.55A) Quiescent 72V: 10.8W (0.15A) / 110V: 15.4W (0.14A) Peak* 72V: 233W (3.23A) / 110V: 233W (2.12A)

* Short term peak at full 1kHz sine output

Standards Compliance

The T14-1 is compliant with EN 50155 and associated standards including EN 50121-3-2 (EMC) and EN 61373 (shock and vibration). In addition, the T14-1 is compliant with EN 45545-2 (Smoke and Fire behaviour) to HL3.

Ampetronic drivers have a CE mark for all relevant safety and EMC standards.

Loop Performance

The T14-1 will enable an Audio Frequency Induction Loop system that meets the requirements of IEC 60118-4 and relevant parts of IEC TR 63079. To fully meet the requirements of these Standards, correct design, installation, commissioning and maintenance are required.

Standards compliance to IEC 62489-1

All information specified on this datasheet has been compiled in accordance with the IEC 62489-1 Standard and reflects actual performance in realistic applications.

Accessories

See T14-1 product handbook for mounting, connector and other accessories.

Note: All values apply for firmware version 1.5.2 or later, and hardware revision 1 or later, for all variants of the T14-1 range.

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INPUTS

Power Supply	See Power Options (left)
Power Connectors	Harting Han Q 3D 5-way insert (2/3 pins used) or WAGO 769 series detachable 3-way block
Input 1 & 2	Pin selectable 3V/30V/100V balanced isolated line for each input
Sensitivity	3V -15dBu / 30V +3.85dBu / 100V +14.8dBu
Input Enables	Isolated control input per channel
Input & Control Connectors	Audio inputs, status and enables through Harting Han Q 3D 21-way or WAGO 769 series detachable blocks
Ethernet control I/O	HTML and Telnet control interface M12 circular Industrial Ethernet (TCP/IP), 10/100M
VOIP Input (option)	SIP/RTP network audio input through ethernet connection G.711 A-law & u-law LPCM

OUTPUTS

Priority Input	Option for input 2 to override other inputs with configurable attenuation level
Low Cut Filter	Switchable 250Hz low cut filter available on all inputs
Loop Output	14.0A _{RMS} (19.8Apk) at least 60 seconds continuous 1kHz
Drive Current	Sine wave, peak >21A Continuous pink noise >6.6A _{RMS}
Drive Voltage	>24V _{RMS} (33Vpk) available at maximum output current
Loop Connector	Harting Han Q 3D 5-way insert (2 pins used) or WAGO 769 series detachable 2-way block
Rated THD	<0.4% (with 1kHz Sine, rated output current & load, 6dB AGC)
Output Impedance	>39Ω
Rated Load	0.8 Ohm + 120μH
Status Output	Isolated relay contact and network options (inc. SNMP) Monitoring of loop resistance and operating status

AUDIO SYSTEM

Freq. Response	65Hz to 7kHz ±3.0dB / 100Hz to 6.5kHz ±0.5dB relative to 1kHz at low level.
Automatic Gain Control	The AGC is optimised for speech. Dynamic range >36dB
Metal Loss Correction	Dual slope configurable MLC up to 4dB per octave
Phase Shift	Output can be set to 0° or 90° to allow use in large area array designs

PHYSICAL

Dimensions	Width 258mm (body) / 295mm (with mounting flanges) Depth 221mm (247mm over Harting connections) Height 54.5mm
Weight	1.5kg ±0.2kg
Operating temperature	According to EN50155 to OT4 -40°C to +70°C (+85°C for 10 mins at startup)
Construction	Clear passivated Aluminium
Protection rating	WAGO IP40 Circular IP41 Harting IP42

COMPLIANCE

Railway Applications:

EN 50155	Rolling stock. Electronic equipment.
EN 45545 (HL3)	Fire protection on railway vehicles.
EN 50121-3-2	Electromagnetic compatibility. Rolling stock apparatus.
EN 50121-4	Electromagnetic compatibility. Emission and immunity of the signalling and telecommunications apparatus
EN 61373	Rolling stock equipment. Shock and vibration tests and relevant referenced standards

Safety & General Standards:

EN 62368-1	Audio/video, information and communication technology equipment - Part 1: Safety requirements
EN 55032 & EN 55035 2014/53/EU	Electromagnetic Compatibility of Multimedia Equipment RED (Radio Equipment Directive)
2011/65/EU	RoHS (Restriction of Hazardous Substances Directive)